PUBLIC REVIEW DRAFT

MARKETPLACE REDEVELOPMENT PROJECT ENVIRONMENTAL IMPACT REPORT

EMERYVILLE, CALIFORNIA

STATE CLEARINGHOUSE #2005122006

LSA

June 2007

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Submitted to:

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I. INTRODUCTION

A. PURPOSE OF THE EIR

In compliance with the California Environmental Quality Act (CEQA), this Draft Environmental Impact Report (EIR) describes the environmental consequences of the proposed Marketplace Redevelopment project. This EIR is designed to fully inform City decision-makers, responsible agencies, and the general public of the proposed project and the potential consequences of project approval. The EIR also examines various alternatives to the proposed project and recommends a set of mitigation measures to reduce or avoid potentially significant impacts.

The City of Emeryville is the lead agency for environmental review of the proposed project. This EIR will be used by City planning staff, the Planning Commission, City Council, and the public in their review of the proposed project. It may also be used by other agencies whose discretionary approval may also be required to allow the project to be constructed (see Table III-3 in Chapter III, Project Description).

B. PROPOSED PROJECT

The proposed project consists of a request for a rezoning from Mixed Use to Planned Unit Development, a Preliminary Development Plan (PDP), a Lot Line Adjustment, and an Owner Participation Agreement (OPA) amendment to redevelop an underutilized 15-acre mixed use site with five new buildings; two of which would be mid-rise, mixed residential/retail buildings, the other three would be single-story retail pad buildings. For more information of the proposed project, refer to Chapter III, Project Description.

The project site, consisting of five parcels totally 15 acres, is located in western Emeryville, and is generally bounded by 64th Street to the north, Powell Street to the South, the Amtrak/Union Pacific railroad tracks to the east, and Christie Avenue to the west. The proposed project is surrounded by a mixture of land uses similar to those on-site including, office, research and development, light industrial, general commercial/retail, service commercial, lodging, multi-family residential, surface and structured parking, public spaces, and transit facilities. Surrounding land uses are housed in a variety of building types ranging from one-story, low-rise structures to 30-story, high-rise towers. The majority of buildings in the area range from three to 10 stories in height. Land uses surrounding the project site are described in detail in Chapter V.A, Land Use.

C. EIR SCOPE

The City of Emeryville circulated a Notice of Preparation (NOP) that included a list of potential environmental effects that could result from the proposed project. The NOP was published on December 1, 2005, and was distributed to local, regional, and State agencies, and public scoping meeting was conducted on December 15, 2005.

Comments received by the City on the NOP and at the scoping meeting were taken into account during the preparation of the EIR. The NOP, written comments received on the NOP, and a summary of comments provided at the scoping meeting are included in Appendix A.

1. Topics Addressed in This EIR

This Draft EIR focuses on the areas of concern identified in the NOP and comments received on the NOP. The following environmental topics are addressed in this EIR:

A. Land Use
B. Population, Employment, and Housing
C. Transportation and Circulation
D. Air Quality
E. Noise and Vibration
F. Public Health and Safety/Hazardous Materials
G. Geology, Soils, and Seismicity
H. Hydrology and Storm Drainage
I. Cultural and Paleontological Resources
J. Aesthetic Resources
K. Public Services and Utilities
L. Wind
M. Shade and Shadow

2. Topics Not Addressed in EIR

Three topics were considered, but are not addressed in detail in this EIR because it was determined that the project would not cause significant impacts related to these topics, including: biological resources; mineral and energy resources; and agricultural resources.

a. Biological Resources. The 15-acre project site is currently developed with urban uses and is located in an urbanized area. The site has been developed with commercial, entertainment, and office uses since the mid-1980s, when it was redeveloped from an industrial, paint manufacturing site, which operated for approximately 100 years from 1880s through 1972. No significant biological resources are located on or near the project site. As a result, the project would not impact biological resources.

b. Minerals and Energy Resources. As described above, the existing project site is located in an urbanized area and is developed with urban land uses. The project site is not underlain by valuable mineral resources and, therefore, project implementation would not result in the loss of known or locally important mineral resources. Development of the project would not result in the wasteful, inefficient, and unnecessary consumption of energy. Project-related energy use would be required for the operation of commercial and residential uses to serve the local resident and business population wherever these activities occur within the market area. Such standard energy consumption would not be considered wasteful, and would not consume substantial amounts of finite natural resources. Through the City's administration of the requirements of the California Building Standards Code, the energy conservation requirements in Title 24, Part 6, California Code of Regulations, will be applied. The Planning and Building Department will review the design components of the project's energy

conservation measures when the project's building plans are submitted. As a result, impacts to minerals and energy resources would be less than significant, and, as such, are not further analyzed in this EIR.

c. Agricultural Resources. Because the project site has been developed with urban uses for decades, is located in an urbanized area, and no agricultural resources or operations are located on or near the project site, the project would not impact agricultural resources. As a result, agricultural resources are not further analyzed in this EIR.

D. REPORT ORGANIZATION

This EIR is organized into the following chapters:

- *Chapter I – Introduction*: Discusses the overall EIR purpose; provides an overview of the project; describes the scope of the EIR; and summarizes the organization of the EIR.
- *Chapter II – Summary*: Provides a discussion of potential areas of controversy and a summary of the impacts that would result from implementation of the proposed project, and describes mitigation measures recommended to reduce or avoid significant impacts. An overview of the project alternatives evaluated is also provided.
- *Chapter III – Project Description*: Provides a description of the project objectives, project site, site development history, required approval process, and the physical details of the project itself.
- *Chapter IV – Planning Policy*: Evaluates the project's consistency with applicable planning documents, such as the General Plan, and identifies potential conflicts.
- *Chapter V – Setting, Impacts and Mitigation Measures*: Describes the following for each environmental technical topic: existing conditions (setting); potential environmental impacts and their level of significance; and mitigation measures recommended to mitigate identified impacts. Potential adverse impacts are identified by levels of significance, as follows: less-than-significant impact (LTS), significant impact (S), and potentially significant and unavoidable impact (PSU). The significance of each impact is categorized before and after implementation of any recommended mitigation measures(s).
- *Chapter VI – Alternatives*: Provides an evaluation of three alternatives to the proposed project in addition to the No Project alternative.
- *Chapter VII – CEQA-Required Assessment Conclusions*: Provides the required analysis of growth-inducing impacts; significant and irreversible changes; effects found not to be significant; unavoidable significant effects; and the relationship between short-term and long-term uses of the environment.
- *Chapter VIII – Report Preparation*: Identifies preparers of the EIR, references used, and the persons and organizations contacted.
- *Appendices:* The appendices contain the NOP and comments on the NOP and the Initial Study, technical calculations, and other documentation prepared in conjunction with this EIR.

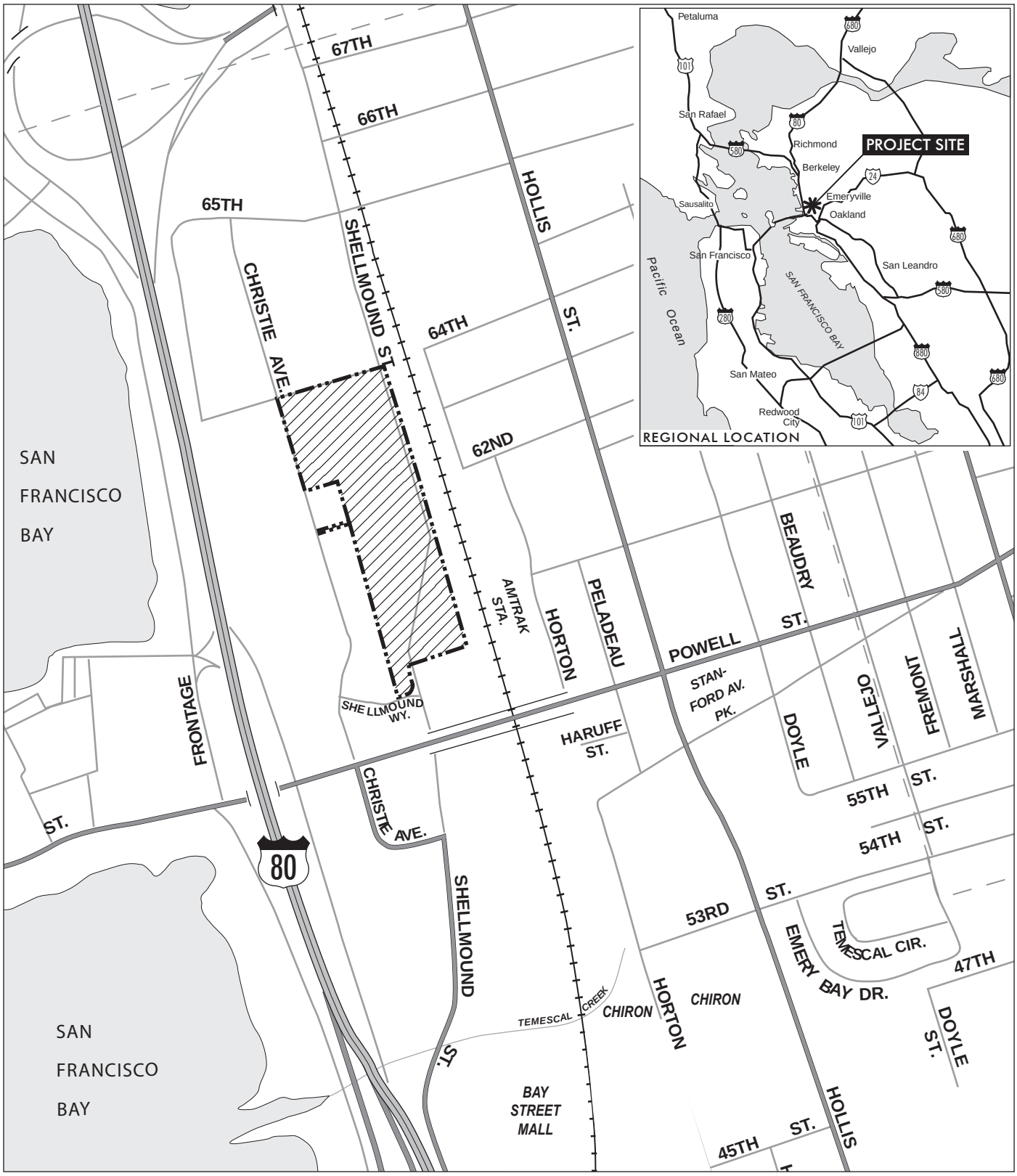

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FIGURE I-1

PROJECT SITE

0 400 800
FEET

SOURCE: LSA ASSOCIATES, INC., 2006.

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Marketplace Redevelopment Project EIR
Project Vicinity and
Regional Location

II. SUMMARY

A. PROJECT UNDER REVIEW

This EIR has been prepared to evaluate the environmental impacts of the proposed Marketplace Redevelopment Project (project) in Emeryville and the County of Alameda. A more detailed description of the proposed project is provided in Chapter III, Project Description.

B. SUMMARY OF IMPACTS AND MITIGATION MEASURES

This summary provides an overview of the analysis contained in Chapter V, Setting, Impacts and Mitigation Measures. CEQA requires a summary to include discussion of: 1) potential areas of controversy; 2) significant impacts; 3) recommended mitigation measures; and 4) alternatives to the project.

1. Areas of Concern

Issues raised during the Notice of Preparation (NOP) scoping period for the EIR include:

- *Land Use*—Consistency with established General Plan polices;
- *Transportation, Circulation and Parking*—Transit access and service, bus layover facilities, and increased traffic and roadway impacts;
- *Air Quality*—Increased pollution and associated health impacts;
- *Noise and Vibration*—Reverberation of railroad noise off proposed Shellmound building toward Terraces apartments (to the east), and increased noise in general;
- *Hazardous Materials and Public Health and Safety*—Coordination of clean-up of the toxic hazards underlying the site with the State Department of Toxic Control;
- *Hydrology and Water Quality*—Use of impermeable paving in project design;
- *Cultural and Paleontological Resources*—Concern about potential cultural resources located under the site;
- *Aesthetic Resources*—Concern that new buildings would block existing public and private views toward Bay, that new buildings be designed with compatible colors, textures, and design as existing buildings, and massing of new buildings needed to be less bulky to preserve views;
- Public Services and Utilities—Necessary water, wastewater, and recycled water use, supply, disposal, and infrastructure upgrades;
- *Wind*—Concern that proposed Shellmound building would result in a wind tunnel along railroad tracts; and
- *Shade and Shadow*—Concern that new mid-rise buildings would result in a loss of sunlight for residential uses around the project site.

As a result of comments received during the NOP scoping period, potential areas of controversy surrounding the project that are evaluated in Chapter V, Setting, Impacts, and Mitigation Measures, of this EIR include: land use; population, employment, and housing; transportation, circulation and

parking; air quality; noise and vibration; hazards/public health and safety; geology, soils, and seismicity; hydrology and water quality; cultural and paleontological resources; aesthetic resources; public services and utilities; wind; and shade and shadow.

2. Significant Impacts

Under CEQA, a significant impact on the environment is defined as, "...a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."

Development of the proposed project has the potential to generate environmental impacts in a number of areas. Impacts in the areas listed below, which are specifically addressed in Chapter V of this EIR, would be potentially significant for the project. Each of the impacts identified in these areas would be reduced to a less-than-significant level if the mitigation measures noted in this EIR are implemented: Transportation, Circulation and Parking; Air Quality; Noise and Vibration; Geology, Soils and Seismicity; Cultural and Paleontological Resources; Aesthetic Resources; Public Services and Utilities; and Wind.

3. Significant Unavoidable Impacts

As discussed in Chapters V and VII of this EIR, twelve potentially significant impacts could not be mitigated to less-than-significant levels with the implementation of the recommended mitigation measures (i.e., Impacts TRAF-1 through TRAF-7; TRAF-9 through TRAF-11; TRAF-14 and TRAF-16).

4. Alternatives to the Project

The following alternatives to the project are considered in this EIR:

- The **No Project alternative**, which assumes the continuation of existing conditions within the project site.
- The **Reduced Project** alternative, assumes the 15±-acre project site would be redeveloped similar to the proposed project, but with a reduced building footprint. No lot line adjustment would occur on the 64th & Christie site; a smaller mid-rise, mixed use building would be developed within the existing parcel boundaries. Only the northern half of the Shellmound site would be developed with a high-rise office tower building. A fourth retail pad would be added near the Woodfin Hotel. Minor site improvements and enhancements would occur.
- The **Tower alternative**, assumes the 15±-acre project site would be redeveloped with a with a more intensive development scenario than the proposed project, including two, mixed use (residential, retail, and parking) high-rise tower buildings. This alternative assumes development on the Shellmound site would occur in two phases, opposed to one as with the proposed project. Phase II of this alternative also assumes the UA Cinema would be demolished and replaced with a two-story retail anchor building. A fourth retail pad would be added near the Woodfin Hotel. Similar site improvements and enhancement would occur.

- The **Main Street alternative**, assumes the 15±-acre project site would be substantially redeveloped to: remove all surface level parking; realign Shellmound Street directly in front of the Marketplace Tower and Public Market buildings; add two new streets through the site with on-street parking (i.e., 63rd and 62nd Streets); and add eight new buildings, including two office towers, two, mid-rise mixed use buildings, and four retail buildings. With the realigning of Shellmound Street and addition of two other new streets through the site, site improvements and enhancements would be greater under this alternative.

The Reduced Project alternative is identified as the environmentally superior alternative. Each of the alternatives is discussed in detail in Chapter VI, Alternatives, of this EIR.

C. SUMMARY TABLE

Table II-1 identifies the impacts and mitigation measures for the project. The information in this table is organized to correspond with environmental issues discussed in Chapter V. Information in this table is provided in four columns: 1) impacts; 2) level of significance prior to mitigation measures; 3) mitigation measures; and 4) level of significance after mitigation. Potential adverse impacts are identified by levels of significance, as follows: less-than-significant impact (LTS), significant impact (S), and potentially significant and unavoidable impact (PSU). For a complete description of potential impacts and recommended mitigation measures, please refer to the specific discussions in Chapter V and Chapter VII.

Table II-1: Summary of Impacts and Mitigation Measures

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
A. Land Use			
There are no significant Land Use impacts.			
B. Population, Employment, and Housing			
There are no significant Population, Employment and Housing Impacts			
C. Transportation and Circulation			
TRAF-1: The I-80 EB Ramps/Powell Street intersection currently operates at LOS E during the PM peak hour and Saturday peak hour. Under the Existing Plus Project scenario, the intersection operation would degrade to LOS F during the PM peak hour and delay would increase by 10 seconds. On Saturday, the addition of project traffic would increase delay by 8 seconds. The addition of project traffic would also increase the 95th percentile queue lengths to four approaches that currently exceed or are projected to exceed the available storage capacity.	S	TRAF-1a: This development, in conjunction with other planned/approved developments in the area, would contribute to over capacity conditions at several intersections, including I-80EB Ramps/Powell Street intersection, in the near future. While it is beyond the ability of any one project to mitigate the impacts to the transportation network, measures that aim to (1) improve intersection operation with physical improvements; and (2) reduce dependence on automobile trips, and increase transit, walking and bicycling trips are recommended below. The following improvements to the I-80 EB Ramps/Powell Street intersection shall be implemented: 1) Reconstruct the off-ramp to provide dual left-turn and dual right-turn lanes. The additional lane should be about 900 feet. 2) Reconstruct the southeast corner of the Powell Street/I-80 Eastbound Ramps intersection improving the curb radii to 40 feet. 3) Widen the north side of Powell Street 12 to 14 feet between Christie Avenue and Eastbound I-80 Ramps to align westbound Powell Street through lanes across the intersection with Eastbound I-80 Ramps. This improvement will also allow the widening of the eastbound right-turn lane at the Powell Street/Christie Avenue intersection to 14 feet and construction of a pedestrian median refuge on the west side of the Powell Street/Christie Avenue intersection. This change requires right-of-way along the north side of Powell Street between Christie Avenue and the I-80 Eastbound On-Ramp. This recommendation should be implemented with Mitigation Measure TRAF-2 to provide corridor benefits.	PSU

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRAF-1 *Continued*		This impact also occurs in the 2010 and 2030 scenarios and can be attributed to existing traffic in the area, as well as traffic from approved, planned, and potential developments in and around Emeryville. Therefore the City shall update its Traffic Impact Fee Program to include this improvement, and the Project Applicant shall pay their fair share cost of the improvements. Each of the changes to the I-80 EB ramps requires right-of-way acquisition and an encroachment permit from Caltrans to implement. Thus, the impact would remain significant and unavoidable until sufficient right-of-way can be acquired and Caltrans approves an encroachment permit.	
		TRAF-1b: Implementation of the following mitigation measure will help minimize the project's impacts on intersection operation; however as it is difficult to quantify the effects of TDM measures implementation of this measure alone would not reduce this impact to a less-than-significant level. The project applicant shall prepare and implement a comprehensive TDM program that includes the following elements to encourage and enhance alternate modes of travel: • Transit amenities, including bus pull-outs, transit information and ticket kiosks, and discounted transit passes for employees and residents. • Carpool/vanpool support, including preferential parking spaces and ride-matching programs. • Carshare support, including free parking spaces, on-site information and advertising, and discounted rates/long-term contracts. • Bicycle amenities, including bicycle parking racks, pilot bicycle rental program, new bicycle paths, and shower/locker facilities.	

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRAF-1 *Continued*		In addition, the TDM plan should discourage automobile use by incorporating the following elements: • Residential parking spaces should be unbundled from the units. • All non-residential parking should be paid parking. • Monthly parking permits should not be provided for employees. Provision of car sharing facilities on-site could help reduce auto ownership amongst future residents/tenants of the building and encourage alternative modes for trips generated by the site. The TDM program shall be submitted to City staff for review and acceptance prior to approval of any Final Development Plans.	
TRAF-2: The Powell Street/Christie Avenue intersection would operate at an acceptable service level under the Existing Plus Project scenario. However, vehicle queue spillback affects overall intersection and system operations. The addition of project traffic would exacerbate existing queuing problems, contributing poor operations on three intersection approaches (See Table V.C-11).	S	TRAF-2a: Implementation of the mitigation measures by the City detailed below would reduce this impact to a less-than-significant level. However, each of the changes requires right-of-way acquisition to implement. Thus, the impact could remain significant and unavoidable until sufficient right-of-way can be acquired. The following improvements made to the intersection of Powell/Christie Avenue shall be implemented: 1) Reconstruct the westbound approach to provide a second left turn lane. The resulting two left turn lanes should be 250 feet in length. The south side of the Powell Street bridge would need to be widened by about 12 feet to accommodate the second left turn lane. 2) Reconstruct the southbound approach to provide a southbound left-turn lane (in addition to the shared left-through lane). The lane would extend from Powell Street back to Shellmound Way. This change would require widening the west side of Christie Avenue by about 12 feet. This change requires right-of-way along the west side of Christie Avenue.	PSU

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRAF-2 *Continued*		3) Reconstruct the south side of Powell Street, west of the intersection, to provide two dedicated eastbound right turn lanes. The lanes would extend from the Christie Avenue intersection back to the I-80 Eastbound Off-Ramp intersection. This lane requires additional right-of-way of about 12 feet on the south side of Powell Street between Christie Avenue and the I-80 Eastbound Off-Ramp. 4) Re-time the Powell/Christie Loop signalized intersections to coordinate the critical movements through the intersection. These recommendations should be implemented with Mitigation Measure TRAF-1a to provide corridor benefits. This impact also occurs in the 2010 and 2030 scenarios and can be attributed to existing traffic in the area, as well as traffic from approved, planned, and potential developments in and around Emeryville. Therefore, improvement the City shall update its Traffic Impact Fee Program to include this recommendation, and that the Project Applicant shall pay their fair share cost of the improvements. TRAF-2b: Mitigation Measure 1b, which required a TDM Plan, shall also be implemented to further minimize the project's impacts on intersection operations.	
TRAF-3: The I-80 EB Ramps/Powell Street intersection is projected to operate at LOS F during the PM peak hour and Saturday peak hour in 2010. The addition of project traffic would increase delay by more than 4 seconds during both the PM and Saturday peak hours. The addition of project traffic would also increase the 95th percentile queue lengths for several approaches that currently exceed or are projected to exceed the available storage capacity.	S	TRAF-3: Implement Mitigation Measure TRAF-1a and 1b.	PSU
TRAF-4: The Shellmound Way/Christie Avenue intersection is projected to operate at an acceptable service level both without and with the project in 2010. However, the addition of project traffic would result in the westbound left-turn movements, exceeding the available storage length and spilling back to Shellmound Street.	S	TRAF-4: Implement Mitigation Measure TRAF-2a and 1b.	PSU
TRAF-5: The proposed project would increase vehicle queues at the Shellmound Way/ Shellmound Street intersection on the eastbound approach during the Saturday peak hour, resulting in vehicle queues that exceed capacity.	S	TRAF-5: Implement Mitigation Measure TRAF-2a and 1b.	PSU

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRAF-6: The Shellmound Way/Shellmound Street intersection is projected to operate at an acceptable service level both without and with the project in 2010. However, the addition of project traffic would result in the 95th percentile eastbound vehicle queues exceeding the available storage, resulting in vehicle queue spillback to Christie Avenue.	S	TRAF-6: Implement Mitigation Measure TRAF-2 and 1b.	PSU
TRAF-7: The Powell Street/Christie Avenue intersection would operate at an acceptable service level in 2010, both without and with the project. However, vehicle queue spillback would affect overall intersection and system operations. The addition of project traffic would exacerbate existing queuing problems, contributing to poor operations for the southbound through movement, the westbound right-turn movement and the eastbound right-turn movement.	S	TRAF-7: Implement Mitigation Measures TRAF-2a and 1b.	PSU
TRAF-8: The Shellmound Street/65th Street and the Overland Street/65th Street would operate as one intersection in 2030 and is projected to operate at a service level F with an overall average delay of 96 seconds during the PM peak hour. The addition of project trips during the weekday PM peak hour would increase overall intersection delay to 102 seconds, a six second increase Additionally the intersection would experience deficient operations when a train crosses over 65th Street.	S	TRAF-8: Implement Mitigation Measure TRAF-1a and modify signal operations to provide protected/permitted left-turns on the southbound Shellmound Street approach. Implementation of this improvement by the City would improve the overall intersection operations to LOS E in the PM peak hour in 2030, reducing the impact to a less-than-significant level. This impact can be attributed to existing traffic in the area, as well as traffic from approved, planned, and potential developments in and around Emeryville. Therefore, it is recommended that the City update the Traffic Impact Fee Program to include this recommendation, and that the project applicant contribute their fair share to these improvements through the payment of fees.	LTS
TRAF-9: The Ashby Avenue/San Pablo Avenue intersection is projected to operate at LOS F with an overall average delay of 128 seconds during the PM peak hour in 2030. The addition of project trips during the weekday PM peak hour would increase overall intersection delay to 135 seconds, a seven second increase.	S	TRAF-9: To reduce this impact to a less than significant level, the intersection would have to modified, when traffic conditions warrant, to provide dual northbound left-turn lanes similar to the northbound left-turn lane design on San Pablo Avenue at 40th Street. Construction of this improvement would require elimination of on-street parking along San Pablo Avenue approaching the intersection. Relocation of the bus stop for buses operating along San Pablo Avenue would also be required.	PSU

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRAF-9 *Continued*		The applicant shall pay a fee based on its fair share of the project's anticipated growth in traffic to the intersection toward the cost to implement this improvement. The payment shall be made to the City of Emeryville, for the benefit of the City of Berkeley, prior to issuance of the temporary certificate of occupancy for the last building. However, this intersection is located in the City of Berkeley and is also under the jurisdiction of Caltrans, since both Ashby Avenue and San Pablo Avenue are state highways at this intersection. Therefore, the final selection of the appropriate intersection design, as well as implementation of the modifications, are not within the jurisdiction of the City of Emeryville. Therefore, this impact would be significant and unavoidable.	
TRAF-10: The I-80 EB Ramps/Powell Street intersection is projected to operate at LOS F during the PM peak hour and Saturday peak hour in 2030. The addition of project traffic would increase delay by more than 4 seconds during both the PM and Saturday peak hours. The addition of project traffic would also increase the 95th percentile queue lengths for several approaches that currently exceed or are projected to exceed the available storage capacity.	S	TRAF-10: Implement Mitigation Measure TRAF-1a and 1b.	PSU
TRAF-11: The Powell Street/Hollis Street intersection is projected to operate at LOS F with an overall average delay of 114 seconds during the PM peak hour in 2030. The addition of project trips during the weekday PM peak hour would increase overall intersection delay to 120 seconds, a 6 second increase.	S	TRAF-11: Implement Mitigation Measure 1b and protected-permitted signal phasing for the north/south left turn movements. This will require a 5- to 6-foot lane shift for northbound Hollis Street traffic approaching Powell Street and reconstruction of the southwest corner of the intersection to accommodate tractor-trailer trucks making a right-turn from Powell Street to Hollis Street. The lane shift will require right-of-way along the west side of Hollis Street. Implementation of this measure by the City would reduce the project impact to a less-than-significant level. This impact can be attributed to traffic from approved, planned, and potential developments in and around Emeryville. Therefore, it is recommended that the City update the Traffic Impact Fee Program to include the recommendation, and that the Project Applicant contribute their fair share to these improvements through the payment of fees. Additionally, it should be noted that right-of-way for this improvement is reliant on the redevelopment of the adjacent parcels should the needed right-of-way not be acquired the impact would remain significant and unavoidable.	PSU

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRAF-12: The Shellmound Way/Christie Avenue intersection is projected to operate at an acceptable service level both without and with the project in 2030. However, the addition of project traffic would result in the westbound left-turn movements exceeding the available storage length and spilling back to Shellmound Street during the Saturday peak hour.	S	TRAF-12: Implement Mitigation Measure TRAF-1b and 2.	LTS
TRAF-13: The Powell Street/Christie Avenue intersection would operate at an acceptable service level in 2030, both without and with the project. However, the addition of project traffic would exacerbate existing queuing problems, contributing to poor operations on some intersection approaches.	S	TRAF-13: Implement Mitigation Measures TRAF-1b and 2.	LTS
TRAF-14: The addition of project traffic would result in deficient LOS F operations at the Shellmound Street/Marketplace Driveway/Shellmound Garage driveway intersection as well as at the Woodfin Hotel driveway with buildout of the project parcels on the west side of Shellmound Street.	S	TRAF-14: In conjunction with construction on the Shellmound site, a traffic signal shall be installed at the Shellmound Street/Marketplace Driveway/Shellmound Garage driveway intersection. The driveways shall be modified to provide sufficient vehicle storage to minimize vehicle queue spill back from impeding on-site circulation. Implementation of this measure by the applicant would result in acceptable service levels during the peak hours. However, the 95th percentile queue for the northbound movements would periodically spillback through the pedestrian crossing and from the pedestrian crossing through the Woodfin Driveway, and Shellmound Way. Minimizing the effect of queue spillback could be achieved through monitoring of the signal timings. It should be noted that the Shellmound Street corridor from Shellmound Way through the Marketplace Driveway would operate better in the mitigated scenario than the unmitigated scenario even though vehicle queues would periodically spill back through the corridor, resulting in a significant and unavoidable queuing impacts on the Shellmound Street corridor.	PSU
TRAF-15: The addition of project traffic would worsen side street operations at the Shellmound Street/Woodfin Hotel/Marketplace Driveway intersection to LOS F with buildout of the project.	S	TRAF-15: The driveway serving the Woodfin Hotel cannot accommodate significant additional traffic flows. The parking area serving the new land uses on the Shellmound site shall be designed to orient the majority of outbound traffic, about 80 percent, away from the shared driveway. Alternatively, this driveway could be restricted to right-in/right out operation. The Final Development Plan submittals shall be reviewed by the City Engineer prior to approval to ensure this is accomplished.	LTS

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRAF-16: Vehicle queues at the pedestrian crossing are expected to increase as pedestrian activity increases around the project site. This queuing would contribute to deficient operations at the Shellmound Street/Woodfin Hotel/Marketplace Driveway and the Shellmound Street/Marketplace Drive-way/Shellmound Garage driveway.	S	TRAF-16*:* Install a pedestrian signal at the pedestrian crossing on Shellmound Street. Through design treatments, such as sidewalk railings and landscaping, consolidate pedestrian activity from the Shellmound Street/Woodfin Hotel/Marketplace Driveway and the Shellmound Street/Marketplace Driveway/Shellmound Garage driveway to the pedestrian crossing. The pedestrian signal shall be interconnected and coordinated with the signal at the Shellmound Street/Shellmound Way intersection and the Shellmound Street/ Marketplace Driveway/ Shellmound Garage intersection. Each of these improvements to be implemented by the applicant shall be detailed in the Final Development Plans and approved prior to issuance of building permit. It should be noted that the Shellmound Street corridor from Shellmound Way through the Marketplace Driveway would operate better in the mitigated scenario than the unmitigated scenario even though vehicle queues would periodically spill back through the corridor, re-sulting in a significant and unavoidable queuing impact on the Shellmound Street corridor. However, the installation of a pedestrian signal would improve pedestrian safety across Shellmound Street as traffic volumes increase through the corridor, reducing the pedestrian impact to a less-than-significant level.	PSU
TRAF-17: With signalization of the Shellmound Street/Shellmound Site Garage Driveway/Marketplace Driveway intersection, the design of the garage entry would not provide sufficient vehicle storage. Additionally, as vehicles queue internally, access to parking areas could be blocked, creating the potential for vehicle queues onto Shellmound Street.	S	TRAF-17: Redesign the Shellmound building garage entrance area to minimize vehicle conflicts and provide sufficient vehicle storage at the access intersection. This improvement shall be detailed on the Final Development Plans and approved prior to issuance of building permit.	LTS
D. Air Quality			
AIR-1: Demolition and construction period activities could generate significant dust, exhaust, and organic emissions.	S	AIR-1: Consistent with guidance from the BAAQMD, the following actions shall be required of construction contracts and specifications for the project. *Demolition.* The following controls shall be implemented during demolition:	LTS

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
AIR-1 *Continued*		• Water during demolition of structures and break-up of pavement to control dust generation; • Cover all trucks hauling demolition debris from the site; and • Use dust-proof chutes to load debris into trucks whenever feasible. *Construction.* The following controls shall be implemented at all construction sites: • Water all active construction areas at least twice daily and more often during windy periods; active areas adjacent to existing land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers to control dust; • Cover all trucks hauling soil, sand, and other loose materials; • Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites; • Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites; water sweepers shall vacuum up excess water to avoid runoff-related impacts to water quality; • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets; • Apply non-toxic soil stabilizers to inactive construction areas; • Enclose, cover, water twice daily, or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.); • Limit traffic speeds on unpaved roads to 15 mph; • Install sandbags or other erosion control measures to prevent silt runoff to public roadways; • Replant vegetation in disturbed areas as quickly as possible; Install baserock at entryways for all exiting trucks, and wash off the tires or tracks of all trucks and equipment in designated areas before leaving the site; and • Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph. Implementation of this mitigation measure would reduce construction period air quality impacts to a less-than-significant level.	

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
E. Noise and Vibration			
NOISE-1: Local traffic will generate long-term exterior noise exceeding Normally Acceptable levels on the project site and could expose site users to unacceptable noise levels.	S	NOISE-1: Mechanical ventilation, such as air conditioning systems or passive ventilation, shall be included in the design for all units in the Shellmound building and units of the mixed use 64th & Christie building that face 64th Street or Christie Avenue to ensure that widows can remain closed for prolonged periods of time to meet the interior noise standard and Uniform Building Code Requirements.	LTS
NOISE-2: Train activity from tracks adjacent to the proposed Shellmound building site would generate long-term exterior noise exceeding Normally Acceptable levels on the project site.	S	NOISE-2a: Mitigation Measure Noise-1 shall be implemented. NOISE-2b: Windows with a minimum rating of STC-32 shall be installed for all units within the Shellmound building directly exposed to the railroad tracks at all heights.	LTS
NOISE-3: The proposed project could expose future residents of the Shellmound building to excessive ground-borne vibration levels.	S	NOISE-3: An acoustical engineer shall prepare a detailed ground-borne noise assessment for the proposed project. The assessment shall include an analysis of the vibration isolation provided in the proposed construction design and provide future calculations for the vibration levels on each of the floors to be used for residential dwellings. The assessment shall include recommendations if necessary to reduce vibration levels to 72 VdB or less. Any vibration isolation and reduction design features provided by the acoustical engineer shall be incorporated in the final engineering plans for the project. The assessment shall be submitted and accepted by the City prior to the issuance of building permits for the Shellmound building.	LTS
NOISE-4: On-site construction activities would potentially result in short-term noise impacts on adjacent residential uses.	S	NOISE-4: The project construction contractors shall comply with the following noise reduction measures: • All heavy construction equipment used on the project site shall be maintained in good operating condition, with all internal combustion, engine-driven equipment equipped with intake and exhaust mufflers that are in good condition. • All stationary noise-generating equipment shall be located as far away as possible from neighboring property lines, especially residential uses.	LTS

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
NOISE-4 *Continued*		• Prohibit and post signs prohibiting unnecessary idling of internal combustion engines. • Designate a "noise disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaints (e.g., beginning work too early, bad muffler) and institute reasonable measures warranted to correct the problem. A telephone number for the disturbance coordinator would be conspicuously posted at the construction site. • Utilize "quiet" models of air compressors and other stationary noise sources where such technology exists.	
NOISE-5: Based on the upper range of predicted construction vibration levels, pile driving on the project site has the potential to generate ground-borne vibration levels in excess of 0.2 inches per second at structures adjacent to and within the site.	S	NOISE-5: Based on the construction vibration damage criteria for specific building categories established by the FTA as shown in Table IV.E-13, the project applicant shall prepare a vibration impact assessment to determine potential vibration impacts to structures located within 75 feet of new construction based on the types of construction activities proposed on the project site. Recommendations shall be made for impacts that exceed the vibration damage criteria for adjacent building types (as indicated in Table IV.E-13) to ensure construction activities would not damage adjacent buildings. All recommendations in the impact assessment shall be incorporated into construction plans for the project.	LTS
F. Hazardous Materials/Public Health and Safety			
HAZ-1: Exposure of construction workers and the public to existing contamination in soil, soil gas, and/or groundwater could result in adverse health effects.	S	HAZ-1a: Prior to any excavation or subsurface work in the areas subject to the two Covenants to Restrict Use of Property for the Emeryville Marketplace and the Bay Street Extension, the property owner/developer shall submit to DTSC a site health and safety plan in accordance with the requirements of the covenants. The owner shall address all DTSC requirements in the preparation of the plan. In addition to these requirements, the health and safety plan shall include health and safety procedures for workers to follow during potential contact with dewatered groundwater and exposure to methane gas. The health and safety plan shall be prepared by a qualified environmental professional and approved by DTSC prior to implementation. For areas not within the covenant areas (i.e., Retail Pad 1 and 2, 64th & Christie building), a health and safety plan shall also be prepared, as described above with regulatory agency oversight and implemented during excavation or subsurface work at these locations.	LTS

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HAZ-1 *Continued*		HAZ-1b: A soil management plan shall be developed by the property owner/developer and approved by the City Engineer and DTSC for the proposed project (including the proposed location of the 64th & Christie building). The plan shall be submitted prior to issuance of demolition, grading, or building permits by the City. The plan shall include provisions for management of potentially contaminated excavated soil and dewatered groundwater, requirements for clean imported fill material, inspection of areas for gross contamination prior to backfilling by a qualified environmental professional, and requirements for immediate reporting to DTSC and the City Engineer in the event that previously unidentified contamination is encountered during construction/redevelopment activities. The soil management plan shall also include a contingency plan for sampling and analysis of previously unknown hazardous substances contamination in coordination with, and with oversight from, DTSC (See also Mitigation Measure HYD-2 from the Hydrology and Storm Drainage section). For areas not within the covenant areas (i.e., Retail Pads 1 and 2, and 64th & Christie building), a soil management plan shall also be prepared, as described above, with approval by the City Engineer.	
		HAZ-1c: The property owner/developer shall satisfy all requirements of the Alameda County Department of Environmental Health to obtain closure for the former leaking underground storage tank located at 6340 Christie Avenue. The requirements shall be satisfied prior to issuance of demolition, grading or building permits by the City for this property. If a deed restriction is required as a condition of closure, the restriction shall be recorded in Alameda County and all conditions of the deed restriction shall be met during and following construction by the property owner/developer.	

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HAZ-1 *Continued*		HAZ-1d: The property owner/developer shall ensure that appropriate design elements are incorporated into the building design for proposed on-site structures to address the potential for methane gas venting (e.g., installation of a vapor barrier, passive soil venting system or active soil venting systems). The design shall comply with California Title 27 Section 20919 et seq, including the requirement that the concentration of methane in facility structures not exceed 25 percent of the lower explosive limit[1] for methane in facility structures (excluding gas control or recovery system components). The design shall be submitted to the City Engineer, Emeryville Fire Department, and DTSC for review. The Emeryville Fire Department, the local enforcement agency for methane, shall provide final approval of the methane mitigation design prior to issuance of building permits and shall inspect the system(s) implemented annually or as otherwise required. HAZ-1e: All cracks/cap damage in the existing capped areas of the Emeryville Marketplace site shall be sealed at the time of site redevelopment activities by the contractor(s) in accordance with DTSC's recommendations in the five-year review. All existing and areas proposed for capping under the proposed project shall also be maintained by the site owner/developer to prevent exposures to contaminants in soil and groundwater.	
HAZ-2: Demolition of structures containing lead-based paint, asbestos-containing building materials, or other hazardous materials could release airborne particles of hazardous materials, which may affect construction workers and the general public.	S	HAZ-2a: As a condition of approval for a demolition permit for the buildings located at 6340 and 6390 Christie Avenue, a lead-based paint and asbestos survey shall be performed by a qualified environmental professional. Based on the findings of the survey, all loose and peeling lead-based paint and identified asbestos hazards shall be abated by a certified contractor in accordance with local, state, and federal requirements, including the requirements of the Bay Area Air Quality Management District (Regulation 11, Rule 2). The findings of the survey shall be documented by the qualified environmental professional and submitted to the City.	LTS

[1] The Lower Explosive Limit (LEL) is the lowest percent by volume of explosive gases in air that will propagate a flame at 25 degrees Celsius and atmospheric pressure.

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HAZ-2 *Continued*		HAZ-2b: Other hazardous materials and wastes generated during demolition activities, such as fluorescent light tubes and mercury switches, shall be managed and disposed of by the demolition contractor(s) in accordance with applicable universal and hazardous waste regulations. Federal, State and local worker health and safety regulations shall apply to demolition activities, and required worker health and safety procedures shall be incorporated into the contractor's specifications for the project.	
HAZ-3: Use and potential accidental spills of hazardous materials during the construction of the proposed project could result in soil and/or groundwater contamination and adverse health effects to construction workers, the public, and the environment.	S	HAZ-3a: The Storm Water Pollution Prevention Plan (SWPPP) required for the project (See Mitigation Measure HYD-1 in the Hydrology and Storm Drainage Section) shall include emergency procedures for incidental hazardous materials releases. HAZ-3b: Best Management Practices for the project include requirements for hazardous materials storage during construction to minimize the potential for releases to occur (See Mitigation Measure HYD-1 in the Hydrology and Storm Drainage Section). All use, storage, transport, and disposal of hazardous materials during construction activities shall be performed in accordance with existing local, state, and federal hazardous materials regulations. HAZ-3c: The Health and Safety plan required under Mitigation Measure HAZ-1b requires the inclusion of an emergency response plan for safe and effective responses to emergencies, including the necessary personal protective equipment and other equipment, and spill containment procedures.	LTS
HAZ-4: The proposed project is identified on a hazardous materials release site database compiled pursuant to Government Code Section 65962.5 and could result in a safety hazard for people residing or working in the area.	S	HAZ-4: See Mitigation Measures HAZ-1a through HAZ-1f, above, for mitigation.	LTS

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
G. Geology, Soils and Seismicity			
GEO-1: Seismically-induced ground shaking at the project site could result in damage to life and/or property.	S	GEO-1: Prior to the issuance of any site-specific grading or building permits, a design-level geotechnical investigation shall be prepared and submitted to the City of Emeryville Planning and Building Department for review and confirmation that the proposed development fully complies with the California Building Code (Seismic Zone 4). The report shall determine the project site's geotechnical conditions and address potential seismic hazards such as liquefaction. The report shall identify building techniques appropriate to minimize seismic damage. In addition, the geotechnical investigation shall conform to the California Division of Mines and Geology (CDMG) recommendations presented in the *Guidelines for Evaluating Seismic Hazards in California*, CDMG Special Publication 117. All mitigation measures, design criteria, and specifications set forth in the geotechnical and soils report shall be followed. It is acknowledged that seismic hazards cannot be completely eliminated even with site-specific geotechnical investigation and advanced building practices (as provided in the mitigation measure above). However, exposure to seismic hazards is a generally accepted part of living in the San Francisco Bay Area and therefore the mitigation measure described above would reduce the potential hazards associated with seismic activity to a less-than-significant level	LTS
GEO-2: Structures or property at the project site could be adversely affected by expansive soils or by settlement of project soils.	S	GEO-2: In locations underlain by expansive soils and/or non-engineered fill, the designers of building foundations and other improvements (including sidewalks, roads, and underground utilities) shall consider these conditions. The design-level geotechnical investigation, to be prepared by licensed professionals and approved by the Emeryville Planning and Building Department, shall include measures to ensure potential damages related to expansive soils and non-uniformly compacted fill are minimized. Mitigation options may range from removal of the problematic soils and replacement, as needed, with properly conditioned and compacted fill to design and construction of improvements to withstand the forces exerted during the expected shrink-swell cycles and settlements. All mitigation measures, design criteria, and specifications set forth in the geotechnical investigation shall be followed to reduce impacts associated with shrink-swell soils and settlement to a less-than-significant level.	LTS

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
GEO-3: Differential settlement at the project site could result in damage to project buildings and other improvements.	S	GEO-3: Prior to issuance of a grading permit, a site-specific grading plan shall be prepared by a licensed professional and submitted to the Emeryville Planning and Building Department for review and approval. The plan shall include specific recommendations for mitigating potential differential settlement associated with Bay Mud, fill placement and areas of different fill thickness.	LTS
GEO-4: Liquefaction at the project site could result in damage to buildings and other improvements.	S	GEO-4: The Emeryville Planning and Building Department shall approve all final design and engineering plans. Project design and construction shall be in conformance with current best standards for earthquake resistant construction in accordance with the California Building Code (Seismic Zone 4), applicable local codes and in accordance with the generally accepted standard of geotechnical practice for seismic design in Northern California. The design-level geotechnical investigation shall include measures to minimize that potential damage related to liquefaction.	LTS
H. Hydrology and Storm Drainage			
HYD-1: Construction activities could result in degradation of water quality in the Bay by reducing the quality of storm water runoff.	S	HYD-1: The project contractor shall comply with the City of Emeryville Municipal Code relating to grading projects and erosion control (Section 6-13.204): *Any person engaged in activities which will or may result in pollutants entering the City storm sewer system shall undertake all practicable measures to reduce such pollutants.* *Best Management Practices for New Developments and Redevelopments. Any construction contractor performing work in the City shall endeavor, whenever possible, to provide filter materials at the catchbasin to retain any debris and dirt flowing into the City's storm sewer system. The Director of Public Works may establish controls on the volume and rate of storm water runoff from new developments and redevelopments as may be appropriate to minimize the discharge and transport of pollutants.*	LTS

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HYD-1 *Continued*		In addition, the project proponent shall prepare a SWPPP designed to reduce potential impacts to surface water quality through the construction period of the project. The SWPPP must be maintained on-site and made available to City inspectors and/or RWQCB staff upon request. The SWPPP shall include specific and detailed BMPs designed to mitigate construction-related pollutants. At a minimum, BMPs shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain. An important component of the storm water quality protection effort is the knowledge of the site supervisors and workers. To educate on-site personnel and maintain awareness of the importance of storm water quality protection, site supervisors shall conduct regular tailgate meetings to discuss pollution prevention. The frequency of the meetings and required personnel attendance list shall be specified in the SWPPP. The SWPPP shall specify a monitoring program, which must include both dry and wet weather inspections, to be implemented by the construction site supervisor. In addition, in accordance with State Water Resources Control Board Resolution No. 2001-046,[2] monitoring would be required during the construction period for pollutants that may be present in the runoff that are "not visually detectable in runoff."[3] RWQCB and/or City personnel, who may make unannounced site inspections, are empowered to levy considerable fines if it is determined that the SWPPP has not been properly prepared and implemented.	

[2] State Water Resources Control Board, 2001. Modification of Water Quality Order 99-08-DWQ State Water Resources Control Board (SWRCB) National Pollutant Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity.

[3] Construction materials and compounds that are not stored in water-tight containers under a water-tight roof or inside a building are examples of materials for which the discharger may have to implement sampling and analysis procedures.

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HYD-1 *Continued*		BMPs designed to reduce erosion of exposed soil may include, but are not limited to: soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins. The potential for erosion is generally increased if grading is performed during the rainy season as disturbed soil can be exposed to rainfall and storm runoff. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment wash-down facilities shall be designed to be accessible and functional during both dry and wet conditions.	
HYD-2: Dewatering effluent may contain contaminants and if not properly managed could cause impacts to construction workers and the environment.	S	HYD-2: The construction-period SWPPP shall include provisions for the proper management of construction-period dewatering effluent. At minimum, all dewatering effluent shall be contained prior to discharge to allow the sediment to settle out, and filtered, if necessary, to ensure that only clear water is discharged to the storm or sanitary sewer system, as appropriate. In areas of suspected groundwater contamination (i.e., underlain by fill or near sites where chemical releases are known or suspected to have occurred), groundwater shall be analyzed by a State-certified laboratory for the suspected pollutants prior to discharge. Based on the results of the analytical testing, the project proponent shall acquire the appropriate permit(s) prior to discharge of the effluent. Discharge of the dewatering effluent would require a permit from the RWQCB (for discharge to the storm sewer system or to San Francisco Bay) and/or East Bay Municipal Utility District (EBMUD) (for discharge to the sanitary sewer system).	LTS

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HYD-3: Operation-phase use of the site could result in degradation of water quality in the Bay by reducing the quality of storm water runoff.	S	HYD-3: The City shall ensure that the proposed project drainage design meets all the requirements of the current Countywide NPDES Permit (NPDES Permit No. CAS0029831). The drainage plan shall include features and operational Best Management Practices to reduce potential impacts to surface water quality associated with operation of the project. These features shall be included in the project drainage plan and final development drawings. Specifically, the final design shall include measures designed to mitigate potential water quality degradation of runoff from all applicable portions of the completed development. In general, "passive," low-maintenance BMPs (e.g., storm water planters, rain gardens, grassy swales, porous pavements) are preferred over active filtering or treatment systems. As required by the City of Emeryville's 2005 *Storm Water Guidelines for Green, Dense Redevelopment.* *Storm Water Quality Solutions*: *The storm water treatment design consultant shall make a good faith effort to meet the entire treatment requirement using vegetative solutions. If the storm water treatment design consultant concludes that vegetative solutions are not feasible due to site characteristics, building uses or other legitimate reasons, and the City concurs, the City will consider allowing on-site mechanical solutions. In some cases, upon recommendation of the storm water treatment design consultant, a combination of vegetative and mechanical solutions may be allowed. If mechanical solutions are utilized, the mechanism must be approved by the City, and the developer must demonstrate that the mechanical design will remove fine sediments and dissolved metals as well as trash and oil.* An operations and maintenance plan shall be developed and implemented to inspect and maintain BMPs in perpetuity. If paved surfaces within covered parking areas are washed with water, this water shall not be directed to the storm drainage system. This wash water effluent shall either be directed to the sanitary sewer or contained and transported off-site for proper disposal.	LTS

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HYD-3 *Continued*		The project would not be required to evaluate or mitigate potential impacts associated with hydromodification of downstream creeks because the downstream receiving waters between the site and the Bay are concrete lined and not subject to erosion. The final design team for the project shall review and incorporate as many concepts as practicable from *Start at the Source*, *Design Guidance Manual for Storm water Quality Protection*[4] and the California Storm water Quality Association's *Storm water Best Management Practice Handbook, Development and Redevelopment*, the City of Emeryville 2005 *Storm Water Guidelines for Green, Dense Redevelopment*, and forthcoming Alameda County Clean Water Program (ACCWP) technical guidelines. The City Public Works Department shall review and approve the drainage plan prior to approval of the grading plan.	
I. Cultural and Paleontological Resources			
CULT-1: The proposed project may result in the destruction of possibly significant archaeological deposits.	S	CULT-1a: Prior to project construction, a qualified professional archaeologist[5] shall prepare a monitoring plan to address potentially significant cultural resources encountered during construction. Preparing the plan may require subsurface examination to determine the presence, nature, extent, and potential significance of archaeological deposits that may be encountered by project activities. At a minimum, the monitoring plan should (1) refine the understanding of the project site's archaeological sensitivity; (2) determine the likelihood that archaeological deposits have retained integrity; (3) identify the types of artifacts and features that may be encountered during project construction; (4) determine during which phases of construction subsurface deposits may be encountered; and (5) provide guidelines for in-field assessment of archaeological deposits identified during monitoring. Based on the information noted above, the monitoring plan should determine the appropriate level of construction monitoring necessary to avoid significant impacts to archaeological resources, and provide guidance for the implementation of such monitoring.	LTS

[4] Bay Area Storm water Management Agencies Association, 1999. *Start at the Source*, Design Guidance Manual for Storm water Quality Protection.

[5] "Qualified" is defined as meeting the professional standards established by the Secretary of the Interior. These standards can be found at: <http://www.cr.nps.gov/local-law/archstnds9.html>.

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
CULT-1 *Continued*		CULT-1b: A qualified professional archaeologist shall monitor all ground-disturbing activities that occur at depths within the project area determined to be archaeologically sensitive in the archaeological monitoring plan. Monitoring shall continue until the archaeologist determines that impacts to archaeological deposits are unlikely to occur. In the event that archaeological deposits are identified during monitoring, the monitor must be empowered to redirect all work within 25 feet of the find. Any such archaeological deposits identified during monitoring shall be recorded and, if possible, avoided by project activities. If avoidance is not feasible, as determined by the City after consultation with the project engineer, these deposits shall be evaluated by a qualified archaeologist to determine their eligibility for listing on the California Register. If the deposits ***are not*** eligible for the California Register, then no further study or protection is necessary. If the deposits ***are*** eligible for the California Register, they shall be avoided by project activities. If avoidance is not feasible, project impacts shall be mitigated in a manner consistent with CEQA Guidelines PRC Section 15126.4 (b)(3)(C) and the recommendations of the evaluating archaeologist. Human remains shall be handled in accordance with Health and Safety Code Section 705055. Following the completion of the archaeological monitoring, a report shall be prepared to document the methods and findings of the monitoring archaeologist. The report shall be submitted to the City, the project applicant, and the Northwest Information Center (NWIC) at Sonoma State University in Rohnert Park, California.	
		CULT-1c: In the event that archaeological deposits are identified during project activities ***not*** monitored by an archaeologist, it is recommended that project impacts to such deposits be avoided. If impact avoidance is not feasible, work within 25 feet of the finds shall be redirected and a qualified professional archaeologist shall be contracted to record the find and evaluate its California Register eligibility. If the deposits ***are not*** eligible for the California Register, then no further study or protection is necessary. If the deposits ***are*** eligible for the California Register, they shall be avoided by project activities. If avoidance is not feasible, project impacts shall be mitigated in a manner consistent with CEQA Guidelines PRC Section 15126.4 (b)(3)(C) and treatment of human remains in accordance with Health and Safety Code Section 70505. Following the completion of the archaeological monitoring, a report shall be prepared to document the methods and findings of the monitoring archaeologist. The report shall be submitted to the City, the project applicant, and the NWIC.	

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
CULT-1 *Continued*		Prehistoric materials can include flaked-stone tools (e.g. projectile points, knives, choppers) or obsidian, chert, basalt, or quartzite toolmaking debris; bone tools; culturally darkened soil (i.e., midden soil often containing heat-affected rock, ash and charcoal, shellfish remains, faunal bones, and cultural materials); and stone milling equipment (e.g., mortars, pestles, handstones). Prehistoric archaeological sites often contain human remains. Historical materials can include wood, stone, concrete, or adobe footings, walls and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramics, metal, and other refuse. Implementation of Mitigation Measures CULT-1a, -1b, and -1c would reduce this impact to less-than-significant level.	
CULT-2: Ground disturbance associated with the proposed project may disturb human remains, including those interred outside of formal cemeteries.	S	CULT-2: If human remains are encountered, work within 25 feet of the discovery shall be redirected, and the County Coroner shall be notified immediately. At the same time, an archaeologist shall be contacted to assess the situation. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods. Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommend-ations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report shall be submitted to the City, the project applicant, and the NWIC.	LTS
CULT-3: Ground disturbing activities within the proposed project site could adversely impact paleontological resources.	S	CULT 3a: A qualified paleontologist shall be present during initial project ground-disturbance at or below 5 feet from original ground surface. The paleontologist will then determine if further monitoring, periodic site inspections, or if no further monitoring is necessary. Prior to project ground-disturbing construction, pre-field preparation by a qualified paleontologist shall take into account specific details of project construction plans for the project area, as well as information from available paleontological, geological, and geotechnical studies. Limited subsurface investigations may be appropriate for defining areas of paleontological sensitivity prior to ground disturbance.	LTS

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
CULT-3 *Continued*		CULT-3b: A qualified paleontologist shall monitor ground-disturbing activities at and below 5 feet from the original ground surface in accordance with the initial monitoring needs assessment. The monitoring shall continue until the paleontologist determines that impacts to paleontological resources are unlikely to occur. If paleontological resources are encountered during project activities, all work within 25 feet of the discovery shall be redirected until the paleontological monitor can evaluate the resources and make recommendations. If paleontological deposits are identified, it is recommended that such deposits be avoided by project activities. Paleontological monitors must be empowered to halt construction activities within 25 feet of the discovery to review the possible paleontological material and to protect the resource while it is being evaluated. If avoidance is not feasible, as determined by the City after consultation with the project engineer, adverse effects to such resources shall be mitigated in accordance with the recommendations of a qualified paleontologist. At a minimum, mitigation shall include data recovery and analysis, preparation of a data recovery report or other reports as appropriate, and accessioning fossil material recovered to an accredited paleontological repository, such as the University of California Museum of Paleontology (UCMP). Upon project completion, a report shall be prepared documenting the methods and results of monitoring, and copies of this report shall be submitted to the City, project applicant, and to the repository at which any fossils are accessioned. CULT-3c: In the event that paleontological resources are identified in the soil layer for which paleontological monitoring is *not* recommended, all work within 25 feet of the discovery shall be redirected until a qualified paleontologist has evaluated the discoveries, prepared a fossil locality form documenting the discovery and made recommendations regarding the treatment of the resources. If the paleontological resources are found to be significant, adverse effects to such resources shall be avoided by	

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
CULT-3 *Continued*		project activities. If project activities cannot avoid the resources, adverse effects should be mitigated. At a minimum, mitigation shall include data recovery and analysis, preparation of a data recovery report or other reports, as appropriate, and accessioning fossil material recovered to an accredited paleontological repository, such as the University of California Museum of Paleontology (UCMP). Upon completion of project activities, a report that documents the methods and findings of the mitigation shall be prepared and copies submitted to the City, project applicant, and to the repository at which any fossils are accessioned.	
J. Aesthetic Resources			
AES-1: The proposed project would alter the intrinsic architectural character of the project site and its surroundings.	S	AES-1: Each of the following five measures shall be incorporated into the final project design: • The proposed structures shall adequately reference, and be visually compatible with and not detract from the surrounding industrial buildings. • Create streetscape vitality and enhance the pedestrian experience through detailed treatment of building facades, including entryways, fenestration, and signage, vertical walls broken up with architectural detailing, protruded and recessed tower elements, stepped-back upper floors to provide appropriate building height transitions to adjacent buildings, and through the use of carefully chosen building materials, texture, and color. • Design of building facades shall include sufficient articulation and detail to avoid the appearance of blank walls or box-like forms. • Exterior materials utilized in construction of new buildings, as well as site and landscape improvements, shall be high quality and shall be selected for both their enduring aesthetic quality and for their long term durability, and their compatibility with the design motif of surrounding buildings. • Detailed designs for the public plazas shall be developed. The plaza designs shall emphasize the public nature of the space and pedestrian comfort and sun/shade patterns during mid-day hours throughout the year. The plaza designs shall be sensitively integrated with the streetscape.	LTS

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
AES-2: The proposed development would provide additional sources of day and nighttime light and glare in Emeryville.	S	AES-2a: The specific reflective properties of project building materials shall be assessed by the City during review of the Final Development Plans for the proposed project. Final Development Plan review shall ensure that the use of reflective exterior materials is minimized and that proposed reflective material would not create additional daytime or nighttime glare. AES-2b: Specific lighting proposals shall be submitted and reviewed as part of each Final Development Plan for each new building on the project site and approved by the City prior to issuance of building permit. This review shall ensure that any outdoor night lighting for the project is downward facing and shielded so as not to create additional nighttime glare and shall conform with light and glare performance standards established by Zoning Ordinance Article 59 and the Maximum Intensity of Light Sources table.	LTS
K. Public Services and Utilities			
PS-1: Demolition and construction waste generated by the project could conflict with Measure D requirements.	S	PS-1: The project applicant shall recycle 75 percent of the waste materials generated by project construction. The applicant shall submit a pre-construction recycling management plan to the City Public Works Department for review and approval prior to the issuance of a grading permit. Prior to issuance of the Certificate of Occupancy, the project applicant shall post a construction report with weight tags stating where construction materials were recycled, and demonstrating that the 75 percent recycling rate of Measure D has been achieved.	LTS
PS-2: The waste generated by the on-going operation of the project could conflict with Measure D requirements.	S	PS-2: The project applicant shall install an internal system designed to increase recycling and composting. The recycling and composting system shall include dedicated chutes for garbage, recycling and green waste (including food scraps). Final design plans shall include areas for the storage and loading of recycling materials and containers in accordance with Emeryville Municipal Code Title 6, Chapter 4, Collection of Solid Waste and Recyclables and Title 6, Chapter 14, Food Service Waste Reduction.	LTS

Table II-1 *continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
L. Wind			
WIND-1: The proposed massing and shape of the Shellmound building could create accelerated wind areas in roof deck terraces and within the fourth floor pedestrian crossing connection with the Amtrak bridge that could substantially affect pedestrian comfort.	S	WIND-1a: Final design of the roof deck open space terraces on the Shellmound building shall be heavily landscaped to reduce wind and improve usability and shall incorporate porous materials or structures (e.g., vegetation, hedges, screens, latticework, perforated or expanded metal) which offer superior wind shelter compared to solid surfaces. Outdoor furnishings, such as tables, shall either be either weighted or attached to the deck. WIND-1b: Scale model wind tunnel or computerized computational fluid dynamics testing shall be conducted to determine how strong winds will be through the fourth floor breezeway between the Amtrak pedestrian bridge to the west side of the building. If winds through the breezeway exceed 36 mph, the breezeways design shall be altered to reduce wind speeds below this threshold. Alternatively, to avoid testing, the design of the breezeway could be altered with the addition of glazing at the west side opening. Testing or design modifications would reduce this impact to a less-than-significant level.	LTS
M. Shade and Shadow			
There are no significant Shade and Shadow impacts			

III. PROJECT DESCRIPTION

This chapter describes the Marketplace Redevelopment Project (proposed project), which is evaluated in this Environmental Impact Report (EIR). A description of the proposed project's regional and planning context, objectives, and background is also provided, in addition to a discussion of the intended uses of the EIR, and required project approvals and entitlements.

A. PROJECT SITE

The following section describes the project's local and regional context, surrounding land uses, and site characteristics.

1. Location

The 15-acre project site is located in the Emery Bay Marketplace shopping center in the City of Emeryville in Alameda County. The cities of Oakland and Berkeley surround Emeryville to the north, east and south, and the San Francisco Bay shoreline provides the western city boundary. The City of San Francisco is located to the west approximately 8 miles across the Bay. Interstate 580/80 (I-580/80) traverses Emeryville generally in a north-south direction, running adjacent to the Bay shoreline, west of the project site. The Powell Street freeway ramps, located approximately ⅛–mile to the west, provide regional vehicular access to the project site, which is generally bounded by 64th Street to the north, the Union Pacific railroad (UPRR) tracks to the east, Powell Street to the south, and Christie Avenue to the west, as depicted in Figure III-1.

In addition to the project site's adjacency to I-580/80, it is also regionally accessible via Amtrak commuter trains and Alameda-Contra Costa Transit (AC Transit). Amtrak service is provided along the UPRR tracks that abut the eastern edge of the project site, with the nearest train station also located directly east of the site and accessible via a pedestrian overcrossing leading to the project site. Public transit is also provided to the project site by AC Transit buses, which regularly run along Christie Avenue, 64th Street and Shellmound Street, immediately adjacent to the project site. Locally, the Emery-Go-Round provides bus transit shuttle services to residents and job centers.

2. Surrounding Land Uses

The proposed project is surrounded by a mixture of land uses similar to those on-site including, office, research and development, light industrial, general commercial/retail, service commercial, lodging, multi-family residential, surface and structured parking, public spaces, and transit facilities. Surrounding land uses are housed in a variety of building types ranging from one-story, low-rise structures to a 30-story, high-rise tower. The majority of buildings in the area range from three to 10 stories in height. Land uses surrounding the project site are described in detail in Chapter V.A, Land Use.

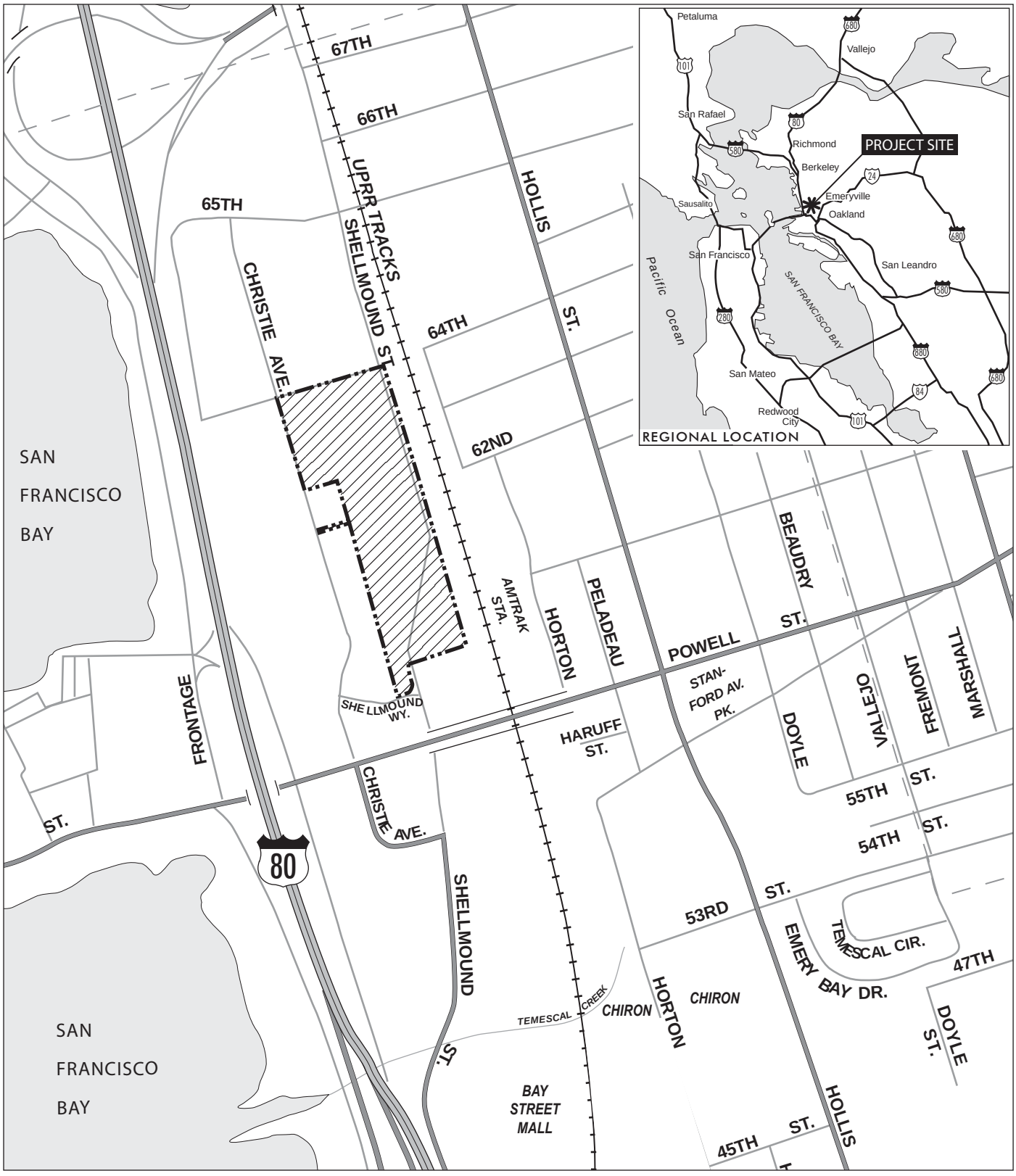

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FIGURE III-1

PROJECT SITE

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Marketplace Redevelopment Project EIR
Project Vicinity and Regional Location

SOURCE: LSA ASSOCIATES, INC., 2006.

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3. Site Characteristics

The 15-acre project site is generally flat with an average elevation of 10 feet above mean sea level. The site is currently developed with six buildings and a mix of land uses characterized by entertainment (e.g., 10-screen movie theater); ground-floor retail and service commercial businesses with upper-floor office, medical, and technical school uses; light industrial buildings; and surface-level parking areas. Figure III-2 provides an aerial view of the project site and surrounding area.

The two, single-story light industrial buildings located on the southeast corner of 64th Street and Christie Avenue are not currently included in the formal Marketplace development (i.e., a party to the Owner Participation Agreement, discussed later in this chapter); rather they are located directly adjacent to the Marketplace within the same City block (as depicted in Figure III-2). The two, low-rising Public Market buildings, centrally located on the site, will be retained in their current state as part of the proposed project. Similarly, the mid-rise Marketplace Tower building, located directly adjacent to the two, historic buildings, was developed in the late 1980s and will also be retained in its current state as a part of the project. Lastly, the low-rising, stand-alone UA Cinema building, located in the northeast corner of the project site, was also developed in the late 1980s and will be retained as such as a part of the proposed project. A more detailed discussion of existing uses is provided in Chapter IV.A, Land Use.

Local vehicular access is provided to the project site from Shellmound Way, Christie Avenue, 64th Street, and Shellmound Street, each of which are two-lane roadways, as depicted in Figure III-3. Shellmound Street, a designated arterial street and bicycle corridor in the Emeryville General Plan, traverses the project site generally in a northeast direction. Figure III-3 also depicts the nine primary ingress and egress points to the project site from these local roadways, including the primary vehicular on-site circulation aisles.

The General Plan designation for the project site is Mixed-Use and it is zoned Mixed-Use on the City's Zoning Map. The General Plan and zoning designations, descriptions, and applicability are depicted and described more fully in Chapter IV, Planning Policy.

B. PROJECT BACKGROUND

Historically, the project site has been used by industrial businesses, portions of which were occupied by a late 19th century municipal landfill, a roofing tar paper and building paint manufacturer, a tripe and fertilizer company, and a trucking company (see Chapter V.I, Cultural and Paleontological Resources). Between 1911 and 1924, the one- and two-storied brick Public Market buildings on the site were constructed and supported the Paraffine Paint Company (later renamed PABCO), which operated on the site until 1972. The two light industrial/warehouse buildings located on the southeast corner of 64th Street and Christie Avenue, not formally a part of the Marketplace, were developed in the mid-1960s. In 1976, the Emeryville Redevelopment Plan was adopted, which included the project site. Clean-up of the industrial wastes and hazardous materials placed on the site over time began soon after the Redevelopment Plan was enacted.

By the mid-1980s, the Marketplace site underwent a substantial redevelopment effort in coordination with the City. At that time, a Master Use Permit (MUP), Owner Participation Agreement (OPA), and Reciprocal Easement Agreement (REA) were approved for the site.

These agreements allowed for the existing, mixed use shopping center to be developed, including the hotel, movie theater, tower office building, shared surface level parking throughout the site, and conversion of the two Public Market buildings to commercial/retail space. As a part of this effort, extensive amounts of hazardous materials were excavated and hauled off the site.

In 2004, the property owners of this site began coordinating the proposed project with the City. Desiring to make the Marketplace a more lively, pedestrian-friendly, and safer environment in keeping with an urban community rather than a suburban strip-mall, the applicants have submitted the proposed project so that approximately 580 residents would be added to the site, providing a 24-hour human presence via the 340 proposed condominium units. In 2005, the applicants met with City staff, residents in the surrounding neighborhood, and the Planning Commission to discuss their conceptual project plan. From this public solicitation process, the applicants revised their project accordingly. In mid-2005, the proposed project analyzed in this EIR was formally submitted to the City for entitlement processing.

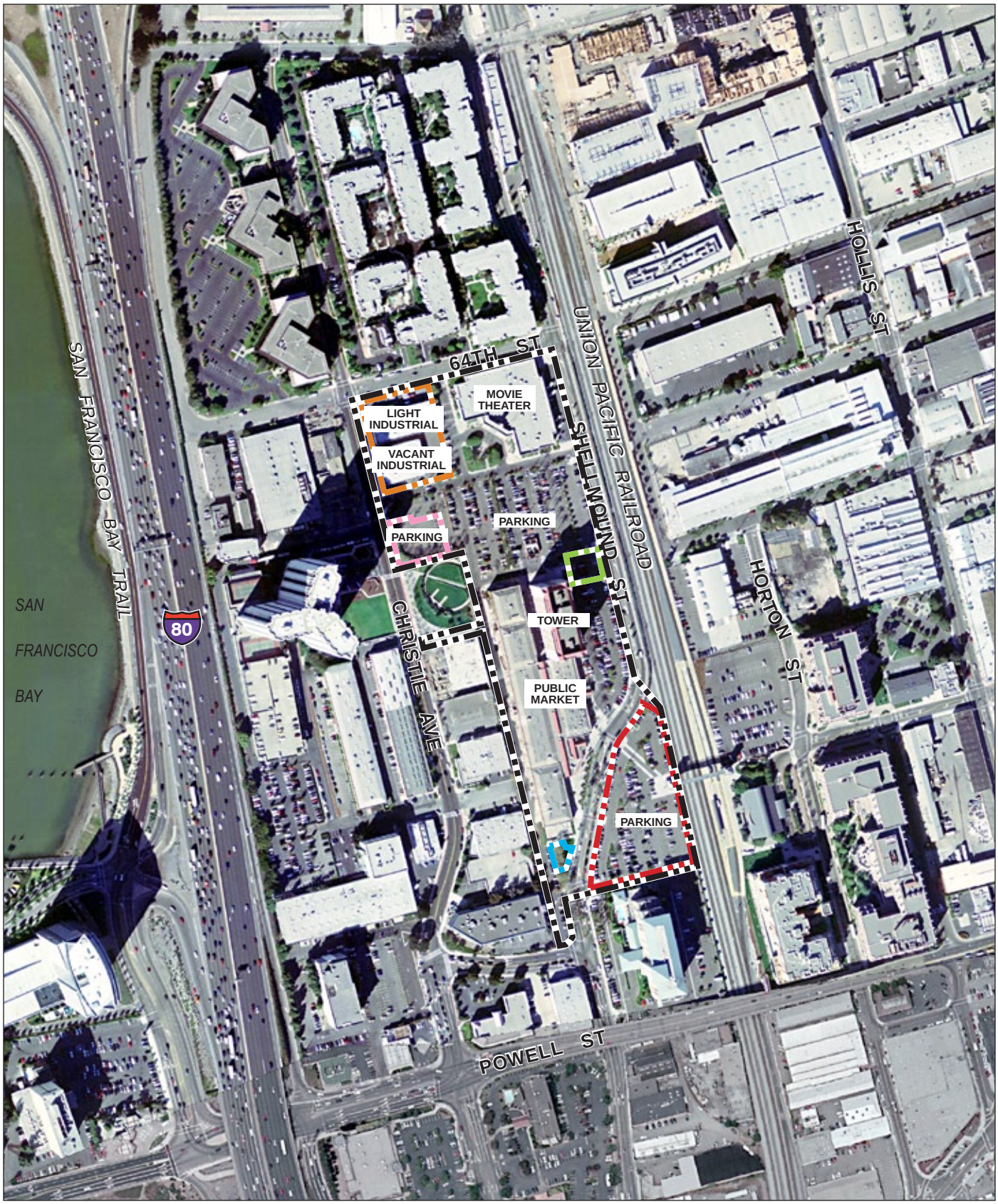
C. PROJECT OBJECTIVES

The primary objective of the project is to revitalize and redevelop the Marketplace area to create a vertical mixed use neighborhood that embodies the principals of smart growth and transit-oriented development and results in an improved pedestrian environment and livable streetscape. The project applicant believes the proposed project would achieve the following objectives.

1. Adds residents to an existing mixed use neighborhood to add life, vitality and improve the pedestrian experience.
2. Improves and modifies the Marketplace site to create a lively transit-oriented mixed use neighborhood with attractive and safe pedestrian pathways.
3. Proposes buildings situated to create walking destinations throughout the Marketplace site with attractive architecture that respects the pedestrian experience and surrounding architectural context while adding the residential density necessary to create a lively neighborhood.
4. Improves the site landscape and circulation plan by attractively landscaping new building edges, adding street trees, new plazas, attractive hardscape and clarifying pedestrian routes through the site. Gathers people traveling through the site to common walk-ways to increase their vitality.
5. Promotes smart growth, environmentally sensitive and green design concepts.

D. PROPOSED PROJECT

This EIR considers the environmental effects of the project proposed by TMG Partners on behalf of Marketplace Mortgage LLC and Rockwood Christie LLC (project applicant). This section provides a description of the proposed project based on information provided by the project applicant to redevelop the site with five new buildings, adding up to 340 for-sale condominium units, up to 77,000 square feet of new commercial space, up to 444 new parking spaces (i.e., net new spaces site-wide, including removed surface spaces and new structure spaces), and site improvements



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PROJECT SITES

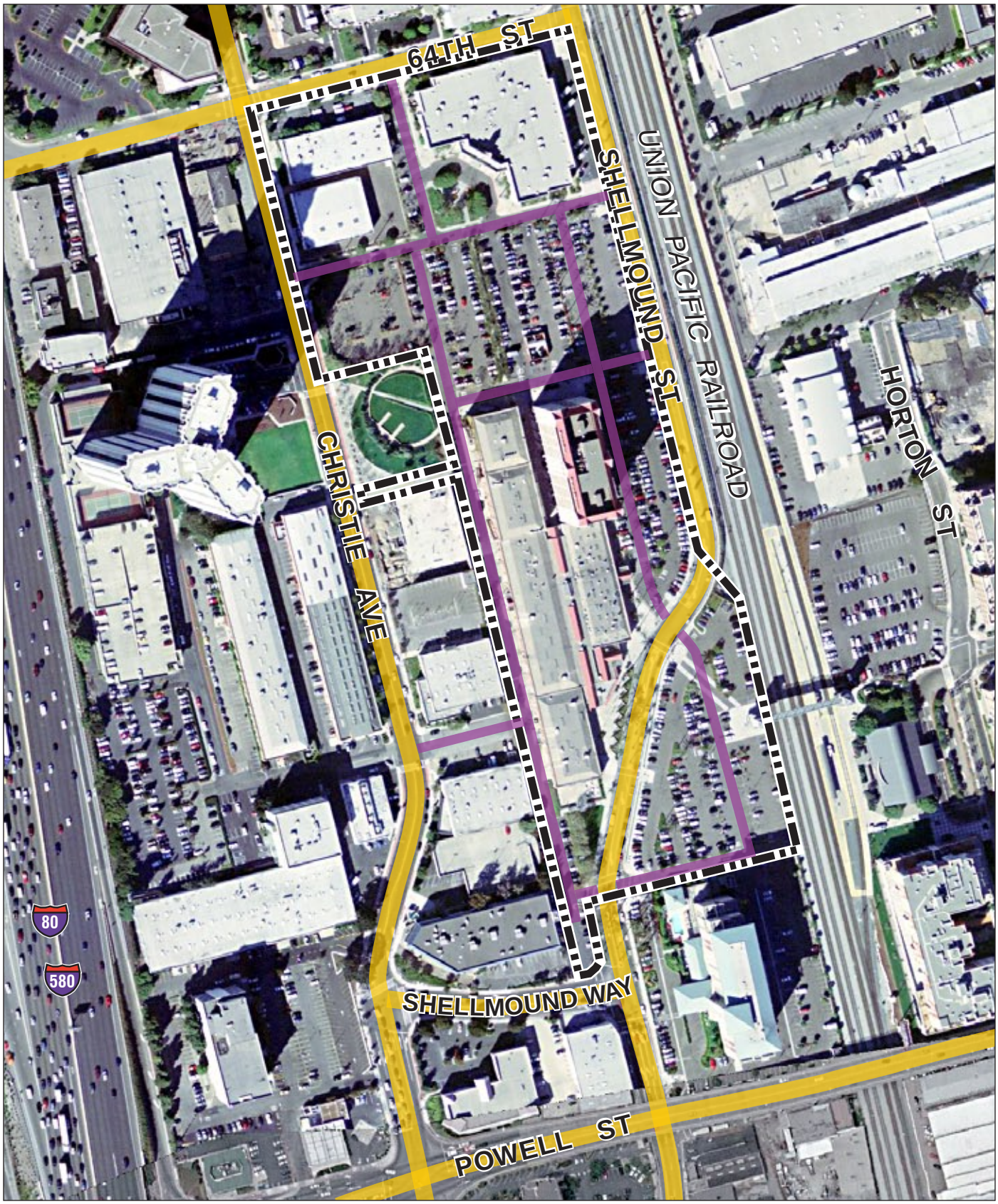
- 64TH & CHRISTIE BUILDING SITE
- SHELLMOUND BUILDING SITE
- MARKETPLACE REDEVELOPMENT PROJECT SITE
- RETAIL PAD #1
- RETAIL PAD #2
- RETAIL PAD #3

FIGURE III-2

Marketplace Redevelopment Project EIR

Project Site and Surrounding Area

SOURCE: GLOBEXPLORER, 2005.



LSA

N

0 200 400

FEET

LEGEND

LOCAL STREETS ADJACENT TO PROJECT SITE

INGRESS/EGRESS AND PRIMARY ON-SITE VEHICULAR CIRCULATION

PROJECT SITE BOUNDARIES

SOURCE: GLOBEXPLORER, 2005.

I:\CEM531 marketplace\figures\Fig_III3.ai (04/05/06)

FIGURE III-3

Marketplace Redevelopment Project EIR

Existing Local Street Access and Primary On-Site Vehicular Circulation Aisles

and enhancements. The development scenario described below is the most intensive anticipated on the project site, thereby identifying the most conservative case for environmental impact analyses. If ultimate land uses added to the site are more intensive than that analyzed in this EIR (e.g., Shellmound building upper floors as office instead of residential), additional environmental analysis would be conducted to identify that change in light of this EIR and mitigate it, as appropriate. Table III-1 consolidates the following information into tabular format for quick reference. More than likely, final building plans for this project would yield a slightly less intensive development project. The components of each new building and the site enhancements/improvements are described below. Figure III-4 depicts the Master Site Plan for the proposed project, and Figure III-5 provides an illustrative axonometric drawing (i.e., bird's eye view) of the proposed project when constructed.

1. Shellmound Building

The proposed mixed use Shellmound building would be constructed north of the Woodfin Suites Hotel on an area currently providing 251 surface-level parking spaces, as illustrated in Figure III-6. The Shellmound building would include:

- A mid-rise, 9-story building up to 95 feet in height;
- Up to 55,000 square feet of ground-floor retail space;
- Three to four floors of structured parking (up to 540 spaces);
- Up to 160 for-sale condominium units on upper floors. At least 20 percent of the units constructed as part of the proposed project would be priced at affordable levels to moderate income households (i.e., those earning up to 120 percent of the Alameda County Median Income).

Figure III-7 provides an illustrative axonometric drawing of the Shellmound building when constructed. These drawings represent the most conservative case, or largest bulk/scale of this building. The final design and materials used on this building will be determined under a separate review, when the Final Development Plan is submitted, reviewed, and approved by the Planning Commission and City Council.

2. 64th & Christie Building

The proposed mixed use 64th & Christie building would be located at the southeast corner of 64th Street and Christie Avenue, as illustrated in Figure III-8. The 64th & Christie building would include:

- A mid-rise, 8-story building up to 90 feet in height;
- Up to 6,000 square feet of ground floor retail;
- Two floors of structured parking (up to 250 spaces);
- Up to 180 for-sale condominium units on the upper six floors. At least 20 percent of the units constructed as part of the proposed project would be priced at affordable levels to moderate income households (i.e., those earning up to 120 percent of the Alameda County Median Income).

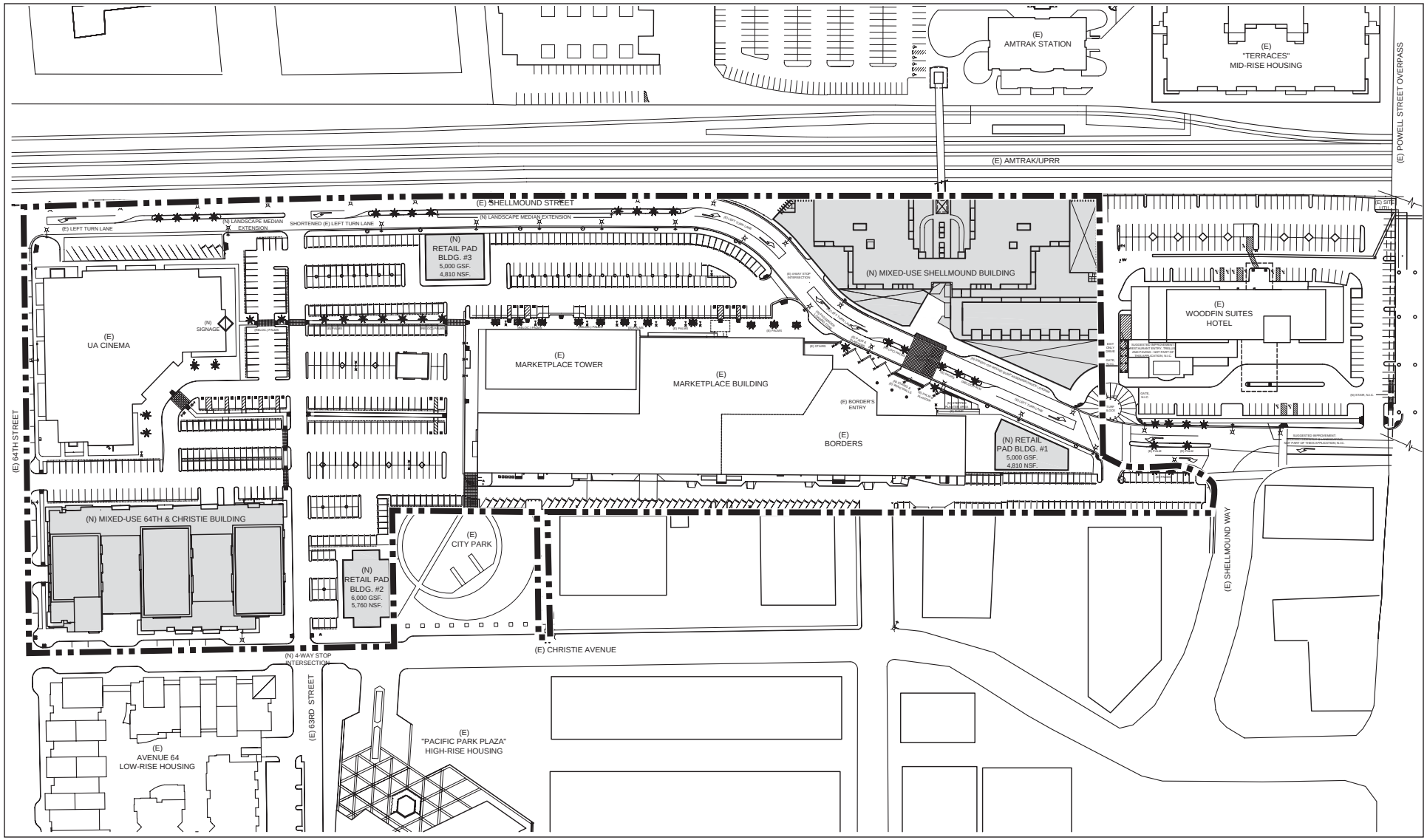
Figure III-9 provides conceptual renderings of the proposed 64th & Christie building. Similar to the Shellmound building, the 64th & Christie building represented in these graphics is the most conservative, or largest bulk/scale proposed for this building. The final design and materials used on this building would also undergo additional City review, when the Final Development Plan is submitted, reviewed, and approved by the Planning Commission and City Council.

Table III-1: Existing and Proposed Project Site Uses and Building Area

Existing Condition Buildings	Use(s)[3]	Non-Resid. Square Feet	Dwelling Units	Stories	Height (feet)	Parking Spaces
Public Market Buildings (2)	Retail, Restaurant, Commercial	94,665	0	1 to 2	25 to 45	865[1]
Marketplace Office Tower	Retail, Commercial, Office	121,260	0	8	90	
UA Theater	Entertainment	40,000 (10 screens)	0	1	40	
Industrial Buildings (2)	Industrial	26,000	0	1	30	~35
Total	**--**	**281,925**	**--**	**--**	**--**	**900**

Proposed Project Buildings		Use(s)[4]	Non-Resid. Square Feet	Dwelling Units	Stories	Height (feet)	Parking Spaces
Existing Buildings to Remain	Public Market Buildings (2)	Retail, Restaurant, Commercial	94,665	0	1 to 2	25 to 45	769[1]
	Marketplace Office Tower	Retail, Office, Service Commercial	121,260	0	8	90	
	UA Theater	Entertainment	40,000 (10 screens)	0	1	40	
Proposed Buildings to be Constructed	Retail Pad 1	Retail, Restaurant, Parking	5,000[2]	0	1	25	
	Retail Pad 2	Retail, Restaurant, Parking	6,000[2]	0	1	25	
	Retail Pad 3	Retail, Restaurant, MFR, Parking	5,000[2]	0	1	25	
	Shellmound Building	Retail, Restaurant, Professional Services, Residential, Parking	55,000	160	9	95	540
	64th & Christie Building	Retail, Restaurant, Professional Services, Residential, Parking	6,000	180	8	90	250
Buildings to be Demoed	Industrial Buildings (2)	Industrial	26,000	0	1	30	
Total		**--**	**332,925**	**340**	**--**	**--**	**1,559**

[1] Shared parking space data for the Marketplace site excludes 202 spaces provided on the Woodfin Hotel site, which is not a part of the proposed project.
[2] The size of each pad may very up to 7,500 square feet so long as the total of all three pads does not exceed 16,000 square feet.
[3] All uses allowed by Conditional Use Permit No. 88-7.
[4] All uses listed in *Table 3: Marketplace PUD/PDP: Allowed Uses by Site Area*, included with project application and on-file with the City of Emeryville Planning and Building Department.



LSA

FIGURE III-4

Marketplace Redevelopment Project EIR
Master Site Plan

LEGEND

PROJECT SITE

PROPOSED BUILDINGS

(E) EXISTING

(N) NEW/PROPOSED

N

0 120 240
FEET

SOURCE: HELLER·MANUS ARCHITECTS, 2006.
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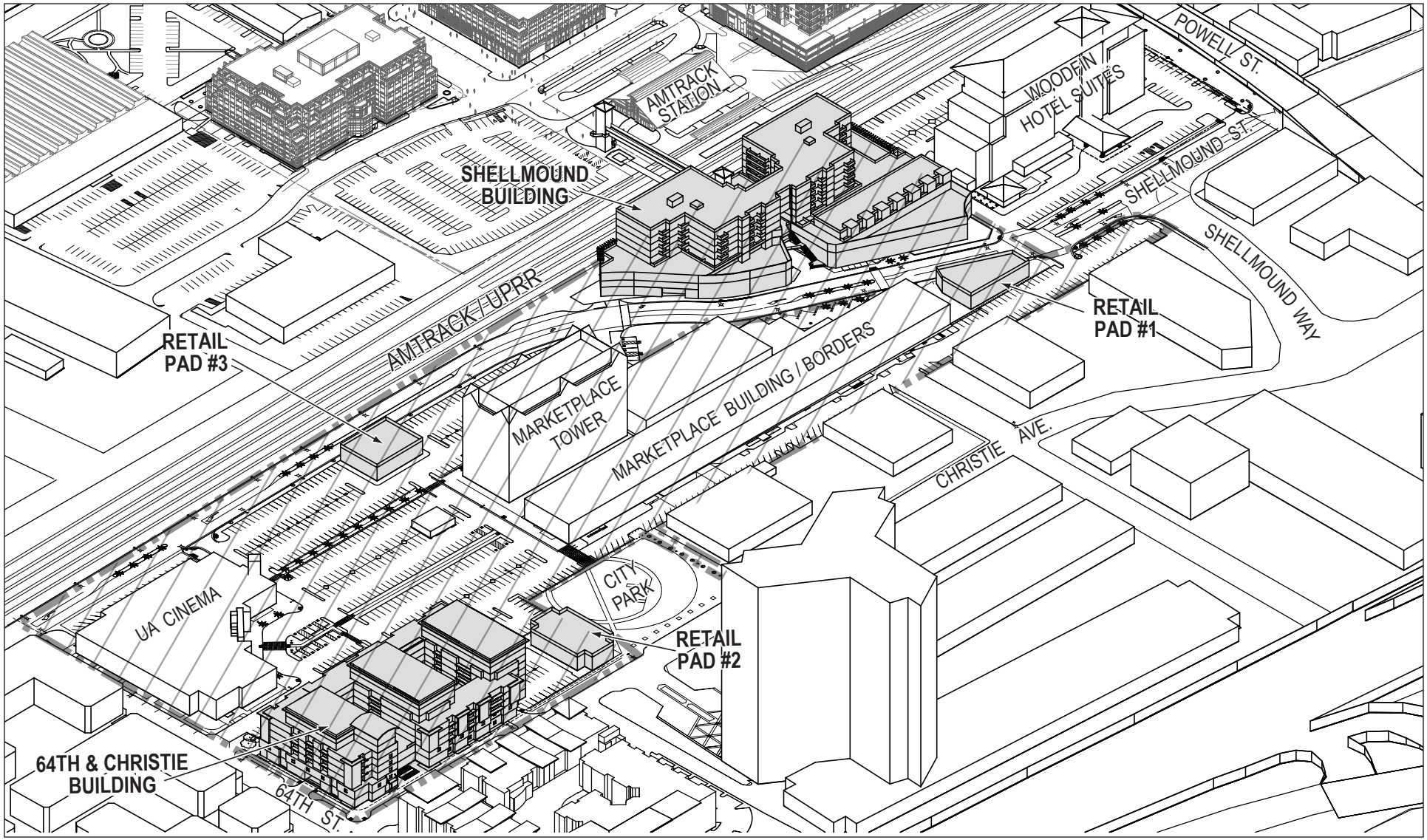

LSA

FIGURE III-5

LEGEND

PROJECT SITE

PROPOSED BUILDINGS

NOT TO SCALE

Marketplace Redevelopment Project EIR
Illustrative Axonometric
(Bird's Eye View) of Built Project

SOURCE: HELLER·MANUS ARCHITECTS, 2006.
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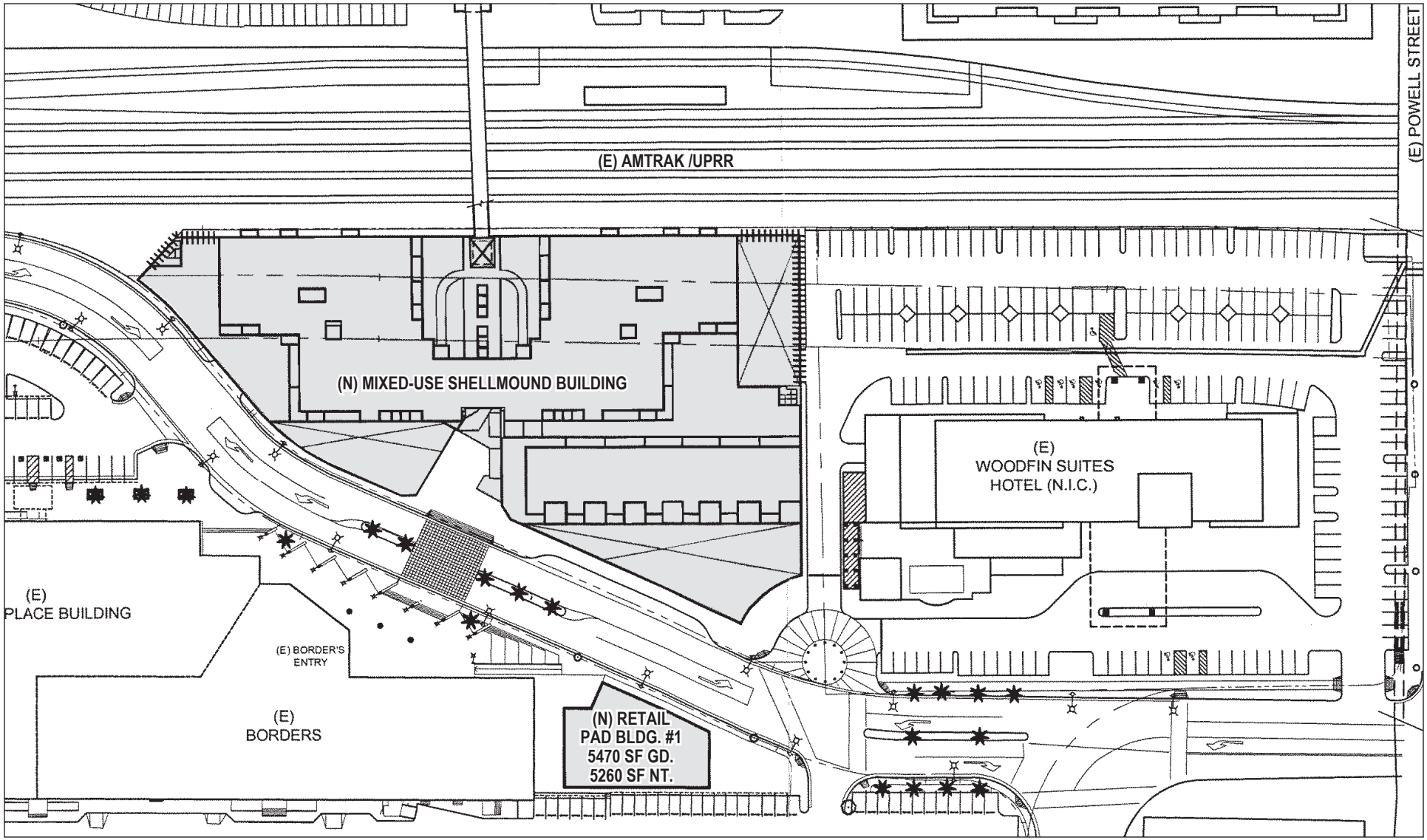


LSA

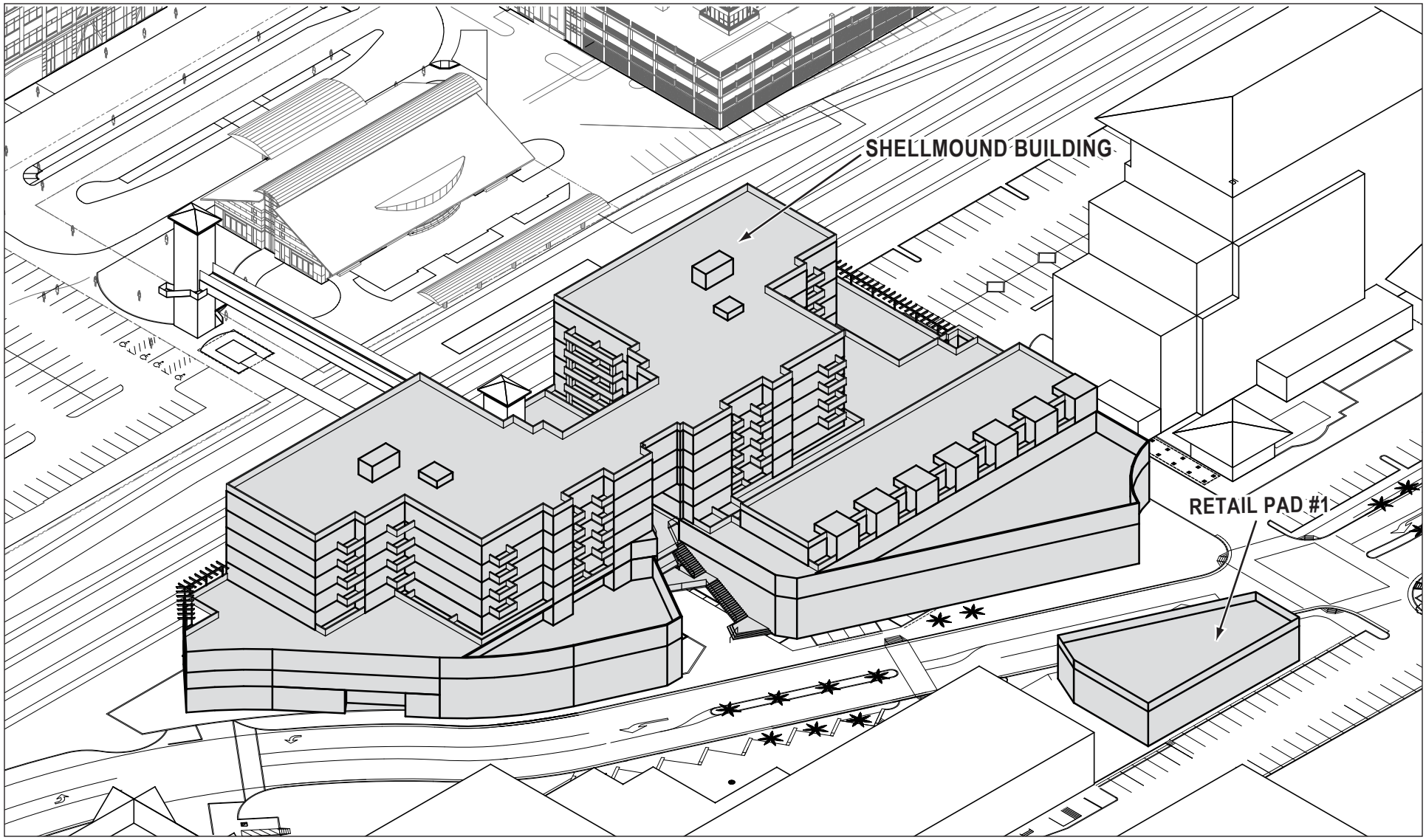
FIGURE III-6

Marketplace Redevelopment Project EIR
Shellmound Building:
Illustrative Site Plan Detail

N

0 200 400
FEET

SOURCE: HELLER·MANUS ARCHITECTS, 2005.
I:\CEM531 marketplace\figures\Fig_III6.ai (1/25/07)



LSA

FIGURE III-7

Marketplace Redevelopment Project EIR

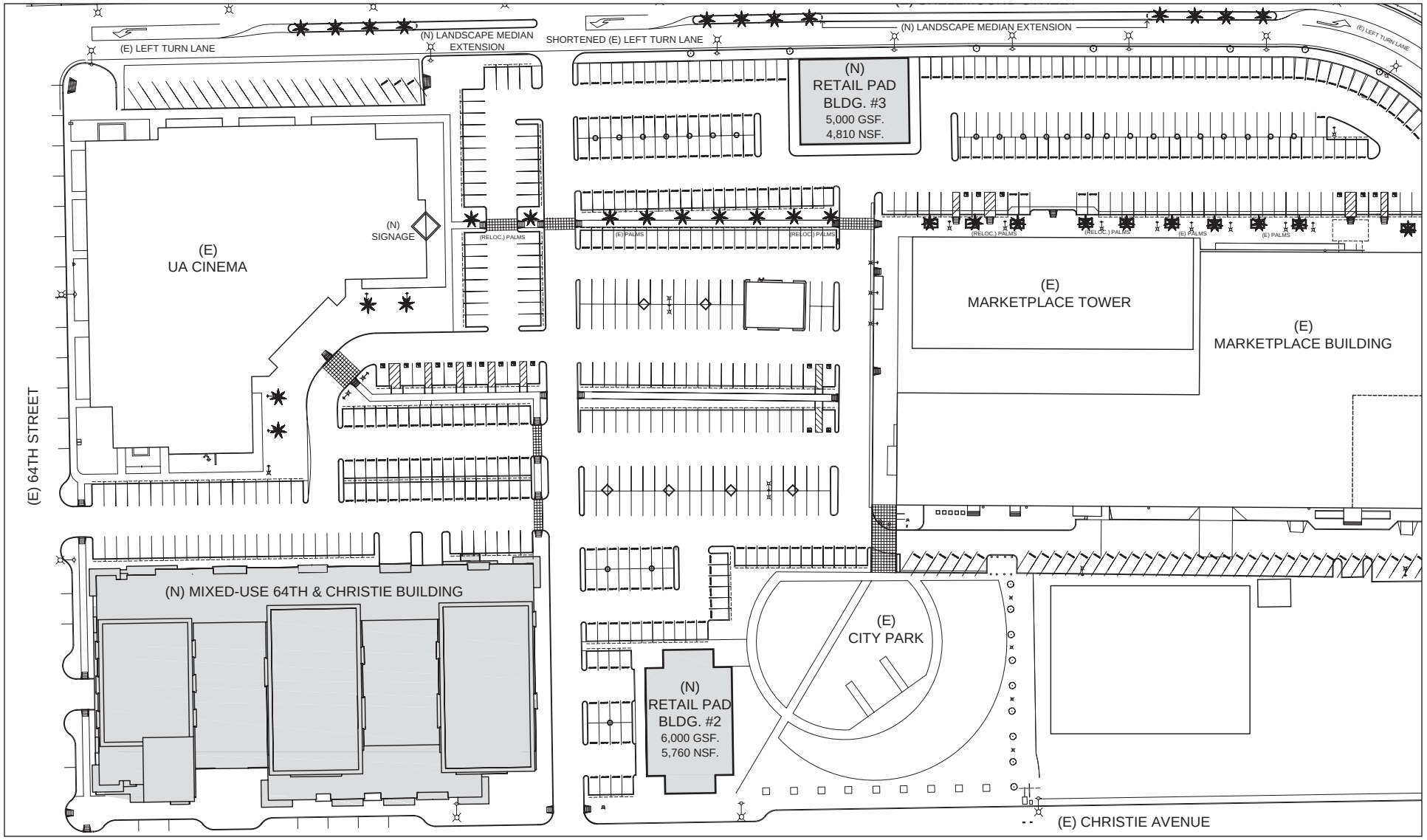
Shellmound Building Zone:
Conceptual Axonometric

NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, 2006.

I:\CEM531 marketplace\figures\Fig_III7.ai (1/25/07)



LSA

FIGURE III-8

Marketplace Redevelopment Project EIR
64th and Christie Building:
Illustrative Site Plan Detail

N

PROPOSED BUILDING

0 60 120
FEET

SOURCE: HELLER·MANUS ARCHITECTS, 2006.
I:\CEM531 marketplace\figures\Fig_III8.ai (11/21/06)

3. Retail Pads

In addition to the two, mid-rise buildings, three pad buildings are also proposed as a part of the project. These pad buildings would support combined total of 16,000 square feet of retail, restaurant or service use space ("retail pads"). Each pad would be developed with a single-story building limited to 7,500 square feet. The following describes each of the three retail pad locations and buildings.

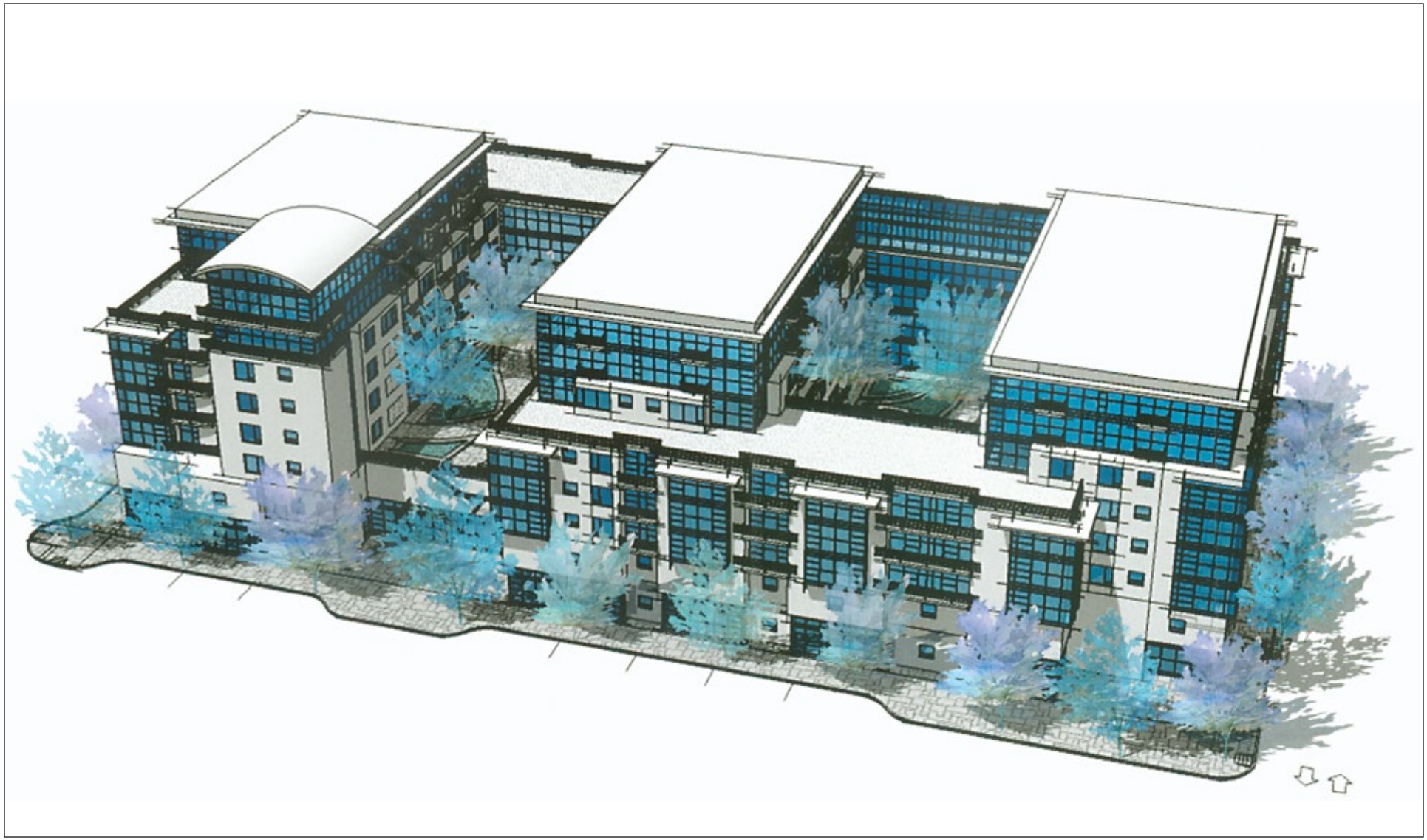
- *Retail Pad 1* – This site is located south of Public Market buildings, on the west side of Shellmound Street, and would replace an existing landscaped berm area (see Figures III-4 through III-7). This building would provide approximately 5,000 square feet of area in a single-story structure, and would share the outdoor seating area on its north side with Border's bookstore, which is currently an underutilized outdoor space.
- *Retail Pad 2* – Retail Pad 2 would be located north of Christie Park and south of the 64th & Christie building (see Figures III-4, III-5, and III-8. This building would provide approximately 6,000 square feet of building area in a single-story structure.
- *Retail Pad 3* – Retail Pad 3 would be located east of the Marketplace Tower building, adjacent to Shellmound Street, as depicted in Figures III-4 and III-5. This building would provide approximately 5,000 square feet of building area in a single-story structure.

Consistent with the other uses at the Marketplace, parking for each of the pad buildings would be provided throughout the site via a parking agreement for all uses on the Marketplace site (i.e., Reciprocal Easement Agreement (REA)), on the surface level lot areas and in the Shellmound parking structure.

4. Site Enhancements and Improvements

A number of site enhancements and improvements are proposed as part of the project to better facilitate pedestrian use, visual connections and safety at the site, as well as vehicular circulation and access. Each of these enhancements/improvements is described below:

- *Shellmound Building Zone* – As depicted in Figure III-10, a number of improvements and urban design enhancements to the area between the proposed Shellmound building and existing Public Market buildings are proposed. These improvements include adding new outdoor plaza areas, new pedestrian walkways, additional landscaping/street trees, safer pedestrian street crossings, and separated vehicular ingress/egress to the Shellmound parking structure. A new plaza would be provided in front of the Shellmound building providing a focal point (e.g., artwork), decorative paving, seating areas, and additional landscaping. The pedestrian crossing from the Shellmound building to the Public Market buildings would also be improved and enhanced with decorative paving, a wider pedestrian area, a new median with landscaping, and a stop sign. These enhancements will also be provided along the eastern edge of Shellmound Street as new walkways and landscaping/street trees. At the southern edge of the Shellmound building, a new circular driveway with a sculptural center piece and landscaping would be provided at the ingress to the Woodfin hotel. The new circular drive would also provide a drop-off and pick-up area for Marketplace and Woodfin patrons. Finally, on the west side of Shellmound Street, across from the circular driveway, an additional, smaller plaza would be provided south of the Retail Pad 1.
- *Amtrak Pedestrian Connection* – The proposed project would improve the existing pedestrian connection from the Amtrak Station located east of the Marketplace and extend the transit center

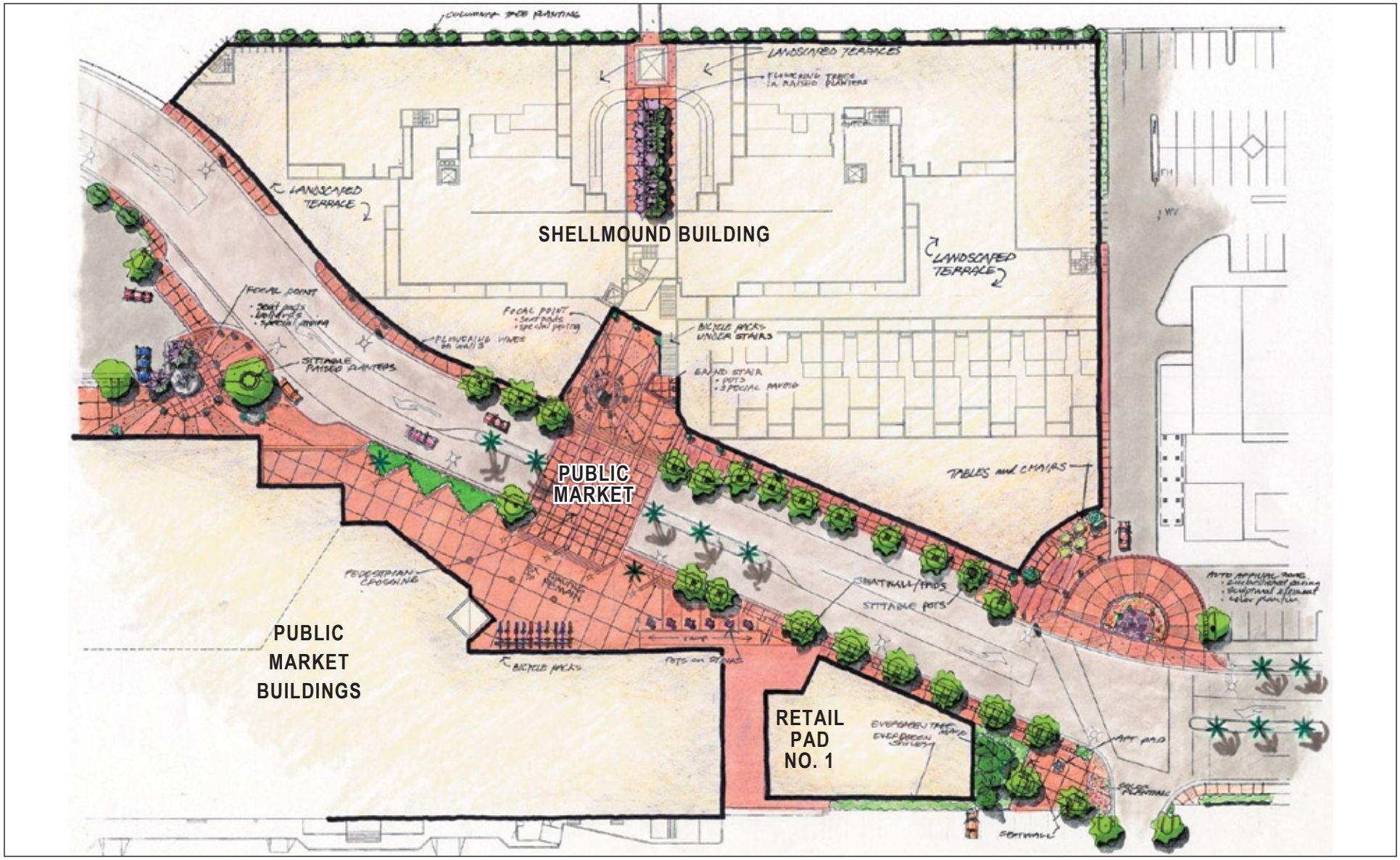


LSA

FIGURE III-9

Marketplace Redevelopment Project EIR
64th & Christie Building:
Conceptual Axonometric

SOURCE: MCLARAND, VASQUEZ & PARTNERS INTERNATIONAL, INC., 2005.
I:\CEM531 marketplace\figures\Fig_III9.ai (03/10/06)



LSA

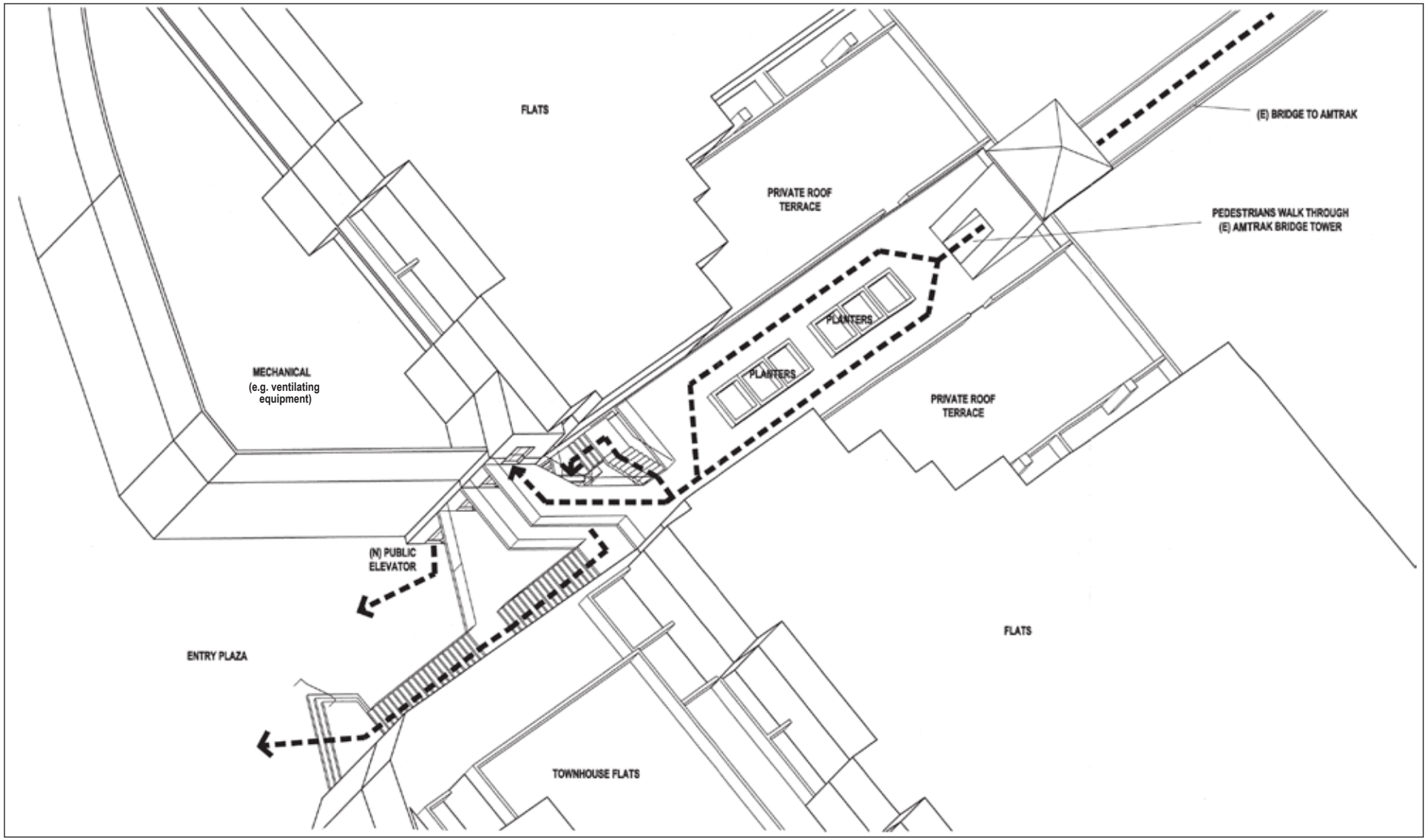
FIGURE III-10

Marketplace Redevelopment Project EIR
Shellmound Building
Zone Improvements

SOURCE: GATES & ASSOCIATES, 2005.
I:\CEM531 marketplace\figures\Fig_III10.ai (08/24/06)

from Amtrak to Alameda County Transit and Emery Go Round; however, no changes to the existing bridge overcrossing itself would occur. Proposed improvements would incorporate the existing, western tower of the pedestrian bridge into the proposed Shellmound building, connecting it into the fourth floor of the building. The existing western tower elevator and stairway would be removed, and a new elevator and three flights of stairs would be installed at the front of the Shellmound building, providing public access to floors one through four, as depicted in Figure III-11. Pedestrians walking to and from the Marketplace to the Amtrak Station would access the pedestrian overcrossing via the new elevator or three flights of stairs leading up to the bridge from the new plaza in front (west side) of the Shellmound building (described above). The first two flights of stairs would be located at the front of the building with open-air views of the Public Market buildings and surrounding west Emeryville area. The third flight of stairs would extend east into the Shellmound building, arriving at the fourth floor open-air terrace. The stairway would be flanked by commercial uses on the first floor, and public and resident structured parking on the second and third floors. The fourth floor pedestrian walkway would be flanked by upper floor residential windows and balconies looking onto this public walking, thereby eliminating existing dark areas and adding a 24-hour human presence to this pathway. Figures III-12 and III-13 provide illustrative axonometric drawings of the enhanced pedestrian bridge walkway through the Shellmound building.

- *UA Theater Zone* – The proposed project would enhance the area surrounding the UA Theater to better facilitate vehicular pick-up and drop-off activities, provide additional surface level parking, and provide an additional pedestrian walkway across the surface level parking area from the front (eastside) of the Tower building to the UA Theater building. This new walkway would also create a new line-of-sight to visually connect the southern and northern portions of the Marketplace. Figure III-14 depicts the proposed UA Theater Zone improvements.
- *64th & Christie Building and Circulation Zone* – The proposed project would create a new, mid-block intersection on Christie Avenue, south of the proposed 64th & Christie building, that would require vehicular traffic to come to a complete stop, thereby improving pedestrian safety and access to the Marketplace site and Christie Park. This new mid-block intersection would realign the Christie Avenue ingress to the Marketplace with the driveway to the west, which provides ingress to the under construction Avenue 64 residential project and existing Pacific Park Plaza tower, as depicted in Figure III-15 (and Figure III-4). Retail Pad 2 would be located directly south of this new intersection. In addition, the proposed project would add new signage at this Christie Avenue entrance, as well as the Shellmound Avenue entry to the site that would create a continuous vehicular and pedestrian system.
- *City Park Edge* – The proposed project would enhance the accessibility, safety, and aesthetics of the northern edge of Christie Park. The proposed improvements would remove the tall trees and dark hedges that currently enclose the northern edge of the park, as well as would remove the concrete drainage ditch located between the dark hedges and the park. As indicated, Retail Pad 2 would be located directly north of the park and would be designed to allow tenant doors to open onto it. As a result, informal observation of the park from Retail Pad 2 and Christie Avenue would be much more readily visible, thereby significantly improving park safety for area residents and Marketplace patrons, especially at night. The opening up of the northern edge of the park would reduce the number of existing surface level parking space directly adjacent to the park. These spaces, however, would be relocated into reconfigured surface parking areas and the



LSA

FIGURE III-11

Marketplace Redevelopment Project EIR

Shellmound Building:
Illustrative Pedestrian
Connection to Amtrak Station

NOT TO SCALE

PEDESTRIAN ROUTES FROM AMTRAK BRIDGE THROUGH SHELLMOUND BUILDING

SOURCE: HELLER·MANUS ARCHITECTS, 2005.

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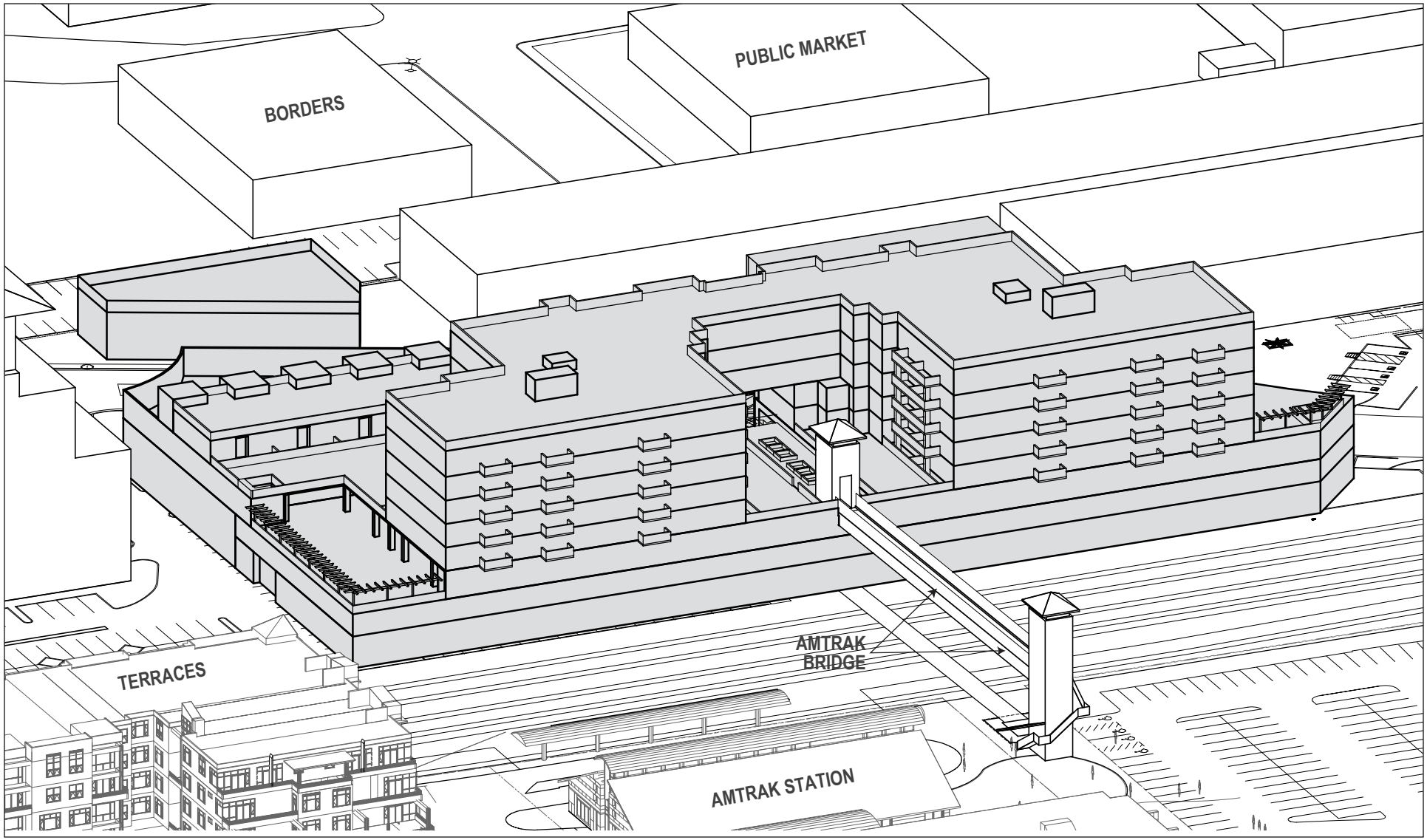


LSA

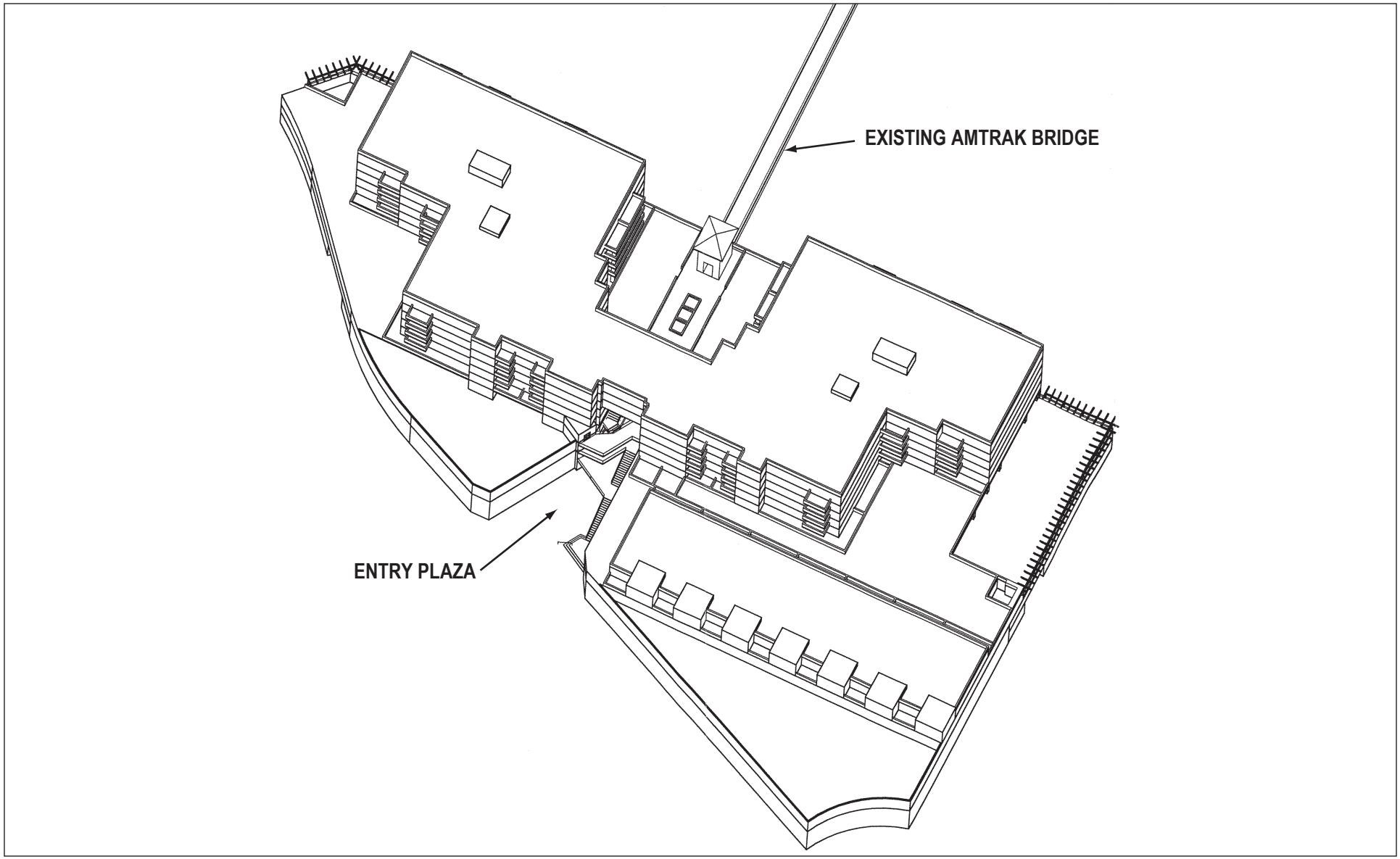
FIGURE III-12

Marketplace Redevelopment Project EIR
Shellmound Building Zone:
Amtrak Pedestrian Bridge Connection

NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, 2006.
I:\CEM531 marketplace\figures\Fig_III12.ai (4/24/07)



LSA

FIGURE III-13

Marketplace Redevelopment Project EIR

Bird's Eye View of Shellmound Building/
Amtrak Pedestrian Bridge Connection

SOURCE: HELLER·MANUS ARCHITECTS, 2005.

I:\CEM531 marketplace\figures\Fig_III13.ai (4/24/07)

LSA

FIGURE III-14

Marketplace Redevelopment Project EIR
UA Theater Zone Improvements

SOURCE: GATES & ASSOCIATES, 2005.
I:\CEM531 marketplace\figures\Fig_III14.ai (4/24/07)

LSA

FIGURE III-15

Marketplace Redevelopment Project EIR
64th & Christie Building and
Circulation Zone Improvements

SOURCE: GATES & ASSOCIATES, 2005; LSA ASSOCIATES, 2006.
I:\CEM531 marketplace\figures\Fig_III15.ai (4/25/07)

Shellmound building parking structure. Finally, opening up the northern edge of the park is intended to provide better visual connection from the diagonal walkway in the park to the new Christie Avenue intersection, thereby improving pedestrian access to the park.

5. Utilities

Because the site currently supports entertainment, commercial, and office uses, public utilities are available to serve the additional new development proposed by the project including water, sanitary sewer, storm water, and power and communications as described below. Figures III-16a and 16b depict the existing and proposed Marketplace utility plan.

a. Water Service. Water is provided to the project site by the East Bay Municipal Utility District (EBMUD). All of the proposed new buildings, excepting Retail Pad 3, would connect to the existing drinking and fire water lines located under 64th Street, Christie Avenue, Shellmound Street, and Powell Street roadways. The 64th & Christie and Retail Pad 2 buildings would connect to existing water line infrastructure under 64th Street and Christie Avenue, as shown in Figure III-16a. These water line improvements would be limited to a total of approximately 150 feet of new 8-inch water pipes connecting the new buildings to the existing water service under 64th Street and Christie Avenue. Water service improvements for the Shellmound and Retail Pad 1 buildings, however, would be much more extensive, as depicted in Figure III-16b. A total of approximately 1,650 feet of 8-inch water pipe would be added under the drive aisle and parking area between the Shellmound building and Woodfin Hotel extending to connect to Powell Street water lines, under Shellmound Street around and south of Retail Pad 1, and under Shellmound Way to connect to existing water lines under Christie Avenue. Retail Pad 3 would connect into the existing drinking water lines on-site, extending 300 feet of two-inch water pick west toward Christie Park, then 120 feet south to connect into an existing water line south of the Public Market Building. The existing fire water line underlying Retail Pad 3 would be relocated approximately 25 feet west. This fire water line would service Retail Pad 3 and the existing utility building located north of the Marketplace Tower building.

b. Sanitary Sewer. EBMUD also provides sanitary sewer service to the City of Emeryville, including the project site. The 64th & Christie and Retail Pad 2 buildings would connect to existing sanitary sewer pipelines located under 64th Street and Christie Avenue. Sewer service for the Shellmound building would require the addition of approximately 725 feet of new 8-inch sanitary sewer pipeline under Shellmound Street, connecting to the existing sanitary sewer line bisecting the northern portion of the project site, as shown in Figure III-16a. Retail Pad 1 would extend approximately 30 feet of 8-inch sanitary sewer pipeline to connect into existing sanitary sewer line underlying Shellmound Street. Retail Pad 3 would extend approximately 100 feet of 8-inch sanitary sewer pipeline north to connect into an existing sewer line transecting the Marketplace surface parking area.

c. Storm Water. Collection of storm water on the project site is currently provided by a network of storm drainage inlets and pipelines distributed across the site. The proposed project would facilitate more efficient storm drainage with the addition of approximately 1,700 feet of new, 12-inch storm water pipeline. The southeastern corner of the 64th Street & Christie building is underlain by an existing 15-inch storm drain pipeline that would be relocated as a part of site preparation for the proposed project. Approximately 800 feet of this new pipeline would facilitate drainage around the 64th Street & Christie and Retail Pad 2 buildings, as depicted in Figure III-16a, and would connect to the storm drain lines located in Christie Avenue. Approximately 700 feet of new 12-inch storm drainage pipe-

line would be installed adjacent to the Shellmound and Retail Pad 1 buildings, the majority of which will serve the relocation of the existing storm drainage line underlying the southern portion of the Shellmound building. The new Shellmound building storm drain pipelines would connect to the existing storm drainage system in Shellmound Street. Storm drainage for Retail Pad 3 would be provided through extension of approximately 175 feet of 12-inch storm water pipeline west connecting into an existing outlet located adjacent to the Marketplace Tower and Public Market buildings, as depicted in Figure III-16b.

d. Power and Communications. Pacific, Gas and Electric Company (PG&E) supplies electrical power and gas in Emeryville, and AT&T provides telephone service, both of which are currently available at the project site. PG&E and AT&T utilities are provided in underground conduits in 64th Street, Christie Avenue, and Shellmound Street. The proposed project would extend underground conduits to these existing utilities from the new buildings via joint trenches, as depicted in Figures III-16a and III-16b. The 64th & Christie and Retail Pad 2 buildings would extend individual joint trenches for these utilities directly to Christie Avenue. The Shellmound building would extend a new joint trench line approximately 450 feet south under the parking area to the rear (north) of the Woodfin Hotel to connect into an existing joint trench line located Powell Street. Retail Pad 1 would extend approximately 160 feet of joint trench line across Shellmound Street to connect into an existing joint trench line located in front (west) of the Woodfin Hotel. Retail Pad 3 would extend a new joint trench line approximately 300 feet west toward Christie Park then 130 feet south to connect into an existing joint trench line west of the Public Market building.

6. Demolition

Demolition activities on the 64th & Christie building site would include the removal of the two vacant light industrial buildings, totaling approximately 26,000 square feet, located on the southeast corner of 64th Street and Christie Avenue, as well as the removal of all ancillary surface-level parking spaces. On the Marketplace site, approximately 340 surface parking spaces would be removed, the majority of which (i.e., 251 spaces) are located on the site of the proposed Shellmound building, and would be replaced with structured parking spaces (see Phasing discussion below). The remaining surface parking spaces to be removed are on the site of proposed Retail Pads 2 and 3. Construction debris, such as old foundations, pavement, utilities, and structures would be collected and hauled off the site to the Altamont Landfill. The 26,000 square feet of buildings that would be demolished would yield approximately 2,400 cubic yards of solid waste. The removal of the existing asphalt and aggregate base would create approximately 700 cubic yards of solid waste, resulting in a total landfill disposal of up to 3,000 cubic yards of waste.

The project has been designed to retain the majority of the surface parking areas. As a result, stockpiling of recycled asphalt and aggregate base for reuse in the project is not possible without damaging the surface of the underlying parking area. Additionally, due to parking constraints, the project site does not have adequate space to stockpile and recycle material on site. Removed asphalt materials will be hauled to local recycle plants. Removed aggregate base materials will be hauled to the Altamont Landfill for recycling. Where possible, recycled materials will be used as aggregate base material for the small amount of new pavement installed with the new project and for the preparation of the building pads.

7. Grading

The topography of the project site is generally flat, with slopes of four percent or less. To build up the five building pads, approximately 6,000 cubic yards of material ("fill"), consisting of soil and/or aggregate would be brought to the site from an off-site source to be identified in coordination with the contractor.

8. Project Construction and Phasing

Construction of the proposed project would occur in three phases, anticipated to begin in Spring 2008 through Summer 2009, as follows:

- **Phase 1** would include a lot line adjustment for the 64th Street & Christie building, the relocation of the driveway south of this building, completion of permanent and temporary surface-level parking lot re-striping and improvements, including the UA Theater Zone improvements.
- **Phase 2** would include construction of the Shellmound and 64th & Christie mixed use, mid-rise buildings, including the Amtrak connection pedestrian improvements and the new outdoor plaza between the Shellmound site and Border's Bookstore.
- **Phase 3** would include construction of the three, single-story retail pads.

The two, mixed use, mid-rise buildings would be concrete and/or steel frame construction, and pile driving for building foundations may be necessary. The use of pile driving will be determined upon review of further geotechnical and structural building systems studies. For the purposes of this EIR, it is assumed that pile driving will be used during construction. Excavation depth on the project site is anticipated to range from two feet to 12 feet. The three, single-story retail pad buildings would be wood-, steel-, or concrete-frame construction, and pile driving is not anticipated.

E. DISCRETIONARY ACTIONS

The project applicant has requested the following discretionary actions:

1. Rezoning and Preliminary Development Plan

In order to achieve an attractive, large scale, phased project, the applicant has requested a rezoning of the Marketplace site from Mixed-Use to Planned Unit Development (PUD). The proposed PUD would be established by approval of the requested Preliminary Development Plan (PDP). The PDP would establish the basic type and intensity of land uses on the site, as well as site development guidelines. The existing Master Use Permit (MUP) on the Marketplace site would be superceded and replaced by the proposed PUD. If the proposed PUD/PDP is approved, Final Development Plans (FDPs) would be required for each building that specify the specific architectural design, landscaping, grading, and improvements required, including condominium subdivisions for the Shellmound and 64th & Christie buildings.

2. Lot Line Adjustment

The project applicant has requested a lot line adjustment to reconfigure the parcel boundaries of the Marketplace and 64th & Christie building sites. The lot line adjustment would merge the two existing parcels into one, as well as would extend the southern boundary of this parcel 76 feet farther south to

create a new 68,133 square foot parcel (Figure III-17). In addition, parking, access and development setback easements would be granted to the Marketplace on portions of the 64th & Christie building site (as shown in Figure III-17). If the proposed project is approved, the project applicant will subsequently request subdivision maps to establish condominium parcels in the Shellmound and 64th & Christie mixed use buildings.

3. Owner Participation Agreement Amendment

Consistent with the Emeryville Redevelopment Plan and existing Owner Participation Agreement (OPA) for the Marketplace site, the applicant has requested an OPA Amendment to do the following:

- Amend the description of the approved project to add the mixed use Shellmound and 64th & Christie buildings, as well as Retail Pads 1, 2, and 3;
- Update the OPA to be consistent with the approved PUD;
- Provide necessary financial assistance to support redevelopment of the project site, including affordable housing and site acquisition; and
- To make Rockwood Christie, LLC, party to the Owner Participation Agreement.

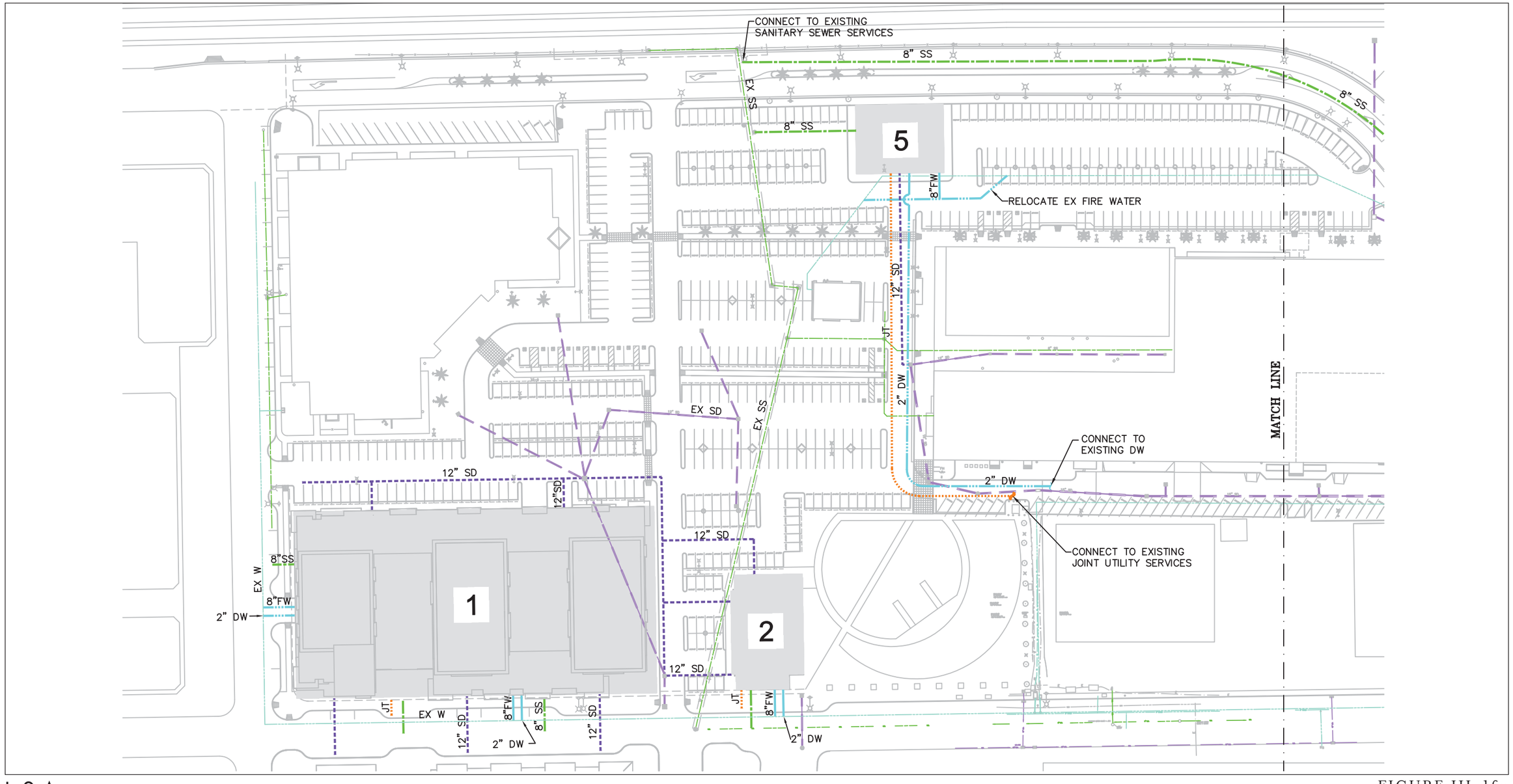
F. INTENDED USE OF THIS EIR

It is anticipated that this EIR will provide environmental review for all discretionary approvals and permits necessary for the project. Such additional discretionary review includes Final Development Plans (FDPs) specifying the architectural design and detailing for each new building on site and subdivision maps to create condominium parcels in the Shellmound and 64th & Christie buildings. As lead agency for the proposed project, the City of Emeryville would be responsible for the majority of approvals required for development. Other agencies and service providers also have some authority related to the project and its approvals. A list of the required permits and approvals that may be required by the City, other agencies, and service providers is provided in Table III-2.

Table III-2: Required Permits and Approvals

Lead Agency	Permit/Approval
City of Emeryville	• Rezoning to Planned Unit Development • Lot Line Adjustment • Preliminary Development Plan • Final Development Plans • Redevelopment Agency actions, including an Owner Participation Agreement Amendment • Subdivision Maps to create new condominium parcels in Shellmound and 64th & Christie buildings • Encroachment, demolition, grading, and building permits • Amendment of Reciprocal Easement Agreement (REA)
Responsible Agencies	
East Bay Municipal Utility District (EBMUD)	• Approval of water line, water hookups and review of water needs.
California Regional Water Quality Control Board (RWQCB)	• National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge. • Approval and oversight of required remediation plans.
Department of Real Estate	• Approval of for-sale Condominium Plans for both the Shellmound and 64th Street & Christie building.
Other Agencies and Service Providers	
AT&T	• Approval of communication line improvements and connection permits.
Pacific Gas & Electric (PG&E)	• Approval of natural gas improvements and connection permits.
California Department of Toxic Substances Control (DTSC)	• Approval and oversight of the site remediation.
Bay Area Air Quality Management District (BAAQMD)	• Review of asbestos abatement and lead based paint activities.

Source: LSA Associates, Inc., 2006.



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LEGEND

- PROPOSED JOINT TRENCH (JT)
- PROPOSED SANITARY SEWER (SS)
- PROPOSED STORM DRAINAGE (SD)
- PROPOSED WATER (FW, DW)
- EXISTING JOINT TRENCH (JT)
- EXISTING SANITARY SEWER (SS)
- EXISTING STORM DRAINAGE (SD)
- EXISTING WATER (FW, DW)

BUILDINGS

1 MIXED USE 64TH & CHRISTIE BUILDING

2 RETAIL PAD BUILDING NO. 2

5 RETAIL PAD BUILDING NO. 3

N

0 50 100

FEET

FIGURE III-16a

Marketplace Redevelopment Project EIR

Existing and Proposed Utility Plan (Northern Portion)

SOURCE: BKF ENGINEERS, 2007.

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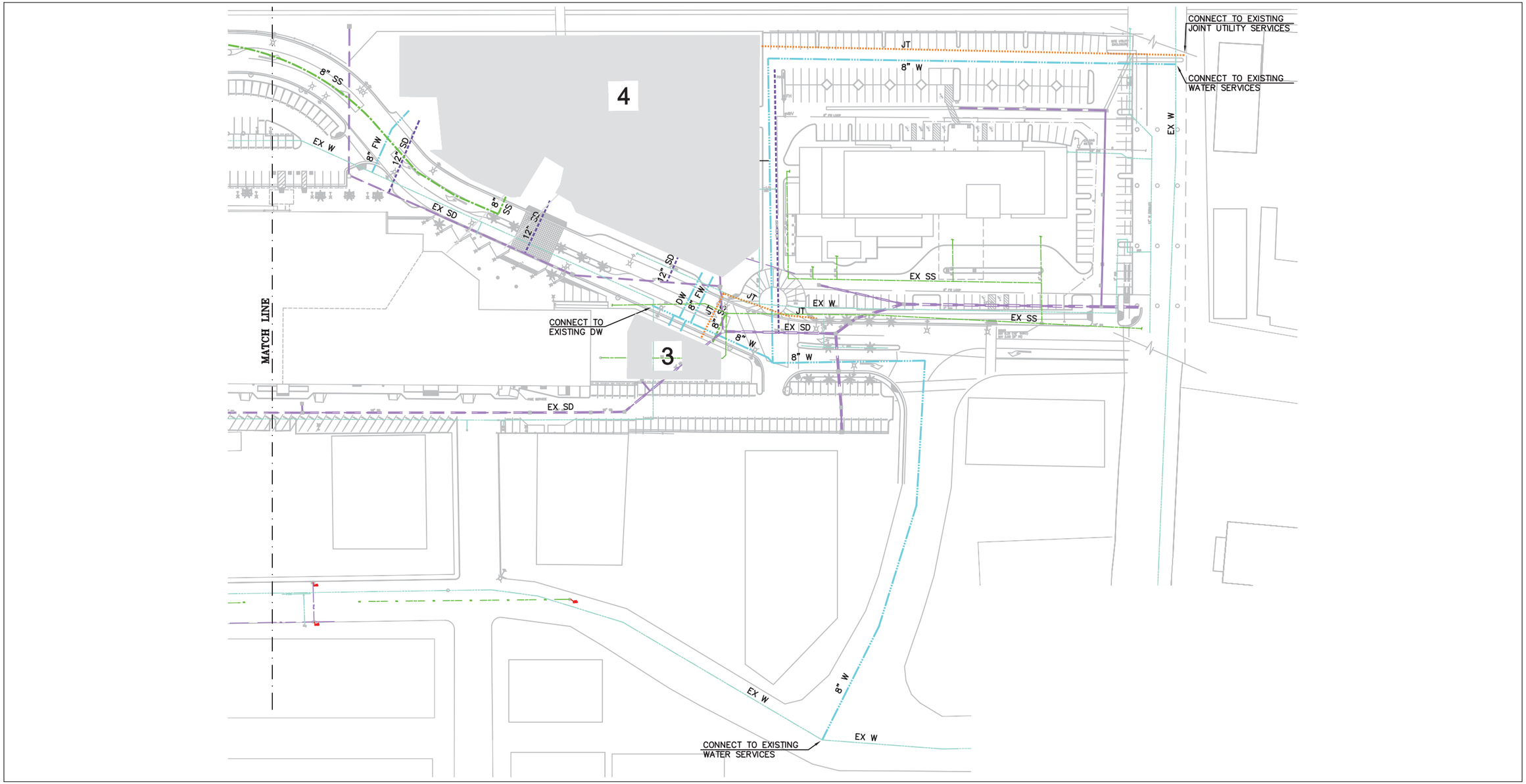

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FIGURE III-16b

Marketplace Redevelopment Project EIR
Existing and Proposed Utility Plan
(Southern Portion)

LEGEND

- PROPOSED JOINT TRENCH (JT)
- PROPOSED SANITARY SEWER (SS)
- PROPOSED STORM DRAINAGE (SD)
- PROPOSED WATER (FW, DW)
- EXISTING SANITARY SEWER (SS)
- EXISTING STORM DRAINAGE (SD)
- EXISTING WATER (FW, DW)

BUILDINGS

- 3 RETAIL PAD BUILDING NO. 1
- 4 MIXED USE SHELLMOUND BUILDING

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SOURCE: BKF ENGINEERS, 2007.

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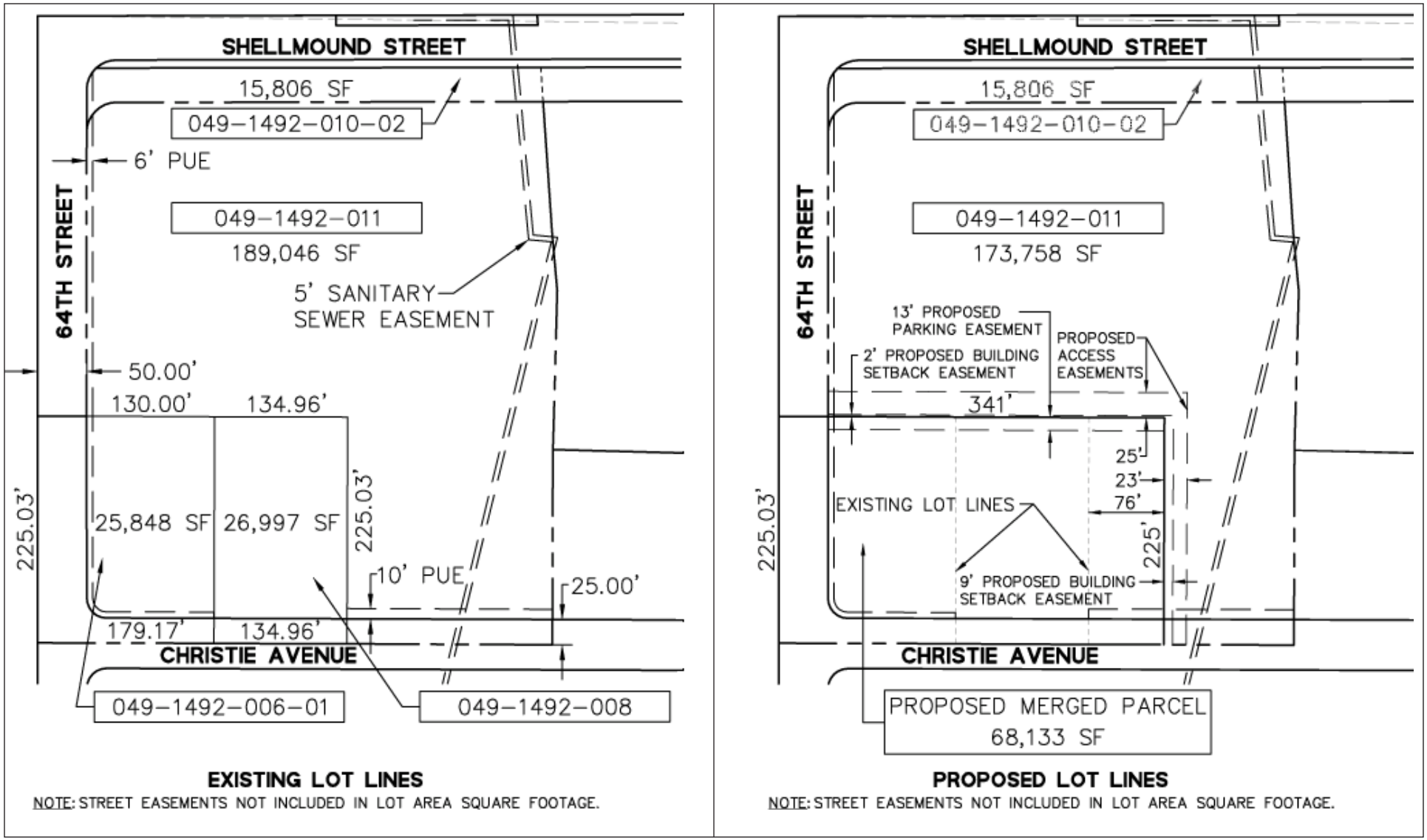

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FIGURE III-17

Marketplace Redevelopment Project EIR

Proposed Lot Line Adjustment:
64th & Christie Building

N

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SOURCE: BKF ENGINEERS, 2005.

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IV. PLANNING POLICY

This chapter provides a discussion of the proposed project's consistency with land use planning policies. Policy conflicts are not in and of themselves considered significant environmental impacts under CEQA if they would not result in physical environmental impacts. In select topical sections of the EIR where policy conflicts could result in physical environmental impacts, such as regional air quality and transportation, applicable policies are discussed in those individual sections. Potential conflicts between proposed and existing land uses in the vicinity of the project site are addressed in Section V.A, Land Use.

The primary City documents regulating land use planning within and around the project site are: 1) the 1993 General Plan, including the 2001 Housing Element; 2) the Zoning Ordinance; and 3) the 1976 Emeryville Redevelopment Plan. A summary of the purpose and major components of each of these plans is provided below, followed by a discussion of the proposed project's consistency with applicable policies.

A. EMERYVILLE GENERAL PLAN

The following section begins with a description of the Emeryville General Plan, including applicable goals, objectives, policies, implementation measures, and programs to the proposed project. The section concludes with a discussion of the proposed projects consistency with identified General Plan policy.

1. Description

The Emeryville General Plan (General Plan) was adopted in 1993. The General Plan:

> *"consists of a series of policy statements (in text and map form) regarding the future of the city. It focuses on issues which may be affected, to varying degrees, by actions of the city government… As its name implies, it is not a specific blueprint of what the city should be. Rather, it attempts to establish a generalized framework to guide city change, looking some 15 years into the future."*

The Emeryville General Plan includes each of the seven required topical areas within three chapters. These three chapters are organized broadly and include:

- *Community Development*: This chapter provides policies related where people live and work, how they get about town, what services are provided to improve the community's quality of life, and how the aesthetic of structures, roadways, and the community are integrated to create a cohesive community identity. Specifically, Community Development policies are provided under the following topic areas: housing; economic development; circulation; public facilities and services; land use; and community design. In accordance with Government Code Section 65580, housing

policy provided in the General Plan was last updated in 2001, and is a stand-alone Housing Element document.

- *Environmental Resources*: Policies provided in this chapter address natural and human built resources including those related to air quality, energy, water, and biological resources, as well as cultural and historic resources sections.

- *Public Health and Safety*: As indicated in the name of this chapter, policies provided strive to address health and safety hazards, as well as plan for emergencies, when they come about. As such, policies in this chapter are organized under the following topics: geotechnical hazards; flood hazards; noise; hazardous materials; fire and crime; and emergency preparedness.

The General Plan Land Use Plan provides a land use designation for each parcel within the City's corporate limits, ranging from residential to industrial uses. Six land use designations are provided for on the General Plan Land Use Plan, as described in the Table IV-1.

The proposed project's General Plan land use designation is Mixed Use (Figure IV-1), and it is also located in the North Bayfront Neighborhood, as depicted on the General Plan Neighborhoods and Districts Map.[1]

The General Plan Building Intensity Map depicts the maximum floor area ratio (FAR) for non-residential development for the majority of the project site as 2.0 (allowing up to 200 percent of the project site area to be covered with non-residential floor area), as depicted in Figure IV-2.[2] The only exception to the 2.0 FAR is the northern portion of the project site underlying the UA Theater, proposed Retail Pad 2, and a portion of the 64th & Christie building (Figure IV-3) which allows a 1.5 FAR.

Table IV-1: General Plan Land Use Designation Descriptions

General Plan Land Use Designation	Description
Medium Density Residential	Attached single- and multiple-family residential units at a density of 20 to 45 dwelling units per acre/
High Density Residential	Attached multiple-family residential units at a density of 45 or more dwelling units per acre.
Commercial	Uses which serve the needs of the general public such as dry cleaners, restaurants, retailers, and auto dealers.
Mixed Use	A mixture of commercial, office, residential, industrial, lodging, and civic uses within one building or function as one development within separate buildings.
Industrial	The General Plan states that in areas designated for industrial uses, "a variety of uses [ranging] from heavy manufacturing to research and development and arts and crafts may function efficiently side by side. In certain locations, residential uses may also be acceptable."
Open Space	Areas typically used for passive or active recreation, either for private or public use, such as parks, pedestrian corridors, balconies/patios, and plazas.

Source: Emeryville General Plan, 1993; LSA Associates, 2006.

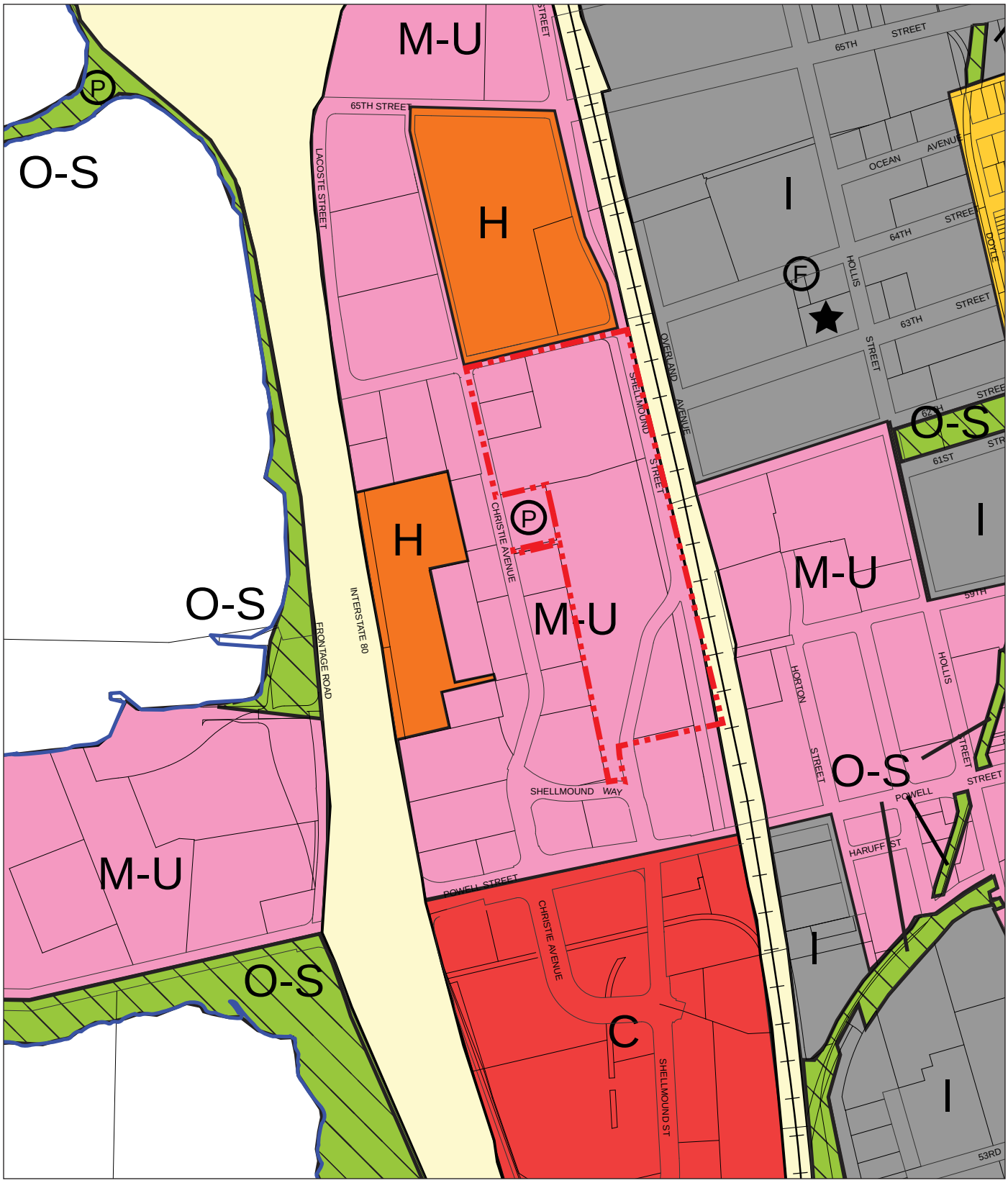
For residential development on the project site, General Plan policy states that the "bulk of residential development in Emeryville should be of medium density,"[3] which is defined on the Land Use Plan as 20 to 45 dwelling units per acre.[4]

[1] City of Emeryville, 1993. Emeryville General Plan, *Figure 3: Neighborhoods and Districts Map.*

[2] City of Emeryville, 1993. Emeryville General Plan, *Figure 7: Building Intensity Map.*

[3] City of Emeryville, 1993. Emeryville General Plan, Community Development Chapter, Land Use Policy 6, p. 22.

[4] City of Emeryville, 1993. Emeryville General Plan, Figure 1: *Land Use Plan.*



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M	MEDIUM DENSITY RESIDENTIAL* (20 < DU/GROSS AC < 45)
H	HIGH DENSITY RESIDENTIAL* (DU/GROSS AC > 45)
C	COMMERCIAL
I	INDUSTRIAL
M-U	MIXED USE
O-S	OPEN SPACE

Ⓟ	PARK
Ⓢ	SCHOOL
Ⓕ	FIRE STATION
★	PUBLIC BUILDING
	PROJECT SITE

* ASSUMES 1.7 PERSONS PER DWELLING UNIT

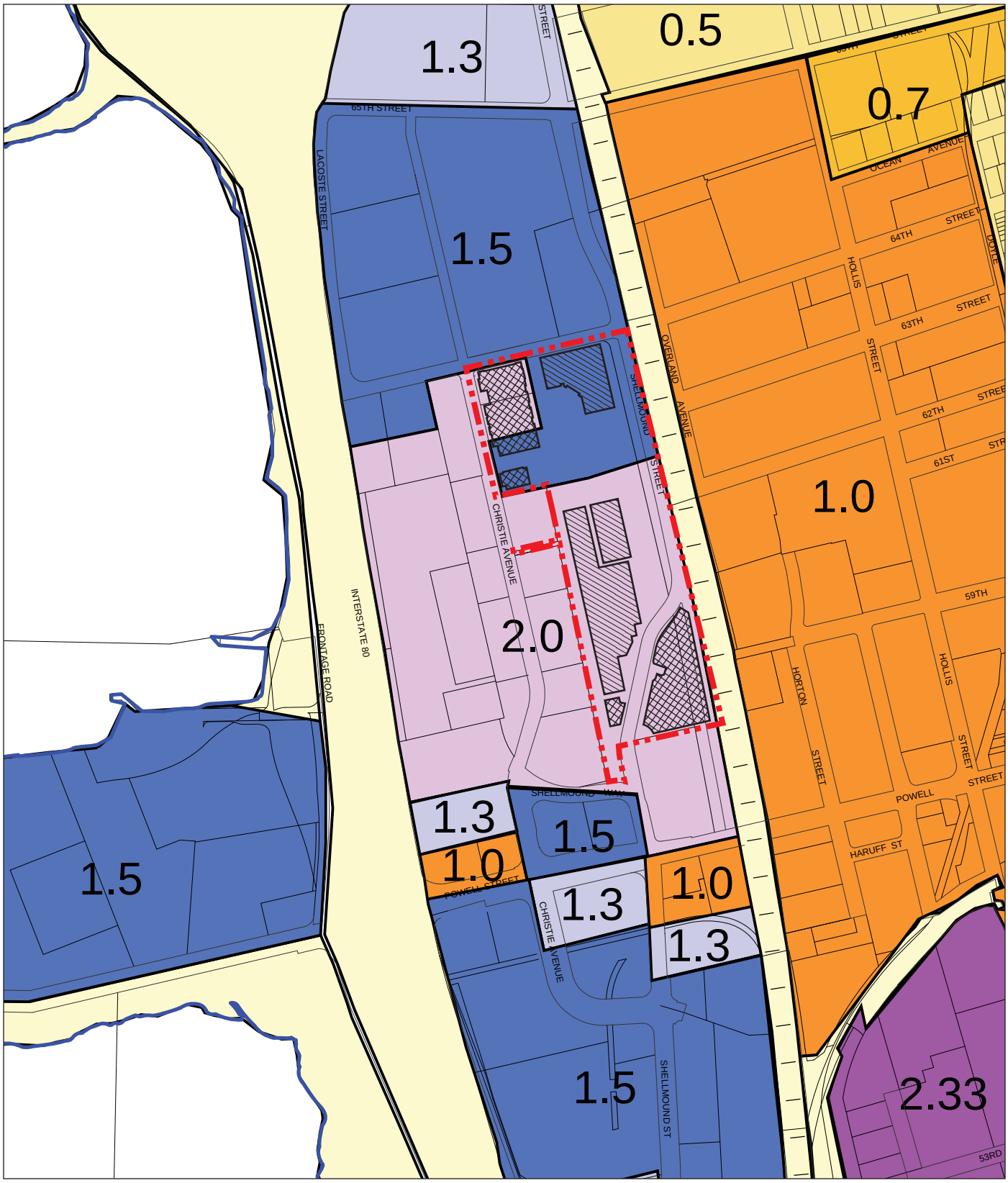
SOURCE: CITY OF EMERYVILLE, 2005.

FIGURE IV-1

Marketplace Redevelopment Project EIR

General Plan

Land Use Designations



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SOURCE: CITY OF EMERYVILLE, 2005.

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FIGURE IV-2

Marketplace Redevelopment Project EIR

Building Intensity Permitted by General Plan with Existing and Proposed Building Footprints

The project site is located in a predominately mixed use neighborhood, which is similarly designated Mixed Use to the northwest, west, southwest, south, south east, and east. Directly north of the project site, the area is designated High Density Residential. The area to the northeast is designated Industrial. See Chapter V.A, Land Use, for a description of existing land uses surrounding the project site.

The General Plan provides long range policy direction intended to guide City decision making in the form of goals, objectives, policies, implementation measures, and programs. Goals are broad, generalized expressions of community held values. In the Emeryville General Plan, five Citywide goals and four housing goals are provided. Objectives are subsets of individual goals that are more narrowly defined and represent concrete expressions of community intent. One goal may imply two or more objectives, each responsive to a particular aspect of the more broadly stated goal. Policies are fairly precise statements that indicate how public regulatory powers and fiscal resources should be allocated over time to achieve specific objectives. Implementation measures provided direction, generally to the City, itself, to take specific action to ensure the enactment of policies. Programs provide the same function as implementation measures, but are only found within the 2001 Housing Element document.

Table IV-2, located at the end of this chapter, provides the goals, objectives, policies, implementation measures, and programs applicable to the planning issues associated with the proposed project and site. As indicated, goals, objectives, policies, implementation measures, and programs that are applicable to discrete environmental topics (e.g., air quality, noise, aesthetics) are discussed in those topical EIR sections in Chapter V, Setting, Impacts, and Mitigation Measures.

2. Consistency

This subsection provides a discussion of the proposed project's consistency with applicable General Plan policies. Table IV-2, at the end of this chapter, provides a policy-by-policy listing that indicates the proposed project's relationship and consistency with each identified applicable General Plan planning policy.

The proposed project would result in changes to the project site that would intensify land uses on the site by redeveloping underutilized portions of it with additional commercial/retail uses, as well as adding new residential uses. The key elements of this project include demolishing two, industrial/warehouse buildings, removing approximately 250 surface-level parking spaces, reconfiguring the existing surface level parking area, and constructing four new buildings (two, mid-rise mixed, residential/retail buildings; two, single-story retail pad buildings).

General Plan policies applicable to the proposed project address: intermingling land uses into mixed use developments, in particular, those incorporating residential uses into mixed, commercial and office developments; providing services for the local resident and work force populations; creating developments that are compatible with the character and scale of the existing, surrounding development; consistency with adopted General Plan intensity and density maps; and, improving pedestrian accessibility and open space opportunities. The proposed project, which would allow for redevelopment of an underutilized, mixed commercial/office/entertainment site, is consistent with and related to applicable policies in the General Plan, as follows:

- Policies related to the intermingling of land uses, particular those that incorporate dwelling units into commercial and office developments include Citywide Goal 2, Housing Program II-A-6,

Housing Policies II-C-1 and II-C-2, Land Use Objective A, and Land Use Polices 9, 12, and 13. The proposed project would add up to 340 multi-family dwelling units (equivalent to 578 new residents) to an existing underutilized mixed, office/commercial/entertainment site. Existing surface-level patron parking replaced by the four new buildings would be relocated into parking structures in the two, mid-rise buildings (i.e., Shellmound and 64th & Christie buildings) or elsewhere as reconfigured surface-level parking spaces.

- Policies related to the provision of services to the City's residential and workforce populations include Citywide Goal 1 and Land Use Objective B. The proposed project would add up to 75,000 square feet of commercial space to support demand created for services by area resident and workforce populations. It would also improve access to public transit (e.g., Amtrak pedestrian bridge enhancements and new bus layover stop adjacent to new Shellmound building).
- Policies related to compatible development with character and scale of existing, surrounding development include Citywide Goal 2, Land Use Objective 1, Land Use Policies 1, 2, 3, 6, 7, 8, and 12. The proposed project is surrounded by buildings ranging in height from one- to 30-stories, with the majority averaging three- to 10-stories, each articulated with architectural detailing that breaks up large wall massing, creating shade, shadow, and depth on the large, expansive surfaces of these mid-rise buildings. (Note: Building height standards are provided for in the Emeryville Zoning Ordinance, which is discussed in Section B, Emeryville Zoning Ordinance.) The proposed project would incorporate similar architectural detailing in each of the four buildings proposed, including stepped back upper floors to minimize building massing, as perceived by pedestrians, as well as to transition the building's edge where abutting smaller structures; utilize protruding and recessed tower elements to create depth, shadow, shade, and interest; and incorporate a variety of colors and materials to create modern architecture that coordinates and complements the historical character of the existing red brick Public Market buildings on the project site as well as elsewhere throughout the area.
- Policies related to consistency with adopted General Plan intensity and density maps include Land Use Polices 1, 2, 3, 6, 9, and 12. As described, the General Plan intensity for the majority of the project site (i.e., non-residential portion) is 2.0 FAR, excepting the northern portion of the site underlying the UA Theater, proposed Retail Pad 2, and a portion of the proposed 64th & Christie building, which is 1.5 FAR (as depicted in Figure IV-2). The proposed project would result in an average 0.51 FAR for the 15-acre site, which is well below the 1.5 and 2.0 permitted FAR maximums. For residential development on the project, dwelling unit density should be between 20 and 45 units per acre, as established by General Plan policy (i.e., Land Use Policy-6 and General Plan Land Use Plan). The proposed 340 residential units would average 23 units per acre over the 15-acre site, which is within the General Plan established density range for the project site.
- Policies related to improving pedestrian accessibility and open space opportunities include Public Facilities and Services Policy 10, Land Use Implementation 2, Community Design Objective H, and Community Design Policies 1 and 2. The proposed project would improve pedestrian accessibility around and through the project site by reducing the width of Christie Avenue and adding new full-stops on Christie Avenue and Shellmound Street (as described in the Chapter III, Project Description), thereby requiring vehicular traffic to slow down, making these streets more comfortable for pedestrians. Other pedestrian improvements include incorporating the Amtrak pedestrian bridge through the Shellmound building to create a safer transition from the Amtrak station to the Marketplace with additional lighting and exposure to public viewing points. Finally, the proposed project would create a more defined Marketplace activity center by strategically

locating a new plaza at the entry of the Shellmound building, adjacent to the Public Market buildings, which will provide a large, pedestrian outdoor open space enhanced with public art, water features, seating areas, and appropriately scaled landscaping surrounded by ground floor retail in the Shellmound and Public Market buildings. Additionally, this new plaza area and improvements would facilitate the visual connection between the Marketplace shopping area with the Bay Street shopping district located approximately ½-mile south on Shellmound Street. Further, the activity center created by redevelopment of the project site would involve a mix of land uses (i.e., office, retail, housing) that function as a comprehensive development, consistent with General Plan policy (Community Design Objective H, and Policies 1 and 2).

3. Potential Conflicts

The proposed project is consistent with applicable General Plan land use planning policies. As a result, no potential conflicts have been identified.

B. EMERYVILLE ZONING ORDINANCE

The following provides a general description of the Emeryville Zoning Ordinance, as well as specific, applicable Zoning Ordinance standards to the proposed project. The section concludes with an analysis of the proposed project conformance with applicable Zoning Ordinance standards.

1. Description

The Emeryville Zoning Ordinance (Zoning Ordinance) was adopted on September 6, 1988, and most recently amended in 2006. The purpose of the Zoning Ordinance is serve the public health, safety, and general welfare of Emeryville residents and employees, and to implement the General Plan, including the following objectives:

- To encourage the most appropriate use of land and the harmonious relationship among land uses;
- To promote a safe and efficient traffic circulation system;
- To provide open spaces for light and air;
- To prevent the overcrowding of land and the undue concentration of population, and to secure safety from fire and other dangers;
- To facilitate the provision of needed community facilities;
- To conserve and stabilize the value of property; and
- To conserve the City's natural beauty, to improve its appearance, and to enhance its physical character.

The 15-acre project site is currently zoned Mixed Use (M-U), as depicted in Figure IV-3. The M-U district implements the General Plan Mixed Use designation to develop sites with a mix of residential, commercial, industrial, and civic uses. To ensure that land uses proposed for mixed use developments are compatible, appropriately designed, well integrated, and do not result in adverse impacts on surrounding properties, proposals for mixed use development must obtain approval of a conditional use permit. The existing Marketplace site received approval of a Master Use Permit (MUP) in 1988, which is conditional use permit approved for large, integrated developments. The Marketplace MUP

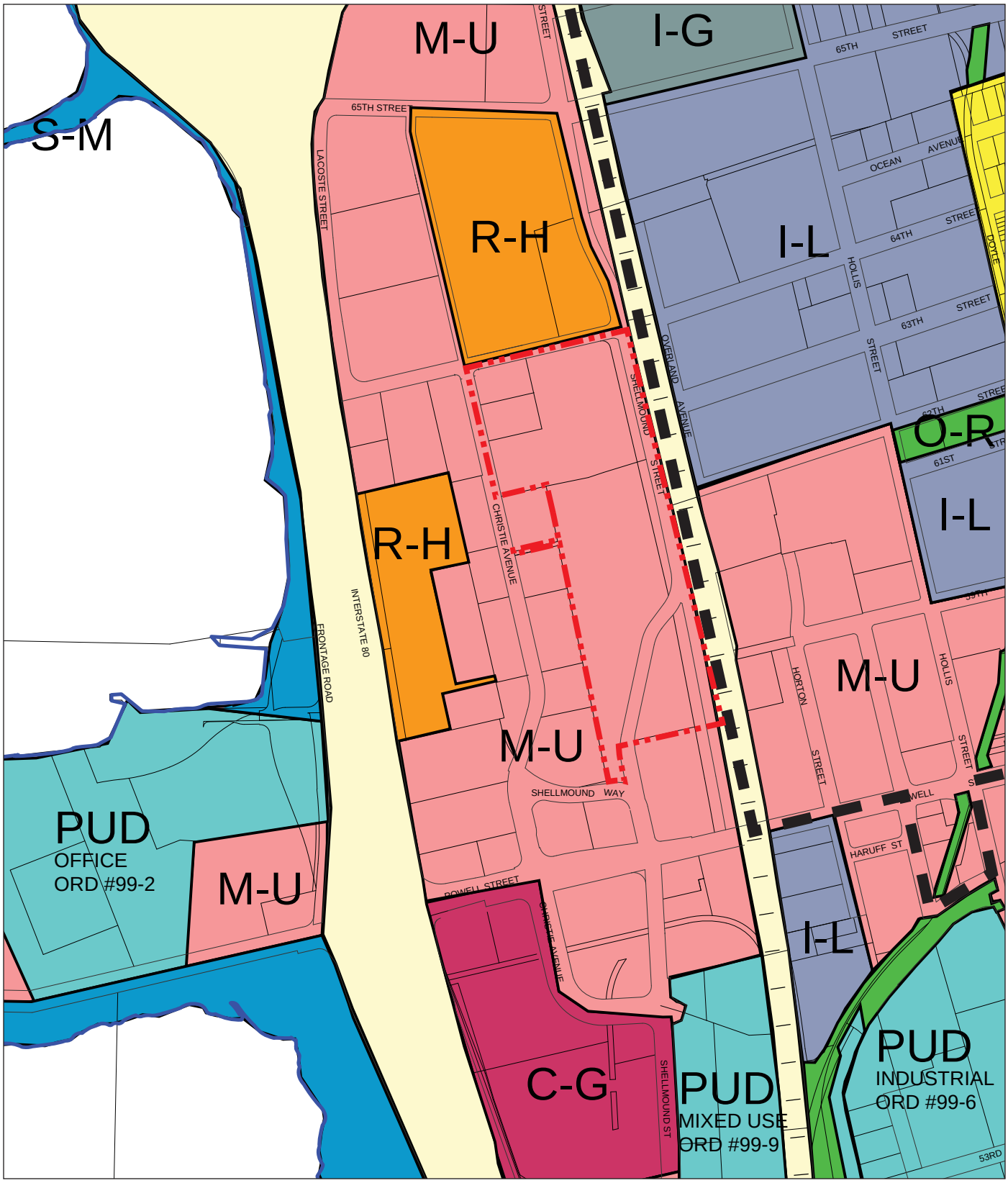
allows for the existing mix of entertainment, lodging, commercial/retail, and offices uses on the site including the 10-screen UA Movie Theater, Woodfin Suites Hotel, Marketplace office tower, and Marketplace Public Market buildings. The two industrial buildings on the 64th & Christie site are not included in the Marketplace MUP and, instead, are simply zoned M-U with no legislative entitlement on the site.

The M-U district provides specific development standards for density/intensity, building/structure height, and yard setback areas. Maximum residential density allowed in the M-U district is 45 dwelling units per gross acre, which could be increased to 60 units per acre with approval of a conditional use permit. Maximum intensity for non-residential uses in the M-U district must be consistent with the adopted General Plan building intensity map, which establishes a maximum floor area ratio (FAR) for each parcel, as described in Section A, Emeryville General Plan. As previously discussed, the maximum FAR for the majority of the project site is 2.0, excepting the UA Theater site and portion of the surface level parking area north of Christie Park, which allows a maximum FAR of 1.5 (shown in Figure IV-3).

The maximum building heights for the project site are established on the Zoning Ordinance Building Heights Map, as depicted in Figure IV-4. This figure also provides an overlay of the four proposed buildings on the existing zoning district building height restriction map. As indicated on this graphic, three building heights overlay the project site: 1) the portions of the site abutting Christie Avenue are restricted to 40 feet, which could be increased to 55 feet with a conditional use permit; 2) the majority of the Marketplace site, including the UA Theater, Public Market buildings, Tower, and half of the proposed Shellmound building site are restricted to 95 feet in height, which could be increased to 175 feet with a conditional use permit; and 3) the southern portion of the proposed Shellmound building and Retail Pad 1 sites are restricted to 55 feet in height, which could be increased to 80 feet with approval of a conditional use permit.

In regards to yard setback areas, the M-U district allows structures to be constructed on any property line, except when it abuts a residentially zoned district (i.e., R-M or R-H district). As depicted on Figure IV-3, the project site is bounded on its northern edge by an area zoned R-H. As a result, existing buildings constructed along the northern edge of the project site (i.e., UA Theater and light industrial building on southwest corner of 64th Street and Christie Avenue), as well as the north elevation of the 64th & Christie building if it were to conform to the M-U standards, must be setback no less than 10 feet from the property line, plus an additional two feet of setback for each foot of building height exceeding three stories.

As part of the proposed project, the 15-acre site would be rezoned to Planned Unit Development (PUD), which allows for flexibility in designing modern, large-scale, mixed use developments on sites with complex development constraints, such as environmental contamination. A PUD is established through the approval of a Preliminary Development Plan (PDP), which sets forth the type and intensity of uses on a site, as well as the basic development guidelines. At the time the Marketplace MUP was approved in the late 1980s, the Zoning Ordinance did not have provisions allowing the establishment of individual PUDs. Should the proposed project be approved, subsequent approval of Final Development Plans (FDPs) for each new building on the Marketplace would establish specific development regulations for the Marketplace PUD district.



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R-M MEDIUM DENSITY RESIDENTIAL
R-H HIGH DENSITY RESIDENTIAL
C-G GENERAL COMMERCIAL
I-L LIGHT INDUSTRIAL
I-G GENERAL INDUSTRIAL
M-U MIXED USE

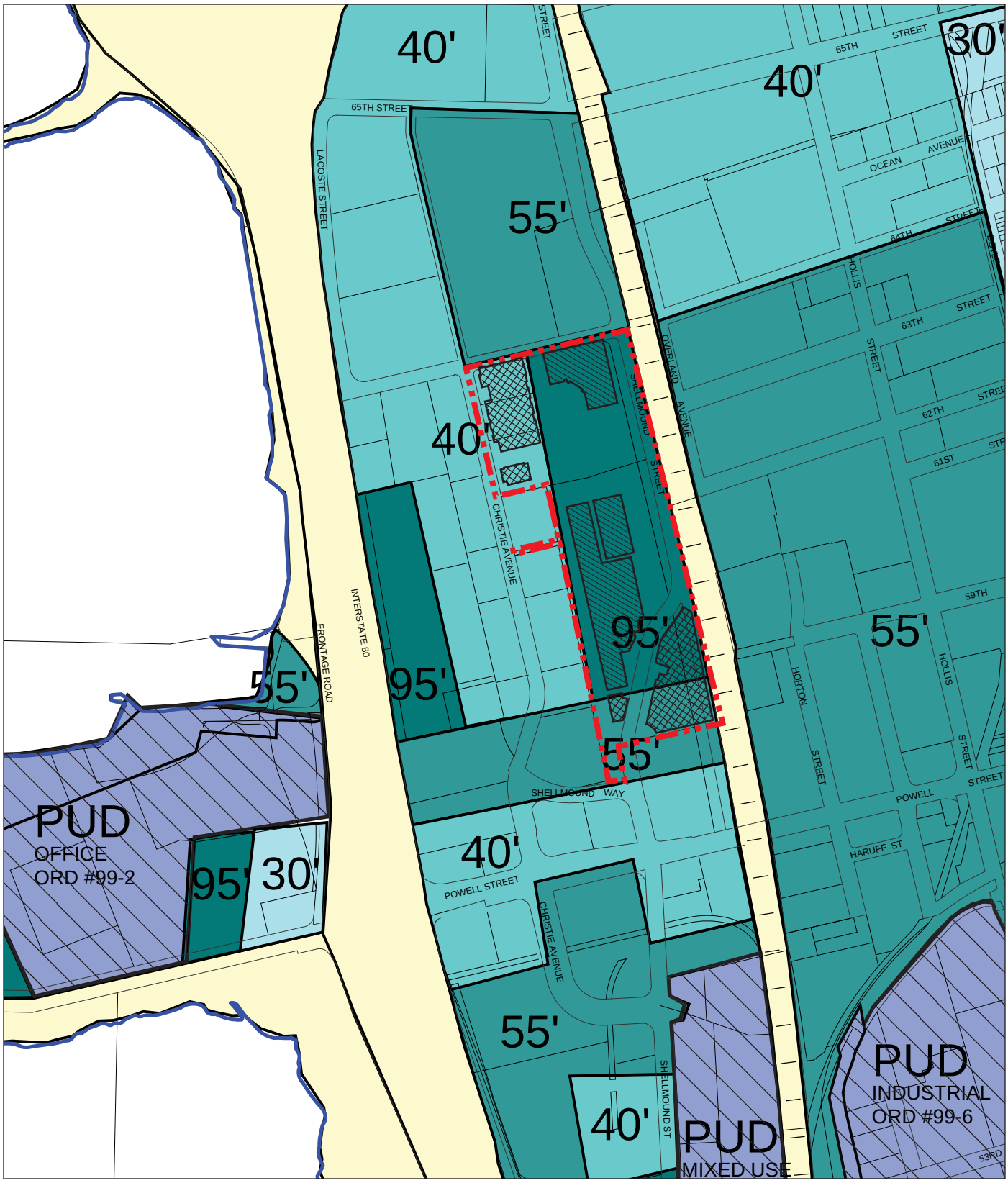
O-R OUTDOOR RECREATION
S-M SHORELINE MANAGEMENT
PUD PLANNED UNIT DEVELOPMENT
NORTH HOLLIS OVERLAY DISTRICT (N-H)
PROJECT SITE

FIGURE IV-3

Marketplace Redevelopment Project EIR

Project Site Zoning

SOURCE: CITY OF EMERYVILLE, 2005.



SOURCE: CITY OF EMERYVILLE, 2005.

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FIGURE IV-4

Marketplace Redevelopment Project EIR

Building Heights Permitted by Zoning Ordinance with Existing and Proposed Building Footprints

2. Consistency

This subsection provides a discussion of the consistency of the proposed project with Zoning Ordinance regulations.

Rezoning the project site from Mixed Use (M-U) to PUD would allow for greater design flexibility than would be allowed under the existing Mixed Use district standards. The net effect of this increased flexibility includes: taller buildings than that permitted by the M-U district; a specific list of allowed uses on-site without prior approval of individual conditional use permit (as required under the M-U district); an established total number of required parking spaces; an established total amount and location of landscaped areas; and, identified pedestrian enhancements and improvements (walkways, plazas). The construction of taller buildings on the site would enhance the urban nature and mixed use character of the North Bayfront neighborhood by creating a more uniform mid-rise building type throughout the district. Further, adding residential uses to the site would facilitate a 24-hour human presence, creating a lively urban village neighborhood, as well as increasing the City's affordable and market-rate for-sale housing stock. In addition, the PUD designation would allow the entire project site to be comprehensively planned, which would allow for better integration of open spaces, residential, commercial, office, and entertainment, as well as parking areas. The proposed zone change on the project site, therefore, would not result in adverse physical environmental impacts.

As a multiple use project, the proposed project is subject to Zoning Ordinance Article 57 requirements. The following describes how the proposed project would be consistent with Article 57 requirements:

- *Intensity*— As described under subsection A.2, General Plan Consistency, the proposed project would result with an average FAR of 0.51 over the 15 acre project site, which is within the 1.5 and 2.0 FAR's underlying the site on the General Plan Building Intensity Map.
- *Access*—The two proposed mid-rise mixed use buildings have been designed so that the residential units have separate entrances and exits from the ground floor retail and parking structure entryways and exits access areas.
- *Noise*—Non-conformance with this standard could result in an adverse, physical impact. As a result, it is discussed in Section V.E, Noise and Vibration.
- *Lighting*—Non-conformance with this standard could result in an adverse, physical impact. As a result, it is addressed in Section V.J, Aesthetics and Visual Resources.
- *Landscaping*—The two, proposed mid-rise, mixed use buildings have been designed with vertical landscaping extending from grade level through the parking structure floors. These vertical landscaped walls will reduce traffic noise levels reverberating up the buildings to the residential unit balconies.
- *Open Space*—The two, proposed mid-rise, multiple use buildings have been designed so that each residential unit would have an outdoor balcony with at least 36 square feet of private open space.

3. Potential Conflicts

The proposed PUD, if approved, would rezone the 15-acre project site PUD with development intensities and densities consistent with that proposed by the project applicant. As a result, no zoning conflicts would occur, and the proposed project would be consistent with the Zoning Ordinance. If the proposed PUD was not approved, portions the southern half of the proposed Shellmound building and 64th & Christie building would exceed the maximum building heights established by the zoning building height map, as indicated on Figure IV-4.[5]

C. EMERYVILLE REDEVELOPMENT PLAN

1. Description

The Emeryville Redevelopment Plan (Plan), initially adopted in 1976 and amended in 1994, was established to provide a mechanism to eliminate existing physical, social, and economic blight thereby improving the physical, social, and economic environments in the City. The Plan was enacted for a 50 year period, through 2026, at which time the Redevelopment Agency (Agency) would no longer receive the additional tax increment for the established redevelopment project area.

Implementation of the Plan is the responsibility of the Agency. The Agency achieves the Plan's objective to revitalize the economic, social and physical condition of the redevelopment area through the following techniques:

- Rehabilitation, revitalization, and relocation of existing structures.
- Participation of owners and business tenants in Owner Participation Agreements.
- Acquisition of real property.
- Installation, construction, or reconstruction of streets, sidewalks, parking, utilities, landscaping, and other on-and off-site public improvements, and provision of open space and recreational uses.
- Redevelopment of land by private enterprise or public agencies for use in accordance with this Plan.
- Relocation assistance to displaced residential and nonresidential occupants.
- Demolition or removal of buildings and improvements.
- Disposition of property for uses in accordance with this Plan, which are those consistent with the General Plan and Zoning District designations.

The proposed project site is located within Subarea III of the Plan, which is generally bounded by 65th Street to the north, the UPRR tracts on the east, an east-west line drawn from the southern end of Shellmound Street, and I-580/80 to the west. Redevelopment of Subarea III is envisioned in the Plan to:

> *"stop the exodus of major industrial users from this area, intensify the development of property presently underutilized, and develop appropriate commercial and residential*

[5] In Emeryville, site development "density" requirements are specified in the General Plan, which is where the project's consistency with it is discussed.

development, especially along the freeway frontage." The Neighborhood Impact Statement in the Plan further specifies that "*redevelopment envisioned for Subarea III will stabilize the loss of the City of large industrial users either by providing the necessary assemblage power to allow for industrial expansion or to find new uses for the property so abandoned by vacating industries. To the extent possible, new commerce and residential reuses will be sought for vacant or under-utilized property."*

Subarea III of the Plan, more specially, aims to achieve redevelopment by allowing the Agency to:

- Assist with the development of new commercial and residential development within this area to strengthen the economic and employment base of Emeryville as well as to provide a greater residential market within the City.
- Provide centralized parking where appropriate especially to alleviate the demand for parking in Area IV (the Bay shoreline area west of I-580/80).
- Stabilize existing industrial community and assist those businesses who are considering leaving Emeryville as well as those who wish to stay and/or expand.

2. Consistency

This subsection includes a discussion of the consistency of the proposed project with the Emeryville Redevelopment Plan.

The proposed project would achieve the general revitalization goals of the Emeryville Redevelopment Plan, as well as the specific goals for Subarea III, which the proposed project is located within. The proposed project site was abandoned by the industrial paint manufacturing business that occupied the site for nearly 100 years, from the 1880s to 1972. The majority of the project site was redeveloped from its previously industrial use in the mid-1980s with commercial, office, and entertainment uses. The two, industrial/warehouse buildings on the southeast corner of 64th Street and Christie Avenue were developed in the 1960s.

The proposed project would revitalize underutilized portions of the project site including surface-level parking areas, the two industrial/warehouse buildings, and a landscape berm area with up to 340 new, multi-family residential units and 75,000 square feet of additional commercial space, as envisioned for Subarea III. These new land uses are consistent with that designated and zoned for the site in the Emeryville General Plan and Zoning Map, in accordance with the requirements of the Redevelopment Plan. Further, the proposed project would centralize parking on the site through a shared parking agreement (i.e. Reciprocal Easement Agreement) that will be amended to reflect the revised site plan parking configuration, as well as to add the 64th & Christie building to the agreement.

Consistent with the current Owner Participation Agreement (OPA) on the project site, approved by the Redevelopment Agency in the late-1980s, the following amendments to the OPA would occur to ensure consistency with the Redevelopment Plan:

- The description of the Marketplace OPA would be revised to add the Shellmound building, 64th & Christie building, Retail Pad 1, and Retail Pad 2;
- Revisions would be incorporated into the OPA to make it consistent with the PUD-PDP (rezoning) approved for the site;

- Incorporate provisions for Redevelopment Agency financial assistance to support the project, including affordable housing and site acquisition; and
- To add Rockwood Christie, LLC (owners of the 64th & Christie site) a party to the OPA.

3. Potential Conflicts

Assuming the amendments detailed above are approved by the Redevelopment Agency, the proposed project would be consistent with the Emeryville Redevelopment Plan.

Table IV-2: Relationship of Proposed Project to Applicable Emeryville General Plan Policies

General Plan Citation	Goal, Objective, Policy, Program or Implementation Language	Project's Relationship to Policy
CITY OF EMERYVILLE GENERAL PLAN		
Citywide Goal 1:	Provide services and facilities for Emeryville's citizens. Protect public health and safety and improve opportunities for education and cultural entertainment.	The proposed project would achieve this goal by adding up to 75,000 square feet of commercial space to the project site, which would add needed commercial services for the Bayfront area residents. Uses added to the site would include personal, professional, and convenience sales and services (e.g., hair salons, dry cleaners, small markets), all of which are necessary uses to support Bayfront area residents and employees.
Citywide Goal 2:	Encourage a land use pattern in which a variety of uses – residential, commercial and industrial – are intermingled in a compatible fashion, and which minimize potential threats to public health, safety and the environment.	The proposed project would achieve this goal by adding residential uses to an underutilized mixed use development. Improvements made by the project would increase pedestrian safety along Christie Avenue, Shellmound Street, and the Amtrak pedestrian bridge overcrossing.
Housing Program II-A-6:	Encourage and facilitate the conversion of underutilized industrial sites to mixed use or residential projects that include low and very low income units.	The project site was converted from an industrial site in the 1980s. The proposed project, however, would add residential units to the site, 20% of which will be set aside for sale at below market rates for very low, low, or moderate income households.
Housing Policy II-C-1:	Encourage non-traditional group housing, live-work units, and housing in multiple use projects and mixed use areas.	The proposed project would achieve this policy by adding housing to an established multiple use development.
Housing Policy II-C-2:	Encourage residential and live work development in industrial areas, where appropriate.	The proposed project achieves this policy by adding residential uses to an underutilized mixed use site that had previously been used by industrial businesses.
Public Facilities and Services Policy 10:	The Land Use Plan (Figure 1) illustrates the proposed recreation and open space plan. The open space system should provide for: increased pedestrian accessibility to the Bay shoreline, except in ecologically sensitive areas; local pedestrian and bicycle connections between parks and residential areas of East Emeryville, the Bayfront, and the Peninsula; increased recreational opportunities in older residential areas; restoration of Temescal Creek to its natural state where feasible, with park lands adjoining this corridor; and an integrated open space system so that all residents may reach the major open space areas easily and safely.	The proposed project would improve pedestrian and bicycle connections and circulation around the project site by modifying Christie Avenue and Shellmound Street to slow vehicular traffic thereby making the street more comfortable to travel for pedestrians and bicyclists. Additionally, the proposed project would realign driveways on the project site to create clearer vehicular travel pathways through the site, as well add a new pedestrian walkway across the parking area from the Public Market buildings to the UA Theater zone.
Land Use Objective A:	Create a major activity center in the Bay Area with new office, commercial and high-tech industries and new housing of all types replacing obsolete, incompatible and low-intensity prior uses.	The proposed project achieves this objective by replacing underutilized surface-level parking areas with viable mid-rise, mixed use, retail/ residential buildings, and single-story retail pad buildings.

General Plan Citation	Goal, Objective, Policy, Program or Implementation Language	Project's Relationship to Policy
Land Use Objective B:	Create a living and working environment which protects and enhances existing development, while providing new amenities and facilities for an expanded work force and residential population.	The proposed project achieves this objective by adding a living component to the existing employee-based (office, commercial, entertainment) and retail environment on the project site.
Land Use Policy 1:	Future land development in Emeryville shall be governed by the Land Use Plan and zoning ordinance. The plan map provides a generalized interpretation of written policies and show the location and extend of all predominate land uses and their relationship. The zoning ordinance provides specificity on a parcel by parcel basis.	The project site is designated Mixed Use on the General Plan Land Use Map, and is zoned Mixed Use on the Zoning Map. Consistently, the proposed project would provide a mixed use development.
Land Use Policy 6:	The bulk of residential development in Emeryville should be of medium density. High density development will be permitted only in selected locations where high density development already exists or can be accommodated in accordance with City policy. The plan defines medium density as consisting of no more than 45 dwelling units per gross acre and a high density as any development exceeding that. Assuming an average household size of 1.7 persons (the present citywide average), 45 dwelling units would house some 77 persons.	The proposed project would average 23 du/ac over the 15 acre project site, which is within the 20 to 45 du/ac density allowed for Mixed Use designated sites.
Land Use Policy 7:	Infill residential development in established residential areas should respect the prevailing building type in the surrounding areas, so that new development is not incompatible with the area's existing scale and character.	The proposed project would add four new buildings to the site that would be of a scale, height, and building type consistent with that surrounding the project site. The proposed buildings would range in height from one to nine stories. Surrounding buildings include the 6-storied EmeryBay offices, the 3- to 6-story EmeryBay Club and Apartments, 5-storied Avenue 64 project (under development directly west of 64th & Christie site), 8-story EmeryStation Terraces, 5- and 6-story EmeryStation Offices, 12-story Woodfin Suites Hotel, 8-story Marketplace Tower, and the 30-story Pacific Park Plaza high-rise building.
Land Use Policy 8:	The City shall review residential projects to ensure that the housing offers a quality living environment and is compatible with surrounding neighborhood character.	The proposed project, in addition to environmental analysis, will be reviewed by the City's Planning Commission and City Council to ensure that it provides a quality living environment and is compatible with the character of the surrounding neighborhood.

General Plan Citation	Goal, Objective, Policy, Program or Implementation Language	Project's Relationship to Policy
Land Use Policy 9:	The Land Use Plan establishes the general locations of commercial activities. These consist of office and general commercial activities ranging from small businesses serving local neighborhoods to regional retail and administrative offices including hospitals, medical office buildings and related support facilities. While both commercial activities will be located throughout the city, except in residential districts, and the bulk of offices will be found in mixed use districts, areas are established where they are to be the predominate use. Residential use, in addition to the primary commercial use of property, is strongly encouraged in these areas.	The project site currently provides a mixed office, commercial, and entertainment development. The addition of residential uses to the project site, as proposed, would accomplish the aim of this policy by integrating residential uses into an office/commercial district.
Land Use Policy 12:	Much of the land susceptible to re-use or redevelopment in Emeryville should be developed in such a fashion that a variety of compatible uses will be established on the same site. In the largest of such mixed use projects (in excess of 200,000 square feet) residential uses should be required where feasible.	The proposed project achieves this policy by adding up to 340 multi-family units to an existing large (i.e., greater than 200,000 square foot) mixed use project.
Land Use Policy 13:	The City encourages the integrated planning of large properties or groups of properties for mixed use development. The City may assist in land assembly, financing and planning of such projects.	The proposed project achieves this policy by integrating the comprehensive development of the Marketplace site to create a successful and viable mixed use development.
Land Use Implementation 2:	The City will exercise its redevelopment power to implant the policies of the General Plan, including the acquisition of land for re-use, the funding of public improvement projects such as streets and parks and provision of financial assistance to developers and home owners.	The proposed project has been coordinated with the City's Redevelopment Agency's efforts to revitalize the Marketplace shopping center. The property owners of the project site will, if approved, amend the Owner Participation Agreement on the site with the Redevelopment Agency.
Land Use Implementation 3:	The City will identify large properties or property groups with high development potential and, where feasible, participate in their development through redevelopment agency powers such as land assembly, planning and financing and selection of a master developer.	The proposed project site constitutes a large property with high development potential. It is located within the Emeryville Redevelopment Plan Project Area and was initially redeveloped in the mid-1980s in coordination with Redevelopment Agency assistance. The proposed project has also been coordinated with Redevelopment Agency efforts to improve the economic, physical, and environmental condition of the City of Emeryville.
Community Design Policy 19:	The City will require developers to install landscaping consistent with the landscape plan.	The proposed project would enhance the existing landscaping on the project site and, if approved, would install landscaping consistent with the approved landscape plan.

General Plan Citation	Goal, Objective, Policy, Program or Implementation Language	Project's Relationship to Policy
Community Design- Activity Center Objective H:	Create activity centers (mixed land uses integrated with public open space) throughout the city and relate them to the circulation and open space network.	The proposed project achieves this objective by enhancing the pedestrian access to and through the project site from the Amtrak station to the east and along Shellmound Street and Christie Avenue. The proposed project achieve this policy by creating a more defined Marketplace activity center by strategically locating a new plaza at the entry of the Shellmound building, adjacent to the Public Market buildings, which will provide a large, pedestrian outdoor open space enhanced with public art, water features, seating areas, and appropriately scaled landscaping surrounded by ground floor retail in the Shellmound and Public Market buildings. This new plaza area and improvements would facilitate the visual connection between the Marketplace shopping area with the Bay Street shopping district located approximately ½-mile south on Shellmound Street, both which serve as regional shopping destinations in Emeryville. Further, the activity center created by redevelopment of the project site would involve a mix of land uses (i.e., office, retail, housing) that function as a comprehensive development, consistent with General Plan policy.
Community Design- Activity Center Policy 1:	The City will participate in establishing activity centers in key locations throughout the city and link them to the citywide circulation network with paths and streets which accommodate pedestrians and bicyclists and public transit stops.	See response for Community Design-Activity Center Objective H, above.
Community Design- Activity Center Policy 2.	Each activity center should become a distinct focal point, encouraging: different mixes of uses such as office, retail, housing, support services; development which serves the functional purpose of the activity center as a whole, rather than the individual buildings; rehabilitation and incorporation of significant old structures; and displays of art.	See response for Community Design-Activity Center Objective H, above.

Source: City of Emeryville, 1993. *General Plan*, March; LSA Associates, Inc., 2006.

V. SETTING, IMPACTS AND MITIGATION MEASURES

This chapter contains an analysis of each potentially significant environmental issue that has been identified in the Notice of Preparation (NOP) prepared for the Marketplace Redevelopment project and at the public scoping meeting for the project and, as such, constitutes the major portion of the Draft EIR. Sections A through M of this chapter describe the environmental setting of the proposed project area as it relates to each specific issue. The impacts resulting from implementation of the proposed project and mitigation measures that would reduce impacts, if necessary, are also presented in each of the sections.

DETERMINATION OF SIGNIFICANCE

Under CEQA, a significant effect is defined as a substantial, or potentially substantial, adverse change in the environment.[1] The *CEQA Guidelines* direct that this determination be based on scientific and factual data. Each topical section of this chapter is prefaced by a summary of criteria of significance. These criteria have been developed in a cooperative process with City and LSA Associates, Inc. staff using the *CEQA Guidelines* and applicable City policies from the City of Emeryville General Plan and other applicable planning policy documents.

1. Issues Addressed in the Draft EIR

The following environmental issues are addressed in this chapter:

A. Land Use
B. Population, Employment and Housing
C. Transportation, Circulation and Parking
D. Air Quality
E. Noise and Vibration
F. Public Health and Safety/Hazardous Materials
G. Geology, Soils and Seismicity
H. Hydrology and Storm Drainage
I. Cultural and Paleontological Resources
J. Aesthetic Resources
K. Public Services and Utilities
L. Wind
M. Shade and Shadow

Preliminary analysis determined that the proposed project would not result in significant impacts to biological resources; agricultural resources; and mineral and energy resources. Consequently, these issues are not examined in this chapter of the EIR.

[1] Public Resources Code 21068.

2. Format of Issue Sections

Each environmental topic considered in Chapter V is comprised of two primary sections: 1) Setting, and 2) Impacts and Mitigation Measures. An overview of the general organization and the information provided in the two sections is outlined below.

a. Setting. The Setting section for each environmental topic generally provides a description of the applicable physical setting for the proposed project and its surroundings (e.g., existing land uses, existing soil conditions, existing traffic conditions). Each section begins by describing the regional context of the City of Emeryville relative to the applicable topic and then provides more specific information about the Marketplace project area, as appropriate. An overview of regulatory considerations that are applicable to the specific environmental topic is also provided.

b. Impacts and Mitigation Measures. The Impacts and Mitigation Measures section for each environmental topic presents a discussion of the impacts that could result from implementation of the proposed project. The section begins with the criteria of significance, establishing the thresholds to determine whether an impact is significant. The latter part of this section identifies impacts related to implementation of the proposed project and recommends mitigation measures, if required. The impacts of the proposed project are delineated into separate categories according to the significance criteria: less-than-significant impacts, which do not require mitigation measures, and significant impacts, which do require mitigation measures.

Impacts are numbered and shown in bold type, and the corresponding mitigation measures are numbered and indented. Impacts and mitigation measures are numbered consecutively within each topic and begin with an acronymic reference to the impact section (e.g., LU). The following symbols are used for individual topics:

LU:	Land Use
POP:	Population, Employment and Housing
TRAF:	Transportation, Circulation and Parking
AIR:	Air Quality
NOISE:	Noise and Vibration
HAZ:	Public Health and Safety/Hazardous Materials
GEO:	Geology, Soils and Seismicity
HYDRO:	Hydrology and Storm Drainage
CULT:	Cultural and Paleontological Resources
AES:	Aesthetic Resources
PUB:	Public Services and Utilities
WIND:	Wind
SHADE:	Shade and Shadow

Impacts are also categorized by type of impact as follows: Less-than-Significant (LTS), Significant (S), Potentially Significant and Unavoidable (PSU), and Significant and Unavoidable (SU). These notations are provided following each impact and each mitigation measure to identify their significance before and after mitigation.

A. LAND USE

This section evaluates the effects of the proposed project on land use, including those adjacent to the project site. Potential land use impacts that would result from development of the proposed project are identified, and mitigation measures are recommended, as appropriate. The project's consistency with land use planning policies is discussed in Chapter IV, Planning Policy.

1. Setting

Emeryville is a small community located on the eastern shore of San Francisco Bay in Alameda County. The City's incorporated area comprises approximately 1.2 square miles. The City is bordered to the north by the City of Berkeley, to the east and south by the City of Oakland, and to the west by the San Francisco Bay. The City of San Francisco is located approximately eight miles to the west, across the Bay.

The majority of the project site is located in the Emery Bay Marketplace (Marketplace) existing parking lot. The Marketplace is centrally located in Emeryville, with regional access provided from the Powell Street-Interstate 580/80 freeway interchange approximately ⅛-mile to the west. The Marketplace is generally bounded by 64th Street to the north, Powell Street to the south, Christie Avenue to the west and the Union Pacific Railroad (UPRR) tracks to the east. Shellmound Street, previously named Bay Street, traverses the project site in a northeast direction (see Figure V.A-1). Figure V.A-1 shows the boundaries of the project site, as well as indicates land uses within and adjacent to the project site.

Historically, the project site was used primarily by a paint manufacturing company, which operated on the site for nearly 100 years, from the late 1880s through 1972. As described in Chapter III, Project Description, the Marketplace site was redeveloped from an industrial manufacturing site in the 1980s to reclaim and revitalize it into a thriving regional shopping center destination. To facilitate this effort, the Emeryville Redevelopment Plan was adopted in 1976, as described in Chapter IV, Planning Policy, which enabled more effective and efficient coordination between the public and private parties working to clean-up and redevelop this brownfield site. The two light industrial/ warehouse buildings located on the southeast corner of 64th Street and Christie Avenue were developed in the mid-1960s, and were occupied by a tool manufacturer, photo laboratory, and automotive transmission repair businesses. The history of the project site and City are more fully described in Chapter V.I, Cultural and Paleontological Resources.

The project site's General Plan land use designation is Mixed Use and it is zoned Mixed Use on the Emeryville Zoning Map, as depicted on Figures IV-1 and IV-3, respectively. The General Plan Neighborhood and Districts Map indicates that the project site is located in the North Bayfront Neighborhood. Planning policy applicable to the proposed project is described more fully in Chapter IV, Planning Policy, and an analysis of the proposed project's regulatory consistency with these plans and policies is also included.

a. Existing Land Uses on the Project Site. Figure V.A-1 provides an aerial map generally depicting land uses on and in the vicinity of the project site. The project site is comprised of five parcels, totaling approximately 15 acres. As indicated, the majority of project site was redeveloped in the mid 1980s to its current condition, including the Marketplace Public Market buildings; Marketplace Tower; and United Artist (UA) movie theater. The mid-rise Woodfin hotel is the newest building on

the Marketplace site, having been constructed in 2000. As described, the two industrial buildings located on the southeast corner of 64th Street and Christie Avenue, however, were not included in the Marketplace redevelopment effort and, instead, where developed in the mid-1960s independent of the rest of the Citywide redevelopment efforts. The following discussion provides descriptions of each of these existing land uses.

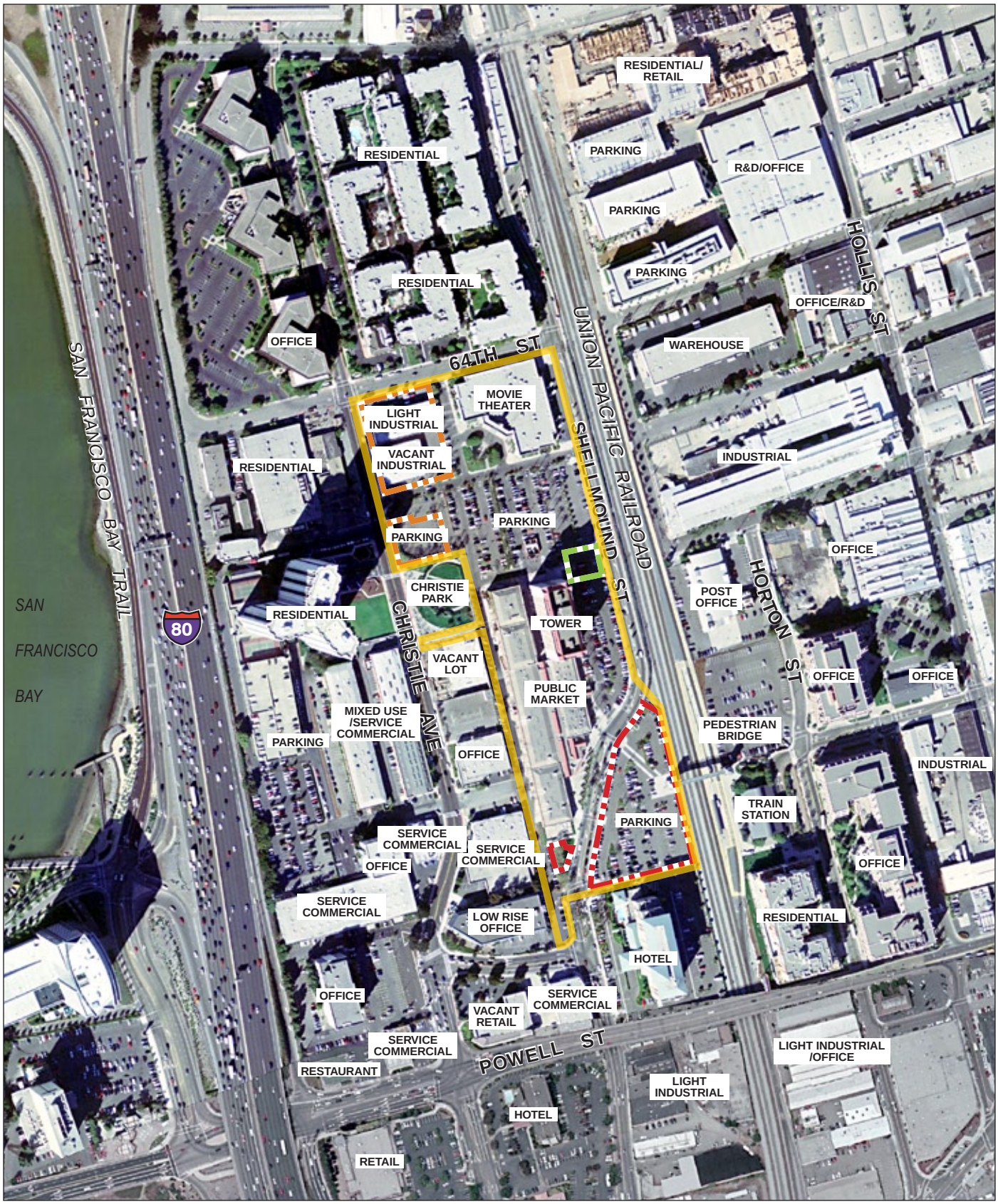
(1) Marketplace Public Market Buildings. Two, 1- to 2-story brick buildings comprise the Public Market buildings. These two buildings are located on the largest Marketplace parcel, comprising 6.33 acres, and were constructed between 1911 and 1924. The Public Market buildings were used until 1972 by a paint manufacturer (i.e., Paraffine Paint Company/ PABCO) as warehouse buildings. The historical context of the Public Market buildings is described more fully in Chapter V.I, Cultural and Paleontological Resources. The 6.33-acre Public Market parcel is also used by surface level parking and the Tower building, each of which is described below.

Photo V.A-1: View of Public Market Building in foreground.

While physically two separate structures, the Public Market buildings are internally connected via an enclosed arcade walkway. These buildings are rectangular shaped, parallel structures that provide a combined 94,665 square feet of commercial retail space. Approximately 30 business currently operate in the Public Market ranging from restaurant (i.e., unique food retailers), retail (e.g., clothing, books, music), and service commercial uses (e.g., shoe shine, communications, health/fitness). The Public Market is centrally located on the Marketplace site, providing the focal point of the shopping area. The building facade faces east, toward the Oakland/Berkeley hills. Truck deliveries occur at the rear (i.e., west) side of the buildings. The Public Market typically is open to the public seven days a week from: 9 a.m. to 9 p.m. Monday through Thursday; 9 a.m. to 11 p.m. Friday and Saturday; and, 9 a.m. to 8 p.m. of Sunday. The Public Market buildings are shown in Photos V.A-1 and V.A-2.

Photo V.A-2: View of Public Market Building in mid-ground between parking area and high rise buildings.

(2) Marketplace Tower. In the late-1980s, the eight-story, 121,260 square foot Marketplace Tower was constructed. As indicated, the Tower is also located on the same 6.33-acre parcel as the Public Market, located directly north, and is currently occupied by retail, service commercial, office, and research and development uses. Currently, approximately 10 businesses lease space in the Tower building. Office uses in the Tower typically operate during the weekday hours of 8 a.m. to 5 p.m., while the commercial uses operate



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SOURCE: GLOBEXPLORER, 2005.

PROJECT SITES

- SHELLMOUND BUILDING SITE & RETAIL PAD #1
- 64TH & CHRISTIE BUILDING SITE & RETAIL PAD #2
- RETAIL PAD #3
- MARKETPLACE REDEVELOPMENT PROJECT SITE

FIGURE V.A-1

Marketplace Redevelopment Project EIR

Project Site and Existing Surrounding Land Uses

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seven days a week with similar public hours as the Public Market (described above). Patrons and employees of the Tower utilize the shared surface level parking provided adjacent to and throughout the Marketplace site. The Tower building is shown in Photo V.A-3.

(3) Movie Theater. The existing 10-screen, 40,000 square foot United Artist (UA) movie theater is located in the northeastern portion of the Marketplace site. The theater is located on a 4.34-acre L-shaped parcel that abuts the Public Market and Tower parcel at its southern edge. Similarly, it was also constructed in the mid-1980s, in accordance with the Emeryville Redevelopment Plan and Owner Participation Agreement (OPA) for the Marketplace site. Surface level parking is provided around the movie theater and throughout the Marketplace site for theater patrons. The UA theater is shown in Photo V.A-4.

(4) 64th Street & Christie Avenue Industrial Buildings. Two, single-story light industrial buildings providing a total of 26,000 square feet of space are currently erected on the southeast corner to 64th Street and Christie Avenue (i.e., northwest corner of the project site). Each building is located on individual, regularly shaped, rectangular parcels, totaling 1.21 acres. The two buildings were constructed in 1966 and supported a tool manufacturer, photo laboratory, and automotive transmission businesses. Both buildings are currently vacant. The northern most building was most recently occupied by a telecommunications company and a video conferencing company. The southern most building has been vacant since 1998, when the original automotive transmission business left the site. The two industrial buildings are shown in Photo V.A-5.

(5) Woodfin Hotel. The Woodfin Hotel was constructed in 2000 (Photo V.A-6), is located at the southern end of the Marketplace site on a 2.01-acre parcel, directly south of the proposed mid-rise, mixed use Shellmound building. While not a part of the proposed project, the hotel is a party to the existing Reciprocal Easement Agreement (REA), Owner Participation Agreement (OPA), and Master Use Permit for the 18±-acre Marketplace site. The hotel is eight-stories in height and provides 202 extended stay hotel room suites.

Photo IV.A-3: View of Marketplace Tower Building.

Photo V.A-4: View of UA Theater.

Photo V.A-5: View of Two Industrial Buildings on Southeast Corner of 64th Street and Christie Avenue.

Photo V.A-6: View of Woodfin Hotel.

(6) Surface Level Parking Areas. Each of the uses on the Marketplace site, with the exception of the two, industrial buildings on the corner of 64th Street and Christie Avenue, share all parking on-site via a Reciprocal Easement Agreement (REA). A total of 1,067 surface level parking spaces are currently provided for the Public Market, Tower, UA Theater, and Woodfin hotel in accordance with the REA. The two existing industrial buildings on the 64th & Christie site provides an additional 25± surface level parking spaces.

b. Existing Land Uses Adjacent to the Project Site. The project site is surrounded by a mix of land uses including residential, commercial, office, industrial, research and development, lodging, and transit. The following describes land uses in the vicinity of the project site, traveling in a clockwise direction beginning with the area north of the project site.

- *North*. The EmeryBay Club and Apartments are located directly north of the project site, on the north side of 64th Street, extending west to Christie Avenue and east to Shellmound Street (Photo V.A-7). This development is comprised of three- to five-story buildings with a total of 685 units, with one- to two-stories of structured parking and minimal surface level parking distributed throughout the perimeter of the complex.

Photo V.A-7: View of multi-family residential buildings on north side of 64th Street.

  Directly west of this apartment complex, and northwest of the project site, is the EmeryBay Offices, which extends west to Interstate 580/80 (Photo V.A-8). This office complex provides approximately 325,000 square feet of office space in three- to five-story buildings with ground floor parking and surface level parking on the west side of the buildings, directly adjacent to I-580. Figure V.A-2a provides an aerial view of the uses north of the project site.

Photo V.A-8: View of EmeryBay Offices at northwest corner of 64th Street and Christie Avenue.

- *East*. As previously described, the project site is bounded to the east by the Union Pacific Railroad (UPRR) tracks. These tracks are used to transport heavy rail commerce as well as Amtrak passenger commuter cars. The Amtrak depot is located directly east of the proposed Shellmound building site (Photo V.A-9). Persons utilizing Amtrak's mass transit services can patronize the Marketplace site via a pedestrian overcrossing from the station, which terminates in the Marketplace parking area, directly north of the Woodfin hotel (Photo V.A-10).

Photo V.A-9: View of Amtrak Emeryville Station east through existing Marketplace parking area.

Directly east of the Amtrak station is the Emery-Station business campus, which provides a total of 440,000 square feet of office space in two-, five- to six-story, mid-rise buildings (Photo V.A-11).

East of the UA Theater, across the UPRR tracks, are mid-rise light industrial and research and development office buildings and parking structures. Figure V.A-2c provides an aerial view of land uses east of the project site.

- *South*. To the south, the project site is bordered by the Woodfin Hotel, as previously described, which is bounded to the south by the Powell Street over-crossing. South of Powell Street are converted industrial buildings fronting Shellmound Street which transition to commercial, multi-family residential, and lodging uses further south in the Bay Street shopping district area (Figure V.A-2b).

  Southeast of the project site, across the UPRR tracks, is the eight-story, mid-rise Terraces residential building, of which, the first four floors provide structured parking for the residential units and the office uses abutting the site, and the upper floors provide 101 condominium units (Photo V.A-12).

  To the southwest of the project site, south of Shellmound Way, are two, freestanding single-story buildings; the easternmost building is occupied by a service commercial, painting supply business, the westernmost building is a vacant commercial space.

- *West*. A mix of land uses border the project site to the west. A number of smaller parcels with a mix of land uses are located directly west and within the same City block (i.e., east of Christie Avenue and north of Shellmound Way) as the project site. At the northern end of this area is Christie Park (approximately 1-acre), which is City-owned public park (Photo V.A-13). Directly south of the park is a ½-acre vacant lot, which has been entitled to construct an 8-story, mid-rise residential building that will include 43 units plus 17 live-work units.

Photo V.A-10: View of southeast of Amtrak pedestrian overcrossing to Marketplace site.

Photo V.A-11: View east of Amtrak pedestrian over-crossing, EmeryStation business campus, and Oakland/ Berkeley hills through Marketplace parking area.

Photo V.A-12: View south of Powell Street overcrossing; Terraces apartments to left and Woodfin Hotel to the right (also south) across existing Marketplace parking area.

Photo V.A-13: View northwest of Christie Park and Mt. Tam in the distance across the Bay.

Continuing south, the next parcel is used by a single-story office building and associated surface parking, which is bounded on the south by 59th Street. In this location, 59th Street is a 60-foot right-of-way that is only 300 feet in length, extending from Christie Avenue, east to the rear of the Public Market buildings (Photo V.A-14).

Photo V.A-14: View east of 59th Street entering rear (west) of Marketplace site toward Public Market red brick building.

Farther west, across Christie Avenue are a number of additional land uses, which add to the diversity of this area. Beginning at the northern end of the project site, on the west side of Christie Avenue, a mid-rise residential building (i.e., formerly known as "Pinnacles"; currently know as "Avenue 64") is under construction (Photo V.A-15). When complete, this residential building will provide 224 rental units in a five-story building, of which, the first floor will provide parking for the buildings tenants.

Photo V.A-15: View of southeast corner of 64th Street and Christie Avenue; location of underconstruction Avenue 64 project with PPP tower to the left (south).

South of this development, and across from Christie Park, is the 30-story, high rise Pacific Park Plaza (PPP) condominium building (also Photo V,A-15). The PPP building includes 583 condominium units in its 320-foot tall, tri-branched tower. South of the PPP building, are two, two-story light industrial/service commercial buildings that parallel the Christie Avenue right-of-way (Photo V.A-16).

Photo V.A-16: View north on Christie Avenue of two-story industrial/service commercial building (south of PPP tower).

Farther south of these building to Powell Street, additional mixed uses, some of which are within the same structure, include office, institutional (i.e., banking), service commercial (e.g., automotive gas sales, photocopying/ reproduction, mail/package services, contractors), and recreation (i.e., ballroom dance facility) (Photo V.A-17). Figure V.A-2c provides an aerial view of land uses west of the project site.

Photo V.A-17: View of mix of uses and building heights south of Christie Avenue.

e. Planned Land Uses. A number of parcels Citywide are undergoing redevelopment or anticipated to be redeveloped in the near future. From 2006 to 2010, approximately 3,149 residential units, 36 live-work units, 283,000 square feet of retail space and 632,000 square feet of office and lab space are anticipated to be entitled and developed. Between 2010 and 2020, approximately 1,275 residential units, 142,000 square feet of retail space and 688,000 square feet of office and lab space are planned for eventual development. From 2020 to

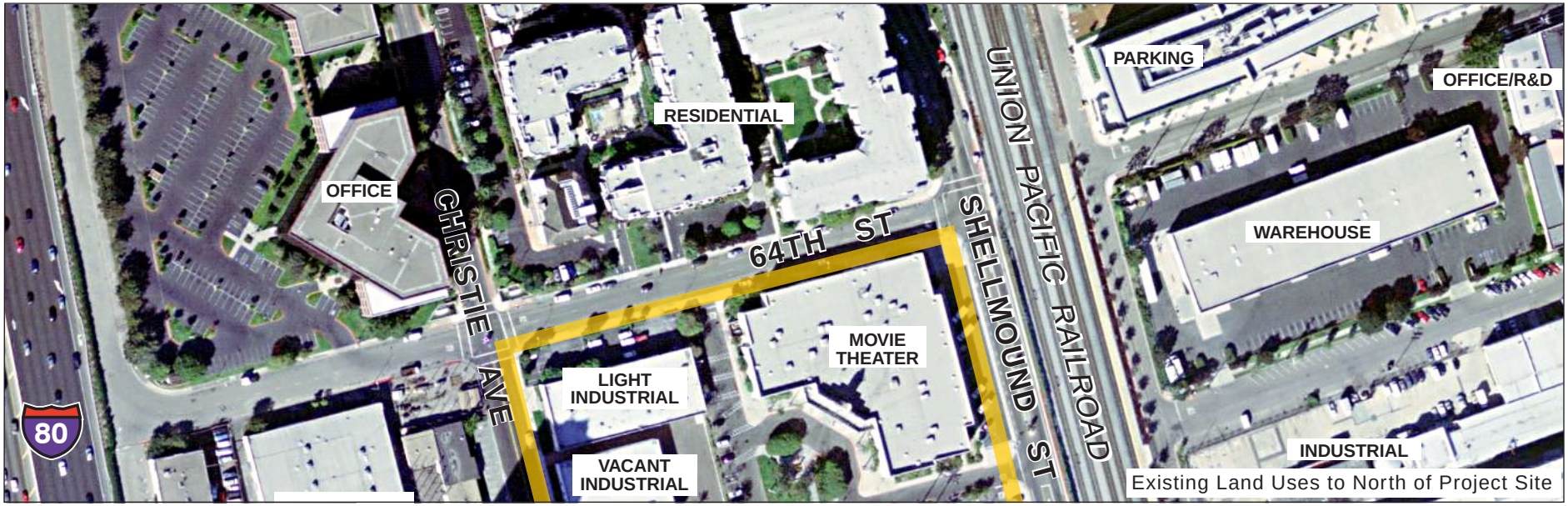

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FIGURE V.A-2a & b

Marketplace Redevelopment Project EIR

Existing Land Uses to North and South of Project Site

N

0 150 300

FEET

MARKETPLACE REDEVELOPMENT PROJECT BOUNDARY

SOURCE: GLOBEXPLORER, 2005.

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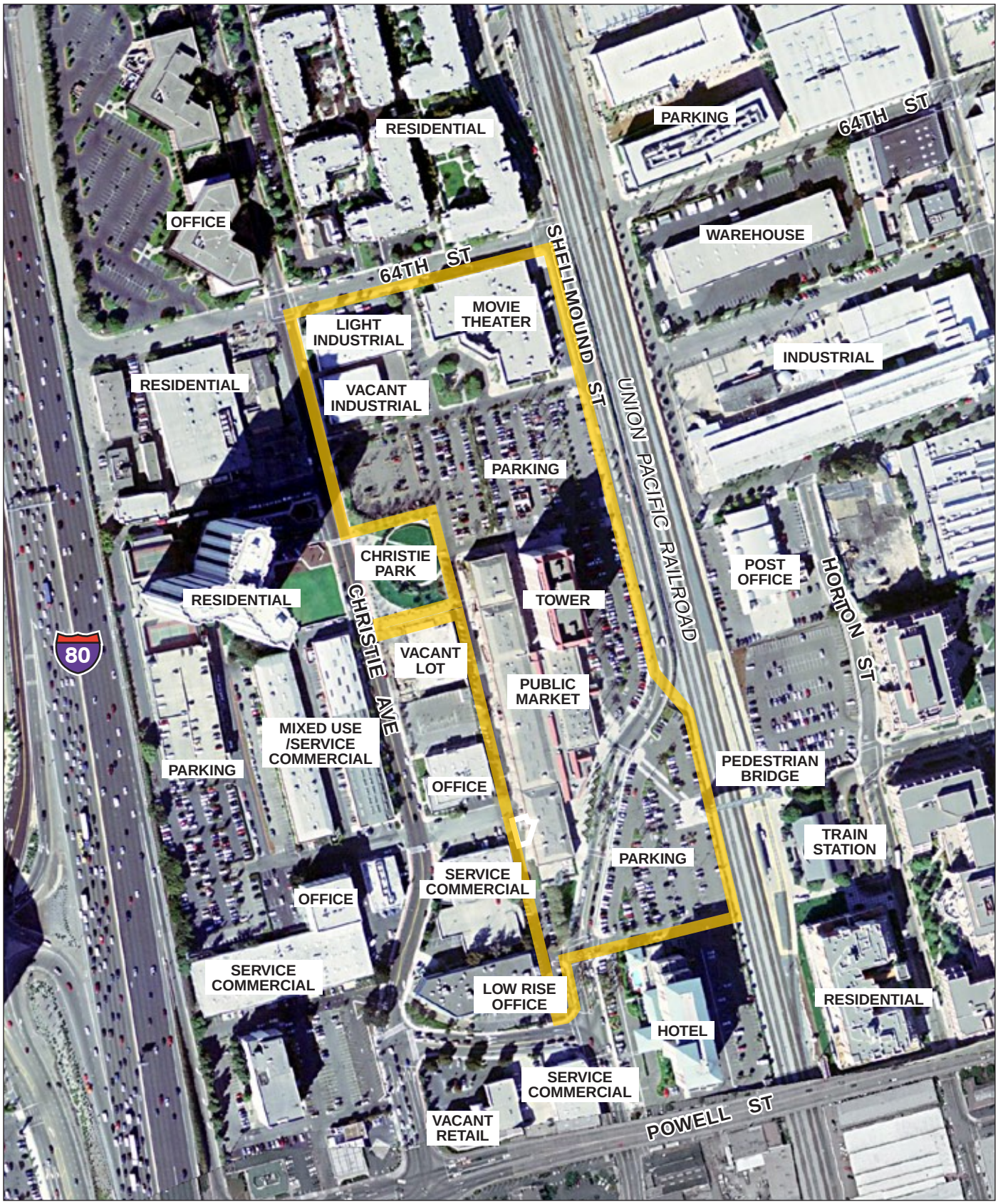

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MARKETPLACE REDEVELOPMENT PROJECT BOUNDARY

FIGURE IV.A-2c

Marketplace Redevelopment Project EIR

Existing Land Uses West and East of the Project Site

SOURCE: GLOBEXPLORER, 2005.

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2030, 314 residential units, 164,000 square feet of retail space and 777,000 square feet of office and lab space are currently anticipated to be entitled and developed. Significant redevelopment projects planned and anticipated to be developed after 2005 include:

- *Oak Walk Mixed Use Project* (4002 San Pablo Avenue). This mixed-use project would consist of 5,500 square feet of retail space and up to 62 residential condominiums, including construction of a new four-story building with a podium-level courtyard and 113 at-grade parking spaces.
- *Bay Street Site B* (Northeast corner of intersection of Bay Street, Christie Avenue, and Shellmound Street, south of Powell Street). The northern portion of the Bay Street mixed-use project would include a 150-room hotel in a 320-foot tower, 337 residential units, 130,000 to 170,000 square feet of retail space and 800 to 900 parking spaces.
- *Gateway @ Emeryville* (5801 to 5861 Christie Avenue). This mixed-use project would consist of 280 residential units and a 6,900 square foot retail space.
- *Avenue 64* (formerly "Pinnacles") (6335 Christie Avenue). The Avenue 64 development would be a 224-unit rental apartment project up to four stories over podium parking.
- *Emery Station East* (5885 Hollis Street). The Emery Station East development includes a new 230,000 square foot biotech lab building.
- *1401 Park Avenue* (Park Avenue and Holden Street). This mixed-use project would redevelop the former ½-acre Electro Coatings paint factory site by constructing 43 for-sale residential units, 11 live/work units, 1,400 square feet of retail space, a 1,200 square foot community space area, and an 83-space structured parking garage.
- *Glashaus Townhouse/Public Parking Project* (1289 65th Street). This development would include 145 residential units, 50 public parking spaces and construction of the Greenway between 65th Street and Ocean Avenue.
- *Christie Park Towers* (6150 Christie Avenue). This project includes 43 residential units and 17 live-work lofts with approximately 4,200 square feet of ground floor flexible use space.
- *AgeSong Assisted Living* (4050 Horton Street). The AgeSong project would provide 121 assisted living and 28 independent senior living units.
- *Hollis Green Park* (Southwest corner of 53rd and Hollis Streets). Hollis Green includes a 30,000 square foot park incorporated into a site with an existing plaza and visitor parking lot.
- *Transit Center* (45th Street between San Pablo Avenue and Hollis Street). The 1.6-acre Transit Center project would relocate 218 existing surface level parking spaces into a 169-foot building that would incorporate 5 bus bays, 240 to 250 public parking spaces, 205 to 215 private parking spaces and 250,000 square feet of laboratory and/or office space.
- *Ambassador Site* (1168 36th Street). This project would construct 55 for-sale affordable residential units.

2. Impacts and Mitigation Measures

The following section provides a discussion of impacts related to land use that could result from development of the proposed project. The section begins with the criteria of significance, establishing the thresholds to determine whether an impact is significant. The latter part of this section describes the land use impacts from the proposed project and recommends mitigation measures, if required.

Impacts are delineated into two separate categories based on their significance according to the criteria listed; less-than-significant impacts, which do not require mitigation, and significant impacts, which do require mitigation.

a. Criteria of Significance. The criteria of significance described below establish the thresholds for determining whether an impact is significant. The project would have a significant impact on land use if it would:

- Disrupt or divide the physical arrangement of an established community.
- Alter the type or intensity of land use on a proposed site, causing it to be substantially incompatible with surrounding land uses or the overall character of the surrounding neighborhoods.
- Fundamentally conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan or zoning ordinance), adopted for the purpose of avoiding or mitigating an environmental effect, and where such conflict would actually result in an adverse physical change in the environment.

b. Less-than-Significant Land Use Impacts. The following discussion describes less-than-significant land use impacts from the proposed project.

(1) Divide an Established Community. The physical division of an established community typically refers to the construction of a physical feature, such as an interstate highway, or the removal of a means of access, such as a local road, that would impair mobility within an existing community or between a community and outlying areas. For example, the construction of an interstate highway through an existing community may constrain travel from one side of the community to another; similarly, such construction may also impair travel to areas outside of the community.

The proposed project is located in an urban area on a developed mixed use, shopping center site, which has been developed with urban uses since the late-1880s. Redevelopment of the site would result in the removal of two existing industrial buildings and associated parking constructed in the 1960s totaling 26,000 square feet and approximately 35 parking spaces, and 251 surface level parking spaces added to the site in the mid-1980s.

Development of the proposed project would add five new buildings to the project site. Two of the new buildings would be mid-rise in height with retail, structured parking, and residential uses vertically mixed in the same structure. The three other new buildings would be single-story, stand-alone retail pads. One new mid-rise building (i.e., Shellmound building) would be constructed on a portion of the site currently occupied by 251 surface parking spaces; the other mid-rise building (i.e., 64th & Christie building) would be constructed where the two, single-story industrial buildings are currently located.

Two of the proposed, single-story retail pads would be constructed in areas currently providing surface parking spaces; the third single-story retail pad building would be located on an existing bermed, landscaped area. Removal of the two industrial buildings, surface parking spaces, and landscaped berm area, as well as reconfiguration of the portions of the surface parking area in order to add the two, mid-rise buildings and three single-story retail pad buildings would not result in the physical division of an established community. Rather, the proposed project would add structures to an existing site that has been in its current configuration since the mid-1980s.

No new roadways would be constructed to accommodate the project, and only minor alterations to the existing vehicular circulation on the project site, Shellmound Street, and Christie Avenue would take place to enable safer pedestrian circulation on the site (e.g., additional stop signs, enhanced pedestrian street crossings, narrowing of portions of the street to slow traffic). Streetscape improvements would enhance the pedestrian environment and encourage the movement of people to and through the project site. No physical barriers would be developed on the project site that would impede access to and through the site, and no existing access would be permanently removed.

Further, the proposed project would be of similar scale, bulk, and height as surrounding structures, such as the EmeryStation business campus and Terraces condominium apartments to the east, the EmeryBay Club and Apartments and EmeryBay Offices to the north, the under construction Avenue 64 apartment project (formerly "Pinnacles") and Pacific Park Plaza (PPP) high rise tower to the west, and the Woodfin hotel to the south. The proposed project would result in the incorporation of residential uses onto the site, thereby creating a constant presence of people, which is anticipated to result in increased safety (i.e., actual and perceived safety). In particular, by incorporating the western tower of the Amtrak pedestrian bridge overcrossing into the Shellmound building, the 24-hour presence of residents in the area will increase the sense of safety perceived by persons utilizing the bridge, which ultimately may result in increased transit usage to and through the project site.

The addition of residents to the project site is in keeping with the goals of the redevelopment plan for the area, as well as with General Plan policy, which envisions the incorporation of medium density residential uses on Mixed Use General Plan designated sites, including the Marketplace site. See Chapter IV, Planning Policy, for a thorough discussion of the proposed project's planning policy consistency.

Additionally, the street and sidewalk improvements that would occur to the project site, should it be approved, would help visually connect the Marketplace site with Bay Street shopping district located approximately ¼-mile south (beyond Powell Street) on Shellmound Street. The City is currently pursuing, under a separate project, the public improvements and enhancements to facilitate pedestrian movement between Marketplace and Bay Street, which currently is oriented toward vehicular traffic.

Development of the proposed project would not divide an established community and, therefore, would not result in a significant impact.

(2) Land Use Conflicts. Land uses surrounding the project site are generally similar to those on the project site. However, the existing design and the preponderance of surface parking on the project site do not promote the active pedestrian environment that the UA Theater, and businesses in the Public Market and Tower rely upon to be successful.

Development of the proposed project would intensify land uses on the project site by adding up to 340 residential uses (equivalent to 578 residents) and up to 75,000 square feet of new retail space to the existing 121,260 square feet of office space, 94,665 square feet of commercial/retail space, and 40,000 square feet of movie theater space that would be retained as part of the project. The residential and retail uses proposed as part of the project would be compatible with the mix of uses existing on and surrounding the project site. The introduction of residential uses on the site is also anticipated to increase usage of the adjacent Amtrak train station given its close proximity, as well as the viability of the UA Theater, restaurant, and retail uses on the site, in addition to those nearby. Further, pro-

posed streetscape and vehicular circulation improvements would provide enhanced connectivity to destinations on and surrounding the project site, including the Bay Street shopping district located approximately ½-mile south of the project site.

Proposed land uses would not be adversely affected by surrounding land uses, which comprise retail, office, service commercial, restaurant, residential, light industrial, and research and development uses. These surrounding land uses are not of a type that would result in a fundamental land use conflict with the proposed residential and commercial uses. The intensification of uses on the project site would benefit the surrounding area by increasing its activity, continual human presence, and vibrancy. Similarly, the proposed project would be enhanced by the presence of an established mixed use area in close proximity to the project site.

The proposed project would not result in land use conflicts and, therefore, impacts associated with land use would be less than significant.

(3) Conflict with land use plans adopted to mitigate adverse environmental impacts. As described in Chapter IV, Planning Policy, the proposed project would be consistent with General Plan policies, specifically related to envisioned land uses within the Mixed Use designation, building intensity and density, and compatibility of uses within on building and with adjacent land uses.

Chapter IV, Planning Policy, further discusses the projects conformance with applicant zoning and redevelopment plan requirements, none of which would result in physical adverse impacts to the environment.

The proposed project would not conflict with any land use plan adopted to mitigate adverse environmental impacts. As such, development of the proposed project would result in less-than-significant impacts with adopted land use plans.

c. Significant Land Use Impacts. Implementation of the proposed project would not result in the any significant land use impacts.

B. POPULATION, EMPLOYMENT AND HOUSING

This section describes the proposed project area's population, employment and housing characteristics. Potential impacts related to population, employment and housing that would result from implementation of the proposed project are identified, and mitigation measures are recommended, as appropriate.

1. Setting

The following section utilizes data from the U.S. Census Bureau (Census), California Department of Finance (DOF), and the Association of Bay Area Governments (ABAG).

The project site lies within an existing, predominately built-out urban area. Surrounding land uses include multi-family residential, office, commercial, lodging, and industrial uses, as well as surface and structured parking. No housing units and, therefore, no residential population currently exists on the project site. As described in Section V.A, Land Use, the project site is currently occupied by existing commercial, office, entertainment, and surface level parking.

a. Population. The City of Emeryville is a highly urbanized community located on the eastern shore of San Francisco Bay in Alameda County. Emeryville is bounded by the City of Oakland to the south and east, and the City of Berkeley to the north. The City of San Francisco is located to the west, approximately eight miles across the San Francisco Bay. The City was incorporated in 1896 with a population of approximately 1,015 persons. Emeryville experienced population growth through 1910, reaching 2,613 persons, which then stabilized through the early-1970s.[1]

Historically, Emeryville has been an industry-based community. Since the mid-1970s, however, City land use planning efforts have focused on redeveloping underutilized and/or vacated, industrial sites with new commercial and residential uses. As a result, City population has increased as these industrial sites have been redeveloped. From 1970 to 2000, the City experienced a 157 percent increase in population, from 2,681 to 6,882 persons. Comparatively, Countywide population growth occurred at a much slower pace over this same period, increasing 34.5 percent from 1,073,184 to 1,443,741 persons. According to ABAG, the City's 2000 population of 6,882 persons made it the smallest populace of an incorporated city in Alameda County.[2]

In 2005, ABAG estimated that Emeryville's population had increased an additional 16.3 percent since 2000, reaching 8,000 persons.[3] By 2020, ABAG estimates Emeryville's population will increase 23.8 percent from 2005, reaching 9,900 persons. By 2030, Emeryville's population is estimated to increase to 11,500 persons, comparable to that of the City of Piedmont, located southeast of Emeryville, in the Oakland hills. Table V.B-1 provides Emeryville and Alameda County population data from 1990 through 2030.

[1] California Department of Finance. Historical Census Populations of California State, Counties, Cities, Places, and Towns, 1850-2000. Website: www.dof.ca.gov.

[2] Association of Bay Area Governments, 2004. *Projections 2005, Forecasts for the San Francisco Bay Area to the Year 2030*, November.

[3] Ibid.

Table V.B-1: Population Data – Emeryville and Alameda County

Source	1990		2000		2005		2020		2030	
	City	County	City	County	City	County	City	County	City	County
U.S. Census	5,740	1,279,182	6,882	1,443,741	–	–	–	–	–	–
ABAG Projections 2005	–	–	6,882	1,443,741	8,000	1,517,100	9,900	1,714,500	11,500	1,884,600

Sources: US Census, 2000. SF 1, Table DP-1; US Census, 1990. STF 1, Table DP-1; ABAG, 2004. *Projections 2005.*

b. Employment. Two types of employment data are described below: 1) total jobs which indicates the number of all jobs within the community; and 2) employed residents which indicates the number of residents of working age who actively participate in the civilian labor force. The civilian labor force includes: 1) those who are employed (excepting those in the armed forces); and 2) those who are unemployed, but actively seeking employment. Those who have never held a job, who have stopped looking for work, or who have been unemployed for a long period are not considered to be in the labor force. Table V.B-2 provides employment data for Emeryville and Alameda County. Data provided in the "difference" row of Table V.B-2 illustrate how the number of jobs provided is impacted by the labor force available to fill those jobs. A *positive* difference indicates that more jobs are provided in the community than there are workers available to fill those jobs; a *negative* difference indicates the number of employed workers exceeds the number of jobs provided to accommodate the demand for them in the community. As indicated, for all years provided, Emeryville and Alameda County provided more jobs than the demand for jobs by employed residents.

Table V.B-2: Employment Data – Emeryville and Alameda County

	2000		2005		2020		2030	
	City	County	City	County	City	County	City	County
Total Jobs	19,860	750,160	20,140	747,500	21,900	953,310	22,220	1,088,870
Employed Residents	4,319	709,557	4,750	705,900	6,600	895,850	8,030	1,032,100
Difference	15,541	40,603	15,390	41,600	15,300	57,460	14,190	56,770
Proportion of Employed Workers to Total Jobs	21.7%	94.5%	23.6%	94.4%	30.1%	93.9%	36.1%	94.8%

Source: ABAG, 2004. *Projections 2005;* LSA Associates, 2005.

(1) Total Jobs. In 2000, Emeryville had 19,860 total jobs which comprised approximately 2.6 percent of all County jobs. By 2005, ABAG estimated that the total number of jobs in Emeryville increased 1.4 percent to 20,140 total jobs over the five year period since 2000, providing 2.6 percent of all Alameda County jobs. By 2020, ABAG estimates the number of total jobs would increase 8.7 percent from 2005, adding 1,760 jobs Citywide. By 2030, ABAG estimates that the total number of Emeryville jobs will increase 10.3 percent from 2005, reaching approximately 8,030 total jobs, maintaining its share of total Alameda County jobs at 2 percent. Countywide, total jobs are projected to increase approximately 45.7 percent from 2005, adding 341,370 jobs**.**

Of the 19,860 total jobs in Emeryville in 2000, the majority (i.e., 32 percent) where provided by financial and real estate employers, as indicated in Table V.B-3.[4] The largest employers in Emeryville are Novartis Pharmaceuticals (formerly Chiron), Siebel Systems, Pixar, and IKEA.[5]

[4] Ibid.

[5] City of Emeryville, 2005. Major Employers. Website: http://www.ci.emeryville.ca.us.

The number of existing jobs at the project site was estimated by applying standard employment density factors for commercial, office, and industrial land use categories. Generally, commercial uses provide one job per 300 to 800 square feet of building area; office uses provide one job per 250 to 350 square feet of building area; and industrial uses provide one job per 350 to 850 square feet of area.[6] For the purposes of this analysis, mid-point employment density factors for each of these land use categories were used: Commercial – 1 job per 500 square feet; Office – 1 job per 300 square feet; and Industrial – 1 job per 600 square feet. Applying these employment density factors to the known developed square footages for existing and occupied land uses on the project site in 2005 results in an estimate of 700 total jobs on the project site, accounting for a small percentage of all City jobs (i.e., 3.5 percent). All of these jobs would be retained as a part of the proposed project.

Table V.B-3: City of Emeryville: Proportion of Employment Composition by Sector

Sector	2000	2005	2020	2030
Financial and Professional	32%	33%	34%	34%
Manufacturing	22%	20%	19%	19%
Retail	17%	17%	17%	17%
Other	16%	16%	15%	15%
Health, Education and Recreation	13%	14%	15%	15%

Source: ABAG, 2004; LSA Associates, 2006.

The additional 77,000 square feet of commercial space from the proposed project would result in approximately 155 new jobs within Emeryville.

(2) Employed Residents. In 2000, 62.8 percent, or 4,319 persons, residing in Emeryville were employed (i.e., employed residents), comprising less than 1 percent (i.e., 0.6 percent) of all Alameda County employed residents.[7] By 2005, ABAG estimated that the total number of employed residents in Emeryville had increased 10 percent to 4,750 persons over the five-year period since 2000, but the proportion of employed residents to total jobs in the City remained constant at 0.6 percent. By 2020, ABAG projects the number of employed residents in Emeryville will increase 39 percent, adding 1,850 more employed residents from that in 2005, totaling 6,600 employed residents. By 2030, ABAG projects that the number of employed residents in Emeryville will increase an additional 69 percent (or 3,280 more employed residents) from that in 2005 to 8,030 persons, comprising just under 1 percent (i.e., 0.78 percent) of Alameda County's workforce.

By 2030, the proportion of employed residents to total City jobs is projected to be approximately 36.1 percent, indicating that the number of Emeryville residents participating in the workforce in the future would increase to 69.8 percent (or 8,030 persons) from that in 2005 (i.e., 62.8 percent, or 4,319 employed workers), consistent with the anticipated increase in population by 2030. County-wide, the proportion of employed residents to total jobs is anticipated to remain relatively constant from 2005 at approximately 94 percent.

c. Housing Characteristics. The following section describes housing characters, including household population, housing stock type and age, occupancy and tenure, housing unit inventory added over time, and housing affordability.

(1) Households. In 2000, the US Census reported there were 3,975 occupied housing units in Emeryville, with an average household size of 1.7 persons, which is projected to remain constant

[6] Natelson Notes-An Economic Development Resource of the Natelson Company, Inc. (TCNI), Spring 2002.

[7] ABAG, 2004. *Projections 2005*, November.

through 2030. From 2000 to 2005, the number of households increased 15.2 percent, adding 605 new housing units over the five year period.[8] By 2030, ABAG estimates the number of housing units in Emeryville will increase 41.4 percent from 2005, adding 1,910 new units to its housing stock. This increase in households is proportionally greater than that anticipated Countywide, where ABAG projects a 24.8 percent increase from 542,540 in 2005 to 677,400 in 2030, consistent with the more stabilized growth rate Countywide over time compared to Emeryville's more recent surge in housing development.[9] Table V.B-4 provides household units, household population, and average household size data for 1990 through 2030 for Emeryville and Alameda County.

Table V.B-4: Household Data – Emeryville and Alameda County

	1990*		2000*		2005		2020		2030	
	City	County	City	County	City	County	City	County	City	County
Household Units	3,227	479,518	3,975	523,366	4,580	542,540	5,640	618,870	6,490	677,400
Household Population	5,740	1,242,068	6,815	1,416,006	7,900	1,487,000	9,800	1,682,400	11,400	1,852,200
Average Household Size	1.79	2.59	1.71	2.70	1.72	2.74	1.74	2.72	1.75	2.73

Note: 1990 and 2000 housing units indicate "occupied" units to calculate actual average household population size. In 1990 and 2000, total housing units were 3,640 and 4,274, respectively.

Source: ABAG, 2004. Projections 2005, November.; US Census, 1990. STF-1, Table DP-1, General Housing and Population Characteristics; US Census, 2000. SF-3, Table DP-3, Profile of Selected Housing Characteristics.

Emeryville's average household size of 1.7 persons is considerably less than the Countywide average household size of 2.7 in 2005. The large difference in City versus Countywide household size may be a result of the average number of bedrooms provided in its predominately multi-family housing stock (described more fully in the following section). The majority (i.e., 65.2 percent) of Emeryville's housing stock provides studios or one bedroom units compared to the Countywide average of only 27.4 percent (see Table V.B-5). This predominance of small units indicates there is a much greater demand for smaller units in Emeryville, thus accommodating fewer persons per household, and resulting in smaller average household sizes.

Table V.B-5: Comparison of Number of Bedrooms in Housing Units-Emeryville and Alameda County

Bedrooms	City	County
Studio or 1 bedroom	65.2%	27.4%
2 bedrooms	27.7%	27.4%
3+ bedrooms	7.1%	45.2%

Source: US Census, 2000. SF 3, Table QT-H4, *Physical Housing Characteristics-All Housing Units.*

[8] Ibid.

[9] Ibid.

(2) Housing Stock. As depicted in Table V.B-6, Emeryville's housing stock is primarily characterized by multi-unit buildings with two or more units per structure (i.e., 86.4 percent). The predominance of multi-family units in the City is consistent with its highly urban nature and focus on dense, in-fill, mixed use land use development patterns. In contrast, Alameda County, which is predominately suburban in nature, is primarily characterized by single-family housing (i.e., 61 percent). Further, as indicated in Table V.B-7, the majority of the City's housing units are occupied by renters (i.e., 63 percent), which is a much higher proportion than the Countywide average of 45 percent rental units.

Consistent with Emeryville's population growth, as described in subsection 1.a, the majority of the City's housing stock was developed post-1970 (i.e., 67 percent). Countywide, housing development has occurred at a much more steady pace over time, as indicated in Table V.B-8.

Table V.B-6: Comparison of Residential Units in Structure-Emeryville and Alameda County

	City		County	
Units in Structure	**Number**	**Percent**	**Number**	**Percent**
1 unit – attached or detached	542	12.7	329,359	61.0
2 to 9 units	609	14.2	93,117	17.2
10+ units	3,086	72.2	110,057	20.4
Mobile home, Boat, RV, etc.	37	0.9	7,650	1.4
Total	4,274	100.0	540,183	100.0

Source: US Census, 2000. SF3, Table QT-H4, *Physical Housing Characteristics-All Housing Units.*

Table V.B-7: Year 2000 Housing Unit Occupancy and Tenure Status-Emeryville and Alameda County

	City		County	
Tenure Status	**Number**	**Percent**	**Number**	**Percent**
Owner-Occupied	3,499	37	286,277	55
Renter-Occupied	1,476	63	237,089	45
Total Occupied	3,975	93	523,366	97
Vacant Units	299	7	16,817	3
Total Units	4,274	100.0	540,183	100.0

Source: US Census, 2000. SF1, Table QT-H1, *General Housing Characteristics*.

Table V.B-8: Year Housing Unit Constructed-Emeryville and Alameda County

	City		County	
Tenure Status	**Number**	**Percent**	**Number**	**Percent**
1990 to March 2000	802	19	52,314	10
1970 to 1989	2069	48	151,086	28
1940 to 1969	806	19	230,171	42
1939 or earlier	597	14	106,612	20
Total Units	4,274	100.0	540,183	100.0

Source: US Census, 2000. SF1, Table QT-H1, *General Housing Characteristics*.

As described in Chapter III, Project Description, the proposed project would add up to 340 multi-family, for-sale units to the City's housing stock. These units would provide studio, one-, and two-bedroom units in mid-rise, mixed use buildings.

Affordable Housing. Affordable housing is defined as housing costs that require less than thirty percent of a monthly household income.[10] In 2000, the US Census reported that Emeryville had an average for-sale housing unit cost of $161,600, which is considerably less than the Countywide average of $345,000 per unit.[11] For rental units, the Census reported that City monthly rents were slightly higher than the Countywide average at $985 per unit, compared to $852 per unit Countywide.[12] Nonetheless, 45.9 percent of Emeryville owners and 45.2 percent of Emeryville renters paid more

[10] City of Emeryville, 2005. Municipal Code Article 62, Section 9-4.62.2, Definitions.

[11] US Census, 2000. SF3, Table DP-4, *Profile of Selected Housing Characteristics.*

[12] Ibid.

than 30 percent of their monthly income on housing mortgage or rent costs each month, thereby indicating that many housing units in Emeryville are not affordable to the persons residing in the community.[13]

To facilitate the development of additional affordable units Citywide, Emeryville Municipal Code, Article 62, Section 9-4.62, Affordable Housing Set Aside Program, requires all new residential development projects with more than 30 units set aside 20 percent of the new units for moderate income households. These units must be leased or sold to these households at rates affordable to their income level, as established annually by the City. Set-aside units are contractually restricted to affordable for-sale or rental rates for a minimum of 45 years. The project applicant could request a reduction in the number of set aside units, if he commits to setting aside units specifically for very-low and low income households only. To off-set the economic effects of such a requirement on the project applicant, the applicant could request up to a 25 percent density bonus for additional units not included in the set aside calculation, if the request is consistent with General Plan goals and policies.[14]

Consistent with the Affordable Housing Set Aside Program, 20 percent (i.e., 68 units) of the proposed project's 340 housing units would be set aside and sold at affordable rates to very-low, low, or moderate income households.

d. Jobs-to-Housing Balance. The jobs-to-housing balance concept is used to determine whether a community has an adequate number of jobs available to provide employment for all the residents within the community seeking employment. Understanding this "balanced" relationship concept is important to determine impacts on housing affordability, traffic flows and congestion, and air quality within a community and its broader region.

(1) Methodology. Typically, the term "jobs-to-housing balance" is used to refer to a relationship between jobs and housing units within a community. A jobs-to-housing units ratio of 1.5 is considered ideal, which takes into account residents who do not participate in the labor force (i.e., retired, disabled, students). The 1.5 jobs-to-housing units ratio indicates a community has an adequate number of jobs to meet the demand for jobs by its residents, and therefore, is in balance.

A more helpful indicator of balance, however, is the relationship between the number of jobs provided to the number of residents seeking employment (i.e., employed residents). An ideal jobs-to-employed residents ratio is 1.0, which indicates that every resident seeking a job could find one within the community.

A jobs-to-employed residents ratio that is greater than 1.0 indicates the community provides more jobs than it has residents seeking those jobs. With this out-of-balance condition, the community is likely to experience in-commuting traffic congestion from people coming to jobs from outside the area, as well as intensified pressure for additional residential development to house the labor force demanded. Conversely, a jobs-to-employed residents ratio less than 1.0 indicates a community has fewer jobs than employed residents demanding employment. With this converse out-of-balance

[13] Ibid.

[14] The density bonus referred to here is particular to the Affordable Housing Set Aside Program, and should not be confused with other density bonuses provided for under State law or with a Conditional Use Permit. This density bonus is exclusive of and not a substitute for any other density bonuses.

condition, residents would need to commute outside of the community (i.e., out-commute) for employment. The resulting commuting patterns can lead to traffic congestion and adverse effects on both local and regional air quality.

This ratio does not, however, account for regional in- or out-commuting due to job/labor mismatches or housing affordability. Even if a community has a numerical balance between jobs and housing/employed residents, sizeable levels of in-commuting and out-commuting are still possible where employment opportunities do not match the skills and educational characteristics of the local labor force. In such instances, regional commuting tends to occur. For example, a numerically balanced community may have high housing costs and low-wage jobs, thus requiring its residents to out-commute for high wage jobs elsewhere, and its workers to in-commute from outside the community where housing costs are affordable to their low wage incomes. This condition is often referred to as a jobs-to-housing *mis*match. A jobs-to-housing match would indicate that the types of jobs provided "matched" the income needs of the employed workers within the community.

(2) Jobs-to-Employed Residents in Emeryville and Alameda County. Table V.B-9 provides housing and employment data for Emeryville and Alameda County. According to ABAG, Emeryville had more jobs than employed residents in 2000 and 2005, indicating that many of Emeryville's jobs were filled by persons commuting into the City for work. Emeryville's jobs-to-employed resident ratios in 2000 and 2005 of 4.59 and 4.24, respectively, indicate the community is imbalanced with many more jobs supplied compared to housing units available to support its workforce. Because Emeryville supplies more jobs than it has a work force available to support these jobs, in-commuting from workers residing outside the community is necessary. Alameda County also had higher jobs-to-employed residents ratios than Emeryville in 2000 and 2005, although it was much closer being balanced, resulting in jobs-to-employed residents ratios of 1.36 and 1.30, respectively.

2. Regulatory Considerations

The following section describes regulatory considerations applicable to the proposed project.

a. General Plan. A number of Emeryville General Plan goals, objectives, and policies addressing population, employment, and housing are applicable to the proposed project, as described below.

- *Citywide Goal 5*: Encourage land uses which strengthen the tax base while respecting the natural, scenic, and historic resources of the City.
- *Housing Goal II:* Promote a variety of housing types and affordability levels.
- *Housing Objective II-A*: Support development of new housing for very low, low and moderate income household to meet Emeryville's fair share allocation or regional affordable housing need, as established by the Association of Bay Area Governments. Develop 104 very low income units and 73 low income units using the Redevelopment Agency's Low and Moderate Income Housing Fund and seeking funding for the remaining units.
- *Housing Policy II-A-1:* Make very low and low income housing a priority for use of the Redevelopment Agency's Low and Moderate Income Housing Fund.
- *Housing Policy II-A-2:* Include some low and very low income housing in Redevelopment agency assisted development projects whenever feasible.
- *Housing Program II-A-6:* Encourage and facilitate the conversion of underutilized industrial sites to mixed use or residential projects that include low and very low income units.

Table V.B-9: ABAG Housing and Employment Data – Emeryville and Alameda County

	2000		2005		2020		2030	
	City	County	City	County	City	County	City	County
Total Jobs	19,860	750,160	20,140	747,500	21,900	953,310	22,220	1,088,870
Employed Residents	4,319	709,557	4,750	705,900	6,600	895,850	8,030	1,032,100
Housing Units	3,975	523,366	4,580	542,540	5,640	618,870	6,490	677,400
Jobs-to-Housing Units Ratio (Ideal is 1.5)	4.99	1.43	4.39	1.38	3.88	1.54	3.42	1.60
Jobs-to-Employed Residents Ratio (Ideal is 1)	4.59	1.36	4.24	1.30	3.32	1.45	2.76	1.52

Source: ABAG, 2004. *Projections 2005*; LSA Associates, Inc., 2005.

- *Housing Policy II-B-2:* Maintain the Affordable Housing Set-Aside Ordinance, requiring projects with 30 units or more to provide 20% of the units affordable to moderate, low or very low income households.
- *Housing Policy II-C-1:* Encourage non-traditional group housing, live-work units, and housing in multiple use projects and mixed use areas.
- *Housing Policy II*-C-2: Encourage residential and live work development in industrial areas, where appropriate.
- *Housing Objective IV-A:* Prevent and redress discrimination based on race, color, ancestry, national origin, religion, familial status, sex, marital status, sexual orientation, age, disability, or source of income.
- *Land Use Policy 12:* Much of the land susceptible to re-use or redevelopment in Emeryville should be developed in such a fashion that a variety of compatible uses will be established on the same site. In the largest of such mixed use projects (in excess of 200,000 square feet) residential uses should be required where feasible.
- *Land Use Policy 13:* The City encourages the integrated planning of large properties or groups of properties for mixed use development. The City may assist in land assembly, financing and planning of such projects.
- *Economic Development Objective A:* Facilitate the transition of Emeryville into an intensively developed city with a wide range of economic activity, befitting its central location in the Bay Area.
- *Economic Development Objective B:* Strengthen the City's tax base by encouraging new economic activity with high tax generation potential.
- *Economic Development Objective D:* Encourage the establishment of businesses that will employ Emeryville residents.
- *Economic Development Objective E:* Seek economic development which could improve the jobs/housing balance in the region.
- *Economic Development Policy 1:* The City encourages the establishment of small businesses and new start up firms to promote economic diversity and job growth.
- *Economic Development Policy 3:* The City will actively seek the establishment of retail development such as a supermarket, drug store, or hardware store to provide for the shopping needs of Emeryville residents.
- *Economic Development Policy 4:* The City will encourage businesses to hire Emeryville residents, both to reduce unemployment and to reduce commute distances.

b. Affordable Housing Set Aside Program. As briefly described in subsection 1.c(3), Municipal Code Article 62, Section 9-4.62 provides an Affordable Housing Set Aside Program. This ordinance was adopted in 1990 in an attempt to lessen the shortage of affordable housing in the City. The ordinance is applicable to all new residential development projects, including the conversion of

existing non-residential space to residential use when 30 or more dwelling units or lots are created. The ordinance requires that 20 percent of all new units be set aside at affordable rates, as established annually by the City, for moderate income households for a minimum period of 45 years. The set aside units must be distributed throughout the development, be of comparable size, mix, type, appearance, materials and finished quality as the at-rate units, and be available for-sale or rent at the same time the at-rate units become available. Flexibility in implementing the requirements of the ordinance are also provided, such as allowing a reduction in the number of set aside units if the project applicant extends the duration of affordability restriction or sets aside the units specifically for very-low and low income households only.

3. Impacts and Mitigation Measures

This section analyzes impacts related to population, employment, and housing and that could result from development of the proposed project. An assessment of potential impacts is provided and mitigation measures are recommended, as appropriate.

a. Criteria of Significance. The following criteria of significance establish the thresholds for determining whether an impact is significant. The criteria are derived from State *CEQA Guidelines* Environmental Checklist questions. The project would have a significant impact on population, employment, or housing if it would:

- Induce substantial population growth in an area either directly or indirectly.
- Displace a substantial number of existing housing units or people, necessitating the construction of replacement housing elsewhere.
- Create a substantial jobs-to-housing/employed residents imbalance.

b. Less-than-Significant Population, Employment and Housing Impacts. The following discussion examines potential less-than-significant impacts of the proposed project.

(1) Induce Substantial, Unanticipated Population or Housing Growth. The proposed project would generate housing-related population growth. However, as described in subsection 1, the City is a built-out, urban environment that has focused planning efforts on the conversion of old, industrial sites to residential and commercial uses since the 1970s. As such, the Emeryville General Plan anticipates new residential and commercial development Citywide over the life of the General Plan, including the project site, as demonstrated by General Plan Housing Policies II-C-1 and II-C-2, and Land Use Policies 12 and 13. Further, the General Plan land use map designates the project site Mixed Use (Figure IV.A-1) and the site is zoned Mixed Use (Figure IV.A-4), both of which intend for residential and non-residential uses to be mixed on the same site, such as the proposed project site. Additionally, population growth on the project site is not unanticipated, as General Plan Housing Policies II-C-1 and II-C-2 encourage infill housing on mixed use sites, including those located in or near industrial areas. Further, Land Use Policy 12 encourages large mixed use project, such as the Marketplace site, to incorporate residential uses into the development, as proposed by the project applicant.

Development of the proposed project would add up to 340 condominium housing units to an under-utilized mixed use site, increasing the City's total population by approximately 578 persons. The estimated population growth would increase total City population to approximately 8,478 persons,

indicating a 7.3 percent increase from 2005, consistent with anticipated ABAG population and housing unit growth. By 2030, the housing units added by the proposed project would represent approximately 3 percent of Citywide housing units, consistent with housing growth forecasted by ABAG.

Finally, the proposed project would not extend roadways or public services to an area currently unserved by these facilities. As a result, the project would not result in substantial or unforeseen population growth beyond that planned for the area, and no significant impact would result.

(2) Displace Substantial Numbers of Existing Housing or People, Especially Affordable Housing Necessitating the Construction of Replacement Housing Elsewhere. As described in subsection 1, no housing units and, therefore, no people currently reside on the project site. As a result, the project would not result in the displacement of substantial numbers of existing housing or people, including affordable housing. Development of the proposed project would, however, add up to 340 new multi-family, for-sale, housing units, 20 percent of which would be set aside at affordable rates for very low, low, or moderate income households. Development of the proposed project would further the achievement of Housing Element Goal II, Objective II-A, and Policies II-A-1, 2, and 6, and Housing Policies II-C-1 and II-C-2 in that it would: add needed affordable, for-sale units to the City's housing stock; promote housing opportunities for all income levels; contribute to the City's fair share of regional housing needs; and infill residential development on a mixed use. As a result, the proposed project would not displace substantial numbers of existing housing or people, especially affordable housing necessitating the construction of replacement housing elsewhere, and therefore, no significant impact would result.

(3) Create a Substantial Jobs-to-Housing/Employed Residents Imbalance. The proposed project could have effects related to employment; however, it is unlikely that significant environmental impacts would result. As described in subsection 1.d.2, the current jobs-to-employed residents ratio in the City is 4.24. By 2020, the ratio is projected to decrease to 3.32, thereby becoming slightly more in balance with the addition of approximately 150 commercial jobs from the project site and elsewhere Citywide. The approximately 150 new, permanent jobs created from development of the 75,000 of new commercial space on the project site would generate approximately 578 new residents from the 340 new housing units. Base on ABAG projected Citywide employment rates by 2020, approximately 30.1 percent (i.e., 180 persons) of the 578 new residents on the project site would participate in the job market (see Table V-B.2). Because the proposed project would result in more new housing units than jobs, the jobs-to-employed residents ratio would become more in balance, and closer to the ideal rate of 1.0. By 2030, the Citywide jobs-to-employed residents ratio would improve to 2.76. Table V.B-10 demonstrates how the Citywide jobs-to-employed resident ratio would improve over time with development of the proposed project, achieving Economic Development Objectives A, B, D, and E, and Policies 1, 3 and 4. Therefore, the addition of residents or new commercial jobs associated with

Table V.B-10: Emeryville Jobs-to-Employed Workers Ratio in Year 2005, 2020, and 2030

Citywide	Year 2005	Year 2020	Year 2030
Total Jobs	20,140	21,900	22,220
Employed Workers	4,750	6,600	8,030
Housing Units	4,580	5,640	6,490
Jobs-to-Housing Units Ratio (Ideal is 1.5)	4.39	3.88	3.42
Jobs-to-Employed Workers Ratio (Ideal is 1)	4.24	3.32	2.76

Source: LSA Associates, Inc., 2005.

the proposed project would not create a substantial jobs-to-employed residents *im*balance and, as a result, would result in a less-than-significant impact to the jobs-to-employed residents balance.

c. Significant Population, Employment and Housing Impacts. Implementation of the proposed project would not result in any significant population, employment, or housing impacts.

C. TRANSPORTATION, CIRCULATION AND PARKING

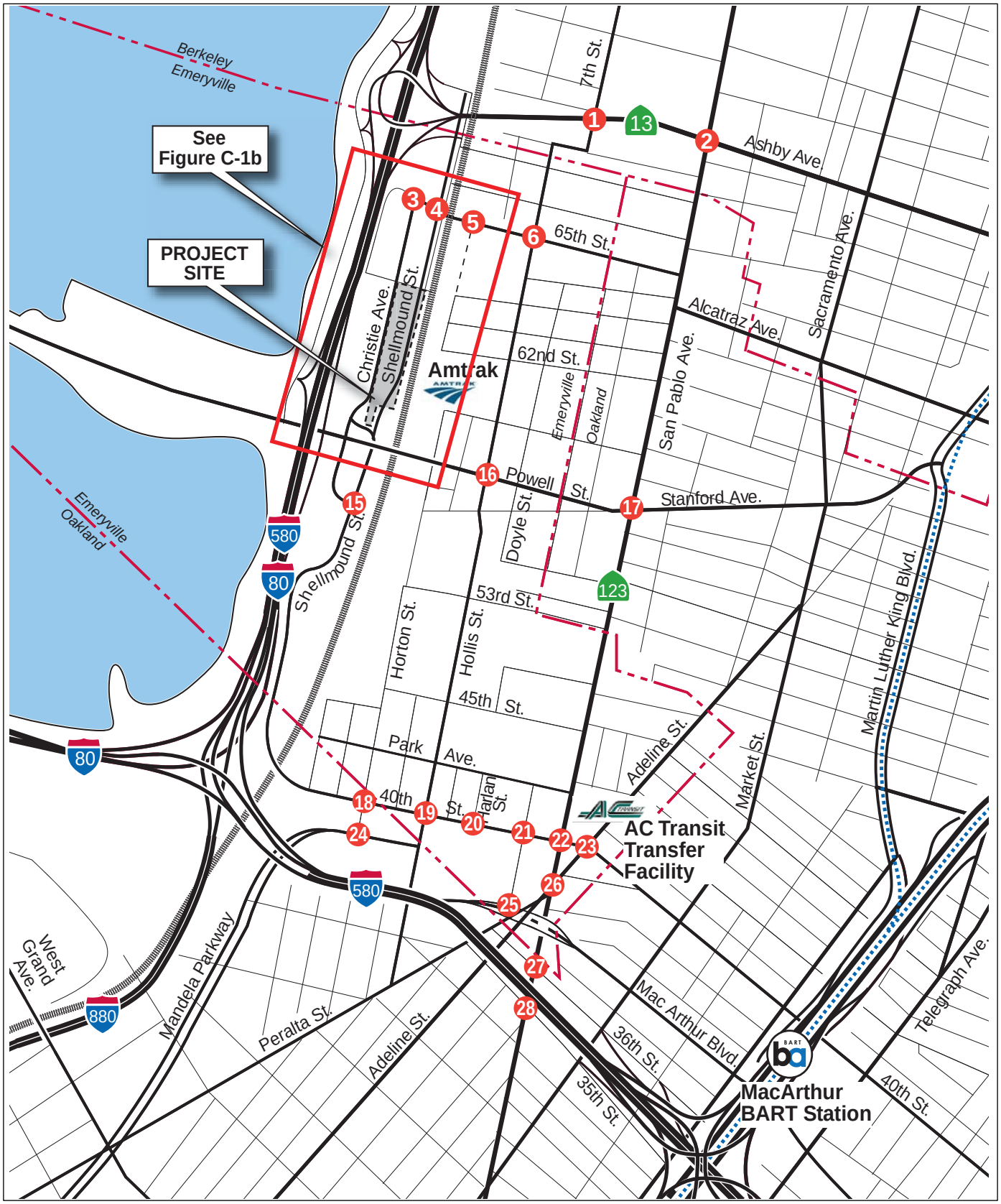
This section of the EIR describes the transportation and circulation conditions in the area surrounding the project site, and identifies transportation impacts associated with the development of the proposed project. The analysis focuses on potential impacts to intersections, roadway and freeway segments; pedestrian, bicycle, and transit networks; parking demand; and internal site circulation. Significant impacts are quantified and mitigation measures are identified to address these impacts, as necessary. The following section on transportation, circulation, and parking was prepared based on a Traffic Impact Analysis (TIA) completed by Fehr & Peers Transportation Consultants. All technical analyses related to this study are included in the Appendix B.

1. Existing Setting

This section describes the existing transportation infrastructure including the road and transit system, as well as the pedestrian and bicycle facilities. The study intersections are identified as are the analysis scenarios. The methods used to analyze the study intersections are discussed, followed by the existing operational characteristics of the intersections.

a. Existing Roadway Network. The Marketplace Redevelopment project site is located south of 64th Street, east of Christie Avenue and along Shellmound Street just north of Shellmound Way in Emeryville, as shown in Figure V.C-1a and V.C-1b. Existing land uses near the project site are primarily residential and commercial. A hotel is located south of the project site. A description of roadways in the project vicinity is provided below. Regional access to the project site is provided by Interstate 80 (I-80) and Interstate 580 (I-580), while a number of arterials and local roads provide local access. Existing lane configurations and traffic controls are shown on Figure V.C-2a and V.C-2b for each study intersection. The lane configuration shown on the figures represents conditions when the traffic counts were collected (2005 and 2006).

- ***I-80*** connects the San Francisco Bay Area with the Sacramento region and continues east across the United States. In Emeryville, I-80 has a north/south orientation and provides four mixed-flow lanes and a high occupancy vehicle (HOV) lane in each direction at the Ashby Avenue/Shellmound Street interchange (Emeryville/Berkeley border). Access from I-80 to Emeryville is provided via interchanges at Powell Street and Ashby Avenue. This segment of I-80 through Emeryville is also known as I-580.
- ***I-580*** extends in an east/west direction, from San Rafael toward Tracy and the San Joaquin Valley. In the vicinity of Emeryville, I-580 parallels the southern city boundary with five lanes in each direction. Access to Emeryville from I-580 westbound is provided at West Street via ramps along 35th and 36th Streets; access to Emeryville from I-580 eastbound is provided via a left-hand exit to Emery and Adeline Streets.
- ***Christie Avenue*** is generally a two-lane, north/south road extending north from Shellmound Street to 65th Street. Existing land uses along Christie Avenue include office, retail and residential.
- ***64th Street*** is a two-lane east/west road extending east from Lacoste Street to Shellmound Street. On-street parking is allowed on the section of roadway near the study area. The roadway terminates at Shellmound Street due to railroad tracks but continues east of the tracks to San Pablo Avenue.
- ***Shellmound Street*** is a two- to four-lane north/south road with on-street parking at select locations. Shellmound Street becomes 40th Street to the south of the railroad overcrossing, continuing



LSA

LEGEND:

1 = Study Intersection

= Railroad

= Bart System

NOT TO SCALE

FIGURE V.C-1a

Marketplace Redevelopment Project EIR

Study Intersections

SOURCE: FEHR & PEERS, 2007.

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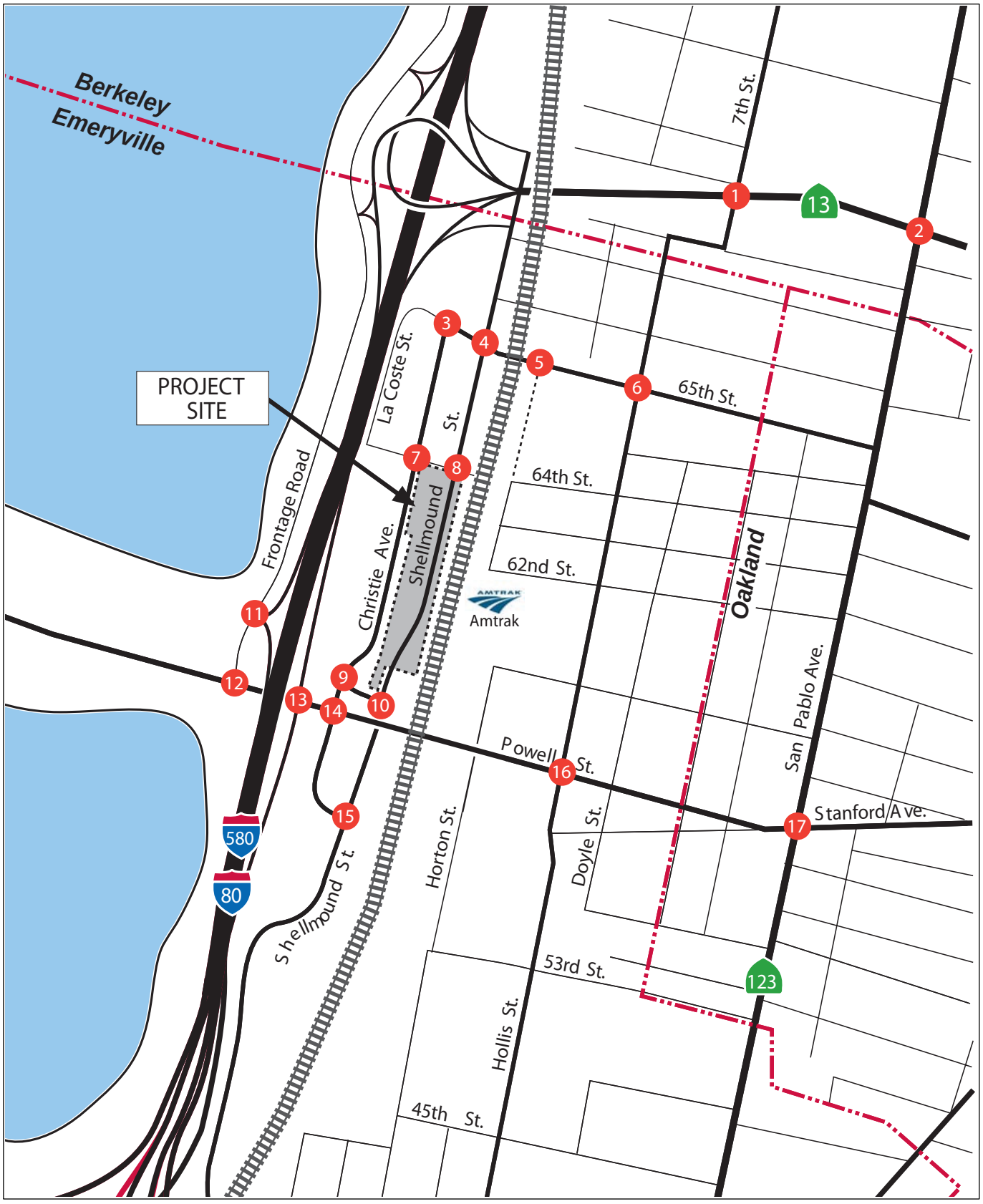

LSA

NOT TO SCALE

LEGEND:

1 = Study Intersection

= Amtrak Station

FIGURE V.C-1b

Marketplace Redevelopment Project EIR

Study Intersections

SOURCE: FEHR & PEERS, 2007

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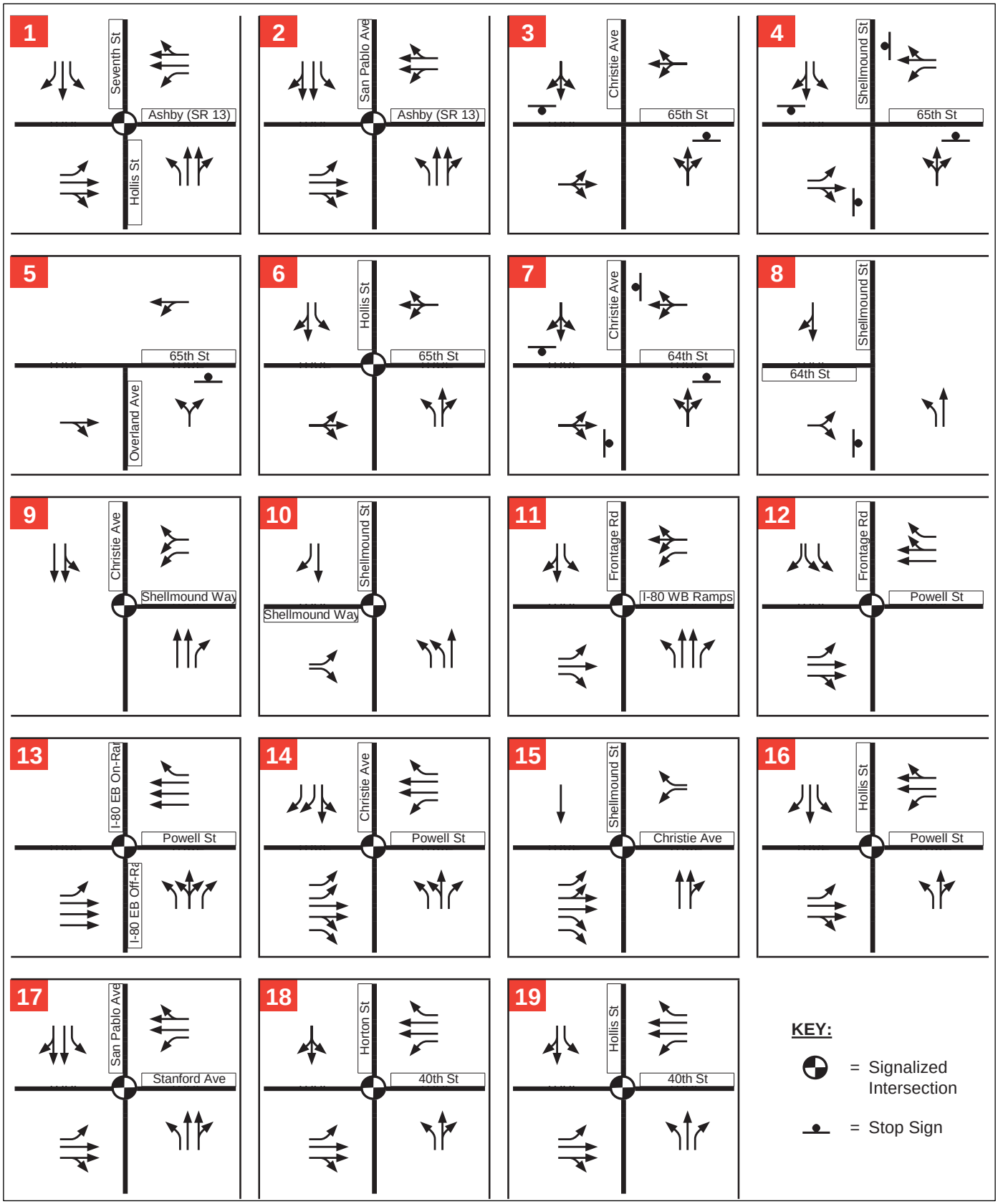

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FIGURE V.C-2a

N

NOT TO SCALE

Marketplace Redevelopment Project EIR

Existing Lane Configurations and Traffic Control

SOURCE: FEHR & PEERS, 2007.

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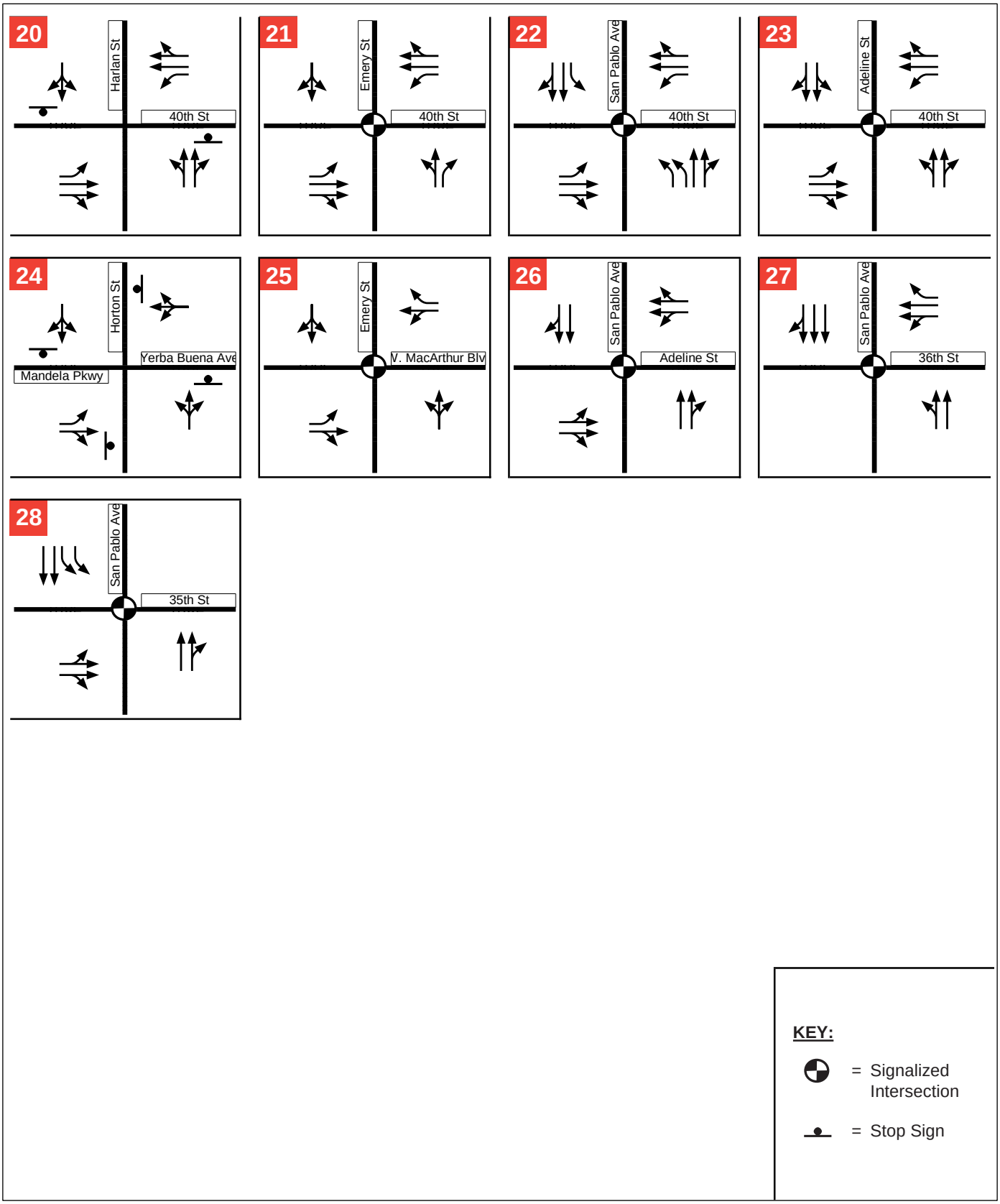

LSA

FIGURE V.C-2b

N

NOT TO SCALE

Marketplace Redevelopment Project EIR
Existing Lane Configurations and Traffic Control

SOURCE: FEHR & PEERS, 2007.

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east beyond the MacArthur BART station. Shellmound Street continues as Bay Street north of Ashby Avenue, where access to I-80 is provided.

- ***Shellmound Way*** is a short four-lane east/west street connecting Christie Avenue and Shellmound Street. On-street parking is prohibited on Shellmound Way.
- ***Powell Street*** is an east/west road, generally with four lanes, with an interchange at I-80. It extends west from I-80 to the Emeryville Marina, and east from I-80 to west of San Pablo Avenue, where it becomes Stanford Avenue and continues to Adeline Street.
- ***65th Street*** is a two-lane, east/west road extending east from Lacoste Street. Land uses along 65th Street include residential, commercial, and office, and on-street parking is available. An at-grade signalized railroad crossing is located just east of Shellmound Street. Approximately 55 trains per day use this crossing. An accident occurred at this location in 2002 when an auto collided with a passenger train. One injury was reported.
- ***Hollis Street*** is a two-lane, north/south road, with on-street parking that begins in Oakland at Peralta Street and ends in Berkeley at Folger Avenue. North of Folger Avenue, Hollis Street becomes 7th Street and extends northward through Berkeley.

b. Existing Transit Service. Transit service in the vicinity of the project site is provided by a local service called Emery Go Round, Alameda-Contra Costa Transit (AC Transit), Bay Area Rapid Transit (BART), and Amtrak.

(1) Emery Go Round. The Emery Go Round, operated by the Emeryville Transit Management Association, provides free wheelchair-accessible shuttle bus service connecting major employment, retail, and residential centers in Emeryville to the MacArthur BART and Emeryville Amtrak stations and other points in Emeryville throughout the day. Two weekday and two weekend routes serve the Emeryville area.

The weekday ***Hollis*** and ***Powell routes*** generally operate from 5:45 a.m. to 10:30 p.m. on 10- to 12-minute headways, scheduled to meet BART trains at the MacArthur BART Station. The weekday ***Powell route*** travels along Shellmound Street, 65th Street, Christie Avenue, Powell Street and Shellmound Way. The ***Powell route*** serves destinations including the Bay Street retail area, Pacific Park Plaza and Watergate Condominiums. Stops are provided on Christie Avenue, south of 64th Street along the project site frontage. The ***Hollis route*** provides service to the Amtrak station and major employers including Pixar and Chiron. The ***Hollis route*** travels along 65th Street and Hollis Street in the study area.

Two routes serve the major retail areas of Emeryville, including the project site, on weekends. The ***Weekend Shopper Route*** operates on 30-minute headways from 9:20 a.m. to 9:50 p.m. on Saturdays and 40-minute headways from 10:20 a.m. to 7:00 p.m. on Sundays. The ***Saturday City Loop route*** operates on 40-minute headways from 10:20 a.m. to 7:00 p.m. on Saturdays. Both routes serve the MacArthur BART station. The ***Shoppers Express*** provides service to the project site along Christie Avenue and Shellmound Street and also serves the Bay Street retail area. The City Loop serves destinations on Hollis Street and Powell Street, including the Amtrak Station, Pacific Park Plaza and Watergate Condominiums; stops along the project site frontage are provided on Christie Avenue south of 64th Street.

(2) AC Transit operates two local routes and four Transbay routes in the vicinity of the project study area. These routes are described below.

- ***Route 57*** operates around the project site on Shellmound Way, Christie Avenue, 64th Street and Shellmound Street in a clockwise direction, providing service between the Emeryville Marketplace and the MacArthur BART station via 40th Street in the study area. Weekday service is provided from 4:00 a.m. to 1:00 a.m. with 10- to 15-minute headways. Weekend service is provided from 4:30 a.m. to 1:00 a.m. with 15- to 30-minute headways. A layover area is provided on 64th Street in the project vicinity, with stops located on Christie Avenue and Shellmound Street that serve the project site.
- ***Route 19*** connects the North Berkeley BART and Fruitvale BART stations via Hollis Street in the study area. Daily service is provided between 6:00 a.m. and 10:00 p.m. on 30-minute headways. Access to the project site from this transit line would be provided via the pedestrian overcrossing at the Amtrak station.
- ***Route Z*** provides weekday service between the San Francisco Transbay Terminal and the City of Albany. In the study area, Route Z operates on 65th Street, Christie Avenue and Powell Street. Eastbound service is provided from 7:00 to 9:00 a.m. and westbound service is provided from 4:30 to 7:00 p.m. on 30-minute headways. A stop in the study area is provided near the Powell Avenue/Christie Avenue intersection.
- ***Route C*** provides weekday service between the San Francisco Transbay Terminal and Piedmont. In the study area, Route C operates on Shellmound Street, Shellmound Way, Christie Avenue and Powell Street. Westbound service is provided from 5:00 a.m. to 12:30 a.m., generally on 30-minute headways. Eastbound service is not provided in Emeryville. A stop in the study area is provided near the Powell Avenue/Christie Avenue intersection.
- ***Route F*** provides weekday and weekend service between the San Francisco Transbay Terminal and the City of Berkeley. In the study area, Route F operates on Shellmound Street, Shellmound Way, Christie Avenue and Powell Street. Westbound service is provided from 5:00 a.m. to 12:30 a.m., generally on 30-minute headways. Eastbound service is provided from 5:45 a.m. to 12:30 a.m., generally on 30-minute headways. A stop in the study area is provided near the Powell Avenue/Christie Avenue intersection.
- ***Route J*** provides weekday service between the San Francisco Transbay Terminal and the City of Berkeley. In the study area, Route J operates on Christie Avenue. Westbound service is provided between 6:00 a.m. and 8:45 a.m. Eastbound service is not provided in Emeryville.

(3) Bay Area Rapid Transit (BART). BART provides regional rail commuter transit service. The closest station to the site is the MacArthur BART Station, located approximately 2 miles southeast of the project site on 40th Street. Three of BART's five lines pass through the MacArthur Station, providing direct service from MacArthur to Richmond, Bay Point, Fremont, San Francisco, and Millbrae. BART service from Fremont/Daly City and Dublin/Pleasanton/San Francisco International Airport (SFO) does not pass through the MacArthur Station.

(4) Amtrak. A pedestrian overcrossing connects the project site to the Emeryville Amtrak train station and is located near Horton Street/59th Street. Four Amtrak routes serve this station, including the Capitol Corridor and San Joaquin commuter service routes. The Capitol Corridor route connects San Jose to the Sacramento region with approximately 24 trains per day, and the San Joa-

quin route connects the Oakland/Emeryville area to Bakersfield, with approximately eight trains per day. The Coast Starlight route (which connects Seattle to Los Angeles) and the California Zephyr route (which connects the Oakland/Emeryville area to Chicago, Illinois) also serve the Emeryville Station, each with one train per day.

c. Existing Bicycle and Pedestrian Facilities. The project vicinity includes bicycle and pedestrian facilities, as described below.

(1) Bicycle Facilities. Bicycle facilities are classified in three categories:

- ***Class I (Bike Paths)*** – A Class I bicycle facility provides a bicycle path for the exclusive use of bicycles and pedestrians, separate from the auto travel-way. The State standard for minimum width of a two-way bicycle path is 8 feet with a 2-foot shoulder on either side.
- ***Class II (Bike Lanes)*** – A Class II bicycle facility is an on-street bicycle lane, with painted markings and signs designating the lane's bicycle-only use. The bicycle lane is separated from vehicle and pedestrian traffic, but the route may be interrupted by pedestrian crossings, vehicle turning movements or parked vehicles. The width for a one-way bicycle lane varies depending upon on-street parking facilities and the type of curb and gutter, but is generally 5 feet or greater.
- ***Class III (Bike Routes)*** – A Class III bicycle facility is a route for bicyclists usually shared by either vehicles or pedestrians. The facility is designated by signs or other markings, and is usually provided when a Class I or Class II facility cannot be provided.

In Emeryville, the San Francisco Bay Trail follows the shoreline south from the Berkeley border to the EmeryCove Marina. The Class I facility veers east on Powell Street and terminates at the Powell Street/Christie Avenue intersection. The trail then continues south as a Class II facility on Shellmound Street. At this time, there are no bicycle facilities provided on Christie Avenue between Powell Street and Shellmound Way.

The pedestrian overcrossing connecting the project site and the Amtrak station is accessible to bikes via elevators, connecting to a Class II facility on 59th Street from Horton Street to Hollis Street. Class II Bike Lanes are provided on Shellmound Street through the site as well as on 65th Street from Shellmound Street to Overland Avenue. Horton Street from 62nd Street to 53rd Street is also a Class II facility. North of 62nd Street, a Class III Bike Route is provided on Overland Avenue to 65th Street. Bike lanes are not provided on Hollis Street; although it is not uncommon for bicyclists to use the corridor. Horton Street from 40th Street to the northern City limits has been designated as a bicycle boulevard to encourage bicycle trips (and discourage car use).

The City's bicycle and pedestrian plan identifies proposed bicycle facility improvements on 65th Street, 59th Street and Powell Street. The Class II facility on 65th Street and the Class III facility on 59th Street would extend east of Vallejo Street, past the city's boundary. An extension of the Class I facility on Powell Street from its existing termination point at Christie Avenue to Shellmound Street is proposed. This would provide a continuous bicycle network from the San Francisco Bay Trail to the Class II facility on Shellmound Street.

(2) Pedestrian Facilities. Pedestrian facilities in the study area comprise sidewalks, crosswalks and pedestrian signal heads. A pedestrian overcrossing connecting the Amtrak Station to the Public Market provides access to the Marketplace site. High levels of mid-day pedestrian activity are

present on this overcrossing and other nearby crosswalks on Shellmound Street. Of the three available crosswalks near the Public Market, the northern, all-way stop controlled intersection is the most heavily used, followed by the striped crosswalk and finally, the southern intersection just north of the Shellmound Street/Shellmound Way intersection. Generally, mid-day pedestrians arrive at and cross Shellmound Street in random groups, disrupting vehicular traffic flows. This disruption is particularly noticeable at the all-way stop controlled intersection where pedestrian crossings reduce efficiency of traffic through the intersection. In addition to crosswalks at the intersections, a striped crosswalk on Christie Avenue provides access between Christie Park and Pacific Park Plaza. Pedestrian facilities are also provided on the Powell Street Bridge, south of the Woodfin Hotel.

Extensive pedestrian facilities are also provided on the existing Marketplace site. Generally, sidewalks and striping provide clear signage of pedestrian paths through the parking lot. A tree-shaded walkway crossing the parking lot is provided from the Marketplace Building to the United Artists (UA) Theater. However, there are some existing deficiencies on the project site, such as the raised sidewalk along the northern edge of the Marketplace Building, which is discontinuous and does not connect to the Christie Park pathway.

d. Study Intersections and Analysis Scenarios. Intersections considered most likely to experience traffic impacts resulting from the project were selected in consultation with City of Emeryville staff and are listed below. Project impacts to the roadway system were identified by evaluating the weekday morning (7:00 – 9:00 a.m.) and evening (4:00 – 6:00 p.m.) peak period operations of the 28 selected intersections under six different development (or no development) scenarios. The Saturday peak period (2:00 – 4:00 p.m.) was evaluated at 15 study intersections. Operations at the driveways that serve the site were also evaluated for the AM, PM, and Saturday peak periods. Following the study intersections is a list of the six analysis scenarios.

Study Intersections

1. Ashby Avenue/7th Street
2. Ashby Avenue/San Pablo Avenue
3. 65th Street/Christie Avenue*
4. 65th Street/Shellmound Street*
5. 65th Street/Overland Avenue*
6. 65th Street/Hollis Street
7. 64th Street/Christie Avenue*
8. 64th Street/Shellmound Street*
9. Shellmound Way/Christie Avenue*
10. Shellmound Way/Shellmound Street*
11. I-80 Hook Ramps/Frontage Road*
12. Powell Street/Frontage Road*
13. Powell Street/I-80 Eastbound Ramps*
14. Powell Street/Christie Avenue *
15. Christie Avenue/Shellmound Street*
16. Powell Street/Hollis Street*
17. Stanford Avenue/San Pablo Avenue
18. 40th Street/Horton Street
19. 40th Street/Hollis Street
20. 40th Street/Harlan Street
21. 40th Street/Emery Street*
22. 40th Street/San Pablo Avenue*
23. 40th Street/Adeline Street
24. Mandela Pkwy/Horton Street
25. MacArthur Boulevard/Emery Street
26. Adeline Street/San Pablo Avenue
27. 36th Street/San Pablo Avenue
28. 35th Street/San Pablo Avenue

* Intersections analyzed for Saturday peak period impacts.

Analysis Scenarios

1. *Existing Conditions* – Existing peak hour conditions based on traffic volumes collected in 2005 and 2006 and the existing roadway network in place at the time of data collection.

2. *Future Year 2010 Conditions* – Existing peak hour traffic volumes plus estimated trips from approved and pending projects in the vicinity of the study area which are likely to be constructed by 2010.

3. *Future Year 2030 Conditions* – Existing peak hour traffic volumes plus estimated trips from approved and pending projects in the vicinity of the study area which are likely to be constructed by 2030.

4. *Existing Plus Project Conditions* – Existing peak hour conditions as described above plus trips generated by the proposed project.

5. *Future Year 2010 Plus Project Conditions* – Future Year 2010 Conditions as described above plus trips generated by the proposed project.

6. *Future Year 2030 Plus Project Conditions* – Future Year 2030 Conditions as described above plus trips generated by the proposed project.

Other intersections were considered for this analysis, including:

- Christie Avenue/Powell Street Way
- Shellmound Street/Ohlone Way
- Shellmound Street/Bay Street
- Shellmound Street/Ikea Exit
- Shellmound Street/Ikea Entrance

Other studies evaluated these intersections, which are all projected to operate acceptability through 2030 with the addition of traffic from planned and pending projects, including the Marketplace project, and regional growth. As these intersections are projected to operate at acceptable service levels, no additional analysis was performed.

e. Analysis Methods. This section describes the methods used to evaluate intersection operations. The operation of roadway facilities are described with the term "level of service" (LOS). LOS is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. It is generally measured in terms of vehicular delay and described using a scale that ranges from level of service (LOS) A to F, where LOS A represents free-flow conditions and LOS F indicates over-capacity conditions with substantial congestion and delay.

Different criteria and methods were used to assess operating conditions for the different types of intersections (i.e., signalized and unsignalized [stop-sign controlled]). LOS criteria and methods for each intersection type are described in the following sections.

A modeling method known as "micro-simulation" was used to evaluate operations on the Powell-Christie loop where vehicle queue spillback can affect the operation of adjacent intersections during periods of peak congestion. Micro-simulation models follow the behavior of individual vehicles through the entire circulation system, allowing for analysis of queuing effects resulting from the buildup of vehicles at intersections. Refer to Appendix B for more information about how micro-simulation was used to model traffic congestion.

(1) Unsignalized Intersections. For unsignalized (all-way stop-controlled and side-street stop-controlled) intersections, the 2000 Highway Capacity Manual (HCM) method for unsignalized intersections was used. For side-street stop-controlled intersections, the level of service is based on the average control delay per vehicle (measured in seconds) for each movement that must yield the right of way (movements on the stop-sign controlled approaches and left turns from the major street for side-street stop-controlled intersections), and is calculated individually. The largest experienced approach delay and average delay for the whole intersection are reported. For all-way stop-controlled intersections, the average control delay is calculated for the intersection as a whole. This incorporates delay associated with deceleration, acceleration, stopping and moving up in the queue. Table V.C-1 summarizes the relationship between delay and level of service for unsignalized intersections.

Table V.C-1: Unsignalized Intersection Level of Service Definitions Using Average Control Delay

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Little or no delays	< 10.0
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

(2) Signalized Intersections. For signalized intersections, the average control delay is calculated for the intersection as a whole. This incorporates delay associated with deceleration, acceleration, stopping and moving up in the queue. Table V.C-2 summarizes the relationship between delay and level of service for signalized intersections.

Table V.C-2: Signalized Intersection Level of Service Definitions Using Average Control Delay

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	55.1 to 80.0
F	Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.	> 80.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

f. Existing Traffic Volumes. Intersection operations were analyzed for the weekday AM (7:00 a.m. to 9:00 a.m.), PM (4:00 p.m. to 6:00 p.m.), and Saturday afternoon (2:00 p.m. to 4:00 p.m.) peak periods. Intersection operations were evaluated for the one hour during each peak period with the highest measured traffic volumes. Inter-

section counts were conducted in the spring of 2005 and fall of 2006 on clear days with area schools in normal session. Existing peak-hour traffic volumes at each study intersection are shown on Figures V.C-3a, V.C-3b, and V.C-4.

g. Existing Intersection Operating Conditions. The existing traffic volumes with existing lane configurations and traffic control were used to analyze existing peak hour operating conditions at the study intersections. As shown in Table V.C-3, all study intersections currently operate at acceptable service levels during the weekday AM and PM, and Saturday peak hours, except for the I-80 EB Ramps/Powell Street and Shellmound Steet/65th Street intersections. A traffic signal has been installed at the Shellmound Steet/65th Street intersection, which was recently activated. Because the traffic counts used in this analysis were collected when the intersection was unsignalized, that configuration was used in the intersection analysis. With signalization, this intersection would operate at LOS B during the PM peak hour. Detailed level of service calculation worksheets can be found in Appendix B.

In addition, a queue spillback analysis was conducted, as shown in Table V.C-4. The 95th percentile vehicle queue, as calculated by Synchro 6.0, is shown for critical intersections in the Powell/Christie Loop that could be adversely affected by the proposed project. The vehicle queues as calculated by Synchro generally coincide with field-observed queues. Detailed queuing worksheets are provided in Appendix B.

Refer to Appendix B for a discussion of how lane utilization imbalances (i.e., when vehicles do not equally distribute across all traffic lanes for a specified movement) affect operating conditions at intersections and roadway segments in the vicinity of the project site.

h. Traffic Forecast. To forecast Future 2010 and 2030 without project traffic volumes, peak hour trips from potential developments and estimates of trips traveling through the City of Emeryville were assigned to the roadway network and added to existing peak hour traffic volumes. Trips traveling through the City (without a destination in the City of Emeryville) were obtained from the Alameda County Congestion Management Agency (ACCMA) travel demand forecasting model.

A list of all City of Emeryville approved, planned and potential developments was provided by city staff. The list was divided into developments with expected completion dates prior to 2010 and those with expected completion dates between 2010 and 2030. Trips generated by developments with expected completion dates prior to 2010 were included in Future 2010 traffic volumes. Future 2010 peak hour traffic volumes are shown on Figures V.C-5a and V.C-5b for the weekday peak hours and Figure V.C-6 for the Saturday peak hour. Future 2030 volumes include trips generated by all developments expected to be completed by 2030. Future 2030 peak hour traffic volumes without the project are shown on Figures V.C-7a and V.C-7b for the weekday peak hours and Figure V.C-8 for the Saturday peak hour.

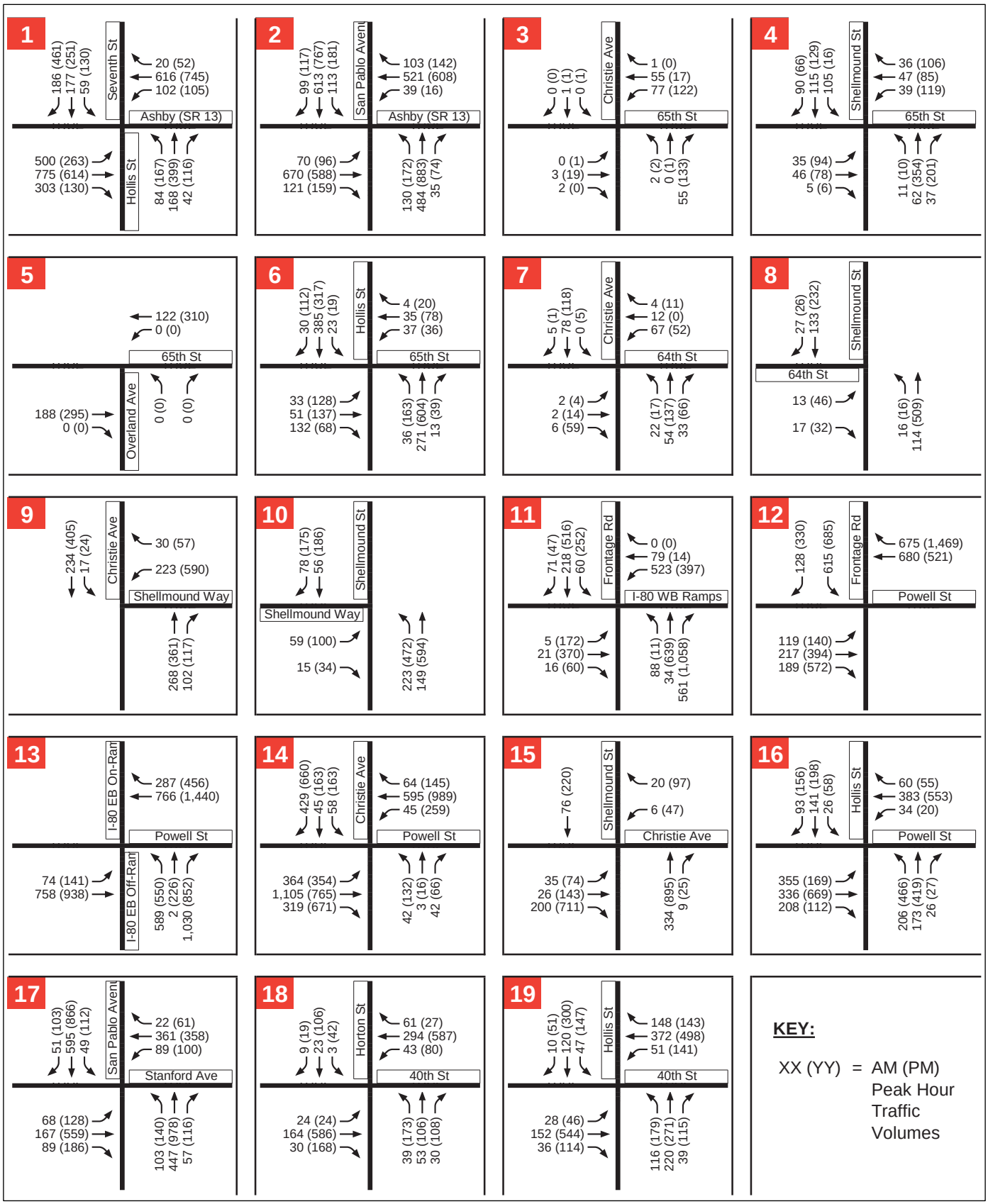

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FIGURE V.C-3a

N

NOT TO SCALE

Marketplace Redevelopment Project EIR

Existing Weekday Peak Hour Traffic Volumes

SOURCE: FEHR & PEERS, 2007

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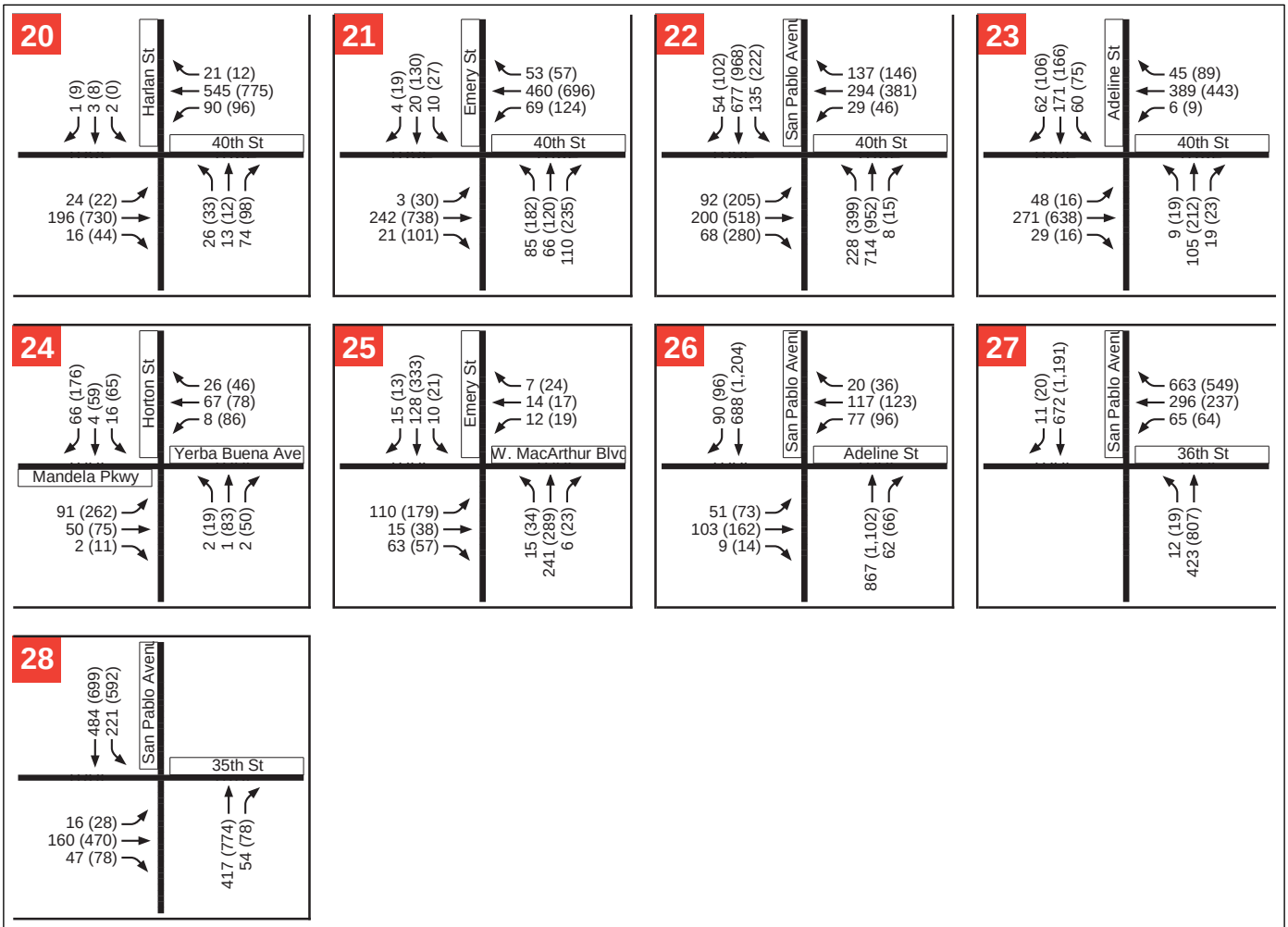

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FIGURE V.C-3b

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NOT TO SCALE

Marketplace Redevelopment Project EIR

Existing Weekday Peak Hour Traffic Volumes

SOURCE: FEHR & PEERS, 2007

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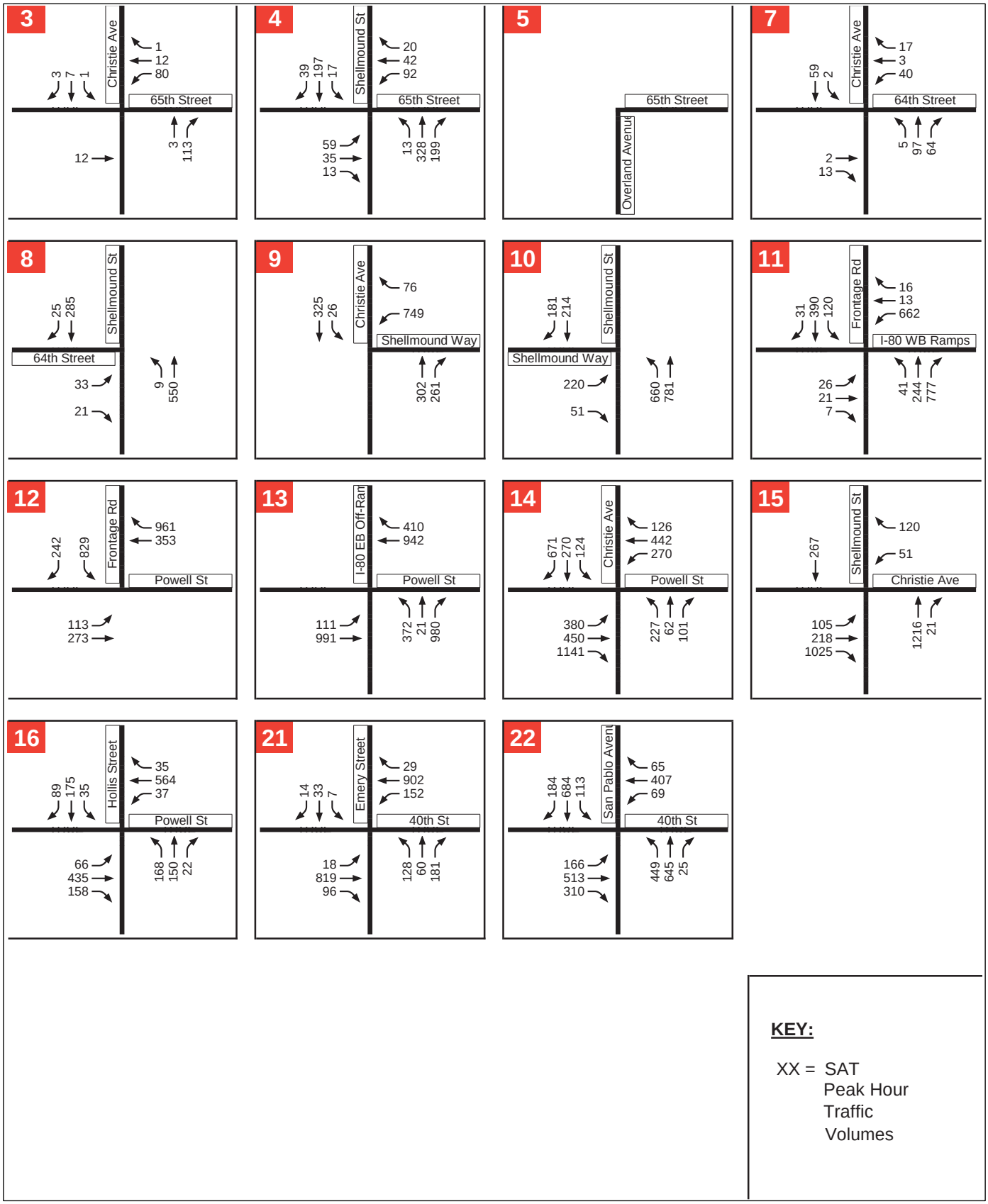

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FIGURE V.C-4

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Marketplace Redevelopment Project EIR
Existing Saturday
Peak Hour Traffic Volumes

SOURCE: FEHR & PEERS, 2007

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Table V.C-3: Existing, Year 2010 and Year 2030 Peak Hour Intersection Delay and LOS (Without Project)

Intersection	Control[1]	Peak Hour	Existing		Year 2010		Year 2030	
			Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS
1. Ashby Avenue/7th Street	Signal	AM	43	D	46	D	59	E
		PM	42	D	50	D	63	E
2. Ashby Avenue/San Pablo Avenue	Signal	AM	32	C	32	C	40	D
		PM	40	D	81	F	128	F
3. 65th Street/Christie Avenue	SSSC	AM	6 (11)	A (B)	6 (11)	A (B)	6 (12)	A (B)
		PM	7 (13)	A (B)	7 (13)	A (B)	8 (14)	A (B)
		SAT	8 (11)	A (B)	8 (11)	A (B)	8 (11)	A (B)
4. 65th Street/Shellmound Street[3,4]	AWSC Signal	AM	9	A				
		PM	50	E	25	C	31	C
		SAT	29	D	46	D	96	F
5. 65th Street/Overland Avenue[3,4]	-- Signal	AM	--	--	32	C	43	C
		PM	--	--				
		SAT	--	--				
6. 65th Street/Hollis Street	Signal	AM	14	B	15	B	15	B
		PM	23	C	32	C	40	D
7. 64th Street/Christie Avenue	AWSC	AM	8	A	8	A	8	A
		PM	9	A	9	A	9	A
		SAT	8	A	8	A	9	A
8. 64th Street/Shellmound Street	SSSC	AM	1 (10)	A (A)	2 (11)	A (B)	2 (12)	A (B)
		PM	2 (16)	A (C)	2 (17)	A (C)	2 (20)	A (C)
		SAT	1 (16)	A (C)	2 (26)	A (D)	2 (46)	A (E)
9. Shellmound Way/Christie Avenue	Signal	AM	8	A	30	C	34	C
		PM	11	B	19	B	19	B
		SAT	17	B	25	C	28	C
10. Shellmound Way/Shellmound Street	Signal	AM	33	C	30	C	29	C
		PM	22	C	25	C	24	C
		SAT	13	B	20	B	20	B
11. I-80 Hook Ramps/Frontage Road	Signal	AM	15	B	15	B	16	B
		PM	37	D	42	D	42	D
		SAT	16	B	19	B	20	B
12. Powell Street/Frontage Road	Signal	AM	19	B	18	B	18	B
		PM	18	B	20	C	21	C
		SAT	22	C	23	C	22	C
13. Powell Street/I-80 Eastbound Ramps	Signal	AM	26	C	28	C	37	D
		PM	73	E	101	F	102	F
		SAT	56	E	93	F	101	F
14. Powell Street/Christie Avenue	Signal	AM	29	C	33	C	56	E
		PM	46	D	86	F	90	F
		SAT	46	D	108	F	136	F
15. Christie Avenue/Shellmound Street	Signal	AM	20	B	12	B	12	B
		PM	41	D	24	C	22	C
		SAT	31	C	24	C	23	C
16. Powell Street/Hollis Street	Signal	AM	30	C	37	D	51	D
		PM	51	D	80	E	114	F
		SAT	24	C	28	C	45	D
17. Stanford Avenue/San Pablo Avenue	Signal	AM	29	C	31	C	32	C
		PM	39	D	69	E	119	F
18. 40th Street/Horton Street	Signal	AM	21	C	23	C	37	D
		PM	28	C	34	C	127	F
19. 40th Street/Hollis Street	Signal	AM	26	C	28	C	35	D
		PM	38	D	50	D	82	F
20. 40th Street/Harlan Street	SSSC	AM	3 (24)	A (C)	2 (36)	A (E)	3 (68)	A (F)
		PM	5 (53)	A (F)	9 (125)	A (F)	>100 (>100)	F (F)
21. 40th Street/Emery Street	Signal	AM	24	C	23	C	29	C
		PM	32	C	36	D	104	F
		SAT	21	C	24	C	81	F

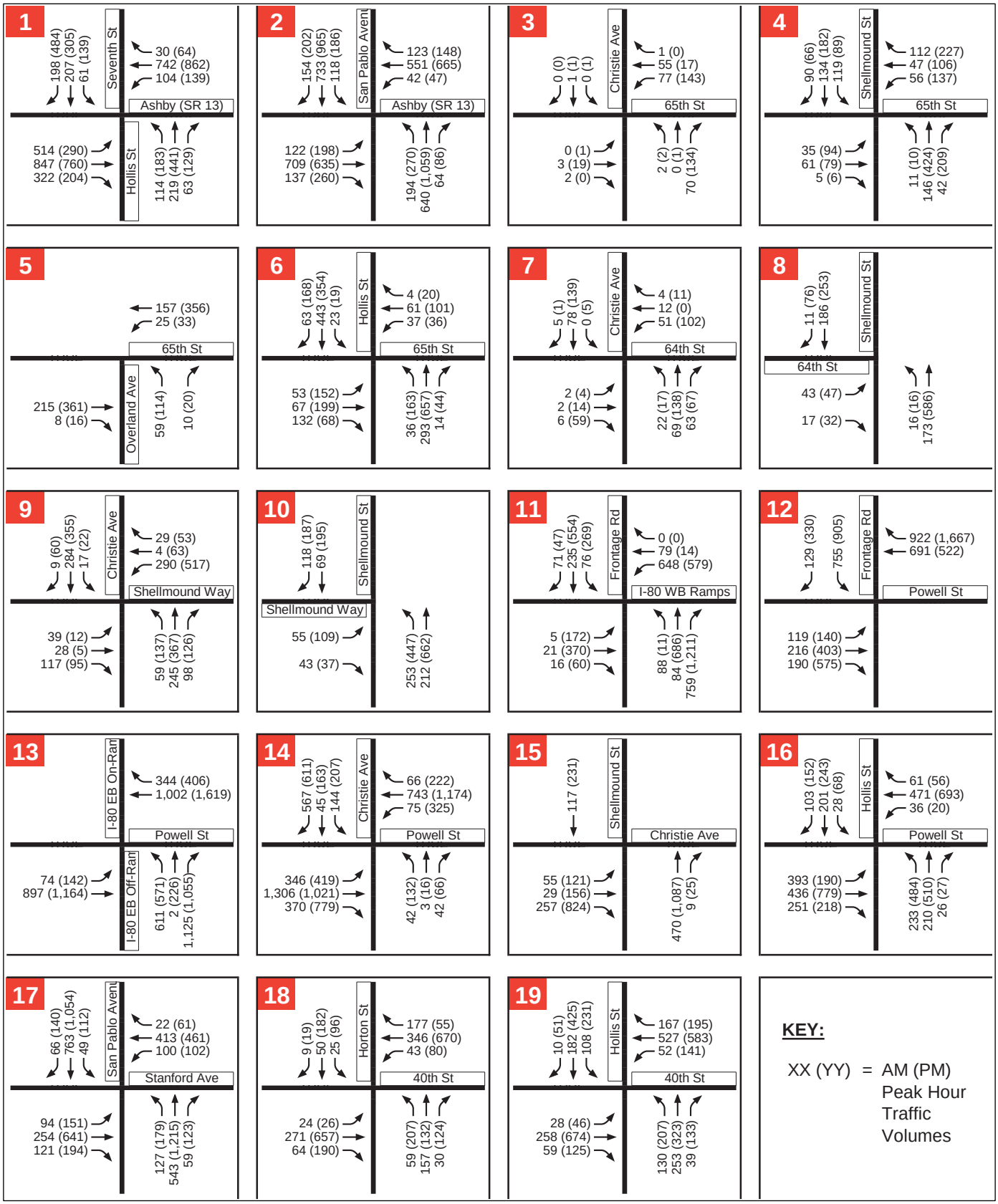
Intersection	Control[1]	Peak Hour	Existing		Year 2010		Year 2030	
			Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS
22. 40th Street/San Pablo Avenue	Signal	AM	33	C	36	D	45	D
		PM	45	D	72	E	142	F
		SAT	39	D	70	E	130	F
23. 40th Street/Adeline Street	Signal	AM	12	B	15	B	15	B
		PM	12	B	15	B	16	B
24. Mandela Pkwy/Horton Street	AWSC	AM	8	A	9	A	11	B
		PM	14	B	22	C	71	E
25. MacArthur Boulevard/Emery Street	Signal	AM	24	C	15	B	21	C
		PM	11	B	18	B	86	F
26. Adeline Street/San Pablo Avenue	Signal	AM	15	B	22	C	24	C
		PM	19	B	36	D	48	D
27. 36th Street/San Pablo Avenue	Signal	AM	28	C	28	C	47	D
		PM	24	C	59	E	74	E
28. 35th Street/San Pablo Avenue	Signal	AM	13	B	18	B	21	C
		PM	30	C	38	D	61	E

Notes:
1. SSSC = side-street stop-controlled intersection; AWSC=all-way stop-controlled intersection; Signal=signalized intersection.
2. Average intersection control delay reported for signalized and all-way stop-controlled intersections. Average intersection delay and (worst case approach delay) reported for side-street stop-controlled intersections.
3. Intersection counts were conducted prior to signal activation.
4. For the 2010 and 2030 conditions, The intersections of 65th Street/Shellmound Street and 65th Street/Overland Avenue were analyzed as an interconnected signal system due to the railroad crossing. Intersection operations will be LOS F when a train crosses through the intersection.
Source: Fehr & Peers, 2007.

Table V.C-4: Existing Vehicle Queues

Intersection	Movement	Storage Length (in feet)	95th Percentile Queue Length (in feet)[1]		
			AM	PM	Saturday
Shellmound Way/ Christie Avenue	Northbound	235	25	25	100
	Southbound	--[2]	100	150	150
	Westbound	335	25	250	250
Shellmound Way/ Shellmound Street	Northbound left	400	75	125	225
	Southbound right	200	50	100	75
	Southbound through	--[2]	50	175	200
	Eastbound	335	100	50	75
Powell Street/I-80 Eastbound Ramps	Northbound left	900	500	725	325
	Northbound through	900	600	900	325
	Northbound right	900	550	***1,050***	850
	Westbound through	400	100	350	325
	Westbound right	400	25	75	150
	Eastbound left	275	50	175	150
	Eastbound through	275	150	100	***375***
Powell Street/ Christie Avenue	Northbound left	200	50	125	***250***
	Northbound through	200	50	125	***250***
	Northbound right	200	50	75	75
	Southbound Through	235	125	***350***	***475***
	Southbound Right	235	25	50	100
	Westbound left	200	50	***400***	***425***
	Westbound through	--[2]	150	***575***	200
	Westbound right	50	50	150	100
	Eastbound left	400	175	175	150
	Eastbound through	450	550	300	275
	Eastbound Right	450	25	350	425

Note: 1. 95th percentile vehicle queue in feet as calculated by Synchro 6.0.
2. Distance to adjacent intersections is greater than maximum queue identified in this table.
3. Results in ***bold italics*** indicate that vehicle queue would exceed the available vehicle storage.
Source: Fehr & Peers, 2007.



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NOT TO SCALE

FIGURE V.C-5a

Marketplace Redevelopment Project EIR
Future 2010 Without Project
Weekday Peak Hour Traffic Volumes

SOURCE: FEHR & PEERS, 2007.

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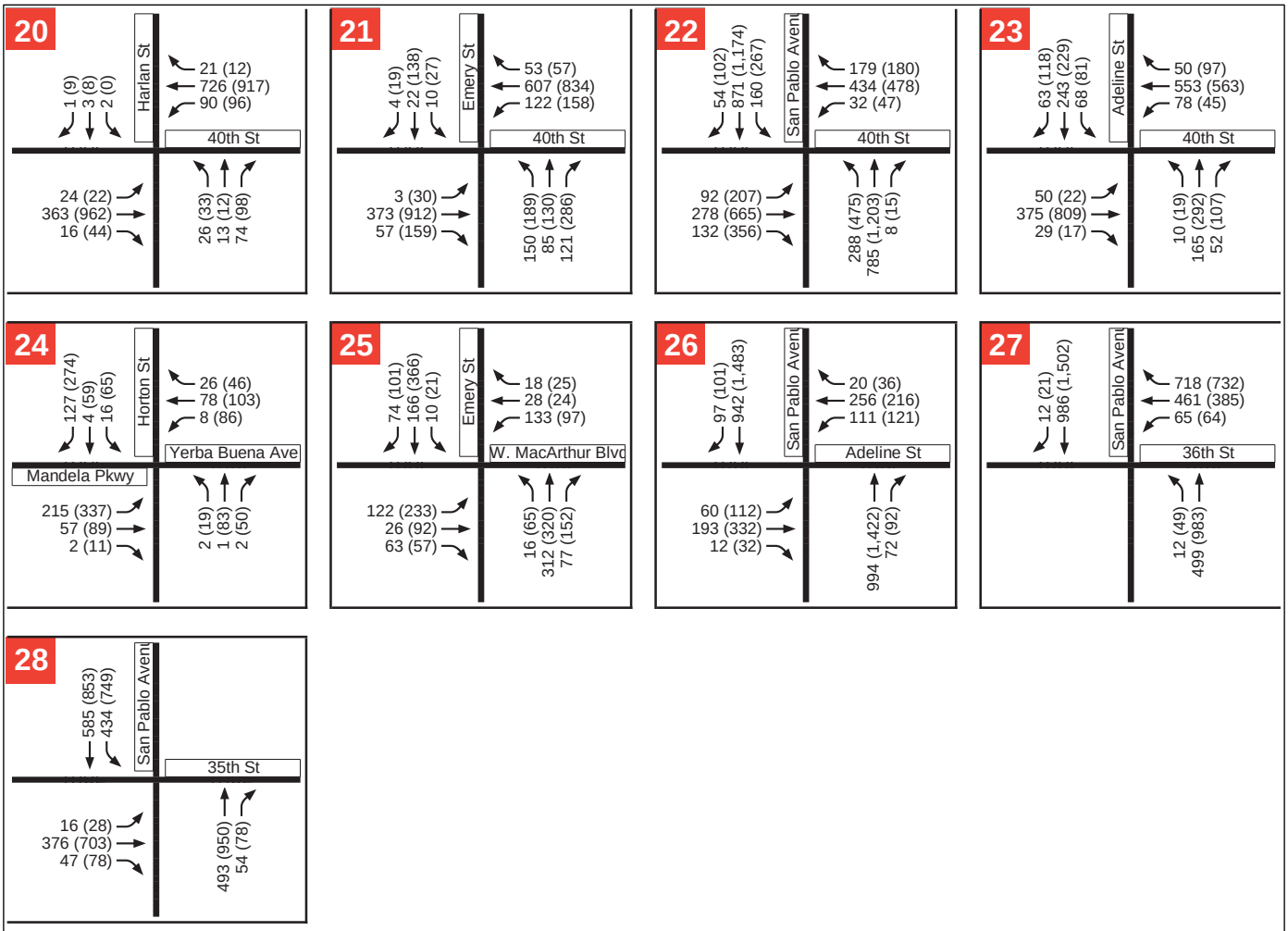

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FIGURE V.C-5b

N

NOT TO SCALE

Marketplace Redevelopment Project EIR

Future 2010 Without Project Weekday Peak Hour Traffic Volumes

SOURCE: FEHR & PEERS, 2007.

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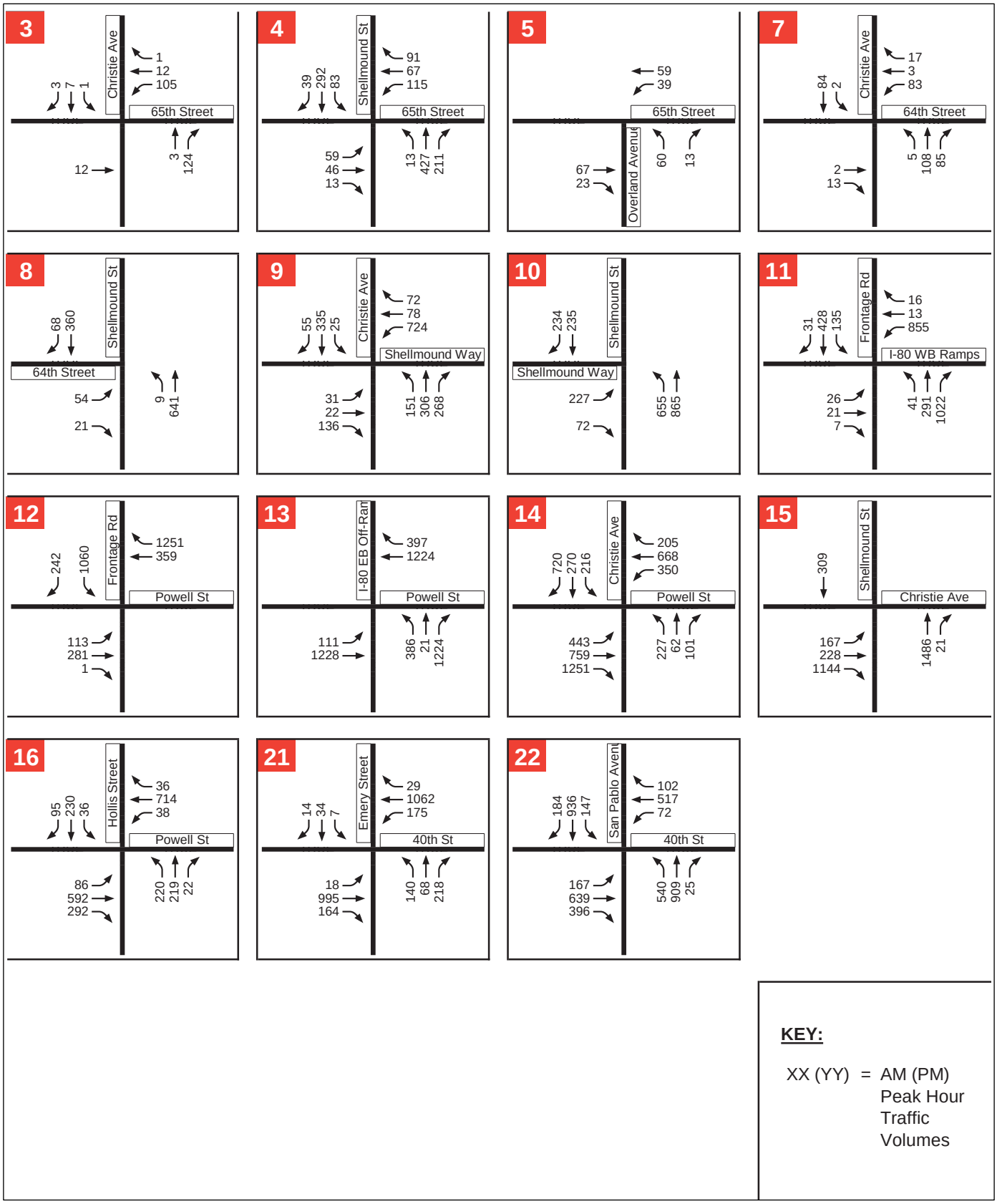

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N

NOT TO SCALE

FIGURE V.C-6

Marketplace Redevelopment Project EIR

Future 2010

Saturday Peak Hour Traffic Volumes

SOURCE: FEHR & PEERS, 2007.

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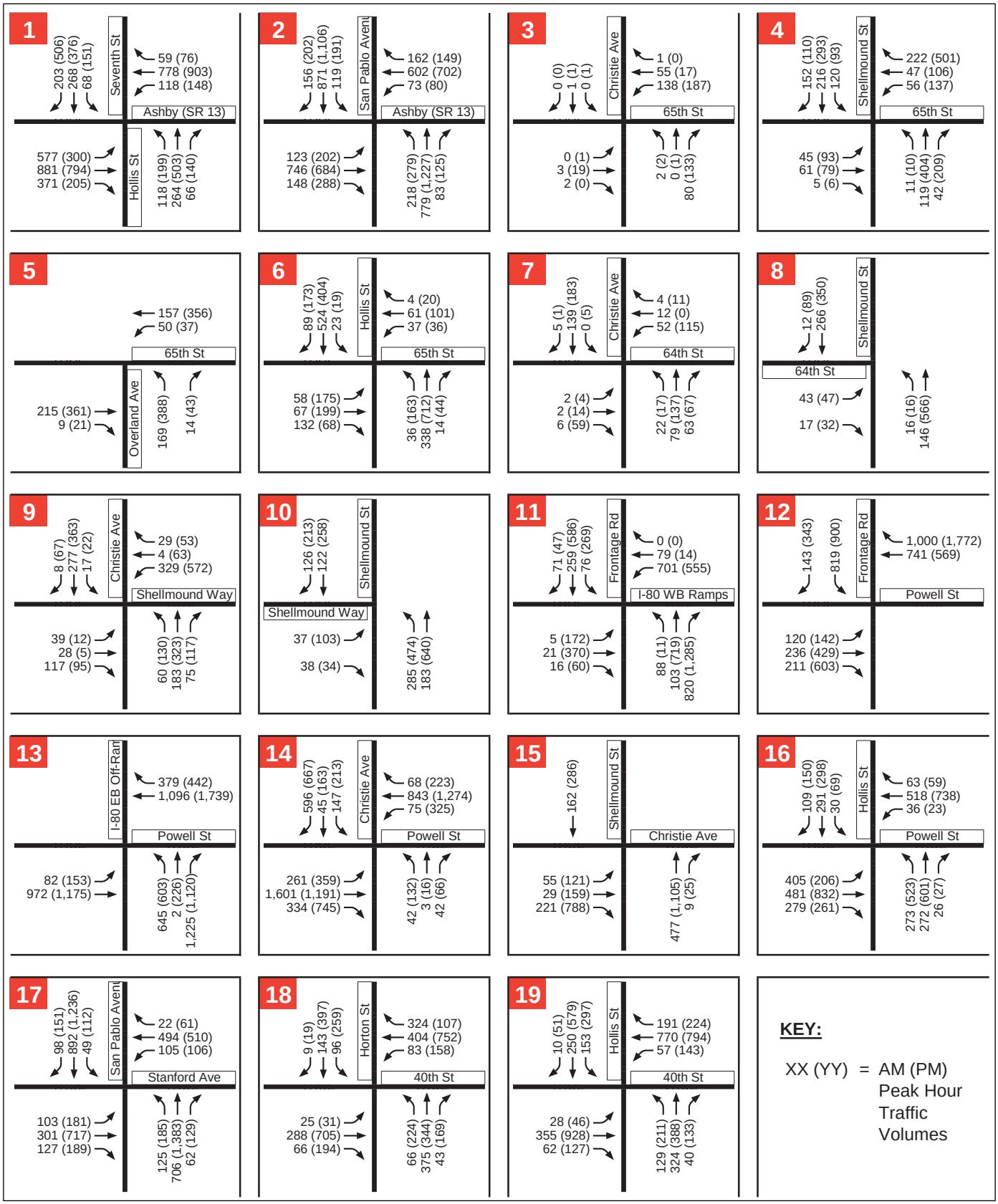

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FIGURE V.C-7a

NOT TO SCALE

Marketplace Redevelopment Project EIR
Future 2030 Without Project
Weekday Peak Hour Traffic Volumes

SOURCE: FEHR & PEERS, 2007.

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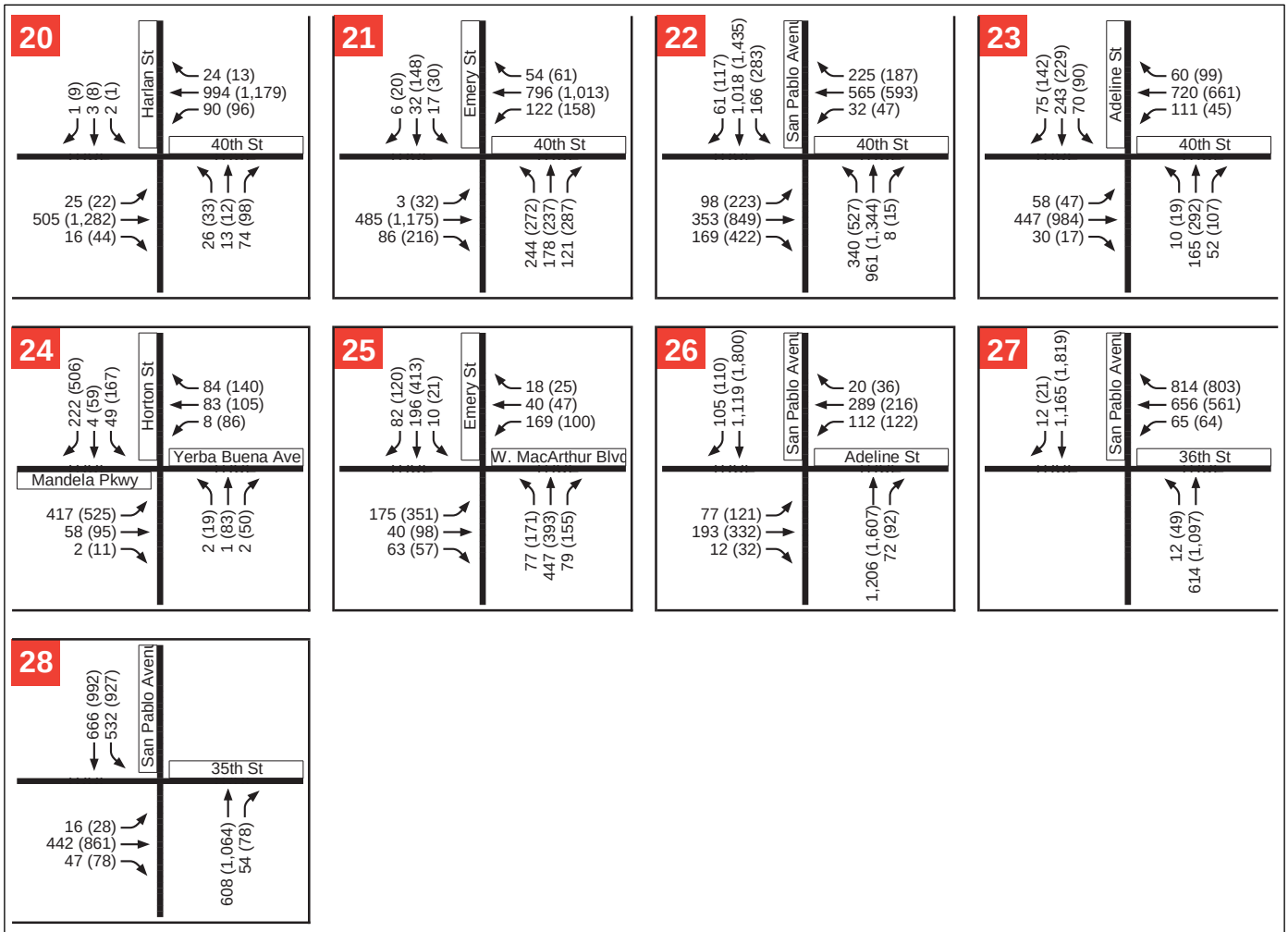

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N

NOT TO SCALE

SOURCE: FEHR & PEERS, 2007.

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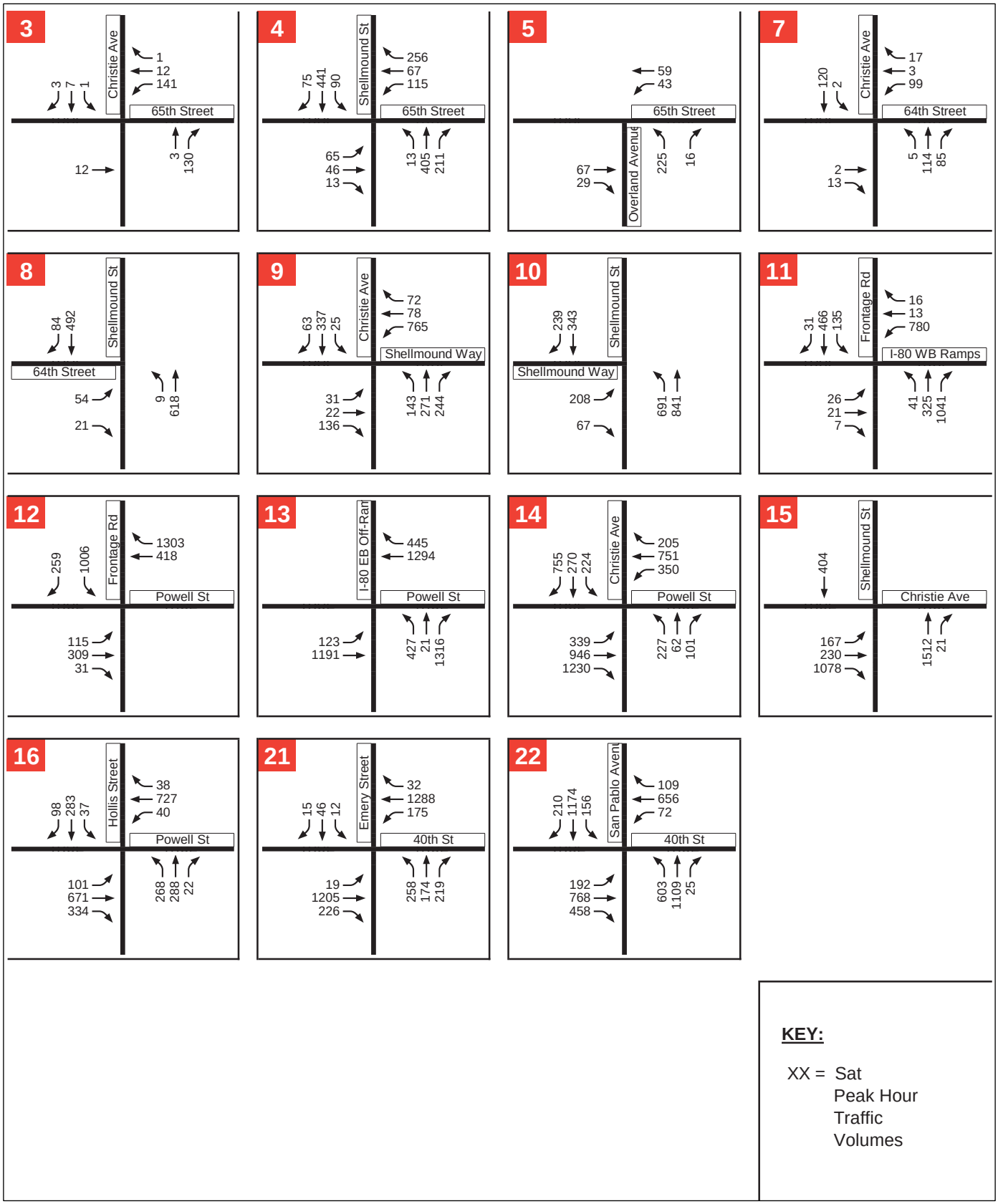
FIGURE V.C-7b

Marketplace Redevelopment Project EIR

Future 2030 Without Project Weekday Peak Hour Traffic Volumes



LSA

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NOT TO SCALE

SOURCE: FEHR & PEERS, 2007.

I:/CEM531 marketplace/figures/Fig_VC8.ai (02/05/07)

FIGURE V.C-8

Marketplace Redevelopment Project EIR

Future 2030

Saturday Peak Hour Traffic Volumes

(1) Future Roadway Improvements. The analysis of future (2010 and 2030) conditions takes into account the new MacArthur on-ramp to I-580, which was recently opened. This connection was not included in the analysis of existing conditions as it was not in place at the time traffic counts were collected. Existing traffic that might be expected to use the ramp was shifted from other interchanges in the area, such as the Powell Street interchange. Added traffic from new developments in the City was also assigned to the new roadway connection.

The analysis of future (2010 and 2030) conditions considers the signalization of the 65th Street/Shellmound Street and 65th Street/Overland Avenue intersection along with a redistribution of existing traffic from the Hollis Street to Overland Avenue corridor. These signals and roadway extension were not operational at the time traffic count data were collected.

Improvements to the Ashby Avenue/Shellmound Street/I-80 interchange were assumed to be in place for the analysis of 2030 conditions. Planned improvements would increase interchange capacity and provide a direct connection to/from Shellmound Street to I-80. Traffic volumes were adjusted to reflect the potential travel changes as capacity is increased at the Ashby interchange and congestion increases at the Powell Street interchange.

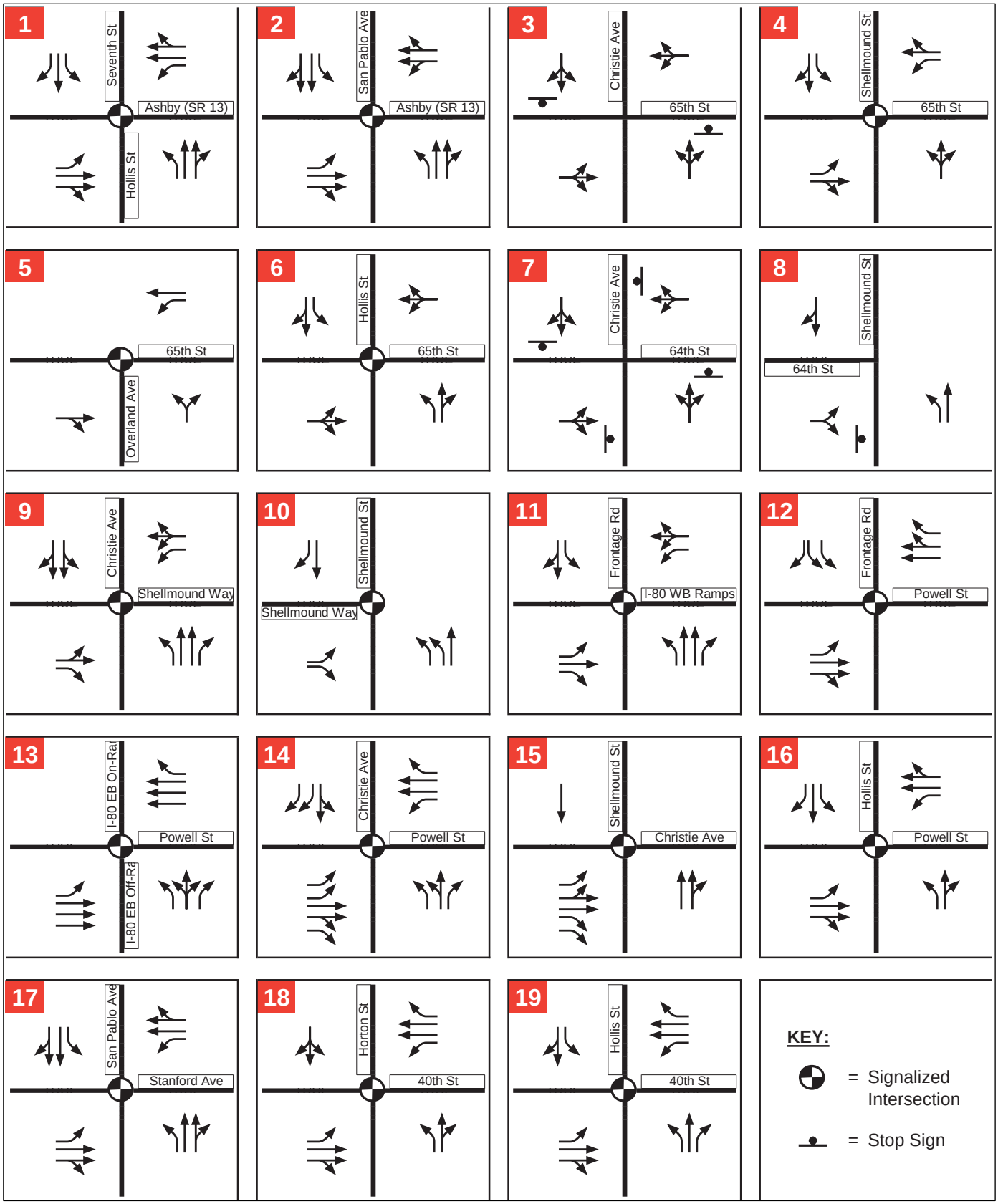
(2) Future 2010 Intersection Operating Conditions. Intersection operating conditions in 2010 were analyzed using the traffic forecasts described above and the lane configurations and traffic control shown on Figure V.C-9a, and V.C-9b. As shown in Table V.C-3, seven study intersections are projected to operate at unacceptable service levels (i.e., LOS E or F) during at least one peak hour:

- Ashby Avenue/San Pablo Avenue (PM Peak Hour)
- I-80 EB Ramps/Powell Street (PM and Saturday Peak Hour)
- Christie Avenue/Powell Street (PM and Saturday Peak Hour)
- Powell Street/Hollis Street (PM Peak Hour)
- Stanford Avenue/San Pablo Avenue (PM Peak Hour)
- 40th Street/San Pablo Avenue (PM Peak Hour)
- 36th Street/San Pablo Avenue (PM Peak Hour)

The remaining study intersections are projected to operate at acceptable service levels in 2010.

Although the 65th Street/Shellmound Street and 65th Street/Overland Street intersection is projected to operate at an acceptable level in 2010, the intersection will operate deficiently when a train is present, as vehicle queues could impede north/south travel on Shellmound Street. Up to 55 trains per day travel over 65th Street at Shellmound Avenue based on information provided by the Federal Railroad Administration (http://safetydata.fra.dot.gov/officeofsafety/). To reduce the effects of vehicle queuing when trains travel over 65th Street, improvements to increase the length of the northbound right-turn lane and southbound left-turn lane should be considered by the City as adjacent properties redevelop. These improvements would permit vehicles to queue in the turn lane as opposed to the travel lane on Shellmound Street.

Vehicle queues were calculated at the key study intersections within the Christie/Powell Loop. Locations where the 95th percentile vehicle queue is expected to exceed the available storage length for a turning movement and where the through movement is expected to spill back through the adjacent intersection and impede roadway network operations are listed in Table V.C-5. AM peak hour vehicle



LSA

FIGURE V.C-9a

N

NOT TO SCALE

Marketplace Redevelopment Project EIR

Future Lane Configuration and Traffic Control

SOURCE: FEHR & PEERS, 2007.

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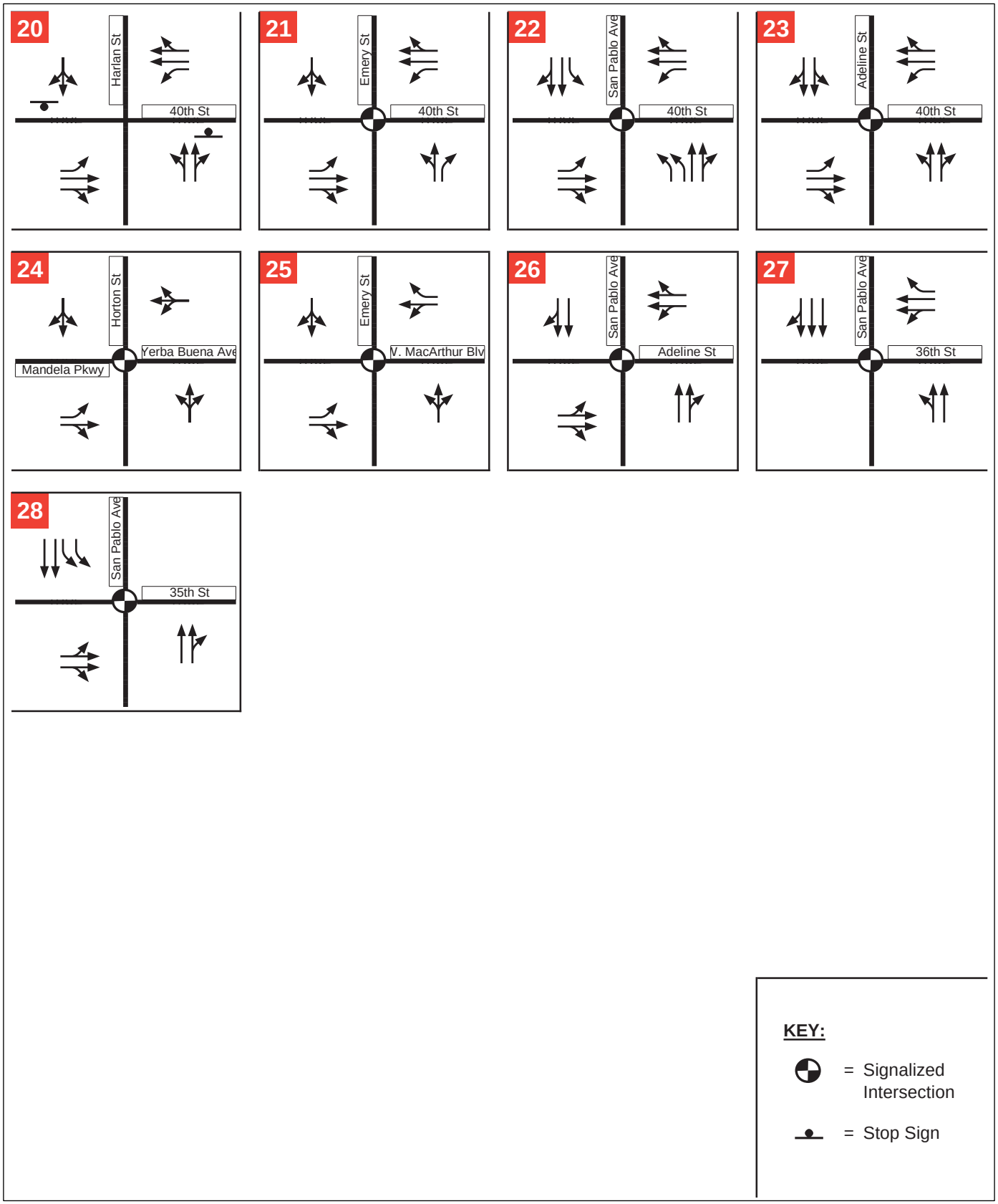

LSA

FIGURE V.C-9b

NOT TO SCALE

Marketplace Redevelopment Project EIR
Future Lane Configuration and Traffic Control

SOURCE: FEHR & PEERS, 2007.

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Table V.C-5: Future 2010 Vehicle Queues

Intersection	Movement	Storage Length (in feet)	95th Percentile Queue Length (in feet) [1]		
			AM	PM	Saturday
Shellmound Way/ Christie Avenue	Northbound	235	25	100	50
	Southbound	--[2]	75	175	200
	Westbound	335	225	100	525
Shellmound Way/ Shellmound Street	Northbound left	400	75	175	225
	Southbound right	200	50	100	100
	Southbound through	--[2]	50	150	225
	Eastbound	335	75	75	250
Powell Street/I-80 Eastbound Ramps	Northbound left	900	550	725	350
	Northbound through	900	650	***1025***	600
	Northbound right	900	600	***975***	***1,100***
	Westbound through	400	150	350	400
	Westbound right	400	25	50	125
	Eastbound left	275	50	150	125
	Eastbound through	275	150	100	***525***
Powell Street/ Christie Avenue	Northbound left	200	50	125	***250***
	Northbound through	200	50	125	***250***
	Northbound right	200	50	75	75
	Southbound Through	235	175	***425***	***600***
	Southbound Right	235	75	100	125
	Westbound left	200	125	***500***	***550***
	Westbound through	--[2]	325	700	325
	Westbound right	50	75	225	150
	Eastbound left	400	150	175	175
	Eastbound through	450	***675***	***500***	***675***
	Eastbound Right	450	25	450	450

Notes:
1. 95th percentile vehicle queue in feet as calculated by Synchro 6.0.
2. Distance to adjacent intersections is greater than maximum queue identified in this table.
3. Results in *bold italics* indicate that vehicle queue would exceed the available vehicle storage.

Source: Fehr & Peers, 2007.

queue congestion is expected to be limited to the eastbound traffic flow on Powell Street approaching Christie Avenue. This congestion would occur because of the incoming commute traffic to Emeryville employment centers.

The amount of queue congestion is anticipated to increase during the PM peak hour, especially at the Powell Street/Christie Avenue intersection, where queue congestion would occur on all but the northbound approach to the intersection. The I-80 eastbound off-ramp at Powell Street is also expected to experience substantial vehicle queues as drivers use the off-ramp in an effort to bypass freeway traffic congestion. Vehicle queues during the Saturday peak hour would generally occur at the same intersection approaches as during the PM peak hour, with additional queue congestion occurring on Shellmound Way between Christie Avenue and Shellmound Street.

(3) Future 2030 Intersection Operating Conditions. Peak hour intersection operating conditions in 2030 were analyzed using the traffic forecasts described above and the lane configurations and traffic control shown on Figure V.C-9a and V.C-9b. As shown on Table V.C-3, 15 study intersections are projected to operate at deficient service levels during at least one peak hour by 2030:

- Ashby Avenue/7th Street (PM Peak Hour)

- Ashby Avenue/San Pablo Avenue (PM Peak Hour)
- 65th Street/Shellmound Street and 65th Street/Overland Street (PM Peak Hour)
- I-80 EB Ramps/Powell Street (PM and Saturday Peak Hour)
- Christie Avenue/Powell Street (AM, PM and Saturday Peak Hour)
- Powell Street/Hollis Street (PM Peak Hour)
- Stanford Avenue/San Pablo Avenue (PM Peak Hour)
- 40th Street/Horton Street (PM Peak Hour)
- 40th Street/Hollis Street (PM Peak Hour)
- 40th Street/Harlan Street (PM Peak Hour)
- 40th Street/Emery Street (PM Peak Hour)
- 40th Street/San Pablo Avenue (PM and Saturday Peak Hour)
- Mandela Parkway/Horton Street (PM Peak Hour)
- MacArthur Street/Emery Street (PM Peak Hour)
- 36th Street/San Pablo Avenue (PM Peak Hour)
- 35th Street/San Pablo Avenue (PM Peak Hour)

The remaining study intersections are projected to operate at acceptable service levels in 2030. Locations where the 95th percentile vehicle queue is expected to exceed the available storage length for a turning movement and where the through movement is expected to spill back through the adjacent intersection and impede roadway network operations are shown on Table V.C-6. The level and type of vehicle queues expected in year 2010 would continue in 2030 with some minor differences associated with the redistribution of traffic from the Powell interchange to the reconstructed Ashby interchange.

2. Impacts and Mitigation Measures

This section analyzes impacts related to transportation and circulation that could result from implementation of the proposed project. The section begins with a discussion of the criteria used to determine whether the project would result in a significant impact. That discussion is followed by a brief description of the proposed project, including identification of new vehicle trips that would be generated. This section includes impacts organized into four different categories:

1) Off-site traffic impacts;

2) Alameda County Congestion Management Agency Metropolitan Transportation System impacts;

3) Alternative modes impacts (e.g., impacts to transit and bicycle/pedestrian access); and

4) Vehicular site access, on-site circulation, and parking impacts.

a. Criteria of Significance. The following criteria of significance establish the thresholds for determining whether a transportation impact is significant. These criteria are organized by the four different impact categories listed above.

Table V.C-6: Future 2030 Vehicle Queues

Intersection	Movement	Storage Length (in feet)	95th Percentile Queue Length (in feet) [1]		
			AM	PM	Saturday
Shellmound Way/ Christie Avenue	Northbound	235	25	75	75
	Southbound	--[2]	75	175	200
	Westbound	335	250	100	***575***
Shellmound Way/ Shellmound Street	Northbound left	400	100	125	225
	Southbound right	200	75	150	125
	Southbound through	--[2]	75	200	325
	Eastbound	335	50	75	250
Powell Street/I-80 Eastbound Ramps	Northbound left	900	600	750	400
	Northbound through	900	750	***1,000***	675
	Northbound right	900	675	***975***	***1,250***
	Westbound through	400	175	400	***450***
	Westbound right	400	25	50	125
	Eastbound left	275	50	150	110
	Eastbound through	275	150	125	***475***
Powell Street/ Christie Avenue	Northbound left	200	50	125	***250***
	Northbound through	200	50	125	***250***
	Northbound right	200	50	75	75
	Southbound Through	235	150	***375***	***600***
	Southbound Right	235	75	150	150
	Westbound left	200	100	***475***	***550***
	Westbound through	--[2]	400	750	350
	Westbound right	50	75	***225***	175
	Eastbound left	400	100	150	125
	Eastbound through	450	***775***	***550***	***800***
	Eastbound Right	450	25	425	***700***

Notes:
1. 95th percentile vehicle queue in feet as calculated by Synchro 6.0.
2. Distance to adjacent intersections is greater than maximum queue identified in this table.
3. Results in *bold italics* indicate that vehicle queue would exceed the available vehicle storage.

Source: Fehr & Peers, 2007.

Off-Site Traffic Impacts

The project would have a significant impact on traffic if one of the following conditions occurs due to the addition of project traffic:

- The addition of project traffic degrades an intersection currently operating at LOS D or better to LOS E or LOS F.
- The addition of project traffic degrades an intersection currently operating at LOS E to LOS F.
- The addition of project traffic causes the average vehicle delay to increase by more than four seconds at an intersection operating at LOS E or LOS F.
- The addition of project traffic results in the 95th percentile vehicle queue exceeding the available vehicle storage; or, at locations where vehicle queues would exceed the available storage space, the project increases the 95th percentile vehicle queue.

ACCMA MTS Roadway Impacts

- The project would have a significant impact if it would cause a roadway segment on the Metropolitan Transportation System to operate at LOS F or would increase the V/C ratio by more than five (5) percent for a roadway segment that would operate at LOS F without the project.

Alternatives Modes Impacts

The project would have a significant impact on alternative transportation modes if it would:

- Fundamentally conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle routes).
- Generate added transit ridership that would:
    - increase the average ridership on AC Transit lines by five (5) percent at bus stops where the average load factor with the project in place would exceed 125 percent over a peak 30-minute period.
    - increase the peak hour average ridership on BART by five (5) percent where the passenger volume would exceed the standing capacity of BART trains.
    - increase the peak hour average ridership at a BART station by five (5) percent where average waiting time at fare gates would exceed 1 minute.

Vehicular Site Access, On-Site Circulation, and Parking Impacts

- Construction traffic from the project would have a significant, though temporary, impact on the environment if project construction would substantially affect traffic flow and circulation, parking, and pedestrian safety.

The project would have a significant site access, circulation, or parking impacts if it would result in

- A substantial increase in hazards due to a design feature or incompatible land uses.
- Inadequate emergency access.
- Inadequate parking capacity.

b. Proposed Project. The proposed project consists of the development of five sites: Shellmound building, Retail Pad 1, Retail Pad 2, Retail Pad 3, and 64th & Christie building. Development in the Shellmound building would consist of up to 55,000 square feet of retail and 160 residential units in addition to structured parking. The three retail pads would range up to 7,500 square feet with a maximum total of 16,000 square feet (see Figure III-4).

On the 64th & Christie site, the project includes construction of a mixed residential/retail building with structured parking, including 180 residential units in addition to 6,000 square feet of ground floor retail uses. This reflects the maximum potential development on the site. The actual project would likely be smaller due to space constraints on the site and market conditions. Because restaurant uses could potentially occupy the retail space, it was assumed that 11,000 square feet of restaurant uses would be developed as part of the project.

(1) Project Trip Generation. Project trip generation refers to the process for estimating the amount of vehicular traffic a project would add to the surrounding roadway system. First, estimates of the total amount of traffic entering and exiting the project driveways are calculated for an average

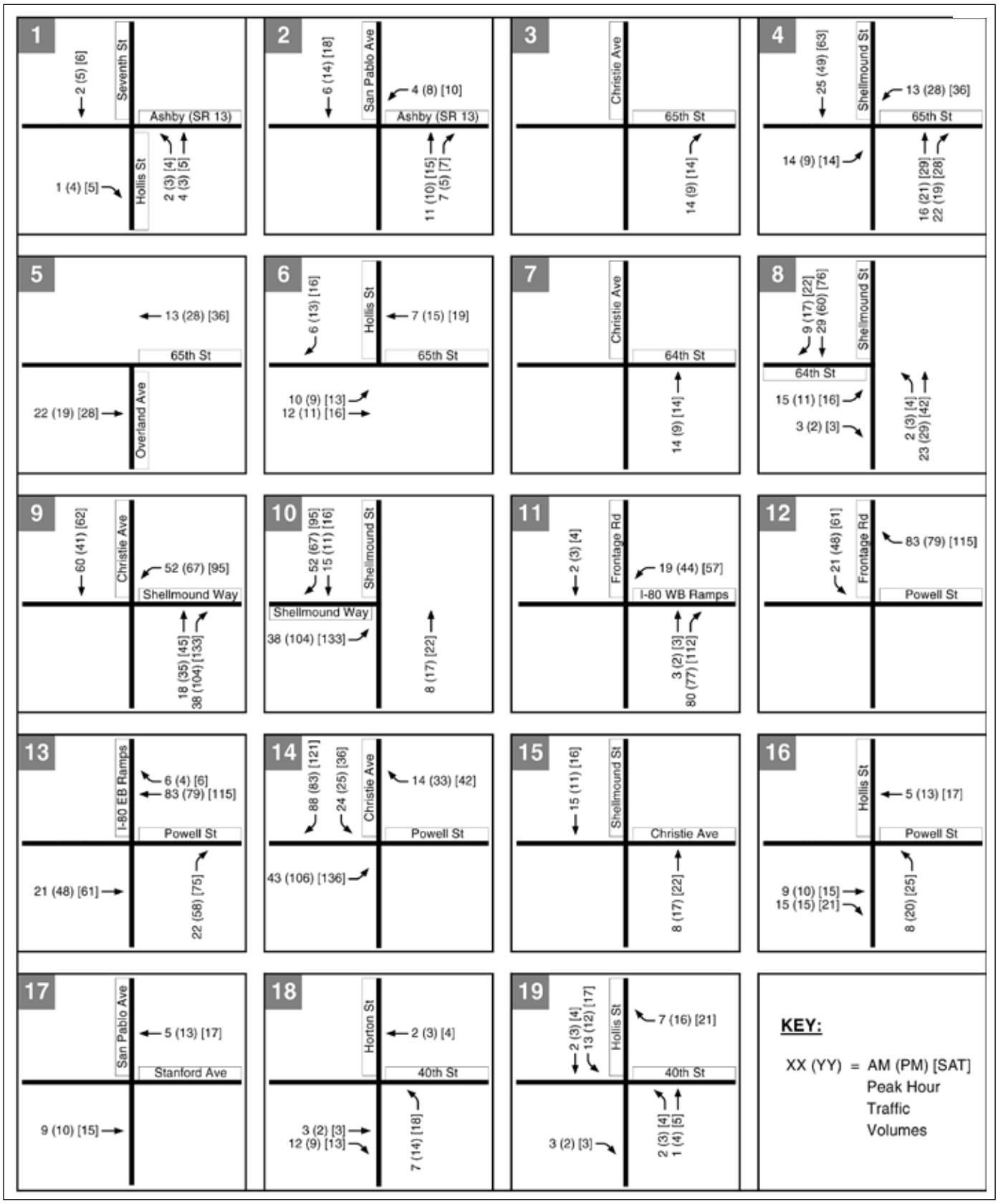
weekday. Separate estimates are created for the peak one-hour periods during the morning and evening commute periods when traffic volumes on the surrounding streets are highest. At retail establishments, such as those that would be developed as part of the proposed project, driveway traffic comprises: (1) new traffic generated by the project, (2) traffic that would otherwise already be on the adjacent roadways, but the driver decides to stop at the site (e.g., to purchase an item on their way home from work), and (3) traffic on other nearby roadways, but the driver decides to take a short detour to stop at the site. The trips in Item 2 are referred to as "pass-by" trips and the trips in Item 3 are referred to as "diverted-link" trips.

Estimates for the shopping center portion of the project were developed by using trip generation rates and methods contained in the Institute of Transportation Engineers (ITE), *Trip Generation*, (7th Edition). Trip Generation reductions were taken to account for pass-by and diverted-link trips.

Estimates for the residential portion of the project were also developed by using the ITE trip generation rates (in this case for condominiums/townhomes). The trip generation rates were adjusted to account for transit use and non-motorized travel. Restaurant trip generation rates, which also derive from ITE, were adjusted to account for the likelihood that project residents would patronize on-site restaurants, and that site patrons may visit more than one land use. The resulting trip generation rates are presented in Table V.C-7.

These rates were applied to the size of each project component, as presented in Table V.C-8. At buildout, the project is anticipated to generate a maximum of 281 weekday AM, 459 weekday PM, and 544 Saturday afternoon peak hour trips. The project's maximum trip generation was used to assess project impacts to present a conservative "worst-case" analysis of potential project impacts. Due to site limitations, actual development size (and trip generation) would likely be less than presented in this transportation analysis.

(2) Project Trip Distribution and Assignment. The project trip distribution, summarized in Table V.C-9, was developed based on nearby land uses and demographics, as well as existing turning movement counts at the analyzed intersections. The project trip distribution considers non-residential uses for Novartis, Pixar and Sherwin-Williams and the location of complementary land uses in surrounding jurisdictions. Although census data indicate that up to 20 percent of Emeryville residents live and work in Emeryville, the distribution assumes workers employed in Emeryville would reside outside of the City, providing a more conservative analysis. Project trips were assigned to the roadway network using the trip generation and distribution that is described in this section and shown in Figure V.C-10a and V.C-10b for the Existing and 2010 condition and Figure V.C-10c and V.C-10d for the 2030 condition. Project trip distribution for the 2030 condition takes into consideration interchange improvements at the Ashby Avenue/Shellmound Street/I-80 interchange.



LSA

FIGURE V.C-10a

N

NOT TO SCALE

Marketplace Redevelopment Project EIR
Existing and 2010 Conditions
Peak Hour Project Trip Assignment

SOURCE: FEHR & PEERS, MAY 2007

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FIGURE V.C-10b

N

NOT TO SCALE

Marketplace Redevelopment Project EIR
Existing and 2010 Conditions
Peak Hour Project Trip Assignment

SOURCE: FEHR & PEERS, MAY 2007

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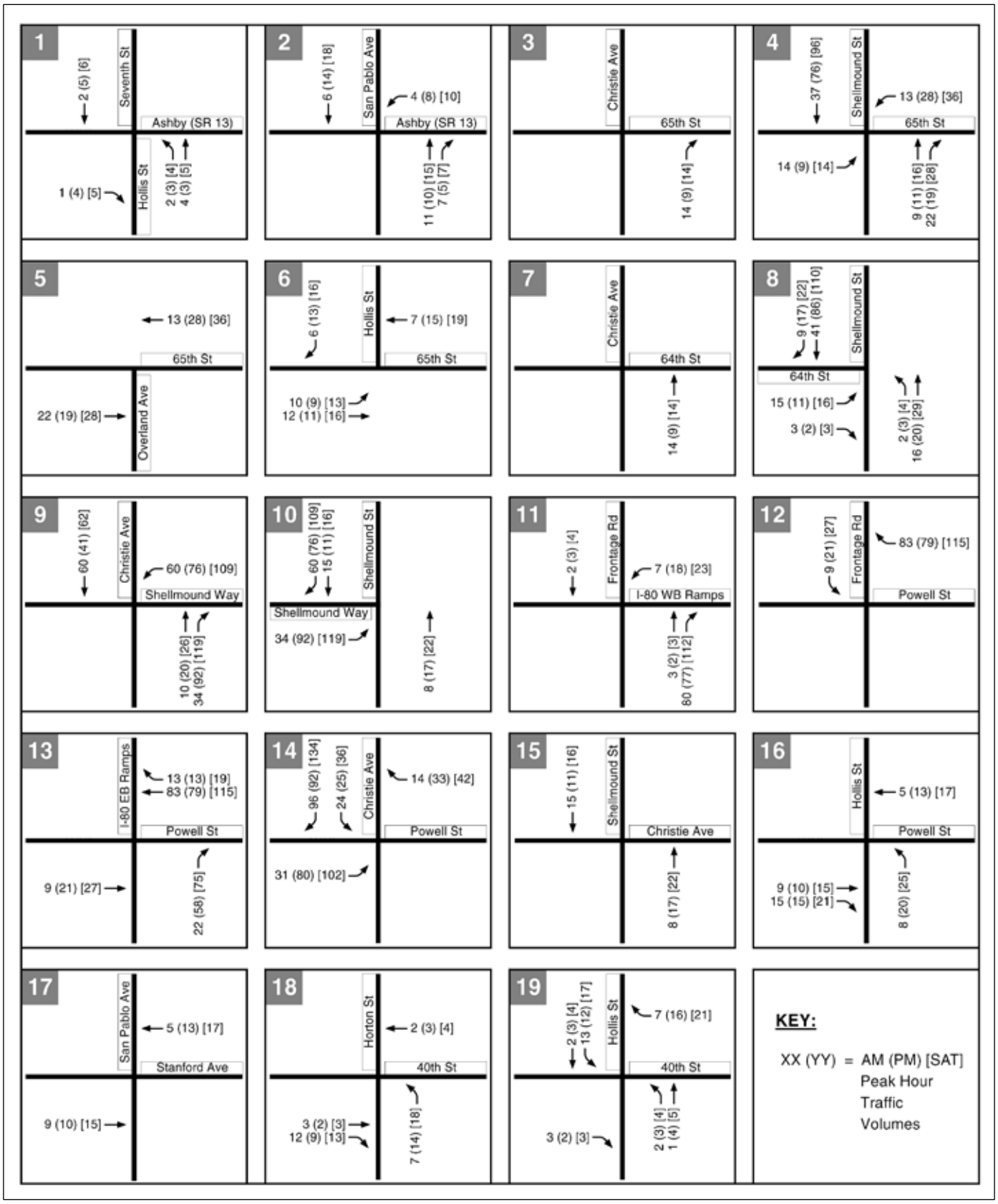

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FIGURE V.C-10c

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NOT TO SCALE

Marketplace Redevelopment Project EIR
2030 Conditions
Peak Hour Project Trip Assignment

SOURCE: FEHR & PEERS, MAY 2007

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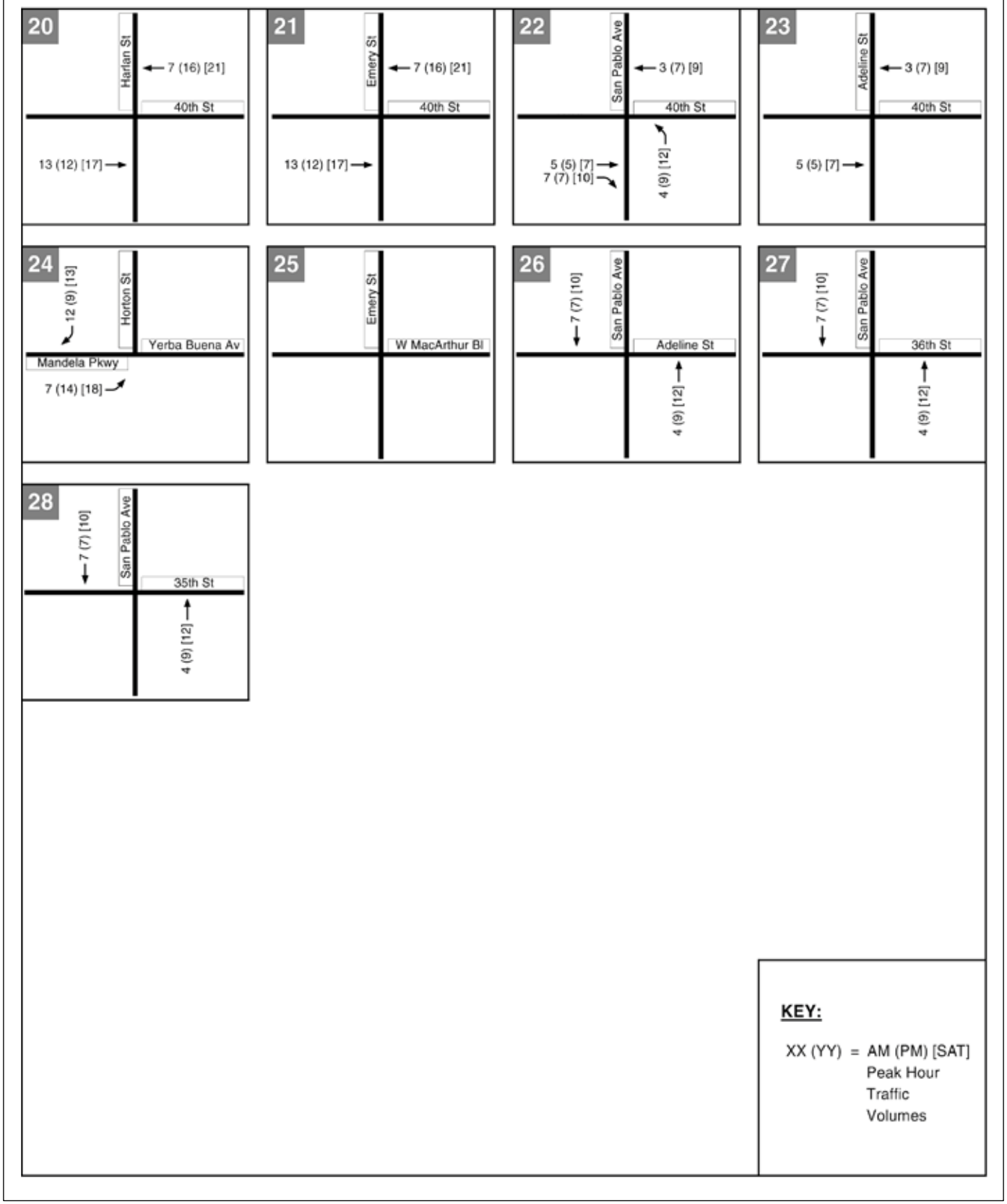

LSA

FIGURE V.C-10d

Marketplace Redevelopment Project EIR
2030 Conditions
Peak Hour Project Trip Assignment

NOT TO SCALE

SOURCE: FEHR & PEERS, MAY 2007

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Table V.C-7: Project Trip Generation Rates

Land Use	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Residential Condos/Townhomes	0.07	0.35	0.42	0.33	0.16	0.49	0.24	0.21	0.45
Shopping Center	0.60	0.38	0.98	1.20	1.30	2.50	2.09	1.93	4.02
Restaurant	3.41	3.15	6.56	3.80	2.43	6.23	7.18	4.22	11.40

Source: *Trip Generation*, 7th Edition (ITE) and Fehr & Peers, 2007.

Table V.C-8: Project Trip Generation

Project Component	Size	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Shellmound Building Residential	160 dwelling units	11	56	67	53	26	79	38	34	72
Shellmound Building Retail	55,000 square feet	33	21	54	94	101	195	115	106	221
64th & Christie Residential	180 dwelling units	13	63	76	59	29	88	43	38	81
64th & Christie Retail	6,000 square feet	4	2	6	7	8	15	13	12	25
Retail	5,000 square feet	3	2	5	6	7	13	10	10	20
Restaurant	11,000 square feet	38	35	73	42	27	69	79	46	125
Net New Trips		***102***	***179***	***281***	***261***	***198***	***459***	***298***	***246***	***544***

Source: Fehr & Peers, 2007.

Table V.C-9: Project Trip Distribution

Direction	Project Trip Distribution Percentage
Regional Roadways	
State Route 24/State Route 13	16 %
Interstate 880	11 %
Interstate 580	14 %
Interstate 80 West	10 %
Interstate 80 East	19 %
Local Roadways	
North – Via Frontage Road, 7th Street/Hollis Street, San Pablo Avenue	11 %
East – Via Ashby Avenue, Alcatraz Avenue, Stanford Avenue, 40th Street	12 %
South – Via Mandela Parkway, Peralta Street, Adeline Street, San Pablo Avenue	7 %
Total	***100 %***

Source: Fehr & Peers, 2007.

c. Off-Site Analysis. This section describes off-site traffic impacts under Existing, Future 2010 and Future 2030 with Project conditions.

(1) Existing Plus Project. The peak hour project traffic volumes were added to the existing traffic volumes to determine the Existing Plus Project traffic volumes, as shown on Figure V.C-11a and V.C-11b for the weekday peak hours and Figure V.C-12, for the Saturday peak hour. The Existing Plus Project analysis results are shown on Table V.C-10. The addition of project traffic would increase delay by more than 4 seconds at two intersections which operate at a deficient LOS E prior to the addition of project traffic:

- Shellmound Street/65th Street (weekday PM peak hour, Saturday afternoon peak hour)
- Powell Street/I-80 Eastbound Ramps (weekday PM peak hour)
- Vehicle queues at the study intersections within the Powell/Christie Loop were calculated with the addition of project traffic, as shown on Table V.C-11, Existing Plus Project Vehicle Queues.
- Powell Street/I-80 Eastbound Ramps (weekday PM peak hour, Saturday afternoon peak hour)

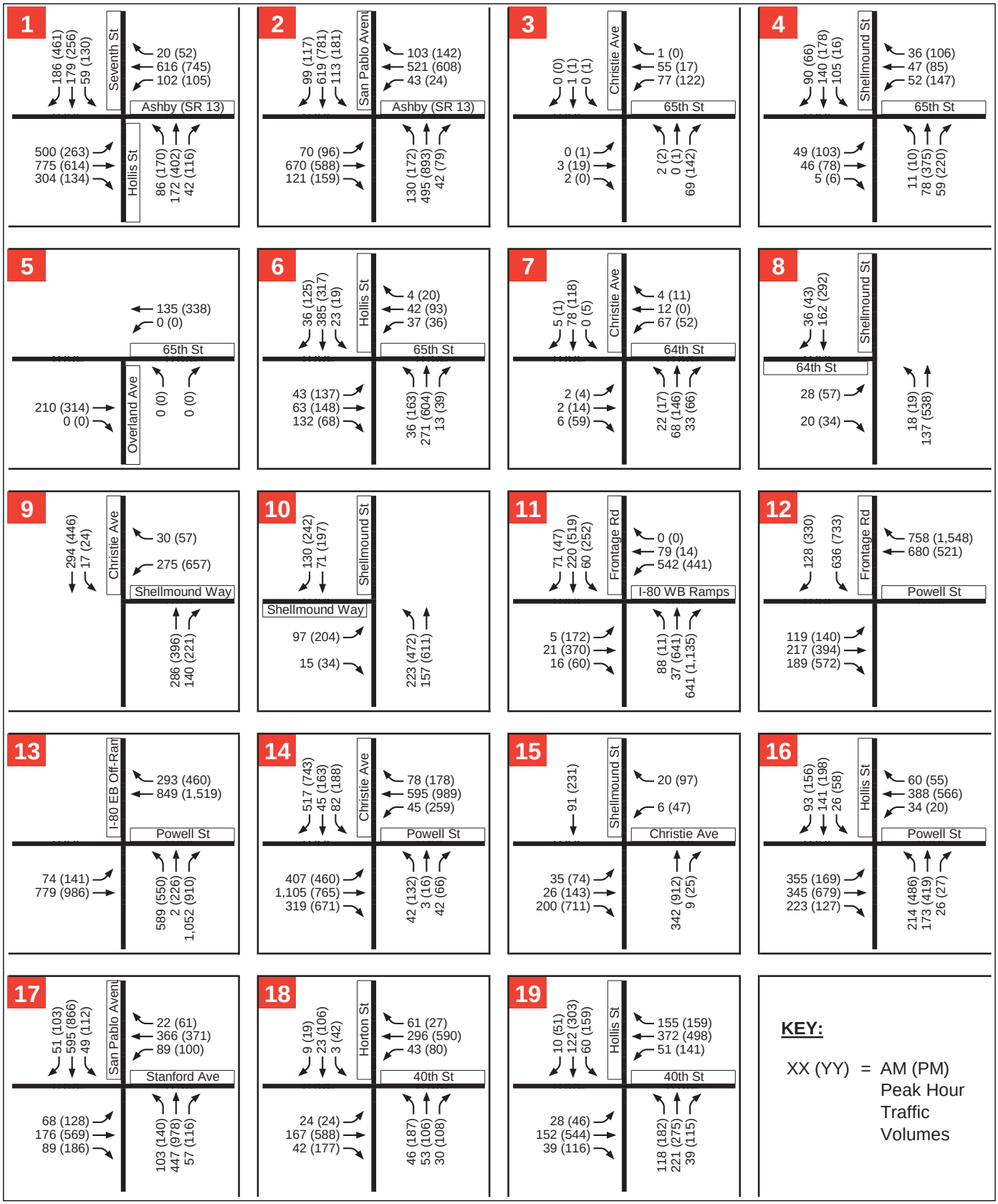
Vehicle queues at the study intersections within the Powell/Christie Loop were also calculated with the addition of project traffic, as shown on Table V.C-13. The addition of project traffic would increase the 95th percentile vehicle queue at the four intersections within the Loop where the existing 95th percentile vehicle queue currently exceeds the available storage. These are potentially significant impacts, as identified below.

(2) Future 2010 Plus Project. The peak hour project traffic volumes were added to the 2010 Without Project (Figures V.C-5a and V.C-5b) volumes to determine Future 2010 traffic volumes with the project, as shown on Figures V.C-13a and V.C-13b for the weekday peak hours and Figure V.C-14 for the Saturday peak hour. The 2010 conditions analysis results are shown in Table V.C-12. The project would increase delay by more than 4 seconds at one intersection projected to operate at a deficient LOS E or F prior to the addition of project traffic.

Vehicle queues at the study intersections within the Powell/Christie Loop were calculated with the addition of project traffic, as shown on Table V.C-13. The addition of project traffic would increase the 95th percentile vehicle queue at the critical intersections in the Powell/Christie loop where the projected 95th percentile vehicle queue exceeds the available storage. These are potentially significant impacts, as identified below.

(3) Future 2030 Plus Project. The peak hour project traffic volumes (Figures V.C-4a, V.C-4b, and V.C-5) were added to the 2030 Without Project (Figures V.C-9a, V.C-9b, and V.C-10) volumes to determine Future 2030 traffic volumes with the project, as shown on Figures V.C-15a and V.C-15b for the weekday peak hours and Figure V.C-16 for the Saturday peak hour. The 2030 conditions analysis results are shown in Table V.C-14. The project would increase delay by more that 4 seconds at three intersections projected to operate at a deficient LOS E or F prior to the addition of project traffic.

- Ashby Avenue/San Pablo Avenue (weekday PM peak hour)
- 65th Street/Shellmound Street and 65th Street/Overland Street (weekday PM peak hour)
- Powell Street/I-80 Eastbound Ramps (weekday PM peak hour, Saturday afternoon peak hour)
- Powell Street/Hollis Street (weekday PM peak hour)



LSA

FIGURE V.C-11a

NOT TO SCALE

Marketplace Redevelopment Project EIR
Existing Plus Project
Weekday Peak Hour Traffic Volumes

SOURCE: FEHR & PEERS, 2007.

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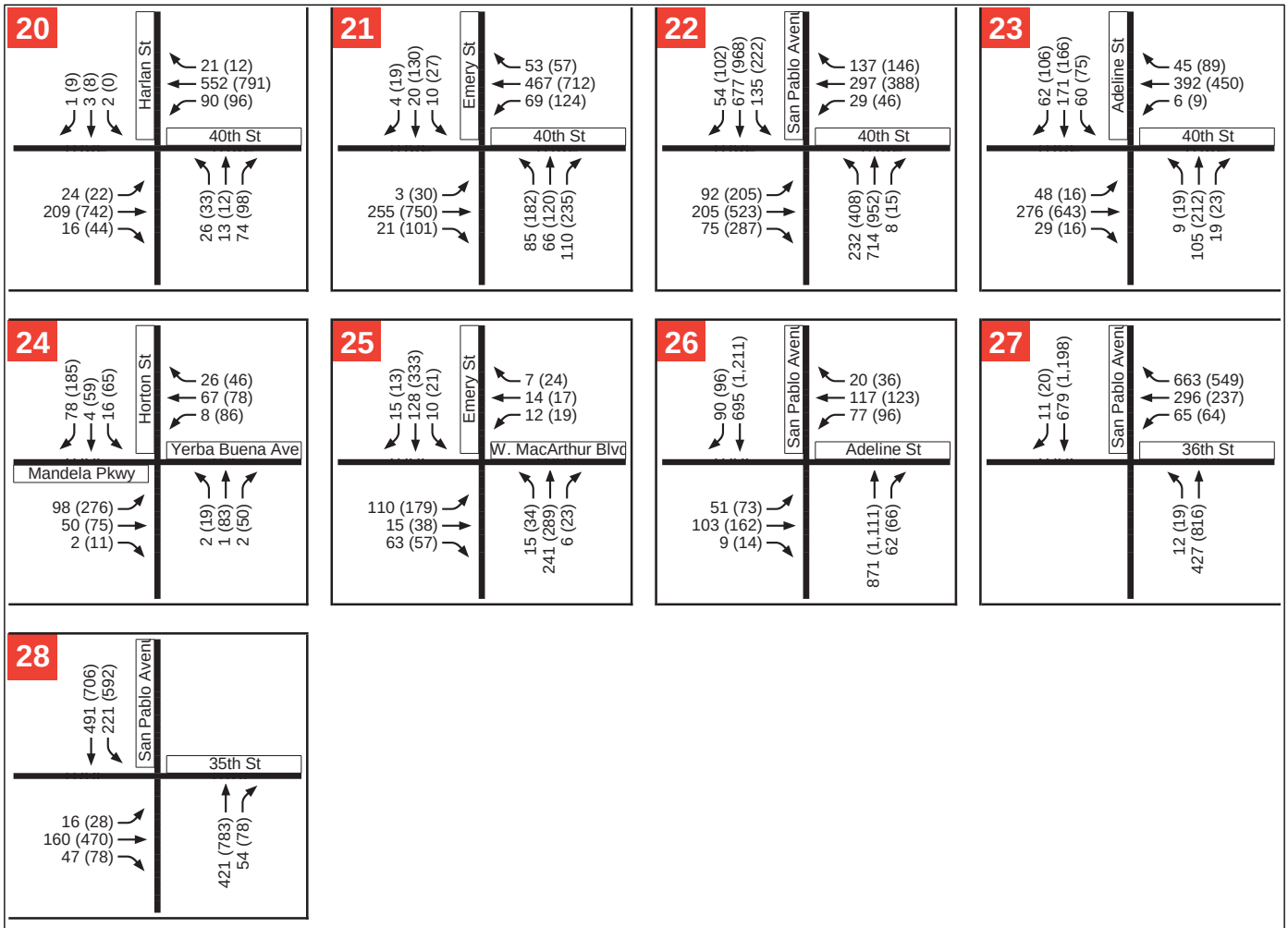

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NOT TO SCALE

SOURCE: FEHR & PEERS, 2007.

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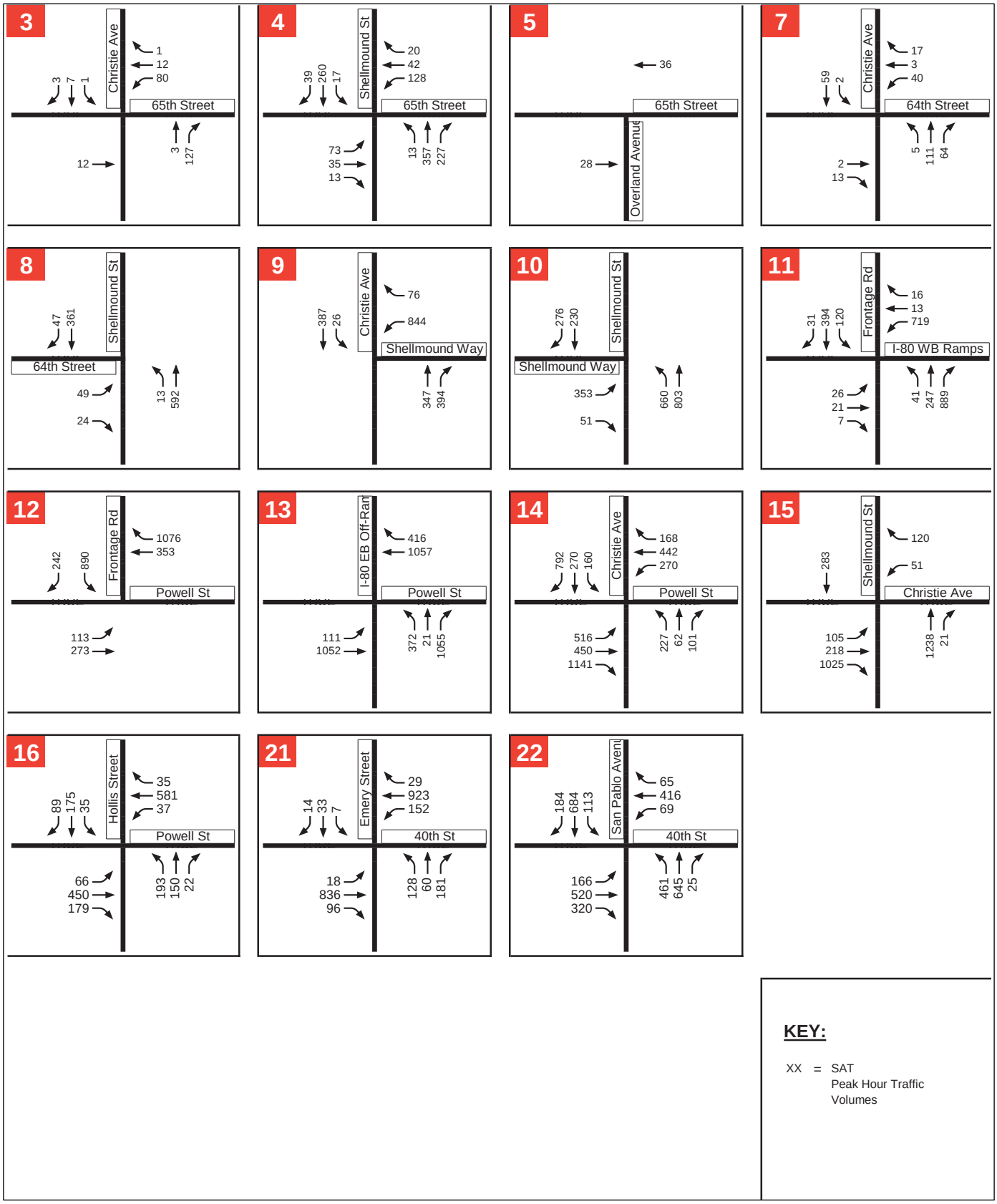
FIGURE V.C-11b

Marketplace Redevelopment Project EIR

Existing Plus Project

Weekday Peak Hour Traffic Volumes



LSA

NOT TO SCALE

SOURCE: FEHR & PEERS, 2007.

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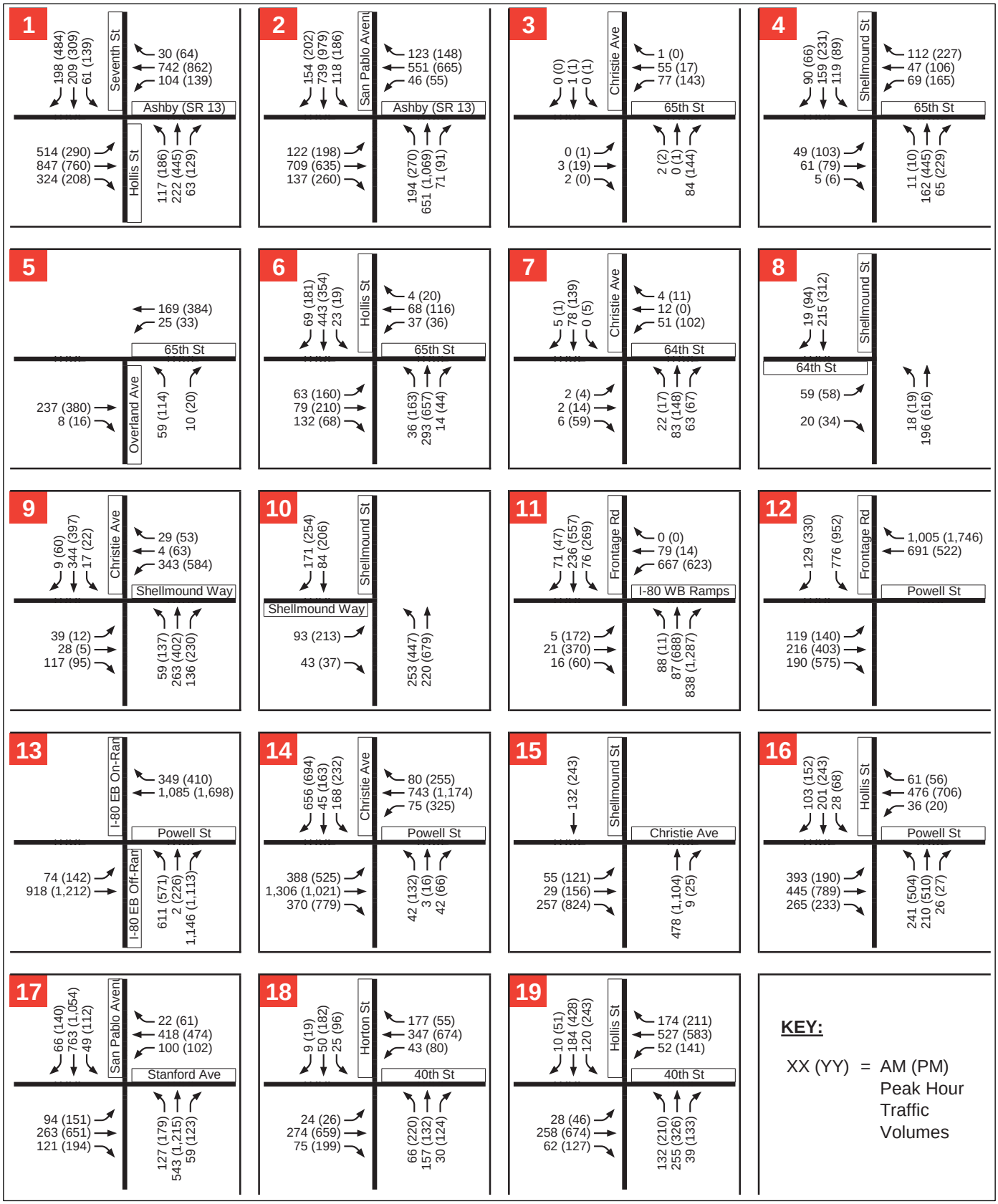
FIGURE V.C-12

Marketplace Redevelopment Project EIR
Existing Plus Project
Saturday Peak Hour Traffic Volumes



LSA

NOT TO SCALE

SOURCE: FEHR & PEERS, 2007.

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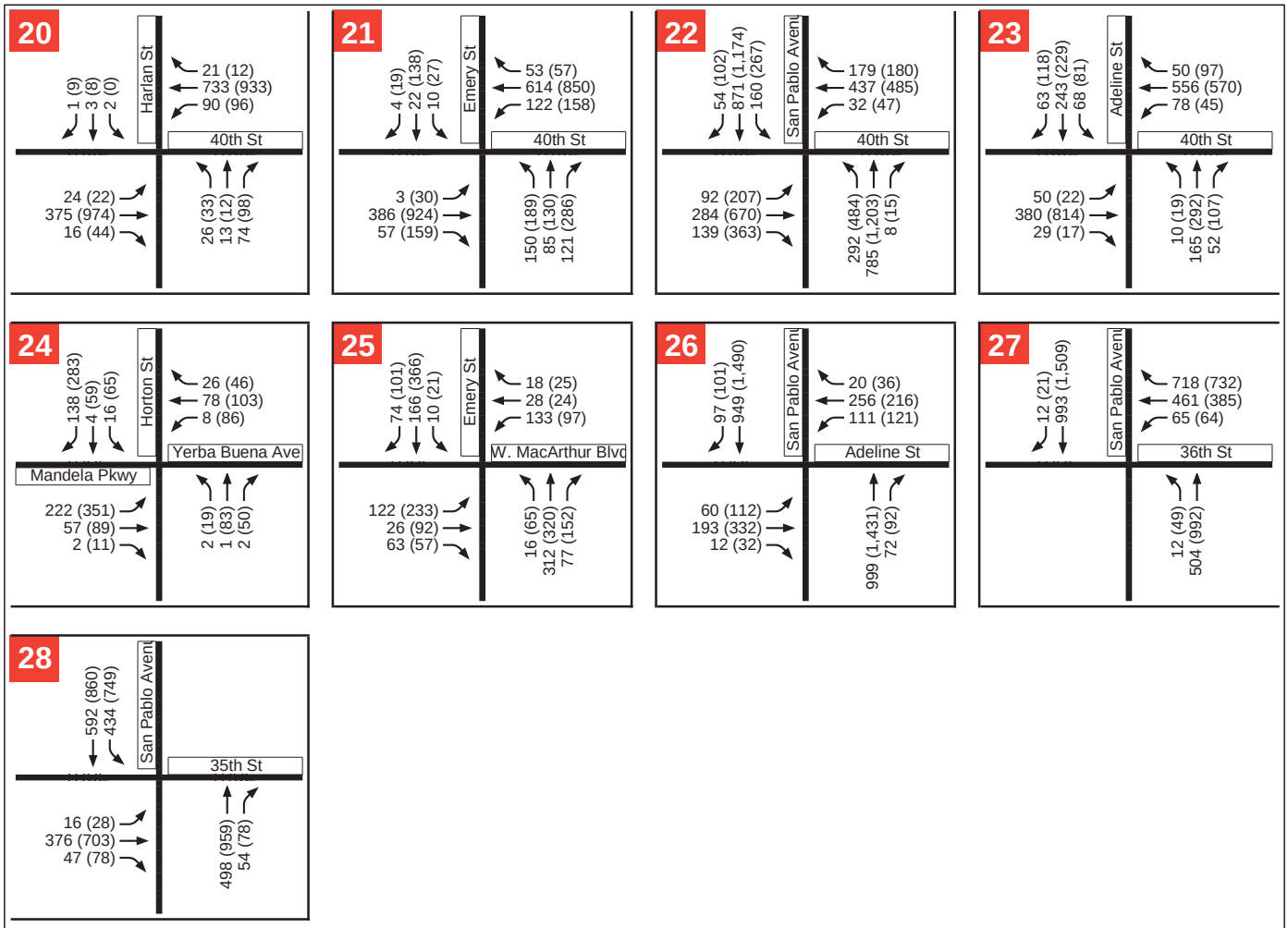
FIGURE V.C-13a

Marketplace Redevelopment Project EIR

Future 2010 With Project

Weekday Peak Hour Traffic Volumes



KEY:

XX (YY) = AM (PM) Peak Hour Traffic Volumes

LSA

N

NOT TO SCALE

SOURCE: FEHR & PEERS, 2007.

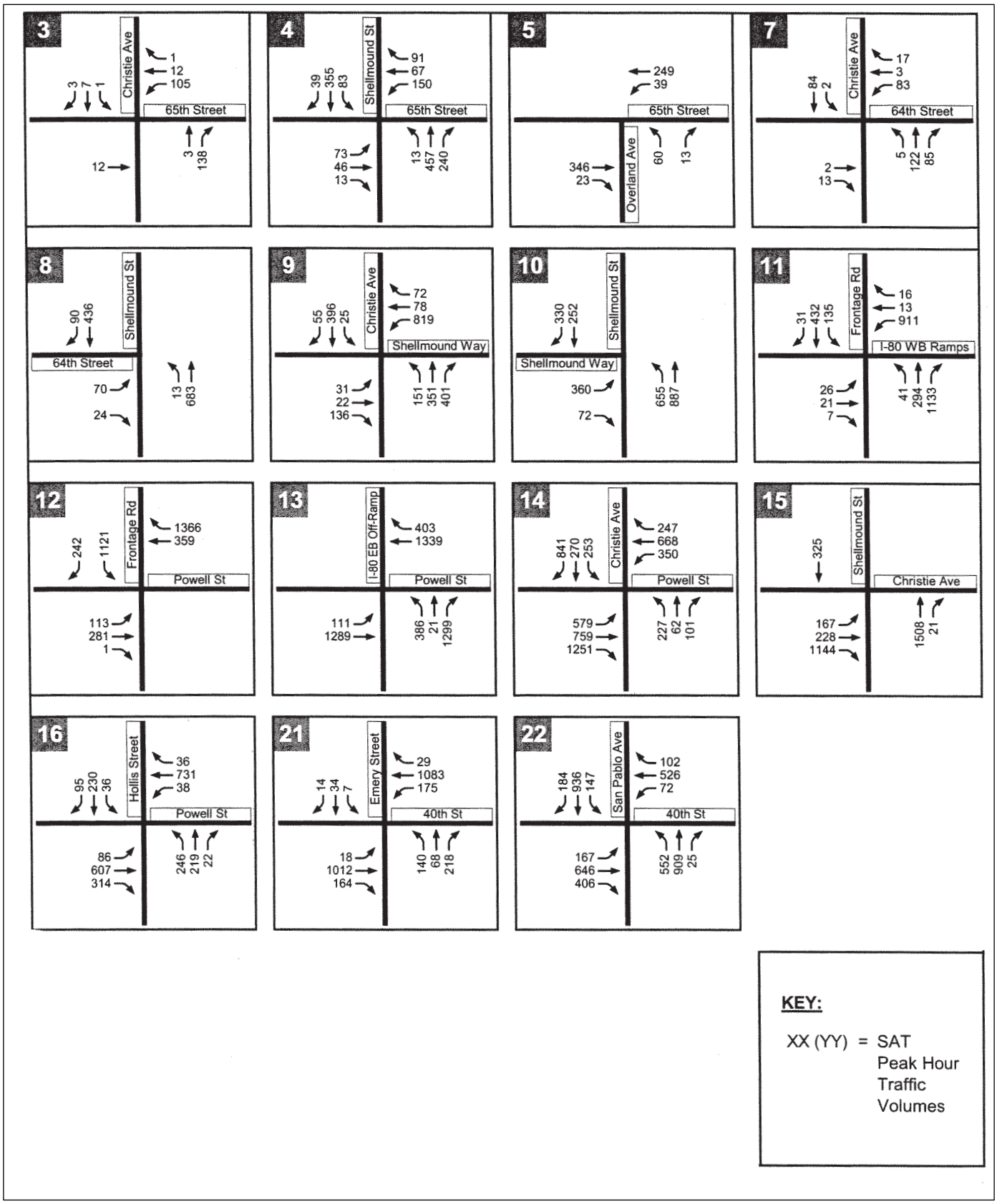
I:/CEM531 marketplace/figures/Fig_VC13b.ai (02/05/07)

FIGURE V.C-13b

Marketplace Redevelopment Project EIR

Future 2010 With Project

Weekday Peak Hour Traffic Volumes



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NOT TO SCALE

SOURCE: FEHR & PEERS, 2007.

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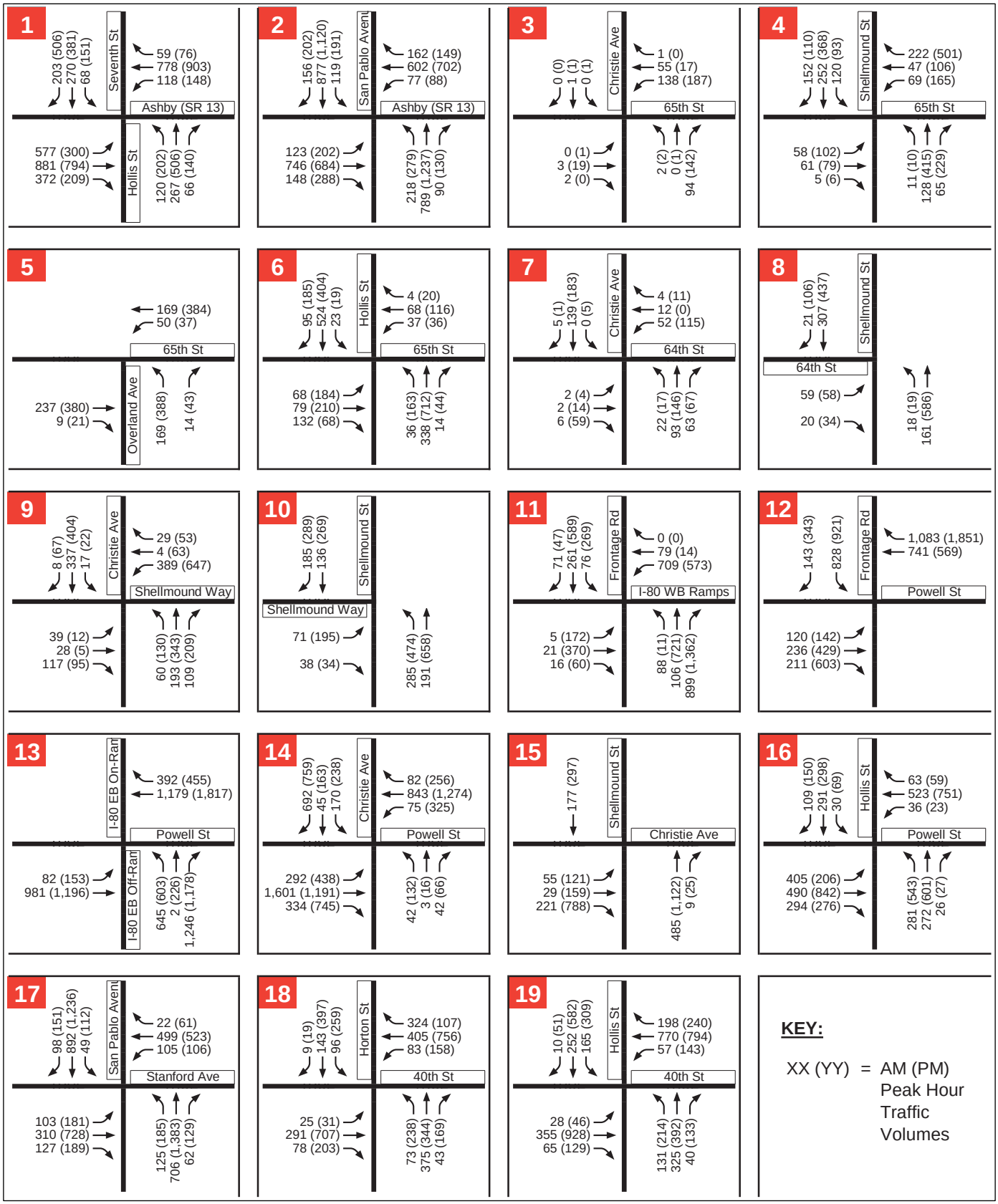
FIGURE V.C-14

Marketplace Redevelopment Project EIR
Future 2010 Plus Project
Saturday Peak Hour Traffic Volumes



LSA

NOT TO SCALE

FIGURE V.C-15a

Marketplace Redevelopment Project EIR
Future 2030 With Project
Weekday Peak Hour Traffic Volumes

SOURCE: FEHR & PEERS, 2007.

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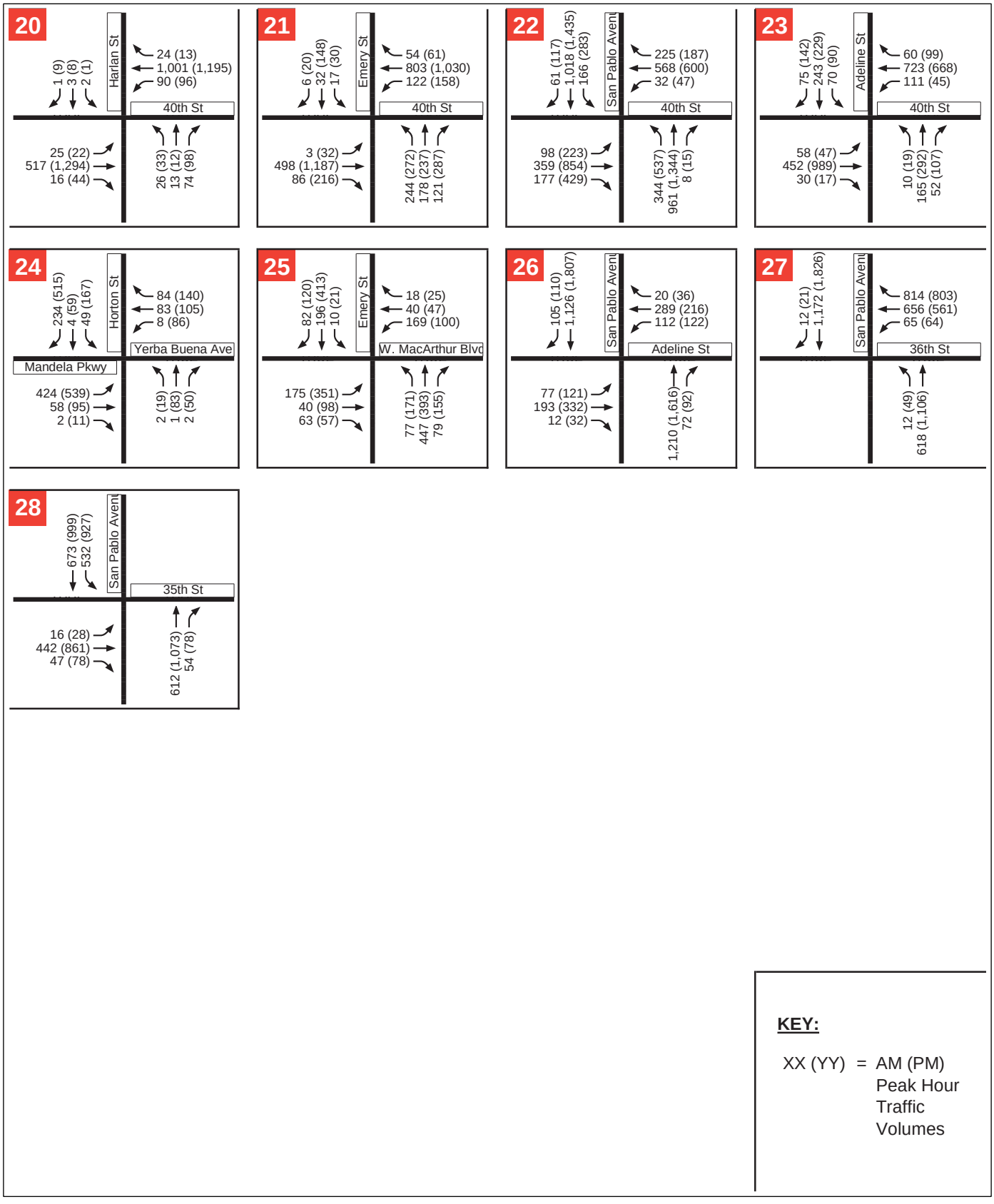

LSA

FIGURE V.C-15b

N

NOT TO SCALE

Marketplace Redevelopment Project EIR

Future 2030 With Project

Weekday Peak Hour Traffic Volumes

SOURCE: FEHR & PEERS, 2007.

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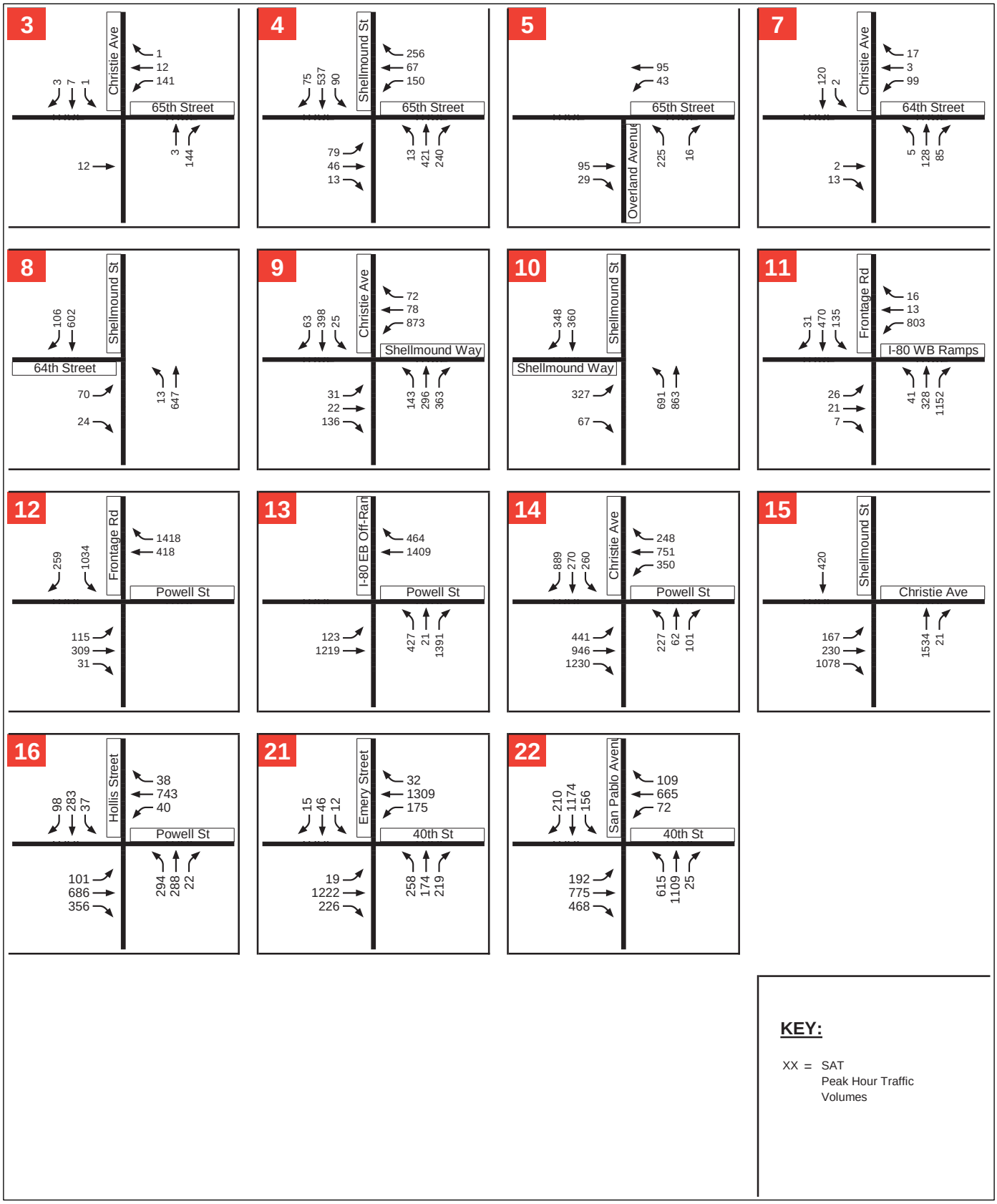

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NOT TO SCALE

SOURCE: FEHR & PEERS, 2007.

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FIGURE V.C-16

Marketplace Redevelopment Project EIR
Future 2030 Plus Project
Saturday Peak Hour Traffic Volumes

Table V.C-10: Existing Peak Hour Intersection Delay and LOS Without and With Project

Intersection	Control[1]	Peak Hour	Without Project		With Project	
			Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS
1. Ashby Avenue/7th Street	Signal	AM	43	D	43	D
		PM	42	D	42	D
2. Ashby Avenue/San Pablo Avenue	Signal	AM	32	C	33	C
		PM	40	D	42	D
3. 65th Street/Christie Avenue	SSSC	AM	6 (11)	A (B)	6 (11)	A (B)
		PM	7 (13)	A (B)	7 (13)	A (B)
		SAT	8 (11)	A (B)	8 (11)	A (B)
4. 65th Street/Shellmound Street	AWSC	AM	9	A	10	A
		PM	50	E	***72***	***F***
		SAT	29	D	***53***	***F***
5. 65th Street/Overland Avenue	Signal	AM	--	--	--	--
		PM	--	--	--	--
		SAT	--	--	--	--
6. 65th Street/Hollis Street	Signal	AM	14	B	14	B
		PM	23	C	25	C
7. 64th Street/Christie Avenue	AWSC	AM	8	A	8	A
		PM	9	A	9	A
		SAT	8	A	8	A
8. 64th Street/Shellmound Street	SSSC	AM	1 (10)	A (A)	2 (11)	A (B)
		PM	2 (16)	A (C)	2 (19)	A (C)
		SAT	1 (16)	A (C)	2 (21)	A (C)
9. Shellmound Way/Christie Avenue	Signal	AM	8	A	9	A
		PM	11	B	10	A
		SAT	17	B	24	C
10. Shellmound Way/Shellmound Street	Signal	AM	33	C	33	C
		PM	22	C	22	C
		SAT	13	B	19	B
11. I-80 Hook Ramps/Frontage Road	Signal	AM	15	B	15	B
		PM	37	D	38	D
		SAT	16	B	16	B
12. Powell Street/Frontage Road	Signal	AM	19	B	19	B
		PM	18	B	18	B
		SAT	22	C	22	C
13. Powell Street/I-80 Eastbound Ramps	Signal	AM	26	C	27	C
		PM	73	E	***83***	***F***
		SAT	56	E	***62***	***E***
14. Powell Street/Christie Avenue	Signal	AM	29	C	28	C
		PM	46	D	46	D
		SAT	46	D	45	D
15. Christie Avenue/Shellmound Street	Signal	AM	20	B	21	C
		PM	41	D	41	D
		SAT	31	C	32	C
16. Powell Street/Hollis Street	Signal	AM	30	C	30	C
		PM	51	D	55	D
		SAT	24	C	24	C
17. Stanford Avenue/San Pablo Avenue	Signal	AM	29	C	29	C
		PM	39	D	39	D
18. 40th Street/Horton Street	Signal	AM	21	C	21	C
		PM	28	C	28	C
19. 40th Street/Hollis Street	Signal	AM	26	C	27	C
		PM	38	D	39	D
20. 40th Street/Harlan Street	SSSC	AM	3 (24)	A (C)	3 (25)	A (C)
		PM	5 (53)	A (F)	5 (57)	A (F)
21. 40th Street/Emery Street	Signal	AM	24	C	24	C
		PM	32	C	32	C
		SAT	21	C	21	C

Intersection	Control[1]	Peak Hour	Without Project		With Project	
			Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS
22. 40th Street/San Pablo Avenue	Signal	AM	33	C	33	C
		PM	45	D	45	D
		SAT	39	D	39	D
23. 40th Street/Adeline Street	Signal	AM	12	B	12	B
		PM	12	B	12	B
24. Mandela Pkwy/Horton Street	AWSC	AM	8	A	8	A
		PM	14	B	15	C
25. MacArthur Boulevard/Emery Street	Signal	AM	24	C	24	C
		PM	11	B	11	B
26. Adeline Street/San Pablo Avenue	Signal	AM	15	B	15	B
		PM	19	B	19	B
27. 36th Street/San Pablo Avenue	Signal	AM	28	C	28	C
		PM	24	C	24	C
28. 35th Street/San Pablo Avenue	Signal	AM	13	B	13	B
		PM	30	C	30	C

Notes: Results in ***bold italics*** indicate deficient levels of service.
1. SSSC = side-street stop controlled intersection; AWSC = all-way stop controlled intersection; Signal = signalized intersection.
2. Average intersection control delay reported for signalized and all-way stop controlled intersections. Average intersection delay and worst case approach delay reported for side-street stop controlled intersections.
Source: Fehr & Peers, 2007

Table V.C-11: Existing Plus Project Vehicle Queues

Intersection	Movement	Storage Length (in feet)	95th Percentile Queue Length (in feet)[1]					
			AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
			Without Project	With Project	Without Project	With Project	Without Project	With Project
Shellmound Way/ Christie Avenue	Northbound	235	25	25	25	25	100	100
	Southbound	--[2]	100	100	150	175	150	150
	Westbound	335	25	25	250	250	250	250
Shellmound Way/ Shellmound Street	Northbound left	400	75	75	125	125	225	225
	Southbound right	200	50	75	100	125	75	125
	Southbound through	--[2]	50	50	175	175	200	225
	Eastbound	335	100	150	50	125	75	275
Powell Street/I-80 Eastbound Ramps	Northbound left	900	500	525	725	725	325	325
	Northbound through	900	600	625	900	***950***	325	375
	Northbound right	900	550	550	1,050	***1,150***	850	***950***
	Westbound through	400	100	150	350	***450***	325	350
	Westbound right	400	25	25	75	75	150	150
	Eastbound left	275	50	50	175	175	150	150
	Eastbound through	275	150	150	100	100	375	375
Powell Street/ Christie Avenue	Northbound left	200	50	50	125	125	250	250
	Northbound through	200	50	50	125	125	250	250
	Northbound right	200	50	50	75	75	75	75
	Southbound Through	235	125	150	350	***400***	475	***575***
	Southbound Right	235	25	75	50	50	100	150
	Westbound left	200	50	50	400	400	425	425
	Westbound through	--[2]	150	150	575	575	200	200
	Westbound right	50	50	50	150	150	100	100
	Eastbound left	400	175	200	175	200	150	200
	Eastbound through	450	550	550	300	300	275	275
	Eastbound Right	450	25	25	350	350	425	425

Notes:
1. 95th percentile vehicle queue in feet as calculated by Synchro 6.0.
2. Distance to adjacent intersection is greater than maximum queue identified in this table.
3. Results in ***bold italics*** indicate significant impact.
Source: Fehr & Peers, 2007.

Table V.C-12: 2010 Peak Hour Intersection Delay and LOS Without and With Project

Intersection	Control[1]	Peak Hour	Without Project		With Project	
			Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS
1. Ashby Avenue/7th Street	Signal	AM	46	D	46	D
		PM	50	D	50	D
2. Ashby Avenue/San Pablo Avenue	Signal	AM	32	C	33	C
		PM	81	F	84	F
3. 65th Street/Christie Avenue	SSSC	AM	6 (11)	A (B)	6 (11)	A (B)
		PM	7 (13)	A (B)	7 (13)	A (B)
		SAT	8 (11)	A (B)	8 (11)	A (B)
4. 65th Street/Shellmound Street[3]	Signal	AM	25	C	25	C
		PM	46	D	51	D
5. 65th Street/Overland Avenue[3]		SAT	32	C	32	C
6. 65th Street/Hollis Street	Signal	AM	15	B	16	B
		PM	32	C	36	D
7. 64th Street/Christie Avenue	AWSC	AM	8	A	8	A
		PM	9	A	9	A
		SAT	8	A	8	A
8. 64th Street/Shellmound Street	SSSC	AM	2 (11)	A (B)	2 (12)	A (B)
		PM	2 (17)	A (C)	2 (21)	A (C)
		SAT	2 (26)	A (D)	3 (43)	A (E)
9. Shellmound Way/Christie Avenue	Signal	AM	30	C	29	C
		PM	19	B	21	C
		SAT	25	C	30	C
10. Shellmound Way/Shellmound Street	Signal	AM	30	C	30	C
		PM	25	C	25	C
		SAT	20	B	24	C
11. I-80 Hook Ramps/Frontage Road	Signal	AM	15	B	15	B
		PM	42	D	44	D
		SAT	19	B	21	C
12. Powell Street/Frontage Road	Signal	AM	18	B	18	B
		PM	20	C	22	C
		SAT	23	C	24	C
13. Powell Street/I-80 Eastbound Ramps	Signal	AM	28	C	30	C
		PM	101	F	***114***	***F***
		SAT	93	F	***106***	***F***
14. Powell Street/Christie Avenue	Signal	AM	33	C	33	C
		PM	86	F	86	F
		SAT	108	F	111	F
15. Christie Avenue/Shellmound Street	Signal	AM	12	B	12	B
		PM	24	C	24	C
		SAT	24	C	24	C
16. Powell Street/Hollis Street	Signal	AM	37	D	38	D
		PM	80	E	84	F
		SAT	28	C	30	C
17. Stanford Avenue/San Pablo Avenue	Signal	AM	31	C	31	C
		PM	69	E	69	E
18. 40th Street/Horton Street	Signal	AM	23	C	23	C
		PM	34	C	34	C
19. 40th Street/Hollis Street	Signal	AM	28	C	29	C
		PM	50	D	52	D
20. 40th Street/Harlan Street	SSSC	AM	2 (36)	A (E)	2 (36)	A (E)
		PM	9 (125)	A (F)	10 (135)	A (F)
21. 40th Street/Emery Street	Signal	AM	23	C	23	C
		PM	36	D	36	D
		SAT	24	C	24	C
22. 40th Street/San Pablo Avenue	Signal	AM	36	D	36	D
		PM	72	E	74	E
		SAT	70	E	72	E
23. 40th Street/Adeline Street	Signal	AM	15	B	15	B
		PM	15	B	15	B
24. Mandela Pkwy/Horton Street	AWSC	AM	9	A	9	A
		PM	22	C	24	C
25. MacArthur Boulevard/Emery Street	Signal	AM	15	B	15	B
		PM	18	B	18	B

Intersection	Control[1]	Peak Hour	Without Project		With Project	
			Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS
26. Adeline Street/San Pablo Avenue	Signal	AM	22	C	22	C
		PM	36	D	36	D
27. 36th Street/San Pablo Avenue	Signal	AM	28	C	28	C
		PM	59	E	60	E
28. 35th Street/San Pablo Avenue	Signal	AM	18	B	18	B
		PM	38	D	38	D

Notes: Results in ***bold italics*** indicate deficient levels of service.
1. SSSC = side-street stop controlled intersection; AWSC = all-way stop controlled intersection; Signal = signalized intersection.
2. Average intersection control delay reported for signalized and all-way stop controlled intersections. Average intersection delay and worst case approach delay reported for side-street stop controlled intersections.
3. The intersections of 65th Street/Shellmound Street and 65th Street/Overland Avenue were analyzed as an interconnected signal system due to the railroad crossing. Intersection operations will be LOS F when a train crosses through the intersection.

Source: Fehr & Peers, 2007

Table V.C-13: Future 2010 Plus Project Vehicle Queues

Intersection	Movement	Storage Length (in feet)	95th Percentile Queue Length (in feet)[1]					
			AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
			Without Project	With Project	Without Project	With Project	Without Project	With Project
Shellmound Way/ Christie Avenue	Northbound	235	25	25	100	100	50	50
	Southbound	--[2]	75	75	175	175	200	225
	Westbound	335	225	275	100	125	525	***625***
Shellmound Way/ Shellmound Street	Northbound left	400	75	100	175	175	225	250
	Southbound right	200	50	75	100	125	100	150
	Southbound through	--[2]	50	50	150	175	225	***250***
	Eastbound	335	75	125	75	225	250	***400***
Powell Street/I-80 Eastbound Ramps	Northbound left	900	550	550	725	725	350	350
	Northbound through	900	650	675	1,025	***1,075***	600	675
	Northbound right	900	600	600	975	***1,025***	1,100	***1,225***
	Westbound through	400	150	200	350	***550***	400	***500***
	Westbound right	400	25	25	50	50	125	100
	Eastbound left	275	50	50	150	150	125	125
	Eastbound through	275	150	250	100	100	525	***550***
Powell Street/ Christie Avenue	Northbound left	200	50	50	125	125	250	250
	Northbound through	200	50	50	125	125	250	250
	Northbound right	200	50	50	75	75	75	75
	Southbound Through	235	175	175	425	***450***	600	***625***
	Southbound Right	235	75	100	100	125	125	200
	Westbound left	200	125	125	500	500	550	550
	Westbound through	--[2]	325	325	700	700	325	325
	Westbound right	50	75	75	225	***275***	150	***175***
	Eastbound left	400	150	175	175	225	175	250
	Eastbound through	450	650	650	500	*500*	675	675
	Eastbound Right	450	25	25	450	***475***	600	600

Notes:
1. 95th percentile vehicle queue in feet as calculated by Synchro 6.0.
2. Distance to adjacent intersection is greater than maximum queue identified in this table.
3. Results in ***bold italics*** indicate significant impact.

Source: Fehr & Peers, 2007.

Table V.C-14: Future 2030 Peak Hour Intersection Operating Conditions

Intersection	Control[1]	Peak Hour	Without Project		With Project	
			Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS
1. Ashby Avenue/7th Street	Signal	AM	59	E	60	E
		PM	63	E	64	E
2. Ashby Avenue/San Pablo Avenue	Signal	AM	40	D	41	D
		PM	128	F	***135***	***F***
3. 65th Street/Christie Avenue	SSSC	AM	6 (12)	A (B)	7 (12)	A (B)
		PM	8 (14)	A (B)	8 (15)	A (B)
		SAT	8 (11)	A (B)	8 (11)	A (B)
4. 65th Street/Shellmound Street	Signal	AM	31	C	32	C
		PM	96	F	***102***	***F***
5. 65th Street/Overland Avenue	Signal	SAT	43	D	53	D
6. 65th Street/Hollis Street	Signal	AM	15	B	16	B
		PM	40	D	47	D
7. 64th Street/Christie Avenue	AWSC	AM	8	A	8	A
		PM	9	A	9	A
		SAT	9	A	9	A
8. 64th Street/Shellmound Street	SSSC	AM	2 (12)	A (B)	2 (13)	A (B)
		PM	2 (20)	A (C)	2 (27)	A (D)
		SAT	2 (46)	A (E)	8 (127)	A (F)
9. Shellmound Way/Christie Avenue	Signal	AM	34	C	36	D
		PM	19	B	21	C
		SAT	28	C	32	C
10. Shellmound Way/Shellmound Street	Signal	AM	29	C	29	C
		PM	24	C	24	C
		SAT	20	B	24	C
11. I-80 Hook Ramps/Frontage Road	Signal	AM	16	B	16	B
		PM	42	D	43	D
		SAT	20	B	20	B
12. Powell Street/Frontage Road	Signal	AM	18	B	18	B
		PM	21	C	21	C
		SAT	22	C	22	C
13. Powell Street/I-80 Eastbound Ramps	Signal	AM	37	D	39	D
		PM	102	F	***115***	***F***
		SAT	101	F	***112***	***F***
14. Powell Street/Christie Avenue	Signal	AM	56	E	56	E
		PM	90	F	90	F
		SAT	136	F	136	F
15. Christie Avenue/Shellmound Street	Signal	AM	12	B	12	B
		PM	22	C	22	C
		SAT	23	C	23	C
16. Powell Street/Hollis Street	Signal	AM	51	D	51	D
		PM	114	F	***120***	***F***
		SAT	45	D	50	D
17. Stanford Avenue/San Pablo Avenue	Signal	AM	32	C	32	C
		PM	119	F	120	F
18. 40th Street/Horton Street	Signal	AM	37	D	37	D
		PM	127	F	128	F
19. 40th Street/Hollis Street	Signal	AM	35	D	38	D
		PM	82	F	85	F
20. 40th Street/Harlan Street	SSSC	AM	3 (68)	A (F)	3 (70)	A (F)
		PM	>100 (>100)	F (F)	>100 (>100)	F (F)

Table V.C-14 *Continued*

Intersection	Control[1]	Peak Hour	Without Project		With Project	
			Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS
21. 40th Street/Emery Street	Signal	AM	29	C	29	C
		PM	104	F	106	F
		SAT	81	F	83	F
22. 40th Street/San Pablo Avenue	Signal	AM	45	D	45	D
		PM	142	F	145	F
		SAT	130	F	133	F
23. 40th Street/Adeline Street	Signal	AM	15	B	15	B
		PM	16	B	16	B
24. Mandela Pkwy/Horton Street	AWSC	AM	11	B	11	B
		PM	71	E	75	E
25. MacArthur Boulevard/Emery Street	Signal	AM	21	C	21	C
		PM	86	F	86	F
26. Adeline Street/San Pablo Avenue	Signal	AM	24	C	24	C
		PM	48	D	50	D
27. 36th Street/San Pablo Avenue	Signal	AM	47	D	48	D
		PM	74	E	74	E
28. 35th Street/San Pablo Avenue	Signal	AM	21	C	21	C
		PM	61	E	62	E

Notes: Results in ***bold italics*** indicates significant impact.
1. SSSC = side-street stop controlled intersection; AWSC = all-way stop controlled intersection; Signal = signalized intersection.
2. Average intersection control delay reported for signalized and all-way stop controlled intersections. Average intersection delay and worst case approach delay reported for side-street stop controlled intersections.
3. The intersections of 65th Street/Shellmound Street and 65th Street/Overland Avenue were analyzed as an interconnected signal system due to the railroad crossing. Intersection operations will be LOS F when a train crosses through the intersection.

Source: Fehr & Peers, 2007.

The addition of project traffic would increase the 95th percentile vehicle queue at two intersections where the existing 95th percentile vehicle queue currently exceeds the available storage (see Table V.C-15):

- Powell Street/I-80 Eastbound Ramps
- Powell Street/Christie Avenue

Increasing vehicle queue spillback is a potentially significant impact, as vehicles queued outside of turn-pockets can impede other movements at the intersection, lead to poor lane utilization, and degrade the operation of the intersection, as well as the overall roadway system.

These are potentially significant impacts, as identified below.

Table V.C-15: Future 2030 Plus Project Vehicle Queues

Intersection	Movement	Storage Length (in feet)	95th Percentile Queue Length (in feet) [1]					
			AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
			Without Project	With Project	Without Project	With Project	Without Project	With Project
Shellmound Way/ Christie Avenue	Northbound though	235	25	25	75	100	75	75
	Southbound	--[2]	75	75	175	200	200	225
	Westbound	335	250	300	100	150	575	***675***
Shellmound Way/ Shellmound Street	Northbound left	400	100	100	125	125	225	275
	Southbound right	200	75	75	150	200	125	175
	Southbound through	200	75	75	200	225	325	***375***
	Eastbound	335	50	100	75	175	250	325
Powell Street/I-80 Eastbound Ramps	Northbound left	900	600	625	750	750	400	400
	Northbound through	900	750	775	1,000	***1,050***	675	750
	Northbound right	900	675	700	975	***1,050***	1,250	***1,350***
	Westbound through	400	175	225	400	***575***	450	***550***
	Westbound right	400	25	25	50	50	125	125
	Eastbound left	275	50	50	150	150	150	150
	Eastbound through	275	150	150	125	125	475	***500***
Powell Street/ Christie Avenue	Northbound left	200	50	50	125	125	250	***250***
	Northbound through	200	50	50	125	125	250	250
	Northbound right	200	50	50	75	75	75	75
	Southbound Through	235	150	175	375	425	600	***600***
	Southbound Right	235	75	100	150	125	150	225
	Westbound left	200	100	100	475	475	550	***550***
	Westbound through	--[2]	400	400	750	750	350	350
	Westbound right	50	75	75	225	250	175	***200***
	Eastbound left	400	100	125	150	175	125	175
	Eastbound through	450	775	***775***	550	550	800	***800***
	Eastbound Right	450	25	25	425	425	700	***700***

Notes:
1. 95th percentile vehicle queue in feet as calculated by Synchro 6.0.
2. Distance to adjacent intersection is greater than maximum queue identified in this table.
3. Results in ***bold italics*** indicate significant impact.
Source: Fehr & Peers, 2007.

(4) Impacts and Mitigation Measures. This section identifies the impacts that would result from the proposed project and identifies mitigation measures where appropriate. The impacts and mitigation measures are organized by the six project analysis scenarios.

Existing Plus Project

The Shellmound Street/65th Street intersection currently operates at LOS E during the PM peak hour. Under the Existing Plus Project scenario, the intersection operation would degrade to LOS F, resulting in a significant impact. However, a traffic signal was recently installed at this intersection, resulting in LOS B operations during the PM and Saturday peak hours with the addition of the project traffic. Therefore, as a traffic signal has been installed at this location, the project impact would be considered less than significant and no improvements are recommended.

Impact TRAF-1: The I-80 EB Ramps/Powell Street intersection currently operates at LOS E during the PM peak hour and Saturday peak hour. Under the Existing Plus Project scenario,

the intersection operation would degrade to LOS F during the PM peak hour and delay would increase by 10 seconds. On Saturday, the addition of project traffic would increase delay by 8 seconds. The addition of project traffic would also increase the 95th percentile queue lengths to four approaches that currently exceed or are projected to exceed the available storage capacity. (S)

Mitigation Measure TRAF-1a: This development, in conjunction with other planned/approved developments in the area, would contribute to over capacity conditions at several intersections, including I-80EB Ramps/Powell Street intersection, in the near future. While it is beyond the ability of any one project to mitigate the impacts to the transportation network, measures that aim to (1) improve intersection operation with physical improvements; and (2) reduce dependence on automobile trips, and increase transit, walking and bicycling trips are recommended below. The following improvements to the I-80 EB Ramps/Powell Street intersection shall be implemented:

1) Reconstruct the off-ramp to provide dual left-turn and dual right-turn lanes. The additional lane should be about 900 feet.

2) Reconstruct the southeast corner of the Powell Street/I-80 Eastbound Ramps intersection improving the curb radii to 40 feet.

3) Widen the north side of Powell Street 12 to 14 feet between Christie Avenue and Eastbound I-80 Ramps to align westbound Powell Street through lanes across the intersection with Eastbound I-80 Ramps. This improvement will also allow the widening of the eastbound right-turn lane at the Powell Street/Christie Avenue intersection to 14 feet and construction of a pedestrian median refuge on the west side of the Powell Street/Christie Avenue intersection. This change requires right-of-way along the north side of Powell Street between Christie Avenue and the I-80 Eastbound On-Ramp.

This recommendation should be implemented with Mitigation Measure TRAF-2 to provide corridor benefits.

This impact also occurs in the 2010 and 2030 scenarios and can be attributed to existing traffic in the area, as well as traffic from approved, planned, and potential developments in and around Emeryville. Therefore the City shall update its Traffic Impact Fee Program to include this improvement, and the Project Applicant shall pay their fair share cost of the improvements. Each of the changes to the I-80 EB ramps requires right-of-way acquisition and an encroachment permit from Caltrans to implement. Thus, the impact would remain significant and unavoidable until sufficient right-of-way can be acquired and Caltrans approves an encroachment permit.

Many elements of the project would help minimize the number of vehicle trips that could result from the proposed project and minimize the project's adverse impact on intersection operations. The project proposes to construct a mixture of uses, within a mixed use environment. Class II bicycle lanes and bicycle parking are proposed. A minimum of ten foot side walks and marked pedestrian crossings would be provided as part of the project. The site is well served by transit. Shared parking between residential guest parking and retail parking is proposed to minimize the total parking supply. Therefore, many successful elements of transportation demand management programs are proposed as part

of the project. However, the requirement to implement a formal Transportation Demand Management Plan (TDM), which would include additional TDM measures, could further minimize the project's impacts on traffic and circulation.

Mitigation Measure TRAF-1b: Implementation of the following mitigation measure will help minimize the project's impacts on intersection operation; however as it is difficult to quantify the effects of TDM measures, implementation of this measure alone would not reduce this impact to a less-than-significant level.

The project applicant shall prepare and implement a comprehensive TDM program that includes the following elements to encourage and enhance alternate modes of travel:

- Transit amenities, including bus pull-outs, transit information and ticket kiosks, and discounted transit passes for employees and residents.
- Carpool/vanpool support, including preferential parking spaces and ride-matching programs.
- Carshare support, including free parking spaces, on-site information and advertising, and discounted rates/long-term contracts.
- Bicycle amenities, including bicycle parking racks, pilot bicycle rental program, new bicycle paths, and shower/locker facilities.

In addition, the TDM plan should discourage automobile use by incorporating the following elements:

- Residential parking spaces should be unbundled from the units.
- All non-residential parking should be paid parking.
- Monthly parking permits should not be provided for employees.

Provision of car sharing facilities on-site could help reduce auto ownership amongst future residents/tenants of the building and encourage alternative modes for trips generated by the site. The TDM program shall be submitted to City staff for review and acceptance prior to approval of any Final Development Plans. (PSU)

Impact TRAF-2: The Powell Street/Christie Avenue intersection would operate at an acceptable service level under the Existing Plus Project scenario. However, vehicle queue spillback affects overall intersection and system operations. The addition of project traffic would exacerbate existing queuing problems, contributing poor operations on three intersection approaches (See Table V.C-11). (S)

Mitigation Measure TRAF-2a: Implementation of the mitigation measures by the City detailed below would reduce this impact to a less-than-significant level. However, each of the changes requires right-of-way acquisition to implement. Thus, the impact could remain significant and unavoidable until sufficient right-of-way can be acquired. The following improvements made to the intersection of Powell Street/Christie Avenue shall be implemented:

1) Reconstruct the westbound approach to provide a second left turn lane. The resulting two left turn lanes should be 250 feet in length. The south side of the Powell Street

bridge would need to be widened by about 12 feet to accommodate the second left turn lane.

2) Reconstruct the southbound approach to provide a southbound left-turn lane (in addition to the shared left-through lane). The lane would extend from Powell Street back to Shellmound Way. This change would require widening the west side of Christie Avenue by about 12 feet. This change requires right-of-way along the west side of Christie Avenue.

3) Reconstruct the south side of Powell Street, west of the intersection, to provide two dedicated eastbound right turn lanes. The lanes would extend from the Christie Avenue intersection back to the I-80 Eastbound Off-Ramp intersection. This lane requires additional right-of-way of about 12 feet on the south side of Powell Street between Christie Avenue and the I-80 Eastbound Off-Ramp.

4) Re-time the Powell/Christie Loop signalized intersections to coordinate the critical movements through the intersection.

These recommendations should be implemented with Mitigation Measure TRAF-1a to provide corridor benefits.

This impact also occurs in the 2010 and 2030 scenarios and can be attributed to existing traffic in the area, as well as traffic from approved, planned, and potential developments in and around Emeryville. Therefore, the City shall update its Traffic Impact Fee Program to include this recommendation, and the Project Applicant shall pay their fair share cost of the improvements.

Mitigation Measure 2b: Mitigation Measure 1b, which required a TDM Plan, shall also be implemented to further minimize the project's impacts on intersection operations. (PSU)

2010 Plus Project

Impact TRAF-3: The I-80 EB Ramps/Powell Street intersection is projected to operate at LOS F during the PM peak hour and Saturday peak hour in 2010. The addition of project traffic would increase delay by more than 4 seconds during both the PM and Saturday peak hours. The addition of project traffic would also increase the 95th percentile queue lengths for several approaches that currently exceed or are projected to exceed the available storage capacity. (S)

Mitigation Measure TRAF-3: Implement Mitigation Measures TRAF-1a and 1b. (PSU)

Impact TRAF-4: The Shellmound Way/Christie Avenue intersection is projected to operate at an acceptable service level both without and with the project in 2010. However, the addition of project traffic would result in the westbound left-turn movements, exceeding the available storage length and spilling back to Shellmound Street. (S)

Mitigation Measure TRAF-4: Implement Mitigation Measures TRAF-2a and 1b. (PSU)

Impact TRAF-5: The proposed project would increase vehicle queues at the Shellmound Way/ Shellmound Street intersection on the eastbound approach during the Saturday peak hour, resulting in vehicle queues that exceed capacity. (S)

Mitigation Measure TRAF-5: Implement Mitigation Measures TRAF-2a and lb. (PSU)

Impact TRAF-6: The Shellmound Way/Shellmound Street intersection is projected to operate at an acceptable service level both without and with the project in 2010. However, the addition of project traffic would result in the 95th percentile eastbound vehicle queues exceeding the available storage, resulting in vehicle queue spillback to Christie Avenue. (S)

Mitigation Measure TRAF-6: Implement Mitigation Measures TRAF-2 and 1b. (PSU)

Impact TRAF-7: The Powell Street/Christie Avenue intersection would operate at an acceptable service level in 2010, both without and with the project. However, vehicle queue spillback would affect overall intersection and system operations. The addition of project traffic would exacerbate existing queuing problems, contributing to poor operations for the southbound through movement, the westbound right-turn movement and the eastbound right-turn movement. (S)

Mitigation Measure TRAF-7: Implement Mitigation Measures TRAF-2a and 1b. (PSU)

2030 Plus Project

IMPACT TRAF-8: The Shellmound Street/65th Street and the Overland Street/65th Street would operate as one intersection in 2030 and is projected to operate at a service level F with an overall average delay of 96 seconds during the PM peak hour. The addition of project trips during the weekday PM peak hour would increase overall intersection delay to 102 seconds, a six second increase. Additionally the intersection would experience deficient operations when a train crosses over 65th Street. (S)

Mitigation Measure TRAF-8: Implement Mitigation Measure TRAF-1a and modify signal operations to provide protected/permitted left-turns on the southbound Shellmound Street approach. Implementation of this improvement by the City would improve the overall intersection operations to LOS E in the PM peak hour in 2030, reducing the impact to a less-than-significant level.

This impact can be attributed to existing traffic in the area, as well as traffic from approved, planned, and potential developments in and around Emeryville. Therefore, it is recommended that the City update the Traffic Impact Fee Program to include this recommendation, and that the project applicant contribute their fair share to these improvements through the payment of fees. (LTS)

Impact TRAF-9: The Ashby Avenue/San Pablo Avenue intersection is projected to operate at LOS F with an overall average delay of 128 seconds during the PM peak hour in 2030. The addition of project trips during the weekday PM peak hour would increase overall intersection delay to 135 seconds, a seven second increase. (S)

Mitigation Measure TRAF-9: To reduce this impact to a less than significant level, the intersection would have to be modified, when traffic conditions warrant, to provide dual northbound left-turn lanes similar to the northbound left-turn lane design on San Pablo Avenue at 40th Street. Construction of this improvement would require elimination of on-street parking along San Pablo Avenue approaching the intersection. Relocation of the bus stop for buses operating along San Pablo Avenue would also be required.

The applicant shall pay a fee based on its fair share of the project's anticipated growth in traffic to the intersection toward the cost to implement this improvement. The payment shall be made to the City of Emeryville, for the benefit of the City of Berkeley, prior to issuance of the temporary certificate of occupancy for the last building. However, this intersection is located in the City of Berkeley and is also under the jurisdiction of Caltrans, since both Ashby Avenue and San Pablo Avenue are state highways at this intersection. Therefore, the final selection of the appropriate intersection design, as well as implementation of the modifications, are not within the jurisdiction of the City of Emeryville. Therefore, this impact would be significant and unavoidable. (PSU)

Impact TRAF-10: The I-80 EB Ramps/Powell Street intersection is projected to operate at LOS F during the PM peak hour and Saturday peak hour in 2030. The addition of project traffic would increase delay by more than 4 seconds during both the PM and Saturday peak hours. The addition of project traffic would also increase the 95th percentile queue lengths for several approaches that currently exceed or are projected to exceed the available storage capacity. (S)

Mitigation Measure TRAF-10: Implement Mitigation Measures TRAF-1a and 1b. (PSU)

Impact TRAF-11: The Powell Street/Hollis Street intersection is projected to operate at LOS F with an overall average delay of 114 seconds during the PM peak hour in 2030. The addition of project trips during the weekday PM peak hour would increase overall intersection delay to 120 seconds, a 6 second increase. (S)

Mitigation Measure TRAF-11: Implement Mitigation Measure 1b and protected-permitted signal phasing for the north/south left turn movements. This will require a 5- to 6-foot lane shift for northbound Hollis Street traffic approaching Powell Street and reconstruction of the southwest corner of the intersection to accommodate tractor-trailer trucks making a right-turn from Powell Street to Hollis Street. The lane shift will require right-of-way along the west side of Hollis Street. Implementation of this measure by the City would reduce the project impact to a less-than-significant level.

This impact can be attributed to traffic from approved, planned, and potential developments in and around Emeryville. Therefore, it is recommended that the City update the Traffic Impact Fee Program to include the recommendation, and that the Project Applicant contribute their fair share to these improvements through the payment of fees. Additionally, it should be noted that right-of-way for this improvement is reliant on the redevelopment of the adjacent parcels should the needed right-of-way not be acquired the impact would remain significant and unavoidable. (PSU)

Impact TRAF-12: The Shellmound Way/Christie Avenue intersection is projected to operate at an acceptable service level both without and with the project in 2030. However, the addition of

project traffic would result in the westbound left-turn movements exceeding the available storage length and spilling back to Shellmound Street during the Saturday peak hour. (S)

Mitigation Measure TRAF-12: Implement Mitigation Measures TRAF-1b and 2. (LTS)

Impact TRAF-13: The Powell Street/Christie Avenue intersection would operate at an acceptable service level in 2030, both without and with the project. However, the addition of project traffic would exacerbate existing queuing problems, contributing to poor operations on some intersection approaches. (S)

Mitigation Measure TRAF-13: Implement Mitigation Measure TRAF-1b and 2. (LTS)

d. Alameda County Congestion Management Agency (ACCMA) Metropolitan Transportation System Roadway Analysis. An ACCMA roadway analysis was included in the traffic impact analysis, which considered the impact of the project on freeways, major arterials, and other major roadways in Alameda County. Main items of discussion include the notice of preparation (NOP) comments from the ACCMA, the geographic scope of the ACCMA roadway analysis, the analysis methodology, and the results for 2010 and 2025. The detailed ACCMA analysis is included in the TIA included in Appendix B.

The MTS AM and PM peak hour roadway segment analysis under 2010 and 2025 conditions are summarized in Tables V.C-16, V.C-17, V.C-18, and V.C-19. The addition of project trips would not cause any of the studied roadway or freeway segment to degrade to LOS F or increase the V/C ratio of a segment already operating at LOS F by more than three percent. Thus, the proposed project would not cause a significant impact on any MTS roadway segments. The ACCMA analysis identified no additional project-related traffic impacts.

e. Alternative Modes Analysis. This section documents the alternative modes analysis, which considers project impacts to transit, pedestrians and bicycles.

(1) Transit Impacts and Mitigation Measures. The project's potential impacts to transit were evaluated by estimating additional transit ridership associated with the project and then determining if added ridership could be accommodated by the current transit system. Detailed calculations and methodology are included in the Traffic Impact Analysis (TIA) included in Appendix B.

Ridership Estimates. Transit ridership associated with the project was calculated based on the project vehicle trip generation estimates presented in this transportation analysis. Trip generation rates for the proposed project were reduced by 5 percent to account for alternative mode use (transit, bicycling, and walking) as well as internal interaction between the residential and commercial portions of the project. Census data indicate that approximately 20 percent of Emeryville residents commute to work via transit. For the residential portion of the project, transit trips were assumed to account for an additional 10 percent of peak hour project trips for the weekday, and 5 percent of additional trips during the Saturday peak hour. For the retail and restaurant portion of the project, transit trips were assumed to account for an additional 5 percent of weekday and Saturday peak hour trips. This equates to about 17 additional AM peak hour transit trips, 31 PM peak hour transit trips, and 28 Saturday peak hour transit trips, as shown in Table V.C-20.

Table V.C-16: MTS Roadway System Analysis Summary - 2010 AM

Study Segment	Direction	# Lanes	No Project Volume	Project Volume	With Project Volume	Percent Increase	No Project V/C	With Project V/C	No Project LOS	With Project LOS	Impact?
Freeway Segments											
I-80 North of	EB	4	7,335	19	7,354	0.26%	0.92	0.92	E	E	No
Ashby Ave	WB	4	8,361	24	8,395	0.41%	1.05	1.05	F	F	No
I-80 North of	EB	4	9,444	19	9,463	0.20%	1.18	1.18	F	F	No
Powell Street	WB	5	7,959	24	7,983	0.30%	0.80	0.80	D	D	No
I-80 West of I-580	EB	5	13,249	18	13,267	0.14%	1.32	1.33	F	F	No
	WB	5	6,190	11	6,201	0.18%	0.62	0.62	C	C	No
I -580 East of	EB	5	6,359	54	6,413	0.85%	0.64	0.64	C	C	No
San Pablo Ave	WB	5	9,281	30	9,311	0.32%	0.93	0.93	E	E	No
I – 880 south of	NB	3	3,871	11	3,882	0.28%	0.65	0.65	C	C	No
I-80	SB	4	3,196	20	3,216	0.63%	0.40	0.40	B	B	No
I -980 south of	NB	5	2,762	0	2,762	0.00%	0.28	0.28	A	A	No
SR 24	SB	4	6,504	0	6,504	0.00%	0.81	0.81	D	D	No
Ashby Ave west of	EB	2	626	1	627	0.16%	0.16	0.16	A	A	No
San Pablo Ave	WB	2	1,420	2	1,422	0.14%	0.36	0.36	B	B	No
Ashby Ave east of	EB	1	645	7	652	1.09%	0.32	0.33	A	A	No
San Pablo Ave	WB	1	1,251	4	1,255	0.32%	0.63	0.63	C	C	No
SR 24 west of	EB	4	2,384	29	2,413	1.22%	0.30	0.30	A	A	No
Caldecott Tunnel	WB	4	9,581	16	9,597	0.17%	1.20	1.20	F	F	No
Arterials											
San Pablo Ave	NB	2	1,336	11	1,347	0.82%	0.84	0.84	D	D	No
north Ashby Ave	SB	2	1,726	6	1,732	0.65%	1.08	1.08	F	F	No
San Pablo Ave	NB	2	865	18	883	2.08%	0.54	0.55	B	B	No
south Ashby Ave	SB	2	1,311	10	1,321	0.76%	0.82	0.83	D	D	No
San Pablo Ave south	NB	2	1,078	0	1,078	0.00%	0.67	0.67	C	C	No
of Stanford Ave	SB	2	1,410	0	1,410	0.00%	0.88	0.88	D	D	No
Powell Street west	EB	2	156	43	199	27.56%	0.10	0.12	A	A	No
of San Pablo Ave	WB	2	519	89	608	17.15%	0.32	0.38	A	S	No
Powell Street east of	EB	2	447	9	456	2.01%	0.28	0.29	A	A	No
San Pablo Ave	WB	2	842	5	847	0.59%	0.53	0.53	B	B	No

Source: Fehr & Peers, 2007.

Table V.C-17: MTS Roadway System Analysis Summary - 2010 PM

Study Segment	Direction	# Lanes	No Project Volume	Project Volume	With Project Volume	Percent Increase	No Project V/C	With Project V/C	No Project LOS	With Project LOS	Impact?
Freeway Segments											
I-80 North of	EB	4	9,157	44	9,201	0.48%	1.14	1.15	F	F	No
Ashby Ave	WB	4	8,337	32	8,369	0.38%	1.04	1.05	F	F	No
I-80 North of	EB	4	9,768	44	9,812	0.45%	1.22	1.23	F	F	No
Powell Street	WB	5	9,931	51	9,982	0.51%	0.99	1.00	E	E	No
I-80 West of I-580	EB	5	11,440	17	11,457	0.15%	1.14	1.15	F	F	No
	WB	5	13,297	24	13,321	0.18%	1.33	1.33	F	F	No
I -580 East of	EB	5	9,632	50	9,682	0.52%	0.96	0.97	E	E	No
San Pablo Ave	WB	5	7,943	70	8,013	0.88%	0.79	0.80	D	D	No
I – 880 south of	NB	3	4,397	26	4,423	0.59%	0.73	0.74	C	C	No
I-80	SB	4	4,999	18	5,017	0.36%	0.62	0.63	C	C	No
I -980 south of	NB	5	2,762	0	2,762	0.00%	0.28	0.28	A	A	No
SR 24	SB	4	3,429	0	3,429	0.00%	0.43	0.43	B	B	No
Ashby Ave west of	EB	2	1,425	4	1,429	0.28%	0.36	0.36	B	B	No
San Pablo Ave	WB	2	1,071	3	1,074	0.28%	0.27	0.27	A	A	No
Ashby Ave east of	EB	1	1,092	5	1,097	0.46%	0.55	0.55	B	B	No
San Pablo Ave	WB	1	954	8	962	0.84%	0.48	0.48	B	B	No
SR 24 west of	EB	4	8,554	27	8,581	0.32%	1.07	1.07	F	F	No
Caldecott Tunnel	WB	4	4,268	37	4,305	0.87%	0.53	0.54	B	B	No
Arterials											
San Pablo Ave north	NB	2	1,941	10	1,951	0.52%	1.21	1.22	F	F	No
Ashby Ave	SB	2	2,210	14	2,224	0.63%	1.38	1.39	F	F	No
San Pablo Ave south	NB	2	1,445	15	1,460	1.04%	0.91	0.91	E	E	No
Ashby Ave	SB	2	1,497	22	1,519	1.47%	0.94	0.95	E	E	No
San Pablo Ave south	NB	2	1,536	0	1,536	0.00%	0.96	0.96	E	E	No
of Stanford Ave	SB	2	1,669	0	1,669	0.00%	1.04	1.04	F	F	No
Powell Street west of	EB	2	211	83	294	39.34%	0.13	0.18	A	A	No
San Pablo Ave	WB	2	659	106	765	16.08%	0.41	0.48	B	B	No
Powell Street east of	EB	2	456	13	469	2.85%	0.29	0.29	A	A	No
San Pablo Ave	WB	2	973	10	983	1.03%	0.61	0.61	C	C	No

Source: Fehr & Peers, 2007.

Table V.C-18: MTS Roadway System Analysis Summary - 2025 AM

Study Segment	Direction	# Lanes	No Project Volume	Project Volume	With Project Volume	Percent Increase	No Project V/C	With Project V/C	No Project LOS	With Project LOS	Impact?
Freeway Segments											
I-80 North of	EB	4	8,546	19	8,565	0.22%	1.07	1.07	F	F	No
Ashby Ave	WB	4	7,644	34	7,678	0.44%	0.96	0.96	E	E	No
I-80 North of	EB	4	9,174	7	9,181	0.08%	1.15	1.15	F	F	No
Powell Street	WB	5	8,081	37	8,118	0.46%	0.81	0.81	D	D	No
I-80 West of I-580	EB	5	14,810	18	14,828	0.12%	1.48	1.48	F	F	No
	WB	5	4,636	11	4,647	0.24%	0.46	0.46	B	B	No
I -580 East of	EB	5	5,425	54	5,479	1.00%	0.54	0.55	B	B	No
San Pablo Ave	WB	5	9,932	30	9,962	0.30%	0.99	1.00	E	E	No
I – 880 south of	NB	3	4,211	11	4,222	0.26%	0.70	0.70	C	C	No
I-80	SB	4	2,413	20	2,433	0.83%	0.30	0.30	A	A	No
I -980 south of	NB	5	2,865	0	2,865	0.00%	0.29	0.29	A	A	No
SR 24	SB	4	6,950	0	6,950	0.00%	0.87	0.87	D	D	No
Ashby Ave west of	EB	2	566	1	567	0.18%	0.14	0.14	A	A	No
San Pablo Ave	WB	2	1,320	2	1,322	0.15%	0.33	0.33	A	A	No
Ashby Ave east of	EB	1	682	7	689	1.03%	0.34	0.34	A	A	No
San Pablo Ave	WB	1	1,394	4	1,398	0.29%	0.70	0.70	C	C	No
SR 24 west of Cal-	EB	4	2,157	29	2,186	1.34%	0.27	0.27	A	A	No
decott Tunnel	WB	4	10,022	16	10,038	0.16%	1.25	1.25	F	F	No
Arterials											
San Pablo Ave north	NB	2	1,482	11	1,493	0.74%	0.93	0.93	E	E	No
Ashby Ave	SB	2	1,762	6	1,768	0.34%	1.10	1.10	F	F	No
San Pablo Ave south	NB	2	1,177	18	1,195	1.53%	0.74	0.74	C	C	No
Ashby Ave	SB	2	1,472	10	1,482	0.68%	0.92	0.92	E	E	No
San Pablo Ave south	NB	2	1,316	0	1,316	0.00%	0.82	0.82	D	D	No
of Stanford Ave	SB	2	1,606	0	1,606	0.00%	1.01	1.01	F	F	No
Powell Street west of	EB	2	259	31	290	11.97%	0.16	0.18	A	A	No
San Pablo Ave	WB	2	717	96	813	13.39%	0.45	0.51	B	B	No
Powell Street east of	EB	2	305	9	314	2.95%	0.19	0.20	A	A	No
San Pablo Ave	WB	2	896	5	901	0.56%	0.56	0.56	B	B	No

Source: Fehr & Peers, 2007.

Table V.C-19: MTS Roadway System Analysis Summary - 2025 PM

Study Segment	Direction	# Lanes	No Project Volume	Project Volume	With Project Volume	Percent Increase	No Project V/C	With Project V/C	No Project LOS	With Project LOS	Impact?
Freeway Segments											
I-80 North of Ashby Ave	EB	4	8,898	44	8,942	0.49%	1.11	1.12	F	F	No
	WB	4	9,250	32	9,282	0.35%	1.16	1.16	F	F	No
I-80 North of Powell Street	EB	4	9,834	18	9,852	0.18%	1.23	1.23	F	F	No
	WB	5	10,584	60	10,644	0.57%	1.06	1.06	F	F	No
I-80 West of I-580	EB	5	12,479	17	12,496	0.14%	1.25	1.25	F	F	No
	WB	5	14,551	24	14,575	0.16%	1.46	1.46	F	F	No
I -580 East of San Pablo Ave	EB	5	10,052	50	10,102	0.50%	1.01	1.01	F	F	No
	WB	5	8,320	70	8,390	0.84%	0.83	0.84	D	D	No
I – 880 south of I-80	NB	3	4,277	26	4,303	0.61%	0.71	0.72	C	C	No
	SB	4	5,147	18	5,165	0.35%	0.64	0.65	C	C	No
I -980 south of SR 24	NB	5	6,800	0	6,800	0.00%	0.68	0.68	C	C	No
	SB	4	3,617	0	3,617	0.00%	0.45	0.45	B	B	No
Ashby Ave west of San Pablo Ave	EB	2	1,478	4	1,482	0.27%	0.37	0.37	B	B	No
	WB	2	690	3	693	0.43%	0.17	0.17	A	A	No
Ashby Ave east of San Pablo Ave	EB	1	1,174	5	1,179	0.43%	0.59	0.59	C	C	No
	WB	1	993	8	1,001	0.81%	0.50	0.50	B	B	No
SR 24 west of Caldecott Tunnel	EB	4	8,829	27	8,856	0.31%	1.10	1.11	F	F	No
	WB	4	4,568	37	4,605	0.81%	0.57	0.58	B	B	No
Arterials											
San Pablo Ave north Ashby Ave	NB	2	2,043	10	2,053	0.49%	1.28	1.28	F	F	No
	SB	2	2,251	14	2,265	0.62%	1.41	1.42	F	F	No
San Pablo Ave south Ashby Ave	NB	2	1,658	15	1,673	0.90%	1.04	1.05	F	F	No
	SB	2	1,891	22	1,913	1.16%	1.18	1.20	F	F	No
San Pablo Ave south of Stanford Ave	NB	2	1,697	0	1,697	0.00%	1.06	1.06	F	F	No
	SB	2	1,973	0	1,973	0.00%	1.23	1.23	F	F	No
Powell Street west of San Pablo Ave	EB	2	383	92	475	24.02%	0.24	0.30	A	A	No
	WB	2	1,031	79	1,110	7.66%	0.64	0.69	C	C	No
Powell Street east of San Pablo Ave	EB	2	437	13	450	2.97%	0.27	0.28	A	A	No
	WB	2	1,166	10	1,176	0.86%	0.73	0.74	C	C	No

Source: Fehr & Peers, 2007.

Table V.C-20: Peak-Hour Transit Trip Generation

Project Component	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Residential Condos/Townhomes	2	12	14	11	6	17	4	4	8
Shopping Center/Restaurant	2	1	3	7	7	14	11	9	20
Total	4	13	17	18	13	31	15	13	28

Source: Fehr & Peers, 2007.

AC Transit routes 57 and Z, and the Emery Go Round Powell route directly serve the project site. AC Transit route Z provides service to Emeryville from San Francisco during the AM peak hour and reverse service during the PM peak hour. Given this, it was assumed that no new transit riders would be added to Route Z from the proposed project. All new riders were equally distributed between AC Transit Route 57 and the Emery Go Round Powell Route. These routes each provide five buses per

hour to the project site during the AM and PM peak periods, with AC Transit Route 57 providing four buses during the Saturday peak hour, and the Emery Go Round providing two buses during the Saturday peak hour. This equates to approximately two new riders per bus during the AM peak hour, three new riders per bus during the PM peak hour, and five new riders per bus during the Saturday peak hour.

Based on information from AC Transit, Route 57 has additional capacity during the peak 30-minute period within the AM, PM and Saturday peak hours, and the additional transit riders would not result in load factors exceeding 125 percent. Emery Go Round buses operate at or over capacity for portions of the route during peak periods and could increase transit ridership on the Emery Go Round system. The project applicant should continue contributions to the Emery Go Round system, as currently performed under the Property Based Business Improvement District (PBID). Contributions are based on building square footage. Therefore, as development occurs, contributions would increase.

Of the total transit trips, it is assumed that 50 percent of new transit trips would use the BART system at some point during the journey, as both AC Transit Route 57 and the Emery Go Round serve the MacArthur BART station. This ridership increase equates to nine new AM, 15 new PM, and 14 new Saturday peak hour riders on the BART system. With over 30 BART trains that pass through the MacArthur station during the AM and PM peak hours and 12 BART trains during the Saturday peak hour, less than one additional rider would be added per train during the weekday peak hour and approximately one additional rider would be added per train during the Saturday peak hour. Each BART train has between three and ten cars and each BART car has a capacity of about 70 passengers. Therefore, the impact of the project on BART ridership is less-than-significant.

AC Transit Design Guidelines. In 2004, AC Transit published *Designing With Transit – Making Transit Integral to East Bay Communities*. The document is intended to help implement AC Transit Policy 520 (Encouraging the Promotion of Public Transit in Land Use Developments within AC Transit's Service Area), passed by the AC Transit Board of Directors in 1994 and amended in 1997. Policies and practices in the document are sub-divided into transit-based communities, safe routes to transit and transit friendly streets. The consistency of the project with these policies and practices is discussed below.

Transit-based communities have high levels of transit, a mixture of uses and a network of safe routes. The proposed project is served by Emery Go Round and AC Transit routes. These bus routes provide access to major employment and commercial centers, residential areas, and rail transit at the BART and Amtrak stations. The Amtrak station is located on Horton Street at 59th Street with a pedestrian overcrossing, providing direct access to the Amtrak station from the site. The project would replace parking facilities and light industrial uses with mixed-use residential and retail uses, and would increase transit ridership opportunities. Given the nearby transit facilities and the proposed uses on the site, the project is consistent with the policies for transit-based communities.

Safe routes to transit are characterized by an integrated network of sidewalks and paths to maximize circulation opportunities. The project would maintain the existing pedestrian overcrossing connecting the Amtrak station to the Public Market and pedestrian facilities on Christie Avenue, facilitating transit access to and from the project site for residents, employees and visitors. Therefore, the project is consistent with policies for safe routes to transit.

Transit friendly streets consist of streets that are of appropriate width with adequate turn radii to support buses, where signal timing is supportive of bus operations and traffic calming measures do not interfere with bus operations. Other elements include the placement and design of transit stops, which are preferred at curb-site, not pullouts, stops that are long enough for buses that use them, bus shelters with appropriate amenities, and sidewalks that are wide enough to support a bus stop. Generally, streets that would be considered transit-friendly surround the project site.

However, the current routing of Route 57 does not contribute to a transit friendly environment around the project site because its layover occurs prior to reaching major transit destinations. In the study area, Route 57 operates in a clockwise direction on Shellmound Way, Christie Avenue, 64th Street, and Shellmound Street. Currently, buses layover on Christie Avenue, south of 64th Street. A bus layover area is a designed space for bus driver breaks, typically with bathroom accommodations for drivers.

The current Route 57 layover occurs prior to reaching major transit destinations, the Amtrak station and main Marketplace entrance, requiring those transit patrons to wait for the duration of the layover prior to reaching their desired destination. This impact is not considered significant pursuant to CEQA; however the following improvements are encouraged to help improve transit in the area:

Transit Recommendations:

- Route 57 should be reoriented through the study area in conjunction with providing a formal layover with bathroom facilities for AC Transit drivers. The proposed routing is shown on Figure V.C-17.
- A bus layover should be provided on the south side of 64th Street, with bathroom access provided to AC Transit drivers at the proposed retail portion of the 64th & Shellmound building.
- A bus stop with a pullout on the east side of Shellmound Street, north of the pedestrian crossing, should be provided for northbound buses.
- A southbound bus stop should be provided on the west side of Shellmound Street, south of the Shellmound Street/ Marketplace driveway.

(2) Pedestrian Impacts and Mitigation Measures. This section considers off-site pedestrian circulation and access from 64th Street, Shellmound Street and Christie Avenue as well as on-site pedestrian facilities. Sidewalks, crosswalks and walking paths facilitate pedestrian circulation. Recommendations to improve pedestrian both to and around the site are summarized on Figure V.C-18.

Off-Site Pedestrian Facilities. As part of the proposed project, one driveway on Shellmound Street would be eliminated and one driveway would be relocated, reducing the number of driveways on the Shellmound Street project frontage to three. This would minimize the number of conflict points between vehicles and pedestrians. All other existing pedestrian facilities, sidewalks and crosswalks on the west side of Shellmound Street would be maintained.

Pedestrian access to the Amtrak pedestrian overcrossing would be redirected through the mixed-use Shellmound building. The design of the Shellmound Street building would orient pedestrians from the pedestrian overcrossing to the Shellmound Street mid-block pedestrian crossing, as stairs and an elevator to the pedestrian crossing would be provided at the base of the mid-block crossing. Construction of the Shellmound Building would also increase the high pedestrian traffic across Shellmound Street where protected pedestrian facilities are not provided.

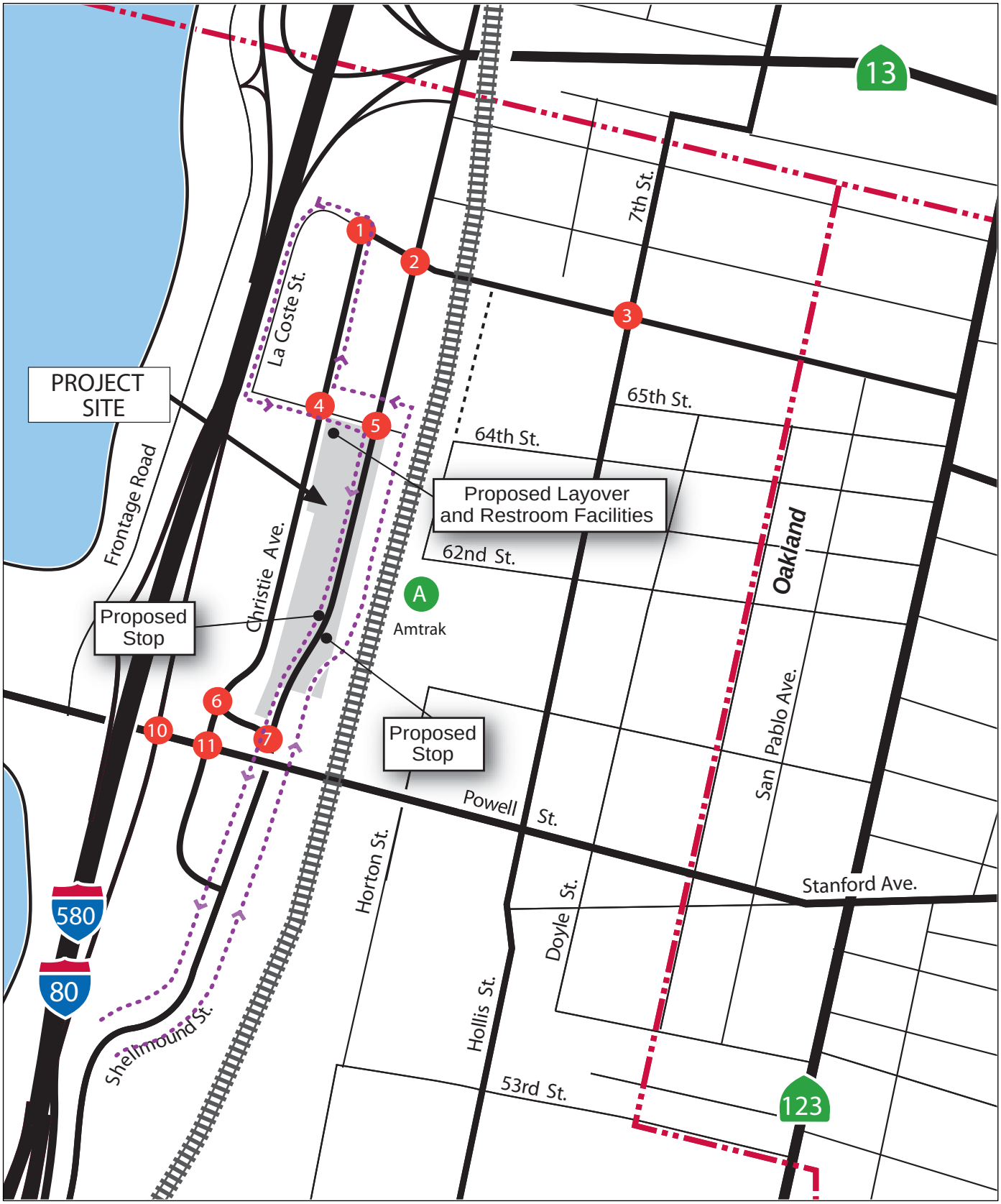

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FIGURE V.C-17

LEGEND:

1 = Study Intersection

A = Amtrak Station

= Proposed Route

NOT TO SCALE

Marketplace Redevelopment Project EIR

AC Transit Route 57 Recommendations

SOURCE: FEHR & PEERS, 2007.

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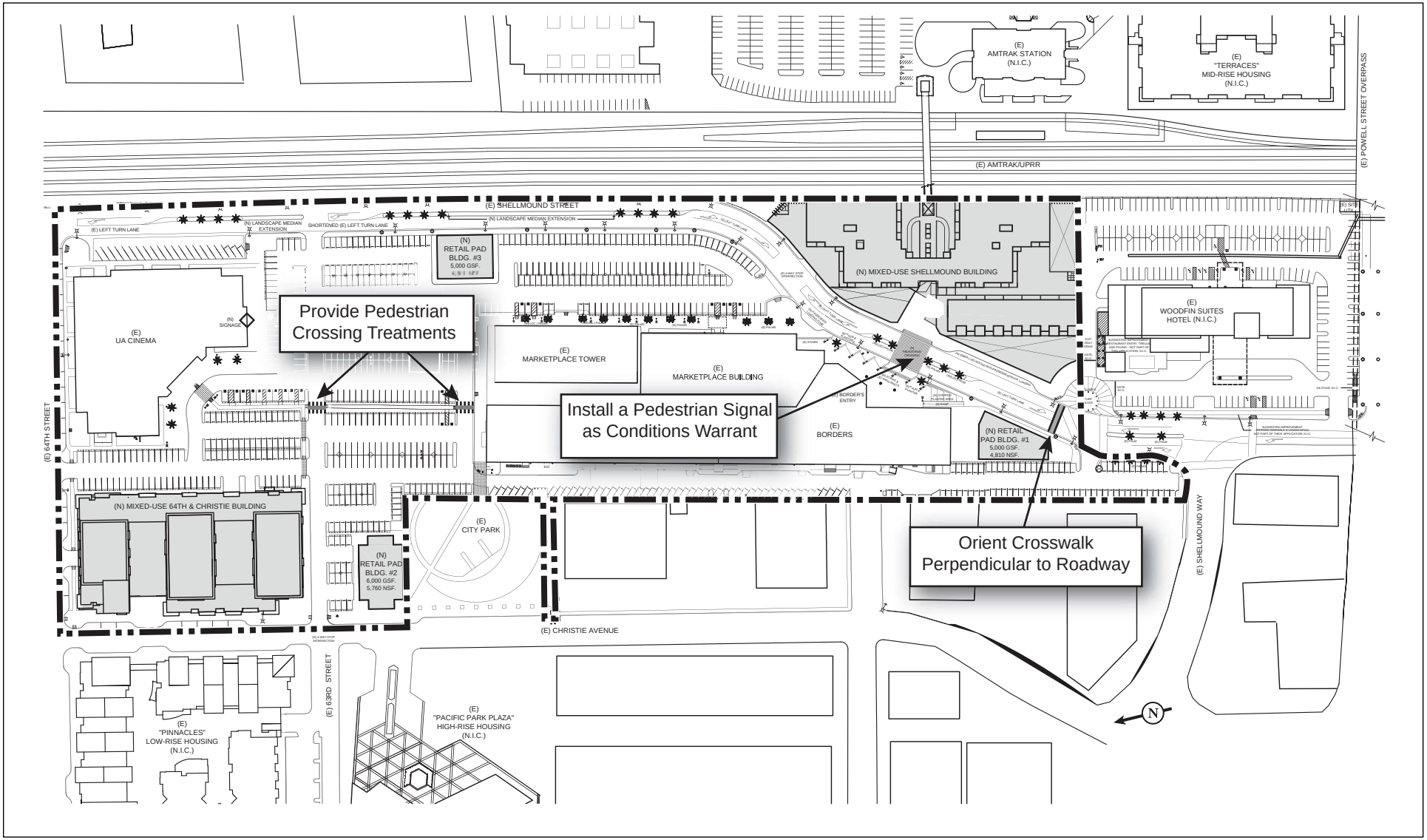

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FIGURE V.C-18

LEGEND

PROJECT SITE

Marketplace Redevelopment Project EIR

Recommended Pedestrian Paths

SOURCE: FEHR & PEERS, 2007.

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Additionally a diagonal crosswalk is proposed across Shellmound Street at the Woodfin Hotel/Marketplace driveway intersection. The diagonal orientation of the crosswalk would increase pedestrian exposure to vehicles.

The project's impacts to off-site pedestrian facilities would not be considered significant under CEQA; however the following improvements are encouraged to improve pedestrian circulation and safety:

Pedestrian Recommendations:

- Concentrate pedestrian crossing movements through design treatments to the mid-block crossing on Shellmound Street. Provide a pedestrian signal at the mid-block Shellmound Street crosswalk to consolidate pedestrian movements and maintain vehicle flows through the corridor. Construct sidewalks a minimum of 10 feet wide and provide appropriate landscaping along Shellmound Street to maintain pedestrian visibility and sight distance.
- Reorient the crosswalk across Shellmound Street at the Woodfin Hotel/Marketplace driveway intersection perpendicular to the travel way to reduce pedestrian exposure.

In conjunction with the construction of the 64th & Christie building, curb bulb-outs are proposed on 64th Street and Christie Street. The purpose of these bulb-outs is threefold: (1) reduce the pedestrian crossing distance, thus reducing pedestrian exposure to traffic; (2) increase pedestrian visibility; and (3) define and contain the parallel parking on Christie Avenue and 64th Street.

Two driveways, one on 64th Street and one on Christie Street, would provide direct access to the parking areas (surface and structured) for the 64th & Christie building. No new curb cuts are proposed on either 64th Street or Christie Street.

On-Site Pedestrian Facilities. Current on-site pedestrian amenities include a landscaped path connecting the Marketplace Tower building to the UA Theater building, and sidewalks around the northern, eastern and southern building frontage. A breezeway is also provided on the main site between the Marketplace Tower and Marketplace Building, connecting to the sidewalk on the eastern frontage. Additional pedestrian improvements include a landscaped path through the parking area connecting the sidewalk along the east side of the Marketplace Tower to the UA Theater. The existing sidewalk on the northern edge of the Marketplace Tower, which is currently not ADA accessible, would be extended, providing a continuous pedestrian connection to the Christie Park. These improvements would create safe and continuous on-site pedestrian paths. Several locations for improved pedestrian connectivity through the site are identified on Figure V.C-18 (see also Mitigation Measures TRAF-15 and TRAF-16).

(3) Bicycle Impacts and Mitigation Measures. Class II bicycle facilities (bike lanes) are provided on Shellmound Street in the study area. These lanes would not be removed or altered as part of the project. Additionally, the removal of a curb cut on Shellmound Street would reduce the number of potential vehicle/bicyclist conflict locations. Other regional bicycle facilities, such as the bicycle boulevard on Horton Street, can be accessed from the pedestrian overcrossing to the Amtrak station. Access to this pedestrian bridge would be provided through the new Shellmound building.

The proposed project should implement the following recommended actions to help maximize the project's accessibility to bicyclists:

Bicycle Access Recommendations:

- The Shellmound Building elevators proposed to serve the Amtrak pedestrian bridge should be large enough to accommodate bicyclists.
- As the project is developed, the provision of additional bicycle parking spaces is recommended as demand warrants. Three distinct types of bicycle parking should be provided: 1) secured bicycle lockers on the upper levels of the garage reserved for resident use only; 2) secured bicycle lockers on the lower levels of the garage for employee parking; and 3) bicycle parking on the ground floor reserved for retail patrons. The site operator/owner should provide the City with an annual monitoring report that includes a survey of existing conditions and details of any improvements added or proposed since the prior monitoring report.

f. Vehicular Site Access, On-Site Circulation, and Parking Analysis. This section documents the analysis of site access, on-site circulation, and parking demand/supply.

Site Access. Vehicular access to the site would be provided at six locations. A driveway on Christie Avenue that currently serves the site would be realigned opposite a driveway serving the Pacific Park Plaza, and Pinnacles development, which is under construction. This driveway would primarily provide access to the 64th & Christie building, the UA Theater, and Retail Pad 2 adjacent to Christie Park. Two driveways on 64th Street would serve the 64th & Christie building and UA Theater. The first driveway would serve the proposed parking garage of the 64th & Christie building, while the second driveway would serve the UA Theater surface parking area as well as provide access to an on-site garage entry to the 64th & Christie building.

On Shellmound Street, four driveways currently serve the site. The driveway located between the UA Theater entrance and the main Marketplace entrance would be eliminated as part of this project and the northernmost driveway would be shifted south approximately 50 feet, with a corresponding decrease in left-turn pocket length, to align with the driveway on Christie Avenue. The Marketplace/ Shellmound building driveway would remain the same, although it would serve the proposed parking structure on the east side of Shellmound Street. A driveway which provides access to the Woodfin Hotel and parking supplies on the west side of Shellmound Street is located south of the pedestrian crossing on Shellmound Street.

The TIA evaluated the peak hour operation of the driveways serving the site in both the 2010 and 2030 conditions, assuming full buildout of the project, as presented in Table V.C-21. It should be noted that future vehicle queues for the northbound pocket at the UA Theater entrance on Shellmound Street would be accommodated within the reduced pocket length.

With project buildout in 2010 and 2030, deficient operations are projected at two intersections: Shellmound Street/Shellmound Site Garage Driveway/Marketplace Driveway and Shellmound Street/ Woodfin Hotel/Marketplace Driveway. The Shellmound Street/Shellmound Site Garage Driveway/ Marketplace Driveway is projected to operate at LOS F during the PM peak hour with all-way stop-control. The side-street at the Shellmound Street/Woodfin Hotel/Marketplace Driveway is projected

Table V.C-21: Future Peak Hour Driveway Operating Conditions

Intersection	Control[1]	Peak Hour	Future 2010 with Project		Future 2030 with Project	
			Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS
64th Street/64th & Christie Garage Driveway	SSSC	AM	2 (9)	A (A)	2 (9)	A (A)
		PM	1 (9)	A (A)	1 (9)	A (A)
		SAT	2 (9)	A (A)	2 (9)	A (A)
64th Street/Existing Driveway	SSSC	AM	1 (9)	A (A)	1 (9)	A (A)
		PM	2 (9)	A (A)	2 (9)	A (A)
		SAT	1 (9)	A (A)	1 (9)	A (A)
Shellmound Street/UA Theater & Marketplace Driveway	SSSC	AM	1 (11)	A (B)	1 (11)	A (B)
		PM	2 (19)	A (C)	2 (22)	A (C)
		SAT	3 (20)	A (C)	3 (34)	A (D)
Shellmound Street/Shellmound Site Garage Driveway/Marketplace Driveway	AWSC	AM	9	A	9	A
		PM	**51**	**F**	**56**	**F**
		SAT	**> 100**	**F**	**> 100**	**F**
Shellmound Street/Woodfin Hotel/ Marketplace Driveway	SSSC	AM	1 (14)	A (B)	2 (15)	A (B)
		PM	**45 (> 100)**	**E (F)**	**55 (> 100)**	**F (F)**
		SAT	**52 (> 100)**	**F (F)**	**>100 (>100)**	**F (F)**
Christie Avenue/Existing Driveway	SSSC	AM	2 (11)	A (B)	2 (12)	A (B)
		PM	2 (14)	A (B)	2 (14)	A (B)
		SAT	3 (12)	A (B)	3 (13)	A (B)

Notes: **Results in bold indicate deficient levels of service.**
1. SSSC = side-street stop controlled intersection; AWSC = all-way stop controlled intersection;
2. Average intersection control delay reported for signalized and all-way stop controlled intersections. Average intersection delay and worst case approach delay reported for side-street stop controlled intersections.
Source: Fehr & Peers, 2007.

to operate at a deficient LOS F during the PM peak hour in both 2010 and 2030, although the intersection would operate at an overall acceptable service level.

The analysis of Shellmound Street/Shellmound Site Garage Driveway/Marketplace Driveway and Shellmound Street/Woodfin Hotel/Marketplace Driveway was conducted using the traffic analysis tool SimTraffic, which takes into consideration interaction between vehicles and pedestrian movements across Shellmound Street.

Vehicle queue spillback was also evaluated, as presented in Table V.C-22 for 2010 conditions and Table V.C-23 for 2030 conditions both without and with mitigation, for the Shellmound Street/Shellmound Site Garage Driveway/ Marketplace Driveway, Shellmound Street/ Pedestrian Crossing and the Shellmound Street/Woodfin Hotel/ Marketplace Driveway intersections. Results of the analysis show that vehicle queue spillback from the Shellmound Street/Shellmound Site Garage Driveway/Marketplace Driveway as well as at the pedestrian crosswalk contribute to unacceptable conditions at the Woodfin Hotel Driveway. The increases in vehicle traffic combined with increased pedestrian activity across Shellmound Street would contribute to unacceptable operations on the Shellmound Street corridor along the project's frontage.

Table V.C-22: Future 2010 Peak Hour Driveway Vehicle Queues

Intersection	Movement	Storage Length (in feet)	Maximum Queue Length (in feet) [1]			
			PM		Saturday	
			2010	2010 with Mitigations	2010	2010 with Mitigations
Shellmound Street/ Shellmound Site Garage Driveway/Marketplace Driveway	Northbound left	100	**150**	75	**150**	100
	Northbound through	180	**225**	180	**225**	**200**
	Southbound left	100	**150**	50	150	100
	Southbound through	780	475	125	825	175
	Westbound	215	100	150	275	250
	Eastbound	100	100	100	**150**	**125**
Shellmound Street/ Pedestrian Crossing	Northbound	150	**200**	**200**	**175**	**175**
	Southbound	185	100	175	75	**200**
Shellmound Street/Woodfin Hotel/ Marketplace Driveway	Northbound left	50	**75**	50	**75**	**75**
	Northbound through	95	**125**	**125**	**125**	95
	Southbound left	50	25	25	25	50
	Southbound through	150	150	**175**	125	**200**
	Westbound	155	**200**	155	155	125
	Eastbound	85	50	50	85	25

Notes: 1. Maximum queue in feet as calculated by SimTraffic 6.0.
Source: Fehr & Peers, 2007.

Table V.C-23: Future 2030 Peak Hour Driveway Vehicle Queues

Intersection	Movement	Storage Length (in feet)	Maximum Queue Length (in feet) [1]			
			PM		Saturday	
			2030	2030 with Mitigations	2030	2030 with Mitigations
Shellmound Street/ Shellmound Site Garage Driveway/Marketplace Driveway	Northbound left	100	**150**	100	**150**	**125**
	Northbound through	180	**225**	180	**225**	**225**
	Southbound left	100	**150**	100	**150**	**125**
	Southbound through	780	550	175	**825**	775
	Westbound	215	100	175	**275**	**275**
	Eastbound	100	100	100	**125**	**125**
Shellmound Street/ Pedestrian Crossing	Northbound	150	**200**	**175**	**175**	**200**
	Southbound	185	75	185	75	**225**
Shellmound Street/Woodfin Hotel/ Marketplace Driveway	Northbound left	50	**75**	50	**75**	**75**
	Northbound through	95	**125**	95	**125**	**125**
	Southbound left	50	25	25	25	50
	Southbound through	150	150	**175**	150	**200**
	Westbound	155	**200**	155	**175**	**200**
	Eastbound	85	75	50	85	**125**

Notes: 1. Maximum queue in feet as calculated by SimTraffic 6.0.
Source: Fehr & Peers, 2007.

<u>Impact TRAF-14</u>: The addition of project traffic would result in deficient LOS F operations at the Shellmound Street/Marketplace Driveway/Shellmound Garage driveway intersection as well as at the Woodfin Hotel driveway with buildout of the project parcels on the west side of Shellmound Street. (S)

<u>Mitigation Measure TRAF-14</u>: In conjunction with construction on the Shellmound site, a traffic signal shall be installed at the Shellmound Street/Marketplace Driveway/Shellmound Garage driveway intersection. The driveways shall be modified to provide sufficient vehicle stor-

age to minimize vehicle queue spill back from impeding on-site circulation. Implementation of this measure by the applicant would result in acceptable service levels during the peak hours. However, the 95th percentile queue for the northbound movements would periodically spill-back through the pedestrian crossing and from the pedestrian crossing through the Woodfin Driveway, and Shellmound Way. Minimizing the effect of queue spillback could be achieved through monitoring of the signal timings. It should be noted that the Shellmound Street corridor from Shellmound Way through the Marketplace Driveway would operate better in the mitigated scenario than the unmitigated scenario even though vehicle queues would periodically spill back through the corridor, resulting in a significant and unavoidable queuing impact on the Shellmound Street corridor. (PSU)

Impact TRAF-15: The addition of project traffic would worsen side street operations at the Shellmound Street/Woodfin Hotel/Marketplace Driveway intersection to LOS F with buildout of the project. (S)

Mitigation Measure TRAF-15: The driveway serving the Woodfin Hotel cannot accommodate significant additional traffic flows. The parking area serving the new land uses on the Shellmound site shall be designed to orient the majority of outbound traffic, about 80 percent, away from the shared driveway. Alternatively, this driveway could be restricted to right-in/right out operation. The Final Development Plan submittals shall be reviewed by the City Engineer prior to approval to ensure this is accomplished. (LTS)

Impact TRAF-16: Vehicle queues at the pedestrian crossing are expected to increase as pedestrian activity increases around the project site. This queuing would contribute to deficient operations at the Shellmound Street/Woodfin Hotel/Marketplace Driveway and the Shellmound Street/Marketplace Driveway/Shellmound Garage driveway. (S)

Mitigation Measure TRAF-16: Install a pedestrian signal at the pedestrian crossing on Shellmound Street. Through design treatments, such as sidewalk railings and landscaping, consolidate pedestrian activity from the Shellmound Street/Woodfin Hotel/Marketplace Driveway and the Shellmound Street/Marketplace Driveway/Shellmound Garage driveway to the pedestrian crossing. The pedestrian signal shall be interconnected and coordinated with the signal at the Shellmound Street/Shellmound Way intersection and the Shellmound Street/ Marketplace Driveway/ Shellmound Garage intersection. Each of these improvements to be implemented by the applicant shall be detailed in the Final Development Plans and approved prior to issuance of building permit.

It should be noted that the Shellmound Street corridor from Shellmound Way through the Marketplace Driveway would operate better in the mitigated scenario than the unmitigated scenario even though vehicle queues would periodically spill back through the corridor, resulting in a significant and unavoidable queuing impact on the Shellmound Street corridor. However, the installation of a pedestrian signal would improve pedestrian safety across Shellmound Street as traffic volumes increase through the corridor, reducing the pedestrian impact to a less-than-significant level. (PSU)

On-Site Circulation. On-site circulation for the surface parking area and parking structures were reviewed. Recommendations to improve on-site circulation are summarized below and shown in Figure

V.C-19. No significant CEQA impacts related to on-site circulation would result; therefore no mitigation measures are required. However the recommendations listed below would help improve the project.

Surface Parking Lot

Drive Aisles: Two east-west drive aisles would be provided. The northernmost east-west drive aisle would connect Shellmound Street with Christie Avenue. The second east-west drive aisle would be located approximately 200 feet south of the northernmost east-west drive aisle. Both aisles would be at least 22 feet wide, the minimum drive aisle width allowed by the City of Emeryville. Parking would not be provided on either east-west drive aisle.

Six north-south aisles would be provided, all of which would provide access to parking. The aisles would be at least 22 feet wide, the minimum drive aisle width allowed by the City of Emeryville. The intersections of two north-south aisles (as illustrated on Figure V.C-19) across the northernmost east-west driveway would be off-set, creating a potentially confusing intersection.

Dead End Drive Aisles: Dead end drive aisles are parking aisles obstructed at one end, thereby increasing navigational difficultly through the drive aisles. Two dead end drive aisles adjacent to the Retail Pad 2 (adjacent to Christie Park) are proposed, serving approximately 20 parking spaces. As the depth of these parking areas is approximately 35 feet, drivers wanting to park in this area would be able to see if spaces were available. However, drivers parked in the last stall of each row could have difficultly exiting the space, especially if an oversized vehicle is parked in the opposite stall.

Surface Parking Lot Recommendations

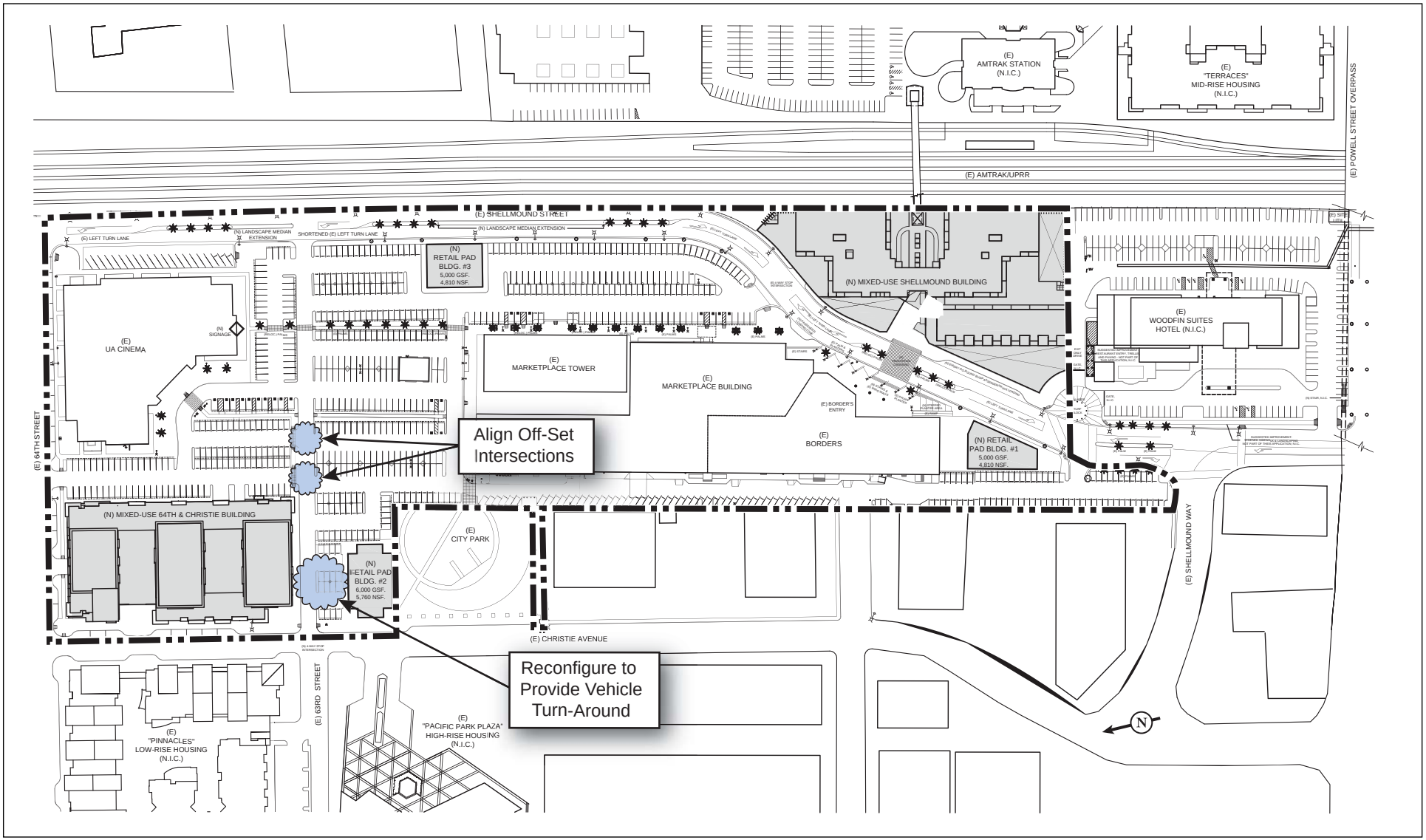
- Reorient the two north-south drive aisles adjacent to the 64th & Christie site and UA Theater to eliminate the off-set intersections across the northernmost east-west driveway.
- Reconfigure this parking area to provide sufficient space for vehicles to back out of the last spaces in each row. This improvement shall be detailed on the Final Development Plans, and approved prior to issuance of occupancy permit.

Delivery Vehicles

Insufficient detail is provided on the site plan to evaluate delivery vehicle access. However, based on City Code requirements (9-4.55.8), no formal loading area would be required for the three proposed retail pads, or the 64th & Shellmound retail. Two loading spaces would potentially be required on the Shellmound site. The following delivery access will be reviewed as part of the Final Development plans process to ensure adequate delivery vehicle access is provided.

Parking Structure Design

This parking structure design review includes the 64th & Christie building and Shellmound Building parking structures. It considers consistency with accepted design standards for parking structures as well as a qualitative review of the circulation plan to identify potential conflict locations. Design standards for parking are set by the *City of Emeryville Municipal Code* in section 9-4.55.7. Generally, parking stall and drive aisle dimensions in the proposed garages meet City standards. However, stalls in the resident only areas of the 64th & Christie building and Shellmound buildings garages are designated as compact stalls. The minimum dimensions of an assigned resident stall are 9 feet wide by



LSA

FIGURE V.C-19

LEGEND

PROJECT SITE

Marketplace Redevelopment Project EIR

Surface Parking Lot Recommendations

SOURCE: FEHR & PEERS, 2007.

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18 feet long. Although City Code does permit some compact stalls in residential developments, residents assigned to a compact space may not have a compact vehicle which would impede vehicle circulation through the lot.

In a parking structure, the maximum permitted ramp slope is 20 percent. Should a ramp slope exceed 10 percent, transitions between ramp and floor of at least 8 feet in length are recommended. Ramp slopes in the Shellmound garage do not exceed 5 percent. The ramp slope in the 64th & Christie building are not provided on the site plan. Insufficient detail is provided on the site plan to evaluate the ramping system of the 64th & Christie building garage, at this time. City staff will conduct a detailed review of the ramping system of the 64th & Christie building garage during the final Development Plan permit approval process to ensure compliance with City of Emeryville design guidelines and no significant impacts will occur.

Circulation and parking stall designations were also reviewed by Fehr and Peers Associates for both structures. An analysis for each structure is provided below.

64th & Christie Building Parking Structure: The 64th Street and Christie Avenue building parking structure would provide approximately 286 spaces to serve 180 residential units and 6,000 square feet of retail. Of the parking spaces, approximately 221 would be reserved for resident use (with 72 tandem spaces) as required by City Code, with the remaining spaces shared between retail and resident guest parking. Tandem parking spaces are shown on the parking garage layout. These spaces must be designated as reserved resident spaces, assigned to the same unit.

The spaces available for retail and guest parking are located on the lower garage level and are proposed to be separated from reserved residential spaces by a gate system. Operation of the gate system could be adversely affected by parked vehicles.

The parking aisles provided for retail/guest parking would terminate at the residential gates, creating a dead-end drive aisle with no vehicle turn around. This could create difficulties for vehicles navigating the garage.

Shellmound Building Parking Structure: The Shellmound Building Parking Structure would be a 3-level parking structure with a total of 540 spaces, including retail and residential parking. Full vehicular access to the parking structure is provided on the first level on Shellmound Street at the main Marketplace entry. A separate exit-only driveway, connecting to the Woodfin Suites parking lot, would be located on the south side of the structure. Upon entry into the Shellmound building garage, access to two aisles would be immediately provided within 20 feet of entering the garage, creating a confusing intersection where vehicle conflicts could occur.

With buildout of the proposed project, a traffic signal would be warranted at the Shellmound Street/Shellmound Site Garage Driveway/Marketplace Driveway intersection. With installation of a traffic signal, the design of the garage entrance would not provide sufficient vehicle storage to ensure efficient signal operations.

<u>Impact TRAF-17</u>: With signalization of the Shellmound Street/Shellmound Site Garage Driveway/Marketplace Driveway intersection, the design of the garage entry would not provide suffi-

cient vehicle storage. Additionally, as vehicles queue internally, access to parking areas could be blocked, creating the potential for vehicle queues onto Shellmound Street. (S)

> Mitigation Measure TRAF-17: Redesign the Shellmound building garage entrance area to minimize vehicle conflicts and provide sufficient vehicle storage at the access intersection. This improvement, to be implemented by the applicant, shall be detailed on the Final Development Plans and approved prior to issuance of building permit. (LTS)

The parking aisles provided for retail/guest parking would terminate at the residential gates, creating a dead-end drive aisle with no vehicle turn around. This could create difficulties for vehicles navigating the garage.

On the third parking level, several parking stalls would be provided adjacent to a wall, with no space provided for a vehicle to back-out of the stall.

Bicycle parking cages are located on all three levels of the parking structure. To access bicycle parking cages on the second and third levels, bicycles would circulate through the garage, increasing conflicts between the various modes of transportation, as noted in the bicycle circulation discussion. Bicycle spaces on the upper levels should be reserved for resident use and located adjacent to the elevator system.

The majority of the parking access issues discussed above would not result in significant CEQA impacts based on the significance criteria, and, therefore they are not identified as significant impacts and no mitigation measures are recommended. However, implementation of the following recommendations should be considered prior to submittal of a Final Development to improve the design of the parking structures:

Parking Structure Recommendations:

- Redesign assigned resident parking stalls to meet standard City dimensions
- Review the ramping system of the 64th & Christie building garage during permit approval to ensure compliance with City of Emeryville design guidelines
- Design the 64th & Christie building parking garage with roll up gates as an improperly parked or oversized vehicle could interfere with the function of a swinging or sliding gate
- Relocate the residential gates in the 64th & Christie building garage to minimize dead-end drive aisles or provide sufficient space for a vehicle turn around
- Redesign the entry on of the Shellmound building garage on Shellmound Street to eliminate conflicts at the entry intersection
- Relocate the residential gates in the Shellmound building garage to minimize dead-end drive aisles or provide sufficient space for a vehicle turn around
- Install a parking space counting system at the Shellmound building garage to minimize excessive circulation through the site
- On the third parking level of the Shellmound building garage, redesign the parking stalls adjacent to a wall to provide sufficient space for vehicles to back out of the last spaces in each row

Parking Supply and Demand. At project buildout, a total of 1,516 on-site parking spaces would be provided in surface and structured parking for the Marketplace site and Shellmound building. This represents an increase of 449 spaces over the current supply of 1,067 spaces. An additional 286 structured parking spaces would be constructed for the 64th & Christie building. The proposed on-site parking supply was compared to both City Code parking requirements and ITE parking demand rates. Additionally, parking demand/supply during the construction phase of the project was also reviewed.

City Code. City Code parking requirements were reviewed to ensure that the proposed project provides sufficient parking for the new project uses. The City of Emeryville requires:

- One reserved resident space for every studio and one-bedroom residential unit.
- One and one-half reserved resident space for every two- and three-bedroom residential unit.
- One-quarter guest space for every unit.
- One space for every 250 square feet of regional retail.
- One space for every 333 square feet of local retail.

A reduction in the building square-footage used to calculate parking of up to 20 percent is allowed to account for non-usable interior area and common areas. As shown in Table V.C-24, sufficient parking would be provided to satisfy code requirements for project uses.

Shared Parking Analysis. Current tenants of the Marketplace site, as well as the Woodfin Hotel, have an existing shared parking agreement. Shared parking on the site would continue to occur with additional development on the site ad the Shellmound site (the 64th & Christie site would provide all its required parking on-site and would not share parking with the Marketplace site). Therefore, a shared parking analysis was completed to determine if sufficient parking would be provided on the Marketplace site to accommodate existing demand, as well as future demand, at project buildout.

Existing weekday and weekend parking demand for the Marketplace site was documented by Watry Design, Inc in their letter dated October 5, 2005 (copy provided in Appendix B). That study showed maximum observed parking occupancies of 65 percent. Parking demand rates, as presented in ITE's *Parking Generation* (3rd Edition), the Urban Land Institute publication *Shared Parking* (2nd Edition), and City of Emeryville parking code requirements were used to estimate peak parking demands for the Marketplace portion of the project. Existing parking demand for the site, which includes hotel, retail, restaurant, office and theater uses, was compared to the theoretical demand for the site calculated from information contained in the aforementioned publications. Adjustments to the base demand rates were made so that the calculated peak demand coincided with actual observed peak demand, resulting in a weekday retail/restaurant demand rate of 2.95 and a weekend demand rate of 3.52 spaces per 1,000 square feet. The calculated rates for the existing retail/restaurant were used to estimate peak

Table V.C-24: City Code Automobile Parking Requirements

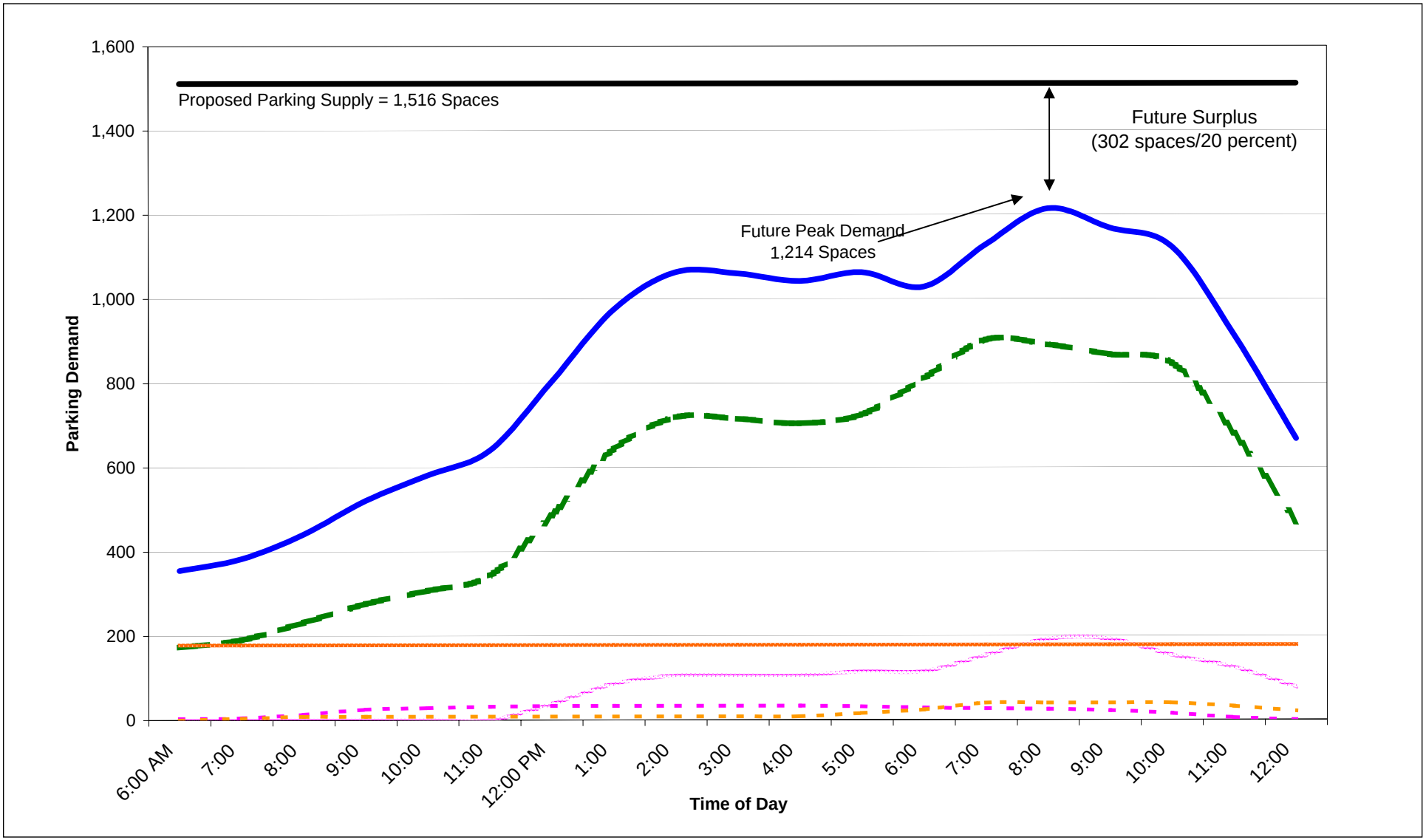
Land Use Type	Size	Parking Code Requirement[1]	Parking Spaces Required
Marketplace Site			
Shellmound Building			
Reserved Residential Spaces	39 – Studio Units	1.0 per unit	39
	87 - 1 Bedroom Units	1.0 per unit	87
	25 - 2 Bedroom units	1.5 per unit	38
	9 - 3 Bedroom Units	1.5 per unit	14
Guest Spaces	160 residential units	0.25 per unit	40
Regional Retail	55,000 square feet	1 per 250 square feet	176
		Subtotal	394
Outpads			
Size of all three outpads combined not to exceed	16,000 square feet	1 per 333 square feet	38
Existing Uses			
Marketplace Office Tower Public Market Buildings UA Theater Woodfin Hotel			1,067
		Total Required Marketplace Site	**1,499**
		Total Provided	**1,516**
		Surplus/(Deficit)	**17**
64th & Christie Building			
Residential	98 - 1 Bedroom Units	1.0 per unit	98
	82 - 2 Bedroom units	1.5 per unit	123
Guest Spaces	180 residential units	0.25 per unit	45
Retail	6,000 square feet	1 per 333 square feet	14
		Total Parking Required	**280**
		Total Provided	**286**
		Surplus/(Deficit)	**6**

Note: Parking requirements calculated from maximum building size reduced by 20 percent to account for non-usable areas.
Source: City of Emeryville Municipal Code Section 9-4.55.5(a).

parking demand for the retail portions of the project. Emeryville City Code requirements were used for the residential portion of the project, as parking spaces would generally be assigned to each unit.

Monthly and hourly adjustment factors were applied to the calculated maximum demand rates to develop hourly parking demand for each use on the Marketplace site (existing and proposed).

The results are summarized on Figure V.C-20 for weekends in June and Figure V.C-21 for weekdays in June. June was selected as the analysis month as existing parking demand data were collected during this month. Results of the analysis show that proposed parking supplies would be sufficient to accommodate future parking demand. On a Saturday in June, the maximum demand is projected to be 1,214 spaces, which represents a parking occupancy of 80 percent, or a twenty percent surplus. On a



LSA

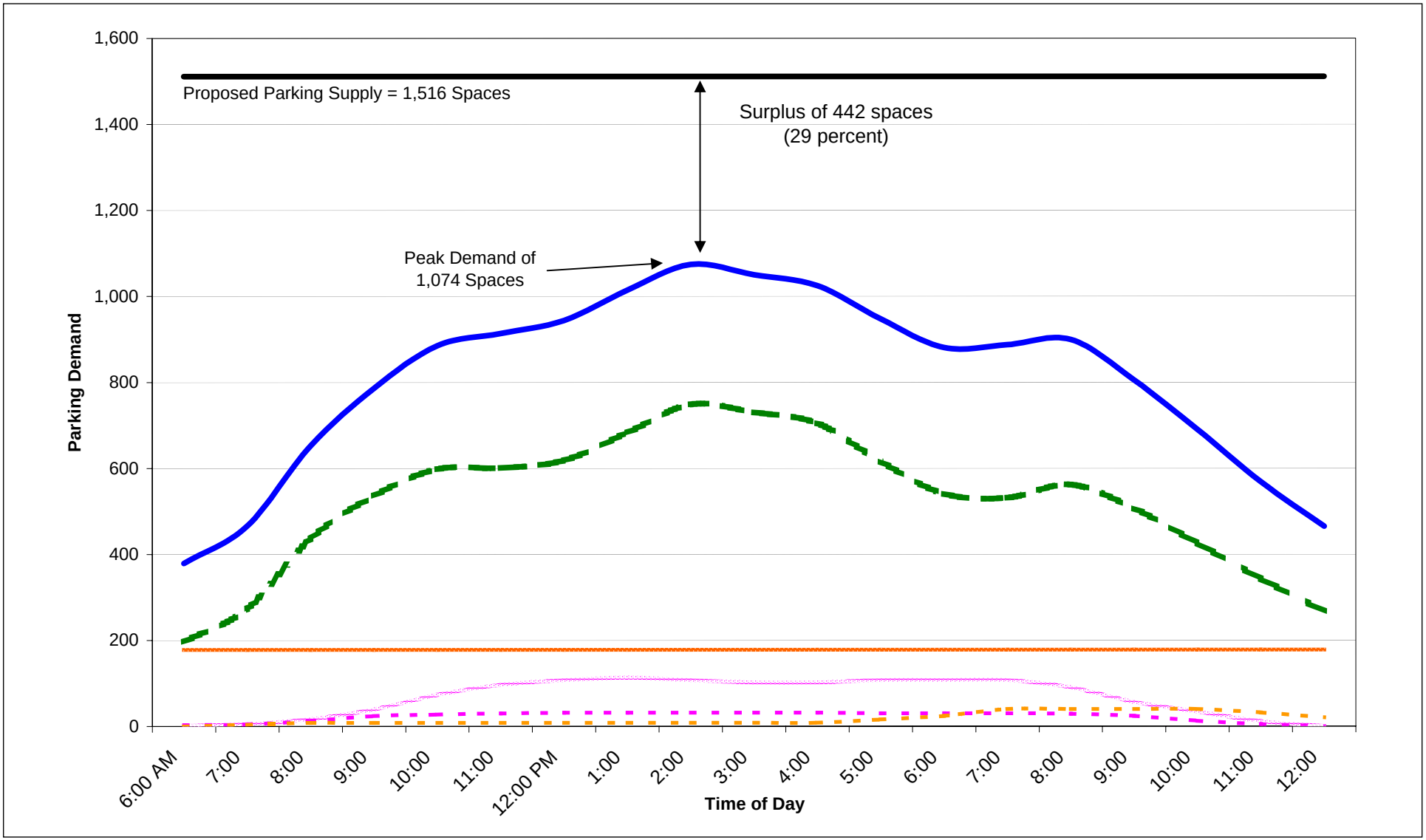
FIGURE V.C-20

Marketplace Redevelopment Project EIR

Weekend Shared Parking Demand Analysis

SOURCE: FEHR & PEERS, 2007.

I:\CEM531 marketplace\figures\Fig_VC20.ai (2/14/07)



LSA

FIGURE V.C-21

Marketplace Redevelopment Project EIR

Weekday Shared Parking Demand Analysis

SOURCE: FEHR & PEERS, 2007.

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Weekday in June, the maximum demand is projected to be 1,074 spaces, which represents a 71 percent occupancy rate, or a 29 percent surplus. For a mixed-use project, a parking surplus of about 15 percent is desirable to limit the amount of circulation through the site. In addition, as parking supplies would be located throughout the site, it is recommended that a parking space counting system be installed at the garage to minimize circulation throughout the garage.

Parking During Construction. As businesses are in operation on the Marketplace site, adequate parking supplies must be maintained during the project construction period. Based on parking surveys conducted by Watry Design, Inc., excess parking is currently available on the site during peak parking periods. The current supply is 1,067 spaces, with an observed maximum occupancy of approximately 65 percent. It is assumed that parking demand would generally not increase during the construction period.

Prior to the start of construction on the site, the parking lot on the Marketplace site would be configured to provide an additional 183 parking spaces. Additionally, valet parking would be in place providing an additional 162 spaces. Construction on the Shellmound site would require the removal of 251 parking spaces. Construction of Retail Pad 2, adjacent to Christie Park, requires the permanent removal of 28 parking spaces. Up to 20 additional spaces adjacent to Retail Pad 2 may be used for construction staging. With construction of Retail Pad 3, adjacent to Shellmound Street, approximately 33 spaces would be permanently removed, with up to 20 additional spaces used for construction staging purposes. No existing marketplace parking supplies would be removed with construction of the 64th & Christie building or Retail Pad 1, adjacent to Boarders. Assuming all portions of the project are constructed concurrently, approximately 1,060 parking spaces would be available during the construction period. As existing parking demand is much less than current supply, reflecting the mixed-use nature of the proposed project, the loss of seven spaces during the construction period is not considered significant.

D. AIR QUALITY

This section has been prepared using methodologies and assumptions recommended in the air quality impact assessment guidelines of the Bay Area Air Quality Management District (BAAQMD).[1] In keeping with these guidelines, this section describes existing air quality in Emeryville and the Bay Area, impacts of future traffic on local carbon monoxide levels, impacts of land use related vehicular emissions that have regional effects, and other effects of the project related to air quality. Mitigation measures to reduce or eliminate potentially significant air quality impacts are identified, where appropriate. The effects of contaminated soils within the project site on air quality are discussed in Section IV.F, Hazardous Materials and Public Health and Safety.

1. Setting

The following discussion provides an overview of existing air quality conditions in the region and Emeryville. Ambient standards and the regulatory framework relating to air quality are summarized. Climate, air quality conditions, and typical air pollutant types and sources are also described.

a. Air Quality Standards, Regulatory Framework and Attainment Status. Air quality standards, the regulatory framework, and State and federal attainment status are discussed below.

(1) Air Quality Standards. Both the State and federal governments have established health-based Ambient Air Quality Standards for six air pollutants: carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and suspended particulate matter (PM). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride and visibility- reducing particles. These standards are designed to protect public health and welfare with a reasonable margin of safety.

In addition to primary and secondary Ambient Air Quality Standards, the State of California has established a set of episode criteria for O_3, CO, NO_2, SO_2, and PM. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health. Health effects are progressively more severe as pollutant levels increase from Stage One to Stage Three.

California Ambient Air Quality Standards and National Ambient Air Quality Standards for the criteria air pollutants are listed in Table V.D-1. Health effects of these criteria pollutants are described in Table V.D-2.

Table V.D-1: Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	–	0.09 ppm
	8-Hour	0.08 ppm	0.07 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.05 ppm	–
	1-Hour	–	0.25 ppm
Sulfur Dioxide	Annual	0.03 ppm	–
	24-Hour	0.14 ppm	0.04 ppm
	1-Hour	–	0.25 ppm
PM_{10}	Annual	-	20 $\mu g/m^3$
	24-Hour	150 $\mu g/m^3$	50 $\mu g/m^3$
$PM_{2.5}$	Annual	15 $\mu g/m^3$	12 $\mu g/m^3$
	24-Hour	35 $\mu g/m^3$	–

Notes: ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter

Source: California Air Resources Board, 2006, *Ambient Air Quality Standards*.

[1] Bay Area Air Quality Management District, 1999. *BAAQMD CEQA Guidelines.*

Table V.D-2: Health Effects of Air Pollutants

Pollutant	Health Effects	Examples of Sources
Particulate Matter ($PM_{2.5}$ and PM_{10})	• Increased respiratory disease • Lung damage • Premature death	• Cars and trucks, especially diesels • Fireplaces, wood stoves • Windblown dust from roadways, agriculture, and construction
Ozone (O_3)	• Breathing difficulties • Lung damage	• Formed by chemical reactions of air pollutants in the presence of sunlight; common sources are motor vehicles, industries, and consumer products
Carbon Monoxide (CO)	• Chest pain in heart patients • Headaches, nausea • Reduced mental alertness • Death at very high levels	• Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Nitrogen Dioxide (NO_2)	• Lung damage	• See carbon monoxide sources
Toxic Air Contaminants	• Cancer • Chronic eye, lung, or skin irritation • Neurological and reproductive disorders	• Cars and trucks, especially diesels • Industrial sources such as chrome platers • Neighborhood businesses such as dry cleaners and service stations • Building materials and products

Source: ARB 2005.

(2) Regulatory Framework. The BAAQMD is primarily responsible for regulating air pollution emissions from stationary sources (e.g., factories) and indirect sources (e.g., traffic associated with new development), as well as for monitoring ambient pollutant concentrations. The District's jurisdiction encompasses seven counties—Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara and Napa—and portions of Solano and Sonoma counties. The California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (EPA) regulate direct emissions from motor vehicles.

Federal Clean Air Act. The Federal 1970 Clean Air Act authorized the establishment of national health-based air quality standards and also set deadlines for the attainment of these standards. The Federal Clean Air Act Amendments of 1990 changed deadlines for attaining National Ambient Air Quality Standards as well as the remedial actions required of areas in the nation that exceed the standards. Under the Clean Air Act, State and local agencies in areas that exceed the National Ambient Air Quality Standards are required to develop State Implementation Plans to show how they will achieve the National Ambient Air Quality Standards for O_3 by specific dates.

The Clean Air Act requires that projects receiving federal funds demonstrate conformity to the approved State Implementation Plan and local air quality attainment plan for the region. Conformity with the State Implementation Plan requirements would satisfy the Clean Air Act requirements.

California Clean Air Act. In 1988, the California Clean Air Act required that all air districts in the State endeavor to achieve and maintain California Ambient Air Quality Standards for O_3, CO, SO_2 and NO_2 by the earliest practical date. Plans for attaining California Ambient Air Quality Standards were submitted to the California Air Resource Board by June 30, 1991, 1994, 1997 and 2000. The California Clean Air Act provides districts with new authority to regulate indirect sources and

mandates that air quality districts focus particular attention on reducing emissions from transportation and area-wide emission sources. Each district plan must achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. Additional physical or economic development within the region would tend to impede the emissions reduction goals of the California Clean Air Act. Generally, the State standards for these pollutants are more stringent than the national standards.

The most recent BAAQMD plan for attaining California Ambient Air Quality Standards, the Bay Area 2005 Ozone Strategy, was adopted by the District's Board of Directors on January 4, 2006. The 2005 Ozone Strategy demonstrates how the San Francisco Bay Area will achieve compliance with the State 1-hour air quality standard for ozone and how the region will reduce transport of ozone and ozone precursors to neighboring air basins. The Ozone Strategy also includes stationary source control measures, mobile source control measures and transportation control measures.

(3) Attainment Status Designations. The California Air Resources Board is required to designate areas of the State as attainment, nonattainment or unclassified for any State standard. An "attainment" designation for an area signifies that pollutant concentrations did not violate the standard for that pollutant in that area. A "nonattainment" designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. An "unclassified" designation signifies that data does not support either an attainment or nonattainment status. The California Clear Air Act divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The U.S. EPA designates areas for O_3, CO, and NO_2 as either "does not meet the primary standards," or "cannot be classified," or "better than national standards." For SO_2, areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified," or "better than national standards." In 1991, new nonattainment designations were assigned to areas that had previously been classified as Group I, II, or III for PM_{10} based on the likelihood that they would violate national PM_{10} standards. All other areas are designated "unclassified."

Table V.D-3 provides a summary of the attainment status for the San Francisco Bay Area with respect to national and State ambient air quality standards.

b. Existing Climate and Air Quality. The following discussion provides brief summaries of regional air quality, local climate, and air quality, and air pollution climatology.

(1) Regional Air Quality. The City of Emeryville is located in the San Francisco Bay Area, a large shallow air basin ringed by hills that taper into a number of sheltered valleys around the perimeter. Two primary atmospheric outlets exist. One is through the strait known as the Golden Gate, a direct outlet to the Pacific Ocean. The second outlet extends to the northeast, along the west delta region of the Sacramento and San Joaquin Rivers.

The City of Emeryville is within the jurisdiction of the BAAQMD, which regulates air quality in the San Francisco Bay Area. Air quality conditions in the San Francisco Bay Area have improved significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants and the

Table V.D-3: Bay Area Attainment Status

Pollutant	Averaging Time	California Standards[a]		National Standards[b]	
		Concentration	Attainment Status	Concentration	Attainment Status
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Attainment[c]
	1-Hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Attainment
Nitrogen Dioxide (NO_2)	Annual Mean	Not Applicable	Not Applicable	0.053 ppm (100 µg/m^3)	Attainment
	1-Hour	0.25 ppm (470 µg/m^3)	Attainment	Not Applicable	Not Applicable
Ozone (O_3)	8-Hour	0.07 ppm (137 µg/m^3)	Unclassified	0.08 ppm	Marginal
	1-Hour	0.09 ppm (180 µg/m^3)	Nonattainment	Not Applicable	Not Applicable[d]
Suspended Particulate Matter (PM_{10})	Annual Mean	20 µg/m^3	Nonattainment	Not Applicable	Not Applicable
	24-Hour	50 µg/m^3	Nonattainment	150 µg/m^3	Unclassified
Suspended Particulate Matter ($PM_{2.5}$)	Annual Mean	12 µg/m^3	Nonattainment	15 µg/m^3	Attainment
	24-Hour	Not Applicable	Not Applicable	35 µg/m^3	Unclassified
Sulfur Dioxide (SO_2)	Annual Mean	Not Applicable	Not Applicable	80 µg/m^3 (0.03 ppm)	Attainment
	24-Hour	0.04 ppm (105 µg/m^3)	Attainment	365 µg/m^3 (0.14 ppm)	Attainment
	1-Hour	0.25 ppm (655 µg/m^3)	Attainment	Not Applicable	Not Applicable

[a] California standards for 0_3, CO (except Lake Tahoe), SO_2 (1-hour and 24-hour), NO_2 and PM_{10} are values that are not to be exceeded. If the standard is for a 1-hour, 8-hour, or 24-hour average, then some measurements may be excluded. In particular, measurements are excluded that ARB determines would occur less than once per year on the average.

[b] National standards other than for 0_3 and those based on annual averages or annual arithmetic means are not to be exceeded more than once a year. For example, the 0_3 standard is attained if, during the most recent 3- year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than 1.

[c] In April 1998, the Bay Area was redesignated to Attainment for the national 8-hour CO standard.

[d] The National 1-hour ozone standard was revoked by U.S. EPA on June 15, 2005.

Lead (Pb) is not listed in the above table because it has been in attainment since the 1980s.

ppm = parts per million
mg/m^3 = milligrams per cubic meter
µg/m^3 = micrograms per cubic meter

Source: Bay Area Air Quality Management District, Bay Area Attainment Status, 2007.

number of days during which the region exceeds air quality standards have fallen dramatically. Exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons.

Ozone levels, measured by peak concentrations and the number of days over the State 1-hour standard, have declined substantially as a result of aggressive programs by the BAAQMD and other regional, State and federal agencies. The reduction of peak concentrations represents progress in improving public health, however the Bay Area still exceeds the State standard for 1-hour ozone.

Levels of PM_{10} in the Bay Area have exceeded State standards at least two times per year the last three years, and are considered a nonattainment area for this pollutant relative to the State standards. The Bay Area is an unclassified area for the federal PM_{10} standard.

No exceedances of the State or federal CO standards have been recorded at any of the region's monitoring stations since 1991. The Bay Area is currently considered a maintenance area for State and federal CO standards.

Levels of PM_{10} in the Bay Area currently exceed California Clean Air Act standards and, therefore, the area is considered a nonattainment area for this pollutant relative to the State standards. PM_{10} levels monitored at the San Francisco – Arkansas Street station (closest monitoring station with PM_{10} data) exceeded the State's standard in two of the past three years (2003– 2005). The Bay Area is an unclassified area for the federal PM_{10} standard. The federal standard was not exceeded at this monitoring station in the past three years. No exceedances of the State or federal CO standards have been recorded at any of the region's monitoring stations since 1991. The Bay Area is currently considered a maintenance area for State and federal CO standards.

The BAAQMD's Bay Area 1991, 1994, 1997 and 2000 Clean Air Plans contain district-wide control measures to reduce CO and O_3 precursor emissions (i.e., ROG and NO_x). Ozone, in particular, results from the reaction of organic gases (ROG) and nitrogen oxide (NOx) in the atmosphere. To reduce ozone, its precursors (ROG and NO_x) are regulated. Generally, the State standards for these pollutants are more stringent than the national standards. Exceedances of air quality standards occur pri-mainly during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons.

c. Local Climate and Air Quality. Air quality is a function of both local climate and local sources of air pollution. Air quality is a function of the natural dispersal capacity of the atmosphere, and emissions of air pollutants from human uses of the environment. The City is located in the Northern Alameda and Western Contra Costa Region of the Basin. This climatological subregion stretches from Richmond to San Leandro. Its western boundary is defined by San Francisco Bay and its eastern boundary by the Oakland/Berkeley hills. The Oakland/Berkeley hills have a ridge line height of approximately 1,500 feet, a significant barrier to air flow. The most densely populated area of the subregion lies in a strip of land between San Francisco Bay and the lower hills.

In this area, marine air traveling through the Golden Gate, as well as across San Francisco and through the San Bruno Gap, is a dominant weather factor. The Oakland/Berkeley hills cause the westerly flow of air to split off to the north and south of Oakland, which causes diminished wind speeds. The prevailing winds for most of this subregion are from the west. At the northern end, near Richmond, prevailing winds are from the south-southwest.

Temperatures in this subregion have a narrow range due to the proximity of the moderating marine air. Maximum temperatures in summer average in the mid-70's, with minimums in the mid-50's. Winter highs are in the mid- to high-50's, with lows in the low- to mid-40's.

The air pollution potential is lowest for the parts of the subregion that are closest to the bay, due largely to good ventilation and less influx of pollutants from upwind sources. The occurrence of light winds in the evenings and early mornings occasionally causes elevated pollutant levels. The air pol-

lution potential at the northern (Richmond) and southern (Oakland, San Leandro) parts of this subregion is marginally higher than communities directly east of the Golden Gate, because of the lower frequency of strong winds.

This subregion contains a variety of industrial air pollution sources. Some industries are quite close to residential areas. The subregion is also traversed by frequently congested major freeways. Traffic and congestion, and the motor vehicle emissions they generate, are increasing.

Pollutant monitoring results for the years 2003 to 2005 (see Tables V.D-4 and V.D-5) at the Oakland – Alice Street and San Francisco – Arkansas Street ambient air quality monitoring stations indicate that air quality in the project area has generally been good. As indicated in the monitoring results, one violation of State PM_{10} standards each in the year 2003 and 2004 were recorded during the 3-year period were recorded and no violation of federal PM_{10} standard was recorded. The federal $PM_{2.5}$ standard was not exceeded during the 3-year period. State 1-hour O_3 standards have not been exceeded at these two monitoring stations. Federal 1-hour and 8-hour O_3 standards have not been exceeded within the past 3 years at these monitoring station. CO, SO_2, and NO_2 standards were not exceeded in this area during the 3-year period.

The amount of a given air pollutant in the atmosphere is determined by the amount of pollutant released and the atmosphere's ability to transport and/or dilute that pollutant. The major determinants of transport and dilution are wind, atmospheric stability, terrain, and, for photochemical pollutants, sunshine.

d. Air Quality Issues. Five key air quality issues in the Bay Area—CO hotspots, vehicle emissions, fugitive dust, odors, and construction equipment exhaust—are described below.

(1) Local Carbon Monoxide Hotspots. Local air quality is most affected by CO emissions from motor vehicles. CO is typically the pollutant of greatest concern because it is created in abundance by motor vehicles and it does not readily disperse into the air. Idling freight trains are also a source of CO emissions. Because CO does not readily disperse, areas of vehicle congestion can create "pockets" of high CO concentration called "hot spots." These pockets have the potential to exceed the State 1-hour standard of 20.0 ppm and/or the 8-hour standard of 9.0 ppm.

While CO transport is limited, it disperses with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations near congested roadways or intersections may reach unhealthful levels that adversely affect local sensitive receptors (e.g., residents, schoolchildren, the elderly, hospital patients, etc.). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient background CO concentration, modeling is recommended to determine a project's effect on local CO levels.

(2) Vehicle Emissions. Long-term air emission impacts are those associated with changes in automobile travel within the City. Mobile source emissions would result from vehicle trips associated with increased vehicular travel. As is true throughout much of the U.S., motor vehicle use is projected to increase substantially in the region. The BAAQMD, local jurisdictions, and other parties responsible for protecting public health and welfare will continue to seek ways of minimizing the air quality impacts of growth and development in order to avoid further exceedances of the standards.

Table V.D-4: Results from the Oakland and San Francisco Ambient Air Quality Monitoring Stations, 2003 to 2005

Year	Ozone			Carbon Monoxide		Nitrogen Dioxide*		PM_{10}*		
	Max. 1-Hour (ppm)	National D-O-S	California D-O-S	Max. 1-Hour (ppm)	California D-O-S	Max. 1-Hour (ppm)	California D-O-S	Max. 24-Hour (mg/m^3)	National D-O-S	California D-O-S
2003	0.081	0	0	3.9	0	0.072	0	51.7	0	1
2004	0.080	0	0	3.5	0	0.063	0	51.8	0	1
2005	0.068	0	0	3.3	0	0.055	0	45.7	0	0

D-O-S = Days Over Standard ppm = parts per million
ppb = parts per billion mg/m^3 = milligrams per cubic meter

*Closest monitoring station located at San Francisco-Arkansas Street.

Source: U.S. EPA and ARB, 2003 to 2005.

Table V.D-5: Results from the Oakland and San Francisco Ambient Air Quality Monitoring Station Exceeded Standards, 2003 to 2005

Year	Ozone		Carbon Monoxide		Sulfur Dioxide*		$PM_{2.5}$*		
	Max. 8-Hour (ppm)	National D-O-S	Max. 8-Hour (ppm)	California D-O-S	Max. 24-Hour (ppm)	California D-O-S	Max. 24-Hour (mg/m^3)	National D-O-S	California D-O-S
2003	0.054	0	2.78	0	0.007	0	41.6	0	0
2004	0.057	0	2.64	0	0.006	0	45.8	0	0
2005	0.045	0	1.79	0	0.006	0	43.6	0	0

D-O-S = Days Over Standard ppm = parts per million mg/m^3 = milligrams per cubic meter

*Closest monitoring station located at San Francisco-Arkansas Street.

Source: U.S. EPA and ARB, 2003 to 2005.

(3) Fugitive Dust. Fugitive dust emissions are generally associated with demolition, land clearing, exposure of soils to the air, and cut and fill operations. Dust generated during construction varies substantially on a project-by-project basis, depending on the level of activity, the specific operations, and weather conditions.

The U.S. EPA has developed an approximate emission factor for construction-related emissions of total suspended particulate of 1.2 tons per acre per month of activity. This factor assumes a moderate activity level, moderate silt content in soils being disturbed, and a semi-arid climate. The California Air Resources Board estimates that 64 percent of construction-related total suspended particulate emissions is PM_{10}. Therefore, the emission factors for uncontrolled construction-related PM_{10} emissions are:

- 0.77 tons per acre per month of PM_{10}; or
- 51 pounds per acre per day of PM_{10}.

However, construction emissions can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors. There are a number of feasible control measures that can be reasonably implemented to significantly

reduce PM_{10} emissions from construction. Rather than attempting to provide detailed quantification of anticipated construction emissions from projects, the BAAQMD suggests the following:

> "The determination of significance with respect to construction emissions should be based on a consideration of the control measures to be implemented. From the District's perspective, quantification of emissions is not necessary, although a lead agency may elect to do so. If all of the control measures indicated as appropriate, depending on the size of the project, are implemented, then air pollution from emissions from construction activities would be considered a less-than-significant impact."[2]

(4) Odors. Odors are also an important element of local air quality conditions. Specific activities allowed within each of the major general plan land use categories can raise concerns on the part of nearby neighbors. Major sources of odors include restaurants, manufacturing plants, and agricultural operations. Other odor producers include the industrial facilities within the region. While sources that generate objectionable odors must comply with air quality regulations, the public's sensitivity to locally produced odors often exceeds regulatory thresholds.

(5) Construction Equipment Exhaust. Construction activities cause combustion emissions from utility engines, heavy-duty construction vehicles, equipment hauling materials to and from construction sites, and motor vehicles transporting construction crews. Exhaust emissions from construction activities vary daily as construction activity levels change. The use of construction equipment results in localized exhaust emissions.

2. Impacts and Mitigation Measures

This section evaluates potential impacts to air quality resulting from implementation of the proposed project. The evaluation of environmental effects presented in this section focuses on consistency with air quality management plans, and potential air quality impacts associated with construction emissions, odors, and development-related traffic emissions. Mitigation measures are proposed as appropriate.

a. Criteria of Significance. The criteria of significance described below establish the thresholds for determining whether an impact is significant. A significant impact would occur with implementation of the proposed project if it would result in an exceedance of the following criteria.

The project would result in a significant air quality impact if it would:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate the District's air quality standards or contribute substantially to an existing or projected air quality violation by:
  - Contributing to CO concentrations exceeding the State ambient air quality standards of 9 ppm averaged over 8 hours or 20 ppm for 1 hour; or
  - Generating criteria air pollutant emissions of ROG, NO_x, or PM_{10} in excess of 15 tons per year, or 80 pounds per day.

[2] Bay Area Air Quality Management District, 1966. *BAAQMD CEQA Guidelines Assessing the Air Quality Impacts of Projects and Plans*. April. (Amended in December 1999.)

- Frequently expose a substantial number of people to objectionable odors.
- Expose sensitive receptors or the general public to substantial levels of toxic air contaminants in excess of the following thresholds:
  - Probability of contacting cancer for the Maximally Exposed Individual (MEI) exceeds 10 in one million; or
  - Ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index greater than 1 from the MEI.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). Projects that would individually have a significant air quality impact due to project operations would also result in a cumulative air quality impact. For projects that do not individually have significant operational air quality impacts, a cumulative impact would result if the project would cause the City's General Plan to conflict with the Clean Air Plan or if the City's General Plan is already inconsistent with the Clean Air Plan and the project is located and the project would combine with other reasonably foreseeable future projects to either 1) exceed the BAAQMD individual operational thresholds of significance, or 2) or exceed the CAP population and VMT assumptions for growth in the City or County.

The BAAQMD does not consider construction impacts to be significant if the District's control measures for construction emission for PM_{10} are implemented. Impacts from $PM_{2.5}$ emissions have not been analyzed quantitatively in this impact analysis because there are no recommended significance thresholds from the BAAQMD. Also, the air quality models that are used to estimate emissions of ROG, NOx, CO and PM_{10} currently do not have the capability to estimate $PM_{2.5}$ separately. Therefore, impacts from $PM_{2.5}$ emissions from the implementation of the proposed project (particularly in association with diesel particulate matter) have been analyzed qualitatively.

It should be noted that the emission thresholds were established based on the attainment status of the air basin in regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety, these emission thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

b. Less-than-Significant Impacts. This section discusses less-than-significant air quality impacts.

(1) Clean Air Plan (CAP) Consistency. The Bay Area 2005 Ozone Attainment Plan discussed above is the relevant regional air quality plan. The BAAQMD uses the CAP to evaluate a project's potential cumulative air quality impacts. The BAAQMD CEQA Guidelines state that "for any project that does not individually have significant operational air quality impacts, the determination of significant cumulative impacts should be based on an evaluation of the consistency of the project with the local general plan and the general plan with the regional air quality plan." The BAAQMD CEQA Guidelines present the following elements for evaluation of consistency between the General Plan and the CAP:

- General Plan population projections are consistent with CAP and ABAG projections;
- Rate of increase in vehicle miles traveled (VMT) does not exceed rate of increase in population;
- General plan implements CAP transportation control measures; and
- General plan provides buffer zones around sources of odors, toxics and accidental releases.

The proposed project would not require a General Plan Amendment to allow the proposed development to occur. The increase in population and VMT associated with the proposed project is consistent with CAP and ABAG projections for the City of Emeryville.

The City of Emeryville's General Plan is in general conformance with the CAP and the proposed project would not expose sensitive receptors to objectionable odors, toxics, or accidental releases of hazardous materials.

(2) Odor Emissions. The project would not contain any major sources of odor, and would not be located in an area with existing objectionable odors. It therefore would have a less-than-significant impact.

(3) Operational Emissions – CO Analysis. Vehicular traffic associated with the proposed project would emit carbon monoxide (CO) into the air along roadway segments and near intersections. Because CO does not readily disperse, areas of vehicle congestion can create pockets of high CO concentrations, called "hot spots." Typically, high CO concentrations are associated with roadways or intersections operating at deficient levels of service (LOS) or with extremely high traffic volumes. Table V.D-6 lists the 1-hour and 8-hour CO concentrations the existing (2005) conditions at eight intersections in the project study area. Table V.D-6 lists the future (2010) concentrations, and Table V.D-8 lists the future (2030) concentrations.

Based on the methodology suggested by the U.S. EPA and the California Department of Transportation, the second highest CO concentrations monitored at the nearest air monitoring station in the past 2 years (in this case 3.3 ppm for the 1-hour period and 2.5 ppm for the 8-hour period) were used as the background CO concentrations. Emission factors for study scenarios were obtained from the latest ARB data.

Tables V.D-6 shows that all of the existing with and without the project 1-hour and 8-hour CO concentrations would be below the federal and State CO standards. The 1-hour CO levels range from 4.6 ppm to 7.1 ppm, much lower than the State CO standard of 20 ppm. The 8-hour CO levels range from 3.4 ppm to 5.2 ppm, also much lower then the State and federal standard of 9 ppm.

Table V.D-7 shows that all of the future (2010) 1-hour and 8-hour CO concentrations with or without the project would be below the federal and State CO standards. The 1-hour CO levels range from 4.3 ppm to 5.8 ppm, which are much lower then the State standard of 20 ppm. The 8-hour CO levels range from 3.2 ppm to 4.4 ppm, which are much lower than the State standard of 9 ppm.

Table V.D-8 shows that all of the future (2030) 1-hour and 8-hour CO concentrations with or without the project would be below the federal and State CO standards. The 1-hour CO levels range from 3.6 ppm to 4.1 ppm, which are much lower then the State standard of 20 ppm. The 8-hour CO levels range from 2.7 ppm to 3.1 ppm, which are much lower than the State standard of 9 ppm.

Table V.D-6: Existing Without and With Project CO Concentrations

Intersection	Receptor Distance to Road Centerline (Meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/With Project 1-Hour CO Concentration (ppm)	Without/With Project 8-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
7th St. & Ashby Avenue	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
San Pablo Avenue & Ashby Avenue	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.6 / 5.6	4.1 / 4.1	No	No
	14	0.1 / 0.1	5.5 / 5.6	4.0 / 4.1	No	No
Christie Avenue & Shellmound Way	14	0.3 / 0.2	5.0 / 5.3	3.7 / 3.9	No	No
	12	0.3 / 0.2	4.9 / 5.2	3.6 / 3.8	No	No
	10	0.3 / 0.2	4.8 / 5.1	3.6 / 3.8	No	No
	10	0.1 / 0.1	4.6 / 4.7	3.4 / 3.5	No	No
Shellmound Street & Shellmound Way	15	0.1 / 0.0	5.1 / 5.2	3.8 / 3.8	No	No
	15	0.2 / 0.1	5.0 / 5.2	3.7 / 3.8	No	No
	15	0.4 / 0.2	4.8 / 5.2	3.6 / 3.8	No	No
	10	0.2 / 0.1	4.8 / 5.0	3.6 / 3.7	No	No
Christie Avenue & Powell Street	21	0.4 / 0.3	6.7 / 7.1	4.9 / 5.2	No	No
	19	0.2 / 0.2	6.6 / 6.8	4.8 / 5.0	No	No
	17	0.4 / 0.3	6.4 / 6.8	4.7 / 5.0	No	No
	15	0.2 / 0.1	6.3 / 6.5	4.6 / 4.7	No	No
Hollis Street & Powell Street	14	0.1 / 0.1	5.5 / 5.6	4.0 / 4.1	No	No
	14	0.1 / 0.0	5.4 / 5.5	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	12	0.0 / 0.0	5.3 / 5.3	3.9 / 3.9	No	No
San Pablo Avenue & Stanford Avenue	14	0.0 / 0.0	5.8 / 5.8	4.3 / 4.3	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.6 / 5.6	4.1 / 4.1	No	No
Horton Street & 40th Street	15	0.0 / 0.0	4.9 / 4.9	3.6 / 3.6	No	No
	14	0.0 / 0.0	4.7 / 4.7	3.5 / 3.5	No	No
	14	0.0 / 0.0	4.7 / 4.7	3.5 / 3.5	No	No
	14	0.1 / 0.1	4.6 / 4.7	3.4 / 3.5	No	No
Hollis Street & 40th Street	17	0.0 / 0.0	5.1 / 5.1	3.8 / 3.8	No	No
	15	0.0 / 0.0	5.1 / 5.1	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.1 / 5.1	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.0 / 5.0	3.7 / 3.7	No	No

Table V.D-6 *Continued*

Intersection	Receptor Distance to Road Centerline (Meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/With Project 1-Hour CO Concentration (ppm)	Without/With Project 8-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
Harlan Street & 40th Street	14	0.1 / 0.0	4.8 / 4.9	3.6 / 3.6	No	No
	14	0.1 / 0.1	4.7 / 4.8	3.5 / 3.6	No	No
	14	0.0 / 0.0	4.7 / 4.7	3.5 / 3.5	No	No
	14	0.0 / 0.0	4.7 / 4.7	3.5 / 3.5	No	No
Emery Street & 40th Street	14	0.0 / 0.0	5.2 / 5.2	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.1 / 5.1	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.0 / 5.0	3.7 / 3.7	No	No
	14	0.0 / 0.0	5.0 / 5.0	3.7 / 3.7	No	No
San Pablo Avenue & 40th Street	17	0.0 / 0.0	6.2 / 6.2	4.5 / 4.5	No	No
	17	0.1 / 0.1	6.0 / 6.1	4.4 / 4.5	No	No
	14	0.0 / 0.0	5.9 / 5.9	4.3 / 4.3	No	No
	14	0.0 / 0.0	5.9 / 5.9	4.3 / 4.3	No	No

[a] Includes ambient 1-hour concentrations of 3.3 ppm and ambient 8-hour concentration of 2.5 ppm. Measured at the Oakland air monitoring station.

Source: LSA Associates, Inc., 2007.

Table V.D-7: 2010 CO Concentrations Without and With Proposed Project

Intersection	Receptor Distance to Road Centerline (Meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/With Project 1-Hour CO Concentration (ppm)	Without/With Project 8-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
7th St. & Ashby Avenue	14	0.0 / 0.0	5.2 / 5.2	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.2 / 5.2	3.8 / 3.8	No	No
	14	0.1 / 0.0	5.2 / 5.1	3.8 / 3.8	No	No
	14	0.1 / 0.0	5.2 / 5.1	3.8 / 3.8	No	No
San Pablo Avenue & Ashby Avenue	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	14	0.1 / 0.1	5.4 / 5.3	3.9 / 4.0	No	No
	14	0.1 / 0.1	5.4 / 5.3	3.9 / 4.0	No	No
Christie Avenue & Shellmound Way	15	0.1 / 0.0	4.5 / 4.4	3.3 / 3.3	No	No
	12	0.2 / 0.1	4.5 / 4.3	3.2 / 3.3	No	No
	10	0.1 / 0.1	4.4 / 4.3	3.2 / 3.3	No	No
	8	0.1 / 0.1	4.4 / 4.3	3.2 / 3.3	No	No
Shellmound Street & Shellmound Way	15	0.1 / 0.1	4.7 / 4.6	3.4 / 3.5	No	No
	15	0.1 / 0.1	4.6 / 4.5	3.3 / 3.4	No	No
	15	0.2 / 0.1	4.6 / 4.4	3.3 / 3.4	No	No
	10	0.2 / 0.1	4.5 / 4.3	3.2 / 3.3	No	No
Christie Avenue & Powell Street	21	0.1 / 0.0	6.2 / 6.1	4.5 / 4.5	No	No
	19	0.2 / 0.2	6.1 / 5.9	4.3 / 4.5	No	No
	17	0.1 / 0.1	6.0 / 5.9	4.3 / 4.4	No	No
	15	0.1 / 0.1	6.0 / 5.9	4.3 / 4.4	No	No
Hollis Street & Powell Street	14	0.1 / 0.0	5.2 / 5.1	3.8 / 3.8	No	No
	14	0.1 / 0.1	5.1 / 5.0	3.7 / 3.8	No	No
	14	0.0 / 0.0	5.0 / 5.0	3.7 / 3.7	No	No
	12	0.1 / 0.1	5.0 / 4.9	3.6 / 3.7	No	No
San Pablo Avenue & Stanford Avenue	14	0.1 / 0.0	5.5 / 5.4	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.3 / 5.3	3.9 / 3.9	No	No
Horton Street & 40th Street	17	0.0 / 0.0	4.6 / 4.6	3.4 / 3.4	No	No
	15	0.0 / 0.0	4.5 / 4.5	3.3 / 3.3	No	No
	14	0.0 / 0.0	4.5 / 4.5	3.3 / 3.3	No	No
	14	0.0 / 0.0	4.4 / 4.4	3.3 / 3.3	No	No
Hollis Street & 40th Street	17	0.1 / 0.0	4.9 / 4.8	3.6 / 3.6	No	No
	15	0.0 / 0.0	4.8 / 4.8	3.6 / 3.6	No	No
	14	0.0 / 0.0	4.8 / 4.8	3.6 / 3.6	No	No
	14	0.0 / 0.0	4.8 / 4.8	3.6 / 3.6	No	No

Table V.D-7 *Continued*

Intersection	Receptor Distance to Road Centerline (Meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/With Project 1-Hour CO Concentration (ppm)	Without/With Project 8-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
Harlan Street & 40th Street	14	0.0 / 0.0	4.6 / 4.6	3.4 / 3.4	No	No
	14	0.0 / 0.0	4.6 / 4.6	3.4 / 3.4	No	No
	14	0.0 / 0.0	4.5 / 4.5	3.3 / 3.3	No	No
	14	0.1 / 0.0	4.5 / 4.4	3.3 / 3.3	No	No
Emery Street & 40th Street	14	0.0 / 0.0	4.9 / 4.9	3.6 / 3.6	No	No
	14	0.0 / 0.0	4.9 / 4.9	3.6 / 3.6	No	No
	14	0.1 / 0.1	4.8 / 4.7	3.5 / 3.6	No	No
	14	0.0 / 0.0	4.7 / 4.7	3.5 / 3.5	No	No
San Pablo Avenue & 40th Street	17	0.0 / 0.0	5.8 / 5.8	4.3 / 4.3	No	No
	17	0.1 / 0.1	5.8 / 5.7	4.2 / 4.3	No	No
	14	0.1 / 0.1	5.7 / 5.6	4.1 / 4.2	No	No
	14	0.0 / 0.0	5.6 / 5.6	4.1 / 4.1	No	No

[a] Includes ambient 1-hour concentrations of 3.3 ppm and ambient 8-hour concentration of 2.5 ppm. Measured at the Oakland air monitoring station.

Source: LSA Associates, Inc., 2007.

Table V.D-8: 2030 CO Concentrations Without and With Proposed Project

Intersection	Receptor Distance to Road Centerline (Meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/With Project 1-Hour CO Concentration (ppm)	Without/With Project 8-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
7th St. & Ashby Avenue	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
San Pablo Avenue & Ashby Avenue	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
Christie Avenue & Shellmound Way	15	0.0 / 0.0	3.6 / 3.6	2.7 / 2.7	No	No
	12	0.0 / 0.0	3.6 / 3.6	2.7 / 2.7	No	No
	12	0.0 / 0.0	3.6 / 3.6	2.7 / 2.7	No	No
	10	0.0 / 0.0	3.6 / 3.6	2.7 / 2.7	No	No
Shellmound Street & Shellmound Way	15	0.0 / 0.0	3.6 / 3.6	2.7 / 2.7	No	No
	15	0.0 / 0.0	3.6 / 3.6	2.7 / 2.7	No	No
	12	0.0 / 0.0	3.6 / 3.6	2.7 / 2.7	No	No
	10	0.0 / 0.0	3.6 / 3.6	2.7 / 2.7	No	No
I-80 Eastbound Ramps & Powell Street	17	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No
	17	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No
	17	0.1 / 0.1	3.9 / 4.0	2.9 / 3.0	No	No
	15	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
Christie Avenue & Powell Street	21	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No
	19	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No
	17	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No
	15	0.1 / 0.1	3.9 / 4.0	2.9 / 3.0	No	No
Hollis Street & Powell Street	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
San Pablo Avenue & Stanford Avenue	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
Horton Street & 40th Street	17	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	15	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No

Table V.D-8 *Continued*

Intersection	Receptor Distance to Road Centerline (Meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/With Project 1-Hour CO Concentration (ppm)	Without/With Project 8-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
Hollis Street & 40th Street	17	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	15	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.1 / 0.1	3.7 / 3.8	2.8 / 2.9	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
Harlan Street & 40th Street	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
Emery Street & 40th Street	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.1 / 0.1	3.7 / 3.8	2.8 / 2.9	No	No
	14	0.1 / 0.1	3.7 / 3.8	2.8 / 2.9	No	No
San Pablo Avenue & 40th Street	17	0.0 / 0.0	4.1 / 4.1	3.1 / 3.1	No	No
	17	0.0 / 0.0	4.1 / 4.1	3.1 / 3.1	No	No
	14	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No
	14	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No

[a] Includes ambient 1-hour concentrations of 3.3 ppm and ambient 8-hour concentration of 2.5 ppm. Measured at the Oakland air monitoring station.

Source: LSA Associates, Inc., 2007.

Results indicate that CO concentrations would increase by less than 1 ppm with implementation of the proposed project. This modeling exercise also shows that CO concentrations are expected to be lower in future years. The reductions in CO concentrations are due to ARB's emission factors for future years which take into account gradually cleaner vehicle fleets in future years. Implementation of the proposed project would not cause an exceedance of State or federal CO standards. Therefore, the proposed project would not lead to significant CO impacts, nor would the proposed project, in combination with other cumulative development, lead to CO concentrations that exceed federal or State standards.

(4) Operational Emissions – Regional Emissions Analysis. Long-term air emission impacts would be those associated with changes in permanent usage of the project site. Mobile source emissions would result from vehicle trips associated with the proposed project. The Urban Emission Model (URBEMIS 2002) computer program, which is the most current air quality model available in California for estimating emissions associated with land use development projects, was used to calculate long-term mobile source emissions associated with the proposed project. URBEMIS output sheets are included in Appendix C of this report. Increases in long-term stationary emissions from natural gas and electricity use within the project site are expected to be negligible when compared with mobile source emissions. Therefore, these emissions were not included in the calculation.

The daily emission increase associated with project operational trip generation is identified in Table V.D-9 for reactive organic gases (ROG) and nitrogen oxides (NO_x) (two precursors of ozone) and coarse particle matter (PM_{10}). The BAAQMD has established thresholds of significance for ozone precursors and fugitive dust of 80 pounds per day. Proposed project emissions shown in Table V.D-9 would not exceed these thresholds of significance for ROG, NO_x, and PM_{10}, and therefore, the proposed project would not have a significant effect on regional air quality.

Table V.D-9: Project Regional Emissions in Pounds Per Day

	Reactive Organic Gases	Nitrogen Oxides	PM_{10}
Regional Emissions	52.74	67.35	40.25
BAAQMD Significance Threshold	**80.0**	**80.0**	**80.0**
Exceed?	**No**	**No**	**No**

LSA Associates, Inc., 2007.

(5) Toxic Air Contaminants. In 1998 the ARB identified diesel engine particulate matter as a toxic air contaminant. Facilities that may have substantial diesel exhaust emissions include truck stops; warehouse/distribution centers; large retail or industrial facilities; high volume transit centers; schools with high volume of bus traffic; high volume highways or high volume arterial/roadways with high levels of diesel traffic. Areas surrounding train stations also have a high level of diesel exhaust emissions due to idling of locomotive engines.

According to the BAAQMD CEQA Guidelines, any project with the potential to expose sensitive receptors (including residential areas) or the general public to substantial levels of toxic air contaminants would be deemed to have a significant impact. This applies to receptors locating near existing sources of toxic air contaminants, as well as sources of toxic air contaminants locating near existing receptors.

A health risk assessment was performed to evaluate the risk to future site residents caused by exposure to toxic air contaminants from the railroad tracks directly east of the project site. The risk assessment considered specific meteorological conditions for the project site and the site's proximity to the railroad tracks. The health risk assessment estimated the potential non-cancer health effects of diesel exhaust using a measure known as the chronic hazard index. A chronic hazard index of less than 1.0 indicates that a chemical would not have a significant non-cancer health effect. The maximum chronic hazard index associated with diesel emissions from trains near the project site is 0.06, which is below the significance criterion.

The health risk assessment also estimated the maximum individual cancer risk resulting from the inhalation of diesel exhaust over a 70-year lifetime using the guidelines for air toxics hot spots recommended by the California Office of Environmental Health Hazard Assessment. The maximum individual cancer risk for an individual living at the proposed development is no more than 9.8 in 1 million. This risk is below the significance criterion threshold of 10 in 1 million. Thus, the cancer risk associated with future residential use of the project site would not exceed the significance criterion for toxic air contaminants as established by the BAAQMD.

Although the risk assessment results indicate an exposure to risk that would approach the BAAQMD criterion for cancer risk (given the conservative assumptions required for the analysis), it is unlikely that future residents of the project site would actually be exposed to a health risk that would be substantially greater than the average Californian. (The ambient air in the Bay Area presents a 602 in 1

million health risk.[3]) Under the conservative assumptions used in the modeling, future residents are assumed to reside on the site and be exposed to outdoor air 24 hours per day for 70 years. These assumptions provide an upper estimate of potential risk. Risk for a more typically exposed individual would be lower.

Additional details on the methodology of the health risk assessment and complete model output results are located in Appendix C-3.

c. Significant Impacts. The proposed project would result in the following significant impacts related to air quality as describe below.

Impact AIR-1: Demolition and construction period activities could generate significant dust, exhaust, and organic emissions. (S)

The proposed project would require demolition of existing buildings and excavation/removal of substantial amounts of soil from the site. The physical demolition of existing structures, excavation of soil and other existing infrastructure are activities with a high potential to generate air pollutants. In addition to the dust generated during demolition and excavation, substantial dust emissions could result from the loading of debris and soil into trucks for disposal. After removal of existing structures, construction dust would also continue to affect local air quality during construction of the project. Construction activities would generate exhaust emissions from vehicles/equipment and fugitive particulate matter emissions that would affect local air quality.

Construction activities are also a source of organic gas emissions. Solvents in adhesives, non-water-base paints, thinners, some insulating materials and caulking materials would evaporate into the atmosphere and would participate in the photochemical reaction that creates urban ozone. Asphalt used in paving is also a source of organic gases for a short time after its application.

The effects of construction activities would be increased dustfall and locally elevated levels of PM_{10} downwind of construction activity. Construction dust would be generated at levels that would create an annoyance to nearby properties.

> Mitigation Measure AIR-1: Consistent with guidance from the BAAQMD, the following actions shall be required of construction contracts and specifications for the project.
>
> *Demolition.* The following controls shall be implemented during demolition:
>
> - Water during demolition of structures and break-up of pavement to control dust generation;
> - Cover all trucks hauling demolition debris from the site; and
> - Use dust-proof chutes to load debris into trucks whenever feasible.

[3] Bay Area Air Quality Management District (BAAQMD), 2004. *Toxic Air Contaminant Control Program, Annual Report 2002*. June.

Construction. The following controls shall be implemented at all construction sites:

- Water all active construction areas at least twice daily and more often during windy periods; active areas adjacent to existing land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers to control dust;
- Cover all trucks hauling soil, sand, and other loose materials;
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites;
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites; water sweepers shall vacuum up excess water to avoid runoff-related impacts to water quality;
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets;
- Apply non-toxic soil stabilizers to inactive construction areas;
- Enclose, cover, water twice daily, or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.);
- Limit traffic speeds on unpaved roads to 15 mph;
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways;
- Replant vegetation in disturbed areas as quickly as possible;
- Install baserock at entryways for all exiting trucks, and wash off the tires or tracks of all trucks and equipment in designated areas before leaving the site; and
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.

Implementation of this mitigation measure would reduce construction period air quality impacts to a less-than-significant level. (LTS)

d. Projects, Criteria Pollutants and Public Health. Despite great progress in air quality improvement, approximately 146 million people nationwide lived in counties with pollution levels above the national standards in 2002. Out of the 230 nonattainment areas identified during the 1990 Clean Air Act Amendment designation process, 124 areas remain under nonattainment status or designation today. In these nonattainment areas, however, the severity of air pollution episodes has decreased. Air quality in the San Francisco Bay Area Air Basin in the past 20 years has improved steadily and dramatically, even with the increase in population and vehicles and other sources.

As shown in Table V.D-2, long-term exposure to elevated levels of criteria pollutants could result in potential health effects. However, as stated in the thresholds of significance, emission thresholds established by the air district are used to manage total regional emissions within an air basin, based on the air basin attainment status for criteria pollutants. These emission thresholds were established for individual projects that would contribute to regional emissions and pollutant concentrations that may affect or delay the projected attainment target year for certain criteria pollutants.

Because of the conservative nature of the thresholds and the basin-wide context of individual project emissions, there is no direct correlation of a single project to localized health effects. One individual

project having emissions exceeding a threshold does not necessarily result in adverse health effects for residents in the project vicinity. This condition is especially true when the criteria pollutants exceeding thresholds are those with regional effects, such as ozone precursors like NOx and ROG.

Based on the above discussion, the potential for an individual project to significantly degrade regional air quality or contribute to significant health risk is small, even if the emission thresholds are exceeded by the project. Because of the overall improvement trend in air quality in the air basin, it is unlikely the regional air quality would worsen or health risk increase from the current condition due to emissions from an individual project.

E. NOISE AND VIBRATION

This section describes existing noise and vibration conditions, sets forth criteria for determining the significance of noise and vibration impacts, and estimates the likely noise and vibration impacts that would result from development of the proposed project. Mitigation measures are recommended, if required, to address significant environmental impacts.

1. Setting

This section describes the fundamentals of noise and also describes the existing noise and vibration setting within the project site and its vicinity.

a. Characteristics of Sound. To the human ear, sound has two significant characteristics: pitch and loudness. A specific pitch can be an annoyance, while loudness can affect our ability to hear. Pitch is the number of complete vibrations or cycles per second of a wave that results in the range of tone from high to low. Loudness is the strength of a sound that describes a noisy or quiet environment, and it is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured with instruments.

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation or sleep.

Several noise measurement scales exist which are used to describe noise in a particular location. A *decibel* (dB) is a unit of measurement which indicates the relative intensity of a sound. The 0 point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of 3 dB or less are only perceptible in laboratory environments. Audible increases in noise levels generally refer to a change of 3 dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a ten-fold increase in acoustic energy, while 20 dB is 100 times more intense, 30 dB is 1,000 times more intense. Each 10-dB increase in sound level is perceived as approximately a doubling of loudness. Sound intensity is normally measured through the *A-weighted sound level* (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Table V.E-1 shows representative outdoor and indoor noise levels in units of dBA.

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes the sound level to attenuate or be reduced, resulting in a 6-dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise sensitive receptor of concern.

b. Fundamentals of Noise. Based on the adverse effects of noise, the federal government, the State of California, and many local governments have established maximum allowed noise levels to protect public health and safety and to prevent disruption of certain activities.

Various noise measurements are used to assess the level and the annoyance potential of community noise such as that generated by aircraft activity and vehicular traffic, as described below.

Table V.E-1: Typical A-Weighted Sound Levels

Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Evaluations
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle at a few feet away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Loud	
Pneumatic Drill; Vacuum Cleaner	80	Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	
Near Freeway Auto Traffic	70	Moderately Loud	Reference Level
Average Office	60	Moderate	1/2 as loud
Suburban Street	55	Moderate	
Light Traffic; Soft Radio Music in Apartment	50	Quiet	1/4 as loud
Large Transformer	45	Quiet	
Average Residence Without Stereo Playing	40	Faint	1/8 as loud
Soft Whisper	30	Faint	
Rustling Leaves	20	Very Faint	
Human Breathing	10	Very Faint	Threshold of Hearing

Source: Compiled by LSA Associates, Inc., 2004.

(1) A-Weighted Sound Level (dBA). The A-weighted sound pressure level is commonly abbreviated dBA. The dB refers to a measurement in decibels. The "A" identifies a particular setting of the measurement instrument, the sound level meter. The A-weighted sound level provides a scale with the range and characteristics most consistent with human hearing ability. The dBA measures sound over a period of time, typically 1 hour, to identify the minimum and maximum levels and the statistical variation of fluctuating sounds.

(2) Continuous Equivalent (Average) Noise Level (L_{eq}). The continuous equivalent (average) noise level is an energy equivalent level of fluctuating noise for a measured time period. Data from this measurement are applied to the 24-hour measurement of noise.

(3) Day-Night Sound Level (L_{dn}) or Community Noise Equivalent Noise Level (CNEL). A given level of noise may be more or less tolerable depending on the time of day and duration of exposure experienced by an individual. The U.S. Department of Housing and Urban Development (HUD) and the Environmental Protection Agency (EPA) have adopted the Day-Night Sound Level (L_{dn}) as their standard unit of measurement for noise levels. This measure increases the average noise level (L_{eq}) for late evening and early morning hours (10:00 p.m. to 7:00 a.m.) by 10 dBA. The daytime noise levels (7:01 a.m. to 9:59 p.m.) are then combined with these weighted levels and are averaged to obtain a 24-hour averaged noise level.

A similar noise scale, the CNEL, which weights noise events in the late evening through early morning (as done for the L_{dn}), as well as noise events occurring between 7:00 p.m. and 10:00 p.m. (increas-

ing them by 5 dBA), is also widely used by jurisdictions concerned with noise. These two noise scales are generally considered interchangeable.

Noise levels that are less than 40 dBA CNEL/L_{dn} are not considered significant. This threshold is commonly used to assess noise impacts in environmental impact documents. In addition, generally established regulatory standards throughout California do not typically address noise levels that are less than 40 dBA. However, even low levels of noise can be annoying to people when concurrent background noise is very low.

c. Noise Regulatory Framework. The following section provides brief discussions of the federal, State, and local regulatory framework related to noise.

(1) U.S. Environmental Protection Agency (EPA). In 1972, Congress enacted the Noise Control Act. This act authorized the EPA to publish descriptive data on the effects of noise and establish levels of sound "requisite to protect the public welfare with an adequate margin of safety." These levels are separated into health (hearing loss levels) and welfare (annoyance levels) as shown in Table V.E-2. The EPA cautions that these identified levels are not standards because they do not take into account the cost or feasibility of the levels.

For protection against hearing loss, 96 percent of the population would be protected if sound levels are less than or equal to a $L_{eq}(24)$ of 70 dBA. The "(24)" signifies a L_{eq} duration of 24 hours. The EPA activity and interference guidelines are designed to ensure reliable speech communication at about 5 feet in the outdoor environment. For outdoor and indoor environments, interference with activity and annoyance should not occur if levels do not exceed 55 dBA and 45 dBA, respectively.

The noise effects associated with an outdoor L_{dn} of 55 dBA are summarized in Table V.E-3. At 55 dBA L_{dn}, 95 percent sentence clarity (intelligibility) may be expected at 3.5 meters (or 11½ feet), and reaction from the community would not be anticipated. However, as indicated in Table V.E-3, at this level, one percent of the population may complain about noise and 17 percent may indicate annoyance.

(2) State of California. The State of California has established regulations that help prevent adverse impacts to occupants of buildings located near noise sources. Referred to as the "State Noise Insulation Standard," it requires buildings to meet performance standards through design or building materials that would offset any noise source in the vicinity of the receptor. State regulations include requirements for the construction of new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings that are intended to limit the extent of noise transmitted into habitable spaces. These requirements are found in the California Code of Regulations, Title 24 (known as the Building Standards Administrative Code), Part 2 (known as the California Building Code), Appendix Chapters 12 and 12A.

For limiting noise transmitted between adjacent dwelling units, the noise insulation standards specify the extent to which walls, doors, and floor ceiling assemblies must block or absorb sound. For limiting noise from exterior noise sources, the noise insulation standards set an interior standard of 45

Table V.E-2: Summary of EPA Noise Levels for Protection of Public Health and Welfare with an Adequate Margin of Safety

Effect	Level	Area
Hearing loss	70 dBA $L_{eq}(24)$	All areas
Outdoor activity interference and annoyance	55 dBA L_{dn}	Outdoors in residential areas and farms and other outdoor areas where people spend wildly varying amounts of time and other places in which quiet is a basis for use.
	55 dBA $L_{eq}(24)$	Outdoor areas where people spend limited amounts of time, such as school yards, playgrounds, etc.
Indoor activity interference and annoyance	45 dBA L_{eq}	Indoor residential areas.
	45 dBA $L_{eq}(24)$	Other indoor areas with human activities such as schools, etc.

Source: U.S. Environmental Protection Agency, 1974. "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety." March.

Table V.E-3: Summary of Human Effects in Areas Exposed to 55 dBA L_{dn}

Type of Effects	Magnitude of Effect
Speech – Indoors	100 percent sentence intelligibility (average) with a 5 dBA margin of safety.
Speech – Outdoors	100 percent sentence intelligibility (average) at 0.35 meters (approx. 1⅛ feet). 99 percent sentence intelligibility (average) at 1.0 meters (approx. 3¼ feet). 95 percent sentence intelligibility (average) at 3.5 meters (approx. 11½ feet).
Average Community Reaction	None evident; 7 dBA below level of significant complaints and threats of legal action and at least 16 dBA below "vigorous action."
Complaints	1 percent dependent on attitude and other non-level related factors.
Annoyance	17 percent dependent on attitude and other non-level related factors.
Attitude Towards Area	Noise essentially the least important of various factors.

Source: U.S. Environmental Protection Agency, 1974. "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety." March.

dBA CNEL in any habitable room with all doors and windows closed. In addition, the standards require preparation of an acoustical analysis demonstrating the manner in which dwelling units have been designed to meet this interior standard, where such units are proposed in area with exterior noise levels greater than 60 dBA CNEL.

(3) City of Emeryville. The Emeryville General Plan noise compatibility chart, provided in Table V.E-4, establishes acceptable noise environment for each land use. For residential buildings, noise levels up to 60 dBA L_{dn} are normally acceptable. In areas with noise levels from 60 dBA to 75 dBA L_{dn}, construction of medium to high density residential buildings would require acoustic analysis to determine the insulation needed to maintain an indoor level of 45 dBA L_{dn} or to reduce exterior noise levels to below 60 dBA L_{dn}. An interior noise level of 45 dBA L_{dn} has been established for residential and an interior noise level of 60 dBA L_{dn} for retail uses.

Table V.E-4: Emeryville General Plan Noise Element Land Use Compatibility Standards for Community Noise Environments Noise/Land Use Compatibility

Land Use Category	Recommended Noise Levels, Ldn (dBA) 55	60	65	70	75	80
Residential:						
Low Density						
Medium to High Density						
Commercial:						
Hotel						
Office						
Restaurant, Retail						
Other						
Industrial:						
Light Industrial						
Custom Manufacturing						
Other						
Public/Quasi-Public:						
School, Library, Church, Hospital, Theater						
Other						
Open Space:						
All Categories						

NORMALLY ACCEPTABLE
Specified land use is acceptable, assuming standard building construction.

CONDITIONALLY ACCEPTABLE
Standard building construction is not adequate for specified land uses, however, mitigation measures may be easily employed to reduce noise to acceptable levels. An analysis of the measures by a qualified acoustical professional is required, to be approved by the City.

NORMALLY UNACCEPTABLE
The specified land use should be discouraged unless the City finds the project to be in the public interest and a detailed analysis by a qualified acoustical professional shows that specific measures which are to be included in the project would reduce indoor and outdoor noise to acceptable levels. The analysis and attenuation measures must be approved by the City.

Source: City of Emeryville General Plan, 1993.

Construction noise is regulated by Municipal Code Section 5-13.05, Construction Noise Limits ordinance. This ordinance limits construction and demolition activities to 7:00 a.m. to 6:00 p.m. on weekdays and pile driving is restricted to 8:00 a.m. to 5:00 p.m. on weekdays. Zoning Ordinance Section 9.4.59 states that noise at lot lines shall not exceed the maximum permitted sound level as set forth in the Noise Standards Table adopted by the City Council.

d. Ground-borne Vibration. Vibrating objects in contact with the ground radiate vibration waves through various soil and rock strata to the foundations of nearby buildings. As the vibration propa-

gates from the foundation throughout the remainder of the building, the vibration of floors and walls may cause perceptible vibration from the rattling of windows or a rumbling noise. The rumbling sound caused by the vibration of room surfaces is called ground-borne noise. When assessing annoyance from ground-borne noise, vibration is typically expressed as root mean square (rms) velocity in units of decibels of 1 micro-inch per second. To distinguish vibration levels from noise levels, the unit is written as "VdB." Ground-borne vibration is almost never annoying to people who are outdoors. Although the motion of the ground may be perceived, without the effects associated with the shaking of the building, the motion does not provoke the same adverse human reaction.

Human perception to vibration starts at levels as low as 67 VdB and sometimes lower. Annoyance due to vibration in residential settings starts at approximately 70 VdB. For residential buildings, the Federal Transit Administration (FTA) has established a ground-borne vibration significant impact threshold of 72 VdB for frequent events[1] and 80 VdB for infrequent events.[2] Most rapid transit operations fall into the frequent event category. However, when long freight trains are involved, the FTA guidelines recommend the frequent event criterion of 72 VdB due to the duration of the freight car vibration, even though the number of daily events may be significantly less than 70.

In extreme cases, excessive ground vibration has the potential to cause structural damage to buildings. When assessing the potential for building damage, vibration levels are expressed as peak particle velocity (PPV) in units of inches per second.

Common sources of ground-borne vibration include trains and construction activities such as blasting, pile driving and operating heavy earthmoving equipment.

Sensitive Land Uses in the Project Vicinity. Existing land uses surrounding the project site consist of residential buildings, office, commercial/retail buildings, light industrial buildings, parking structures and lots, roadways, highways, and railroad tracks. The closest sensitive receptors would be the residential buildings approximately 60 feet north of the project site (EmeryBay Apartments). An additional residential building is located approximately 150 feet southeast of the site (Terraces condominiums). A residential building is currently under construction approximately 60 feet west of the northwestern portion of the site (Avenue 64 Apartments: Formerly known as the Pinnacles), which is directly north of the high-rise condominium Pacific Park Plaza building. The construction and operation of the proposed project could affect these surrounding sensitive land uses.

e. Ambient Noise and Vibration. The project is located in an urban area and is, therefore, influenced by several surrounding noise sources. Primary noise sources that affect the background noise level of the area include the train noise from the Union Pacific Railroad (UPRR) tracks east of the project site and vehicular traffic on I-580/80, Shellmound Street, Christie Avenue, Shellmound Avenue and Powell Street. The San Francisco International Airport is located 15 miles southwest of the project site (across the Bay) and the Oakland International Airport is located approximately 8 miles south of the site. The project site is not located within the 65-CNEL noise contours for either the San

[1] The FTA defines "Frequent Events" as more than 70 vibration events per day and "Infrequent Events" as fewer than 70 vibration events per day.

[2] Federal Transit Administration, U.S. Department of Transportation, 1995. *Transit Noise and Vibration Impact Assessment.*

Francisco or Oakland International Airports, although noise from aircraft flyovers is audible on the site and contributes to the audible noise environment.[3]

(1) Existing Ambient Noise Levels. Existing noise levels were measured on March 31, 2006, between 9:30 a.m. and 12:30 p.m. for continuous periods of 15 to 30 minutes at four locations. Noise monitoring locations are shown in Figure V.E-1.

A 30-minute measurement was taken on the site of the proposed mixed use Shellmound building site to provide a representative sample to include one freight train and three Amtrak trains during the monitoring period. Measured ambient noise levels at monitoring Location 1, on 64th Street was influenced by construction noise from activities at the future residential building west of the site (i.e., Avenue 64 apartments; formerly known as "Pinnacles") and, therefore, are slightly higher than typical ambient noise levels in this area. Results of all monitoring are shown in Table V.E-5. Results indicate that current noise levels on the site range from 60.2 to 69.0 dBA L_{eq}.

Table V.E-5: Ambient Noise Monitoring Results

Monitoring Location	L_{eq}	L_{min}	L_{max}	Location
1	65.5	59.5	83.5	64th Street and Christie Avenue site, along 64th Street
2	60.2	56.1	72.0	Along Christie Avenue, on Retail Pad 2 site
3	69.0	57.9	92.7	Shellmound building site, adjacent to Union Pacific Railroad Tracks
4	67.4	59.1	85.0	Retail Pad 1 site, adjacent to Shellmound Street.

Source: LSA Associates, Inc., 2006.

Noise contour lines from I-580/80 do not exceed 60 dBA on the project site.[4] Existing traffic noise levels from the surrounding local roadways were calculated using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model. Results of the modeling are shown in Table V.E-6 and indicate that noise levels from existing traffic on surrounding streets range from 51.9 dBA to 68.6 dBA L_{dn}.

(2) Ambient Rail Noise. Freight and Amtrak trains on the UPRR tracks bordering the site on the east operate as line-haul vehicles, with speeds ranging from 15 to 20 miles per hour. Noise from the freight trains on the railroad tracks can reach 90 dBA at 100 feet (without horn). Sounding of train horns could generate short-term noise levels of up to 95 dBA at 100 feet from the tracks. These intermittent noise measurements reflect the peak noise levels which occur when trains pass the site. Long-term (24-hour) noise measurements taken in 2005 in Emeryville show that noise contours for the averaged day and night ambient noise levels from the railroad tracks do not exceed 70 dBA on the project site.[5]

(3) Vibration. Wilson, Ihrig & Associates, Inc. measured train passby vibration levels on the project site in early March 2006. Simultaneous measurements were obtained at two locations, one located directly on the southeastern edge of the project site, at the location of the proposed mixed use Shellmound building, approximately 15 feet from the nearest track on the southern portion of the site. This location is represented as the "0 feet" location in Table V.E-7. Another measurement was taken

[3] City of Emeryville, 2006. Emeryville General Plan Update, Opportunities & Challenges Report.

[4] Ibid.

[5] Ibid.

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FEET

LEGEND

3 NOISE MONITORING LOCATIONS

B VIBRATION MEASUREMENT LOCATIONS

LOCAL STREETS ADJACENT TO PROJECT SITE

PROJECT SITE BOUNDARIES

FIGURE V.E-1

Marketplace Redevelopment Project EIR

Ambient Noise and Vibration Monitoring Locations

SOURCE: GLOBEXPLORER, LSA ASSOCIATES, INC., 2006.

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Table V.E-6: Ambient Noise Levels From Existing Traffic Conditions

Roadway Segment	ADT [a]	Center-line to 70 LDN (feet)	Center-line to 65 LDN (feet)	Center-line to 60 LDN (feet)	LDN (dBA) 50 feet from Centerline of Outer-most Lane
Bay Street (Ashby Avenue to 65th Street)	7,700	< 50	< 50	66	60.7
65th Street (Christie Avenue to Shellmound Street)	3,000	< 50	< 50	< 50	56.6
65th Street (Shellmound Street to Hollis Street)	6,100	< 50	< 50	56	59.7
Shellmound Street (65th Street to 64th Street)	8,200	< 50	< 50	68	61.0
64th Street (La Coste Street to Christie Avenue)	1,000	< 50	< 50	< 50	51.9
64th Street (Christie Avenue to Shellmound Street)	1,200	< 50	< 50	< 50	52.6
Christie Avenue (64th Street to Shellmound Way)	8,500	< 50	< 50	70	61.1
Shellmound Street (64th Street to Shellmound Way)	10,600	< 50	< 50	81	62.1
Shellmound Way (Christie Avenue to Shellmound Street)	7,900	< 50	< 50	69	60.1
Christie Avenue (Shellmound Way to Powell Street)	15,100	< 50	< 50	103	62.9
Powell Street (Peladeau Street to Hollis Street)	21,300	< 50	101	206	66.2
Powell Street (Christie Avenue to Hollis Street)	23,900	< 50	108	222	66.7
Powell Street (I-80 EB to Christie Avenue)	36,900	73	140	294	68.6
Frontage Road (I-80 WB to Powel Street)	26,900	70	120	241	66.6
40th Street (Harlan Street to Emery Street)	17,200	< 50	55	113	63.4
40th Street (Emery Street to San Pablo Avenue)	18,800	< 50	65	123	62.7
40th Street (San Pablo Avenue to Adeline Street)	13,300	< 50	< 50	100	61.2
San Pablo Avenue (40th Street to Adeline Street)	26,600	< 50	71	150	65.3
San Pablo Avenue (Adeline Street to 36th Street)	24,900	< 50	72	145	64.2

[a] ADT calculated from traffic volumes in the Fehr & Peers TIA. Model rounds ADT up to 100 trips.
Source: LSA Associates, 2006.

Table V.E-7: Train Passby Vibration Levels

Time	Train	Track	Vibration Levels at 0 Feet[a]				Vibration Levels at 100 Feet[b]			
			Measured on Track (in/s)	Measured on Track (VdB Peak)[c]	Predicted on Near-est Track (in/s)	Predicted on Near-est Track (VdB Peak) [c]	Measured on Track (in/s)	Measured on Track (VdB Peak)[c]	Predicted on Near-est Track (in/s)	Predicted on Near-est Track (VdB Peak) [c]
11:16	Amtrak	4	0.010	80	0.026	88	0.003	68	0.006	76
11:37	UP Freight[d]	3	0.030	90	0.069	97	0.014	83	0.031	90
12:24	Amtrak	5	0.010	80	0.038	92	0.003	68	0.009	80
12:32	Amtrak	5	0.010	80	0.038	92	0.003	70	0.012	82
12:58	UP Freight	3	0.025	88	0.055	95	0.008	78	0.017	85
1:12	Amtrak	3	0.010	80	0.022	87	0.003	68	0.006	75
1:29	UP Freight	3	0.025	88	0.055	95	0.006	76	0.014	83
1:52	Amtrak	4	0.010	80	0.026	88	0.003	68	0.006	76
2:02	Amtrak	4	0.010	80	0.026	88	0.003	68	0.006	76
2:23	UP Freight	3	0.020	86	0.044	93	0.011	81	0.025	88
3:22	UP Freight	3	0.030	90	0.069	97	0.011	81	0.025	88
3:38	Amtrak	4	0.010	80	0.026	88	0.003	68	0.006	76
3:55	Amtrak	4	0.010	80	0.026	88	0.003	68	0.006	76

[a] Measurement taken at the southeast edge of the site, at the location of the proposed mixed use Shellmound building approximately 15 feet from the nearest track on the southern portion of the site.
[b] Measurement taken 100 feet from the curb of the existing parking area in the southeastern portion of the site.
[c] Vibration Decibel (VdB) units typically denote an RMS measurement. The values represented as "VdB Peak" are the peak vibration levels converted into decibel units. These will be higher than RMS vibration levels.
[d] "UP" refers to Union Pacific and Burlington Northern Santa Fe freight trains.

Source: Wilson, Ihrig & Associates, Inc., 2006.

100 feet from the curb of the existing parking area in the southeastern portion of the project site. Two Instatel Blastmate vibration monitors were used to log the maximum PPV's for a duration of 4.5 hours. Table V.E-7 shows the recorded vibration levels at the two measurement locations. During the recording time, five freight trains and eight Amtrak passenger trains passed by the measurement locations. Train pass-by levels are listed in inches per second (in/s) and VdB Peak. A magnitude 3.4 earthquake occurred at approximately 11:35 a.m. (which did not affect the train noise vibrations measurements).

During the monitoring period, train passbys occurred only on the three tracks farthest from the project site. Trains on the closer tracks could produce higher vibration levels than the equivalent trains measured on the farther track. Table V.E-7 includes the predicted vibration velocity levels if all trains were run on the tracks nearest to the project site. The predicted vibration levels are based on the most conservative assumptions for the potential increased vibration from the nearby tracks.

As shown in Table V.E-7, the freight trains produced much higher vibration levels than the Amtrak trains. This is expected with the increased mass and speed of the freight trains. Larger freight trains produced higher vibration levels, with a 98-car train producing the highest PPV vibration of 0.030 in/s.

As shown in Table V.E-7, peak ground-borne vibration levels measured on the southeastern portion of the site closest to the railroad tracks ranged from 80 to 90 VdB. If trains were to run on the tracks closest to the site, noise from peak ground-borne vibration could range from 87 to 97 VdB.

2. Impacts and Mitigation Measures

This section evaluates potential noise and vibration impacts associated with the proposed project. It also identifies mitigation measures to address these impacts, as appropriate.

a. Criteria of Significance. The proposed project would result in a significant noise or vibration impact if it would:

- Expose existing noise sensitive land use to an increase in L_{dn} of more than 5 dBA; or between 3 and 5 dBA if the future noise level will be greater than considered "normally acceptable" for the receiving land use according to the Noise Element (Table IV.E-3). Noise level increases of 3 dBA or less in the L_{dn} are considered less than significant regardless of the noise level at the receiving land use.
- Expose project land uses to noise exposure greater than that considered normally acceptable in the City of Emeryville General Plan Noise Element compatibility guidelines (see Table IV.E-3). The impact would be less-than-significant if the noise level inside new multi-family dwellings does not exceed an L_{dn} of 45 dBA due to exterior noise sources (CBC Section 1208A.8.2).

- Expose persons to or generate noise or vibration levels in excess of the maximum permitted levels for stationary sources as contained in the City Zoning Ordinance (Section 9.4.59). This ordinance applies to operational noise such as manufacturing processes or mechanical ventilation equipment. This ordinance does not apply to operations involved in the construction or demolition of structures, or motor vehicles or trains.
- Generate construction related noise outside the specific hour limitation in the City Municipal Code Construction Noise Limits (Section 5-13.05). The City's Municipal Code limits construction activities to (7:00 a.m. to 6:00 p.m. on weekdays, pile driving is restricted to 8:00 a.m. to 5:00 p.m.). Compliance with the provisions of this section would constitute a less-than- significant impact.
- Generate construction related vibration in excess of 0.2 inches per second. A ground borne vibration level in excess of 0.2 inches per second could damage fragile buildings.[6]
- Expose project buildings to railroad generated vibration levels which exceed recommended criteria from the Federal Transit Administration (FTA). The FTA suggests acceptable ground vibration levels for housing near rail lines. For infrequent rail events (less than 70 per day) the criterion is 80 VdB. For frequent rail events (greater than 70) the criterion is 72 VdB.[7]

b. Less-Than-Significant Noise Impacts. Less-than-significant impacts of the proposed project are discussed below.

(1) Vehicle-Related Noise. The project's potential affect on future traffic noise levels were calculated using the FHWA Highway Traffic Noise Prediction Model. These project scenarios were evaluated: Existing, 2010 and 2030. Traffic data used in the model were obtained from the traffic impact analysis prepared by Fehr and Peers (March 2006). Consistent with the traffic impact analysis, future traffic volumes include traffic from approved, but not yet constructed developments, as well as future roadway improvements.

The resulting noise levels were weighted and summed over a 24-hour period in order to determine the L_{dn} values. L_{dn} contours are derived through a series of computerized iterations to isolate the 60, 65, and 70 dBA L_{dn} contour for traffic noise levels in the project area. Table V.E-8 lists traffic noise levels for future 2010 conditions *without* the project. Table V.E-9 lists traffic noise levels for future 2030 conditions *without* the project. Table V.E-10 lists traffic noise levels for existing conditions *plus* the proposed project. Table V.E-11 lists traffic noise levels for future 2010 conditions *plus* the proposed project. Table V.E-12 shows traffic noise levels for future 2030 conditions *plus* the proposed project.

Tables V.E-10, V.E-11, and V.E-12 show that there would be minor changes in the traffic noise levels associated with the development of the proposed project. The largest increase in traffic-related noise as a result of the project would be on 64th Street from Christie Avenue to Shellmound Street, which would be 1.3 dBA from existing levels. This noise level increase is well below the 3 dBA increase considered to be perceptible by the human ear in an outdoor environment. No significant traffic noise

[6] Federal Transit Administration, U.S. Department of Transportation, 1995. *Transit Noise and Vibration Impact Assessment.*

[7] Ibid.

Table V.E-8: Future 2010 Conditions Without Project Traffic Noise Levels

Roadway Segment	ADT [a]	Center-line to 70 LDN (feet)	Center-line to 65 LDN (feet)	Center-line to 60 LDN (feet)	LDN (dBA) 50 feet from Centerline of Outermost Lane
Bay Street (Ashby Avenue to 65th Street)	10,900	< 50	< 50	83	62.2
65th Street (Christie Avenue to Shellmound Street)	3,200	< 50	< 50	< 50	56.9
65th Street (Shellmound Street to Hollis Street)	7,700	< 50	< 50	66	60.7
Shellmound Street (65th Street to 64th Street)	9,700	< 50	< 50	76	61.7
64th Street (La Coste Street to Christie Avenue)	1,000	< 50	< 50	< 50	51.9
64th Street (Christie Avenue to Shellmound Street)	1,800	< 50	< 50	< 50	54.4
Christie Avenue (64th Street to Shellmound Way)	8,700	< 50	< 50	71	61.2
Shellmound Street (64th Street to Shellmound Way)	11,600	< 50	< 50	86	62.5
Shellmound Way (Christie Avenue to Shellmound Street)	7,800	< 50	< 50	68	60.0
Christie Avenue (Shellmound Way to Powell Street)	16,400	< 50	< 50	109	63.2
Powell Street (Peladeau Street to Hollis Street)	25,200	< 50	111	229	66.9
Powell Street (Christie Avenue to Hollis Street)	30,200	66	124	258	67.7
Powell Street (I-80 EB to Christie Avenue)	42,500	78	153	323	69.2
Frontage Road (I-80 WB to Powel Street)	31,100	67	126	263	67.9
40th Street (Harlan Street to Emery Street)	20,900	< 50	61	128	64.3
40th Street (Emery Street to San Pablo Avenue)	22,800	< 50	72	139	63.5
40th Street (San Pablo Avenue to Adeline Street)	16,600	< 50	62	114	62.1
San Pablo Avenue (40th Street to Adeline Street)	32,700	< 50	81	171	66.2
San Pablo Avenue (Adeline Street to 36th Street)	31,500	< 50	83	169	65.3

[a] ADT calculated from traffic volumes in the Fehr & Peers TIA. .Model rounds ADT up to 100 trips.

Source: LSA Associates, Inc., 2006.

Table V.E-9: Future 2030 Conditions Without Project Traffic Noise Levels

Roadway Segment	ADT [a]	Center-line to 70 LDN (feet)	Center-line to 65 LDN (feet)	Center-line to 60 LDN (feet)	LDN (dBA) 50 feet from Centerline of Outermost Lane
Bay Street (Ashby Avenue to 65th Street)	15,000	< 50	< 50	102	63.6
65th Street (Christie Avenue to Shellmound Street)	3,600	< 50	< 50	< 50	57.4
65th Street (Shellmound Street to Hollis Street)	8,000	< 50	< 50	67	60.9
Shellmound Street (65th Street to 64th Street)	10,600	< 50	< 50	81	62.1
64th Street (La Coste Street to Christie Avenue)	1,000	< 50	< 50	< 50	51.9
64th Street (Christie Avenue to Shellmound Street)	1,900	< 50	< 50	< 50	54.6
Christie Avenue (64th Street to Shellmound Way)	8,400	< 50	< 50	70	61.1
Shellmound Street (64th Street to Shellmound Way)	12,200	< 50	< 50	89	62.7
Shellmound Way (Christie Avenue to Shellmound Street)	8,300	< 50	< 50	71	60.3
Christie Avenue (Shellmound Way to Powell Street)	16,500	< 50	53	110	63.3
Powell Street (Peladeau Street to Hollis Street)	27,100	63	116	241	67.3
Powell Street (Christie Avenue to Hollis Street)	33,000	69	131	274	68.1
Powell Street (I-80 EB to Christie Avenue)	44,800	80	159	334	69.4
Frontage Road (I-80 WB to Powel Street)	32,200	68	129	269	68.0
40th Street (Harlan Street to Emery Street)	26,700	< 50	71	150	65.3
40th Street (Emery Street to San Pablo Avenue)	24,400	< 50	74	145	63.8
40th Street (San Pablo Avenue to Adeline Street)	19,800	< 50	67	127	62.9
San Pablo Avenue (40th Street to Adeline Street)	37,900	< 50	89	189	66.9
San Pablo Avenue (Adeline Street to 36th Street)	36,600	< 50	90	186	65.9

[a] ADT calculated from traffic volumes in the Fehr & Peers TIA. .Model rounds ADT up to 100 trips.
Source: LSA Associates, Inc., 2006.

Table V.E-10: Existing Conditions Plus Project Traffic Noise Levels

Roadway Segment	ADT [a]	Center-line to 70 LDN (feet)	Center-line to 65 LDN (feet)	Center-line to 60 LDN (feet)	LDN (dBA) 50 feet from Centerline of Outermost Lane	Increase from Existing Conditions
Bay Street (Ashby Avenue to 65th Street)	8,500	< 50	< 50	70	61.1	0.4
65th Street (Christie Avenue to Shellmound Street)	3,100	< 50	< 50	< 50	56.8	0.2
65th Street (Shellmound Street to Hollis Street)	6,600	< 50	< 50	59	60.0	0.3
Shellmound Street (65th Street to 64th Street)	9,400	< 50	< 50	75	61.6	0.6
64th Street (La Coste Street to Christie Avenue)	1,000	< 50	< 50	< 50	51.9	0.0
64th Street (Christie Avenue to Shellmound Street)	1,600	< 50	< 50	< 50	53.9	1.3
Christie Avenue (64th Street to Shellmound Way)	9,300	< 50	< 50	74	61.5	0.4
Shellmound Street (64th Street to Shellmound Way)	12,600	< 50	< 50	91	62.9	0.8
Shellmound Way (Christie Avenue to Shell-mound Street)	9,600	< 50	< 50	77	60.9	0.8
Christie Avenue (Shellmound Way to Powell Street)	17,500	< 50	55	114	63.5	0.6
Powell Street (Peladeau Street to Hollis Street)	21,900	< 50	102	210	66.3	0.1
Powell Street (Christie Avenue to Hollis Street)	24,500	< 50	109	225	66.8	0.1
Powell Street (I-80 EB to Christie Avenue)	38,800	74	145	304	68.8	0.2
Frontage Road (I-80 WB to Powel Street)	28,100	64	119	246	67.4	0.8
40th Street (Harlan Street to Emery Street)	17,400	< 50	55	113	63.5	0.1
40th Street (Emery Street to San Pablo Avenue)	19,100	< 50	66	124	62.7	0.0
40th Street (San Pablo Avenue to Adeline Street)	13,400	< 50	< 50	101	61.2	0.0
San Pablo Avenue (40th Street to Adeline Street)	26,800	< 50	72	150	65.4	0.1
San Pablo Avenue (Adeline Street to 36th Street)	25,000	< 50	73	146	64.3	0.1

[a] ADT calculated from traffic volumes in the Fehr & Peers TIA. .Model rounds ADT up to 100 trips

Source: LSA Associates, Inc., 2006.

Table V.E-11: Future 2010 Conditions Plus Project Traffic Noise Levels

Roadway Segment	ADT [a]	Center-line to 70 LDN (feet)	Center-line to 65 LDN (feet)	Center-line to 60 LDN (feet)	LDN (dBA) 50 feet from Centerline of Outermost Lane	Increase from 2010 w/o Project Conditions
Bay Street (Ashby Avenue to 65th Street)	11,700	< 50	< 50	87	62.5	0.3
65th Street (Christie Avenue to Shellmound Street)	3,300	< 50	< 50	< 50	57.0	0.1
65th Street (Shellmound Street to Hollis Street)	8,200	< 50	< 50	68	61.0	0.3
Shellmound Street (65th Street to 64th Street)	10,900	< 50	< 50	83	62.2	0.5
64th Street (La Coste Street to Christie Avenue)	1,000	< 50	< 50	< 50	51.9	0.0
64th Street (Christie Avenue to Shellmound Street)	2,100	< 50	< 50	< 50	55.1	0.7
Christie Avenue (64th Street to Shellmound Way)	9,500	< 50	< 50	75	61.6	0.4
Shellmound Street (64th Street to Shellmound Way)	13,600	< 50	< 50	96	63.2	0.7
Shellmound Way (Christie Avenue to Shellmound Street)	9,600	< 50	< 50	77	60.9	0.9
Christie Avenue (Shellmound Way to Powell Street)	18,900	< 50	58	120	63.8	0.6
Powell Street (Peladeau Street to Hollis Street)	25,800	< 50	113	233	67.0	0.1
Powell Street (Christie Avenue to Hollis Street)	30,800	66	126	262	67.8	0.1
Powell Street (I-80 EB to Christie Avenue)	44,400	80	158	333	69.4	0.2
Frontage Road (I-80 WB to Powel Street)	32,300	68	129	270	68.0	0.1
40th Street (Harlan Street to Emery Street)	21,200	< 50	62	129	64.3	0.0
40th Street (Emery Street to San Pablo Avenue)	23,100	< 50	72	140	63.6	0.1
40th Street (San Pablo Avenue to Adeline Street)	16,700	< 50	62	115	62.2	0.1
San Pablo Avenue (40th Street to Adeline Street)	32,900	< 50	81	172	66.3	0.1
San Pablo Avenue (Adeline Street to 36th Street)	31,700	< 50	83	169	65.3	0.0

[a] ADT calculated from traffic volumes in the Fehr & Peers TIA. .Model rounds ADT up to 100 trips

Source: LSA Associates, Inc., 2006.

Table V.E-12: Future 2030 Conditions Plus Project Traffic Noise Levels

Roadway Segment	ADT [a]	Center-line to 70 LDN (feet)	Center-line to 65 LDN (feet)	Center-line to 60 LDN (feet)	LDN (dBA) 50 feet from Centerline of Outermost Lane	Increase from 2030 w/o Project Conditions
Bay Street (Ashby Avenue to 65th Street)	15,900	< 50	< 50	106	63.9	0.3
65th Street (Christie Avenue to Shellmound Street)	3,700	< 50	< 50	< 50	57.5	0.1
65th Street (Shellmound Street to Hollis Street)	8,500	< 50	< 50	70	61.1	0.2
Shellmound Street (65th Street to 64th Street)	12,000	< 50	< 50	88	62.6	0.5
64th Street (La Coste Street to Christie Avenue)	1,000	< 50	< 50	< 50	51.9	0.0
64th Street (Christie Avenue to Shellmound Street)	2,200	< 50	< 50	< 50	55.3	0.7
Christie Avenue (64th Street to Shellmound Way)	9,100	< 50	< 50	73	61.4	0.3
Shellmound Street (64th Street to Shellmound Way)	14,200	< 50	< 50	98	63.4	0.7
Shellmound Way (Christie Avenue to Shellmound Street)	10,000	< 50	< 50	79	61.1	0.8
Christie Avenue (Shellmound Way to Powell Street)	18,700	< 50	57	119	63.8	0.5
Powell Street (Peladeau Street to Hollis Street)	27,700	63	118	244	67.4	0.1
Powell Street (Christie Avenue to Hollis Street)	33,500	69	132	276	68.2	0.1
Powell Street (I-80 EB to Christie Avenue)	46,500	82	162	343	69.6	0.2
Frontage Road (I-80 WB to Powel Street)	33,200	69	131	275	68.1	0.1
40th Street (Harlan Street to Emery Street)	27,000	< 50	72	151	65.4	0.1
40th Street (Emery Street to San Pablo Avenue)	27,600	< 50	79	156	64.3	0.5
40th Street (San Pablo Avenue to Adeline Street)	19,900	< 50	67	127	62.9	0.0
San Pablo Avenue (40th Street to Adeline Street)	38,100	< 50	89	190	66.9	0.0
San Pablo Avenue (Adeline Street to 36th Street)	36,700	< 50	91	186	65.9	0.0

[a] ADT calculated from traffic volumes in the Fehr & Peers TIA. Model rounds ADT up to 100 trips

Source: LSA Associates, Inc., 2006.

impacts would occur for off-site land uses. As a result, no mitigation is required to address off-site traffic related noise.

(2) Stationary Noise Sources. Stationary noise sources that may be associated with the Marketplace project include mechanical ventilation and idling delivery trucks associated with the retail portion of the project. The proposed project would not include manufacturing processes or mechanical ventilation equipment that would generate excess noise or vibration levels. The proposed project may include ventilation systems; however, those used for the residential and commercial uses on the site are not expected to exceed the City's permitted levels for stationary noise sources. Noise from the premises of any commercial, industrial or residential establishment; sustained truck idling; loading and unloading operations are considered regulated under Chapter 13 of the City of Emeryville Municipal Code and are restricted to the hours of 7:00 a.m. to 9:00 p.m. on weekdays and 8:00 a.m. to 9:00 p.m. on weekends.

Delivery trucks serving the mixed use retail and commercial components of the proposed project would be limited to the hours specified in the City's Municipal Code and would therefore have a less-than-significant impact. Deliveries would be expected to contribute to future cumulative ambient noise levels on the site. The additional limited idling associated with delivery trucks serving the mixed use would contribute to the cumulative stationary noise levels, but would not be expected to substantially exceed the existing ambient noise levels.

(3) Reflected Noise or Vibration. Construction of the proposed buildings would not have a significant effect on the existing vibration or train noise elsewhere, including the existing residential building located approximately 150 feet southeast of the site (Terraces condominiums). Additional buildings on the site could provide a minor reduction of vibration caused by the train operations as an additional building could have a dampening effect.

Upon construction, a fraction of train noise would be reflected off of the proposed Shellmound building to the train tracks (east of the building), with an even smaller fraction of train noise reflecting over the train to the east side of the tracks. The reflected portion of the train noise reaching over the train would be less than 1 dBA of noise change, which would be inaudible to the human ear. Because the noise change from reflected train noise off the proposed Shellmound building on the residential building located southeast of the project site (Terraces condominiums) would be inaudible, a change in train noise at the existing buildings from the proposed project is not anticipated.

c. Significant Noise and Vibration Impacts. The proposed project would result in significant noise and vibration-related impacts described below.

(1) Exposure of Site Uses to Unacceptable Noise Levels. As discussed above, traffic generated by the proposed project would not be significant enough to result in any perceptible changes in noise. However, anticipated future traffic could result in noise levels that would significantly impact the proposed project.

<u>Impact NOISE-1</u>: Local traffic will generate long-term exterior noise exceeding Normally Acceptable levels on the project site and could expose site users to unacceptable noise levels. (S)

Traffic-related noise levels on the project site could reach up to 63.4 dBA L_{dn} at the residential buildings adjacent to Shellmound Street and up to 61.4 dBA L_{dn} at the residential buildings adjacent to Christie Avenue, exceeding the "normally acceptable" level established by the City's land use compatibility chart, but under the maximum exterior level of 75 dBA L_{dn}. In accordance with the General Plan Noise Element, in areas with noise levels from 60 dBA to 75 dBA L_{dn}, construction of medium- to high-density residential buildings would require acoustic analysis to determine the insulation needed to maintain an indoor level of 45 dBA L_{dn}.

Based on the EPA's Protective Noise Levels,[8] with a combination of walls, doors, and windows, standard construction for northern California residential buildings would provide more than 25 dBA in exterior to interior noise reduction with windows closed and 15 dBA or more with windows open. With windows open, the residents would not meet the interior noise standard (i.e., 63.4 dBA – 15 dBA = 48.4 dBA). As a result, a form of mechanical ventilation, such as air conditioning systems, would be required to ensure that windows could remain closed for a prolonged period of time.

Implementation of the following mitigation measure would reduce project site traffic noise exposure to less-than-significant levels:

> Mitigation Measure NOISE-1: Mechanical ventilation, such as air conditioning systems or passive ventilation, shall be included in the design for all units in the Shellmound building and units of the mixed use 64th & Christie building that face 64th Street or Christie Avenue to ensure that widows can remain closed for prolonged periods of time to meet the interior noise standard and Uniform Building Code Requirements. (LTS)

Impact NOISE-2: Train activity from tracks adjacent to the proposed Shellmound building site would generate long-term exterior noise exceeding Normally Acceptable levels on the project site. (S)

Noise from freight trains on the UPRR tracks could be as high as 90 dBA at 100 feet without the horn. The sounding of train horns could generate noise levels of up to 95 dBA at 100 feet. Peak noise from train operations could be up to 95 dBA at 100 feet.[9] Average long-term train noise from the railroad tracks adjacent to the proposed Shellmound building would range up to 70 dBA L_{dn}, which is in the conditionally acceptable noise range on the General Plan land use compatibility chart (Table V.E-4). With windows open, the interiors would not meet the interior noise standard of 45 dBA L_{dn}. As a result, a form of mechanical ventilation such as air conditioning systems would be required to ensure that windows can remain closed for a prolonged period of time.

The implementation of the following two-part Mitigation Measure would reduce project site train related noise exposure to a less-than-significant level:

> Mitigation Measure NOISE-2a: Mitigation Measure Noise-1 shall be implemented.

[8] EPA 550/9-79-100, November 1978.

[9] City of Emeryville, 2006. Emeryville General Plan Update, Opportunities & Challenges Report.

Mitigation Measure NOISE-2b: Triple-paned windows with a minimum rating of STC-32 shall be installed for all units within the Shellmound building directly exposed to the railroad tracks at all heights. (LTS)

Impact NOISE-3: The proposed project could expose future residents of the Shellmound building to excessive ground-borne vibration levels. (S)

Based on the vibration measurements taken at the project site, vibration levels would be below the 0.10 in/sec PPV and, therefore, would have virtually no risk of architectural damage to normal buildings. As a result, exterior building mitigation is not required.

Vibration levels inside proposed buildings would depend on the vibration levels in the ground and building construction. Based on the methodology for a "general vibration assessment" in the FTA guidance manual, vibration levels inside buildings are typically less than the vibration levels in the ground.

The measured ground-borne vibration levels on the Shellmound building was 75 VdB. Actual ground-borne vibrations could be higher when trains use the tracks located closest to the proposed site of this building. The measured vibration level exceeds the 72 VdB FTA thresholds for residential uses.

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level:

Mitigation Measure NOISE-3: An acoustical engineer shall prepare a detailed ground-borne noise assessment for the proposed project. The assessment shall include an analysis of the vibration isolation provided in the proposed construction design and provide future calculations for the vibration levels on each of the floors to be used for residential dwellings. The assessment shall include recommendations if necessary to reduce vibration levels to 72 VdB or less. Any vibration isolation and reduction design features provided by the acoustical engineer shall be incorporated in the final engineering plans for the project. The assessment shall be submitted and accepted by the City prior to the issuance of building permits for the Shellmound building. (LTS)

(2) Construction Related Noise and Vibration. Project construction would result in two short-term significant impacts.

Impact NOISE-4: On-site construction activities would potentially result in short-term noise impacts on adjacent residential uses. (S)

Two types of short-term noise impacts would occur during demolition and project construction. The first is the increase in traffic flow on local streets, associated with the transport of workers, equipment, and materials to and from the project site. The pieces of heavy equipment for grading and construction would be moved to the site and remain for the duration of each construction phase. The increase in traffic flow on the surrounding roads due to construction traffic is expected to be minimal. However, there would be short-term intermittent high noise levels associated with trucks arriving at and departing from the project site.

The second type of short-term noise impact is related to the noise generated by heavy equipment operating on the project site. Construction (including demolition of existing structures) is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction related noise ranges to be categorized by work phase. Table V.E-13 lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor.

Noise levels range up to 99 dBA L_{max} at 50 feet during construction. The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels because multiple pieces the noisiest construction equipment (i.e., earthmoving equipment) operate simultaneously. Earthmoving equipment includes excavation machinery, such as dozers and loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by 3 to 4 minutes at lower power settings. Construction of the proposed project is expected to require the use of earthmovers, dozers, materials crushing equipment and water and pickup trucks. Noise typically associated with the use of grading construction equipment is estimated between 79 and 89 dBA L_{max} at a distance of 50 feet from the construction effort, which would be used on the project site. As seen in Table V.E-12, the maximum noise level generated by each earthmover on the proposed project site is assumed to be 88 dBA L_{max} at 50 feet from the earthmover. The maximum noise level generated by water and pickup trucks is approximately 86 dBA L_{max} at 50 feet from these vehicles. Each doubling of the sound sources with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates as an individual noise source, the worst-case composite noise level during this phase of construction would be 91 dBA L_{max} at a distance of 50 feet from an active construction area.

The nearest residences are located approximately 75 feet north of the project site and may be subject to short-term, intermittent, maximum noise reaching 89.5 dBA L_{max}, generated by construction activities on the project site. This range of noise levels would be higher than the ambient noise from vehicular traffic in the project vicinity, but would be less than the existing intermittent peak train noise.

In accordance with the City Noise Ordinance, Municipal Code Section 5-13.05, construction and demolition activities would be limited to the following times: weekdays from 7:00 a.m. to 6:00 p.m. for general demolition activities, and from 8:00 a.m. to 5:00 p.m. for pile driving and similarly loud activities. In addition to compliance with the City Noise Ordinance,

Table V.E-13: Maximum Construction Equipment Noise Levels

Type of Equipment	Range of Sound Levels Measured (dBA at 50 feet)	Suggested Sound Levels for Analysis (dBA at 50 feet)
Pile Drivers	81 to 96	93
Rock Drills	83 to 99	96
Jackhammers	75 to 85	82
Pneumatic Tools	78 to 88	85
Pumps	68 to 80	77
Dozers	85 to 90	88
Tractors	77 to 82	80
Front-End Loaders	86 to 90	88
Hydraulic Backhoe	81 to 90	86
Hydraulic Excavators	81 to 90	86
Scrapers	81 to 87	85
Graders	79 to 89	86
Air Compressors	76 to 86	86
Trucks	81 to 87	86

Source: Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman, 1987.

implementation of the following mitigation measure would reduce the project's temporary construction-period noise impact to a less-than-significant level:

Mitigation Measure NOISE-4: The project construction contractors shall comply with the following noise reduction measures:

- All heavy construction equipment used on the project site shall be maintained in good operating condition, with all internal combustion, engine-driven equipment equipped with intake and exhaust mufflers that are in good condition.
- All stationary noise-generating equipment shall be located as far away as possible from neighboring property lines, especially residential uses.
- Prohibit and post signs prohibiting unnecessary idling of internal combustion engines.
- Designate a "noise disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaints (e.g., beginning work too early, bad muffler) and institute reasonable measures warranted to correct the problem. A telephone number for the disturbance coordinator would be conspicuously posted at the construction site.
- Utilize "quiet" models of air compressors and other stationary noise sources where such technology exists. (LTS)

Impact NOISE-5: Based on the upper range of predicted construction vibration levels, pile driving on the project site has the potential to generate ground-borne vibration levels in excess of 0.2 inches per second at structures adjacent to and within the site. (S)

Pile driving has the potential to generate both high airborne sound levels and ground-borne vibration levels. Construction vibration has the potential to damage buildings. Table IV.E-14 indicates the FTA's construction vibration damage criteria. The Shellmound building site would be located approximately 30 feet north of the Woodfin Hotel building and approximately 75 feet east of the existing Marketplace building. Maximum ground-borne vibration levels associated with potential pile driving for the mixed use Shellmound building at structures around and within the site could range from 1.15 PPV for structures 30 feet away and 0.30 PPV for structures 75 feet away.[10] The 64th & Christie building site would be approximately 60 feet east and south of existing and planned residential buildings. Maximum ground-borne vibration levels associated with potential pile

Table V.E-14: Construction Vibration Damage Criteria

Building Category	PPV (inches/second)	Approximate L_v*
I. Reinforced – Concrete, Steel or Timber (no plaster)	0.5	102
II. Engineered Concrete and Masonry (no plaster)	0.3	98
III. Non Engineer Timber and Masonry Buildings	0.2	94
IV. Buildings Extremely Susceptible to Vibration Damage	0.12	90
*RMS velocity in decibels (VdB) re 1 micro-inch/second		

Source: Federal Transit Administration

[10] Federal Transit Administration, U.S. Department of Transportation, 1995. *Transit Noise and Vibration Impact Assessment.*

driving for the 64th & Christie building at structures adjacent to the site could potentially reach 0.40 PPV.[11]

If pile driving were used in the construction process, the typical vibration level at planned and existing buildings within and near the project site that would be generated within the site would be beyond the range that is considered safe for fragile buildings (less than 0.2 inches per second). Pile driving activities could damage buildings within the project site and near the site. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level:

> Mitigation Measure NOISE-5: Based on the construction vibration damage criteria for specific building categories established by the FTA as shown in Table IV.E-13, the project applicant shall prepare a vibration impact assessment to determine potential vibration impacts to structures located within 75 feet of new construction based on the types of construction activities proposed on the project site. Recommendations shall be made for impacts that exceed the vibration damage criteria for adjacent building types (as indicated in Table IV.E-13) to ensure construction activities would not damage adjacent buildings. All recommendations in the impact assessment shall be incorporated into construction plans for the project. (LTS)

[11] Ibid.

F. HAZARDOUS MATERIALS/PUBLIC HEALTH AND SAFETY

This section evaluates the effects of the proposed project related to exposure to hazardous materials in contaminated soil, soil gas, and groundwater during and following construction of the proposed project. The evaluation was prepared based on a review of available information included with the application, consultation with City and regulatory agency staff, review of environmental investigation reports for the project site, and other published materials. Potential public health and safety impacts that would result from implementation of the proposed project are described, and mitigation measures are recommended, as appropriate.

1. Setting

This setting section summarizes the regulatory framework for hazardous materials and hazardous waste, hazardous building materials, and applicable worker health and safety requirements. The results of previous environmental investigations and deed restrictions for the existing Emeryville Marketplace site and Shellmound Street extension are described. Environmental investigations conducted separately for two properties at 6340 and 6390 Christie Avenue, which constitute the site of the proposed 64th & Christie building, are also discussed.

a. Regulatory Framework. As indicated, the following section provides the federal, State, and local regulatory framework for hazardous materials and waste, hazardous building materials (e.g., lead, asbestos), and worker health and safety.

(1) Hazardous Materials and Hazardous Waste. The use, storage, and disposal of hazardous materials,[1] including management of contaminated soils and groundwater, are regulated by numerous local, state, and federal laws and regulations. The U.S. Environmental Protection Agency (U.S. EPA) is the federal agency that administers hazardous materials and hazardous waste regulations. State agencies include the California EPA (Cal/EPA), which includes the California Department of Toxic Substances Control (DTSC), the State Water Resources Control Board (SWRCB), the California Air Resources Board (CARB), and other offices. The San Francisco Bay Regional Water Quality Control Board (SFRWQCB), the Bay Area Air Quality Management District (BAAQMD), and Alameda County Department of Environmental Health have jurisdiction on a regional or local level. The City of Emeryville may also take the oversight lead on sites with hazardous materials contamination issues, under certain conditions.

A description of each agency jurisdiction and involvement in the management of hazardous materials and wastes is provided below.

Federal. The Environmental Protection Agency (U.S. EPA) is the federal agency responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. The federal regulations are primarily codified in Title 40 of the Code of Federal Regulations (40 CFR). The legislation is outlined in the Resource Conservation and Recovery Act of 1976 (RCRA),

[1] The California Health and Safety Code defines a hazardous material as, "...any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety, or to the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, radioactive materials, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment." (California Health and Safety Code Section 25501)

the Superfund Amendments and Reauthorization Acts of 1986 (SARA), and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The U.S. EPA provides oversight for site investigation and remediation projects, and has developed land disposal restrictions and treatment standards for the disposal of certain hazardous wastes.

The U.S. EPA has issued Preliminary Remediation Goals (PRGs)[2] which are tools for evaluating and developing clean-up goals for contaminated sites. They are risk-based concentrations that are intended to assist in initial screening-level evaluations of environmental data. The PRGs developed by U.S. EPA are generic and were calculated without site-specific information, but may be recalculated using site-specific data. PRGs are not legally enforceable, but may be helpful in identifying whether further evaluation of potential risks/hazards posed by site contamination is appropriate, and for providing long-term targets to use during the analysis of different remedial (cleanup) alternatives.

State. Three State agencies, described below, regulate hazardous materials and waste applicable to the proposed project.

Department of Toxic Substances Control (DTSC). In California, the California Environmental Protection Agency (Cal EPA), Department of Toxic Substances Control (DTSC) is authorized by U.S. EPA to enforce and implement federal hazardous materials laws and regulations. California regulations pertaining to hazardous materials are equal to or exceed the federal regulation requirements. Most State hazardous materials regulations are contained in Title 22 of the California Code of Regulations (CCR). DTSC generally acts as the lead agency for soil and groundwater cleanup projects that affect public health, and establishes cleanup levels for subsurface contamination that are equal to, or more restrictive than, federal levels. DTSC has also developed a list of California screening levels for human health protection (CHHSLs)[3] in order to screen sites for potential human health concerns where releases of hazardous chemicals to soil have occurred, and has also developed land disposal restrictions and treatment standards for hazardous waste disposal in California.

State Water Resources Control Board (SWRCB). The State Water Resources Control Board (SWRCB) enforces regulations on how to implement underground storage tank (UST) programs. It also allocates monies to eligible parties who request reimbursement of funds to clean up soil and groundwater pollution from UST leaks. SWRCB also enforces the Porter-Cologne Water Quality Act through its nine regional boards, including the San Francisco Bay Regional Water Quality Control Board, described below.

California Air Resources Board (CARB). This agency is responsible for coordination and oversight of State and local air pollution control programs in California, including implementation of the California Clean Air Act of 1988. CARB has developed State air quality standards, and is responsible for monitoring air quality in conjunction with the local air districts.

[2] U.S. Environmental Protection Agency (US EPA), 2006. Website: http://www.epa.gov/region09/waste/sfund/prg/.

[3] California Environmental Protection Agency, 2005, Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties, January. Under most circumstances… the presence of a chemical in soil, soil gas, or indoor air at concentrations below the corresponding CHHSLs can be assumed to not pose a significant health risk to people who may live (residential CHHSLs) or work (commercial/industrial CHHSLs) at the site.

Regional and Local Agencies. The following three regional and local agencies have regulatory authority over the proposed project's management of hazardous materials and waste on the site.

San Francisco Bay Regional Quality Control Board (RWQCB). The project site is located within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB). RWQCB provides for protection of State waters in accordance with the Porter-Cologne Water Quality Act of 1969. RWQCB can act as lead agency to provide oversight for sites where the quality of groundwater or surface waters is threatened, and has the authority to require investigations and remedial actions.

RWQCB has developed Environmental Screening Levels (ESLs)[4] to help expedite the preparation of environmental risk assessments at sites where impacted soil and groundwater has been identified. Data collected at a site can be directly compared to ESLs and the need for additional work evaluated.

Bay Area Air Quality Management District (BAAQMD). The Bay Area Air Quality Management District (BAAQMD) has the primary responsibility for control of air pollution from sources other than motor vehicles and consumer products (which is the responsibility of U.S. EPA and CARB). BAAQMD is responsible for preparing attainment plans for non-attainment criteria pollutants (i.e., ozone and PM10), control of stationary sources, and the issuing of permits for activities including asbestos demolition/renovation activities (District Regulation 11, Rule 2).

Alameda County Department of Environmental Health. The Alameda County Department of Environmental Health (ACDEH) is the primary agency responsible for local enforcement of State and federal laws pertaining to hazardous materials management. In Emeryville, ACDEH is the Certified Unified Program Agency (CUPA), responsible for coordination of the local hazardous waste generator program, underground and aboveground storage tank management, investigation of leaking underground storage tank sites, and other contaminated sites. ACDEH also administers the Hazardous Materials Business Plan program.

City of Emeryville. The City of Emeryville may take the lead oversight role and has the authority to conditionally sign off on soil and groundwater investigations and cleanup projects within the City limits. The City has been granted this authority by entering into a Memorandum of Understanding with DTSC and the RWQCB. As lead agency, a Registered Environmental Assessor 2 reviews all workplans and environmental documentation on behalf of the City and provides recommendations to the DTSC and the RWQCB on work to be performed, including recommendations for site closure. Concurrence regarding the recommendations proposed by the City is needed from one of the two agencies.[5,6]

(2) Lead, Asbestos and Other Hazardous Building Materials. Prior to 1978, lead compounds were commonly used in exterior and interior paints. Lead is a suspected human carcinogen (i.e., causes cancer), a known teratogen and a reproductive toxin (i.e., causes birth defects and steril-

[4] San Francisco Regional Water Quality Control Board (RWQCB), 2006. Website: http://www.waterboards.ca.gov/sanfranciscobay/esl.htm

[5] Dayrit, Ignacio, 2006, Personal communication with Baseline Environmental Consulting, January 13.

[6] Dayrit, Ignacio, 2002. Brownfields Redevelopment Demystified, Final Report, Emeryville Brownfields Pilot Project, City of Emeryville, funded by the City of Emeryville and U.S. Environmental Protection Agency, July.

ity). Similarly, prior to the 1980s, building materials often contained asbestos fibers, also a known human carcinogen. Asbestos was used to provide strength and fire resistance, was frequently found in insulation, roofing, and siding, textured paint and patching compounds used on wall and ceiling joints, vinyl floor tiles and adhesives, and water and steam pipes, among other uses.

Demolition or renovation of structures constructed prior to 1980 has the potential to release lead particles, asbestos fibers, and/or other hazardous materials to the air, which then may be inhaled by construction workers and the general public. In addition, other common items, such as electrical transformers, fluorescent lighting, electrical switches, heating/cooling equipment, and thermostats can contain hazardous materials, which may pose a risk if not handled and disposed of properly.

Federal and State regulations govern the demolition of structures where lead or material containing lead is present. Regulations pertaining to demolition of structures with lead-based paint are promulgated by the U.S. EPA, DTSC, and the U.S. Department of Housing and Urban Development (HUD). For example, the U.S. EPA and DTSC require that lead-based paint equal to or greater than the HUD definition of lead-based paints (greater or equal to 1 mg/cm^2 or 0.5 percent lead by weight) be removed prior to demolition if the paint is loose and peeling. If the paint is securely adhering to the substrate, the entire material may be disposed of as demolition debris, which is a non-hazardous waste. Loose and peeling paint must be disposed of as a State and/or federal hazardous waste if the concentration of lead exceeds applicable waste thresholds. Hazardous wastes must be appropriately managed, labeled, transported, and disposed of in accordance with local, State, and federal requirements by trained workers. State and federal construction worker health and safety regulations, described below, require air monitoring and other protective measures during demolition activities where lead-based paint is present.

Federal, State, and local requirements also govern the removal of asbestos or suspected asbestos-containing materials (ACM), including the demolition of structures where asbestos is present. These requirements are promulgated by the U.S. EPA, federal and state OSHA, DTSC, and the BAAQMD. All friable (crushable by hand) ACMs, or non-friable ACMs subject to damage, must be abated prior to demolition in accordance with applicable requirements. Friable ACM must be disposed of as an asbestos waste at an approved facility. Non-friable ACM may be disposed of as non-hazardous waste at landfills that will accept such wastes. Workers conducting asbestos abatement must be trained in accordance with State and federal OSHA requirements, described below.

Fluorescent lighting tubes and ballasts, computer displays, and several other common items containing hazardous materials are regulated as "universal wastes" by the State of California. Universal waste regulations allow common, low-hazard wastes to be managed under less stringent requirements than other hazardous wastes. Management of other hazardous wastes is governed by DTSC hazardous waste rules.

(3) Worker Health and Safety. Worker health and safety is regulated at the federal level by the Department of Industrial Relations (DIR). Under this jurisdiction, workers at hazardous waste sites (or working with hazardous wastes as might be encountered during excavation of contaminated soils) must receive specialized training and medical supervision according to the Hazardous Waste

Operations and Emergency Response (HAZWOPER) regulations.[7] Additional regulations have been developed for construction workers potentially exposed to lead[8] and asbestos.[9]

Worker health and safety in California is regulated by the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA). California standards for workers dealing with hazardous materials (including hazardous wastes, asbestos, and lead) are contained in CCR Title 8 and include practices for all industries (General Industrial Safety Orders), and specific practices for construction, and hazardous waste operation and emergency response.[10] Cal/OSHA conducts on-site evaluations and issues notices of violation to enforce necessary improvements to health and safety practices.

b. Project Site Hazardous Materials Setting. This section describes the known hazards for each part of the project site.

(1) Emeryville Marketplace. The findings of Phase I Environmental Site Assessment (ESA), covenant restrictions that apply to the Marketplace site, and a soil gas survey completed in the southeast parking lot area in the fall of 2006[11] are described below.

Phase I Environmental Site Assessment (ESA). A Phase I ESA was prepared by PCA in January 2003 for the "EmeryBay Portfolio."[12] The properties within the Phase I ESA area included the EmeryBay Public Market, EmeryBay Tower, and EmeryBay Theater.[13] The findings of the Phase 1 ESA report, in addition to a historical uses of the property with hazardous materials uses from previous environmental investigations completed at the property in 1982, 1987, and 1988 are described below.

The Marketplace site is the location of former tidal flats of the San Francisco Bay which have been filled.[14] Fill material consisted primarily of silt, clay and sand along with varying amounts of roofing felt, roofing paper, roofing shingles, refined asphalt, concrete and wood.[15] The Paraffin Paint Company, manufacturers of roofing and building paper, paint and oil, was located at the location of the public market, tower, and associated parking lots, as identified in fire insurance maps from 1911-

[7] 29 Code of Federal Regulations (CFR) 1910.120.

[8] 29 CFR 1926.62.

[9] 29 CFR Part 1926.1101

[10] California Code of Regulations (CCR) Title 8, Section 5192.

[11] PES Environmental, Inc., 2006, Results of Soil Gas Testing, Emeryville Marketplace Mixed Use Project, Shellmound Street, Emeryville, California, prepared for Marketplace Mortgage LLC, c/o Ms. D. Pinkston, TMG Partners, San Francisco, 17 November.

[12] Property Conditions Assessments, LLC (PCA), 2003. *Phase I Environmental Site Assessment, EmeryBay Portfolio*, Emeryville, California, prepared for Rockwood Capital Corporation. January 28.

[13] Addresses included 5903, 5959, 6001, 6005 Shellmound Street, and 6330 Christie Avenue.

[14] Woodward Clyde Consultants, 1982. Assessment of Subsurface Contaminants, Marketplace Property, Emeryville, California, prepared for Equity Financial and Management Company, Chicago, Illinois, May.

[15] Earth Metrics Inc., 1987. Draft Workplan for Soils Contamination Characterization of Marketplace Site in Emeryville, California, prepared for County of Alameda, 10 November.

1952.[16] From as early as 1884-1902, the Paraffin Company (later called PABCO) [17] may have had early operations on-site (at/near the location of the current theater) in the research and development of bituminous/petroleum based products, and perhaps some small-scale on-site asphalt and kerosene refining, but only limited product manufacturing, if any.[18] There were a dozen tanks on the north side of the Paraffin Paint Company labeled 'oil tanks on ground.' Other tanks labeled 'oil stills' may have corresponded with the area of an asphalt refinery.[19]By 1930, most of the current marketplace site had been filled and populated with PABCO buildings.[20]

In 1957, PABCO was purchased by the Fibreboard Corporation. Product manufacturing by the Fibreboard Corporation was essentially the same as PABCO, although the manufacture of building insulation materials began in an area west of the marketplace site. Demolition of several industrial buildings at the marketplace site began in 1962, and by 1965, the asphalt refining equipment at the northeast corner of the site was dismantled.

The location of the former asphalt refinery was then subsequently developed by Nielsen Freight Lines, as a trucking facility. Four aboveground storage tanks containing petroleum hydrocarbons and tar seepage through the pavement were identified in a 1986 site visit at this location.[21]

The Consolidated Equities Company purchased the existing Marketplace site and began development of the Emeryville Marketplace in 1968. Most of the previous Paraffin/PABCO buildings (with the exception of the existing marketplace buildings) were demolished in the late 1960s to early 1970s. In addition, all historic fuel and waste oil tanks were removed from the property as of 1987.[22]

The existing theater was constructed in 1985, the marketplace buildings were renovated in 1988-89, and the tower was constructed in this same timeframe (1988-89).[23] Further details regarding environmental investigations completed and contamination associated with these historical land uses are described in the Covenant and Restricted Land Uses section below.

The 2003 Phase I ESA noted that the Emeryville Marketplace is supplied with underground secondary electrical service from several pad-mounted transformers and vaulted exterior electrical transformers. The units were not labeled as to their potential polychlorinated biphenyl (PCB) content and

[16] PCA, 2003, op. cit.

[17] In 1920, the Paraffin Company became known as "PABCO."

[18] Woodward Clyde Consultants, 1982, op. cit. Note that the PCA, 2003 report also indicated that historical property uses have included a fertilizer, bones, and tripe works operated by the Bayle Lacoste & Company on/near the theater site (from 1911). These uses were not mentioned in other documentation reviewed.

[19] PCA, 2003, op. cit.

[20] Woodward Clyde Consultants, 1987, Environmental Assessment, Former Nielsen Freight Line Site and Adjacent Parcel, Emeryville, California, prepared for the Martin Company, Pleasanton, California, August 12.

[21] Woodward Clyde Consultants, 1987, op. cit.

[22] Aqua Terra Technologies, 1988, Memorandum regarding Classification of an Asphalt-Like Waste Material Found on the Marketplace and Nielson Site in Emeryville, California, prepared for Mr. Walter Kaczmarek, the Martin Company, 11 July.

[23] PCA, 2003, op. cit.

the PCB content is not known. Therefore, the units were classified as potentially PCB contaminated.[24] However, the transformers are the property of, and are maintained by, PG&E.[25]

A deed restriction impacting the public market, theater, and tower properties and associated parking lots was identified as a recognized environmental condition in the 2003 Phase I ESA.[26] Details on the Covenant to Restrict Land Uses are discussed in greater detail below. It was recommended in the Phase I ESA that continued groundwater monitoring at the site be conducted in accordance with the lead agencies, including the SFRWQCB, DTSC, and ACDEH.

Covenant to Restrict Land Uses. A Covenant to Restrict Use of Property for the Emeryville Marketplace was recorded by Alameda County on 7 August 1995.[27] The area covered by the covenant includes the parking area and buildings of the Marketplace Public Market, Tower, and UA Theater tower (Figure V.F-1).[28] Violation of the covenant may be grounds for DTSC to file civil and criminal actions against the owner(s) as provided by law.

Contamination of soil and groundwater occurred under previous ownership through the routine storage and handling of materials from former industrial operations at the site. Disposal practices during the years of operation are unknown and undocumented in regulatory agency records.[29] Petroleum hydrocarbons, an asphalt-like material, and waste tar paper materials were identified in soil and/or groundwater investigation activities conducted at the marketplace site between 1980 and 1987.[30] A total of 24 groundwater monitoring wells were installed on- and immediately off-site during the course of the investigations.[31]

Some petroleum hydrocarbon material was excavated, treated, and transported off-site for disposal. The trenches were backfilled with clean fill. The asphalt material, containing semi-volatile organic compounds, was investigated and characterized. Some of the soil containing the asphalt material was excavated and disposed of at an off-site facility and some of the material remained in place in areas

[24] Containing 50 to 500 parts per million polychlorinated biphenyls (PCBs).

[25] PCA, 2003, op. cit.

[26] A visual assessment of the potential for asbestos containing material to be present in these buildings was made as part of the Phase I ESA. The results of this visual inspection are not discussed herein as no changes are proposed to these buildings under the proposed project.

[27] Alameda County, recorded in official records, Covenant to Restrict Use of Property located at Christie Avenue and Shellmound Street, Emeryville, California, recording requested by: Christie Avenue Partners-JS, San Francisco, California, recorded August 7, 1995. The covenant was signed by representatives of the Christie Avenue Partners and the Department of Toxic Substances Control Staff.

[28] The companion Operations and Maintenance Agreement to the covenant was not available for review.

[29] DTSC, 1984, Preliminary Assessment Summary, Emeryville Marketplace, Emeryville, California, 94608, EPA CA 980694418, May.

[30] DTSC, 1984, op. cit.

[31] PES Environmental, Inc., 1994. Memorandum Regarding Groundwater Monitoring Report, January. Sampling Event, Emery Bay Marketplace, Emeryville, California, prepared for Ms. Lynn Tolin, Christie Avenue Partners-J.S., Emeryville, California, 23 February. Note that many of the 24 wells have been subsequently abandoned in accordance with the Alameda County Environmental Health Department and Zone 7, Alameda County Flood Control and Water Conservation District requirements.

that were covered by paved parking lots or eighteen inches of landscaping materials. The tar paper was removed and disposed of at an off-site landfill.[32]

All remedial actions were completed with oversight by the Alameda County Hazardous Materials Program (Alameda County). Following the remedial actions, Alameda County recommended that a deed restriction be placed on the site and referred the site to DTSC for oversight. DTSC reviewed the documentation regarding hazardous substances characterization and cleanup actions completed and concluded that no further action was warranted with respect to the investigation and remediation of hazardous substances at the marketplace site. However, if previously unidentified contamination was discovered, additional assessment, investigation, and/or cleanup may then be required.[33] DTSC completed an evaluation of the potential human health risk associated with contaminants remaining at the marketplace site (primarily asphalt-like materials). Human exposure to the asphalt-like material remaining in soil at the property was deemed improbable because the site is covered with buildings, landscaping, and parking lots. As a result, it was concluded that the asphalt-like material remaining in the subsurface at the Emeryville Marketplace site did not pose a human health hazard.[34] Covenant requirements for the Emeryville Marketplace include the following:

- Before any subsurface excavation is performed within the covenant area, an appropriate site health and safety plan shall be prepared to mitigate exposure, if any, to materials located in such areas. The health and safety plan shall be submitted to the DTSC for review and approval at least five days in advance of the subsurface work to be performed.
- The use of the property is restricted to the development, construction, occupancy, and maintenance of a shopping commercial center, which includes but is not limited to, retail restaurants, food courts, movie theaters, entertainment, offices, research and development, and related commercial purposes.
- The property shall not be used in such a way that will disturb or interfere with the integrity of any monitoring system.
- There shall not be any activity related to residual waste materials on the property that will cause any potential harm to public health or safety or the environment.
- A five-year review of the remedial action (selected excavation following by capping of the site with buildings, landscaping and parking lots) was completed in September 2003 by DTSC to ensure that the remedial action remained protective of public health and the environment and was functioning as designed. The impacted soil and groundwater reportedly remained covered without any exposure. Upon inspection by DTSC staff, the cap appeared to be in good condition with no significant cracks or signs of damage. Minor maintenance was, however, recommended by DTSC in the future to seal the minor cracks. The next review is due in September 2008.[35]

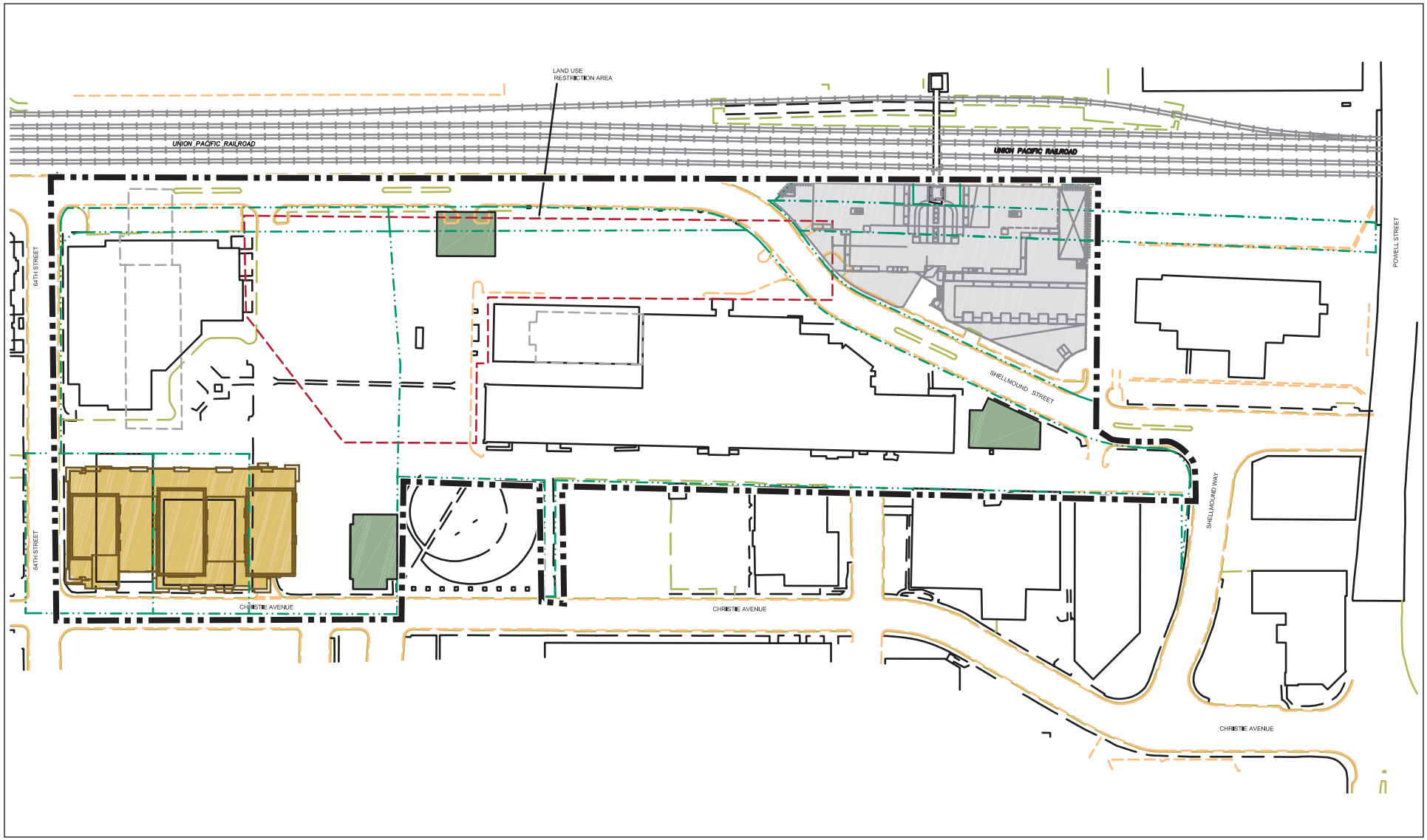
Soil Gas Testing. Two soil gas samples were collected on October 11, 2006, in the southeast parking lot area that is subject to the Covenant, described above, at the area proposed for construction

[32] DTSC, 1984, op. cit.

[33] DTSC, 2005, Memoranda regarding Emery Bay Marketplace, Shellmound Street, Emeryville, California, to Christie Avenue Partners-JS, Attention Thomas Gram, November 8.

[34] Alameda County, 1995, op. cit.

[35] DTSC, 2003, Five Year Review, Emeryville Market, Christie Avenue and Shellmound Street, Emeryville, California, September.



LSA

FIGURE V.F-1

Marketplace Redevelopment Project EIR
Land Use Restriction Area

LEGEND

- EXISTING BUILDING FOOTPRINTS
- APPROXIMATE PARCEL BOUNDARIES
- LAND USE RESTRICTION AREA
- FORMER BUILDING FOOTPRINT
- PROPOSED 64TH & CHRISTIE BUILDING
- PROPOSED SHELLMOUND BUILDING
- PROPOSED RETAIL PADS
- PROJECT SITE

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SOURCE: PBS ENVIRONMENTAL, INC., DECEMBER 2006.
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of the Shellmound Building, a mixed-use building, that would include residential uses.[36] The investigation of this area was requested by DTSC to verify the presence or absence of naphthalene, a carcinogen, in soil gas, in this portion of the property and to assess whether the presence of naphthalene would cause any potential harm to public health or safety or the environment (as required by the covenant).

Soil gas sampling was initially conducted on August 29, 2006, but the analytical results of the sampling effort did not meet data quality control criteria.[37] A second set of soil gas samples, B-1, and B-2, was collected on October 11, 2006, at approximately the same location as the August sampling effort. The soil gas samples were collected by advancing soil vapor sampling equipment to the desired depth (5 feet below ground surface) followed by passive soil gas collection in a summa canister. The samples collected were then submitted under chain-of-custody procedures to a California-certified laboratory for analysis of naphthalene and 2-propanol (leak check compound, described above). Neither naphthalene nor 2-propanol were detected above the laboratory reporting limit in the second set of soil gas samples collected.[38]

The naphthalene soil gas results were compared during the preparation of this hazardous materials/ public health and safety evaluation to DTSC's California Human Health Screening Levels for Soil Gas for naphthalene for residential (0.0319 mg/m^3) and commercial/industrial land uses (0.106 mg/m^3).[39] The results for both samples (<17 and <48 ug/m^3) were below the commercial/industrial CHHSL for soil gas. One of the samples, B-2 (<17 ug/m^3), was also reported below the residential CHHSL for soil gas, while the other sample (<48 ug/m^3, the method detection limit) slightly exceeded the residential CHHSL for soil gas (<31.9 ug/m^3).

The mixed use Shellmound Building would contain ground floor retail, with residential uses on the uppermost floors of the building. The soil gas samples suggest that the naphthalene in soil gas would not cause any potential harm to public health or safety for ground floor retail uses (as evidenced by sample results below the commercial-industrial CHHSL). Naphthalene in soil gas would also not be expected to cause any potential harm to public health or safety for future residential site users. Although the CHHSL for residential users was exceeded in one sample, B-1, the CHHSL was only

[36] PES Environmental, Inc., 2006, op. cit.

[37] The leak check compound introduced during the sampling effort, 2-propanol, was detected in both samples, and the results of the August 2006 sampling effort reportedly may not have been representative. Ibid.

[38] The laboratory initially reported that method detection limit for sample B-1 was 0.29 mg/m^3 for naphthalene, and 0.27 mg/m^3 for 2-propanol; for B-2, the laboratory reporting limit was 0.11 mg/m^3 for naphthalene, and 0.099 mg/m^3 for 2-propanol, respectively. PES Environmental, Inc. op. cit. The results were reported below the method detection limit. The reporting limit was indicated by the laboratory (Severn Trent Laboratories, Inc.) as elevated due to matrix interference.

PES subsequently requested the analytical laboratory determine if the naphthalene results could be reported below the reporting limit. Severn Trent Laboratories indicated that the results for naphthalene could be reported down to the method reporting limit for the two samples (PES Environmental, Inc., 2007, Addendum, Results of Soil Gas Testing, Emeryville Marketplace Mixed Use Project, Shellmound Street, Emeryville, California, prepared for D. Pinkston, Marketplace Mortgage, LLC, 5 February.) The results for the two samples are therefore as follows: B-2, <17 ug/m3 and B-1, <48 ug/m3; both results are flagged with a "G" note, indicating an elevated reporting limit.

[39] DTSC, 2005. Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties, California Environmental Protection Agency, January. See Table 2 for soil gas CHHSLs; these CHHSLs are based on soil gas data collected at five feet below a building foundation or the ground surface. They are intended for the evaluation of potential vapor intrusion into buildings and subsequent impacts to indoor air. Information reviewed on-line http://www.calepa.ca.gov, January 26, 2007.

slightly exceeded, the results were reported below the laboratory method detection method, and residential users would not be located on the ground floor.

(2) Shellmound Street Extension (formerly Bay Street). A similar covenant was recorded as the "Bay Street Extension" on July 1, 1997.[40,41] This included the area for the extension of Shellmound Street (formerly Bay Street) north of Powell Street to 64th Street, adjacent to the Southern Pacific Transportation Company right-of-way . Contaminants identified at this location included petroleum hydrocarbons, lead, chromium, PCBs, and polynuclear aromatic hydrocarbons.[42]

Covenant requirements for the Shellmound Street Extension include the following:

- The property shall be restricted for use as a roadway. No other use of the property shall be allowed without prior approval by DTSC.
- No activities that will disturb the soil shall be permitted without a Soil Management Plan and Health and Safety Plan submitted to DTSC for review and approval.
- Any contaminated soils brought to the surface by grading, excavation, trenching or backfilling shall be managed in accordance with all applicable provisions of state and federal law.
- The property shall be used in such a way as to preserve the integrity of the cap.
- The Owner(s) shall not conduct any activities that would cause a potential threat to public health and safety.
- The owner(s) shall monitor and maintain the caps, as specified in the Operations and Maintenance Plan for the site.
- Any proposed alteration of the cap shall require written approval from DTSC.
- The owner(s) shall notify DTSC of each of the following: 1) the type, cause, location, and date of any disturbance to the cap which could affect the ability of the cap to contain subsurface hazardous substances on the property; 2) type and date of repair of such disturbance. Notification shall be made by registered mail within 10 working days of both the discovery of cap disturbance and completion of repairs.

(3) 6340 and 6390 Christie Avenue. The findings of the Phase I and Phase II investigations for this portion of the site are described below.

[40] First amendment to covenant of deed restriction. Alameda County, recorded in official records, First Amendment (Exhibit A-1) to Covenant of Deed Restriction (Bay Street Extension), Shellmound/40th Street Overhead site, Emeryville, California, recording requested by: City of Emeryville, Emeryville, California, recorded July 1, 1997.

The reference for the original covenant is: Alameda County, recorded in official records, Covenant to Restrict Use of Property, Shellmound/40th Street Overhead site, Emeryville, California, recording requested by: City of Emeryville, Emeryville, California, recorded June 28, 1996.

[41] The related Operations and Maintenance Agreement was not available for review.

[42] First amendment to covenant of deed restriction, op. cit.

Phase I – 6340 Christie Avenue. A Phase I ESA was completed by PES in January 2005 for 6340 Christie Avenue.[43] The Phase I ESA was prepared in general accordance with the American Society for Testing and Materials (ASTM) guidelines for Phase I Environmental Site Assessments.[44]

The Phase I ESA concluded that the 6340 Christie Avenue site was originally part of San Francisco Bay (until at least 1931). Tidal lands were filled in Emeryville primarily with imported soil and in certain areas, construction debris. Photographs from 1947 and 1949 show that the subject property was vacant land. In 1959, the western end was used as a paved parking lot. From at least 1967, the subject property was occupied by the currently existing building. The building was historically used as an industrial machinery warehouse. More recent use of the building (1980-1998) has been for operation of Lerer Brothers Transmission Service for vehicle repair. The building was observed to be vacant in 2005 at the time of the preparation of the Phase I ESA.

The site is listed on the Leaking Underground Storage Tank (LUST) and HAZNET databases. [45,46] In 1988, a 2,000-gallon gasoline underground storage tank was removed from the southeast corner of the site. No evidence of contamination was reportedly noted at the time of removal and no samples were collected for analysis.[47] In 1998, soil and grab groundwater samples were collected from five soil borings drilled at the site. The results of this investigation indicated elevated Total Petroleum Hydrocarbons as gasoline (TPHg) in soil samples collected near the former UST excavation.[48] Benzene was also reported at elevated concentrations in two borings[49] These constituents were also reported above laboratory reporting limits in three grab groundwater samples collected.

Three wells were subsequently installed in 1999 and quarterly monitoring was completed. TPHg and benzene were reported at elevated concentration in the three wells during the quarterly monitoring.[50] Additional grab groundwater samples collected after this time also contained benzene and TPHg above laboratory reporting limits. The three wells were reportedly destroyed in May 2000 with ACDEH approval. Case closure for the site is reportedly pending. The owner interviewed reported that ACDEH indicated that a deed restriction on the property would be required prior to issuing formal closure of the tank site.

The Phase I ESA concluded the following:

- Elevated concentrations of petroleum hydrocarbons and metals have been identified in soils in the site vicinity and are associated with historical fill materials.

[43] PES, 2005d. *Phase I Environmental Site Assessment, 6340 Christie Avenue, Emeryville, California*, prepared for Allen Matkins Leck Gamble & Mallory LLP, San Francisco, California. January 21.

[44] American Society for Testing Materials, Standard Practices for Environmental Site Assessments: Phase I Environmental Assessment Process, ASTM E 1527-00.

[45] Database maintained by the San Francisco Bay Regional Water Quality Control Board of leaking underground storage tank sites.

[46] Database maintained by California EPA of facility and hazardous waste manifest data.

[47] PES, 2005d, op. cit.

[48] Maximum reported concentration of 1,400 mg/kg at a depth of 6 feet below ground surface.

[49] Maximum reported concentration of 0.011 mg/kg.

[50] Maximum reported concentrations of 2,000 and 72 µg/L, respectively.

- The site is the location of a former leaking underground storage tank with residual groundwater contamination, and petroleum hydrocarbon contamination has been identified on adjacent and nearby properties.
- Methane gas has been detected at several sites in the site vicinity that may originate from subsurface Bay Muds and/or fill.

The Phase I ESA recommended that a Phase II investigation be conducted at the subject site to:

- evaluate soil and groundwater quality beneath the site in the vicinity of the former transmission service area,
- evaluate groundwater conditions that might result from off-site, upgradient sources, and
- evaluate the potential for methane gas in soil underlying the site.

It was further recommended that a comprehensive asbestos and lead-based paint survey be completed prior to significant renovation or demolition activities of the building located on the property and that case closure should be obtained from ACDEH for the former underground storage tank.

Phase I – 6390 Christie Avenue. A Phase I ESA was completed for the 6390 Christie Avenue property by PES in January 2005.[51] The Phase I ESA was prepared in general accordance with ASTM guidelines. A previous Phase I ESA for the property was prepared in October 1996 by RGA Environmental;[52] 1996 Phase I reportedly was an update of a Phase I prepared by Tetra Tech in May 1994.[53] The results of the PES and RGA Phase I ESAs are briefly described below.

The Phase I ESAs stated that the site was originally beneath the San Francisco Bay or within tidal flats, as described for the 6340 Christie Avenue site. The subject property was undeveloped until a paved parking area was constructed on the western end in the late 1950s. The subject property building was constructed in 1966, was extensively renovated in 1994, and has been used for commercial purposes. Historical tenants with the potential for hazardous materials use included a photo laboratory and a printer. No historical records concerning hazardous materials use and storage were identified in the Phase I ESA's.

A small spill of concrete sealer was reported at the property in 1986. The spill was cleaned up, requiring no further regulatory action. At the time of preparation of the 2005 Phase I ESA, the building on the property was used for offices and warehousing. No hazardous materials use was observed during the site reconnaissance.

[51] PES, 2005c. *Phase I Environmental Site Assessment, 6390 Christie Avenue, Emeryville, California*, prepared for Allen Matkins Leck Gamble & Mallory, LLP, San Francisco, California. January 21.

[52] RGA Environmental Inc., (RGA), 1996. *Phase I Environmental Site Assessment Update, 6390 Christie Avenue, Emeryville, California*. October 1.

[53] The 2004 Phase I ESA report was reportedly not available for review by PES during the preparation of the 2005 Phase I ESA.

The Phase I ESA's concluded the following:

- Based on extensive historical industrial uses in the site vicinity and a documented hydrocarbon contamination at an adjacent site (6340 Christie Avenue) and nearby sites, it is likely that groundwater quality beneath the subject property has similar characteristics.
- Elevated concentrations of petroleum hydrocarbons and metals have been identified in soils in the site vicinity associated with historical fill materials.
- Methane gas has been detected at several sites in the site vicinity that may originate from subsurface Bay Muds and/or fill.

The Phase I ESAs recommended that a Phase II investigation be conducted at the subject site, including methane gas measurements in soil gas underlying the site, and that a comprehensive asbestos and lead-based paint survey be conducted prior to significant renovation or demolition activities of the building located on the property.

Phase II – 6340 and 6390 Christie Avenue. A Phase II Environmental Subsurface Investigation was conducted for the two properties in December 2004 by PES Environmental, Inc.[54] Seven groundwater samples and 12 soil samples were collected and soil gas sampling at 12 locations was completed as part of the investigation. The analytical results of the investigation were compared to U.S. EPA's PRGs for residential and commercial land uses and SFRWQCB's ESLs.

The results of this investigation indicated the following:

- **Soil.** At 6340 Christie Avenue, Total Petroleum Hydrocarbons as motor oil (TPHmo) in soil exceeded the ESL for commercial land use[55] in two soil samples. Chromium exceeded the PRG for residential land use in two soil samples.[56] Nickel and zinc in soil exceeded the ESLs for residential and commercial land uses for one soil sample. At 6390 Christie Avenue, TPHmo and TPHg in soil exceeded the residential ESL for one soil sample. Two soil samples exceeded the residential PRG for chromium.
- **Groundwater.** At 6340 Christie Avenue, TPH as diesel (TPHd) exceeded the ESL for groundwater and the ceiling level for groundwater in four samples. Benzene in one groundwater sample exceeded the PRG for tap water. At 6390 Christie Avenue, TPHd exceeded the ESL for groundwater and ceiling level in one sample, and TPHmo exceeded the ESLs in two samples. Benzene in groundwater exceeded the PRG for tap water in one sample.
- **Soil Gas.** At 6340 Christie Avenue, benzene in soil gas exceeded the ESL for commercial land uses in two samples. TPH (four samples) exceeded the ESL for commercial land use for soil gas. Cis 1,2-dichloroethylene exceeded the PRG for ambient air (one sample), benzene (five samples), toluene (two samples), m,p-xylenes (six samples equaled or exceeded).

  Methane was reported in all soil gas samples at concentrations ranging from 0.2 to 85 percent gas at 6340 Christie Avenue. Methane in soil gas was reported at 6390 Christie Avenue at concentra-

[54] PES Environmental, Inc. (PES), 2005a. Memorandum to Mr. Robert Wyatt-Allen Matkins Leck Gamble & Mallory, LLP, from Will Mast and Peter Gorman, PES, Regarding Phase II Environmental Subsurface Investigation Results, Gold and Wolfman Properties, Emeryville, California. January 21.

[55] Where groundwater is not considered a potential drinking water source.

[56] Chromium did not exceed the commercial PRG.

tions ranging from non-detect to 14 percent gas. A Draft Report of Aboveground Methane Gas Assessment for 6390 Christie Avenue/1609 64th Street screened the interior spaces of the building for the presence of methane gas.[57] No detectable concentrations of methane were observed at any time during the building interior assessment. In addition, no detectable concentrations of methane gas were observed along the exterior of the building or within the storm drain inlets and utility vaults.

c. Emeryville General Plan. The Emeryville General Plan contains the following objectives and policies pertaining to hazardous materials and emergency preparedness.

- *Hazardous Materials Objective A:* Protect human life and property from the threats presented by improperly managed hazardous materials and wastes.
- *Hazardous Materials Policy 1:* The City will attempt to identify all contaminated sites within the City and cooperate with the responsible public agencies in the development and implementation of guidelines for their cleanup.
- *Emergency Preparedness Objective A:* Minimize potential damage to life, environment and property resulting from natural and man-made emergencies.
- *Emergency Preparedness Policy 1:* An emergency response plan will be maintained and updated as necessary.[58]

2. Impacts and Mitigation Measures

This section analyzes the impacts related to hazardous materials and public health and safety that could result from implementation of the proposed project. Criteria of significance are defined, which establish the thresholds for determining whether a project impact is significant. Potential hazardous materials and public health and safety impacts from the proposed project are then presented, with mitigation measures to reduce potential impacts to less-than-significant levels.

a. Criteria of Significance. A significant hazardous material or public health and safety impact would occur if the project would:

- Create a significant hazard to the public or environment through exposure to hazardous materials present in soil, soil gas, surface water, groundwater and/or building materials as a result of historical land uses in the project vicinity.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment.
- Create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials.
- Be located on or adjacent to a site that is included on a list of hazardous materials site compiled pursuant to Government Code Section 65962.5 and, as a result, would result in a safety hazard for people residing or working in the area.

[57] PES, 2005b. *Draft Report of Aboveground Methane Gas Assessment, 6390 Christie Avenue/1609 64th Street, Emeryville, California* for Ms. Denise Pinkston, TMG Partners, and Mr. Robert Wyatt, Allen Matkins Leck Gamble & Mallory, LLP, Privileged and Confidential Attorney Work Product. February 4.

[58] Evacuation routes from the City in the case of an emergency depend on circumstances, although San Pablo Avenue, Powell Street/Stanford Avenue, and I-80 are major routes.

- Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.

b. Less-than-Significant Impacts. The criterion of generating hazardous emissions or handling hazardous or acutely hazardous materials, substances or wastes within ¼ mile of an existing or proposed school is not applicable to the proposed project. No schools are located within one-quarter mile of the proposed project. Criteria regarding an increase risk of exposure to wildland fire hazards and airport-related hazards are also not applicable to the proposed project. The proposed project site is not located within or adjacent to a wildlands area, and is not located near an airport. In addition, the proposed project would not physically interfere with and adopted emergency response plan or emergency evacuation plan. The proposed project is located near Powell Street and Interstate I-80, both of which are identified evacuation routes in the Emeryville General Plan.

c. Significant Impacts and Mitigation Measures. Four potentially significant impacts have been identified and are discussed below.

Impact HAZ-1: Exposure of construction workers and the public to existing contamination in soil, soil gas, and/or groundwater could result in adverse health effects. (S)

The proposed development on the southeast of the Marketplace will include the Shellmound building for mixed uses including ground level parking, ground level retail space, and residential space on the upper floors of the buildings. Existing parking at the Marketplace would be redeveloped to accommodate this proposed building. Proposed areas for redevelopment are located inside the Emeryville Marketplace and Shellmound Street Extension covenants (Figure V.F.-1)

Northwest of the Marketplace, the 64th & Christie building, is proposed for construction for ground level retail space, parking, and residential development on the top floors.[59] Demolition of two existing warehouses and associated parking would occur prior to development.

Three new retail pad spaces are proposed. Retail Pad 1 would be located south of the existing Borders Bookstore. [60] Retail Pad 2 would be located adjacent to Christie Avenue, between the 64th & Christie building and Christie Park.[61] Retail Pad 3 would be located adjacent to Shellmound Street, northeast of the Marketplace Tower building.[62] Retail Pads 2 and 3 would replace existing surface parking spaces and Retail Pad 1 would replace a landscaped berm area.

Proposed site improvements include an enhanced plaza/crossing area, new pedestrian sidewalk from the public market to the theater at the northeastern portion of the site, improvements to the existing connection to the Amtrak pedestrian bridge, improved landscaping and signage, and enhancements to the accessibility, safety and aesthetics of Christie Park. Some alterations to the roadways and intersections and parking areas would also be made under the proposed project.

[59] This location is outside the Emeryville Marketplace covenant area (FigureV.F.-1).

[60] This location is outside the Emeryville Marketplace covenant area (FigureV.F.-1).

[61] This location is outside the Emeryville Marketplace covenant area (Figure V.F.-1).

[62] This location is within the Emeryville Marketplace covenant area (Figure V.F.-1).

Proposed project activities are expected to impact the capped areas subject to the Land Use Covenants for the Emeryville Marketplace and the local extension of Shellmound Street (formerly Bay Street).[63] Excavation and trenching would occur in areas with known soil contamination. Construction activities conducted in areas with shallow groundwater[64] would likely also require dewatering of contaminated or potentially contaminated groundwater. The former leaking underground tank site with residual soil and groundwater contamination at 6340 Christie Avenue, has not been closed by Alameda County Department of Environmental Health. Exposure of construction workers and the public to hazardous materials in soil and/or groundwater could result in adverse health effects.

Construction activities would also occur in areas with soil gas contamination that could result in safety or human health hazards to construction workers and the public. Methane gas has been reported at concentrations ranging from 0.2 to 85.0 percent gas at 6340 Christie Avenue and from non-detect to 14.0 percent methane gas at 6390 Christie Avenue.[65]

Mitigation Measure HAZ-1: The following five-part mitigation measure shall be implemented.

HAZ-1a: Prior to any excavation or subsurface work in the areas subject to the two Covenants to Restrict Use of Property for the Emeryville Marketplace and the Bay Street Extension, the property owner/developer shall submit to DTSC a site health and safety plan in accordance with the requirements of the covenants. The owner shall address all DTSC requirements[66] in the preparation of the plan. In addition to these requirements, the health and safety plan shall include health and safety procedures for workers to follow during potential contact with dewatered groundwater and exposure to methane gas. The health and safety plan shall be prepared by a qualified environmental professional and approved by DTSC prior to implementation. For areas not within the covenant areas (i.e., Retail Pad 1 and 2, 64th & Christie building), a health and safety plan shall also be prepared, as described above with regulatory agency oversight and implemented during excavation or subsurface work at these locations.

HAZ-1b: A soil management plan shall be developed by the property owner/developer and approved by the City Engineer and DTSC for the proposed project (including the proposed location of the 64th & Christie building). The plan shall be submitted prior to issuance of demolition, grading, or building permits by the City. The plan shall include provisions for management of potentially contaminated excavated soil and dewatered groundwater, requirements for clean imported fill material, inspection of areas for gross contamination prior to backfilling by a qualified environmental professional, and requirements for immediate reporting to DTSC and the City Engineer in the event that previously unidentified contamination is encountered during construction/redevelopment activities. The soil management plan shall also include

[63] Department of Toxic Substances Control (DTSC), 2005. Letter to Miroo Desai, City of Emeryville, from Denise Tsuji, DTSC, regarding Notice of Preparation for the draft Environmental Impact Project for the Marketplace Redevelopment Project. December 28.

[64] Groundwater underlying the site ranges from four to six feet below ground surface, with seasonal variability

[65] An assessment of methane in the interior spaces of 6390 Christie Avenue did not contain any detectable concentrations of methane gas and no detectable methane gas was reported for the exterior of the building or within the storm drain inlets and utility vaults.

[66] DTSC, 2000. *Draft Site Specific Health and Safety Plan Guidance Document For Site Assessment/Investigation, Site Mitigation Projects, Hazardous Waste Site Work, Closure, Post Closure, and Operation and Maintenance Activities.* December (or as updated or otherwise required).

a contingency plan for sampling and analysis of previously unknown hazardous substances contamination in coordination with, and with oversight from, DTSC (See also Mitigation Measure HYD-2 from the Hydrology and Storm Drainage section). For areas not within the covenant areas (i.e., Retail Pads 1 and 2, and 64th & Christie building), a soil management plan shall also be prepared, as described above, with approval by the City Engineer.

HAZ-1c: The property owner/developer shall satisfy all requirements of the Alameda County Department of Environmental Health to obtain closure for the former leaking underground storage tank located at 6340 Christie Avenue. The requirements shall be satisfied prior to issuance of demolition, grading or building permits by the City for this property. If a deed restriction is required as a condition of closure, the restriction shall be recorded in Alameda County and all conditions of the deed restriction shall be met during and following construction by the property owner/developer.

HAZ-1d: The property owner/developer shall ensure that appropriate design elements are incorporated into the building design for proposed on-site structures to address the potential for methane gas venting (e.g., installation of a vapor barrier, passive soil venting system or active soil venting systems). The design shall comply with California Title 27 Section 20919 et seq, including the requirement that the concentration of methane in facility structures not exceed 25 percent of the lower explosive limit[67] for methane in facility structures (excluding gas control or recovery system components). The design shall be submitted to the City Engineer, Emeryville Fire Department, and DTSC for review. The Emeryville Fire Department, the local enforcement agency for methane, shall provide final approval of the methane mitigation design prior to issuance of building permits and shall inspect the system(s) implemented annually or as otherwise required.

HAZ 1e: All cracks/cap damage in the existing capped areas of the Emeryville Marketplace site shall be sealed at the time of site redevelopment activities by the contractor(s) in accordance with DTSC's recommendations in the five-year review. All existing and areas proposed for capping under the proposed project shall also be maintained by the site owner/developer to prevent exposures to contaminants in soil and groundwater. (LTS)

Impact HAZ-2: Demolition of structures containing lead-based paint, asbestos-containing building materials, or other hazardous materials could release airborne particles of hazardous materials, which may affect construction workers and the general public. (S)

Demolition of site structures could result in the release of lead, asbestos, and other hazardous materials present in structures built prior to 1980. The two buildings planned for demolition at the proposed location of the "64th & Christie building" (6340/6390 Christie Avenue) were constructed in the late 1960s. Exposure to hazardous materials associated with building materials may potentially result in health effects to construction workers and the public. Lead and asbestos surveys have not been completed for either structure located at 6340/6390 Christie Avenue.[68]

[67] The Lower Explosive Limit (LEL) is the lowest percent by volume of explosive gases in air that will propagate a flame at 25 degrees Celsius and atmospheric pressure.

[68] Will Mast, PES, 2005. Personal communication with Baseline Environmental Consulting, January 17.

Mitigation Measure HAZ-2: The following two-part mitigation measure shall be implemented.

HAZ-2a: As a condition of approval for a demolition permit for the buildings located at 6340 and 6390 Christie Avenue, a lead-based paint and asbestos survey shall be performed by a qualified environmental professional. Based on the findings of the survey, all loose and peeling lead-based paint and identified asbestos hazards shall be abated by a certified contractor in accordance with local, state, and federal requirements, including the requirements of the Bay Area Air Quality Management District (Regulation 11, Rule 2). The findings of the survey shall be documented by the qualified environmental professional and submitted to the City.

HAZ-2b: Other hazardous materials and wastes generated during demolition activities, such as fluorescent light tubes and mercury switches, shall be managed and disposed of by the demolition contractor(s) in accordance with applicable universal and hazardous waste regulations. Federal, State and local worker health and safety regulations shall apply to demolition activities, and required worker health and safety procedures shall be incorporated into the contractor's specifications for the project. (LTS)

Impact HAZ-3: Use and potential accidental spills of hazardous materials during the construction of the proposed project could result in soil and/or groundwater contamination and adverse health effects to construction workers, the public, and the environment. (S)

Hazardous materials (e.g., fuels/lubricants, paints, adhesives) would be transported and used on-site for proposed site construction and redevelopment activities. In addition, construction vehicles would be used on site that could accidentally release hazardous materials, such as oils, grease or fuels. It is likely that these hazardous materials and vehicles would be stored by the contractor(s) on-site during the duration of construction activities. Accidental releases of hazardous materials could impact soil and/or groundwater quality, or could result in adverse health effects to construction workers, the public, and the environment.

Only minor quantities of hazardous materials are expected to be stored following construction of the proposed project. The proposed project will include space for retail stores, parking, residential and office work. No commercial or industrial activities with hazardous materials use and storage are anticipated.

Mitigation Measure HAZ-3: The following three-part mitigation measures shall be implemented.

HAZ-3a: The Storm Water Pollution Prevention Plan (SWPPP) required for the project (See Mitigation Measure HYD-1 in the Hydrology and Storm Drainage Section) shall include emergency procedures for incidental hazardous materials releases.

HAZ-3b: Best Management Practices for the project include requirements for hazardous materials storage during construction to minimize the potential for releases to occur (See Mitigation Measure HYD-1 in the Hydrology and Storm Drainage Section). All use, storage, transport, and disposal of hazardous materials during construction activities shall be performed in accordance with existing local, state, and federal hazardous materials regulations.

HAZ-3c: The Health and Safety plan required under Mitigation Measure HAZ-1b requires the inclusion of an emergency response plan for safe and effective responses to emergencies, including the necessary personal protective equipment and other equipment, and spill containment procedures. (LTS)

Impact HAZ-4: The proposed project is identified on a hazardous materials release site database compiled pursuant to Government Code Section 65962.5 and could result in a safety hazard for people residing or working in the area. (S)

The Marketplace site is listed on the Cortese database.[69,70] This database identifies public drinking water wells with detectable levels of contamination, hazardous substances sites selected for remedial action, sites with known toxic material identified through the abandoned site assessment program, sites with underground storage tanks having reportable releases and all solid waste disposal facilities from which there is known migration. Construction workers, the public, and the environment could be exposed to hazardous materials in subsurface soil, soil gas, and groundwater during and following construction of the proposed project. Exposure to hazardous materials could result in adverse health effects or safety hazards, depending on the type and quantity of exposure.

Mitigation Measure HAZ-4: See Mitigation Measures HAZ-1a through HAZ-1f, above, for mitigation. (LTS)

[69] The CORTESE data is compiled pursuant to Government Code Section 65962.5. It is a list of sites designated by the State Water Resources Control Board, the Integrated Waste Management Board, and the Department of Toxic Substances Control (Cal-Sites).

[70] PCA, 2003, op. cit.

G. GEOLOGY, SOILS AND SEISMICITY

This section describes the project's geologic environment based on a site reconnaissance, published and unpublished geologic reports and maps, and site-specific technical reports. This section also assesses potential impacts from seismically-induced fault rupture, strong ground shaking, liquefaction, slope failure, lateral slope deformation, differential settlement and unstable or expansive soils. Mitigation measures for the identified significant impacts are recommended, as appropriate.

1. Setting

This section describes the existing geologic and seismic conditions of the project and the vicinity and associated hazards.

a. Geologic Conditions. The geology, topography and soils of the project site and vicinity are described below.

(1) Geology. The project is located within the Coast Ranges Geomorphic Province, a relatively geologically young and seismically-active region on the western margin of the North American plate. In general, the Coast Ranges are composed of sedimentary bedrock with layers of recent alluvium filling the intervening valleys.[1] The site-specific surface materials consist of artificial fill[2] over Holocene (less than 11,000 years old) Estuarine deposits.[3] More specifically, the project site is located on the east-shore flatlands about ⅛ mile inland of San Francisco Bay, and about 2½ miles west of the Berkeley hills.

(2) Topography. The approximately 18-acre project site is located within a flat urbanized area and is surrounded by similar terrain. The existing ground surface elevation varies from about 13 feet above mean sea level (msl) to about ten feet msl.[4] No open creek or stream channels cross the project site.

(3) Soils. Surface soils of the project site are mapped by the Natural Resource Conservation Service (formally the Soil Conservation Service) as Urban Land.[5] The Urban Land category is a description for man-made soils and land, usually already developed and covered by paving and structures, consisting of heterogeneous fills of (generally) unknown origin. The Soil Survey does not assign capability classification values for describing engineering constraints for the Urban Land type.

b. Seismic Conditions. The following subsection describes regional and site-specific seismicity.

(1) Regional Seismicity. The entire San Francisco Bay Area is located within the San Andreas Fault Zone (SAFZ), a complex of active faults forming the boundary between the North American and Pacific lithospheric plates. Movement of the plates relative to one another results in the

[1] California Geographic Survey (CGS), 2002. *California Geomorphic Provinces, Note 36.*

[2] Graymer, R.W., 2000. *Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California*, USGS.

[3] Helley, E.J., LaJoie, K.R., 1979. Flatlands Deposits of the San Francisco Bay Region, California, USGS Professional Paper 943.

[4] USGS, 1959 revised 1980. *Oakland West Quadrangle Topographic Map.*

[5] U.S. Department of Agriculture (USDA), 1981. *Soils of Alameda County, Western Part,* Soil Conservation Service.

accumulation of strain along the faults, which is released during earthquakes. Numerous moderate to strong historic earthquakes have been generated in northern California by the SAFZ. The level of active seismicity results in classification of the area as seismic risk Zone 4 (the highest risk category) in the California Building Code. The SAFZ includes numerous faults found by the California Geological Survey under the Alquist-Priolo Earthquake Fault Zoning Act (A-PEFZA) to be "active" (i.e., to have evidence of fault rupture in the past 11,000 years). Regional active faults are shown on Figure VG-1.

The U.S. Geological Survey's Working Group on California Earthquake Probabilities estimated that there is a 62 percent probability that one or more Moment Magnitude (M_w) 6.7 [6] or greater earthquakes will occur in the San Francisco Bay Area between 2002 and 2031. The probability of a M_w 6.7 magnitude or greater earthquake occurring along individual faults was estimated to be 21 percent along the San Andreas Fault, 27 percent along the Hayward Fault, eleven percent along the Calaveras Fault, four percent along the Concord-Green Valley Fault, ten percent along the San Gregorio Fault, three percent on the Greenville Fault, and three percent for the Mt. Diablo Thrust fault. In addition, there is a cumulative 14 percent chance of a background (other earthquake source, either mapped or undiscovered) event occurring. When predictions are expanded to 100 years it was estimated that about three M_W6.7 or greater events could occur during that time. Thus the probability of at least one M_W6.7 or greater magnitude earthquake rises to the near certainty of about 96 percent when calculated for a 100-year span.[7]

(2) Site-Specific Seismicity. The project is not within an Alquist-Priolo Earthquake Fault Zone; the project site is about three miles southwest of the Hayward A-PEFZA fault zone.[8] The Hayward fault is a right lateral strike-slip fault with a northwest-southeast axis,[9] and, as noted above, has a 27 percent chance of an M_w6.7 earthquake occurring between 2002 and 2031. The project site is located within a California Department of Conservation Seismic Hazard Zone as defined by the Seismic Hazards Mapping Act. Specifically, the project site falls within a liquefaction hazard zone.[10]

c. Seismic and Geologic Hazards. The following subsection describes components of seismic and geologic hazards including surface rupture, ground shaking, peak acceleration, liquefaction and lateral spreading, expansive soils, slope stability, and settlement and differential settlement.

(1) Surface Rupture. Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. The location of surface rupture generally can be assumed to be along an active or potentially active major fault trace. No portion of the project site is located within

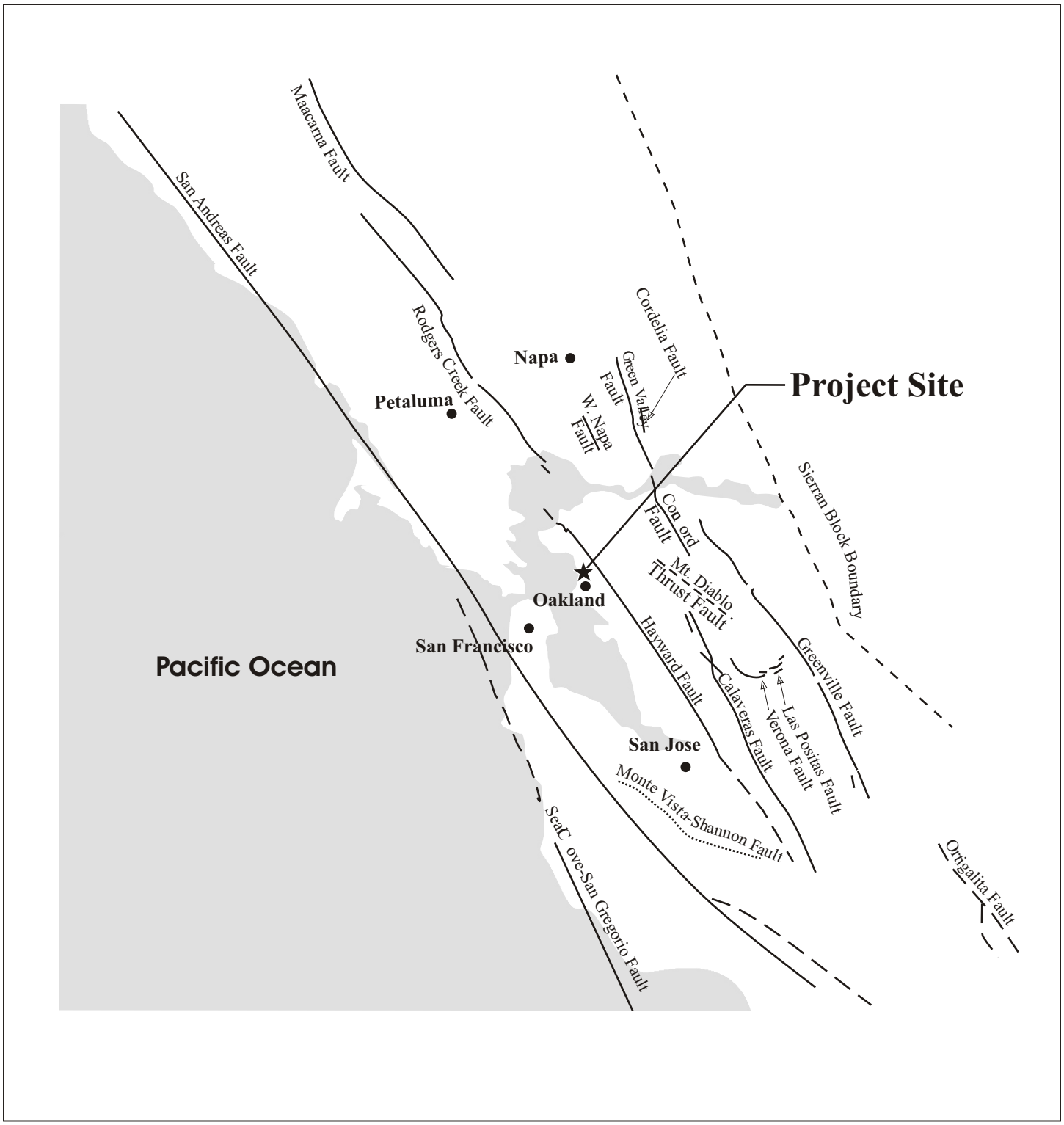
[6] Moment magnitude (M_W) is now commonly used to characterize seismic events as opposed to Richter Magnitude. Moment magnitude is determined from the physical size (area) of the rupture of the fault plane, the amount of horizontal and/or vertical displacement along the fault plane, and the resistance to rupture of the rock type along the fault.

[7] USGS, 2003. *Earthquake Probabilities in the San Francisco Bay Region: 2002 to 2031 – A Summary of Findings*, Open File Report 03-214.

[8] California Division of Mines and Geology (CDMG), 1982. *State of California Special Studies Zones, Oakland West Quadrangle Map.*

[9] Right-lateral: if the trace of the fault were viewed while standing on one side during an event, it would appear that the ground on the other side of the fault moved to the right. Strike-slip: the sides are moving laterally relative to each other with little or no vertical movement.

[10] California Geological Survey (CGS), 2003. *State of California Seismic Hazard Zones, Oakland West Quadrangle.*



LSA

LEGEND

- ACTIVE FAULT – FAULT HAS EVIDENCE OF SURFACE DISPLACEMENT WITHIN THE PAST 11,000 YEARS (DASHED WHERE INFERRED)
- POTENTIALLY ACTIVE FAULT – FAULT HAS EVIDENCE OF SURFACE DISPLACEMENT IN THE PAST 1.6 MILLION YEARS, BUT NOT WITHIN THE PAST 11,000 YEARS
- SEISMIC SOURCE WITHOUT SURFACE RUPTURE

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FIGURE V.G-1

Marketplace Redevelopment Project EIR
Regional Faults

SOURCE: BASELINE ENVIRONMENTAL, 2006.

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an Alquist-Priolo Earthquake Fault Zone and no active faults have been mapped at the project site. Therefore, potential for fault rupture at the project site is negligible.

(2) Ground Shaking. Ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake, and is normally the major cause of damage in seismic events. The extent of ground shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. The Modified Mercalli Intensity Scale (MMI) is the most commonly used scale for measurement of the subjective effects of earthquake intensity. A related concept, acceleration, is measured as a fraction or percentage of the acceleration under gravity (g) (see Table V.G-1).

The closest active fault to the project site is the Hayward fault zone. The north and south Hayward faults together are considered capable of generating about an M_w 6.9 earthquake. An earthquake of this magnitude would generate very violent seismic shaking (MMI X) at the project site.[11] This would constitute a potentially significant hazard.

(3) Peak Acceleration. Estimates of the peak ground acceleration have been made for the Bay Area based on probabilistic models that account for multiple seismic sources. Under these models, consideration of the probability of expected seismic events is incorporated into the determination of the level of ground shaking at a particular location. The expected peak horizontal acceleration (with a ten percent chance of being exceeded in the next 50 years) generated by any of the seismic sources potentially affecting the project area, including the project site, is estimated by the California Geological Survey as 0.63.[12] This level of ground acceleration at the project site, as well as through out the rest of the Bay Area, is a potentially significant hazard.

(4) Liquefaction and Lateral Spreading. Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state as a result of seismic ground shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement or ground failure to occur. Since saturated soils are a necessary condition for liquefaction, soil layers in areas where the groundwater table is near the surface have higher liquefaction potential than those in which the water table is located at greater depths.

As mentioned above, the project is located within a State of California-defined Liquefaction Hazard Zone, and is rated as a high liquefaction hazard area by Association of Bay Area Governments (ABAG) studies.[13] According to site-specific Phase I reports, the depth to groundwater at the project site was about four to six feet below ground surface (bgs) in or about 2005. [14,15]

[11] ABAG, 2005. *Earthquake Shaking Scenario Map,* http://www.abag.ca.gov/bayarea/eqmaps/mapsba.html

[12] California Geological Survey (CGS), 2005. *Probabilistic Seismic Hazards Mapping Ground Motion Page,* accessed 1/4/2006, www.consrv.ca.gov/cgs/rghm/pshamap/pshamain.html

[13] ABAG, 2003. *Liquefaction Hazard Map for Emeryville, Scenario: North and South Hayward faults, Magnitude 7.1 Earthquake,* accessed 1/4/2006 www.abag.ca.gov/cgi-bin/pickmapliq.pl.

[14] PES Environmental, Inc., 2005d. *Phase I Environmental Site Assessment, 6340 Christie Avenue, Emeryville, California*, prepared for Allen Matkins Leck Gamble & Mallory, LLP, report No. 241.062.01.001. January 21.

[15] PES Environmental, Inc., 2005c. *Phase I Environmental Site Assessment, 6390 Christie Avenue, Emeryville, California,* prepared for Allen Matkins Leck Gamble & Mallory, LLP, report No. 241.062.02.001. January 21.

Table V.G-1: Modified Mercalli Scale

I	Not felt except by a very few under especially favorable circumstances.
II	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
III	Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration like passing of truck. Duration estimated.
IV	During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
VII	Everybody runs outdoors. Damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Board fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted.

Source: California Geological Survey, 2002, *How Earthquakes and Their Effects are Measured*: Note 32.

Lateral spreading is a form of horizontal displacement of soil toward an open channel or other "free" face, such as an excavation boundary. Lateral spreading can result from either the slump of low cohesion unconsolidated material or more commonly by liquefaction of either the soil layer or a subsurface layer underlying soil material on a slope.[16]

The lateral spreading hazard will tend to mirror the liquefaction hazard for the project, and by definition needs an open channel or "free" face to expand into; this can include temporary excavations resulting from the construction process. Regional mapping provided by ABAG indicates the risk of liquefaction for the general area of the project site to be high, therefore the risk of lateral spreading is considered to be high during construction/excavation unless site-specific investigations determine otherwise.[17]

(5) Expansive Soils. Expansion and contraction of volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the vol-

[16] Rauch, Alan F., 1997. EPOLLS: An Empirical Method for Predicting Surface Displacements due to Liquefaction-Induced Lateral Spreading in Earthquakes, Ph. D. Dissertation, Virginia Tech, Blacksburg, VA.

[17] ABAG, 2003, op. cit.

ume of the soil changes markedly. As a consequence of such volume changes, structural damage to building and infrastructure may occur if the potentially expansive soils were not considered in project design and during construction.

Urban Land (man made fill) can be composed of varying amounts of natural soil materials, construction debris, dredging materials, municipal solid waste and other fill.[18] According to the site-specific report boring logs, some areas are underlain by significant amounts of high plasticity clay.[19]

(6) Slope Stability. Slope failure can occur as either rapid movement of large masses of soil ("landslide") or slow, continuous movement ("creep"). The primary factors influencing the stability of a slope are: 1) the nature of the underlying soil or bedrock, 2) the geometry of the slope (height and steepness), 3) rainfall, and 4) the presence of previous landslide deposits.

Regional mapping shows that the project and surrounding area is mapped as Category 1A, unstable areas of zero to five percent slope that include tidelands, marshlands, and swamplands that underlain by moist unconsolidated muds. Although not prone to traditional landslides, unstable Bay Mud deposits may be prone to rotational failures in the event of uneven distribution of new static loads. These rotational failures can be triggered by seismic events or occur over time due solely to the new loads.[20] Mitigation of these risks are addressed under differential settlement, below.

(7) Settlement and Differential Settlement. Differential settlement or subsidence could occur if buildings or other improvements were built on low-strength foundation materials (including imported non-engineered fill) or if improvements straddle the boundary between different types of subsurface materials (e.g., a boundary between native material and fill). Although differential settlement generally occurs slowly enough that its effects are not dangerous to inhabitants, it can cause significant building damage over time. Portions of the project site that may contain loose or uncontrolled (non-engineered) fill may be susceptible to differential settlement.

The area of the project site has undergone several development cycles since the 1900s, and the possibility of casual or non-engineered fill being present on the project site exists.[21] The historic shoreline of San Francisco Bay as well as the historic channel of Derby Creek underlies the project site. The project site is also underlain by naturally occurring Bay Mud and the area may contain former tidal sloughs and marshlands that were progressively filled. Under the weight of a new structure, Bay Mud tends to go through a cycle of consolidation that can lead to settlement, [22] or rotational failure, where uneven loading across a stiff platform, like a foundation, can result in tipping of the structure as the Bay Mud below rotates or settles differentially under the load.[23]

d. Emeryville General Plan. The following General Plan policies pertain to geotechnical hazards:

[18] Scheyer, J.M., and K.W. Hipple. 2005. Urban Soil Primer. United States Department of Agriculture, Natural Resources Conservation Service, National Soil Survey Center, Lincoln, Nebraska (http://soils.usda.gov/use).

[19] PES Environmental, 2005a and 2005b, op. cit.

[20] USGS, 1970. *Regional Slope Stability Map of the Southern San Francisco Bay Region, Professional Paper 944.*

[21] PES Environmental, 2005a and 2005b, op. cit.

[22] Dyett & Bhatia, 2005. *Emeryville General Plan Update, Opportunities and Challenges Report*. October.

[23] USGS, 1970, op. cit.

- *Geotechnical Hazards Objective A:* Reduce potential injury and loss of life and minimize property damage resulting from seismic activity.
- *Geotechnical Hazards Policy 1:* Police and fire stations and emergency medical facilities shall be designed or improved to remain functional following the maximum credible earthquake.
- *Geotechnical Hazards Policy 2:* Utility lines should be placed underground.
- *Geotechnical Hazards Policy 3:* Legislation requiring that hazardous buildings, such as unreinforced masonry structures, be made safe or demolished will be enforced.
- *Geotechnical Hazards Policy 4:* The City supports programs, which prepare and train citizens to take appropriate actions in an earthquake.

2. Impacts and Mitigation Measures

This section analyzes impacts related to geology, soils, and seismicity that could result from development of the proposed Marketplace Redevelopment project.

a. Criteria of Significance. The project would have a significant geology, soils, or seismicity impact if it would:

- Expose people or structures to substantial risk of loss, injury, or death involving:
  - Rupture of a known active or potentially active earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area, or based on other substantial evidence of a known fault;
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction; or
  - Landslides.
- Result in substantial soil erosion or loss of topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in an on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
- Be located on expansive soils (as defined in Table 18-1-B of the 1994 or subsequent Uniform Building Code) or corrosive soils, which could cause substantial damage to building foundations, pavements, utilities, and/or other improvements.
- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State.
- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

b. Less-than-Significant Impacts. The proposed project is not located on an unstable geologic unit, the development of which would be subject to, or contribute to, on- or off-site fault rupture, landslide, or aquifer related subsidence since there are no active faults crossing the site, the site is level, and groundwater would not be extracted. Implementation of the proposed project would not result in the loss of a known mineral resource; the project site is classified MRZ-1, "Areas where available geologic information indicates that little likelihood exists for the presence of significant

mineral resources."[24] The proposed project would not hinder energy reserve development, as the project site is not located over a known gas, oil or geothermal field.[25] Potential impacts associated with erosion and loss of topsoil is discussed in the Hydrology and Water Quality section of this DEIR.

c. Significant Impacts. Development of the proposed project could result in four significant impacts related to geology, soils, and seismicity.

Impact GEO-1: Seismically-induced ground shaking at the project site could result in damage to life and/or property. (S)

All structures in the Bay Area could potentially be affected by ground shaking in the event of an earthquake. The amount of ground shaking depends on the magnitude of the earthquake, the distance from the epicenter, and the type of earth materials in between. Violent to very violent ground shaking is expected at the project site during expected earthquakes on the Hayward and other regional faults. This level of seismic shaking could cause extensive structural damage in buildings at the site, most masonry and frame structures destroyed, some well-built wooden structures destroyed.

Mitigation Measure GEO-1: Prior to the issuance of any site-specific grading or building permits, a design-level geotechnical investigation shall be prepared and submitted to the City of Emeryville Planning and Building Department for review and confirmation that the proposed development fully complies with the California Building Code (Seismic Zone 4). The report shall determine the project site's geotechnical conditions and address potential seismic hazards such as liquefaction. The report shall identify building techniques appropriate to minimize seismic damage. In addition, the geotechnical investigation shall conform to the California Division of Mines and Geology (CDMG) recommendations presented in the *Guidelines for Evaluating Seismic Hazards in California*, CDMG Special Publication 117.

All mitigation measures, design criteria, and specifications set forth in the geotechnical and soils report shall be followed.

It is acknowledged that seismic hazards cannot be completely eliminated even with site-specific geotechnical investigation and advanced building practices (as provided in the mitigation measure above). However, exposure to seismic hazards is a generally accepted part of living in the San Francisco Bay Area and therefore the mitigation measure described above would reduce the potential hazards associated with seismic activity to a less-than-significant level. (LTS)

Impact GEO-2: Structures or property at the project site could be adversely affected by expansive soils or by settlement of project soils. (S)

Soils underlying portions of the project site may exhibit high shrink/swell characteristics.[26] This condition could significantly damage structures and utilities. In addition, non-uniformly compacted imported fill placed at the project site that could experience settlements under new structural loads. Structural damage, warping, and cracking of roads and other infrastructure, and rupture of utility lines

[24] CDC, 1987. *Mineral Land Classification Special Report 146 part 2*, Map plate 2.20, Oakland West Quadrangle.

[25] CDC, 2000. *Energy Map of California, Third Edition,* Division of Oil, Gas or Geothermal Resources.

[26] USDA, 1981. *Soils of Alameda County, Western Part,* Soil Conservation Service.

may occur if the potential expansive soils and the nature of the imported fill are not considered during design and construction of improvements.

> Mitigation Measure GEO-2: In locations underlain by expansive soils and/or non-engineered fill, the designers of building foundations and other improvements (including sidewalks, roads, and underground utilities) shall consider these conditions. The design-level geotechnical investigation, to be prepared by licensed professionals and approved by the Emeryville Planning and Building Department, shall include measures to ensure potential damages related to expansive soils and non-uniformly compacted fill are minimized. Mitigation options may range from removal of the problematic soils and replacement, as needed, with properly conditioned and compacted fill to design and construction of improvements to withstand the forces exerted during the expected shrink-swell cycles and settlements.
>
> All mitigation measures, design criteria, and specifications set forth in the geotechnical investigation shall be followed to reduce impacts associated with shrink-swell soils and settlement to a less-than-significant level. (LTS)

Impact GEO-3: Differential settlement at the project site could result in damage to project buildings and other improvements. (S)

Grading of the project site in preparation for construction of buildings and utilities would result in areas of cut and fill. Fills of different thickness and fills adjacent to cut areas where native soils are potentially exposed at the surface could create the potential for differential settlement. If the settlement is not uniform, structural damage could occur. Buried utilities may also experience differential settlement along their alignments.

Uncompacted and loose fill and existing casual and historic fill will be subject to varying rates of compaction and settlement compared to the native undisturbed soil. Structures built over discontinuous materials of varying densities and compactness may be subject to stress or damage due to differential settlement. Structures built on fill over Bay Mud may be subject to differential settlement or rotational failures of underlying layers, particularly if the structural loads are unevenly distributed to the earth. A geotechnical investigation conducted for a nearby property has recommended foundation alternatives such as Geopiers, drilled friction piers or driven friction piles to reduce the risks from differential settlement and unstable subsurface layers.[27]

> Mitigation Measure GEO-3: Prior to issuance of a grading permit, a site-specific grading plan shall be prepared by a licensed professional and submitted to the Emeryville Planning and Building Department for review and approval. The plan shall include specific recommendations for mitigating potential differential settlement associated with Bay Mud, fill placement and areas of different fill thickness. (LTS)

Impact GEO-4: Liquefaction at the project site could result in damage to buildings and other improvements. (S)

Regional mapping by ABAG and the State of California indicates high susceptibility to liquefaction within the project site. Adverse effects of liquefaction can take many forms including flow failures, lateral spreads, ground oscillation, loss of bearing strength, settlement, and increased lateral pressure

[27] BRE Properties, 2004. *Pinnacles Project EIF, City of Emeryville.*

on retaining walls.[28] When the soil supporting a building or other structure liquefies and loses strength, large deformations can occur within the soil that may allow the structure to settle and tip and smaller settlements may occur as soil pore-water pressures dissipate and the soil consolidates after the earthquake. In areas classified as being subject to seismic hazard, the State of California requires that project design shall be in accordance with the recommendations contained in a site-specific geotechnical report prepared by a licensed professional and reviewed and approved by the Emeryville Planning and Building Department.[29] A site-specific study concluded that the depth to groundwater at the site was four to six feet bgs in the northwest corner of the project site, [30] and similar depths to groundwater would be expected for the entire site.[31]

> Mitigation Measure GEO-4: The Emeryville Planning and Building Department shall approve all final design and engineering plans. Project design and construction shall be in conformance with current best standards for earthquake resistant construction in accordance with the California Building Code (Seismic Zone 4), applicable local codes and in accordance with the generally accepted standard of geotechnical practice for seismic design in Northern California. The design-level geotechnical investigation shall include measures to minimize that potential damage related to liquefaction. (LTS)

[28] Earthquake Engineering Research Institute (EERI), 1994. *Earthquake Basics: Liquefaction – What Is It and What To Do About It.*

[29] California Codes Public Resources Code Section 2690-2699.6.

[30] PES Environmental, Inc., 2005a, op. cit.

[31] Property Condition Assessments, Inc., 2003. *Phase I Environmental site Assessment, Emerybay Portfolio, Emeryville, California for Rockwood Capital Corporation, Project No. 1-02-215J.* January 28.

H. HYDROLOGY AND STORM DRAINAGE

This section describes the existing hydrological setting for the project site, including runoff, drainage, and water quality, based on available information included with the application, consultation with City staff, review of geotechnical and environmental investigation reports, and other published materials, and a site reconnaissance. Based on information collected, this section identifies impacts that may result from project development, and suggests mitigation measures to reduce potential impacts.

1. Setting

A description of the existing conditions at and near the site related to hydrology and storm drainage is provided below.

a. Climate. The climate of the Bay Area is characterized as dry-summer subtropical (often referred to as Mediterranean), with cool wet winters and relatively warm dry summers. The mean annual rainfall in the vicinity of the project site for the period between 1950 and 2004 is approximately 23.6 inches, with the vast majority of rainfall between October and May.[1] Analysis of long-term precipitation records indicates that wetter and drier cycles lasting several years are common in the region. Severe, damaging rainstorms occur in the Bay Area at a frequency of about once every three years.[2]

b. Runoff and Drainage. The project site is relatively flat, at an elevation of approximately 10 to 13 feet above mean sea level (relative to the National Geodetic Vertical Datum (NGVD)).[3] There are no creeks or streams crossing the project site. The western portion of the site was once part of the San Francisco Bay and Derby Creek entered the Bay in the vicinity of the project site.[4] Therefore, a portion of the site is underlain by the former mouth of Derby Creek, which has been filled.

With the exception of small areas of landscaping and lawns, the site is almost completely covered with impervious surfaces (structures, roads, paved parking areas). In general, the site drains by overland sheetflow toward the west and south where runoff is collected in the City storm drainage system by drainage inlets (DIs) located along the western and southern site boundaries; runoff in this part of the system flows west and is eventually discharge directly to the Bay. Drainage from the southeastern portion of the site enters the underground drainage system and flows south to Temescal Creek (Temescal Creek is concrete-lined in the City of Emeryville).

[1] Western Regional Climate Center, 2004. Website: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?caberk+sfo.

[2] Brown, William M. III, 1988. Historical Setting of the Storm: Perspectives on Population, Development, and Damaging Rainstorms in the San Francisco Bay Region, in Landslides, Floods, and Marine Effects of the Storm of January 3-5, 1982, in the San Francisco Bay Region, California, Stephen D. Ellen and Gerald F. Wieczorek, Eds., U.S. Geological Survey Professional Paper 1434.

[3] United States Geological Survey, 1959 (photo revised in 1980). Oakland West Topographic Quadrangle.

[4] Sowers, J.M., 1993. Creek and Watershed Map of Oakland and Berkeley, published by the Oakland Museum of California.

c. Flooding. The project site is not located within the 100-year flood hazard zone, as mapped by the Federal Emergency Management Agency (FEMA),[5] and therefore the project site would not be expected to be susceptible to storm-related flooding.

The southern end of the project site is located within the mapped dam failure inundation zone for Lake Temescal.[6] The Lake Temescal dam is an earthen dam constructed in 1869. The reservoir behind the dam has a storage capacity of approximately 485 acre feet.[7] The Lake Temescal dam is under the jurisdiction of the California Department of Water Resources, Division of Safety of Dams (DWR). Existing dams under DWR's jurisdiction are periodically inspected to ensure that they are adequately maintained and to direct the owner to correct any identified deficiencies. Regular inspections and required maintenance of the dams substantially reduce the potential for catastrophic failure.

The location of the project site, on lowlands near San Francisco Bay, creates a potential for coastal flooding hazards, including tsunami, extreme high tides, and sea level rise. However the elevation of the project site, approximately 10 feet NGVD, would be expected to provide adequate protection from tsunamis, extreme high tides, and sea level rise, all of which tend to present hazards for sites at elevations lower than 10 feet NGVD. [8,9,10,11]

d. Water Quality. The quality of surface water and groundwater in the vicinity of the project site is affected by past and current land uses at the site and within the watershed and the composition of geologic materials in the vicinity. Water quality in surface and groundwater bodies is regulated by the State Water Resources Control Board and Regional Water Quality Control Boards. The project site is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB), which is responsible for implementation of state and federal water quality protection guidelines in the Bay Area. The RWQCB implements the Water Quality Control Plan (Basin Plan),[12] a master policy document for managing water quality issues in the region. The Basin Plan establishes beneficial water uses for waterways and water bodies within the region.

(1) Storm Water Quality. Runoff water quality is regulated by the National Pollutant Discharge Elimination System (NPDES) Nonpoint Source Program (established through the Clean Water Act); the NPDES program objective is to control and reduce pollutants to water bodies from nonpoint discharges. Locally, the NPDES program is administered by the RWQCB. The RWQCB has conveyed responsibility for implementation of storm water regulations in the vicinity of the project site to

[5] Federal Emergency Management Agency (FEMA)/Environmental Systems Research Institute, U.S. Flood Hazard Maps: http://www.esri.com/hazards/.

[6] Association of Bay Area Governments, 2005, Interactive ABAG (GIS) Maps Showing Dam Failure Inundation http://www.abag.ca.gov/bayarea/eqmaps/damfailure/damfail.html.

[7] California Department of Water Resources, 1988, Dams within the Jurisdiction of the State of California, Bulletin 17-88, October.

[8] Houston, J.R., Garcia, A.W., 1975, Type 16 Flood Insurance Study: Tsunami Predictions for Monterey and San Francisco Bays and Puget Sound, Technical Report H-75-17, November.

[9] Ritter, J., Dupre, W., 1972. Maps Showing Areas of Potential Inundation of Tsunamis in the San Francisco Bay Region, California, Department of the Interior, U.S. Geological Survey, Misc. Field Studies, MF480.

[10] United States Army Corps of Engineers, 1984, San Francisco Bay Tidal Stage vs. Frequency Study, October.

[11] U.S. EPA, 1995, The Probability of Sea Level Rise, EPA 230-R-95-008, October.

[12] San Francisco Bay Regional Water Quality Control Board, 1995, Water Quality Control Plan, June 21.

the Alameda Countywide Clean Water Program (ACCWP). The ACCWP maintains compliance with the NPDES Permit and promotes storm water pollution prevention within that context. Compliance with the NPDES Permit is mandated by state and federal statutes and regulations.

Participating agencies (including the City of Emeryville) must comply with the provisions of the County permit by ensuring that new development and redevelopment mitigate water quality impacts to storm water runoff both during construction and operation periods of projects. Recent changes to the permit held by the ACCWP are detailed in RWQCB Order R2-2003-0021 (NPDES Permit No. CAS0029831).

New development and significant redevelopment projects that are subject to Provision C.3 of the RWQCB order are grouped into two categories based on project size. While all projects regardless of size should consider incorporating appropriate source control and site design measures that minimize storm water pollutant discharges to the maximum extent practicable, new and redevelopment projects that do not fall into Group 1 or Group 2 are not subject to the requirements of Provision C.3. The general criteria for establishing whether a project is a Group 1 or Group 2 project is presented below [for a detailed definition, refer to the County NPDES permit (No. CAS0029831)]:

Group 1	New development and redevelopment projects that would create or replace more than one acre of impervious surface (e.g., roof area, streets, sidewalks, parking lots).
Group 2	New development and redevelopment projects that would create or replace more than 10,000 square feet of impervious surface. Projects consisting of one single-family home are excluded from Group 2.

The proposed project would be considered a Group 1 Project and therefore would be required to meet all the terms of the permit, including (but not limited to):

- ***Numeric Sizing Criteria for Pollutant Removal Treatment Systems.*** The project must include source controls, design measures, and treatment controls to minimize storm water pollutant discharges. Treatment controls must be sized to treat a specific amount – about 85 percent – of average annual runoff (in the Bay Area this is equivalent to about the 1-inch storm).
- ***Operation and Maintenance of Treatment Measures.*** Treatment controls often do not work unless adequately maintained. The permit requires an operations and maintenance (O&M) program, which includes: 1) identifying the properties with treatment controls; 2) developing agreements with private entities to maintain the controls (e.g., incorporation into CC&Rs or homeowners association duties); and 3) periodic inspection, maintenance (as needed), and reporting.
- ***Limitation on Increase of Peak Storm Water Runoff Discharge Rates.*** Urbanization creates impervious surfaces that reduce the landscape's natural ability to absorb water and release it slowly to creeks. These impervious surfaces increase peak flows in creeks and can cause erosion. Projects must evaluate the potential for this to occur and provide mitigation as necessary. However, the project would not cause hydromodification in downstream creeks since the creeks in Emeryville are concrete-lined. Therefore, projects completed within the City of Emeryville are not required to evaluate the potential for hydromodification to occur. In addition, projects

disturbing more than one acre of land[13] during construction are required to file a Notice of Intent (NOI) with the RWQCB to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity. A developer must propose control measures that are consistent with the State General Permit. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site covered by the general permit. A SWPPP should include Best Management Practices (BMPs) designed to reduce potential impacts to surface water quality during the construction of the project.

On December 6, 2005, the Emeryville City Council adopted *Stormwater Guidelines for Green, Dense Redevelopment: Stormwater Quality Solutions for the City of Emeryville*. These guidelines outline ideas for meeting new stormwater treatment requirements using site design, parking strategies, and stormwater treatment measures to allow water to flow through plants and soil. Numeric requirements apply to development projects of 10,000 square feet or more as of August 15, 2006. The guidelines generally require vegetative stormwater treatment measures, and apply city-wide.

(2) Groundwater. The Basin Plan specifies that groundwater underlying the project site has designated beneficial uses, including municipal and domestic supply, industrial supply, and agricultural supply. Uppermost groundwater at and near the project site has been encountered at depths of approximately 4 to 6 feet below the ground surface (which may vary seasonably).[14] The site land use history includes industrial activity that has resulted in contamination of subsurface soils and groundwater.[15] Results of historic soil and groundwater quality investigations at the project and the measures that have been implemented to address residual contamination are discussed under Hazards section of this Draft EIR.

e. Emeryville General Plan

The following Emeryville General Plan policies pertain to hydrology and storm drainage.

- *Water Resources Objective A:* Enhance the quality of water resources in Emeryville and prevent their contamination.
- *Water Resources Policy 1:* The City supports efforts of the various public agencies responsible for maintaining and improving water quality in Emeryville.
- *Water Resources Policy 2:* Water quality in Temescal Creek should not be degraded since the plan calls for increased pubic access to the creek as a recreational resource.

[13] The State Water Resources Control Board, Water Quality Order 99-08-DWQ, National Pollutant Discharge Elimination System (NPDES), General Permit for Storm water Discharges Associated with Construction Activity (General Permit) states that: The regulations provide that discharges of storm water to waters of the United States from construction projects that encompass five (5) or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES Permit. Regulations (Phase II Rule) that became final on December 8, 1999, expand the existing NPDES program to address storm water discharges from construction sites that disturb land equal to or greater than one (1) acre and less than five (5) acres (small construction activity). The regulations require that small construction activity, other than those regulated under an individual or Regional Water Quality Control Board General Permit, must be permitted no later than March 10, 2003.

[14] PES Environmental, Inc., 2005c. *Phase I Environmental Site Assessment, 6390 Christie Avenue, Emeryville, California*. January 21.

[15] PES Environmental, Inc., 2005, op. cit.

- *Flood Hazards Objective A:* Protect human life and property from flood hazards while enhancing the visual appearance of Temescal Creek.

2. Impacts and Mitigation Measures

This section analyzes the impacts related to hydrology and storm drainage that could result from implementation of the Marketplace Expansion project. This section begins with a listing of criteria of significance, which establish the thresholds for determining whether a project impact is significant. The latter part of this section presents the potential hydrology and storm drainage impacts associated with the proposed project. Mitigation measures are recommended, as appropriate.

a. Criteria of Significance. The project would have a significant effect on hydrology, storm drainage, or water quality if it would:

- a.1: Violate any water quality standards (including turbidity limitations for discharged water) or waste discharge requirements, including the potential to affect impaired water bodies listed on the State's 303(d) list and/or conflict with designated beneficial uses.
- a.2: Cause unacceptable impacts to seasonal creeks and/or create new stream crossings that could result in unacceptable levels of erosion or stream channel alteration.
- a.3: Create conditions that would be favorable to growth of mosquitoes and potentially require subsequent chemical treatment to protect human and animal health.
- a.4: Create or contribute runoff that would be an additional source of water quality degradation.
- a.5: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or sedimentation on- or off-site
- a.6: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.
- a.7: Create or contribute runoff that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.
- a.8: Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
- a.9: Expose people or structures to a significant risk of loss, injury or death involving flooding.
- a.10: Expose people or structures to a significant risk of inundation by seiche, tsunami, or mud-flow.
- a.11: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a significant net deficit in aquifer volume or a lowering of the local groundwater table level.

The revised County NPDES permit (C.3.m) indicates that following criteria should also be considered during the environmental review process to evaluate potential impacts:

- a.12: Would the proposed project result in an increase in pollutant discharges to receiving waters? Consider water quality parameters such as temperature, dissolved oxygen, turbidity and other

typical storm water pollutants (e.g., heavy metals, pathogens, petroleum derivatives, synthetic organics, sediment, nutrients, oxygen-demanding substances, and trash).

- a.13: Would the proposed project result in significant alteration of receiving water quality during or following construction?
- a.14: Would the proposed project result in increased impervious surfaces and associated increased runoff?
- a.15: Would the proposed project create a significant adverse environmental impact to drainage patterns due to changes in runoff flow rates or volumes?
- a.16: Would the proposed project result in increased erosion in its watershed?
- a.17: Is the project tributary to an already impaired water body, as listed on the Clean Water Act Section 303(d) list? If so, will it result in an increase in any pollutant for which the water body is already impaired?
- a.18: Would the proposed project have a potentially significant environmental impact on surface water quality, to marine, fresh, or wetland waters?
- a.19: Would the proposed project have a potentially significant adverse impact on ground water quality?
- a.20: Will the proposed project cause or contribute to an exceedance of applicable surface or groundwater receiving water quality objectives or degradation of beneficial uses?
- a.21: Will the project impact aquatic, wetland, or riparian habitat?

b. Less-than-Significant Impacts. In general, the completed project would not be expected to substantially change conditions with respect to runoff volume because the project does not propose substantial changes to the amount of impervious cover relative to existing conditions. While the applicant has not proposed any specific Best Management Practices (BMPs) to treat storm water runoff, treatment is required by the current Countywide NPDES permit. Therefore, the project would include integrated storm water treatment features (none are currently maintained at the project site) and improve runoff water quality relative to current conditions. None of the project components would be expected to result in significant impacts associated with the following (the specific criteria found to be less-than-significant are listed in parentheses after each item):

- According to the most recent FEMA mapping, the site is not located within the 100-year flood hazard zone, and therefore, no placement of housing or other structures in a flood hazard zone would be expected to occur under the proposed project. [a.8, a.9]
- Analysis of coastal flooding hazards performed for this EIR did not identify any substantial hazard from tsunami, extreme high tides, or sea level rise. [a.10]
- Due to its elevation, the project site would be expected to be protected from any impacts associated with seiches, which historically have a low frequency and magnitude in San Francisco Bay. [a.10]
- Implementation of the proposed project would not contribute to depletion of groundwater supplies. The project would result in virtually no change in the amount of impervious cover, and therefore groundwater recharge rates would be unaffected. In addition, the project would not pump groundwater for water supply purposes. [a.11]

- The project site is located in the mapped inundation zone for Temescal Creek. However, since Temescal Dam is regularly inspected and maintained under the California Department of Water Resources, Division of Safety of Dams program, failure of the dam is considered a low probability event. In addition, the City maintains an emergency response program to warn inhabitants located downstream of the dam in the event of a dam failure. These existing programs reduce this potential impact to a less-than-significant level. [a.8]
- The project would result in virtually no change in the amount of impervious surfaces, and therefore total runoff volumes from the site would likely be unchanged. [a.14]
- The project would not cause hydromodification in downstream creeks since the creeks in Emeryville are concrete-lined. [a.2, a.16]
- There is no aquatic, wetland, or riparian habitat at the project site, and therefore impact to these resources would not be expected. [a.21]
- Mosquitoes would not be expected to be a problem during the construction or operation phase of the project. Mosquitoes require standing water to breed. The construction phase would include pavement removal, grading, and construction. These activities would not be expected to result in the creation of bodies of water that would remain undisturbed for long periods of time. The operation phase will include storm water treatment facilities, which may include detention of storm water. However, properly designed detention basins typically drain completely within 72 hours, a period of time shorter than the mosquito breeding period. [a.3]
- The project is not expected to have any substantial effect on groundwater quality in the vicinity of the site. No new uses that pose a threat to groundwater quality are proposed. [a.19, a.20]
- The project would not alter the course of a stream or river, since no such hydrologic features cross the site [a.5, a.6]
- Potential impacts associated with exceedance of the capacity of downstream storm water drainage system components is not expected since the project will result in virtually no change in the amount of impervious cover or drainage patterns at the site (a.7, a.15).

c. Significant Impacts and Mitigation Measures. The significant impacts that could result from the proposed project relate to degradation of runoff water quality (Criteria a.1, a.4, a.12, a.13, a.17, and a.18). These potentially significant impacts are discussed below and mitigation measures are recommended.

Impact HYD-1: Construction activities could result in degradation of water quality in the Bay by reducing the quality of storm water runoff. (S)

Construction and grading within the project site would require temporary disturbance of surface soils and removal of existing impervious surfaces and vegetative cover. During the construction period, grading and excavation activities would result in exposure of soil to runoff, potentially causing erosion and entrainment of sediment and contaminants in the runoff. Soil stockpiles and excavated areas on the project site would be exposed to runoff and, if not managed properly, the runoff could cause erosion and increased sedimentation and pollutants in storm water.

The potential for chemical releases is present at most construction sites given the types of materials used, including fuels, oils, paints, and solvents. Once released, these substances could be transported

to the Bay in storm water runoff, wash water, and dust control water, potentially reducing water quality. In addition, the project site is the location of confirmed historic chemical releases that have affected soil quality. Erosion of contaminated soils could result in the transport of pollutants (along with the sediments) to the Bay. The proximity of the project site to the Bay reduces the chances that the pollutants would be naturally attenuated in a standard-design storm drainage system prior to discharge to the Bay.

Mitigation Measure HYD-1: The project contractor shall comply with the City of Emeryville Municipal Code relating to grading projects and erosion control (Section 6-13.204):

> *Any person engaged in activities which will or may result in pollutants entering the City storm sewer system shall undertake all practicable measures to reduce such pollutants.*
>
> *Best Management Practices for New Developments and Redevelopments. Any construction contractor performing work in the City shall endeavor, whenever possible, to provide filter materials at the catchbasin to retain any debris and dirt flowing into the City's storm sewer system. The Director of Public Works may establish controls on the volume and rate of storm water runoff from new developments and redevelopments as may be appropriate to minimize the discharge and transport of pollutants.*

In addition, the project proponent shall prepare a SWPPP designed to reduce potential impacts to surface water quality through the construction period of the project. The SWPPP must be maintained on-site and made available to City inspectors and/or RWQCB staff upon request. The SWPPP shall include specific and detailed BMPs designed to mitigate construction-related pollutants. At a minimum, BMPs shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain.

An important component of the storm water quality protection effort is the knowledge of the site supervisors and workers. To educate on-site personnel and maintain awareness of the importance of storm water quality protection, site supervisors shall conduct regular tailgate meetings to discuss pollution prevention. The frequency of the meetings and required personnel attendance list shall be specified in the SWPPP.

The SWPPP shall specify a monitoring program, which must include both dry and wet weather inspections, to be implemented by the construction site supervisor. In addition, in accordance with State Water Resources Control Board Resolution No. 2001-046,[16] monitoring would be required during the construction period for pollutants that may be present in the runoff that are "not visually detectable in runoff."[17] RWQCB and/or City personnel, who may make unan-

[16] State Water Resources Control Board, 2001. Modification of Water Quality Order 99-08-DWQ State Water Resources Control Board (SWRCB) National Pollutant Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity.

[17] Construction materials and compounds that are not stored in water-tight containers under a water-tight roof or inside a building are examples of materials for which the discharger may have to implement sampling and analysis procedures.

nounced site inspections, are empowered to levy considerable fines if it is determined that the SWPPP has not been properly prepared and implemented.

BMPs designed to reduce erosion of exposed soil may include, but are not limited to: soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins. The potential for erosion is generally increased if grading is performed during the rainy season as disturbed soil can be exposed to rainfall and storm runoff. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control, that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment wash-down facilities shall be designed to be accessible and functional during both dry and wet conditions. (LTS)

Impact HYD-2: Dewatering effluent may contain contaminants and if not properly managed could cause impacts to construction workers and the environment. (S)

Groundwater at and near the project site has been encountered at about 4 to 6 feet below the ground surface (and on a seasonal basis may be present at shallower depths) and may therefore be encountered during excavation for building foundations, utilities, and other improvements.

There are two general classes of pollutants that may result from dewatering operations: sediment, and chemical compounds (including toxics and petroleum hydrocarbons). High sediment content in dewatering discharges is common because of the nature of the operation in which soil and water mix in the turbulent flow of high volume pump intakes. Chemical pollutants are most commonly found in dewatering effluent in areas with a history of groundwater contamination (e.g., leaks to the subsurface from industrial sites). Much of the project site is located in an area of confirmed historic chemical releases (refer to Section V.F, Hazardous Materials/Public Health and Safety, of this EIR for discussion of identified areas of potential subsurface contamination). Direct discharge of dewatering effluent to the storm drainage system could result in water quality impacts to the Bay.

Mitigation Measure HYD-2: The construction-period SWPPP shall include provisions for the proper management of construction-period dewatering effluent. At minimum, all dewatering effluent shall be contained prior to discharge to allow the sediment to settle out, and filtered, if necessary, to ensure that only clear water is discharged to the storm or sanitary sewer system, as appropriate. In areas of suspected groundwater contamination (i.e., underlain by fill or near sites where chemical releases are known or suspected to have occurred), groundwater shall be analyzed by a State-certified laboratory for the suspected pollutants prior to discharge. Based on the results of the analytical testing, the project proponent shall acquire the appropriate permit(s) prior to discharge of the effluent. Discharge of the dewatering effluent would require a permit from the RWQCB (for discharge to the storm sewer system or to San Francisco Bay) and/or East Bay Municipal Utility District (EBMUD) (for discharge to the sanitary sewer system). (LTS)

Impact HYD-3: Operation-phase use of the site could result in degradation of water quality in the Bay by reducing the quality of storm water runoff. (S)

Proposed land uses at the project site would result in discharge of urban pollutants to storm water runoff. These pollutants include fuels, lubricants, tire wear, and atmospheric fallout, which will contribute petroleum hydrocarbons, heavy metals, and sediment to the pollutant load in runoff being transported to receiving waters. Runoff from landscaped areas at the site may contain residual pesticides and nutrients. Long-term degradation of water quality runoff from the site could impact local water quality in Temescal Creek and San Francisco Bay.

The project site discharges through storm drains and Temescal Creek and then directly into San Francisco Bay. San Francisco Bay is listed as impaired by the Regional Water Quality Control Board (RWQCB). The RWQCB has designated San Francisco Bay as water quality impaired for several pesticides (chlordane, DDT, diazinon, and dieldrin), dioxin compounds, exotic species, furan compounds, mercury, nickel, PCBs, and selenium.[18] If there is a chance that the project could increase the load of any of these pollutants discharged to the Bay, then a significant impact would be expected to occur (the RWQCB has determined that the assimilative capacity of the Bay for these pollutants has already been exceeded).

Most of the contaminants that have been identified as causing the water quality impairment of the Bay are unlikely to be used at the site. Each of the pesticides (chlordane, DDT, diazinon, and dieldrin) has been for banned (except, in some cases for agricultural use) and is therefore not available for legal use at the project site. The source of the dioxin and furan compounds has been identified as atmospheric deposition. The proposed project would not alter the rate of atmospheric deposition, and therefore not change the current loading rate of these compounds (the rate may be decreased due to implementation of Best Management Practices). The proposed project would not introduce exotic species to the Bay or increase the impact of existing exotic species. PCBs and mercury would not be used at the site and discharges of these contaminants would not be expected to be affected by the project. The selenium impairment has been caused by industrial point sources, agriculture, natural sources, and exotic species. None of these uses is proposed for the project site.

Nickel in storm water runoff is mostly associated with suspended solids and organic matter. Sources of nickel include corrosion of welded metal plating, wear of moving parts in engines, electroplating and alloy manufacture, and food production equipment.[19] It is possible that increased vehicle traffic at the project site as a result of the project could result in the discharge of nickel in storm water. Since nickel is almost always associated with suspended solids, storm water pollution controls to reduce or eliminate suspended solids would be effective in decreasing nickel load in runoff leaving the site.

The proposed project design is still in the conceptual phase and does not specifically identify any BMPs to treat storm water runoff prior to discharge to the Bay. Preliminary consultations between the project proponent and the City Department of Public Works indicate that storm water runoff from the Shellmound building zone and 64th & Christie building zone development areas would require treatment in compliance with provision C.3 of the current municipal NPDES permit. It is not expected that the ancillary modifications to the main parking and circulations areas (e.g. movement of curbs and restriping) with trigger the C.3 requirements for the entire parking area. From a storm water quality

[18] Regional Water Quality Control Board (RWQCB), San Francisco Bay Region, 2003. 2002 CWA Section 303(d) List of Water Quality Limited Segment, Approved by USEPA. July 2003.

[19] Makepeace, D.K., Smith, D.W. and Stanley, S.J., 1995. Urban Storm water Quality: Summary of Contaminant Data, *Critical Reviews in Environmental Science and Technology,* Vol. 25, No. 2, pp. 93-139.

perspective, the proposed modified parking lot is similar to the existing conditions. Therefore, no significant impact to surface water quality from the parking lot would be expected.

Emeryville has dense development patterns, heavy soils, an industrial history and high groundwater levels. Even considering these challenges, the City requires stormwater treatment features for new and redevelopment projects, including bioretention features such as flow-through planter boxes and rain gardens, infiltration with sub-drainage, permeable paving, bio-filtration swales, podium and roof plantings, and water storage.

The project would create new surfaces (the roofs of the buildings Shellmound building zone and 64th & Christie building zone) that would collect atmospheric fallout. The contaminants contained in the fallout could be entrained in runoff and affect surface water quality. The current municipal NPDES permit requires treatment of storm water from new development areas or from areas of major redevelopment.

Mitigation Measure HYD-3: The City shall ensure that the proposed project drainage design meets all the requirements of the current Countywide NPDES Permit (NPDES Permit No. CAS0029831). The drainage plan shall include features and operational Best Management Practices to reduce potential impacts to surface water quality associated with operation of the project. These features shall be included in the project drainage plan and final development drawings. Specifically, the final design shall include measures designed to mitigate potential water quality degradation of runoff from all applicable portions of the completed development. In general, "passive," low-maintenance BMPs (e.g., storm water planters, rain gardens, grassy swales, porous pavements) are preferred over active filtering or treatment systems. As required by the City of Emeryville's 2005 *Storm Water Guidelines for Green, Dense Redevelopment.*

> *Storm Water Quality Solutions*: *The storm water treatment design consultant shall make a good faith effort to meet the entire treatment requirement using vegetative solutions. If the storm water treatment design consultant concludes that vegetative solutions are not feasible due to site characteristics, building uses or other legitimate reasons, and the City concurs, the City will consider allowing on-site mechanical solutions. In some cases, upon recommendation of the storm water treatment design consultant, a combination of vegetative and mechanical solutions may be allowed. If mechanical solutions are utilized, the mechanism must be approved by the City, and the developer must demonstrate that the mechanical design will remove fine sediments and dissolved metals as well as trash and oil.*

An operations and maintenance plan shall be developed and implemented to inspect and maintain BMPs in perpetuity. If paved surfaces within covered parking areas are washed with water, this water shall not be directed to the storm drainage system. This wash water effluent shall either be directed to the sanitary sewer or contained and transported off-site for proper disposal.

The project would not be required to evaluate or mitigate potential impacts associated with hydromodification of downstream creeks because the downstream receiving waters between the site and the Bay are concrete lined and not subject to erosion.

The final design team for the project shall review and incorporate as many concepts as practicable from *Start at the Source, Design Guidance Manual for Storm water Quality Protection*[20] and the California Storm water Quality Association's *Storm water Best Management Practice Handbook, Development and Redevelopment,* the City of Emeryville 2005 *Storm Water Guidelines for Green, Dense Redevelopment,* and forthcoming Alameda County Clean Water Program (ACCWP) technical guidelines.

The City Public Works Department shall review and approve the drainage plan prior to approval of the grading plan. (LTS)

[20] Bay Area Storm water Management Agencies Association, 1999. *Start at the Source,* Design Guidance Manual for Storm water Quality Protection.

I. CULTURAL AND PALEONTOLOGICAL RESOURCES

This section evaluates the effects of the proposed project on cultural and paleontological resources within and around the project site. Potential impacts that would result from implementation of the proposed project are identified, and mitigation measures are provided, as necessary.

Cultural resources are sites, buildings, structures, objects, and districts that have traditional or cultural value for the historical significance they possess. Paleontological resources, as a subset of cultural resources valued for their scientific information, are the fossilized remains of prehistoric plant and animal life.[1] CEQA requires that effects to cultural and paleontological resources be considered in the planning process for discretionary projects.

The following section includes a description of the methods used to conduct the cultural resources analysis for the proposed project followed by an overview of the project area's history. This section then describes the paleontological resources analysis methods utilized in this analysis, followed by an overview of the project site's paleontology. Next, cultural resource, human remains, and paleontological resource legislative context is provided. The section concludes with the impacts analysis of the proposed project on cultural and paleontological resources and, where appropriate, recommends mitigation measures to reduce identified impacts to less-than-significant levels, when feasible.

1. Setting

This section presents a brief overview of the prehistoric, ethnographic, historical, and paleontological setting of the project site and its vicinity.

a. Cultural Resources Methods. This cultural resources analysis included a records search, literature review, field survey, and consultation with potentially interested parties. This work was conducted to: 1) identify cultural resources and previous studies within or adjacent to the project site; and 2) gather the archaeological, ethnographic, and historical information necessary to understand the paleontological, prehistoric, and historical context of the project site.

(1) Records Search. A records search (No. 05-500) for the project site and its surroundings was conducted in December 2005, at the Northwest Information Center (NWIC) at Sonoma State University in Rohnert Park, California. The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official State repository of cultural resources records and reports for Alameda County.

The records search identified five recorded prehistoric sites within less than a ½ mile of the project site, described in Appendix D.

(2) Literature Review. Prehistoric, ethnographic, and historical data for information about the project site were reviewed. These sources are listed in the cultural resources technical report prepared for the project site, included in Appendix D.

[1] Society for Vertebrate Paleontology, 1995. Conformable Impact Mitigation Guidelines. *Society for Vertebrate Paleontology News Bulletin* 163: January.

(3) Field Survey. A field survey of the project site was conducted in December 2005. This survey identified a possible historical architectural resource on the project site, being the Marketplace Public Market buildings, constructed between 1911 and 1924. The survey and architectural review methodology is described in detail in the technical report provided in Appendix E.

(4) Consultation. In December 2005, potentially interested parties were contacted to solicit comment on the proposed project. The parties contacted and subsequent communication is summarized below.

- Native American Heritage Commission (NAHC) – Requested review of their sacred lands file for Native American cultural resources that might be affected by the proposed project. NAHC representative stated the sacred lands file showed no known Native American sites "in the immediate project area."[2]
- Alameda County Historical Society (ACHS) – Requested if any information or concerns about the project area. ACHS representative stated ACHS had no concerns regarding the proposed project.[3]
- Emeryville Historical Society (EHS) – Requested if any information or concerns about the project area. EHS representative provided an article about the Paraffine Companies, Inc., whose buildings were located on the project site in the past.[4]

b. Cultural Overview. The following discussion describes: 1) the prehistoric and ethnographic background of the project site and its surroundings; 2) the general historical development of the vicinity of the project site from the Spanish exploration and settlement period (1776-1820) and the Mexican period (1821-1848) to the present; and 3) the history of the project site. Following this overview, a summary of the project area's archaeological sensitivity is provided.

(1) Prehistory and Ethnography. California was settled by native Californians between 12,000 and 6,000 years ago.[5] Penutian peoples migrated into central California around 4,500 years ago and were settled around the San Francisco Bay by 1,500 years ago. The descendants of the native groups who lived between the Carquinez Strait and the Monterey area prefer to be called Ohlone, although they are often referred to by the name of their linguistic group, Costanoan.[6] Emeryville is located within the former territory of the Huchuin who spoke Chochenyo or Chocheno, one of eight Costanoan languages. Huchuin territory extended from Wildcat and San Pablo Creeks in the City of Richmond to the north, and to Mission San Jose in the City of Fremont to the south.[7,8]

[2] Pilas-Treadway, Debbie, Environmental Specialist III, Native American Heritage Commission, 2005. Personal Communication with LSA Associates, December 16.

[3] Clausen, Ed, President, Alameda County Historical Society, 2006. Personal communication with LSA Associates, January 9.

[4] Smith, Nancy, Secretary, Emeryville Historical Society, 2005. Personal communication with LSA Associates, December.

[5] Moratto, Michael J., 1984. *California Archaeology*. Academic Press, Orlando.

[6] Malcolm Margolin, 1978. *The Ohlone Way: Indian Life in the San Francisco-Monterey Bay Area*. Heyday Books, Berkeley, California.

[7] Levy, Richard, 1978. "Costanoan." In *California*, edited by Robert F. Heizer, pp. 485-495. Handbook of North American Indians, Volume 8; William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Historic records from Hispanic explorations describe shellmounds situated along the San Francisco Bay shoreline, usually beside freshwater creeks that drained into the Bay. The mounds were observed in groups or clusters of four to six mounds or more. The size, shape, use, internal composition, and age of these shellmounds varies. However, they were all used for hundreds or thousands of years by Bay Area Native Americans for residential locations (possibly constructed to protect native villages from increasing high tide levels due to rising sea levels), resource processing sites, repositories for the dead, and ceremonial purposes. The Emeryville Shellmound, once the largest shellmound in the Bay Area, was established in the early-Late Holocene (i.e., circa 3000-2500 years before present) according to radiocarbon dating results.[9,10] Originally, the Emeryville Shellmound was a complex of six or more shellmounds.[11]

Intensive Hispanic exploration of the Bay Area began in the late-eighteenth century. Ohlone culture was radically transformed when European settlers moved into northern California. These settlers established the mission system and exposed the Ohlone to diseases to which they had no immunity. Mission San Francisco de Asís (Mission Dolores), founded in 1776 on a site directly across the Bay from what is now the City of Emeryville, drew native people from the entire Bay area. Mission records indicate that the Huchuin moved to Mission San Francisco from 1787 until 1805.[12] Following the secularization of the missions in 1834, native people in the Bay Area moved to ranchos, where they worked as manual laborers.[13]

(2) Historic Period. On August 3, 1820, Luis Maria Peralta was granted Rancho San Antonio for his service to the Spanish government. His 43,000 acre rancho comprised what was to become the cities of Emeryville, Albany, Oakland, Berkeley, Alameda, part of San Leandro, and part of Piedmont. The Peralta land grant was re-confirmed after Mexico's independence from Spain in 1822, being recognized by the Treaty of Guadalupe Hidalgo in 1848, when California became part of the United States Peralta's son, Vicente, received the southwestern portion of the rancho lands, which included today's Emeryville, central and north Oakland, and Piedmont. Peralta's cattle and under-developed lands were a prime target for squatters. His cattle were poached and slaughtered, and trees were removed by squatters and travelers going to and from the gold fields. Vicente sold off small parcels of land that were then used for farming and homesteads.[14]

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[8] Randall Milliken, 1995:243. *A Time of Little Choice, The Disintegration of Tribal Culture in the San Francisco Bay Area 1769-1810.* Ballena Press Anthropological Papers No. 43. Menlo Park, California

[9] Kent Lightfoot, 1997. Cultural Construction of Coastal Landscapes, A Middle Holocene perspective from San Francisco Bay. In *Archaeology of the California Coast During the Middle Holocene*, edited by Jon M. Erlandson and Michael Glassow, pp.129-141. Perspectives in California Archaeology, Vol. 4, Jeanne E. Arnold, senior series editor. Cotsen Institute of Archaeology, University of California, Los Angeles.

[10] Kent Lightfoot, 2004. Shellmounds: An Archaeologist's View. *News From Native California* Spring:16-17.

[11] Jack M. Broughton, 1996:27. *Excavation of the Emeryville Shellmound, 1906: Nels C. Nelson's Final Report*. Contributions of the University of California Archaeological Research Facility 54. University of California, Berkeley.

[12] Ibid.

[13] Richard Levy, 1978, op cit.

[14] Mildred B. Hoover, Hero E. Rensch, Ethel G. Rensch and William N. Abeloe, 1990:9-10. *Historic Spots in California*. Stanford University Press, Stanford, California. Fourth edition, revised by Douglas E. Kyle.

In 1859, Joseph Emery, for whom the City is named, purchased 185 acres north of Oakland. At that time, Emeryville was an unincorporated Alameda County community that contained two major thoroughfares, being Park Avenue to the south and San Pablo Avenue to the east. Emery built a Victorian mansion on the corners of San Pablo and Park Avenues, and then subdivided and sold the remainder of his land. In 1871, Emery built the San Pablo Avenue Horse Car Railroad, which connected Oakland with Emeryville and attracted new residents and development to Emeryville.[15]

Emeryville's first major development was the Oakland Trotting Park race track, which was constructed in 1871. The popularity of the race track drew supporting businesses including saloons, restaurants, hotels, and bordellos to the surrounding area. By 1874, the Northern Railway connected Oakland to Martinez, via Emeryville. That same year, Shellmound Park, a picnic area and resort with a dance hall, was developed on top of the Emeryville Shellmound, a substantial prehistoric archaeological site adjacent and west of the race track. The park drew local residents and weekend visitors from around the Bay. Emery Station, at the foot of Park Avenue, and Shellmound Station provided rail access to the park and to the race track. In 1896, the Oakland Trotting Park was replaced by the California Jockey Club.[16]

In addition to the entertainment facilities in Emeryville, the developing area contained residential housing, and an area known as Butchertown. Meatpacking plants and slaughterhouses were situated adjacent to and west of the Northern Railway just south of Berkeley.

Business investors and concerned citizens, including Joseph Emery, proposed to incorporate Emeryville in 1896. The group was interested in maintaining control of profits and taxes related to their investments in the community. Local voters agreed and the City of Emeryville was formally established.[17]

The devastation of the 1906 earthquake and fire in San Francisco prompted the development of new businesses and residential areas in Emeryville to accommodate displaced San Franciscans. As a result, Emeryville continued to develop and prosper despite the closure of the race track in 1911 and Shellmound Park in 1924. In the 1920s, the City's Board of Trustees promoted Emeryville's prime location on San Francisco Bay, with its proximity to major cities, ports, and transportation, as an excellent locale for business enterprises. Coupled with the offer of reduced taxes, Emeryville became the home of many industrial businesses. By 1935, 100 manufacturing plants operated within the City.[18] In 1939, the Bay Bridge connected Emeryville with San Francisco, which led to further industrial growth.

[15] Donald Hausler, 1992:1. *The History of Park Avenue, Emeryville, California.* Journal of Emeryville Historical Society.

[16] Donald Hausler, 1994:6-13. The Emeryville Horse Race Track: 1871-1915. *Journal of the Emeryville Historical Society*. Volume V, Number 1. Spring, 1994.

[17] Ibid.

[18] Richard A. Walker, 2004:18. *Industry Builds out the City: The Suburbanization of Manufacturing in the San Francisco Bay Area, 1850-1940.* Department of Geography, University of California, Berkeley.

Today, Emeryville is less reliant on heavy industry and has a more diversified economy than in the past. Service, shopping facilities, educational, entertainment, and biological and other high tech industries are the new industries of this urban residential city.[19]

(3) Project Area History. This section provides a historical background of the project site. The background is based on the literature review, historical map analysis, and information gathered through consultation with potentially interested parties.

Until the late-1800s, the project area was beneath the San Francisco Bay, adjacent to the shoreline. In 1874, Northern Railway train tracks were built adjacent to the Bay and gradually, the land west of the tracks was filled in to support new businesses.

The Paraffine Paint Company. The Paraffine Paint Company occupied approximately 38 acres in Emeryville, including the project area. In 1884, the company began operations within a 2-acre parcel in the same location as the parking lot east of the Public Market building. Brick buildings replaced original wood-frame buildings in the 1890s and, as the business expanded, the Paraffine Paint Company continued to fill in San Francisco Bay.

The Paraffine Paint Company was established in 1884 in San Francisco by Truman Pierce and Melvin Beardsley. The partners produced P&B Paint, asphalt paint that waterproofed and preserved wood and metal. By 1887, the Paraffine Paint Company produced 15,000 gallons of asphalt paint annually at their Emeryville plant. Paraffine's paint was also used to paint the Golden Gate bridge after it was constructed in the late 1930s. The company began producing waterproof roofing and building papers in the 1890s. The 1906 earthquake brought an increased demand for building materials and the company continued to add new products. In 1912, Paraffine began diversifying and purchasing companies unrelated to paint and building materials. By 1918, the company owned eight subsidiaries that it incorporated into Paraffine Companies, Inc. In 1928, Paraffine was the second-largest industrial firm in Alameda County; its products were shipped throughout the United States and to Australia, China, India, and South America. Just prior to WWII, the company expanded into new manufacturing lines including insulation materials, fiber shipping cases, glass bottles, corrugated cartons, and paper pails and cartons. With eleven manufacturing plants, the company changed its name to PABCO. During the WWII, PABCO factories operated 24 hours a day and employed 3,000 people. In the 1940s, the northwest portion of the project area was filled in with construction materials. By 1956, PABCO had nine manufacturing plants in and outside of California. In 1972, PABCO closed the Emeryville plant. Today, the company continues to operate as a division of Fibreboard Corporation.

Prior to the end of PABCO's Emeryville operation, the company occupied approximately 38 acres with eleven plants containing 90 buildings. Buildings extended from Powell Street, just south of the project area; north to 63rd Street (which no longer runs through the project area); west to the Bayshore Freeway; and east to the Southern Pacific tracks.[20]

[19] Emeryville Chamber of Commerce, 2004. *Welcome from the President & CEO*. <www.emeryvillechamber.com/chamber/CEO_Message.htm>.

[20] Ward Hill, 1993. A History of the Paraffine Paint Company. *Journal of the Emeryville Historical Society* IV(2):4-7. Emeryville, California.

San Francisco Bay was filled in between 63rd and 64th Streets between 1911 and 1938.[21] The north-western portion of the project area appears to have been used as a parking lot between the 1940s and the 1960s. In 1966, two commercial buildings were constructed in this northwest portion of the project area, which still exist on the site of the proposed 64th & Christie mid-rise, mixed use building. The northernmost building on this site comprised two businesses in 1966, being a tool manufacturer at 6390 Christie Avenue, and a photo lab at 1609 64th Street. Currently, Inter-Tel Technologies occupies 6390 Christie Avenue, and ProMeetium, a video conferencing company, occupies 1609 64th Street. The second building on this site located at 6340 Christie Avenue was occupied by Lerer Brothers Transmission Service from 1966 until 1998. The 6340 Christie building has been vacant since 1998.

Butchertown. Butchertown extended along both sides of the Northern Railroad train tracks, just north of 63rd Street and the project area, to just south of 67th Street and the Berkeley City limits. This area of slaughterhouses, stockyards, tanneries, and wool-works, processed large quantities of animal products from the late-1870s until the early 20th century.[22,23,24,25]

Bayle Lacoste & Company, a fertilizer, bone, and tripe works, was located in the northeast portion of the project area, in the same location as today's United Artist Theater until 1929.

(4) Cultural Resources in the Project Site. This section describes historic architectural resources within the project site.

The Public Market buildings consist of two parallel rectangular buildings joined by an enclosed, laminated truss roofed arcade with gabled entrance. The westernmost two-story building built in 1911-1924 is constructed of red brick walls supported by pilasters. The truss roof is clad in rolled composition roofing with fixed skylights. Major renovation resulted in the replacement of the original fenestration with aluminum framed transom-over-fixed-plate glass windows. Some bay door openings remain; most have been converted to windows or have been bricked in. Metal downspouts perforate the parapet and are mounted flush to the building sides. The easternmost building was built during World War II and retains the reinforced concrete frame curtain walls with multiple wood-framed skylights. The 1988 renovation of the complex included the addition of an eight-story reinforced concrete office/ retail building. Its roof is cross-gabled and clad in corrugated metal. A concrete walkway separates the new building from the two original buildings. The buildings are currently used for retail, restaurants, and office space for service, commercial, biotech, and high-tech enterprises.

(5) Historical Development Adjacent to the Project Area. Areas adjacent to the project area contained industrial enterprises and most of the buildings were PABCO buildings. Many of these

[21] Mesker, Charles F., 1938. Mestker's Map of Alameda County, California.

[22] M. W. Wood, 1883:804. *History of Alameda County, California*. M. W. Wood, Publisher, Oakland, California.

[23] Sanborn Map Company, 1903. *Oakland*. New York.

[24] Sanborn Map Company, 1911. *Oakland*. New York.

[25] Richard D. Ambro, 1992:13. *Draft Archaeological Cultural Resource Study for the Bay/Shellmound Street Project*. Holman and Associates, San Francisco, California.

industrial facilities have been replaced since the 1980s with modern buildings and some have been renovated and converted into retail, office, or live/work spaces.

The Woodfin Suites Hotel, 5800 Shellmound Street, is located directly southwest of the proposed project site, and is also considered a part of the Marketplace shopping center. Former PABCO buildings were removed in the 1970s from this portion of the site. The site remained vacant until 2000, when the existing 12-story Woodfin Suites Hotel was constructed.

South of Powell Street, the southern boundary of the proposed project area, and west of the railroad tracks, was also an industrial area. However, prior to 1924, only Union Oil Company of California and the Western Carbonic Acid Company separated the project site from the Emeryville Shellmound.

In 1902, Max Uhle, with the support of the University of California at Berkeley, conducted the first excavations of the Emeryville Shellmound. At that time, the shellmound measured approximately 100 meters by 300 meters, and was 10 meters high. Uhle determined that two components, each containing five strata, were present. Upper shellmound levels contained cremations, flaked obsidian and polished stone artifacts, and more bent-nose clam shells than bay oyster shells. Lower levels contained flexed burials with red ochre, chert bifaces, bone tools, charmstones, and more oyster shells than clam shells.[26]

Prohibition led to the closure of Shellmound Park in 1924. Also in 1924, planned construction of a dry pigments factory for the C. K. Williams Company required the demolition of the park and leveling of the shellmound. Prior to leveling, emergency recovery was conducted by archaeologist W.E. Schenck of the University of California at Berkeley. Seven-hundred burials, shell beads, mortars, charmstones and mica ornaments were recovered during Schenck's excavation.[27, 28] Resultant data and recovered artifacts from Uhle's and Schenck's archaeological excavations have aided in the development of a chronological dating scheme for central California.

The former site of the Emeryville Shellmound and Shellmound Park was recently developed as the South Bayfront Project. During archaeological data recovery in 1999, more than 120 burials and over 1,800 artifacts, including shell beads and ornaments, bone tools, stone tools, and groundstone were recovered.[29]

c. Paleontological Resources Methods. Background research was conducted to identify paleontological resources in and adjacent to the project site. This research consisted of a fossil locality search and a review of paleontological and geological literature. The locality search and literature review were done to: 1) identify previous studies and known paleontological sites within and near the project site; and 2) identify the geologic formations and types of fossils that could be affected by development of the proposed project. The locality search was conducted in January 2006, using University of California Museum of Paleontology (UCMP) data. No fossil localities have been previously identified within the project site. Twelve vertebrate fossil localities that contain significant

[26] Michael J. Moratto, 1984:227-229. California Archaeology. Academic Press, Inc., Orlando, Florida.

[27] W. Egbert Shenck, 1926. 1926 The Emeryville Shellmound: Final Report. *University of California Publications in American Archaeology and Ethnology* 23(3):147-282. Berkeley.

[28] Michael J. Moratto, 1984: 229. California Archaeology. Academic Press, Inc., Orlando, Florida.

[29] City of Emeryville, 2005. *South Bayfront Project.* http://emeryville.wli.net.

vertebrate fossils, from geologic formations that also underlie the project site, are within 5 miles of the project site. Two of the 12 fossil localities lie less than a ½ mile from the project site.

The literature review was conducted at the University of California, Berkeley Bioscience and Earth Science and Map Libraries. The literature review included maps and publications with geological and paleontological information about the project site.

A paleontological survey was not conducted because most of the site is paved or covered with buildings, precluding retrieval of information about subgrade resources.

d. Paleontological Setting. The project site lies on Quaternary alluvium.[30] Deposits within the project site consist of the following geological units, which are described in stratigraphic sequence from youngest to oldest:

- **Artificial Fill.** Artificial fill is unconsolidated earth brought to the East Bay margins to expand the amount of developable land above sea level. Fill within the project area is between 3 and 15 feet deep.
- **Bay Mud (Holocene).** This geologic unit consists of well-saturated, dark plastic clay rich in organic material common along the shores of San Francisco Bay.[31,32] Bay mud is as much as 120 deep feet beneath the Bay, but thins to less than 1 foot in depth along the shoreline. This mud may contain shells of extant mollusks, but is not known to contain fossils.
- **Younger Quaternary (Holocene) Alluvium.** Though currently still being deposited, the oldest deposits of these medium-grained alluvial sediments, which overlie the older Pleistocene alluvium in the East Bay, are between 7,000 to 5,000 years old. These alluvial deposits can be up to 10 feet thick. In some areas, this sediment layer may not be present, and the Older Quaternary Alluvium is exposed at the ground surface.[33]
- **Older Quaternary (Pleistocene) Alluvium.** The majority of earth underlying the project area consists of Late Pleistocene (30,000 to 10,000) alluvial sedimentary deposits that are generally 150 feet thick.[34, 35] Late Pleistocene alluvium contains vertebrate and invertebrate fossils.[36] Vertebrate fossils found in alluvium of this age include, but are not limited to, bison, mammoth, ground sloths, saber-toothed cats, dire wolves, cave bears, rodents, birds, reptiles and

[30] Wagner, D.L., E.J. Bortugno, and R.D. McJunkin, 1990. *Geologic Map of the San Francisco-San Jose Quadrangle*. Map No. 5A, California Division of Mines and Geology, Sacramento.

[31] Helley, E.J., K.R. LaJoie, W.E. Spangle, and M.L. Blair, 1979. *Flatland Deposits of the San Francisco Bay Region – their geology and engineering properties, and their importance to comprehensive planning*. Geological Survey Professional Paper 943. U.S. Geological Survey and Department of Housing and Urban Development, Washington, D.C.

[32] E.J. Helley and R.W. Graymer, 1997. Quaternary geology of Contra Costa County, and surrounding parts of Alameda, Marin, Sonoma, Solano, Sacramento, and San Joaquin Counties, California: A digital database. United States Geological Survey Open-File Report 97-97. Menlo Park, California.

[33] Helley, E.J., K.R. LaJoie, W.E. Spangle, and M.L. Blair, 1979. *Flatland Deposits of the San Francisco Bay Region – their geology and engineering properties, and their importance to comprehensive planning*. Geological Survey Professional Paper 943. U.S. Geological Survey and Department of Housing and Urban Development, Washington, D.C.

[34] Helley et al., op. cit.

[35] Wagner et al., op. cit.

[36] Helley et al., op. cit.

amphibians.[37, 38, 39, 40,41] More than 50 vertebrate fossil specimens from twelve separate localities have been documented within Older Quaternary alluvial sediments within five miles of the project area. The invertebrates are generally pelecypods and gastropods.[42] Though no paleontological resources have been identified within or adjacent to the project site, twelve known vertebrate fossil localities are within five miles of the project area, two of which lie less than one half of a mile from the project site. These fossil localities contain significant vertebrate fossils from geologic units similar to those underlying the project area.

e. Regulatory Considerations. This section describes State and local regulations related to cultural and paleontological resources that are applicable to the proposed project.

(1) California Environmental Quality Act. CEQA applies to all discretionary projects undertaken or subject to approval by the State's public agencies (California Code of Regulations [CCR] Title 14(3) Section 15002(i)). CEQA states that it is the policy of the State of California to "take all action necessary to provide the people of this state with… historic environmental qualities…and preserve for future generations examples of the major periods of California history" (Public Resources Code [PRC] Section 21001(b), (c)). Under the provisions of CEQA, "A project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (CCR Title 14(3) Section 15064.5(b)).

CEQA defines a "historical resource" as a resource which meets one or more of the following criteria:

- Listed in, or eligible for listing in the California Register;
- Listed in a local register of historical resources (as defined in PRC Section 5020.1(k));
- Identified as significant in a historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code; or
- Determined to be a historical resource by a project's lead agency (CCR Title 14(3) Section 15064.5(a)).

A historical resource consists of "any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural,

[37] Bell, C.J., E.L. Lundelius, Jr., A.D. Barnosky, R.W. Graham, E.H. Lindsay, D.R. Ruez, Jr., H.S. Semken, Jr., S.D. Webb, and R.J. Zakrzewski, 2004. *The Blancan, Irvingtonian, and Rancholabrean Mammal Ages.* In Late Cretaceous and Cenozoic Mammals of North America, edited by M.O. Woodburne, pp. 232-314. Columbia University Press, New York.

[38] Helley, E., K. Lajoie, and D. Burke, 1972. *Geologic Map of the Late Cenozoic Deposits of Alameda County, California*. Miscellaneous Field Studies Map MF-429. United States Geological Survey, Washington, D.C.

[39] Hertlein, L.G., 1951. Invertebrate Fossils and Fossil Localities of the San Francisco Bay Region. In *Geology Guidebook of San Francisco Bay Counties: History, Landscape, Geology, Fossils, Minerals, Industry, and Routes to Travel*, prepared by O.P. Jenkins, pp. 187-192. California Division of Mines Bulletin 154, San Francisco.

[40] Savage, D., 1951. *Late Cenozoic Vertebrates of the San Francisco Bay Region.* Bulletin of the Department of Geological Sciences 28(10):215-314.

[41] Stirton, R.A., 1951. Prehistoric Land Animals of the San Francisco Bay Region. In *Geology Guidebook of San Francisco Bay Counties: History, Landscape, Geology, Fossils, Minerals, Industry, and Routes to Travel*, prepared by O.P. Jenkins, pp. 187-192. Bulletin 154, California Division of Mines, San Francisco.

[42] Ibid.

engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California...Generally, a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (CCR Title 14(3) Section 15064.5(a)(3)).

CEQA requires that historical resources and unique archaeological resources be taken into consideration during the CEQA environmental documentation process (CCR Title 14(3) Section 15064.5; PRC Section 21083.2). If feasible, adverse effects to the significance of historical resources must be avoided, or the effects mitigated (CCR Title 14(3) Section 15064.5(b)(4)). The significance of an historical resource is materially impaired when a project demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for the California Register of Historical Resources. If there is a substantial adverse change in the significance of a historical resource, the preparation of an environmental impact report is required (CCR Title 14(3) Section 15065 (a)).

If the cultural resource in question is an archaeological site, CEQA (CCR Title 14(3) Section 15064.5(c)(1)) requires that the lead agency first determine if the site is a historic resource as defined in CCR Title 14(3) Section 15064.5(a). If the site qualifies as a historical resource, potential adverse impacts must be considered in the same manner as a historical resource. [43] If the archaeological site does not qualify as a historical resource but does qualify as a unique archaeological site, then the archaeological site is treated in accordance with PRC Section 21083.2 (CCR Title 14(3) Section 15069.5(c)(3)). In practice, most archaeological sites that meet the definition of a unique archaeological resource will also meet the definition of a historical resource.[44]

CEQA defines a "unique archaeological resource" as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; or
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC Section 21083.2(g)).

Mitigation of significant impacts must lessen or eliminate the physical impact that the project will have on the historical resources. Generally, the use of drawings, photographs, and/or displays does not mitigate the physical impact on the environment caused by demolition or destruction of a historical resource to a less-than-significant level. However, CEQA requires that all feasible mitigation be undertaken even if it does not mitigate impacts to a less-than-significant level.[45,46]

[43] California Office of Historic Preservation, 2001:5. *California Environmental Quality Act (CEQA) and Historical Resources.* Technical Assistance Series 1. California Department of Parks and Recreation, Sacramento.

[44] Ronald E. Bass, Albert I. Herson, and Kenneth M. Bogdan, 1999:105. *CEQA Deskbook: A Step-by-Step Guide on How to Comply with the California Environmental Quality Act*. Solano Press Books, Point Arena, California.

[45] California Office of Historic Preservation, 2001:6. *California Register of Historical Resources: Q&A for Local Governments.* Technical Assistance Series 4. California Department of Parks and Recreation, Sacramento.

(2) California Register of Historical Resources. The California Register of Historical Resources (California Register) is a guide to cultural resources that must be considered when a government agency undertakes a discretionary action subject to CEQA. The California Register helps government agencies identify, evaluate, and protect California's historical resources,[47] and indicates which properties are to be protected from substantial adverse change (PRC Section 5024.1(a)). Any resource listed in, or eligible for listing in, the California Register is to be considered during the CEQA process.[48]

A cultural resource is evaluated under four California Register criteria to determine its historical significance. A resource must be significant at the local, state, or national level in accordance with one or more of the following criteria:

1. Is associated with events that have made a significant contribution to the broad pattern of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, the California Register requires that sufficient time must have passed to allow a "scholarly perspective on the events or individuals associated with the resource." Fifty years is used as a general estimate of the time needed to understand the historical importance of a resource.[49,50] The State of California Office of Historic Preservation recommends documenting, and taking into consideration in the planning process, any cultural resource that is 45 years or older.[51]

The California Register also requires a resource to possess integrity, which is defined as "the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association."[52]

Resources that are significant, meet the age guidelines, and possess integrity will generally be considered eligible for listing on the California Register.

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[46] see also Title 14 CCR §15126.4(a)(1).

[47] California Office of Historic Preservation, 2001:4. *California Register of Historical Resources: Q&A for Local Governments.* Technical Assistance Series 4. California Department of Parks and Recreation, Sacramento.

[48] Ibid.

[49] California Office of Historic Preservation, 1999:3. *California Register and National Register: A Comparison.* Technical Assistance Series 6. California Department of Parks and Recreation, Sacramento.

[50] See also Title 14(115) §4852(D)(2).

[51] California Office of Historic Preservation, 1995:2. *Instructions for Recording Historical Resources*. California Department of Parks and Recreation, Sacramento.

[52] California Office of Historic Preservation, 1999:3, op cit.

(3) Public Resources Code Section 5097.5. The California Public Resources Code, Section 5097.5, prohibits excavation or removal of any "vertebrate paleontological site…or any other archaeological, paleontological or historical feature, situated on public lands, except with express permission of the public agency having jurisdiction over such lands." Public lands are defined to include lands owned by or under the jurisdiction of the State or any city, county, district, authority or public corporation, or any agency thereof. Section 5097.5 states that any unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor.

(4) Human Remains. Section 7050.5 of the California Health and Safety Code states that, in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

(5) Paleontological Resources. Paleontological resources are the fossilized remains of plants and animals, and associated deposits. CEQA requires that a determination be made as to whether a project would directly or indirectly destroy a unique paleontological resource or site or unique geological feature (CEQA Appendix G(v)(c)). If an impact is significant, CEQA requires feasible measures to minimize the impact (CCR 14(3) Section 15126.4 (a)(1)). Also pertinent is California Public Resources Code § 5097.5 (see above).

The Society of Vertebrate Paleontology has identified vertebrate fossils, their taphonomic and associated environmental indicators, and fossiliferous deposits as significant nonrenewable paleontological resources. Botanical and invertebrate fossils and assemblages may also be considered significant.[53]

(6) Emeryville General Plan. The Emeryville General Plan contains the following Cultural and Historic Resource objective and policies:

- *Cultural and Historic Resources Objective A:* Protect Emeryville's historic and cultural resources and encourage development to reflect that heritage.
- *Cultural and Historic Resources Policy 1:* The City will require archeological evaluation of sites with likely archeological resources and require that the development of such sites be monitored during construction; significant findings should be protected or removed.
- *Cultural and Historic Resources Policy 2:* The City supports increased community interest in cultural and historic resources and will take appropriate actions to preserve such resources.
- *Cultural and Historic Resources Policy 3:* The City strongly endorses the reuse of heritage buildings.

[53] Conformable Impact Mitigation Guidelines Committee, 1995. Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standards and Guidelines. *Society of Vertebrate Paleontology News Bulletin* 163:22-27.

2. Impacts and Mitigation Measures

This section analyzes impacts related to historical resources (archaeological and architectural), human remains, and paleontological resources that could result from development of the proposed project. Mitigation measures are provided to reduce the level of significance of such impacts, if feasible. Development of the proposed project has the potential to impact cultural and paleontological resources. Impact significance criteria, potential project impacts, and recommended mitigation measures are described below.

a. Significance Criteria. The following criteria of significance are used to establish the thresholds for determining whether an impact is significant. Implementation of the proposed project would have a significant impact on cultural, paleontological and/or built-environment resources if it would:

- Cause a substantial adverse change in the significance of a historical resource as defined in *CEQA Guidelines* (CCR 14(3) Section 15064.5). Specifically, substantial adverse changes include physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired. The significance of a historical resource is materially impaired when a project demolishes or materially alters, in an adverse manner, those physical characteristics of the resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, a historical resource list (including the California Register of Historical Resources, a local register, and historical resources survey forms (DPR Form 523).[54]
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to *CEQA Guidelines* Section 15064.5.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
- Disturb any human remains, including those interred outside of formal cemeteries.

b. Less-than-Significant Impacts to Cultural and Paleontological Resources. Impacts on cultural and paleontological resources that would be less than significant are discussed in this subsection.

The project will result in the demolition of two buildings located at the southeast corner of 64th Street and Christie Avenue that are not individually or collectively eligible for listing in the California Register, and do not have the potential to qualify as historical resources under CEQA. A field review of the project area's buildings was conducted to determine if they had the potential to qualify as historical resources under CEQA. The two buildings proposed to be demolished on the southeast corner of 64th Street and Christie Avenue lack the 50-year age requirement or significance necessary for listing in the California Register and do not meet the other qualifying criteria for consideration as historical resources (PRC §21084.1). Therefore, the demolition of these buildings will not result in a significant impact to cultural resources.

[54] Any physical evidence of human activities over 45 years old may be recorded on a DPR 523.

The two, Public Market buildings (former PABCO warehouses) are older than 50 years of age, but do not appear to possess the historical integrity necessary to be eligible for the California Register,[55] and do not meet the other qualifying criteria for consideration as historical resources (PRC Section 21084.1). Further, the proposed project would not alter any portion of these two buildings. As a result, the proposed project would result in less-than-significant impacts to cultural resources in regards to the demolition of the two buildings located on the southeast corner or 64th Street and Christie Avenue, or the two Public Market buildings. (LTS)

c. Significant Impacts to Cultural and Paleontological Resources. Development of the proposed project has to potential to result in significant impacts to archaeological deposits, human remains related to ground disturbance, and paleontological resources related to ground disturbance, as described as follows.

Impact CULT-1: The proposed project may result in the destruction of possibly significant archaeological deposits. (S)

The project area's sensitivity is indicated by buildings that are depicted on Sanborn maps. While these features are no longer present in the project area, associated subsurface archaeological deposits may be present. Such deposits may include privies, trash pits, or structural remains associated with Emeryville's industrial development, and in turn may contain important information about several distinct periods in the City's historical development. These deposits, if present, may qualify as historical or archaeological resources under CEQA, in which case their damage or destruction would constitute a significant impact to cultural resources.

Due to the proximity of several shellmounds in the vicinity of the project area and the use of redeposited midden for landfill and construction, subsurface prehistoric archaeological resources are possible. Additionally, midden often contains human remains. These deposits, if present, may qualify as historical or unique archaeological resources under CEQA, in which case their damage or destruction would constitute a significant impact to cultural resources.

The southeastern portion of the project site appears to be sensitive for historic archaeological deposits since the area was filled in the early 1870s to use the location to construct buildings, while the northwestern portion of the project area was filled in the 1940s and used as a parking lot. The southeastern portion of the project area appears to be very sensitive for prehistoric archaeological deposits since the area was filled in the early 1870s when five shellmounds within the vicinity of the project area were extant. Shellmound midden was commonly used for fill during construction and road building and there is a possibility that midden from one of the five shellmounds near the project site was redeposited within the project site. The Emeryville Shellmound was originally comprised of 6 or more mounds and the approximate location of only five of the mounds has been recorded. Since the northwestern portion of the project site was filled in the 1940s, it is less likely to contain prehistoric archaeological deposits.

> Mitigation Measure CULT-1: The following three-part mitigation measure shall be implemented.

[55] CCR Title 14, §4852 states that for a resource to be eligible for listing on the California Register it must meet one of the California Register criteria **and** possess historical integrity.

CULT-1a: Prior to project construction, a qualified professional archaeologist[56] shall prepare a monitoring plan to address potentially significant cultural resources encountered during construction. Preparing the plan may require subsurface examination to determine the presence, nature, extent, and potential significance of archaeological deposits that may be encountered by project activities. At a minimum, the monitoring plan should (1) refine the understanding of the project site's archaeological sensitivity; (2) determine the likelihood that archaeological deposits have retained integrity; (3) identify the types of artifacts and features that may be encountered during project construction; (4) determine during which phases of construction subsurface deposits may be encountered; and (5) provide guidelines for in-field assessment of archaeological deposits identified during monitoring. Based on the information noted above, the monitoring plan should determine the appropriate level of construction monitoring necessary to avoid significant impacts to archaeological resources, and provide guidance for the implementation of such monitoring.

CULT-1b: A qualified professional archaeologist shall monitor all ground-disturbing activities that occur at depths within the project area determined to be archaeologically sensitive in the archaeological monitoring plan. Monitoring shall continue until the archaeologist determines that impacts to archaeological deposits are unlikely to occur.

In the event that archaeological deposits are identified during monitoring, the monitor must be empowered to redirect all work within 25 feet of the find. Any such archaeological deposits identified during monitoring shall be recorded and, if possible, avoided by project activities. If avoidance is not feasible, as determined by the City after consultation with the project engineer, these deposits shall be evaluated by a qualified archaeologist to determine their eligibility for listing on the California Register. If the deposits ***are not*** eligible for the California Register, then no further study or protection is necessary. If the deposits ***are*** eligible for the California Register, they shall be avoided by project activities. If avoidance is not feasible, project impacts shall be mitigated in a manner consistent with CEQA Guidelines PRC Section 15126.4 (b)(3)(C) and the recommendations of the evaluating archaeologist. Human remains shall be handled in accordance with Health and Safety Code Section 705055. Following the completion of the archaeological monitoring, a report shall be prepared to document the methods and findings of the monitoring archaeologist. The report shall be submitted to the City, the project applicant, and the Northwest Information Center (NWIC) at Sonoma State University in Rohnert Park, California.

CULT-1c: In the event that archaeological deposits are identified during project activities ***not*** monitored by an archaeologist, it is recommended that project impacts to such deposits be avoided. If impact avoidance is not feasible, work within 25 feet of the finds shall be redirected and a qualified professional archaeologist shall be contracted to record the find and evaluate its California Register eligibility. If the deposits ***are not*** eligible for the California Register, then no further study or protection is necessary. If the deposits ***are*** eligible for the California Register, they shall be avoided by project activities. If avoidance is not feasible, project impacts shall be mitigated in a manner consistent with CEQA Guidelines PRC Section 15126.4 (b)(3)(C) and treatment of human remains in accordance with Health and Safety Code Section

[56] "Qualified" is defined as meeting the professional standards established by the Secretary of the Interior. These standards can be found at: <http://www.cr.nps.gov/local-law/archstnds9.html>.

70505. Following the completion of the archaeological monitoring, a report shall be prepared to document the methods and findings of the monitoring archaeologist. The report shall be submitted to the City, the project applicant, and the NWIC.

Prehistoric materials can include flaked-stone tools (e.g. projectile points, knives, choppers) or obsidian, chert, basalt, or quartzite toolmaking debris; bone tools; culturally darkened soil (i.e., midden soil often containing heat-affected rock, ash and charcoal, shellfish remains, faunal bones, and cultural materials); and stone milling equipment (e.g., mortars, pestles, handstones). Prehistoric archaeological sites often contain human remains. Historical materials can include wood, stone, concrete, or adobe footings, walls and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramics, metal, and other refuse.

Implementation of Mitigation Measures CULT-1a, -1b, and -1c would reduce this impact to less-than-significant level. (LTS)

Impact CULT-2: Ground disturbance associated with the proposed project may disturb human remains, including those interred outside of formal cemeteries. (S)

Given the project site's sensitivity for prehistoric archaeological deposits, there is the possibility of the discovery of human remains during construction activities. Disturbance of such remains may constitute a significant impact to cultural resources.

Mitigation Measure CULT-2: If human remains are encountered, work within 25 feet of the discovery shall be redirected, and the County Coroner shall be notified immediately. At the same time, an archaeologist shall be contacted to assess the situation. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report shall be submitted to the City, the project applicant, and the NWIC. (LTS)

Impact CULT-3: Ground disturbing activities within the proposed project site could adversely impact paleontological resources. (S)

The Late Pleistocene alluvium that underlies the project site is highly sensitive for fossil resources. There is a possibility that significant paleontological resources will be encountered during project ground-disturbing construction below the soil layer.

Mitigation Measure CULT-3: The following three-part mitigation measure shall be implemented.

CULT 3a: A qualified paleontologist shall be present during initial project ground-disturbance at or below 5 feet from original ground surface. The paleontologist will then determine if further monitoring, periodic site inspections, or if no further monitoring is necessary. Prior to project ground-disturbing construction, pre-field preparation by a qualified paleontologist shall take into account specific details of project construction plans for the project area, as well as information from available paleontological, geological, and geotechnical studies. Limited subsurface investigations may be appropriate for defining areas of paleontological sensitivity prior to ground disturbance.

CULT-3b: A qualified paleontologist shall monitor ground-disturbing activities at and below 5 feet from the original ground surface in accordance with the initial monitoring needs assessment. The monitoring shall continue until the paleontologist determines that impacts to paleontological resources are unlikely to occur.

If paleontological resources are encountered during project activities, all work within 25 feet of the discovery shall be redirected until the paleontological monitor can evaluate the resources and make recommendations. If paleontological deposits are identified, it is recommended that such deposits be avoided by project activities. Paleontological monitors must be empowered to halt construction activities within 25 feet of the discovery to review the possible paleontological material and to protect the resource while it is being evaluated. If avoidance is not feasible, as determined by the City after consultation with the project engineer, adverse effects to such resources shall be mitigated in accordance with the recommendations of a qualified paleontologist. At a minimum, mitigation shall include data recovery and analysis, preparation of a data recovery report or other reports as appropriate, and accessioning fossil material recovered to an accredited paleontological repository, such as the University of California Museum of Paleontology (UCMP). Upon project completion, a report shall be prepared documenting the methods and results of monitoring, and copies of this report shall be submitted to the City, project applicant, and to the repository at which any fossils are accessioned.

CULT-3c: In the event that paleontological resources are identified in the soil layer for which paleontological monitoring is *not* recommended, all work within 25 feet of the discovery shall be redirected until a qualified paleontologist has evaluated the discoveries, prepared a fossil locality form documenting the discovery and made recommendations regarding the treatment of the resources. If the paleontological resources are found to be significant, adverse effects to such resources shall be avoided by project activities. If project activities cannot avoid the resources, adverse effects should be mitigated. At a minimum, mitigation shall include data recovery and analysis, preparation of a data recovery report or other reports, as appropriate, and accessioning fossil material recovered to an accredited paleontological repository, such as the University of California Museum of Paleontology (UCMP). Upon completion of project activities, a report that documents the methods and findings of the mitigation shall be prepared and copies submitted to the City, project applicant, and to the repository at which any fossils are accessioned.

Implementation of Mitigation Measures CULT-3a, -3b, and -3c would reduce this impact to less-than-significant level. (LTS)

J. AESTHETIC RESOURCES

This section evaluates the effects of the proposed project on aesthetic resources in the vicinity of the project site, and analyzes the proposed project's relationship to applicable City aesthetic resource-related plans and policies.

The following discussion is based on: 1) field surveys of the project site conducted in December 2005 and January 2006; 2) review of City and project applicant data, including aerial photographs, site plans, and planning documents related to the existing project site and proposed project; and 3) visual simulations that depict "before" and "after" representations of the proposed project prepared by Environmental Vision. The analysis in this section focuses on the project's potential impairment of views from *public* vantage points. A brief discussion of the potential impacts to views from private residences is also provided as a number of individuals have raised specific concerns regarding the impacts to their views. However, impacts to private views are not considered significant in this EIR-based on the CEQA significance criteria utilized by the City, which is supported by recent CEQA case law,[1] so the description of private views and the project's potential impairment of those views is brief.

Visual simulations, which are based on schematic drawings of the proposed project, were prepared for six representative public vantage points in the vicinity of the project site. The visual simulations are intended to convey a realistic understanding of the location, scale and massing of proposed buildings, landscaping, and public spaces. Consistent with the requested Preliminary Development Plan (PDP) for the proposed project, as described in Chapter III, Project Description, the simulations provided depict *conceptual* building design and massing of the proposed buildings which represent the largest bulk/scale for these buildings. The Final Development Plan for this project, should it be approved, would refine architectural and site design details (e.g., building relief, colors and materials, landscape pallet and irrigation plan, paving materials, art features), which would be within or less than the scale, massing, and scope of the visual simulations depicted in this section.

1. Setting

The following section includes a description of the existing visual quality of the project site and its surroundings, as well as views in the vicinity of the site. Views to and through the site are provided in Photos V.J-1 through V.J-16.

a. Local Context. As described in Chapter V.I, Cultural and Paleontological Resources, the City of Emeryville, including the project site, has been characterized by extensive industrial development and businesses since the 1920s. When the Emeryville Redevelopment Plan was adopted in 1976, the industrial area surrounding the project site gradually converted from heavy manufacturing and ware-

[1] In *Mira Mar Mobile Community v. City of Oceanside*, (Super. Ct. No. GIN021552), the court held that the EIR analysis adequately considered the impact on views from plaintiff's property and that an EIR may focus on the project's impacts on public views and does not have to considered impacts to private views. The case states "[u]nder CEQA, the question is whether a project will affect the environment of persons in general, not whether a project will affect particular persons." The court found that an agency has discretion in determining substantial impacts, and that it was proper for the City to determine that only impairment of public views, as opposed to private views, would be considered significant. This may clarify the recent *Ocean View Estates Homeowners Assoc., Inc. v. Montecito Water District* case where the court held that visual impacts include private as well as public views.

house uses to the current mixed office, commercial, research and development, industrial, and residential neighborhood.

The project site and surrounding area are generally characterized by a combination of newer low- and mid-rise residential, office, and commercial buildings, some of which occupy rehabilitated, historic low-rise industrial buildings (e.g., Public Market buildings), and others remaining from mid-20th century development (e.g., two industrial buildings on southeast corner of 64th Avenue and Christie Avenue). Particularly unique to the Marketplace site, however, is the adjacency of the 30-story, high-rise Pacific Park Plaza tower to the west (across Christie Avenue), which is the tallest structure (approximately 320 feet) in Emeryville and is visible from many locations along the San Francisco Bay shoreline. The areas surrounding the project site contain similar building types and land uses including office, research and development, residential, commercial/retail, and live/work loft spaces in rehabilitated historic industrial buildings or in newly developed modern low-, mid-, and high-rise buildings.

Land uses on and surrounding the project site are described in Chapter V.A, Land Use, and the historical context of the area is described in Chapter V.I, Cultural and Paleontological Resources.

b. Visual Character of the Project Site.
The project site is characterized by a mix of building types ranging from one- to eight-stories in height with extensive surface level parking areas. The formal Marketplace portion of the site is oriented around Shellmound Street, primarily facing east toward the Oakland/Berkeley hills and away from the Bay (Photo V.J-1). The project site is well maintained with manicured landscaping and shade trees, clearly striped parking areas, operational exterior lighting, freshly painted building facades, and no on-site litter or uncontrolled trash areas. On and adjacent to the project site, public utility lines have already been relocated into underground conduits. As a result, views through the project site area are unobstructed and open to the surrounding built and natural environment.

Photo V.J-1: View northwest from western tower of Amtrak pedestrian overcrossing bridge.

Photo V.J-2: View of southern end of single-story public market building (circa. 1910).

Public Market Buildings – As described in Chapter V.I, Cultural and Paleontological Resources, the two Public Market buildings are one- and two-stories in height and were constructed in the early 1900s as warehouse buildings for the Parraffine Paint Company. The larger of the two buildings is a long, rectangular shaped building constructed circa 1910 that is one-story in height at its southern end (Photo V.J-2) and two-stories in height at the northern end, west of the Marketplace Tower (Photo V.J-3). This building is constructed of red masonry brick, and was rehabilitated for use as a mixed commercial/office building in the late 1980s. The building is architecturally articulated with vertical columns, a decorative parapet ribbon, goose-neck down-facing lighting fixtures, large windows consistently spaced along the exposed front, side and rear first and second floor elevations, and gable-shaped awn-

ings cantilevered over entryways. The majority of the rear (west) side of this building serves as the loading/unloading area for Public Market businesses.

Photo V.J-3: View of northern end of two-story portion of Public Market building (circa 1910).

The single-story building, located south of the Marketplace Tower and internally connected with the brick building, is constructed of reinforced concrete and painted in red, earthen tones to complement and coordinate with the larger red brick building and Marketplace Tower (Photo V.J-4). This building is articulated with extensive multi-paned, window glazing allowing for pedestrian view into the restaurant and retail spaces. Additionally, overlapping and intersecting gable roof shapes, cantilevered awnings over entryways, and round vertical support columns integrated into the façade provide variety, dimension and relief the this building. The architectural features, colors and materials of this building allow it to integrate well with the brick Public Market and eight-story Tower, which flank it on three sides.

The two Public Market buildings provide a pedestrian scale and character to the surrounding mid-rise buildings and extensive surface parking areas, as well as serve as a reminder of the site's and surrounding area's historic industrial past. Ample exterior public seating and dining areas are provided around the Public Market buildings that, combined with the low-rise brick buildings, create a comfortable pedestrian activity focal point for the Marketplace shopping area.

Photo V.J-4: View of single-story portion of Public Market building constructed circa 1940.

Marketplace Tower – The Public Market Tower (Tower) building, constructed in the late-1980s, is the tallest and, therefore, most prominent structure on the project site, reaching approximately 90 feet and eight stories (Photo V.J-5). The Tower represents a modern building, being a rectangular shape articulated with extensive windows/glazing areas on all four elevations, and gable-topped columns breaking up the massing of the buildings mansard roof. The dark window glazing provides contrast and relief to the structures light colored, beige and tan earth-toned walls, complemented by its red roof that coordinates with the red Public Market buildings and brick masonry historically utilized and still prevalent in the area. The building is well-maintained evidenced by clean and consistent exterior paint application, functional business signage that complements and coordinates with the building's exterior colors, design and scale, and wide, level pedestrian walkways around the building.

Photo V.J-5: View of Marketplace Tower building (circa 1988).

Industrial Buildings – The two industrial buildings located on the southeast corner of 64th Street and Christie Avenue were constructed in the 1960s (Photo V.J-6). Consistent with architecture of that era, these two buildings are relatively non-descript, primarily characterized by expansive blank exterior wall areas, few windows, and minimal landscaping. These buildings are moderately well maintained, with the northernmost building currently occupied by two businesses and the southernmost building vacant.

Photo V.J-6: View of two, single-story industrial buildings on southeast corner of 64th Street and Christie Avenue (circa. 1960).

Surface-level Parking Areas – As described, an extensive portion of the project site is currently occupied by surface-level parking areas, which are well-maintained with clear parking stall striping, ample landscaping and shade trees, and decorative lighting standards.

c. Views from the Project Site. Views from the project site reflect changes in land use within Emeryville from predominately low-rise industrial uses to mid-rise research and development, commercial/retail, residential, and live/work uses.

Photo V.J-7: View east through project site from Shellmound Street.

(1) Views to the East. Views to the east of the site are of newer mid-rise research and development, light industrial, multi-family residential buildings, and parking structure uses, as seen in Photos V.J-7 and V.J-8. View corridors between existing mid-rise buildings located east of the project site (e.g., EmeryStation business campus) provide visual access to the Berkeley/Oakland Hills farther east.

Photo V.J-8: View east through northern portion of project site (UA Theater to north (left)).

(2) Views to the South. Views to the south of the project site consist of similar mid-rise buildings, such as the 12-story Woodfin Hotel and the Powell Street bridge crossing over Shellmound Street (Photo V.J-9). Farther south beyond the Powell Street overcrossing, the Bay Street shopping district is visible, located approximately ¼ mile to the south. From higher vantage points, such as the Amtrak pedestrian bridge western tower, distant views of the San Francisco Bay, Bay Bridge and San Francisco skyline are obstructed by existing mid-rise development in Emeryville near Interstate 580/80. To the southeast, the 8-story Terraces

condominium building dominates the skyline due to its close proximity to the site (directly abutting the east side of the UPRR tracks).

(3) Views to the West. Views to the west of the site are dominated by the 30-story Pacific Park Plaza building, which towers over adjacent mid-rise office buildings and low-rise, converted industrial buildings occupied by a mix of uses, as shown in Photo V.J-10. From higher public vantage, gaps between existing mid- and high-rise development west of the project site provide view corridors of the San Francisco Bay and Mt. Tamalpais across the Bay in Marin County. Views of the Golden Gate Bridge and San Francisco skyline are obstructed by existing mid- and high-rise development on the Emeryville peninsula.

(4) Views to the North. Views to the north of the project site are of mid-rise EmeryBay Offices and EmeryBay Club and Apartments, as shown in Photo V.J-11. Distant views of Albany Hill are provided, as well, from Shellmound Street and higher public vantage points (e.g., Powell Street overcrossing).

Photo V.J-9: View south through project site from southeast corner of 64th Street and Shellmound Street.

Photo V.J-10: View northwest from Christie Avenue at 59th Street.

Photo V.J-11: View north through project site from Shellmound Street.

d. Views of and through the Project Site from the Surrounding Area. The majority of the project site is visible from a few public view corridors and vantage points in the immediate vicinity of the site. Because the site abuts the UPRR tracks to the east and is surrounded by developed sites on all sides, views from public corridors are generally limited to distant views of the Marketplace Tower, which is the tallest and most prominent structure currently on the site. Mid- and high-rise buildings, such as the Woodfin Hotel, Terraces condominiums, and Pacific Park Plaza, which surround the project site, provide addition visual landmarks to identify the project site from afar. Christie Avenue, Shellmound Street, Shellmound Way, and Powell Street provide close and medium-range views of and through portions of the site. Glimpses of the site can be seen from Interstate 580/Powell Street freeway overcrossing, as well as from Emery Point. None of the public roadways in the vicinity of the project site have been designated as State or local scenic routes. As mentioned above, there are several tall buildings that surround the project site. Views from these buildings through the site to visual resources beyond (e.g., the Bay) are considered

private views. As discussed in the introduction to this section, CEQA analyses focus on whether a project will affect the environment of persons in general, not whether a project will affect views of particular persons. However, to be responsive to the concerns raised by the residents who live in these adjacent buildings and consistent with the objective of CEQA for EIRs to disclose relative information and serve as information documents, a brief description of the views from private residences is included along with the description of the public views. The following discussion provides a brief description of public views of the project site.

(1) Views from the East. Views of the project site from the east are limited due to the built-up, dense character east of the UPRR tracks. Buildings east of the project site generally abut the sidewalks lined with medium sized street trees, and above ground utility lines clutter the visual landscape of the area. As a result, only glimpses of the site are visible from east-west running streets that terminate at the UPRR tracks. Photo V.J-12 shows a view of the UA Theater building, seen looking west on 64th Street at Hollis Street. The Pacific Park Plaza tower dominates views from the east, shown the south (left) of the UA Theater building in Photo V.J-12. Private distant views through the site of the SF Bay and beyond exist from portions of the upper floors of the residential and office towers located immediately east of the UPRR tracks including the Terraces condominiums.

Photo V.J-12: View west toward project site from 64th Street at Hollis Street.

Photo V.J-13: View southwest toward project site from Overland Street.

(2) Views from the North. As described, the project site is boarded on the east by the UPRR tracks. Directly east of the tracks is Overland Street, which runs in a north-south direction, parallel to the tracks. Photo V.J-13 shows a view of the project site looking southwest from the northern end of Overland Street. From this vantage point, the foreground is dominated by the UPRR right-of-way fencing and signals. Beyond the tracks, the Marketplace Tower and Woodfin Hotel dominate the visual landscape. The single-story UA Cinema is clearly visible, located nearest to the tracks, shown north (right) of the Marketplace Tower building.

(3) Views from the West. Photos V.J-14 and V.J-15 shows views of the project site as seen from the west. Photo V.J-14 shows the project site as seen from Interstate 580/80 crossing over Powell Street. From this vantage point, foreground views consist of low-rising commercial buildings fronting Powell Street surrounded by taller, mid-rise office buildings. Distant views consist of the Woodfin Hotel, EmeryStation offices, and Marketplace Tower building. As seen in this photo, the

Oakland/ Berkeley hills provide a scenic backdrop to this urban area. Private views through the site of the Oakland/Berkeley hills beyond also exist from the residences located on the mid and upper floors of the Pacific Park Plaza tower.

Photo V.J-15 shows a view of the project site from Emery Point. Beyond the shoreline from this vantage point, the I-580/80 freeway provides a physical separation from the Bay and urban uses in Emeryville. As shown, the Pacific Park Tower dominates the Emeryville skyline from Emery Point. Beyond this building, mid-rise buildings are visible including the Emery Bay Offices, Marketplace Tower, Terraces condominiums, and Woodfin Hotel. South (right) of the Pacific Park Plaza tower, other mid-rise buildings are visible east of the freeway.

Photo V.J-14: View east toward project site from I-580/80 Powell Street overcrossing.

Photo V.J-15: View southeast toward project site from Emery Point.

(4) Views from the South. Photo V.J-16 shows a view of the project site from Shellmound Street, south of the Powell Street overcrossing. From this vantage point, views of the project site are obstructed by the Powell Street overcrossing and mature street trees in the area. Beyond the overcrossing structure, the Woodfin Hotel dominates the foreground. Distant views of the Marketplace Tower, Public Market earth toned walls, and surface parking area are visible beyond the Woodfin Hotel.

Photo V.J-16: View north toward project site from Shellmound Street south of Powell Street.

2. Regulatory Considerations.

The following section describes applicable aesthetic regulatory setting including the Emeryville General Plan policies and Zoning Ordinance light and glare standards.

a. Emeryville General Plan. The General Plan provides aesthetic resource policy direction applicable to the proposed project, the majority of which is provided in the Community Design section of the Community Development Chapter. Community Design policies strive to enhance the character of Emeryville consistent with its historic past and regional setting, as well as seek to unify Emeryville functionally and visually, while providing elements such as vehicular corridors, pedestrian-oriented corridors, parks and open space, and focal points, such as plazas. Community design objectives include the creation of activity centers (mixed land uses integrated with public open space) throughout the City related to the circulation and open space network. The following lists General Plan aesthetic-related policies applicable to the proposed project.

- *Citywide Goal 4:* Improve the quality and livability of the city by seeking development visually sympathetic to its surroundings and urban character.
- *Community Design Objective A:* Unify Emeryville functionally and visually.
- *Community Design Objective B:* Enhance a distinct image and character for Emeryville consistent with its historical past and regional setting.
- *Community Design Objective C:* Retain the low-to-mid rise form of buildings in all parts of the City except in close proximity to existing high rise structures on the Peninsula and Bayfront.
- *Community Design Objective D:* Retain the historic grid street system and provide major organizing elements like city gateways, vehicular corridors, pedestrian-oriented corridors, parks and open space, and focal points such as plazas.
- *Community Design Objective E:* Development a continuous citywide open space network connected with pedestrian corridors to link residential neighborhoods to employment and commercial districts and to a regional shoreline open space.
- *Community Design Objective F:* Enhance the image and environmental values of the city by a comprehensive landscaping system which ensures balance and continuity between built form and the landscape in all future development.
- *Community Design Objective G:* Improve the experience of pedestrian, cyclist and motorist movement throughout the City.
- *Community Design-Building Form Policy 1:* Buildings and the cumulative image they create should reinforce the character and level of activity appropriate to different areas of the City. New buildings should be visually harmonious with the existing development scale and style.
- *Community Design-Building Form Policy 9:* The new building pattern in the Bayfront areas should relate to the new street system, and building scale and orientation should vary accordingly in order to protect views.
- *Community Design-Building Form Policy 10:* The existing low- to mid-rise building scale in the central portion of the Peninsula should be preserved and extended along the northern side to provide a transition between the high-rise structures and the waterfront. High-rise structures should be confined to the vicinity of the existing concentration. The low-rise building profile should be maintained in the area around the existing marina, where all new uses should be oriented toward the water, and where public access to the waterfront shall be assured.
- *Community Design-Cityscape Policy 16*: The historic industrial-warehouse image found in may parts of Emeryville should be preserved and enhanced through the retention of architecturally significant structures and the addition of architecturally compatible new construction.
- *Community Design-Cityscape Policy 17:* The City will require developers to install landscaping consistent with the landscape plan.
- *Community Design-Activity Centers Objective H:* Create activity centers (mixed land uses integrated with public open space) throughout the city and relate them to the circulation and open space network.
- *Community Design-Activity Centers Policy 1:* The City will participate in establishing activity centers in key locations throughout the city and link them to the citywide circulation network with paths and streets which accommodate pedestrians and bicyclists and public transit stops.
- *Community Design-Activity Centers Policy 2:* Each activity center should become a distinct focal point, encouraging: different mixes of uses such as office, retail housing, support services; development which serves the functional purpose of the activity center as a whole, rather than the individual buildings; rehabilitation and incorporation of significant old structures; and displays of art.

- *Land Use Policy 2:* New development projects shall be at an appropriate density based upon locational considerations, accessibility, and the prevailing character and density of the surrounding development.
- *Land Use Policy 7:* Infill residential development in established residential areas should respect the prevailing building type in the surrounding areas, so that new development is not incompatible with the area's existing scale and character.

b. Light and Glare Performance Standards. Article 59, Section 9-49.59.9 of the Emeryville Zoning Ordinance provides light and glare performance standards with the purpose to mitigate potential nuisances to an acceptable level. Maximum allowing illumination intensities allowed under this ordinance are prescribed in the Maximum Intensity of Light Sources table adopted by the Emeryville City Council, which are provided in Table V.J-1.

Table V.J-1: Emeryville Maximum Intensity of Light Sources

Source	Maximum Intensity-Class A[1]	Maximum Intensity-Class B[2]
Bare Incandescent	15 watts	40 watts
Illuminated Buildings	15 foot candles	30 foot candles
Any Other Unshielded Sources Intrinsic Brightness	50 candles per square centimeter	50 candles per square centimeter

[1] Class A standards provide for uses whose operational characteristics may produce noise, odors, vibration, glare, and other nuisances. The standards are designed to protect uses on adjoining or nearby sites from effects which could adversely affect their functional or economic viability. Class A standards would apply to the proposed project.
[2] Class B standards make allowances for industrial uses whose associated processes produce noise, particular matter and air contaminants, vibration, odor, glare, or other nuisances which would adversely affect the functional and economic viability of other uses. The standards, when combined with standards imposed by other governmental agencies, serve to provide basic health and safety protection for persons employed within or visiting the area. Class B standards would not be applicable to the proposed project.

Sources: City of Emeryville, 1988. Emeryville Zoning Ordinance Section 9-4.59.9, *Light and Glare,* and Section 9-4.59.2, *Classes of Performance Standards.*

In addition, the light and glare performance standards require that:

- Illumination levels be measured with a photoelectric photometer;
- No use in a residential area may produce glare so as to cause illumination of such an intensity to be readily discernible within residences which have window coverings closed;
- Flickering or intrinsically bright sources or illumination must be controlled so as not to create a nuisance in residential or commercial districts.

3. Impacts and Mitigation Measures

This section analyzes impacts related to aesthetic resources that could result from the development of the proposed project. The subsection begins with the criteria of significance, which establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project. Mitigation measures are recommended, as appropriate. The related topic of shadow and shade is discussed in Section V.M., Shade and Shadow.

a. Criteria of Significance

Implementation of the proposed project would have a significant effect on aesthetic resources if it would:

- Have a substantial adverse effect on a scenic vista or scenic resources.
- Substantially degrade the existing visual character or quality of the site and its surroundings.
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

It is noted that CEQA analyses focus on a project's impact to public views, and does not consider changes to private views as significant (see footnote 1). Consistent with CEQA, the City of Emeryville does not consider a project's affect on private views significant. However, it is noted that the City may consider the project's impacts to private views when deliberating on the project's merits, as the CEQA analysis does not limit what the City may considered as part of its deliberations on the project merits.

b. Less-than-Significant Aesthetic Resources Impacts. The discussion below describes the less-than-significant impacts to aesthetic resources that would result from development of the proposed project.

Scenic vista or resource. The project site is generally flat and surrounded by urban development, which generally includes modern multi-story buildings and rehabilitated historic industrial buildings. Views of the Oakland/Berkeley hills to the east and Albany Hill to the north exist through view corridors between existing buildings on the project site and surrounding area. Many of the existing views corridors of these hills from the project site would remain with development of the proposed project.

Distant views of San Francisco Bay (Bay) and Mount Tamalpais (Mt. Tam) are provided from higher vantage points on and surrounding the site, such as the western tower of the Amtrak pedestrian bridge, the Powell Street overcrossing, and the Terraces mid-rise building. Development of the proposed project would result in adverse, but not significant, effects to scenic vistas through the project site as it would impair distant views currently provided from the Amtrak pedestrian bridge, Powell Street overcrossing, and privately owned, multi-storied buildings east of the site from development of the proposed Shellmound building, including the Terraces condominiums. This impact on these distant views, however, would not be considered significant because:

- The existing, distant views of the Bay and Mt. Tam provided from the Powell Street overcrossing are only accessible to westbound vehicular traffic for a brief moment at the crest of the overcrossing to the northwest through existing mid- and high-rise development west of the project site. Additional views of the Bay and Mt. Tam are provided farther west, past the existing view corridors through the project site, allowing the vehicular traveling public other opportunities to enjoy these views. Further, because pedestrian access to the Powell Street overcrossing is prohibited, there are no opportunities for lingering views of the Bay and Mt. Tam from this bridge.
- The existing, distant scenic views of the Bay and Mt. Tam provided from the western tower of the Amtrak pedestrian bridge overcrossing would be enclosed within the proposed Shellmound building. These views, however, would be replaced with new westerly views through openings on the western façade of the Shellmound building (as described in Chapter III, Project Description, and

depicted in Figures III-7 and III-13).Reducing or blocking views from private locations, such as the Emery Station business campus and Terraces condominiums east of the project site, are not considered significant for the purposes of CEQA.

Visual Character. Due to the existing predominance of surface parking lots and juxtaposition of low-rise buildings with mid- and high-rise buildings within and adjacent to the project site, it is vertically and horizontally unbalanced. The existing, large surface parking areas on the site are not conducive to the efficient use of this urbanized, mixed use site. The existing surface parking areas on the site create large void areas that do not provide functional and aesthetically comfortable pedestrian connections. The addition of the two mid-rise buildings (i.e., 64th & Christie and Shellmound buildings), the two retail pad buildings, and site improvements and enhancements would add balance to the scale of buildings within and adjacent to the project site by increasing the vertical and horizontal mass of structures in the area, which is currently spotted with "empty" spaces. In particular, the two mid-rise buildings would increase the overall height and massing of buildings in the area, which would reduce the dominance of the existing mid- and high-rise buildings in the area, specifically that of the 30-story Pacific Park Plaza tower.

Proposed buildings are of a scale and form similar to those in more vibrant urban mixed use areas in Emeryville, such as the Bay Street shopping district. Development of the proposed project would result in the addition of residential uses into the existing mixed use site, replacing underutilized surface parking and landscaped bermed areas, as well as two light industrial buildings. The new residential population added to the site would increase pedestrian activity and vibrancy of the site. The existing lack of pedestrian activity has adversely affected the aesthetic character of the project site. All five proposed buildings would be developed near the street, creating pedestrian corridors and plazas that would readily facilitate comfortable and safe pedestrian movement around the site. A number of the proposed improvements on the site would accomplish this task, such as incorporating the western tower of the Amtrak pedestrian overcrossing into the proposed Shellmound building, which is perceived as a secluded and unsafe place for pedestrians. The upper floor residential units in the Shellmound building would look down onto the pedestrian overcrossing, as well as persons using the Shellmound parking structure and ground floor retail businesses would result in increased pedestrian activity to and through the project site.

Aesthetic Resource Policies. The proposed project is generally consistent with applicable General Plan aesthetic resources policies described in subsection 2, Regulatory Considerations. The proposed project entails the redevelopment of a mixed use project on portions of an infill site that is currently characterized by underutilized surface parking and landscaped areas and light industrial buildings. By replacing these underutilized areas with new buildings built near to the street, public plazas, separated pedestrians walkways across the parking area, internal circulation, and landscaping, the proposed project would result in a more visually comfortable pedestrian environment than currently exists within the project site.

The only policy the proposed project would conflict with is Community Design-Building Form Policy 9, in that it would not fully protect public views of the Bay and Mt. Tam currently provided from the western tower of the Amtrak pedestrian bridge and Powell Street overcrossing. However, as discussed under less-than-significant Scenic Vista or Resource impacts, above, additional opportunities for public enjoyment of these views would be available after development of the proposed project, if approved.

The proposed buildings, which would range from 25 to 95 feet in height, would be similar in height to buildings currently within and adjacent to the project site to the south (Woodfin Hotel), east (Emery-Station and Terraces condominiums), north (Emery Bay Offices and Apartments), and west (Avenue 64, formerly Pinnacles, apartments and Pacific Park Plaza tower).

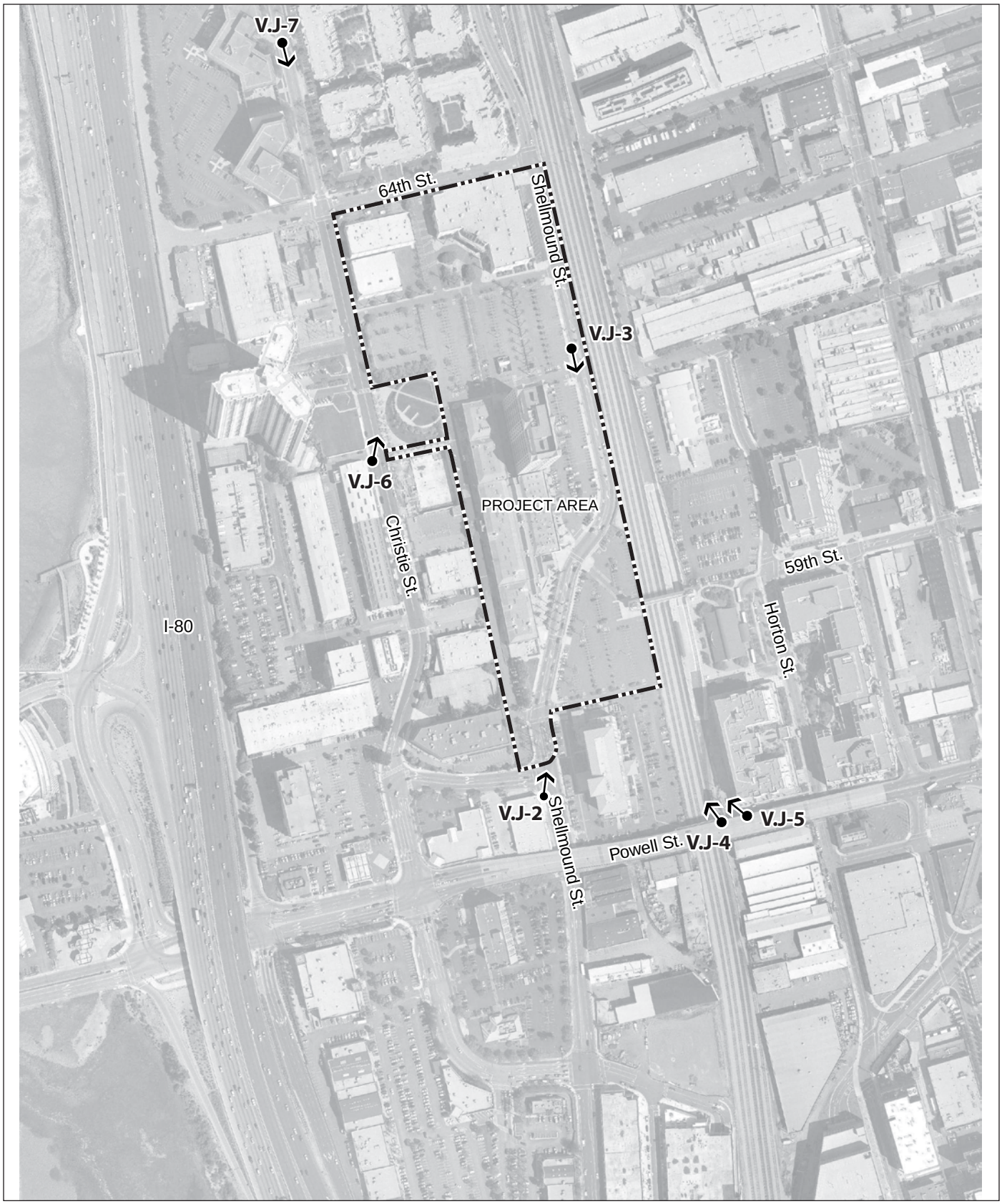
The proposed project would undergo Final Development Plan review prior to final project approval; during this time, details of the project design and the appropriateness of the proposed density would be addressed. Design of the proposed project is further addressed in Impact AES-1, below. In addition, it is anticipated that adequate lighting would be developed within the project site. Refer to Impact AES-2, below, for a discussion of adverse project-related impacts related to lighting and glare.

a. Potentially Significant Aesthetic Resources Impacts. The following discussion describes potentially significant impacts to aesthetic resources that would result from development of the proposed project.

Impact AES-1: The proposed project would alter the intrinsic architectural character of the project site and its surroundings. (S)

The surrounding area is generally characterized by an eclectic mix of by low-rise, historic industrial buildings; modern, low- to mid-rise multi-storied mixed use buildings; and the 30-story Pacific Park Plaza high-rise building. Development of the proposed project would result in the addition of five new buildings, two of which would be mid-rise, mixed use buildings, and three, single-story retail pad buildings. The proposed buildings are of a scale and form similar to recently approved and constructed around the project site including the Emery Station Offices and Terraces, EmeryBay Offices, Club and Apartments, Avenue 64 (formerly Pinnacles), and Woodfin Hotel. Further, the addition of mid-rise buildings adjacent to the existing 30-story Pacific Park Plaza building would help reduce the dominance of this structure in the North Bayfront neighborhood by increasing the average height of buildings in the area. The proposed project would develop areas within the project site that are currently occupied by surface-level parking, landscaping, or underutilized industrial/warehouse buildings. The proposed project would introduce a permanent residential population to the site. This resident and employee population would also increase activity within and around the project site. The addition of the pedestrian walkways, plazas, and open spaces would increase the visual appeal of this area within Emeryville, which currently contains few “soft” landscape elements.

The proposed project would be highly visible from selected locations along public streets and view corridors within Emeryville. Visual simulations showing the proposed project’s scale, massing and conceptual appearance as seen from six representative public viewing locations are presented as Figures V.J-2 through V.J-7; Figure V.J-1 maps the viewpoint locations. Landscaping shown in the visual simulations assumes 5 to 7 years of growth. As shown in these simulations, the project would represent a substantial increase in the amount of visible building mass and street frontage seen on the site. The analysis of impacts to views of the project site focuses on views of the project site from public locations, such as roadways.



LSA

LEGEND

V.J-2 PHOTO VIEWPOINT

PROJECT AREA

N

0 50 100

FEET

FIGURE V.J-1

Marketplace Redevelopment Project EIR

Photo Simulation

Viewpoint Locations

SOURCE: ENVIRONMENTAL VISION, 2006.

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- *View north from Shellmound Street.* Figure V.J-2 provides a "before" and "after" visual simulation of the proposed project, as seen from Shellmound Street at Shellmound Way looking north. The lower floors of the building would be visible in the foreground with the 95-foot tall tower portions of the building stepped back away from the street, thereby reducing its mass as perceived from the street. From this vantage point, the roof of Retail Pad 1 and a portion of the 64th & Christie building would be visible along the western (left) edge of the street. The southern edge of the brick Public Market building would be obstructed by Retail Pad 1.
- *View south on Shellmound Street.* The changes in visual character of the site from "before" and "after" the proposed project, as seen looking south on Shellmound Street, are shown in Figure V.J-3. The addition of the Shellmound building and Retail Pad 3 would alter the visual character of this portion of the site. The Shellmound building would visually screen the majority of the Woodfin Hotel to the south and other mid-rise buildings south of Powell Street. Retail Pad 3 would screen portions of the site's surface parking area fronting onto Shellmound Street, as well as break-up the linear, open sidewalk with its building façade. The 95-foot tall tower portions of the Shellmound building would increase the overall building massing and height on the project site. The stepped-back transition from the lower retail and parking floors to the upper residential floors would reduce the mass of the building as perceived from the street.
- *Views from Powell Street overcrossing looking Northwest.* Figures V.J-4 and V.J-5 provides "before" and "after" views of the project site from two locations on the Powell Street over-crossing looking northwest toward the Bay. Existing foreground views of the UPRR tracks, freight cars and Woodfin Hotel would remain while some distant views of the Bay and Mt. Tam would be obstructed by the proposed Shellmound building. Changes in the skyline resulting from the proposed project would be similar to those changes that resulted from construction of the Woodfin Hotel and Marketplace Tower. The proposed project would result in the loss of some views of the San Francisco Bay and Mount Tamalpais as seen from this vantage point.
- *View north from Christie Avenue.* Figure V.J-6 provides "before" and "after" views of the 64th & Christie portion of the project site looking north on Christie Avenue. The existing views of the project site from this vantage point consist of foreground views of Christie Park, street trees, and landscaping, which screen the Marketplace surface parking area from the street. The two industrial buildings on the southeast corner of 64th Avenue and Christie Avenue are dwarfed by the mid-rise development farther north of the EmeryBay Club and Apartments development. The simulation of the 90-foot tall 64th & Christie building would rise prominently above the Emery Bay Club and Apartments development by four to five stories. The single-story Retail Pad 2 building is depicted next to the 64th & Christie building and adjacent to Christie Park, and would provide an appropriate stepped-down transition to Christie Park (farther south).
- *View south from the Christie Avenue*. Figure V.J-7 provides the "before" and "after" views of the 64th & Christie building looking south on Christie Avenue, north of 64th Street. As depicted in these photos, the addition of this 8-story building would elevate the massing and height of buildings in the area, providing an appropriate transition from the four to six story buildings north of 64th Street (shown in the "after" view), as well as the mid- and high rise buildings located west of this site (i.e., 64 Avenue apartments and Pacific Park Plaza), views of which are blocked in these photos from the mature trees cantilevering over the sidewalk. Both the before and after views result in a continuous streetwall, however, the "after" simulation provides additional street land

Existing View from Shellmound Street looking north

Conceptual Visual Simulation of proposed project

LSA

FIGURE V.J-2

Marketplace Redevelopment Project EIR

Visual Simulation from

Shellmound Street Looking North

SOURCE: ENVIRONMENTAL VISION, OCTOBER, 2006.

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Existing View from Shellmound Street looking south

Conceptual Visual Simulation of proposed project

LSA

FIGURE V.J-3

Marketplace Redevelopment Project EIR

Visual Simulation from

Shellmound Street Looking South

SOURCE: ENVIRONMENTAL VISION, OCTOBER, 2006.

I:\CEM531 marketplace\figures\Fig_VJ3.ai (1/23/07)

Existing View from Powell Street Bridge looking northwest

Conceptual Visual Simulation of proposed project

LSA

FIGURE V.J-4

Marketplace Redevelopment Project EIR

Visual Simulation from

Powell Street Bridge Looking Northwest

SOURCE: ENVIRONMENTAL VISION, OCTOBER, 2006.

I:\CEM531 marketplace\figures\Fig_VJ4.ai (10/30/06)

Existing View from Powell Street Bridge looking northwest

Conceptual Visual Simulation of proposed project

LSA

FIGURE V.J-5

Marketplace Redevelopment Project EIR

Visual Simulation from

Powell Street Bridge Looking Northwest

SOURCE: ENVIRONMENTAL VISION, OCTOBER, 2006.

I:\CEM531 marketplace\figures\Fig_VJ5.ai (10/30/06)

Existing View from Christie Avenue looking north

Conceptual Visual Simulation of proposed project

LSA

FIGURE V.J-6

Marketplace Redevelopment Project EIR

Visual Simulation from

Christie Avenue Looking North

SOURCE: ENVIRONMENTAL VISION, OCTOBER, 2006.

I:\CEM531 marketplace\figures\Fig_VJ6.ai (10/30/06)

Existing View from the corner of 64th Street and Christie Avenue looking southeast

Conceptual Visual Simulation of proposed project

LSA

FIGURE V.J-7

Marketplace Redevelopment Project EIR

Visual Simulation from

Christie Avenue Looking South

SOURCE: ENVIRONMENTAL VISION, OCTOBER, 2006.

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scaping, sidewalk paving improvements, and building articulation and design to create a more comfortable space for pedestrians, thereby strengthening the urban streetscape character of the area.

The proposed 95-foot tall Shellmound building and 90-foot tall 64th & Christie building would be similar in height, scale, and mass as surrounding mid-rise buildings. They would also provide a continuous building façade along Shellmound Street and Christie Avenue. In this respect, the proposed project would strengthen the character of the urban streetscape and the pedestrian environment within the vicinity of the project site. However, because the existing, Public Market buildings are only one and two stories in height, the juxtaposition of the two, proposed mid-rise buildings on the site could negatively impact these buildings if not carefully designed and articulated.

As described in Chapter III, Project Description, the proposed Preliminary Development Plan only establishes uses, development intensities, locations for future development, and site improvements and development guidelines. Specific detailed architectural design of all five proposed buildings will be determined with the Final Development Plans (FDPs) for each building. At the time this analysis was completed, the design of the five proposed buildings was still being refined. As a result, details of the design and articulation of these five buildings is not known at this time. The mitigation measure would ensure that the proposed project would not result in a significant impact of visual resources.

Mitigation Measure AES-1: Each of the following five measures shall be incorporated into the final project design:

- The proposed structures shall adequately reference, and be visually compatible with and not detract from the surrounding industrial buildings.
- Create streetscape vitality and enhance the pedestrian experience through detailed treatment of building facades, including entryways, fenestration, and signage, vertical walls broken up with architectural detailing, protruded and recessed tower elements, stepped-back upper floors to provide appropriate building height transitions to adjacent buildings, and through the use of building materials, texture, and color that create interest and variety in the façade and are complimentary with the character of the project site and surrounding area.
- Design of building facades shall include sufficient articulation and detail to avoid the appearance of blank walls or box-like forms.
- Exterior materials utilized in construction of new buildings, as well as site and landscape improvements, shall be high quality and shall be selected for both their enduring aesthetic quality and for their long term durability, and their compatibility with the design motif of surrounding buildings.
- Detailed designs for the public plazas shall be developed. The plaza designs shall emphasize the public nature of the space and pedestrian comfort and sun/shade patterns during mid-day hours throughout the year. The plaza designs shall be sensitively integrated with the streetscape. (LTS)

Impact AES-2: The proposed development would provide additional sources of day and nighttime light and glare in Emeryville. (S)

The proposed project would include new sources of light in Emeryville. During daylight hours, pedestrians and motorists could experience some degree of glare due to light reflecting off the new building facades. During nighttime hours, lighting fixtures incorporated into the design of each building, including parking structures, would add new sources of light to the nighttime sky. In order to reduce potential light and glare related impacts to a less-than-significant level, the following two-part mitigation measure shall be incorporated during the construction phase of the project:

Mitigation Measure AES-2a: The specific reflective properties of project building materials shall be assessed by the City during review of the Final Development Plans for the proposed project. Final Development Plan review shall ensure that the use of reflective exterior materials is minimized and that proposed reflective material would not create additional daytime or nighttime glare.

Mitigation Measure AES-2b: Specific lighting proposals shall be submitted and reviewed as part of each Final Development Plan for each new building on the project site and approved by the City prior to issuance of building permit. This review shall ensure that any outdoor night lighting for the project is downward facing and shielded so as not to create additional nighttime glare and shall conform with light and glare performance standards established by Zoning Ordinance Article 59 and the Maximum Intensity of Light Sources table. (LTS)

K. PUBLIC SERVICES AND UTILITIES

The section analyzes the proposed project's potential effects on public services and utilities including: fire, police, schools, parks, library services, wastewater, and water supply. Potential impacts to public services and utilities that could result from development of the proposed project are identified, and mitigation measures are recommended, as appropriate. Impacts to the storm water system are discussed in Section V.H, Hydrology and Storm Drainage.

1. Setting

In this setting section, current service locations, capacities, and expansion potential are discussed, as are the regulations and requirements of each service.

a. Fire Protection. The Emeryville Fire Department (EPD) responds to fire, emergency medical aid, and rescue calls from two locations in the City: Station No. 1 (2333 Powell Street) and Station No. 2 (6303 Hollis Street). The fire station nearest the project site is Station No. 2, located approximately a ¼ mile to the east, followed by Station No. 1, located approximately a ½ mile to the west. EFD has 28 to 30 personnel, with two primary Class 1 response pumper fire trucks, located at both fire stations, with an additional ladder truck at Station No. 1. In 2005, EFD's average response time was approximately 4 minutes.[1]

In emergency situations, the Emeryville General Plan establishes two primary, local emergency evacuation routes within the City limits, being San Pablo Avenue, which runs in a north-south direction, and Powell Street, which runs in an east-west direction. The nearest evacuation route to the project site is Powell Street, which generally abuts the project site on its southern edge.

b. Police Services. In Emeryville, police protection services in the City are provided by the Emeryville Police Department (EPD). EPD headquarters are located at 1333 Park Avenue, approximately one mile southeast of the project site. In 2005, EPD currently had 39 sworn officers and 20 civilian staff. Officers patrol the entire City in teams of three or four officers in 10 hour shifts, under the supervision of a shift sergeant. EPD's current average response time for emergency calls is two minutes, and the average response time for non-emergency calls is 6 minutes.[2] Primary law enforcement issues in the vicinity of the project site are automobile thefts, burglaries, and assaults.[3]

The City of Emeryville is divided into 11 policing districts. The project site is located within EPD Crime Analysis Unit District 3 (District 3), which includes areas within two blocks from the project site.[4] The northern boundary of District 3 is the City boundary with Berkeley near Ashby Avenue, the eastern boundary is the Union Pacific railroad tracks, the southern boundary is Powell Street, and the I-580/80 freeway forms the western boundary. Within District 3, the majority of reported crimes in 2005 were thefts, burglaries, and stolen vehicles. Compared to the rest of Emeryville, District 3

[1] Conover, Doug, 2005. Engineer, Emeryville Fire Department. Personal communication with LSA Associates, Inc. July.

[2] James, Ken, 2006. Chief of Police, Emeryville Police Department. Personal communication with LSA Associates, Inc. February.

[3] Robinson, Adrienne, 2006. Administrative Analyst, Emeryville Police Department. Personal communication with LSA Associates, Inc. January.

[4] Ibid.

typically experiences moderate to high crime levels, comprising up to 26 percent of the total reported crimes Citywide, as shown in Table V.K-1. In 2005, stolen vehicles constituted the greatest number of crimes occurring in District 3 (26 percent), followed by auto burglaries (23 percent), and assaults (21 percent for simple assaults and 22 percent for aggravated assaults). [5]

Table V.K-1: Emeryville Crime Statistics (2005)

Crime	District 3	Emeryville Total	District 3 % of Total
Auto Burglary	69	316	23
Commercial Burglary	10	58	17
Residential Burglary	2	62	3
Petty Thefts	19	360	5
Grand Theft	17	120	14
Recovered Vehicle	25	143	18
Stolen Vehicle	53	202	26
Robbery	5	37	14
Car Jacking	0	0	0
Simple Assault	14	67	21
Aggravated Assault	4	19	22
Sexual Assault	0	2	0
Homicide	0	1	0

Source: Emeryville Police Department, 2005.

c. School Services. The Emery Unified School District (District) provides public school services in Emeryville. The District operates the Anna Yates Elementary School (K-6th grades) located at 1070 41st Street, and the Emery Secondary School (7th-12th grades) at 1100 47th Street. The Anna Yates Elementary School has an enrollment capacity of 435 students with 424 students currently enrolled. Enrollment capacity at the Emery Secondary School is 450 students with a current enrollment of 398 students.[6]

The District's student to teacher ratio for kindergarten through 3rd grade is 20 students per teacher (i.e., 20:1). For 4th grade to 12th grade, the ratio is 30:1. These ratios, however, do not apply to physical education, music, drama, and science classes, which, under State law, are not required to maintain established student teacher ratios.[7]

d. Parks. The City of Emeryville operates eight parks: Emeryville Marina, Emery Cove Marina, Stanford Avenue Park, Davenport Park, Temescal Creek Park, 61st Street Mini-Park, Christie Park, and Marina Park. As described in Chapter III, Project Description, Christie Park is located directly adjacent to the western edge of the project site. Other parks in the vicinity are Stanford Avenue Park (½ mile southeast), Davenport Park (1 mile west), and Temescal Creek Park (1 mile southeast). Residents in the western portions of Emeryville, such as the project site, have greater access to parks located along the shoreline. The Emeryville General Plan does not, however, establish a specific parks-to-population standard nor does the City have a park dedication ordinance.

In addition to City parks, the East Bay Regional Park District (EBRPD) provides additional open space recreation opportunities for Emeryville residents. EBRPD has 65 parks and 29 regional inter-park trails covering more than 95,000 acres in Alameda and Contra Costa counties. The closest regional park facility to the project site is the new Eastshore State Park, located approximately ¼ mile to the west along the eastern Bay shoreline. Within five miles of the project site, Point Isabel, Middle Harbor, and Crown Beach regional shorelines provide additional Bay side open space opportunities, and Tilden Regional Park, Claremont Canyon, Sibley and Huckleberry Regional Preserves, and Temescal Regional Recreation Area provide woodland open space opportunities. Within a 7.5 mile radius of the project site (in addition to the previously mentioned facilities), additional recreational opportunities include the Miller Knox and Martin Luther King Regional Shorelines, Brooks Island

[5] Simple assaults typically do not involve weapons while aggravated assaults do.

[6] Shaw, John, 2005. Chief Business Officer, Emery Unified School District. Personal communication with LSA Associates, Inc. December.

[7] Ibid.

and Leona Heights Open Space Regional Preserves, and Redwood and Chabot Regional Parks. Many of these facilities are among the oldest in the regional park system (i.e., 70± years) and are very popular and heavily used facilities. As a result, many of these regional park facilities are in need of refurbishing and environmental maintenance.[8]

e. Wastewater. A number of technical terms are used to describe the collection, treatment, and disposal of wastewater. The following briefly describes a few of these terms to help understand wastewater issues in Emeryville.

Wastewater flowing into the wastewater treatment plant is referred to as "influent." Flow levels of influent vary depending on amount of wastewater generated at different times of the day. During periods of wet weather, storm water infiltrates and inflows into the sewer conveyance system, adding to the influent wastewater flow volume. "Inflow" occurs when storm water directly enters into the sewer system through damaged or unauthorized lateral connection pipes. "Infiltration" occurs when influent seeps through the permeable walls of deteriorated sewer pipes and into the surrounding soil. Inflow and infiltration (I/I) can cause the amount of water in the wastewater treatment system to increase dramatically, increasing the potential for overflows of untreated wastewater at the plant.

"Peak wastewater flows" occur during periods of highest wastewater generation. "Peak wet weather flow" occurs when wastewater flows are at their highest combined with increases from wet weather I/I. The "short term hydraulic peak" is the point in time in which the conveyance system is delivering the highest amount of influent during and after a wet weather event when the largest amount of influent is being conveyed to the treatment plant. Short-term hydraulic peaks are temporary events and flow levels eventually return to lower levels when wet weather I/I into the conveyance system diminishes.

The East Bay Municipal Utility District (EBMUD) currently provides primary and secondary wastewater treatment for the project site at its Wastewater Treatment Plant (plant), located at 2020 Wake Avenue in Oakland. At the plant, "primary" wastewater treatment removes floating material, oils and greases, sand and silt and organic solids heavy enough to settle in water. "Secondary" treatment biologically removes most of the suspended and dissolved organic and chemical impurities that would rob life-giving oxygen from the waters of the Bay if allowed to decompose naturally. The secondary-treated wastewater is then disinfected with sodium hypochlorite (concentrated household bleach) to kill remaining bacteria and other pathogens. The remaining bleach is removed from the treated wastewater prior to the discharge of the treated effluent through a deep-water outfall into the San Francisco Bay.

The EBMUD wastewater service district (SD-1) treats domestic, commercial and industrial wastewater from approximately 642,000 people in an 88 square-mile area including the cities of Alameda, Albany, Berkeley, Emeryville, Oakland, Piedmont, El Cerrito, Kensington and parts of Richmond. Each of these cities operates sewer collection systems that discharge into one of five EBMUD sewer interceptors. The interceptors are part of the EBMUD collection system consisting of 29 miles of reinforced concrete pipes (ranging from 12 inches to 9 feet in diameter) and collection system pumping stations to lift wastewater as it is conveyed to the Wastewater Treatment Plant.

[8] Chavez, Linda, 2005. Senior Planner, East Bay Regional Park District. Personal communication with LSA Associates, Inc. December.

Primary treatment at the EBMUD plant can be provided for a maximum flow up to 320 million gallons per day (mgd). Secondary treatment can be provided for a maximum flow of 168 mgd. Storage basins provide plant capacity for a short-term hydraulic peak of 415 mgd. The current average annual daily wastewater flow at the Wastewater Treatment Plant is 80 mgd, which is less than 50 percent of its secondary treatment capacity and less than 30 percent of the primary treatment capacity.[9]

In regards to the proposed project, the northern portion of the site is located in sewer basin 20. Existing sewer lines are comprised of an 8-inch vitrified clay pipe (VCP), which feeds into a 30-inch terra cotta (TC) pipe that runs under the site. This 30-inch TC pipe connects with the EBMUD 66-inch transmission line west of the site. The Shellmound, 64th & Christie, Retail Pad 2, and Retail Pad 3 buildings would connect to sewer basin 20. There is adequate capacity in these mains to accommodate additional sanitary sewer flows.[10]

The southern portion of the site is located within sewer basin 21, which consist of 8-inch VCP pipes under Christie Avenue that also connect the EBMUD 66-inch transmission line west of the site via a parallel system of 18-inch TC pipe and 24- to 16-inch cast iron (CI) pipes located under Powell Street. The precise capacity of the southern conveyance system is unclear at this time and may be inadequate to accommodate additional sanitary sewer flows.[11] Only Retail Pad 1 proposed to connect to sewer basin 21.

f. Water Supply and Infrastructure. EBMUD also provides water to the project site via a network system of reservoirs, aqueducts, treatment plants, and distribution systems. The principle water source for EDMUD is the Mokelumne River Basin in Amador, Alpine, and Calaveras counties. Water from the Pardee Reservoir in the western Sierra foothills is transported 91.5 miles through the Pardee Tunnel, the Mokelumne Aqueducts, and Lafayette Aqueducts to East Bay treatment plants or terminal reservoirs. EBMUD maintains five terminal reservoirs within its East Bay Service Area at the Briones, Chabot, Lafayette, San Pablo, and Upper San Leandro reservoirs. These reservoirs serve several functions: 1) regulation of EBMUD's winter and spring Mokelumne River water supply; 2) augmentation of the EBMUD's water supply with local runoff; 3) emergency water supply sources in case of extended drought, or damage to tunnels, pumping plants, or aqueducts; and 4) environmental and recreational benefits for East Bay communities. Briones, San Pablo, and Upper San Leandro reservoirs supply water to EBMUD on a regular basis throughout the year, while Chabot and Lafayette reservoirs are reserved as emergency sources of supply.

Reliability of the Mokelumne River water supply is affected by various events, such as drought, earthquakes, levee failure, upstream water use by prior right holders, and required downstream releases related to fish, wildlife, and riparian habitat protection.[12] In response, EBMUD has developed a Water Supply Management Program (WSMP) to identify supplemental water supply, water banking, water conservation and recycling, and watershed improvements to help accommodate

[9] East Bay Municipal Utility District, 2005. Urban Water Management Plan.

[10] Kaufman, Maurice, 2006. Senior Civil Engineer, City of Emeryville Public Works Department. Personal communications with LSA Associates, Inc. March.

[11] Ibid.

[12] EBMUD. 2005. Urban Water Management Plan (UWMP).

existing and future demand within EBMUD's service boundary (i.e., 331 square miles and 1.3 million people).[13]

The WSMP states that the current and projected level of customer demand exceeds dependable water supply. EBMUD's primary source, the Mokelumne River, meets EBMUD's water supply needs in many years, but cannot fully meet residential and business needs during periods of drought and years with insufficient rainfall and snowfall. [14] This situation will continue until a supplemental water supply project is implemented as part of the WSMP that results in dependable supplies for existing and future customers.

In an effort to secure supplemental water supplies, EBMUD has entered into a partnership with the Sacramento County Water Agency (SCWA) for a regional water supply project that will provide additional water supplies for East Bay customers during dry (i.e., drought) years. This partnership would be executed via the Freeport Regional Water Project, which is a joint effort to draw water from the Sacramento River, near the town of Freeport, via a new 185 mgd water intake structure with state of the art fish screens.[15] Water from the Sacramento River will be treated, pumped and transported through the Folsom South Canal to the Mokelumne Aqueducts. The Freeport Regional Water Project will provide up to a 100 mgd dry-year supply to EBMUD customers in order to supplement water conservation and recycling programs and reduce the potential for severe water rationing during drought periods.[16] The final EIR/EIS for the Freeport Regional Water Project was completed in 2004 and construction is anticipated to be finished by 2010.

Another project EBRPD is pursuing to facilitate water supply dependability is its Seismic Improvement Program (SIP). This is a $202 million program to improve the post-earthquake firefighting capability and water service within the EBMUD service area.[17] Seismic upgrades include the addition of the Southern Loop Pipeline, seismic upgrades to eight reservoirs, improvements at seven critical pipeline fault crossings, and the retrofitting of the Claremont tunnel. In areas where the transmission system crosses the Hayward Fault, upgrades include flexible pipe connections, and a 1,500-foot bypass tunnel to replace the most vulnerable portion of the existing tunnel.[18]

Other efforts to increase water supplies include the expansion of the storage capacity of the Pardee Reservoir and the storage of treated water in high-quality deep aquifers.[19]

EBMUD also uses recycled water to help reduce the need for additional potable water supplies. Recycled water is wastewater that has been treated and disinfected to meet stringent and protective stand-

[13] EBMUD's ultimate service boundary spans from Crockett in the north to San Lorenzo and San Ramon in the south, and includes areas from the San Francisco Bay to Walnut Creek.

[14] Ibid.

[15] EBMUD, 2006. Freeport Regional Water Project. Website: www.ebmud.com/water_&_environment/water_supply/current_projects/freeport.

[16] EBMUD. 2005. Urban Water Management Plan (UWMP).

[17] Ibid.

[18] Ibid.

[19] Ibid.

ards set by the California Department of Health Services.[20] Recycled water use delays or eliminates the need for more potable water facilities, reduces the amount of treated wastewater discharged into the San Francisco Bay, and increases water supply during drought periods. In California, recycled water is used for landscape and agricultural irrigation, industrial purposes, wetlands restoration and stream flow augmentation, and toilet flushing in commercial buildings. EBMUD and its customers currently use almost 8.0 million gallons of recycled and non-potable water per day. By 2020, EBMUD's goal is to recycle an additional 8.0 million gallons of water per day, bringing total recycled water use to nearly 5.1 billion gallons per year.[21]

The project site is located within the boundaries of EBMUD's East Bayshore Recycled Water Project (EBRWP) and is adjacent to pipelines for the first phase of the EBRWP project would be located. As a result, recycled water will be available for landscape irrigation and other non-potable purposes on the project site once the EBRWP pipelines are completed.

Water service would be provided to the project site via existing and proposed water mains. The existing 8-inch water main under Shellmound Street would continue to serve the Marketplace Public Market and Tower buildings. *On the southern half of the site*, the Shellmound and Retail Pad 1 buildings water service would be provided by extending approximately 1,650 feet of 8-inch water pipe under the drive aisle and parking area between the Shellmound building and Woodfin Hotel to connect to Powell Street water lines, under Shellmound Street around and south of Retail Pad 1, and under Shellmound Way to connect to existing water lines under Christie Avenue. *On the northern half of the site*, the 64th & Christie and Retail Pad 2 buildings would be served by direct conncections to existing 8-inch water mains under Christie Avenue and 64th Street. *Retail Pad 3* would connect into the existing drinking water lines on-site, extending 300 feet of two-inch water pick west toward Christie Park, then 120 feet south to connect into an existing water line south of the Public Market Building. The existing fire water line underlying Retail Pad 3 would be relocated approximately 25 feet west.

g. Solid Waste Disposal and Recycling. Most non-hazardous solid waste generated in Emeryville is collected and disposed of by Waste Management of Alameda County (WMAC). The City's solid waste is collected and transported to the Davis Street Transfer Station in San Leandro. At the Davis Street Transfer Station, waste is transported for disposal at the Altamont Landfill and Resource Recovery Facility (ALRRF) in eastern Alameda County, approximately 35 miles southeast of the project site. Both the Davis Street Transfer Station and the ALRRF are owned and operated by WMAC.

Construction and demolition debris generated in Emeryville are generally hauled by contractors and local construction companies to either asphalt or concrete recycling facilities in the East Bay or to the Vasco Road Landfill, located approximately 2 miles north of the City of Livermore in Alameda County. Near the Vasco Road Landfill, the Altamont Landfill, located 4 miles northeast of Livermore in Alameda County, is permitted to accept contaminated soils.

California Integrated Waste Management Act (AB 939). The City relies on a broad mix of waste stream diversion programs to meet State mandated diversion goals, established in the California

[20] EBMUD, 2006. Recycled Water. Website: www.ebmud.com/conserving_&_recycling/recycling/recycled_water/.

[21] Ibid.

Integrated Waste Management Act (AB 939), including source reduction, composting, and recycling. AB 939 required all municipalities in the State to divert at least 50 percent of their waste streams by 2000. Source reduction, which is given the highest priority, is defined as the act of reducing the amount of solid waste generated initially. Recycling and composting are given the next highest priority. AB 939 specifies that all other waste that is not diverted be properly and safely disposed of in a landfill or through incineration.

Source Reduction and Recycling Element. The California Integrated Waste Management Act also mandates that each jurisdiction adopt a Source Reduction and Recycling Element (SRRE) to specify how the community will meet the 50 percent waste diversion goal set forth in the AB 939. Each jurisdiction is also required to take measures to reduce solid waste generation and to provide for the safe disposal of special and hazardous wastes. Certain special and hazardous wastes are included within the purview of the SRRE, but communities are also required to adopt a separate Household Hazardous Waste Element (HHWE) to address hazardous wastes generated by households. The SRRE/HHWE for the City of Emeryville was adopted in 1991 and has been implemented since that time.[22]

Alameda County Measure D. Approved by voters in 1990, Measure D established the Alameda County Source Reduction and Recycling Board to coordinate the creation of the Alameda County Source Reduction and Recycling Plan. This Plan established a Countywide goal of achieving a 75 percent solid rate diversion rate from landfills by the year 2010. As of 2003, the County had achieved a diversion rate of 58 percent and the City of Emeryville achieved a 64 percent diversion rate.[23]

Municipal Code Title 6, Chapter 4. To further ensure for waste reduction, Emeryville Municipal Code Title 6, Chapter 4, Collection of Solid Waste and Recyclables, provides additional standards for solid waste collection and recycling Citywide. This ordinance provides regulations addressing the placement of solid waste and recycling receptacles, the quantity and size of recycling receptacles, and establishes performance standards for recycling service providers.

h. Library Services. The City of Emeryville does not operate public libraries. Instead, the City maintains a contract with the City of Oakland for Emeryville resident use of the Oakland Public Library system, which compensates Oakland on a per capita basis. The nearest Oakland public library to Emeryville is the Golden Gate branch, located at 5606 San Pablo Avenue between 55th and 56th Streets. In addition to providing access to Oakland libraries, it also provides weekly scheduled book-mobile service to Emeryville at the Watergate Towers at 1900 Powell Street.[24]

2. Relevant General Plan Policies

The following General Plan public facility and service policies are applicable to the proposed project.

[22] City of Emeryville, 1991. City of Emeryville Source Reduction and Recycling Element & Household Hazardous Waste Element.

[23] StopWaste.org, 2003. Waste Diversion Rates for Alameda County Jurisdictions. Website: www.stopwaste.org/docs/waste_diversion_rates-2003.pdf

[24] Oakland Public Library, 2006. Bookmobile Schedule. Website: www.oaklandlibrary.org/

- *Land Use Policy 4:* The City will monitor the impact of development on its public services. Land use and development proposals which would overload circulation, water supply, wastewater disposal, fire, police, or school systems shall not be approved in the absence of overriding considerations.
- *Public Utilities Policy 16:* The City will develop a program to monitor and repair/upgrade its water, storm drain and sewer lines. All improvements to the existing lines necessitated by new development shall have committed financing before the project may proceed.
- *Public Utilities Policy 19:* The City will seek to have electrical utilities undergrounded throughout Emeryville. It may require undergrounding in conjunction with new development and will explore means to accomplish undergrounding elsewhere in the city.
- *Environmental Resources (Water) Policy 3:* The city supports EBMUD efforts to encourage water conservation.
- *Environmental Resources (Energy) Policy 2:* The City will promote energy conservation and the use of renewable energy sources.
- *Recreation Policy 11:* Small parks and open space areas to serve individual neighborhoods should be developed as opportunities arise.
- *Recreation Policy 13:* Parks should be designed for low maintenance. Drought-resistant shrubs and trees should be encouraged in passive recreation areas.
- *Recreation Policy 14:* The open space/recreation system should provide facilities and sites for environmental education, cultural activities, and community events.
- *Recreation Policy 15:* Parks shall be designed to give individuals a sense of security and well-being and should invite use and allow surveillance by surrounding residents.

3. Criteria of Significance

The project would have a significant impact on the environment related to public services if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:
    - Fire protection,
    - Police protection,
    - Schools, and
    - Other public facilities.
- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

The project would have a significant impact on the environment related to utilities if it would:

- Exceed wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board.
- Require or result in construction of new water or wastewater treatment facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects.

- Result in a determination by the wastewater treatment provider which serves, or may serve the project that it has inadequate capacity to serve the proposed projects' demand in addition to the provider's existing commitments.
- Not have sufficient water supplies available to the serve the project from existing entitlements.
- Be served by a landfill with insufficient capacity to accommodate the project's solid waste disposal needs.
- Violate applicable federal, State, and local statues and regulations related to solid waste.

4. Impacts and Mitigation Measures

This section analyzes impacts related to public services and utilities that could result from development of the proposed Marketplace Redevelopment project.

a. Less-than-Significant Public Services and Utilities Impacts. The following discussion describes less-than-significant impacts from the proposed project, including those related to fire protection, police services, schools, library services, neighborhood and regional parks, wastewater treatment, water supply, and post construction solid waste.

(1) Fire Protection. The proposed project would provide adequate access for fire equipment.[25] Development of the proposed project would result in an incremental increase in the demand for fire protection service. However, the Emeryville Fire Department does not anticipate that the proposed project would substantially affect its ability to maintain adequate response times. The proposed project would not require the provision of new fire protection facilities.

(2) Police Protection. Primary crime issues in the Emeryville include auto theft and auto burglaries. The project site is within Crime Analysis District 3, where calls for police service typically range from burglaries to traffic collisions.

Adequate security, particularly during non-business hours, is a concern for the project area.[26] During the plan review process, the Police Department would review the project plans and make recommendations regarding project security measures which could deter crime and reduce the service requests from the project.

In 2005, the average response time for emergency calls was two minutes, and the average response time for non-emergency calls was six minutes.[27] Development of the proposed project would create additional residential and commercial space, and would introduce a permanent, 24-hour resident population to the project site. The project would increase calls for service; however, the amount of the increased demand for police services as a result of the proposed project is not known at this time.[28]

[25] Cutright, Steve, Fire Marshal, Emeryville Fire Department.

[26] James, Ken, 2007. Chief of Police, Emeryville Police Department. Personal communication with LSA Associates, Inc. February.

[27] James, Ken, 2006. Chief of Police, Emeryville Police Department. Personal communication with LSA Associates, Inc. February.

[28] James, Ken, 2007, op.cit.

The Police Department may require additional staff to serve the project and at a minimum would require one officer and two civilian employees. Additional equipment, including a parking enforcement vehicle, may also be required to adequately serve the project.[29] However, the project would not trigger the need for construction of new or significant altered physical improvements to police facilities; as a result, it would not trigger a significant CEQA impact related to police services. Independent of the proposed project or other proposed development, the City has determined the Police Department needs a new facility to replace the existing seismically unsafe facility. A new facility is in the preliminary planning stages, but remains unfunded. Until new facilities are constructed, the Police Department would be able to adequately serve the project from existing facilities.[30]

(3) Schools. Development of the proposed project would result in the addition of up to 340 new, for-sale multi-family units, the majority of which would be studio and one bedroom units. As discussed in Chapter V.B, Population, Employment, and Housing, Emeryville has a smaller average household population size compared to the rest of Alameda County.

Table V.K-2: Potential Student Generation

Grade	EUSD Student Yield Rates	Units	New Students From Project
K-6	5.1%	340	18
7-8	3.2%	340	11
9-12	2.4%	340	9

Source: EUSD, 2005 and LSA Associates, Inc., 2006.

The School District determines student generations rates by extrapolating trends from prior school year data. In 2003, these student generation rates were established based on existing demographic data and the number of school aged children as a percentage of the total population. Based on these established student generation rates, the proposed project would add approximately 18, K-6th grade students, eleven 7th and 8th grade students, and nine high school students, as shown in Table V.K-2. As indicated in Table V.K-3, the number of K-6th grade school age children generated from the proposed project would result in Anna Yates Elementary School's capacity to be exceeded by seven students. Emery Secondary School, however, would have adequate capacity to serve the proposed project.

However, consistent with demographic data and an average household size of 1.7 persons,[31] actual student generation from the proposed project would more than likely be less than that estimated by the application of the District's student generation rates. Further, the majority of units included in the proposed project would be studio or one bedrooms (i.e., 224 of 340, or 66 percent), which generally are too small to accommodate family households with school age children.

Table V.K-3: Projected School Capacities

School	Existing Capacity	Current Enrollment	Additional Students From Project	Remaining Capacity with Project (Over Capacity)
Anna Yates Elem. (K-6th)	435	424	18	(7)
Emery Secondary (7-12th)	450	389	20	41

Source: EUSD, 2005; LSA Associates, Inc., 2006.

California Government Code Section 65995(3)(h) allows developers to pay a school impact mitigation fee that is statutorily "deemed to be full and complete mitigation of the impacts of any legislative

[29] James, Ken, 2007, op.cit.

[30] James, Ken, 2007, op.cit.

[31] U.S. Census, 2000. SF-3, Table DP-3, *Profile of Selected Housing Characteristics*.

or adjudicative act, or both, involving, but not limited to, the planning use, or development of real property, or any change in governmental organization or reorganization as defined in Section 56021 or 56073, on the provision of adequate school facilities." In Emeryville, the District requires payment of a school mitigation fee that is $2.14 per square foot for residential development, and $0.34 per square foot for commercial development.[32] These fees are used to fund future school facility expansion projects made necessary by incremental, new development, including the proposed project.

The school mitigation fee required for the proposed project, should it be approved, would appropriately and adequately addresses its impact on school services, in accordance with Government Code Section 65995(3)(h), as determined by the School District. Consistent with California Government Code Section 65995(3)(h), payment of the required school district development fee would ensure the proposed project would result in a less-than-significant impact on school services.

(4) Library Services. The proposed project would cause a slight increase in the demand for library services. The Oakland library system has adequate capacity to serve the incremental increase in library use that would result from the implementation of the proposed project and would not require the construction of new library facilities.[33]

(5) Neighborhood and Regional Parks. The residential population resulting from the proposed 340 multi-family units is anticipated to increase usage of City and regional parks. The nearest City park to the project site (Christie Park) does not currently experience high usage by area residents, employees, or Marketplace patrons.

As described in subsection 1.d, regional parks within a 7.5-mile radius of the project site are very popular and heavily used facilities and, as a result, are in need of refurbishing and environmental maintenance. The residents associated with the 340 new, multi-family units would increase demand and usage of existing regional parks. EBRPD, however, receives funding for park maintenance from property taxes, including that generated by the proposed for-sale, multi-family residential units.

The residential portion of the proposed project would be subject to: 1) Two County Regional Trails Assessment; and 2) Measure CC, "Park Access, Wildfire Protection, Public Safety and Environmental Maintenance Measure."[34] The Two County Regional Trails Assessment is a parcel based tax that provides funding for the maintenance of regional trails in the EBRPD regional trail system. This assessment requires that each new, multi-family unit pay $2.72 per year to fund the maintenance of EBRPD regional trails. Measure CC requires that each new, multi-family unit pay $8.28 per year to contribute to funding infrastructure, safety, and access improvements, wildfire prevention, and resource and habitat projects at regional parks. Measure CC funds are also used to operation and maintain existing improvements and activities at the Eastshore Park in the City of Emeryville.

Financial contribution to these two measures, via parcel tax assessments, would ensure that the increased use of existing regional park facilities associated with development of the proposed project

[32] Ibid.

[33] Gerard Garzon, 2006. Deputy Director, Oakland Public Library. Personal communications with LSA Associates, Inc. April 6.

[34] Chavez, Linda, 2005. Senior Planner, East Bay Regional Park District. Written communication with LSA Associates. January.

would not be such that physical deterioration of regional parks would occur or be accelerated.[35] As a result, increased regional park usage from the proposed project would be considered less than significant. The proposed project does not include additional neighborhood or regional park facilities, nor would it require the construction of additional facilities.

(6) Wastewater Treatment. Development of the proposed project would result in the additional commercial space and new residential units on the site, each with associated bathrooms, washrooms, kitchens, and other water-using facilities. Wastewater from the proposed project would be treated at the EBMUD Wastewater Treatment Plant in Oakland, which operates in compliance with all relevant San Francisco Bay Regional Water Quality Control Board requirements. EBMUD provides secondary treatment for a maximum flow of 168 million gallons per day (mgd).

As described in subsection 1.e, primary wastewater treatment can be provided for up to 320 mgd, storage basins provide for short-term hydraulic peak plant capacity of 415 mgd, and the current average annual daily wastewater flow to the Plant is 80 million mgd.[36] The proposed project would generate an average sewage flow of 54,677 gallons per day (gpd) and could potentially generate a peak wet weather flow of 191,396 gpd.[37] The wastewater generated by the proposed project would comprise less than one percent of the Wastewater Treatment Plant's remaining secondary treatment capacity, and would not exceed the remaining secondary or primary treatment capacity at the plant; therefore, construction of new treatment facilities would not be required.

(7) Wastewater conveyance system. Conveyance of wastewater from the proposed project would use existing sewer mains in sewer basins 20 and 21, both of which connect to the EBMUD 66-inch transmission line west of the project site. Sewer basin 20, which serves the northern portion of the site, currently has adequate capacity to accommodate additional sanitary sewer flows from the entire project and other anticipated development.[38]

The preliminary utility plan proposed to serve the project (Figures III-16a and III-16b) indicates that only Retail Pad 1 proposed on the southern portion of the site would connect to sewer basin 21, which has adequate capacity to support this small retail space.[39]

Implementation of Mitigation Measures HYD-1, HYD-2, HAZ-1b, HAZ-1c, HAZ-1d, HAZ-3a, HAZ-3b, and HAZ-3c would ensure that construction of sewer conveyance pipes for the proposed project would result in a less-than-significant impact. (LTS)

(7) Water Supply. The estimated water demand for the proposed project is approximately 64,807 gpd.[40] EBMUD has the capacity to provide potable water for the proposed project from existing water supply entitlements and water treatment facilities.[41]

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[35] Ibid.

[36] East Bay Municipal Utility District (EBMUD), 2004. Website: www.ebmud.com/wastewater/treatment/.

[37] Jeremias, Michel, 2006. BKF Engineers/Surveyors/Planners. Emeryville Marketplace Sewer Design Study. February.

[38] Kaufman, Maurice, 2007. Senior Civil Engineer, City of Emeryville Public Works Department. Personal communications with LSA Associates, Inc., February.

[39] Ibid.

[40] Ibid.

EBMUD anticipates installing a reclaimed water distribution along 64th Street toward Christie Avenue, and has requested that the project applicant use reclaimed water for irrigation at the project site.[42]

(8) Post-Construction Solid Waste. Waste Management of Alameda County provides recycling and solid waste disposal to the City of Emeryville, which is deposited in the Altamont Landfill, located in unincorporated Alameda County. The landfill is permitted to receive 11,150 tons of waste per day.[43]

Waste generation rates for multi-family residential uses and commercial/retail uses are maintained by the California Integrated Waste Management Board (CIWMB). According to CIWMB, the typical solid waste generation rate for a multi-family unit ranges from 3.6 to 8.6 pounds per unit per day.[44] For commercial uses, the CIWMB waste generation rate ranges between 2.5 and 13 pounds per 1,000 square feet of commercial space.[45] These generation rates estimate the total amount of waste created and includes all discarded materials, whether or not they are later recycled or disposed in a landfill.

Correspondingly, the 340 new multi-family units and 77,000 square feet of new commercial space would generate additional solid waste ranging from 1,417 pounds (0.71 tons) to 3,925 pounds (1.92 tons) per day. The new residential development would contribute 74 percent of the project's solid waste generation per day (i.e., up to 2,924 pounds) and the new commercial space would produce the remaining 26 percent (i.e., up to 1,001 pounds).

The Altamont Landfill is permitted to receive 6,000 tons of waste a day. The amount of solid waste generated by the proposed project represents substantially less than one percent of the daily permitted waste intake at the Altamont Landfill. The Altamont Landfill is in the process of a 125-million cubic yard expansion, and has adequate capacity to accommodate waste generated by the proposed project.[46]

b. Significant Public Services and Utilities Impacts. Development of the proposed project would result two potentially significant impacts related to public services and utilities.

Impact PS-1: Demolition and construction waste generated by the project could conflict with Measure D requirements. (S)

[41] David Rehnstrom, 2006. Senior Civil Engineer, EBMUD Water Service Planning. Personal communications with LSA Associates, Inc. January.

[42] Jeremias, Michel, 2006. BKF Engineers/Surveyors/Planners. Emeryville Marketplace Sewer Design Study. February.

[43] California Integrated Waste Management Board, 2006. Website: www.ciwmb.ca.gov/SWIS/.

[44] California Integrated Waste Management Board, 2006. Estimated Solid Waste Generation Rates. Website: www.ciwmb.ca.gov/WasteChar/WasteGenRates/

[45] Ibid.

[46] Hohlwein, Reinhard, 2005. Integrated Waste Management Board, Permitting and Enforcement Division. Personal communication with LSA Associates, Inc. July.

Demolition and remediation activities would require the disposal of approximately 3,000 cubic yards of soil and building materials.

The disposal of construction-related waste and demolition materials could conflict with Measure D, which requires a solid waste reduction of 75 percent in Alameda County by 2010. The proposed project could violate applicable federal, State, and local statues and regulations related to solid waste.

This impact would be mitigated to a less-than-significant level through implementation of the following mitigation measure:

> Mitigation Measure PS-1: The project applicant shall recycle 75 percent of the waste materials generated by project construction. The applicant shall submit a pre-construction recycling management plan to the City Public Works Department for review and approval prior to the issuance of a grading permit. Prior to issuance of the Certificate of Occupancy, the project applicant shall post a construction report with weight tags stating where construction materials were recycled, and demonstrating that the 75 percent recycling rate of Measure D has been achieved. (LTS)

Impact PS-2: The waste generated by the on-going operation of the project could conflict with Measure D requirements. (S)

The estimated waste generated by the ongoing operation of the 340 new multi-family units and the 75,000 square feet of new commercial/retail space could conflict with Measure D, which requires a solid waste reduction of 75 percent in Alameda County by 2010. The proposed project could violate applicable federal, State, and local statues and regulations related to solid waste. The City of Emeryville achieved a 64 percent diversion rate in 2003.[47] The most recent preliminary data[48] from the California Integrated Waste Management Board indicates the City of Emeryville had a 60 percent waste diversion rate in 2004.[49] Waste generated by the ongoing operation of the proposed project could potentially decrease the waste diversion rates within the City and fail to meet the County-wide goal of 75 percent waste diversion by 2010.

This impact would be mitigated to a less-than-significant level through implementation of the following mitigation measure:

> Mitigation Measure PS-2: The project applicant shall install an internal system designed to increase recycling and composting. The recycling and composting system shall include dedicated chutes for garbage, recycling and green waste (including food scraps). Final design plans shall include areas for the storage and loading of recycling materials and containers in accordance with Emeryville Municipal Code Title 6, Chapter 4, Collection of Solid Waste and Recyclables and Title 6, Chapter 14, Food Service Waste Reduction. (LTS)

[47] StopWaste.org, 2003. Waste Diversion Rates for Alameda County Jurisdictions. Website: www.stopwaste.org/docs/waste_diversion_rates-2003.pdf

[48] Preliminary data is currently in the biennial review process and has not yet been reviewed and approved by the California Integrated Waste Management Board as the waste diversion percentage.

[49] California Integrated Waste Management Board, 2006. Jurisdiction Profile: Emeryville. Website: http://www.ciwmb.ca.gov/Profiles/Juris/

L. WIND

This section evaluates the impacts of the proposed project on wind as it affects pedestrian comfort and safety. Potential wind impacts that would result from implementation of the proposed project are identified, and mitigation measures are recommended. This analysis is based on an evaluation of the project site and proposed by Meteorologist Donald Ballanti (see Appendix F), including an understanding of existing wind conditions at the project site, wind dynamics, and a qualitative evaluation of the effects of proposed buildings on wind speed and frequency.

1. Setting

The National Climatic Data Center of the United States Department of Commerce maintains long-term climatic (including wind) data for locations around the United States. The closest source of long-term wind data to the project site is the former Alameda Naval Air Station, located about 5 miles southwest of the project site. Data from this site indicate that westerly winds are the most frequent and strongest winds during all seasons.[1] The westerly wind direction is the primary wind direction during the spring and summer months when sea breezes predominate. A secondary maxima in wind direction frequency occurs for southeasterly winds, which are associated with winter storms. While the average wind speed for southeasterly winds is not the highest of all wind directions, this is the likely wind direction of peak winds measured over the year. Calm winds occur about 10 percent of the time. The annual average wind speed at Alameda Naval Air Station is 8.6 miles per hour (mph). The project site, which, like the Alameda Naval Air Station, is located in close proximity to San Francisco Bay, likely experiences comparable average wind speeds.

The project site is developed with a mixture of uses in six buildings ranging from one to eight stories in height with expansive, surface parking areas. To the west of the site, beyond Christie Avenue, the 30-story Pacific Park Plaza high-rise tower and a cluster of other mid- and low-rise buildings offer some shelter from prevailing westerly winds traveling eastward across San Francisco Bay. The project site is within a neighborhood of many mid-rise buildings interspersed with open, surface parking areas and other low-rise buildings. This low- to mid-rise development pattern is also prevalent in the area southeast of the project site.

Although groups of structures can slow wind speed at ground level, isolated tall buildings can intercept and redirect winds that would otherwise flow overhead. Wind intercepted by tall buildings can travel down the structures' vertical face and create ground-level wind and turbulence. This situation has been occasionally observed in and around the project site, especially in the vicinity of the 8-story Marketplace Tower and the 12-story Woodfin Hotel buildings.

Wind conditions partly determine pedestrian comfort and safety on sidewalks and in other public areas. The generally breezy character of Emeryville results from its flat, open landscape and exposure to persistent winds off the San Francisco Bay.

Pedestrian comfort varies under different conditions of sun exposure, temperature, clothing, and wind speed. Winds of up to 4 mph have no noticeable effect on pedestrian comfort. With winds from 4 mph to 8 mph, wind is felt on the face. Winds from 8 mph to 13 mph disturb hair, cause clothing to

[1] Wind direction refers to the direction from which the wind is moving. Thus, a "westerly," or west wind, moves from west to east.

flap, and extend a light flag mounted on a pole. These effects increase with wind speed. At higher speeds of 19 mph to 26 mph, the force of wind is felt on the body. At even higher wind speeds, such as 26 mph to 36 mph, use of umbrellas is difficult, hair is blown straight, walking steadily becomes difficult, and wind noise is unpleasant. Winds over 36 mph pose challenges to maintaining balance, and gusts associated with those winds can cause individuals to loose their balance and fall.

The 8-story Marketplace Tower is the tallest existing structure on the project site. As a result, the site only has minimal wind shelter from other structures, as well as a relatively broad and continuous west face. The Tower intercepts a considerable amount of wind, and winds tend to be accelerated around the base of this building.

2. Impacts and Mitigation Measures

The following section provides a discussion of wind-related impacts related could result from development of the proposed project. The section begins with the criteria of significance, establishing the thresholds to determine whether an impact is significant. The latter part of this section describes the land use impacts from the proposed project and recommends mitigation measures, if required. Impacts are separated into two categories based on their significance according to the criteria listed; less-than-significant impacts, which do not require mitigation, and significant impacts, which do require mitigation.

a. Criteria of Significance. The *CEQA Guidelines* do not include any specific criterion for the evaluation of a project's wind effects, and neither the State of California or the City of Emeryville have established criteria or standards for judging the effects of development projects on wind. The cities of Oakland and San Francisco have, however, established criteria for the evaluation of wind impacts. The City of Oakland considers a project to have significant wind impacts if it would result in *one hour of winds exceeding 36 mph*. San Francisco considers a project to have significant wind impacts if it would result in *one occurrence per year of winds greater than 36 mph*. The wind criteria developed for Oakland and San Francisco are based on research conducted in several locations and would be appropriate for a project located in Emeryville due to similar geographic proximity to the San Francisco Bay and adjacent of the communities to Emeryville. For this analysis, the project is considered to have a potentially significant wind impact if:

- The *exposure*, *orientation* and *massing* of a proposed structure can be expected to substantially increase ground-level winds in pedestrian corridors or public spaces near the project site. Since the ambient wind (undisturbed by buildings) in Emeryville seldom exceeds 36 mph, a project must substantially increase winds for this threshold to be exceeded.

b. Impact Analysis Methods. New buildings would act as obstacles to wind flow thereby distorting existing wind fields. Wind decelerates on the upwind side of the buildings, creating an area of increased atmospheric pressure, which decreases on the downwind side with the acceleration of wind. Accelerated winds generally occur on the upwind face of the building, particularly near the upwind corners and along the building sides. The downwind side has generally light, although variable, winds.

Ground-level wind accelerations near buildings are controlled by the exposure, massing and orientation of structures. *Exposure* is a measure of the extent that the building extends above surrounding structures into the wind stream. A building that is surrounded by taller structures is not likely to

cause adverse wind accelerations at ground level, while even a small building can cause wind problems if it is freestanding and exposed.

Building *massing* is important in determining wind impact because it controls how much wind is intercepted by the structure, and whether building-generated wind accelerations occur above or at ground level. In general, flat, slab-shaped building surfaces have the greatest potential to create wind problems. Buildings that have an unusual shape, rounded surfaces, or utilize set-backs on upper stories have a lesser effect on wind patterns. Generally, with wind, the more geometrically complex the building shape is, the less likely it will create ground level wind impacts.

Orientation determines how much wind is intercepted by the structure, a factor that directly determines wind acceleration. In general, a building that is oriented with its wide axis across the prevailing wind direction will increase ground-level winds more than a building oriented with its long axis along the prevailing wind direction.

This subsection uses the above factors to analyze impacts related to wind that could result from development of the proposed project. An assessment of potential wind-related impacts is provided, and mitigation measures are recommended.

c. Less-than-significant Impacts. No significant impacts related to wind are anticipated as a result of demolition of the two industrial buildings on the southeast corner of 64th Street and Christie Avenue, or site preparation, grading, construction of the three, single-story retail pads and 8-story 64th and Christie buildings.

Demolition of the two industrial buildings on the project site would have a minor effect on winds near the site. The demolition of these two structures would eliminate some wind shelter provided for pedestrian areas along 64th Street and Christie Avenue, and the pedestrian loading/unloading area in front of the UA Theater. These changes would not greatly accelerate existing winds and, therefore, would result in a less-than-significant impact from wind. The construction phase of the proposed project, which would include activities such as grading, installation of building foundations, and the movement of heavy machinery on-site would not result in wind impacts.

The proposed, 8-story 64th & Christie building would only be partially exposed to wind due to the presence of existing structures on the north and west. The proposed massing of this building provides a complex shape with multiple set-backs and cut-outs. As articulated, this building's mass would not have the potential to significantly adversely affect or accelerate wind or comfort for pedestrians. Construction of this building would reduce wind strengths near the UA Cinema to the east, but would not have any affect on winds near the Marketplace Tower or Public Market buildings.

Three, single-story retail pad buildings would be developed as part of the project. These buildings are expected to a maximum of 25 feet in height and would be constructed in close proximity to existing buildings. Retail Pad 1, located in the southern portion of the site, would be oriented along a north/south axis. Retail Pad 2, in the northern portion of the site, would be oriented along a west/east axis. Retail Pad 3, located on the eastern portion of the project site, would be oriented along a north/south axis. These single-story buildings have insufficient mass to increase wind velocity in the project site. Retail Pads 1 and 3 would be oriented such that it could intercept westerly winds; however, the

building would not extend in height above other surrounding structures and would not be of adequate mass to substantially increase local winds.

d. Significant Impacts. Two mixed use buildings ranging from 90 to 95 feet would be constructed within the project site. These structures, due to their exposure, massing, and orientation, have the potential to substantially increase ground-level winds if not designed with adequate articulation or landscaping.

Impact WIND-1: The proposed massing and shape of the Shellmound building could create accelerated wind areas in roof deck terraces and within the fourth floor pedestrian crossing connection with the Amtrak bridge that could substantially affect pedestrian comfort. (S)

The 9-story, 95-foot tall mid-rise Shellmound building would generally be exposed to prevailing winds because buildings located immediately west of the site are relatively low rising. The proposed massing and shape for this building includes complex geometry with multiple set-backs and cut-outs that make it unlikely to create wind accelerations within sidewalk areas near the site. However, the two features of the massing and shape may adversely influence pedestrian comfort within the site itself.

Stepping back the upper floor condominiums above the lower level parking structure and groundfloor retail uses ensures that any wind accelerations generated by the upper floor tower elements of this building do not affect ground level pedestrian comfort. However, this massing and building shape places these wind accelerations along the roof of the low rise structure in areas identified as landscaped terraces. Landscaped terraces at the northwest and southwest corners of the condominium tower would be affected.

The east-west fourth floor passageway going through the building will act as a "breezeway" under prevailing westerly winds, connecting an area of decreased atmospheric pressure on the east side of the building with an area of increased atmospheric pressure on the west side of the structure, resulting in accelerated winds through this area that would affect the pedestrian comfort.

Implementation of the following two-part mitigation measure would reduce this impact to a less-than-significant level.

> Mitigation Measure WIND-1a: Final design of the roof deck open space terraces on the Shellmound building shall be heavily landscaped to reduce wind and improve usability and shall incorporate porous materials or structures (e.g., vegetation, hedges, screens, latticework, perforated or expanded metal) which offer superior wind shelter compared to solid surfaces. Outdoor furnishings, such as tables, shall either be either weighted or attached to the deck.
>
> Mitigation Measure WIND-1b: Scale model wind tunnel or computerized computational fluid dynamics testing shall be conducted to determine how strong winds will be through the fourth floor breezeway between the Amtrak pedestrian bridge to the west side of the building. If winds through the breezeway exceed 36 mph, the breezeways design shall be altered to reduce wind speeds below this threshold. Alternatively, to avoid testing, the design of the breezeway could be altered with the addition of glazing at the west side opening. Testing or design modifications would reduce this impact to a less-than-significant level. (LTS)

M. SHADE AND SHADOW

This section evaluates the effects of the proposed project on shade and shadow in the vicinity of the project site. This analysis is based on shadow pattern simulations prepared for the proposed project. The simulations were prepared based on the project's maximum development envelope (i.e., the largest and tallest components of each of the five proposed buildings). Shadow pattern simulations were prepared for the following dates: June 21 (the summer solstice, when the sun is at its highest point in the sky); December 21 (the winter solstice, when the sun is at the lowest point in the sky); and March 21 and September 21 (the spring and fall equinoxes, respectively, when day and night are of approximately equal length). Simulations were prepared for four times during each day: 10:00 a.m.; 12:00 p.m. (noon); 2:00 p.m; and 4:00 p.m. These simulations are shown in Figures V.M-1 through V.M-16.

Buildings within and around the project site benefit from direct sunlight. However, no photovoltaic (PV) cells were observed on these buildings during visits to the site or on aerial photos. One public park (i.e., Christie Park) is located in the vicinity of the project site, as described in Chapter III, Project Description, located directly south of proposed Retail Pad 2.

1. Setting

The following discussion describes existing shadow conditions within and around the project site on the four dates for which shadow pattern simulations were prepared (described below). The shadow simulations assume sunny conditions, and do not assume overcast or foggy conditions that would not result in the creation of shadows, which are common during the summer months in Emeryville and during the winter.

As shown in Figures V.M-1 through V.M-16, existing shadows in the project area generally cast to the northwest in the morning (10:00 a.m.), to the north in early afternoon (noon), to the northeast in the early afternoon (2:00 p.m.), and to the east-northeast in the late afternoon (4:00 p.m.).

Existing shadow generation within and around the project site is generally limited due to the physically separated nature of most buildings by the large surface parking areas. Four buildings in particular, however, currently cast extensive shadows over the project site due to their mid- and high-rise nature, including the Marketplace Tower (8 stories), Terraces condominiums (8 stories), Woodfin Hotel (12 stories), and Pacific Park Plaza (30 stories). Shadows generated by these four primary buildings extend across the UPRR tracks, Shellmound Street, Christie Avenue, and 64th Street during various times of the year. Shadows cast by the Pacific Park Plaza tower, in particular, extend north over the underconstruction Avenue 64 apartment (formerly Pinnacles) building.

- *June 21*. June 21 is the summer solstice, the longest day of the year when the sun is at its highest position in the sky. On this day, shadows cast by buildings within and around the project site are minimal and generally confined to the project site for most of the day. In the morning (10:00 a.m.), noon, and early afternoon (2:00 p.m.) hours, shadows from existing buildings within the project site are minor and confined to the areas directly adjacent to the buildings. Similarly, shadows from adjacent buildings are minimal and do not cross onto the project site.

  During the late-afternoon hours, shadows within and around the site extend directly east and are the most extensive for the summer solstice. The Marketplace Tower shadow extends east to Shellmound Street, but does not cross the UPRR tracks. Because shadows extend directly

east, the shadow created from the Woodfin Hotel does not cross onto the project site, but does extend east over the UPRR tracks. The Pacific Park Plaza tower shadow extends east across Christie Avenue, over the majority of Christie Park and a small portion of surface parking area (north of the park).

- *December 21*. December 21 is winter solstice, the shortest day of the year when the sun is at its lowest position in the sky. On this day, shadows from the four primary mid- and high-rise buildings on and around the project site are prominent within and around the project site during the morning (10:00 a.m.) and early afternoon (2:00 p.m.). In the late afternoon (4:00 p.m.) hours, extensive shadows cast in a northeast direction by all low-, mid-, and high-rise buildings within and around the project site are widespread, providing few public sunlit exposed areas.

  During the morning and mid-afternoon hours, shadows from existing buildings, within or directly adjacent to the project site, extend into the interior of the site, over portions of Shellmound Street and the outdoor seating area at the southern end of the Public Market building, the 64th Street and Christie Avenue intersection, and into the surface parking areas north of the Woodfin Hotel and Marketplace Tower building.

  In the late-afternoon hours, existing shadows cast by all buildings within and around the project site are their most extensive for the year, as depicted in Figure V.M-16. The shadow cast by the Marketplace tower extends northwest across the UPRR tracks and onto Overland Avenue and 62nd Street, east of the tracks. The shadow cast by the Pacific Park Plaza building extends northwest across the Pinnacles building, the two industrial buildings (southeast corner of 64th and Christie), the UA Theater, 64th Street, portions of the Emery Bay Apartments, Shellmound Street, the UPRR tracks, and beyond, northeast of UPRR tracks. The Amtrak pedestrian overcrossing is generally not affected by shadows generated by buildings within or around the project site.

- *March 21/September 21*. March 21 and September 21 are the spring and fall equinoxes, respectively. On these two days, the length and direction of sun light is generally equal. As a result, shadows generated by buildings within and around to the project site are similar on both of these days. During these times, shadows are generally constrained to the areas adjacent to the buildings. Shadows are minimal within and adjacent to the site in the morning (10:00 a.m.), at noon, and in the early afternoon (2:00 p.m.). Shadows cast by the existing mid- and high-rise buildings are also generally confined to areas directly adjacent to these buildings.

  In the late-afternoon (4:00 p.m.), shadows cast by all buildings increase, extending in an east-northeast direction. Shadows cast by the Marketplace Tower and Woodfin Hotel extend over surface parking areas and cross the UPRR tracks to the east. The shadow cast by the Pacific Park Plaza tower extends across Christie Avenue, the northern portion of Christie Park, and surface parking areas.

2. Impacts and Mitigation Measures

This subsection analyzes impacts related to land use that could result from implementation of the proposed project. An assessment of potential shade and shadow impacts is provided and mitigation measures are recommended, as appropriate.

a. Criteria of Significance. The proposed project would have a significant shade and shadow impact if it would:

- Cast shadow that substantially impairs the beneficial use of any public or quasi-public park, lawn, garden, or open space.
- Introduce landscape that would now or in the future cast shadow on existing solar collectors in conflict with California Public Resource Code Section 25980-25986.
- Cast shadow that substantially impairs the function of a building using passive solar heat collection, solar collectors for hot water heating, or photovoltaic solar collectors.

These criteria are derived from the State Public Resources Code, CEQA Guidelines, and best practice standards. Similar criteria are used in adjacent municipalities to evaluate the effects of development projects on shade and shadow.

b. Less-than-Significant Shade and Shadow Impacts. The following discussion describes the less-than-significant shade and shadow impacts that could result from development of the proposed project.

(1) New Shadows Generated by the Proposed Project. Development of the proposed project would result in the addition of two new, mid-rise buildings that are of a comparable size as those within and adjacent to the project site. Additionally, the project would result in the development of three, single-story retail pad buildings. As depicted in Figures V.M-1 through V.M-16, these five proposed buildings would cast new shadows on buildings, streets, railroad tracks, and parking areas within and adjacent to the project site.

In the early and late afternoon hours on June 21, summer solstice, new shadows would be cast on 64th Street and the UPRR tracks, surface parking areas east of the proposed 64th & Christie building and Retail Pad 2, as well as the sidewalk and street area directly east of Retail Pads 1 and 3.

Shadows created by the proposed project on December 21, winter solstice, would be the most extensive that could occur as a result its development. Because the existing shadow condition within and around the project site on this day is already significant, new shadows created by the project would minimally contribute to the existing shadow condition on this day and, as a result, would not be considered significant. New morning (10:00 a.m.) shadows would extend northwestward across 64th Street, Christie Avenue, Shellmound Street, and surface parking areas. By noon, new shadows would move to the north of the 64th & Christie building, crossing 64th Street, and north of the Shellmound building crossing Shellmound Street. By mid-afternoon (2:00 p.m.), shadows would move northeastward, still extending over 64th Street, surface parking areas, and the UPRR tracks. By late afternoon (4:00 p.m.), shadows would continue to move in a clockwise direction toward the east-northeast, extending over a small area on 64th Street currently not in shadow, and across the UPRR tracks over the pedestrian overcrossing and Amtrak station. Throughout this day, portions of the Amtrak pedestrian overcrossing, the new plaza in front (west) of the Shellmound building, and the outdoor seating area south of Public Market building would be shaded.

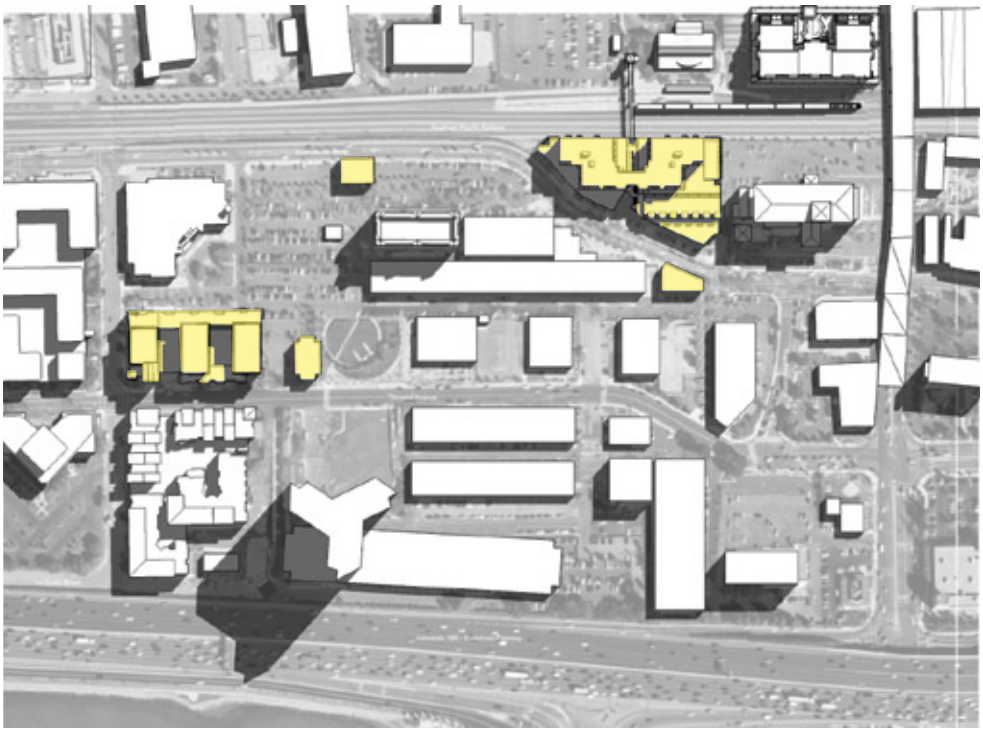
(2) Parks and Open Space. New shadows created by the proposed project would not substantially impair the beneficial use of any public park or open space area. The public park (i.e., Christie Park) located south of proposed Retail Pad 2 would not be subject to shadows cast by the proposed project. The existing outdoor seating area south of the Public Market buildings and the new plaza in front (west) of the proposed Shellmound building would, however, be subject to shadows

created by the project. These areas, however, are only temporarily shaded by shadows cast by the proposed project. The most extreme shade situation for these two public spaces, as described, is on December 21 (winter solstice), when the majority of the project site is already shaded by existing shadows. These two public spaces would be mostly shade-free during the majority of the year, including most summer afternoons when outdoor public spaces are used more frequently. As a result, the proposed project would not impair the beneficial use of Christie Park or these two public spaces.

(3) Solar Collectors and Photovoltaic Cells. No solar collectors or photovoltaic (PV) cells that would be substantially affected by shadows resulting from buildings or landscaping proposed as part of the project were identified from a drive-through survey of the project site vicinity and an inspection of aerial photos. As a result, the proposed project would not affect solar collectors or PV cells.

b. Significant Shade and Shadow Impacts. Development of the proposed project would not result in any significant shade or shadow-related impacts.

Existing Condition



Proposed Project

LSA

FIGURE V.M-1

PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
March 21, 10:00 am

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM1.ai (1/11/07)

Existing Condition

Proposed Project

LSA

FIGURE V.M-2

PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
March 21, 12:00 pm

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM2.ai (1/11/07)

Existing Condition

Proposed Project

LSA

FIGURE V.M-3

PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
March 21, 2:00 pm

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM3.ai (1/11/07)

Existing Condition

Proposed Project

LSA

FIGURE V.M-4

N

PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
March 21, 4:00 pm

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM4.ai (1/11/07)

Existing Condition

Proposed Project

LSA

FIGURE V.M-5

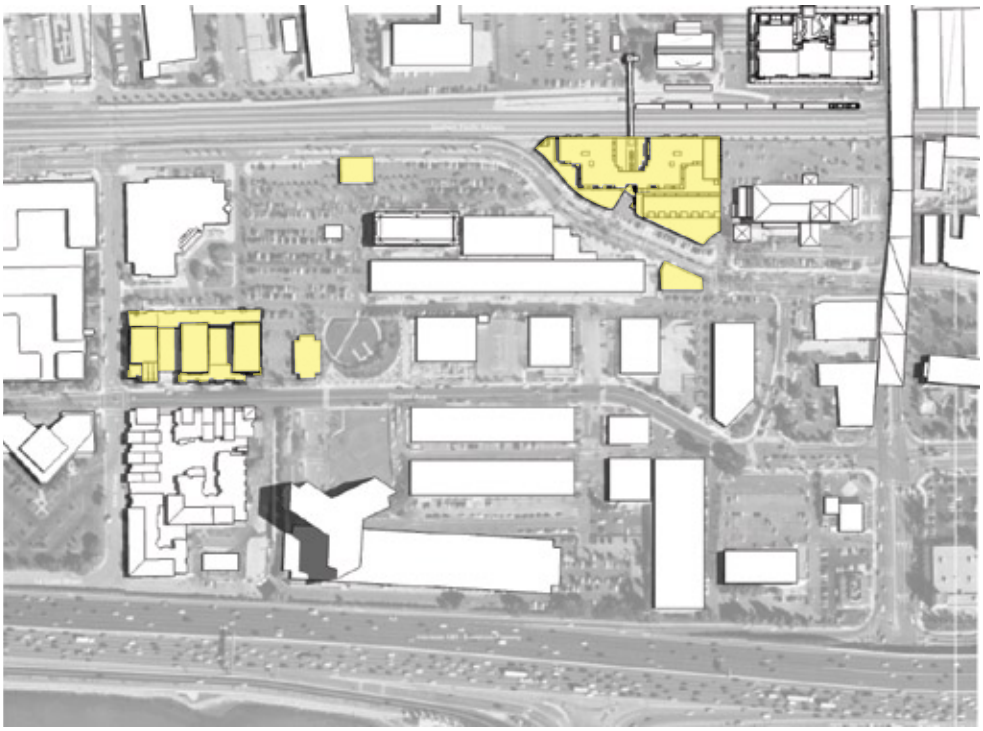
PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
June 21, 10:00 am

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM5.ai (1/11/07)

Existing Condition



Proposed Project

LSA

FIGURE V.M-6

N

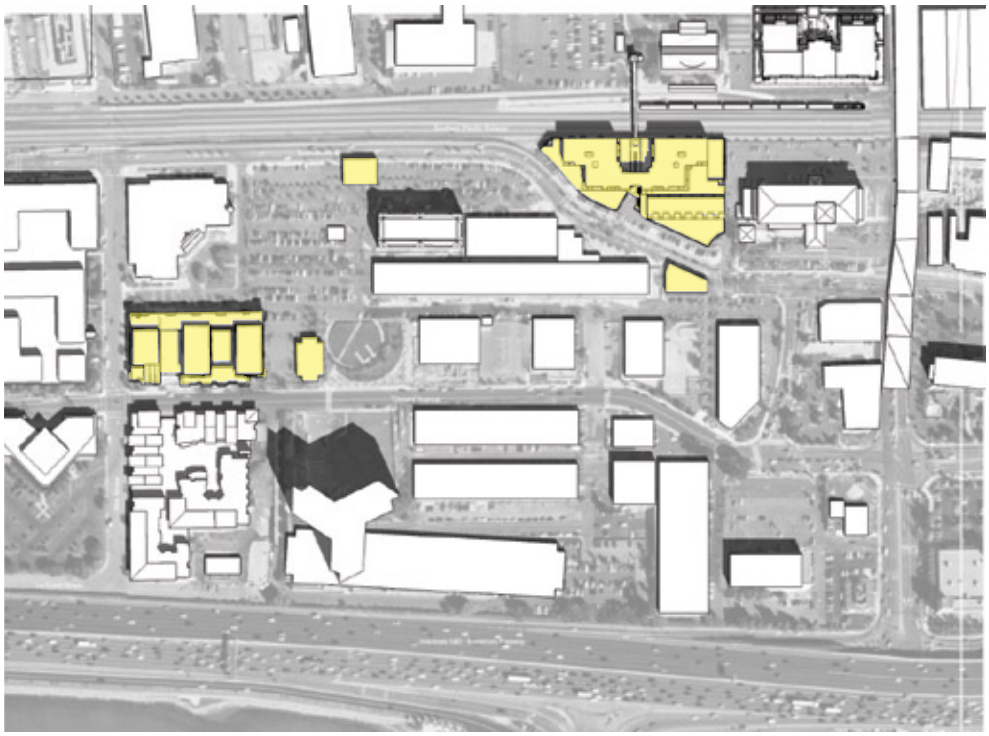
PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
June 21, 12:00 pm

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM6.ai (1/11/07)

Existing Condition



Proposed Project

LSA

FIGURE V.M-7

N

PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
June 21, 2:00 pm

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM7.ai (08/24/06)

Existing Condition

Proposed Project

LSA

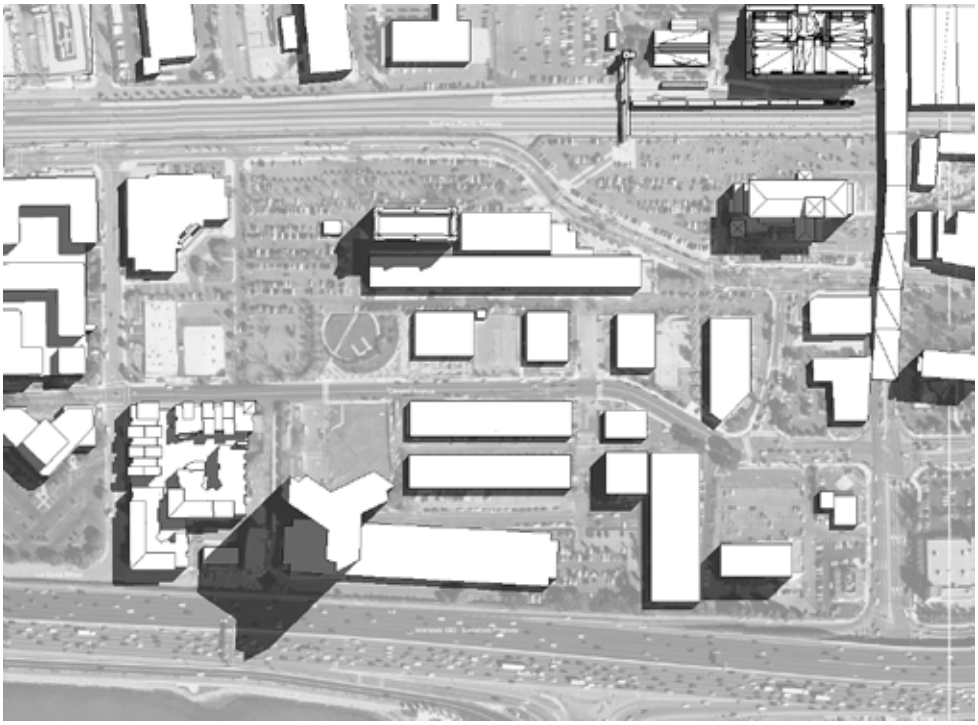
FIGURE V.M-8

PROPOSED BUILDINGS

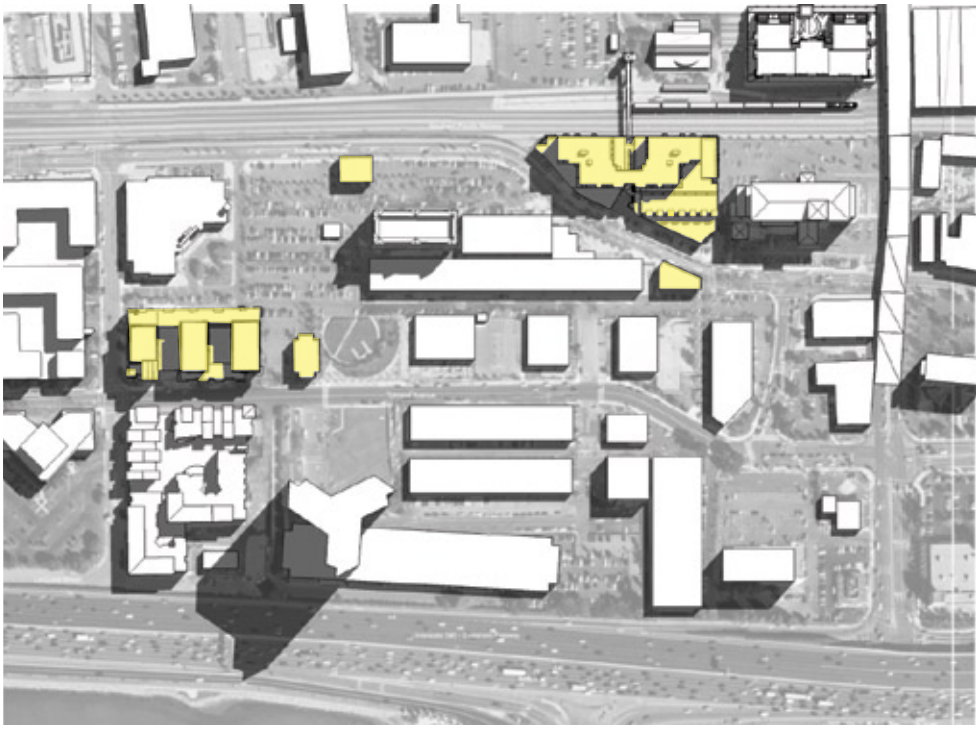
Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
June 21, 4:00 pm

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM8.ai (1/11/07)



Existing Condition



Proposed Project

LSA

FIGURE V.M-9

N

PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
September 21, 10:00 am

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM9.ai (1/11/07)

Existing Condition

Proposed Project

LSA

FIGURE V.M-10

PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
September 21, 12:00 pm

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM10.ai (1/11/07)

Existing Condition

Proposed Project

LSA

FIGURE V.M-11

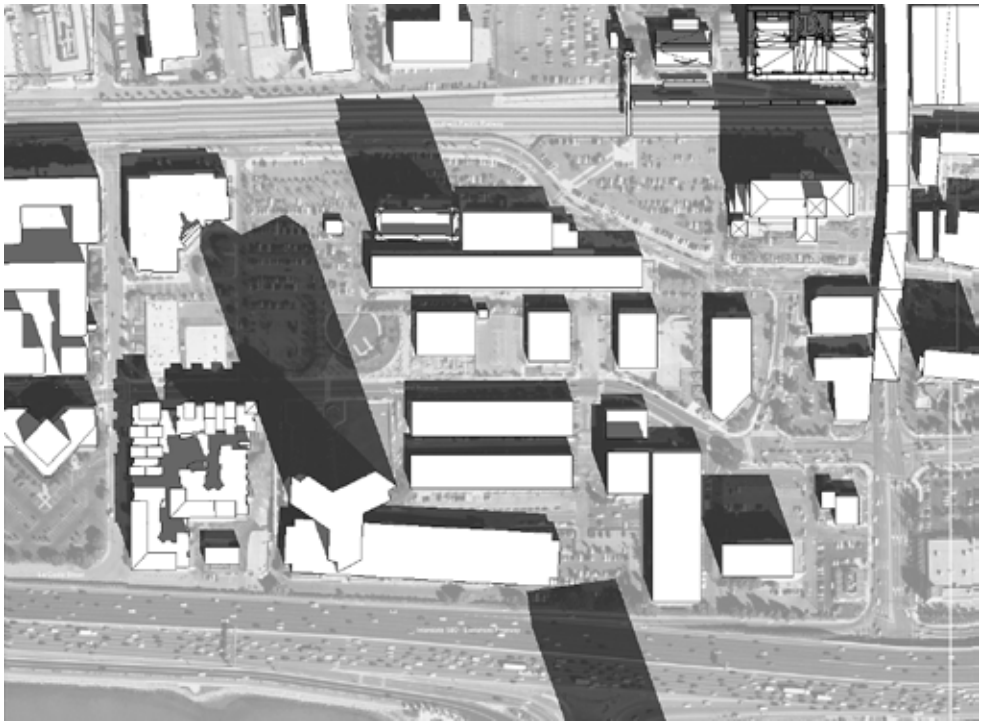
N

PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
September 21, 2:00 pm

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM11.ai (1/11/07)



Existing Condition

Proposed Project

LSA

FIGURE V.M-12

N

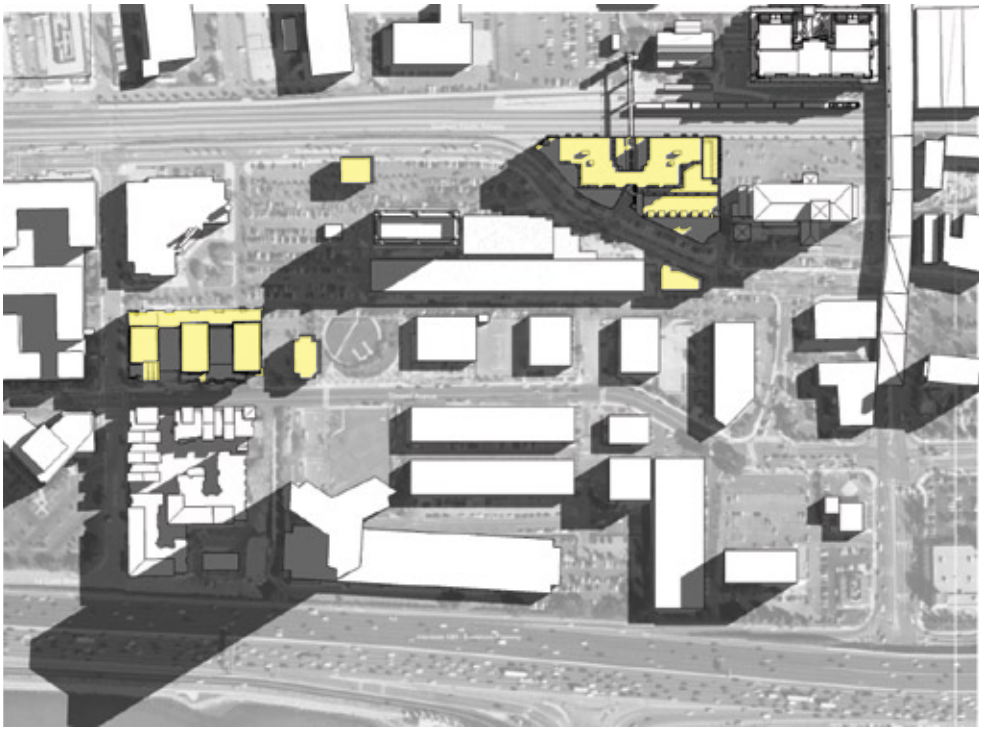
PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
September 21, 4:00 pm

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM12.ai (1/11/07)

Existing Condition



Proposed Project

LSA

FIGURE V.M-13

N

PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
December 21, 10:00 am

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM13.ai (1/11/07)

Existing Condition

Proposed Project

LSA

FIGURE V.M-14

N

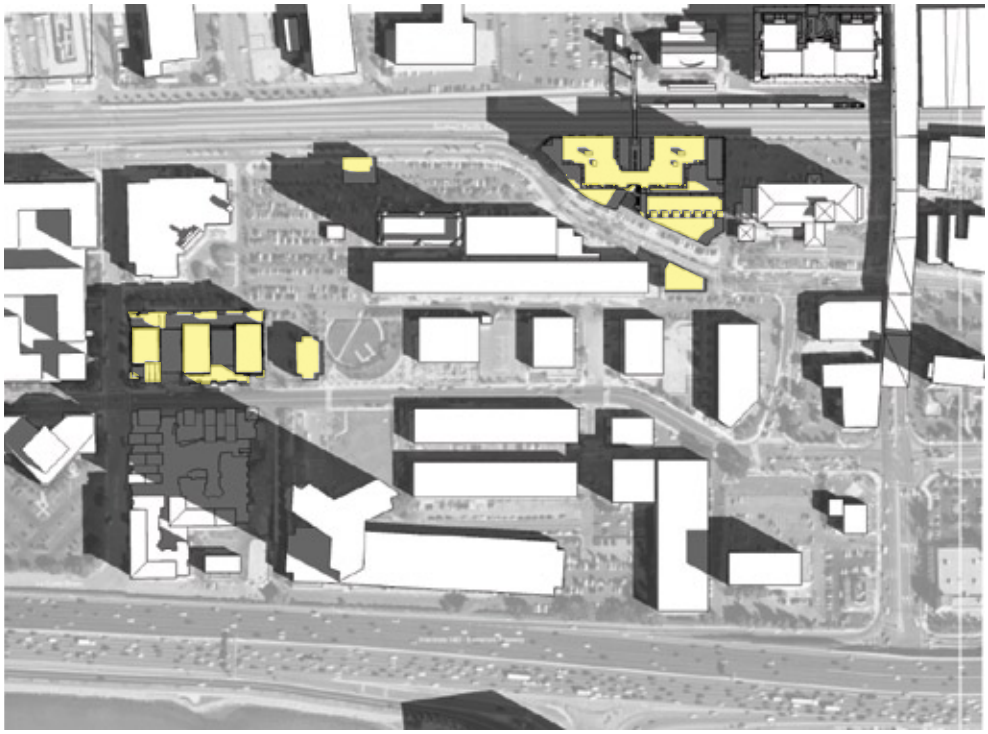
PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
December 21, 12:00 pm

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM14.ai (1/11/07)

Existing Condition



Proposed Project

LSA

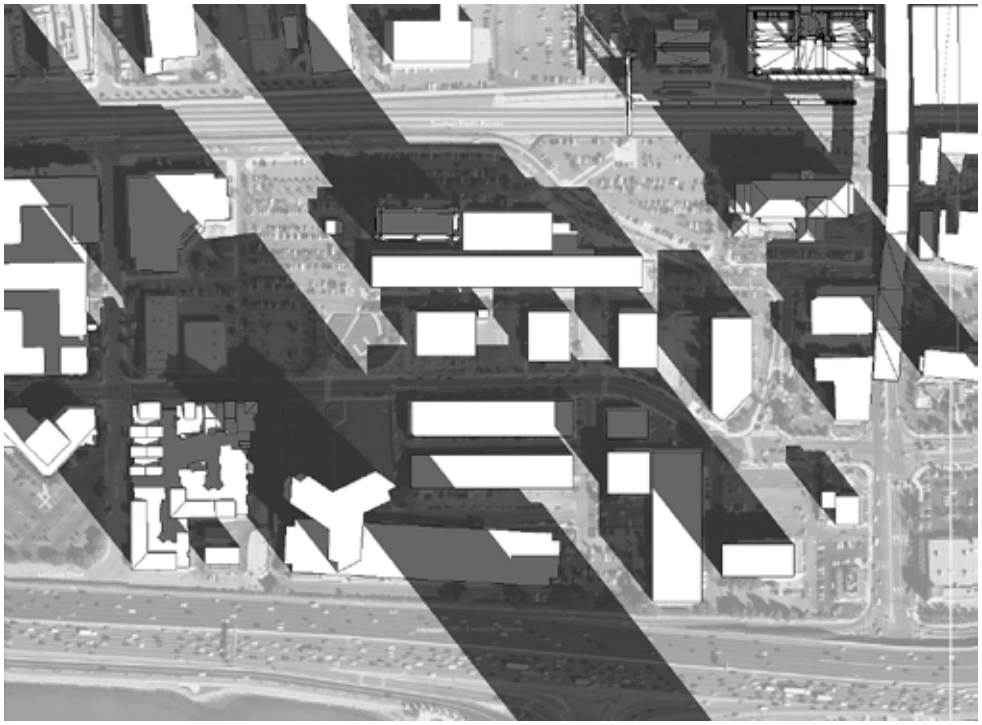
FIGURE V.M-15

PROPOSED BUILDINGS

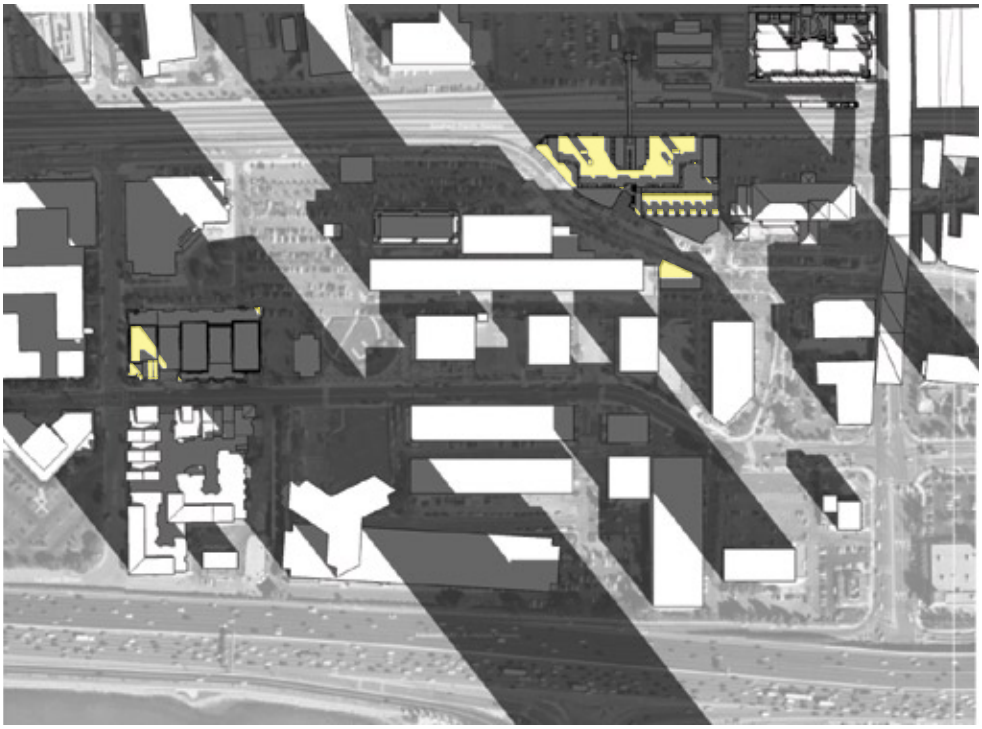
Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
December 21, 2:00 pm

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM15.ai (1/11/07)



Existing Condition



Proposed Project

LSA

FIGURE V.M-16

N

PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR
Shadow Patterns:
Existing Condition and Proposed Project
December 21, 4:00 pm

SOURCE: HELLER & MANUS ARCHITECTS, 2006

I:/CEM531 marketplace/figures/Fig_VM16.ai (1/11/07)

VI. ALTERNATIVES

The *CEQA Guidelines* require the analysis of a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the project's basic objectives and avoid or substantially lessen any of the significant effects of the project. The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.[1] An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation.

The primary purpose of this chapter is to ascertain whether there are alternatives of design, scale, land use, or location that would substantially lessen the project's significant project impacts, even if those alternatives "impede to some degree the attainment of project objectives, or would be more costly."[2] The alternatives considered should be capable of avoiding or substantially lessening one or more of these project impacts.

To determine what range of alternatives should be considered, the impacts identified for the proposed project were considered along with the project objectives. The proposed project and the project objectives are described in detail in Chapter III, Project Description, and the potential environmental effects of implementing the proposed project are analyzed in Chapter V, Settings, Impacts and Mitigation Measures. Impacts are identified in the following areas as potentially significant for the project, but could be reduced to a less-than-significant level with implementation of recommended mitigation measures:

- Transportation, Circulation and Parking;
- Air Quality;
- Noise and Vibration;
- Hazardous Materials/Public Health and Safety
- Geology, Soils and Seismicity;
- Cultural and Paleontological Resources;
- Aesthetic Resources;
- Public Services and Utilities; and
- Wind.

In addition, twelve potentially significant impacts related to traffic (Impacts TRAF-1 through TRAF-7; TRAF-9 through TRAF-11; TRAF-14 and TRAF 16) would not be mitigated to less-than-significant levels. As a result, under the proposed project scenario, these impacts would remain significant and unavoidable.

[1] *CEQA Guidelines*, 2005. Section 15126.6(f).

[2] CEQA Guidelines, 2005. Section 15126.6(b).

Based on the identified project impacts, the project objectives and the alternatives the project applicant had considered, four potentially feasible alternatives were determined to represent a reasonable range of alternatives to the proposed project. Under some circumstances, as with this EIR, in addition to considering alternatives that lessen the significant project impacts, alternatives are analyzed that achieve City and/or project applicant goals for the site that may result in similar or more severe environmental impacts, but address an objective outside of CEQA (i.e., community interest, economics). Two of the four alternatives analyzed below, the Tower and Main Street Alternatives, are considered for purposes outside of CEQA.

In some cases, the alternatives analysis in an EIR for a project like the Marketplace Redevelopment project may consider an off-site alternative location that would be of comparable size to allow a direct comparison of the proposed project site to the alternative site in terms of project impacts. In Emeryville, however, there are no other sites of comparable size that are assembled and would accommodate the proposed development. Further, because the proposed project involves redevelopment, infilling, and intensifying land uses on the Marketplace site itself, studying an off-site alternative would fail to achieve any of the proposed project's objectives, as described below.

The four alternatives to the proposed project discussed in this chapter include the following:

- The **No Project alternative** assumes the continuation of existing conditions within the 15-acre project site. The six on-site buildings that support a mix of land uses would remain, including 255,000 square feet of commercial space and 26,000 square feet of industrial space. The No Project alternative would not result in any new development at the site.
- The **Reduced Footprint alternative** assumes the 15-acre project site would be redeveloped similar to the proposed project, but with a reduced building footprint. On the Shellmound site, only the northern half would be developed by constructing a 15-story, 175-foot tall office tower building with ground floor retail. A 6-story, 55-foot tall mixed use residential and retail building would be built on the 64th & Christie site. The three retail pads as proposed by the project would be built and a fourth retail pad would be added near the Woodfin Hotel. Some minor site improvements and enhancements would also occur. In total, the Reduced Footprint alternative, compared to the proposed project, would provide an additional 157,000 square feet of office space, 200 fewer dwelling units, and 41,500 square feet less retail/restaurant space.
- The **Tower alternative** assumes the 15-acre project site would be redeveloped with a more intensive development scenario than the proposed project, including two, mixed use (residential, retail, and parking) high-rise tower buildings. This alternative assumes development on the Shellmound site would occur in two phases rather than one as with the proposed project. Phase I would add retail space to the southern portion of the site. Phase II would construct an 18-story tower on the northern portion of the site with retail space on ground level and multi-family dwelling units on upper floors. The 64th & Christie site would be developed concurrently with Phase I of the Shellmound site and would include an 18-story, 175-foot tall tower with retail space and multi-family dwelling units. The three retail pads as proposed by the project would be built and a fourth retail pad would be added near the Woodfin Hotel. Site improvements and enhancement similar to the project would occur. In total, the Tower alternative, compared to the proposed project, would provide an additional 172,370 square feet of retail/restaurant space, 48 more dwelling units, and 40,000 fewer square feet of entertainment space (i.e., due to removal of UA Cinema).

- The **Main Street alternative** assumes the project site would be substantially redeveloped. All surface level parking would be removed; Shellmound Street would be realigned in front of the Marketplace Tower and Public Market buildings; two new streets would be added through the site with on-street parking (i.e., 63rd and 62nd Streets); Christie Park would be shifted northward along Christie Avenue; and seven new buildings would be constructed, including:
  - One 24-story, 240-foot tall residential tower with retail space and structured parking in the low rise portion of the building;
  - One mixed use building with a 19-story, 240-foot tall office tower and a 14-story, 175-foot tall office tower connected by low-rise retail space and structured parking;
  - Low-rise and mid-rise residential buildings with retail space and structured parking; and
  - Three retail buildings, including one with structured parking.

With the realignment of Shellmound Street and addition of two new streets through the site, site improvements and enhancements would be greater under this alternative compared to the project. In total, the Main Street alternative compared to the proposed project would provide 48 more dwelling units, an additional 134,500 square feet of retail/restaurant space, 415,000 square feet additional office space, and 40,000 fewer square feet of entertainment space (i.e., due to the removal of the UA Cinema).

The project applicant's objectives for the proposed project are repeated below for ease of reference. The primary objective of the project is to revitalize and redevelop the Marketplace area to create a vertical mixed use neighborhood that embodies the principals of smart growth and transit-oriented development and results in an improved pedestrian environment and livable streetscape. Other objectives include:

1. Add residents to this existing mixed use neighborhood to add life, vitality and improve the pedestrian experience.
2. Improve and modify the Marketplace site to create a lively transit-oriented mixed use neighborhood with attractive and safe pedestrian pathways.
3. Propose buildings situated to create walking destinations throughout the Marketplace site with attractive architecture that respects the pedestrian experience and surrounding architectural context while adding the residential density necessary to create a lively neighborhood.
4. Improve the site landscape and circulation plan by attractively landscaping new building edges, adding street trees, new plazas, attractive hardscape and clarifying pedestrian routes through the site.
5. Direct people traveling through the site to common walk-ways to increase the vitality of pedestrian space.
6. Promote smart growth, environmentally sensitive and green design concepts.

Following is a discussion and analysis of each alternative, including anticipated environmental impacts. The principal characteristics of the proposed project and project alternatives are summarized in Table VI-1. The emphasis of the analysis is on comparing the anticipated impacts of each alternative to the impacts associated with the proposed project. The discussion includes a deter-

mination as to whether or not each alternative would reduce, eliminate, or create new significant impacts. A discussion of the environmentally superior alternative is also provided.

A. NO PROJECT ALTERNATIVE

Section 15126(d)(4) of the *CEQA Guidelines* states: "The no project analysis shall discuss existing conditions, as well as what could be reasonably expected to occur in the foreseeable future if the project was not approved…" The following discussion describes and analyzes the No Project alternative.

1. Principal Characteristics

Under the No Project alternative, the 15-acre project site would not be redeveloped. The six buildings and current mix of uses would remain including: the 10-screen movie theater; ground-floor retail and service commercial uses; upper-floor office, medical and technical school uses; light industrial buildings; and surface-level parking areas. The Master Use Permit currently governing land uses on the site would remain in effect. No new development would occur.

Figure VI-1 depicts the existing site plan for the project site. Table VI-2 compares the No Project alternative to the proposed project. As indicated in the table, the No Project alternative would not provide any dwelling units or the 77,000 square feet of additional retail/restaurant space proposed by the project. The two, single-story light industrial buildings on the corner of 64th Street and Christie Avenue with 26,000 square feet of interior space would also remain.

Table VI-2: No Project Development Scenario Compared to the Proposed Project

		Proposed Project		No Project Alternative		Difference
Use	**Existing**	**Proposed Project**	**Project + Existing**	**No Project**	**No Project + Existing**	**Alternative to Project**
Multi-Family (units)	0	340	340	0	0	-340
Retail/Restaurant (SqFt)	94,665	77,000	171,665	0	94,665	-77,000
Office (SqFt)	121,260	0	121,260	0	121,260	0
Entertainment (SqFt)	40,000	0	40,000	0	40,000	0
Industrial (SqFt)	26,000	-26,000	0	0	26,000	26,000

Source: LSA Associates, 2007.

In addition, the No Project alternative would not provide any of the on- and off-site improvements proposed by the project. Most notably, the No Project alternative would *not*:

- Improve the Amtrak pedestrian overcrossing by enclosing the western tower into a mid-rise building, which would provide 24-hour security to pedestrians and eliminate the need for pedestrians to cross the parking area to reach the Public Market;
- Create a new plaza between the Amtrak overcrossing and the Public Market, which would provide a focal connection point between the two sides of the street, including a widened pedestrian area across Shellmound Street to improve crossing ease and safety;

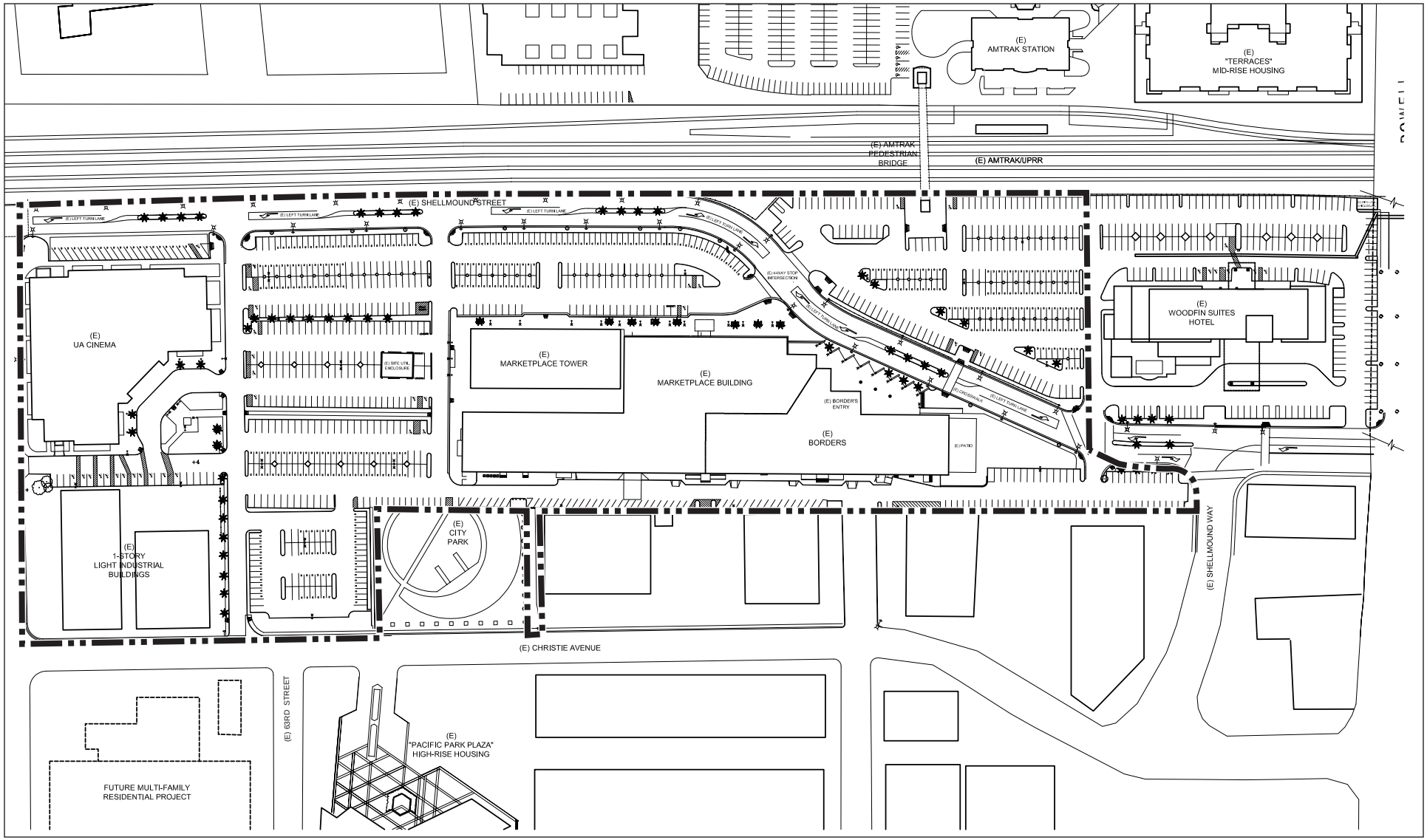
TableVI-1: Summary of Characteristics of Proposed Project and Project Alternatives

	Proposed Project		No Project Alternative		Reduced Alternative		Tower Alternative		Main Street Alternative	
		Height in feet		Height in feet		Height in feet		Height in feet		Height in feet
Buildings and Height in feet (see color key at end of table)	2 Public Market Buildings	25 to 45	2 Public Market Buildings	25 to 45	2 Public Market Buildings	25 to 45	2 Public Market Buildings	25 to 45	2 Public Market Buildings	25 to 45
	Marketplace Office Tower	90	Marketplace Office Tower	90	Marketplace Office Tower	90	Marketplace Office Tower	90	Marketplace Office Tower	90
	UA Theater	40	UA Theater	40	UA Theater	40	UA Theater	40	UA Theater	40
	2 Industrial Buildings	30	2 Industrial Buildings	30	2 Industrial Buildings	30	2 Industrial Buildings	30	2 Industrial Buildings	30
	Shellmound Building	95			Shellmound Tower Building	175	Shellmound Tower Building	175	Shellmound Office Tower 1	175
	64th & Christie Building	90			64th & Christie Building	55	64th & Christie Tower Building	175	Shellmound Office Tower 2	240
	Retail Pad 1	25			Retail Pad 1	25	Retail Pad 1	25	64th & Christie Tower Building	90
	Retail Pad 2	25			Retail Pad 2	25	Retail Pad 2	25	New Mixed Use Building	50
	Retail Pad 3	25			Retail Pad 3	25	Retail Pad 3	25	Christie Park Retail/Restaurant Pad 1	25
					Retail Pad 4	25	Retail Pad 4	25	Themed Retail	25
							UA Replacement Building	60	UA Cinema Site Residential Tower	240
									UA Cinema Site Retail Building	60
Residential Units	340		0		140		388		388	
Non-residential Uses (in square feet)										
Retail/Restaurant	171,665		94,665		128,265		344,035		304,165	
Office	121,260		121,260		278,260		121,260		536,260	
Entertainment	40,000		40,000		40,000		0		0	
Industrial	0		26,000		0		0		0	
Additional Impacts with Level of Significance after Mitigation			None		2 Transportation impacts (LTS)		7 Transportation impacts (LTS) 2 Transportation impacts (PSU) 1 Air Quality impact (SU) 1 Wind impact (LTS)		7 Transportation impacts (LTS) 3 Transportation impacts (PSU) 1 Air Quality impact (SU) 1 Hazardous Materials/Public Health and Safety impact (LTS) 3 Public Service impacts (LTS) 1 Wind impact (LTS) 1 Shade impact (SU)	

Buildings to be Retained

Buildings to be Demolished

Buildings to be Constructed



LSA

FIGURE VI-1

LEGEND

PROJECT SITE

(E) EXISTING

0 120 240

FEET

Marketplace Redevelopment Project EIR

Master Site Plan

No Project Alternative

SOURCE: HELLER·MANUS ARCHITECTS, 2006.

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- Add a public transit bus lay-over and passenger and truck loading area along Shellmound Street, adjacent to the Public Market and near to the Amtrak pedestrian bridge, thereby centralizing and concentrating transit services on the site;
- Remove an underutilized parking area north of Christie Park, and open up the park's northern edge to improve visibility into the park, resulting in a more comfortable, safer space for local residents and site patrons;
- Provide pedestrian safety improvements to the corner of 64th Street and Christie Avenue, including narrowing the roadway with bulb outs to slow vehicular traffic and realigning the northern driveway and on-site drive aisle with the driveway west of Christie Street to provide access to the Pacific Park Plaza high-rise building and Avenue 64 apartments (under construction), which would allow for installation of a four-way stop sign and the subsequent effects of slower vehicular traffic and improved pedestrian safety and ease of crossing; and
- Enhance vehicular and pedestrian visual connections and access to the movie theater with the construction of an additional pedestrian walkway across the parking area, a larger drop-off zone, and additional parking directly adjacent to the theater.

Project Objectives. The No Project alternative would *not* achieve any of the six objectives of the proposed project as listed at the beginning of this Chapter.

2. Analysis of the No Project Alternative

The No Project alternative would not involve any site demolition or construction and thus would not create short-term construction-related impacts. The No Project alternative would avoid the significant traffic, air quality, noise and vibration, hazardous materials and public health and safety, geology, hydrology, cultural, aesthetic, public services and utilities, and wind impacts associated with the proposed project. However, the No Project alternative would not achieve any of the objectives of the proposed project. The potential impacts of the No Project alternative are described below.

a. Land Use. Under the No Project alternative, the existing mixed, retail/restaurant, service commercial, entertainment, office, and light industrial uses on the site would remain, all of which are compatible with the surrounding mix of uses on adjacent properties. Similarly, the existing number and configuration of the underutilized surface-level parking areas would remain. No improvements to on-site vehicular and pedestrian circulation would be provided. The alternative would not provide the increase in pedestrian safety associated with enclosing the western tower of the Amtrak overcrossing. Consistent with the proposed project, no new roadways would be constructed under this alternative. No land use conflicts would result from this alternative, consistent with the proposed project. However, the pedestrian and vehicular improvements provided by the proposed project would be lacking under the No Project alternative.

b. Population, Employment and Housing. The No Project alternative would not add any dwelling units, including set-aside affordable units, to the project site or increase the City's resident population or number of jobs because no additional retail/restaurant space would be added. Emeryville General Plan Land Use Policy 12 and Housing Policies II-C-1 and II-C-2 encourage large mixed use sites to incorporate residential development, as proposed by the project. As described in Chapter V.B, Population, Employment and Housing, Emeryville provides more jobs than dwelling units, making its jobs-to-employed resident ratio out of balance. The 340 dwelling units added by the

proposed project would improve the City's jobs-to-employed-residents ratio by adding more residents (approximately 578 residents) than jobs (approximately 155 jobs). The No Project alternative would not provide housing needed to support the City's job force and improve its jobs-to-employed residents-ratio.

c. Transportation, Circulation, and Parking. The No Project alternative would not cause an increase in traffic. As a result, no impacts related to transportation and circulation would result from implementation of the No Project alternative. Impacts related to vehicular traffic, circulation and parking would be essentially the same as the Existing, 2010, and 2030 conditions evaluated in Section V.C, Transportation, Circulation, and Parking. Pedestrian circulation to and through the project site would also remain as currently exists. Table VI-3 compares the trip generation of the No Project alternative to that of the proposed project. Table VI-4 provides a comparison of the proposed project's Level of Service (LOS) impact on intersections in the project vicinity to LOS impacts of the No Project alternative.

Table VI-3: No Project Peak Hour Trip Generation Compared to Proposed Project

Scenario	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Proposed Project	71	148	**219**	261	198	**459**	298	246	**544**
No Project Alternative	0	0	**0**	0	0	**0**	0	0	**0**
Difference: Alternative to Project	-71	-178	**-219**	-261	-198	**-459**	-298	-246	**-544**

Source: Fehr & Peers, 2007.

d. Air Quality. The No Project alternative would not result in construction activity on the project site, nor would it increase the number of vehicle trips above that already experienced at the site. As a result, this alternative would not generate the mobile pollutants caused by the proposed project. Further, the No Project alternative would not substantially increase pollutant or odor concentrations, nor would it generate dust, exhaust and organic emissions associated with construction activities.

e. Noise and Vibration. No construction activity would occur as part of the No Project alternative. As a result, the No Project alternative would not expose surrounding land uses to short-term noise levels during construction that would occur with the proposed project. The No Project alternative would not increase ambient noise, railroad noise, or ground-borne vibration as was anticipated to occur with the proposed project, as discussed in Section V.E(1)(e), Noise and Vibration. Table VI-5 provides the modeled existing, 2010, and 2030 No Project traffic noise levels. Appendix D-2 provides the technical noise modeling output data.

Table VI-4: Proposed Project Intersection Delay and LOS Compared to No Project Alterative for Existing, 2010, and 2030 Conditions

Intersections	Control[1]	Peak Hour	Existing Condition				2010 Condition				2030 Condition			
			Proposed Project		No Project Alternative		Proposed Project		No Project Alternative		Proposed Project		No Project Alternative	
			Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS
2. Ashby Avenue/San Pablo Avenue	Signal	AM	33	C	32	C	33	C	32	C	41	D	40	D
		PM	42	D	40	D	84	F	81	F	***135***	***F***	128	F
4. 65th Street/Shellmound Street	AWSC/ Signal[3]	AM	10	A	9	A	14	B	14	B	13	B	12	B
		PM	***72***	***F***	50	E	25	C	20	B	26	C	25	C
		SAT	***53***	***F***	29	D	23	C	20	B	18	B	17	B
8. 64th Street/Shellmound Street	SSSC	AM	2 (11)	A (B)	1 (10)	A (A)	2 (12)	A (B)	2 (11)	A (B)	2 (13)	A (B)	2 (12)	A (B)
		PM	2 (19)	A (C)	2 (16)	A (C)	2 (21)	A (C)	2 (17)	A (C)	2 (27)	A (D)	2 (20)	A (C)
		SAT	2 (21)	A (C)	1 (16)	A (C)	3 (43)	A (E)	2 (26)	A (D)	8 (127)	A (F)	2 (46)	A (E)
11. I-80 Hook Ramps/Frontage Road	Signal	AM	15	B	15	B	15	B	15	B	16	B	16	B
		PM	38	D	37	D	44	D	42	D	43	D	42	D
		SAT	16	B	16	B	21	C	19	B	20	B	20	B
13. Powell Street/I-80 Eastbound Ramps	Signal	AM	27	C	26	C	30	C	28	C	39	D	37	D
		PM	***83***	***F***	73	E	***114***	***F***	101	F	***115***	***F***	102	F
		SAT	***62***	***E***	56	E	***106***	***F***	93	F	***112***	***F***	101	F
14. Powell Street/Christie Avenue	Signal	AM	28	C	29	C	33	C	33	C	56	E	56	E
		PM	46	D	46	D	86	F	86	F	90	F	90	F
		SAT	45	D	46	D	111	F	108	F	136	F	136	F
16. Powell Street/Hollis Street	Signal	AM	30	C	30	C	38	D	37	D	51	D	51	D
		PM	55	D	51	D	84	F	80	E	***120***	***F***	114	F
		SAT	24	C	24	C	30	C	28	C	50	D	45	D
18. 40th Street/Horton Street	Signal	AM	21	C	21	C	23	C	23	C	37	D	37	D
		PM	28	C	28	C	34	C	34	C	128	F	127	F
19. 40th Street/Hollis Street	Signal	AM	27	C	26	C	29	C	28	C	38	D	35	D
		PM	39	D	38	D	52	D	50	D	85	F	82	F
21. 40th Street/Emery Street	Signal	AM	24	C	24	C	23	C	23	C	29	C	29	C
		PM	32	C	32	C	36	D	36	D	106	F	104	F
		SAT	21	C	21	C	24	C	24	C	83	F	81	F
22. 40th Street/San Pablo Avenue	Signal	AM	33	C	33	C	36	D	36	D	45	D	45	D
		PM	45	D	45	D	74	E	72	E	145	F	142	F
		SAT	39	D	39	D	72	E	70	E	133	F	130	F
24. Mandela Pkwy/Horton Street	AWSC	AM	8	A	8	A	9	A	9	A	11	B	11	B
		PM	15	C	14	B	24	C	22	C	75	E	71	E
-- Shellmound Street/Marketplace Driveway	AWSC	AM	8	A	9	A	8	A	9	A	8	A	9	A
		PM	20	C	50	E	24	D	51	F	32	D	56	F
		SAT	16	C	55	F	28	D	> 100	F	32	D	> 100	F

Notes: Results in bold indicate deficient levels of service.

1. SSSC = side-street stop controlled intersection; AWSC = all-way stop controlled intersection; Signal = signalized intersection.
2. Average intersection control delay reported for signalized and all-way stop controlled intersections. Average intersection delay and worst case approach delay reported for side-street stop controlled intersections.
3. Intersection vehicular control is AWSC in Existing Condition scenario only. Intersection control converted to signal by 2010.

Source: Fehr & Peers, 2007

Table VI-5: No Project Alternative Traffic Noise Levels 50 Feet from Centerline [a] Compared to Proposed Project for Existing, Future 2010, and Future 2030 Conditions

Roadway Segment	Existing			2010			2030		
	Proposed Project (dBA)	No Project Alt. (dBA)	Change (dBA)	Proposed Project (dBA)	No Project Alt. (dBA)	Change (dBA)	Proposed Project (dBA)	No Project Alt. (dBA)	Change (dBA)
Powell Street (Christie Avenue to Hollis Street)	66.8	66.7	**-0.1**	67.8	67.7	**-0.1**	68.2	68.1	**-0.1**
40th Street (Harlan Street to Emery Street)	63.5	63.4	**-0.1**	64.3	64.3	**0.0**	65.4	65.3	**-0.1**
40th Street (Emery Street to San Pablo Avenue)	62.7	62.7	**0.0**	63.6	63.5	**-0.1**	64.3	63.8	**-0.5**
40th Street (San Pablo Avenue to Adeline Street)	61.2	61.2	**0.0**	62.2	62.1	**-0.1**	62.9	62.9	**0.0**
San Pablo Avenue (Adeline Street to 36th Street)	64.3	64.2	**-0.1**	65.3	65.3	**0.0**	65.9	65.9	**0.0**

[a] Data provided indicates LDN (dBA) 50 feet from Centerline of Outermost Lane.
Source: LSA Associates, Inc., 2006.

f. Hazardous Materials/Public Health and Safety. Under the No Project alternative, the existing site conditions would remain unchanged and no construction would take place either at the Marketplace or at the 64th & Christie site. The Covenant to Restrict Use of the Property for the Marketplace recorded by Alameda County in August 1995 would continue to be enforced. The State Department of Toxic Substances Control (DTSC) would continue to perform 5-year reviews of the covenant area, with the next review scheduled for September 2008. Any recommendations made by DTSC during the review (e.g., sealing of cracks in the pavement) would continue to be enforced.

The lack of additional development or demolition activities on the project site would not result in any new hazardous materials/public health and safety impacts. Further, the impacts and mitigation measures identified for the proposed project (relating to exposure of construction workers and the public to existing contamination, demolition of structures with hazardous building materials, use and accidental spills of hazardous materials during construction, and listing on hazardous materials release sites database) would not be applicable to the No Project alternative.

g. Geology, Soils and Seismicity. Because existing site conditions would not change under this alternative, the current level of risk of damage or injury from geologic, soils or seismic hazards would also remain unchanged. An earthquake on a nearby fault, such as the Hayward, San Andreas or other regional faults, could result in strong seismic shaking at the project site. The surface and near surface site materials are classified as Urban Land, which is a man-made soil type consisting of various grades of un-engineered fill, possibly containing debris. The primary geologic concerns for the site are direct damage to structures from seismic shaking, seismically-induced liquefaction and attendant ground failure, expansive soils, and settlement or differential settlement. Because the No Project alternative would lack additional development or demolition activities, it would not make any new

contribution to subsurface or structural foundation instability that would result in additional hazards. No new potential impacts relative to geology, soils or seismicity would result from the alternative, and the proposed project's mitigation measures would not be applicable.

h. Hydrology and Storm Drainage. Under this alternative, the existing drainage patterns on the site would remain unchanged. Stormwater from the site would continue to be collected in the existing collection system and discharged to the Bay without treatment. The project site is not located in a 100-year flood hazard zone. Therefore, flooding would not be expected to be an issue of concern. The No Project alternative would not result in any of the proposed project's hydrology and storm drainage impacts.

i. Cultural and Paleontological Resources. Under the No Project alternative, no development would occur and the site would not be subject to additional grading. Because no ground disturbing activities would occur under this alternative, the No Project alternative would not affect any potential subsurface historical, archaeological, or paleontological resources that could be unearthed during site preparation and construction of the proposed project. Therefore, no potential impacts relative to cultural and paleontological resources would result from implementation of this alternative.

j. Aesthetic Resources. Under the No Project alternative, no buildings would be added to the project site. As a result, impacts related to the intrinsic architectural character of the site and new sources of lighting and glare that could result from the proposed project would not apply. However, urban design improvements to the project site, such as provision of continuous building facades along Shellmound Street and Christie Avenue, additional pedestrian plazas, and landscaping that would strengthen the character of the urban streetscape and pedestrian environment would not be provided. Without these improvements, the site would remain auto-oriented and underutilized. Infill of the site would not occur and, therefore, the General Plan's goal of improving the quality and livability of the City with development that is visually sympathetic to its urban character would not be achieved.

k. Public Services and Utilities. Because no new buildings, structures, or land uses would be added to the project site under the No Project alternative, all existing public services, utilities, and infrastructure provided to the site would continue. No additional public services or utilities would be required under this alternative. The potential solid waste impacts of the proposed project would not occur.

l. Wind. Under the No Project alternative, no new buildings or structures would be developed. As a result, the No Project alternative would not result in accelerated wind speeds in areas used by pedestrians. This alternative would have no new impacts on wind compared to the proposed project, which may increase ground-level wind speeds if the two mid-rise buildings are not properly designed.

m. Shade and Shadow. Because no new buildings or structures would be added to the project site under the No Project alternative, no new shade or shadows would be cast on public spaces, including Christie Park and the outdoor seating area south of the Public Market building (adjacent to Border's Bookstore). The No Project alternative would result in no new impacts to shade and shadow. Appendix H (Figures A.H-1 through A.H-6) provides shadow simulations of the No Project alternative, as compared to the proposed project.

B. REDUCED FOOTPRINT ALTERNATIVE

The following discussion describes the Reduced Footprint alternative and analyzes the alternative's potential impacts compared to those of the proposed project.

1. Principal Characteristics

Under the Reduced Footprint alternative, the 15-acre project site would be redeveloped similar to the proposed project, but with a smaller overall building footprint. Compared to the proposed project, the Reduced Footprint alternative would provide an additional 157,000 square feet of office space, 200 fewer dwelling units, and 43,400 square feet less of retail/restaurant space. Figures VI-2 through VI-5 provides the site plan and axonometric views of this alternative. Table IV-6 compares the Reduced Footprint alternative to the proposed project. The key components of the Reduced Footprint alternative compared to the proposed project are described below.

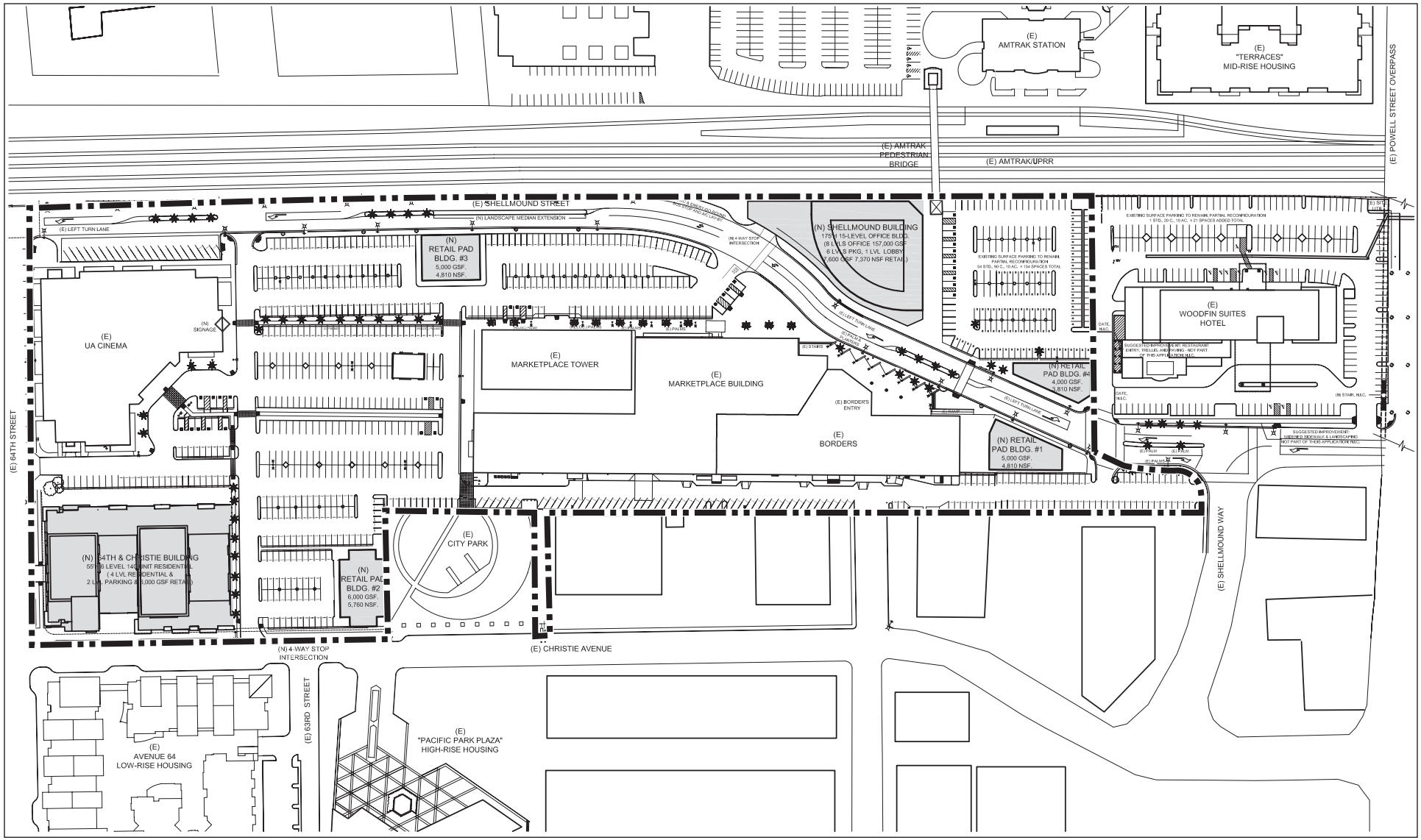
Table VI-6: Reduced Footprint Development Scenario Compared to the Proposed Project

		Proposed Project		**Reduced Footprint Alternative**		**Difference**
Use	**Existing**	Project	Project + Existing	Reduced Alt.	Reduced Alt. + Existing	Alternative to Project
Multi-Family (units)	0	340	340	140	140	-200
Retail/Restaurant (SqFt)	94,665	77,000	171,665	33,600	128,265	-43,400
Office (SqFt)	121,260	0	121,260	157,000	278,260	157,000
Entertainment (SqFt)	40,000	0	40,000	0	40,000	0
Industrial (SqFt)	26,000	-26,000	0	-26,000	0	0

Source: LSA Associates, 2007.

Existing Uses. Consistent with the proposed project, the Marketplace Tower, Public Market, and UA Theater buildings and uses would remain and the two light industrial buildings on the corner of 64th Street and Christie Avenue would be removed.

Retail Pads. Three retail pads are included in this alternative in the same locations and with the same area maximums as the proposed project (i.e., a maximum of 7,500 square feet per building with a combined total of no more than 16,000 square feet). A fourth retail pad building, totaling approximately 4,000 square feet, would be built as part of the alternative at the southwestern tip of the Shellmound site, adjacent to (north of) the Woodfin Hotel. The combined retail pad space assumed under this alternative is 20,000 square feet.



LSA

FIGURE VI-2

LEGEND

PROJECT SITE

PROPOSED BUILDINGS

(E) EXISTING

(N) NEW/PROPOSED

N

0 120 240

FEET

Marketplace Redevelopment Project EIR

Master Site Plan

Reduced Project Alternative

SOURCE: HELLER·MANUS ARCHITECTS, 2006.

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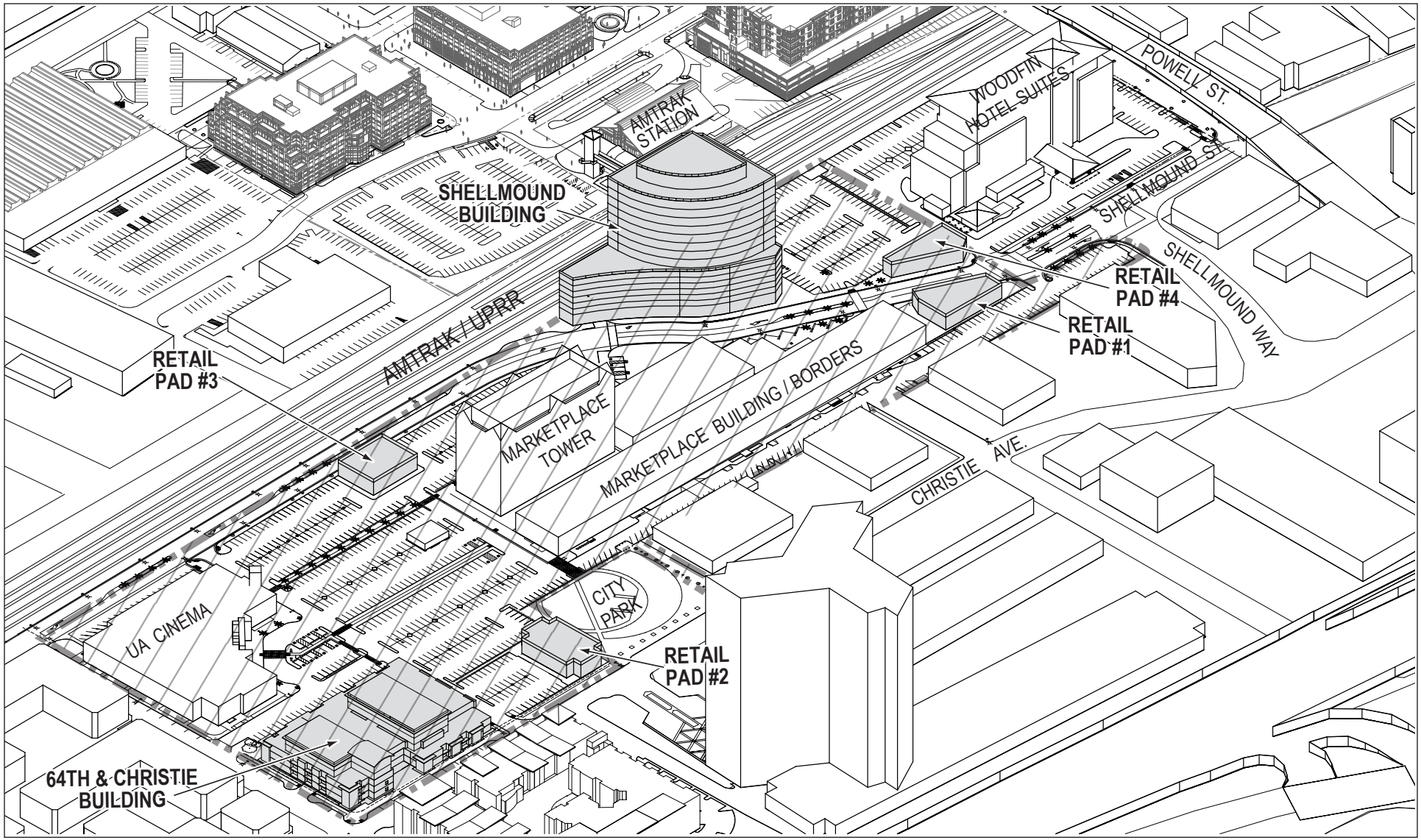

LSA

FIGURE VI-3

LEGEND

PROJECT SITE

PROPOSED BUILDINGS

NOT TO SCALE

Marketplace Redevelopment Project EIR
Reduced Project Alternative
Illustrative Axonometric
(Bird's Eye View) of Built Project

SOURCE: HELLER·MANUS ARCHITECTS, 2006.
I:\CEM531 marketplace\figures\Fig_VI3.ai (2/23/07)

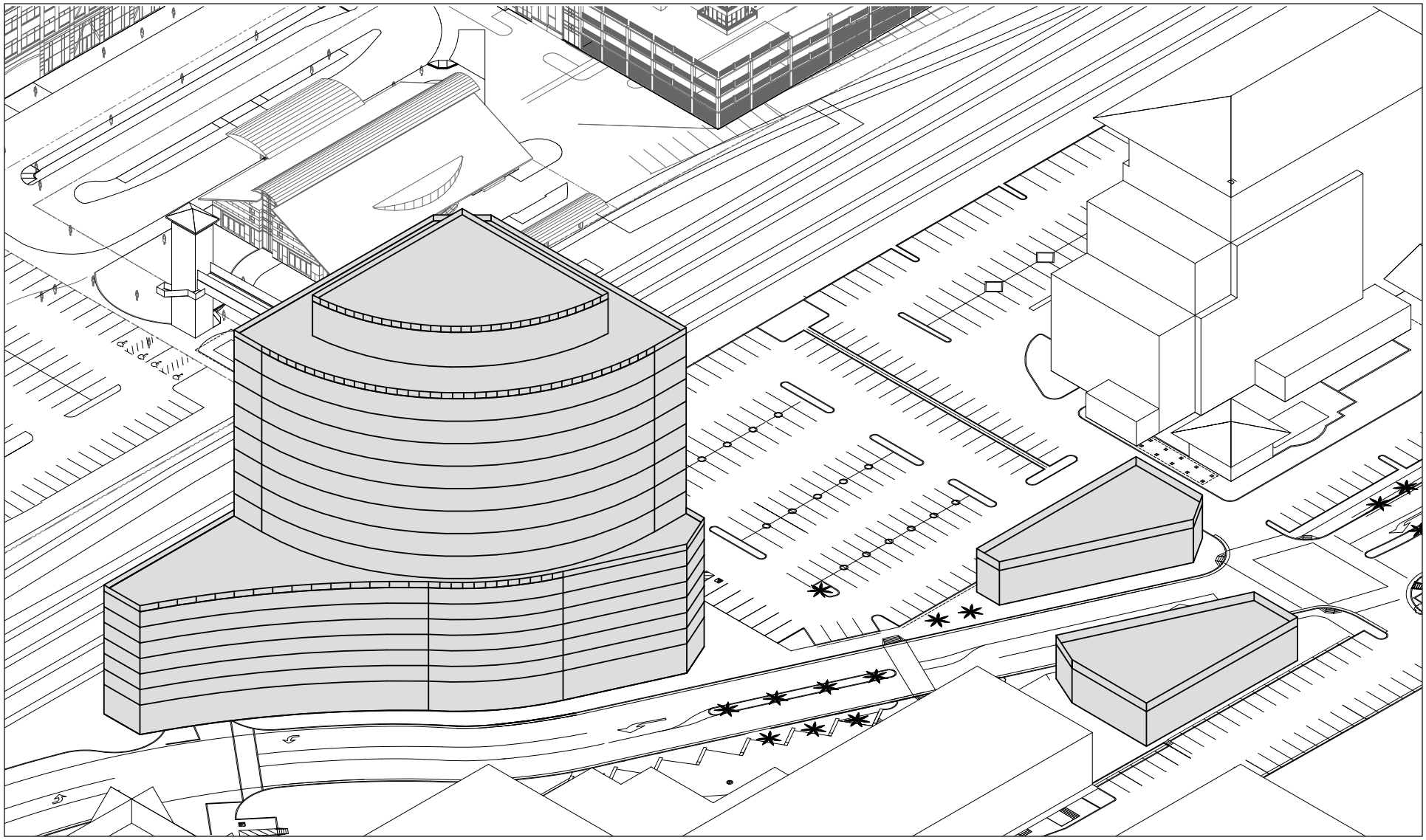

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FIGURE VI-4

Marketplace Redevelopment Project EIR
Reduced Project Alternative
Shellmound Building Zone:
Conceptual Axonometric

NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, 2006.
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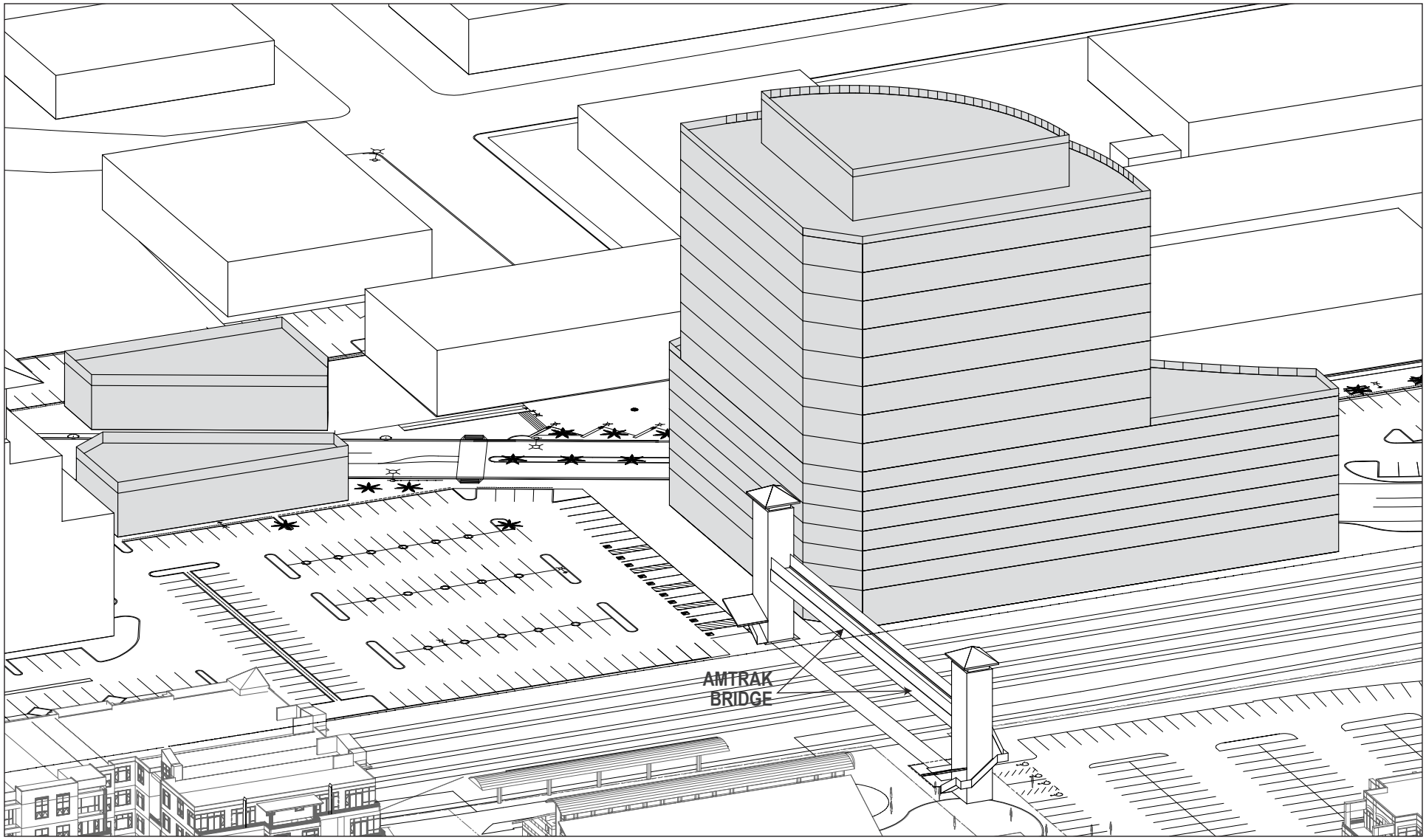

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FIGURE VI-5

NOT TO SCALE

PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR
Reduced Project Alternative
Shellmound Building Zone:
Amtrak Pedestrian Bridge Connection

SOURCE: HELLER·MANUS ARCHITECTS, 2006.
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Shellmound Site. The footprint of the Shellmound building constructed as part of the alternative would be approximately 50 percent smaller than that proposed as part of the project and would be built on the northern half of the site as depicted in Figure VI-2. This building would be a 175-foot tall, 15-story high-rise office tower building (six stories and 85 feet taller than the building constructed as part of the proposed project). Approximately 7,600 square feet of ground floor retail space, six levels of structured parking, and eight floors of office space totaling 157,000 square feet would be provided. The existing surface-level parking spaces in the southern portion of the Shellmound building site would be reconfigured into a new surface lot. This building would be 13,350 gross square feet smaller than the proposed project.

Amtrak Pedestrian Connection. Figures VI-2 and VI-5 depict how the Amtrak pedestrian overcrossing would be integrated into this alternative. The western tower would remain a stand-alone structure and a dedicated pedestrian sidewalk would be provided between the high-rise office tower and the reconfigured parking area. This configuration would facilitate pedestrian access across the Shellmound site by avoiding potential conflicts with vehicles in the parking area. None of the pedestrian or transit improvements provided by the proposed project on Shellmound Street, such as a widened crossing area, plazas, enhanced landscaping, and the bus lay-over area, would be provided under this alternative.

64th & Christie Site. On the 64th & Christie site, no lot line adjustment would occur and development would be reduced accordingly to accommodate the existing, smaller parcel area. A six-story, 55-foot tall mid-rise building would be developed, providing 6,000 square feet of ground-floor retail, ground- and second floor structured parking, and four floors of multi-family housing with up to 140 dwelling units. This building would be two stories and 35 feet shorter than the proposed project, with 40 fewer dwelling units.

Site Improvements. Unlike the proposed project, the northern driveway and drive aisle would not be realigned with 63rd Street west of Christie Avenue to provide access to the Pacific Park Plaza high-rise building and the Avenue 64 apartments, which are under construction. As a result, no four-way stop sign would be installed, and there would be no associated improvement to pedestrian circulation and safety. Improvements to 64th Street and Christie Avenue proposed by the project would occur under this alternative, including narrowing of the roadway with bulb-outs to slow vehicular traffic and enhanced sidewalk landscaping and shade trees.

Similar to the proposed project, pedestrian improvements across the surface-level parking area from the Marketplace Tower to the UA Cinema would be incorporated into this alternative. However, without realignment of the northern driveway and drive aisle, the parking area and passenger unloading area in front of the cinema would remain within its current, smaller configuration.

Project Objectives. The Reduced Footprint alternative would achieve all of the objectives of the proposed project.

2. Analysis of the Reduced Footprint Alternative

The Reduced Footprint alternative would add development to the site in similar locations as the proposed project. Site demolition and construction impacts would be similar to the proposed project; however, concentrating the footprint of the Shellmound building in the northern half of the Shell-mound site would disturb a smaller area that is historically sensitive.

Once constructed, the Reduced Footprint alternative would provide fewer pedestrian improvements than the proposed project. It would not improve pedestrian safety by eliminating areas where vehicular and pedestrian conflict could occur. The 157,000 square feet of office space included in this alternative would create more AM peak hour trips, and fewer PM and Saturday peak hour trips compared to the proposed project. As a result, traffic and congestion-related impacts in the area would be similar to those associated with the proposed project. Noise and air quality impacts due to vehicular trips would be similar to or slightly less than the proposed project. This alternative would have slightly greater aesthetic and shade and shadow impacts by permanently blocking views not obstructed by the proposed project, and casting shadows onto an outdoor seating area that would not be shaded by the proposed project.

The following discussion provides a detailed comparison of the potential impacts of the Reduced Footprint alternative compared with those of the proposed project.

a. Land Use. Under the Reduced Footprint alternative, the existing mixed, retail/restaurant, service commercial, entertainment, and office uses on the site would remain and the light industrial uses would be removed. Additional mixed office and retail offices uses would be developed on the site, as well as a limited number of residential units (i.e., approximately 40 percent of the units proposed as part of the project). The addition of residential uses to the site is consistent with the goals of the redevelopment plan for the area and General Plan policies for mixed use sites, similar to the proposed project. Like the project, land uses proposed as part of the project and existing remaining uses would be compatible with surrounding mixed uses on adjacent properties.

The surface-level parking areas would be reconfigured similarly to the proposed project; however, fewer improvements to on-site vehicular and pedestrian circulation would be provided compared to the proposed project. Without realignment of the northern driveway and drive aisle, circulation at the drop-off and parking area directly adjacent to the theater would be limited and, as a result, would function less efficiently compared to the proposed project. Because the western tower of the Amtrak overcrossing would not be enclosed within a building, the alternative would not benefit from increased pedestrian safety in the vicinity of the overcrossing. However, similar to the project, the potential for pedestrian and vehicular conflict from the western tower to Shellmound Street would be removed by installing a dedicated sidewalk for pedestrians crossing this portion of the site. Consistent with the proposed project, no new roadways would be constructed under this alternative.

No land use conflicts would result from this alternative, consistent with the proposed project. However, the additional vehicular and pedestrian improvements provided by the project represent a slightly more efficient, accessible, and usable land use plan compared to the Reduced Footprint alternative.

b. Population, Employment and Housing. The Reduced Footprint alternative would add 140 multi-family units, including some affordable for lower income households, which would increase the City's resident population by approximately 240 people. The additional office and retail space would add approximately 590 jobs. As described in Chapter V.B, Population, Employment and Housing, Emeryville currently contains more jobs than dwelling units, making its jobs-to-employed-residents ratio imbalanced. The proposed project would accommodate 578 residents and 155 new jobs. By adding more new residents than jobs, the proposed project would improve the City's jobs-to-employed-residents ratio. By comparison, the Reduced Footprint alternative would add more jobs

than people and thus not improve Emeryville's jobs/housing imbalance to the degree of the proposed project. Therefore, the alternative would have a less beneficial effect on the City's jobs-to-employed residents ratio compared to the proposed project.

c. Transportation, Circulation, and Parking. Table VI-7 provides the peak hour trip generation for the Reduced Footprint alternative compared to the proposed project. As shown in this table, the number of peak hour trips generated by the Reduced Footprint alternative would be similar to the project, with a 59 percent increase in the AM peak hour, and 15 percent decrease in the PM peak hour, and 45 percent decrease during the Saturday peak hour.

Table VI-7: Reduced Footprint Peak Hour Trip Generation Compared to Proposed Project

Scenario	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Proposed Project	71	148	**219**	261	198	**459**	298	246	**544**
Reduced Footprint Alternative	247	103	**350**	136	256	**392**	164	134	**298**
Difference: Alternative to Project	176	-45	**-131**	-125	58	**-295**	-134	-112	**-246**
% Difference: Alternative to Project	248%	-30%	**59%**	-48%	29%	**-15%**	-45%	-46%	**-45%**

Source: Fehr & Peers, 2007.

Table VI-8 provides the intersection delay and LOS results for the Reduced Footprint alternative compared to the proposed project at the 13 intersections most affected by the proposed project. The Reduced Footprint alternative would result in queuing impacts similar to the proposed project. Transportation impacts and mitigation measures **TRAF-1 through TRAF-13** identified for the proposed project would also be applicable to the Reduced Footprint alternative.

The Reduced Footprint alternative would result in one additional significant congestion-related impact at the 40th Street/Hollis Street intersection in future scenarios, primarily due to the increased number of outbound trips during the PM peak hour:

Impact TRAF-1 (Reduced Footprint alternative): With the Reduced Footprint alternative, the operation of the 40th Street/Hollis Street intersection would degrade to LOS E during the PM peak hour in the Future 2010 scenario. In the Future 2030 scenario, this intersection would continue operating at LOS F during the PM peak and the delay would increase by 5 seconds compared to the proposed project. (S)

> Mitigation Measure TRAF-1 (Reduced Footprint alternative): The City shall re-time the traffic signals along the 40th Street corridor so that the 40th Street/Hollis Street intersection operates at an acceptable level of service. (LTS)

Table VI-8: *Proposed Project* Intersection Delay and LOS Compared to *Reduced Project Alternative* for Existing, 2010, and 2030 Conditions

Intersections	Control[1]	Peak Hour	Existing Condition				2010 Condition				2030 Condition			
			Proposed Project		Reduced Project Alternative		Proposed Project		Reduced Project Alternative		Proposed Project		Reduced Project Alternative	
			Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS
2. Ashby Avenue/San Pablo Avenue	Signal	AM	33	C	33	C	33	C	33	C	41	D	40	D
		PM	42	D	42	D	84	F	85	F	***135***	***F***	***134***	***F***
4. 65th Street/Shellmound Street	AWSC/ Signal[3]	AM	10	A	9	A	14	B	14	B	13	B	13	B
		PM	***72***	***F***	***81***	***F***	25	C	29	C	26	C	28	C
		SAT	***53***	***F***	***41***	***E***	23	C	22	C	18	B	18	B
8. 64th Street/Shellmound Street	SSSC	AM	2 (11)	A (B)	2 (11)	A (B)	2 (12)	A (B)	2 (12)	A (B)	2 (13)	A (B)	2 (13)	A (B)
		PM	2 (19)	A (C)	2 (19)	A (C)	2 (21)	A (C)	2 (22)	A (C)	2 (27)	A (D)	2 (25)	A (C)
		SAT	2 (21)	A (C)	1 (19)	A (C)	3 (43)	A (E)	2 (32)	A (D)	8 (127)	A (F)	5 (76)	A (F)
11. I-80 Hook Ramps/Frontage Road	Signal	AM	15	B	15	B	15	B	16	B	16	B	16	B
		PM	38	D	37	D	44	D	44	D	43	D	43	D
		SAT	16	B	16	B	21	C	21	C	20	B	20	B
13. Powell Street/I-80 Eastbound Ramps	Signal	AM	27	C	31	C	30	C	41	D	39	D	46	D
		PM	***83***	***F***	***80***	***F***	***114***	***F***	***121***	***F***	***115***	***F***	***114***	***F***
		SAT	***62***	***E***	58	E	***106***	***F***	***99***	***F***	***112***	***F***	***106***	***F***
14. Powell Street/Christie Avenue	Signal	AM	28	C	29	C	33	C	36	D	56	E	56	E
		PM	46	D	46	D	86	F	86	F	90	F	90	F
		SAT	45	D	49	D	111	F	110	F	136	F	137	F
16. Powell Street/Hollis Street	Signal	AM	30	C	31	C	38	D	40	D	51	D	52	D
		PM	55	D	54	D	84	F	***90***	***F***	***120***	***F***	***122***	***F***
		SAT	24	C	24	C	30	C	29	C	50	D	47	D
18. 40th Street/Horton Street	Signal	AM	21	C	21	C	23	C	23	C	37	D	37	D
		PM	28	C	28	C	34	C	34	C	128	F	128	F
19. 40th Street/Hollis Street	Signal	AM	27	C	27	C	29	C	29	C	38	D	37	D
		PM	39	D	39	D	52	D	***56***	***E***	85	F	***87***	***F***
21. 40th Street/Emery Street	Signal	AM	24	C	24	C	23	C	23	C	29	C	29	C
		PM	32	C	32	C	36	D	37	D	106	F	107	F
		SAT	21	C	21	C	24	C	24	C	83	F	82	F
22. 40th Street/San Pablo Avenue	Signal	AM	33	C	33	C	36	D	36	D	45	D	45	D
		PM	45	D	45	D	74	E	75	E	145	F	145	F
		SAT	39	D	39	D	72	E	71	E	133	F	131	F
24. Mandela Pkwy/Horton Street	AWSC	AM	8	A	8	A	9	A	9	A	11	B	11	B
		PM	15	C	15	B	24	C	24	C	75	E	74	E
-- Shellmound Street/Marketplace Driveway	AWSC	AM	8	A	9	A	8	A	9	A	8	A	9	A
		PM	20	C	47	E	24	D	73	F	32	D	75	F
		SAT	16	C	26	D	28	D	> 100	F	32	D	> 100	F

Notes: Results in bold indicate deficient levels of service.

1. SSSC = side-street stop controlled intersection; AWSC = all-way stop controlled intersection; Signal = signalized intersection.
2. Average intersection control delay reported for signalized and all-way stop controlled intersections. Average intersection delay and worst case approach delay reported for side-street stop controlled intersections.
3. Intersection vehicular control is AWSC in Existing Condition scenario only. Intersection control converted to signal by 2010.

Source: Fehr & Peers, 2007.

The Reduced Footprint alternative, which does not include detailed design standards for parking areas and pedestrian zones, could result in conflicts between vehicles, pedestrians, and bicyclists, in addition to inadequate pedestrian and bicycle access.

Impact TRAF-2 (Reduced Footprint alternative): The Reduced Footprint alternative could result in vehicle, pedestrian, and bicycle conflicts and inadequate pedestrian and bicycle access. (S)

> Mitigation Measure TRAF-2 (Reduced Footprint alternative): The applicant shall prepare a detailed circulation plan that clearly depicts vehicle, pedestrian, and bicycle access and associated routes prior to obtaining a grading or building permit. The City shall review the plan for adequacy based on applicable pedestrian, bicycle, and parking safety standards prior to issuing a grading or building permit. (LTS)

d. Air Quality. Air quality impacts associated with implementation of the Reduced Footprint alternative would be similar to or less than those associated with the proposed project because the alternative would have less construction activity and generate slightly fewer vehicular trips. The construction activity mitigation measure for the proposed project (**AIR-1**) would be applicable to the Reduced Footprint alternative. Implementation of Mitigation Measure AIR-1 would reduce construction activity impacts to a less-than-significant level.

The Reduced Footprint alternative would not substantially increase pollutant or odor concentrations, and would not conflict with the Bay Area 2005 Ozone Strategy or the BAAQMD standards. Regional emissions for the Reduced Footprint alternative are shown in Table VI-9 (and detailed in Appendix C-4). Results of the regional emission modeling and a CO hot spots analysis indicate that impacts associated with the Reduced Footprint alternative would be mitigated to a less-than-significant level with the same mitigation measures recommended for the project.

Table VI-9: Reduced Footprint Alternative Regional Emissions in Pounds Per Day Compared to Proposed Project

	Reactive Organic Gases		Nitrogen Oxides		PM_{10}	
	Proposed Project	**Alternative**	**Proposed Project**	**Alternative**	**Proposed Project**	**Alternative**
Regional Emissions	52.74	39.53	67.35	53.56	40.25	33.05
BAAQMD Threshold	80.0	80.0	80.0	80.0	80.0	80.0
Exceed?	**No**	**No**	**No**	**No**	**No**	**No**

Source: LSA Associates, Inc., 2007

e. Noise and Vibration. Noise and vibration impacts related to the Reduced Footprint alternative would not differ substantially from the proposed project. As shown in Table VI-10, modeled traffic noise levels for this alternative show that there would be a slight decrease in traffic noise levels from the proposed project for roadway segments most affected by the project, but the impact would still be significant. Railroad noise and ground-borne vibration impacts would be identical to those associated with the proposed project. Short-term construction related impacts would be similar to those associated with the proposed project. Noise impacts and mitigation measures **NOISE-1 through NOISE-5** identified for the proposed project would be applicable to the Reduced Footprint

Table VI-10: Reduced Footprint Alternative Traffic Noise Levels [a]

Roadway Segment	Existing			2010			2030		
	Proposed Project (dBA)	Reduced Footprint Alt. (dBA)	Change (dBA)	Proposed Project (dBA)	Reduced Footprint Alt. (dBA)	Change (dBA)	Proposed Project (dBA)	Reduced Footprint Alt. (dBA)	Change (dBA)
Powell Street (Christie Avenue to Hollis Street)	66.8	66.3	**-0.5**	67.8	67.1	**-0.7**	68.2	67.4	**0.0**
40th Street (Harlan Street to Emery Street)	63.5	62.9	**-0.6**	64.3	63.7	**-0.6**	65.4	64.7	**-0.7**
40th Street (Emery Street to San Pablo Avenue)	62.7	62.7	**0.0**	63.6	63.6	**0.0**	64.3	64.3	**0.0**
40th Street (San Pablo Avenue to Adeline Street)	61.2	61.2	**0.0**	62.2	62.2	**0.0**	62.9	62.9	**0.0**
San Pablo Avenue (Adeline Street to 36th Street)	64.3	64.4	**0.1**	65.3	65.4	**0.1**	65.9	66.0	**0.1**

[a] Data provided indicates LDN (dBA) 50 feet from Centerline of Outermost Lane.
Source: LSA Associates, Inc., 2006.

alternative. Implementation of Mitigation Measures NOISE-1 through NOISE-5 would reduce noise and vibration impacts to less-than-significant levels.

f. Hazardous Materials/Public Health and Safety. Under the Reduced Footprint alternative, Retail Pad 4 would be located outside the Marketplace Covenant area (see Figure V.F-1). The Industrial buildings located on the 64th & Christie site would be demolished and replaced with a similar, but smaller mixed residential, retail, and parking use building. Residential uses in this building would be on floors three through six. The Shellmound building footprint would be concentrated on the northern half of the site and would no longer include residential uses.

All impacts (**HAZ-1 to HAZ-4**) and mitigation measures for the proposed project would be applicable to the Reduced Footprint alternative, with the following modifications. Mitigation Measure HAZ-1a, requiring preparation of a site health and safety plan for construction workers, and Mitigation Measure HAZ 1-b, requiring preparation of a soil management plan, would need to be expanded to include the location of Retail Pad 4, as proposed under this alternative. No new impacts would result from implementation of the Reduced Footprint alternative. Overall, the Reduced Footprint alternative would result in slightly reduced impacts to public health and safety from hazardous materials compared to the proposed project.

g. Geology, Soils and Seismicity. Under this alternative, grading activities and building foundations, though encompassing less total area than the proposed project, would be subject to similar geologic and seismic conditions and constraints as the proposed project. An earthquake on a nearby fault, such as the Hayward and San Andreas faults, could result in strong seismic shaking at the project site. The surface and near surface site materials are classified as Urban Land, which is a man-made soil type consisting of various grades of un-engineered fill, possibly containing debris. The primary geologic concerns for the site are direct damage to structures from seismic shaking, seis-

mically induced liquefaction and attendant ground failure, expansive soils, and settlement or differential settlement. Each of the impacts and mitigation measures identified for the proposed project (**GEO-1 to GEO-4**) would be applicable to the Reduced Footprint alternative. These impacts would be reduced to a less-than-significant level with implementation of Mitigation Measures GEO-1 to GEO-4.

h. Hydrology and Storm Drainage. The intensity of development associated with the Reduced Footprint alternative would be reduced relative to the proposed project but the area of impervious surfaces that would generate stormwater are similar for the alternative and the proposed project. Development under this alternative would be required to comply with City and County permit specifications for treatment of stormwater runoff prior to discharge. Each of the impacts and mitigation measures identified for the proposed project (**HYD-1 to HYD-3**) would also be applicable to this alternative. Implementation of Mitigation Measures HYD-1, HYD-2, and HYD-3 would ensure that impacts to runoff water quality would be less than significant for both construction and the operational phase of the project.

i. Cultural and Paleontological Resources. Under the Reduced Footprint alternative, six new buildings would be developed and the site would be subject to grading and other ground disturbing activities. As described in Chapter V.I, Cultural and Paleontological Resources, the project area is sensitive for subsurface historical, archaeological, or paleontological resources, which have the potential to be unearthed during site preparation and construction of this alternative. Impacts related to these resources would be similar to those expected to result from the proposed project. The southeastern portion of the project site (i.e., Shellmound building site) is considered very sensitive for prehistoric and historic archaeological deposits. Because the Reduced Footprint alternative would disturb a smaller portion (half) of this area, its potential to impact these resources would be reduced compared to the proposed project. Impacts and mitigation measures **CULT-1 to CULT-3** would be applicable to the Reduced Footprint alternative. Implementation of Mitigation Measures CULT-1 to CULT-3 would reduce the alternative's impacts to cultural and paleontological resources to a less-than-significant level.

j. Aesthetic Resources. The Reduced Footprint alternative would add four single-story retail pad buildings, a six-story mid-rise mixed residential, retail, and parking building, and a 15-story high-rise mixed office, retail, and parking tower building. The placement of the 15-story high-rise tower north of the western Amtrak pedestrian bridge tower would permanently block northwest views of the Bay and Mt. Tamalpais from the bridge. Concentrating the footprint of the Shellmound building into one high-rise tower, compared to the wider mass of the mid-rise building proposed by the project for this location, would retain a larger northwest view corridor across the project site as seen from the Powell Street overcrossing.

Impacts and mitigation measures **AES-1 and AES-2** identified for the proposed project would be applicable to the Reduced Footprint alternative. Similar to the proposed project, the 15-story high-rise tower and six-story mid-rise buildings would be of a size and mass that would alter the intrinsic architectural character of the project site and surroundings. Implementation of Mitigation Measure AES-1 would ensure these buildings would be appropriately designed to ensure visual compatibility with the surrounding area. Like the project, the development proposed under this alternative would provide additional sources of glare and light. Implementation of Mitigation Measure AES-2 would

ensure that light and glare sources would be appropriately designed to reduce adverse effects on surrounding areas.

k. Public Services and Utilities. Impacts to public services and utilities for the Reduced Footprint alternative would be comparable to those for the proposed project. The alternative would create increased demand for fire and police protection, schools, library services, parks, water supply, wastewater collection and treatment, and post-construction solid waste facilities and infrastructure. The increased demand, like that generated by the proposed project, would be less than significant with mitigation. Impacts and mitigation measures **PS-1 and PS-2** would be applicable to this alternative. Implementation of Mitigation Measures PS-1 and PS-2 would ensure that demolition and construction activities and on-going operation of the Reduced Footprint alternative would conform to Measure D solid waste recycling requirements. These mitigation measures would reduce all the alternative's public services and utilities impacts to a less-than-significant level.

l. Wind. The four single-story retail pad buildings proposed under this alternative would not extend in height above surrounding structures nor be of a large enough mass to substantially increase local winds. The six-story mid-rise building and 15-story high-rise building would be oriented along a north/south axis and would extend in height over surrounding buildings. The orientation and massing of these buildings would be of a size large enough to intercept westerly winds year round, as well as southeasterly winds, which typically occur during the winter. Impact and mitigation measure **WIND-1** would be applicable to this alternative. Implementation of Mitigation Measure WIND-1 would ensure that the design of buildings would reduce wind acceleration and hazards to a less-than significant level.

m. Shade and Shadow. The 15-story, high-rise tower building would be six stories taller than the nine-story mid-rise Shellmound building proposed as part of the project. Correspondingly, shadows cast by the 15-story tower would be more extensive throughout the year. In particular, in the early AM hours, the 15-story tower would cast new shadows on Shellmound Street, extending west onto the outdoor seating area in front of the Public Market. In the late PM hours, shadows cast by the 15-story tower would extend farther east than the proposed project, including areas east of the UPRR tracks.

The 64th & Christie building proposed under this alternative would be six stories in height, two stories less than the eight stories proposed for this site as part of the project. The reduction in height of this building would result in less extensive shadows than the proposed project.

No new shade or shadows would be cast on Christie Park by the alternative; however, new shadows would be cast onto the outdoor seating area in front (east) of the Public Market building in the early morning and late evening hours. Compared to the proposed project, the Reduced Footprint alternative would have slightly greater impacts to shade and shadow on public places. Appendix H (Figures A.H-7 through A.H-12) provides shadow simulations of the Reduced Footprint alternative compared to the proposed project.

C. TOWER ALTERNATIVE

The following discussion describes the Tower alternative and analyzes the alternative's potential impacts compared to those of the proposed project.

1. Principal Characteristics

Under the Tower alternative, the 15-acre project site would be redeveloped with a more intensive development scenario than the proposed project, including two high-rise tower buildings. Compared to the proposed project, the Tower alternative would provide an additional 172,370 square feet of retail/restaurant space, 48 more dwelling units, and 40,000 square feet less of entertainment space (due to removal of UA Cinema). Figures VI-6 through VI-9 provides site plan and axonometric views of this alternative. Table VI-11 compares the Tower alternative to the proposed project. The key components of the Tower alternative, compared to the proposed project, are described below.

Table VI-11: Tower Alternative Development Scenario (Phase II Build Out)

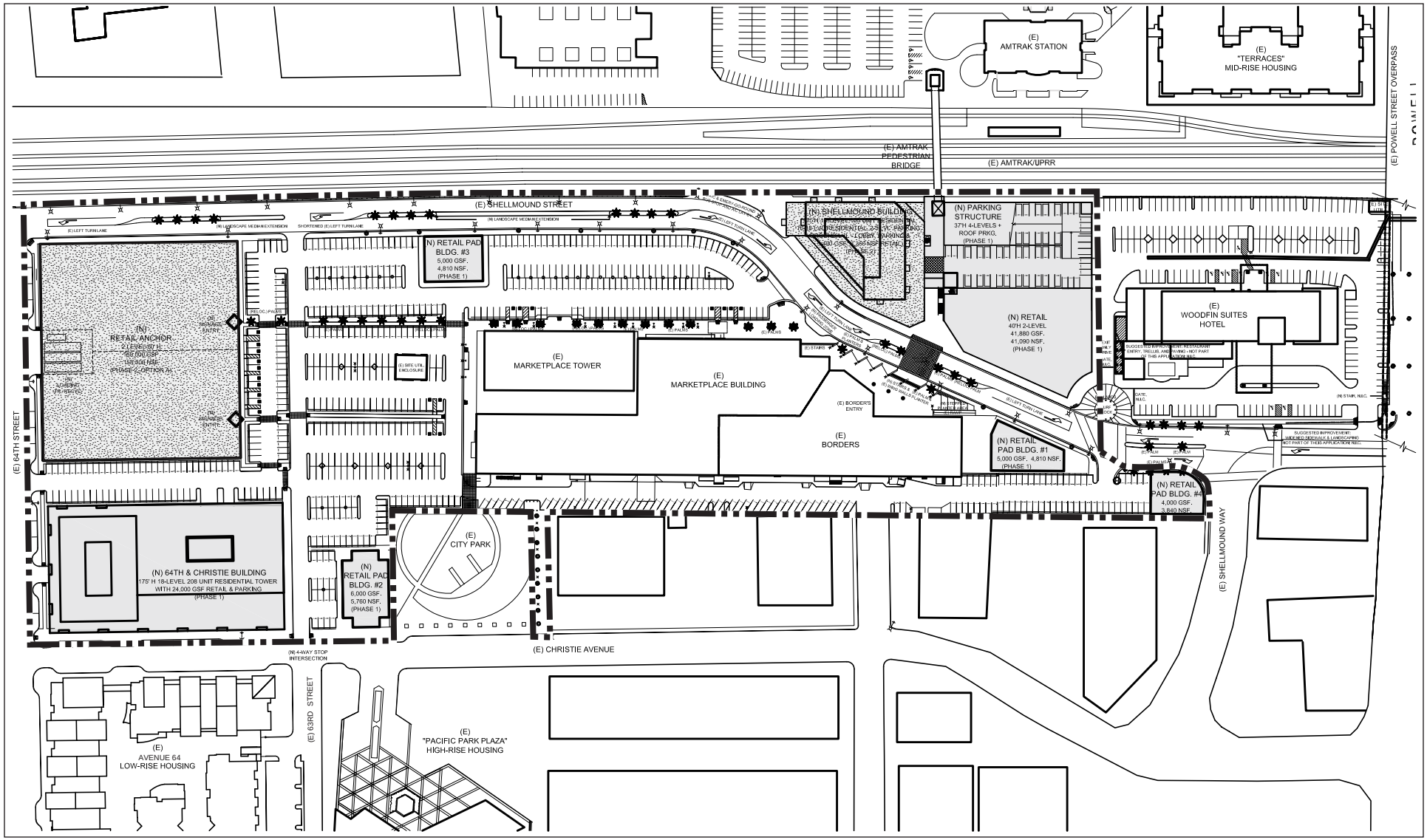
		Proposed Project		Tower Alternative		Difference
Use	**Existing**	Proposed Project	Project + Existing	Tower Alt.	Tower Alt. + Existing	Alternative to Project
Multi-Family (units)	0	340	340	388	388	48
Retail/Restaurant (SqFt)	94,665	77,000	171,665	249,370	344,035	172,370
Office (SqFt)	121,260	0	121,260	0	121,260	0
Entertainment (SqFt)	40,000	0	40,000	-40,000	-40,000	-40,000
Industrial (SqFt)	26,000	-26,000	-26,000	-26,000	-26,000	0

Source: LSA Associates, 2007.

Project Phasing. Under this alternative development on the Shellmound site would occur in two phases rather than one as with the proposed project. Phase I would add retail space to the southern portion of the site. Phase II would construct an 18-story, 175-foot tower on the northern portion of the site with retail space on ground level and multi-family dwelling units on upper floors. The 64th & Christie site would also be developed during Phase I and would include an 18-story, 175-foot tall tower with retail space and multi-family dwelling units.

Existing Uses. Like the proposed project, the Marketplace Tower and Public Market buildings would be retained under this alternative. The UA Cinema building would be retained under Phase I, but would be removed under the Phase II development scenario. The two light industrial buildings on the corner of 64th Street and Christie Avenue would be removed under Phase I of this alternative.

Retail Pads. Three retail pads are included in this alternative in the same locations and with the same area maximums as the proposed project (i.e., maximum of 7,500 square feet per building with a combined total of no more than 16,000 square feet). A fourth retail pad building, totaling approximately 4,000 square feet, is proposed on the northwest corner of Shellmound Way and Shellmound Street, across the street (west) of the Woodfin Hotel. The combined retail pad space assumed under this alternative is 20,000 square feet.



LSA

FIGURE VI-6

Marketplace Redevelopment Project EIR
Tower Alternative (Phase II)
Master Site Plan

LEGEND

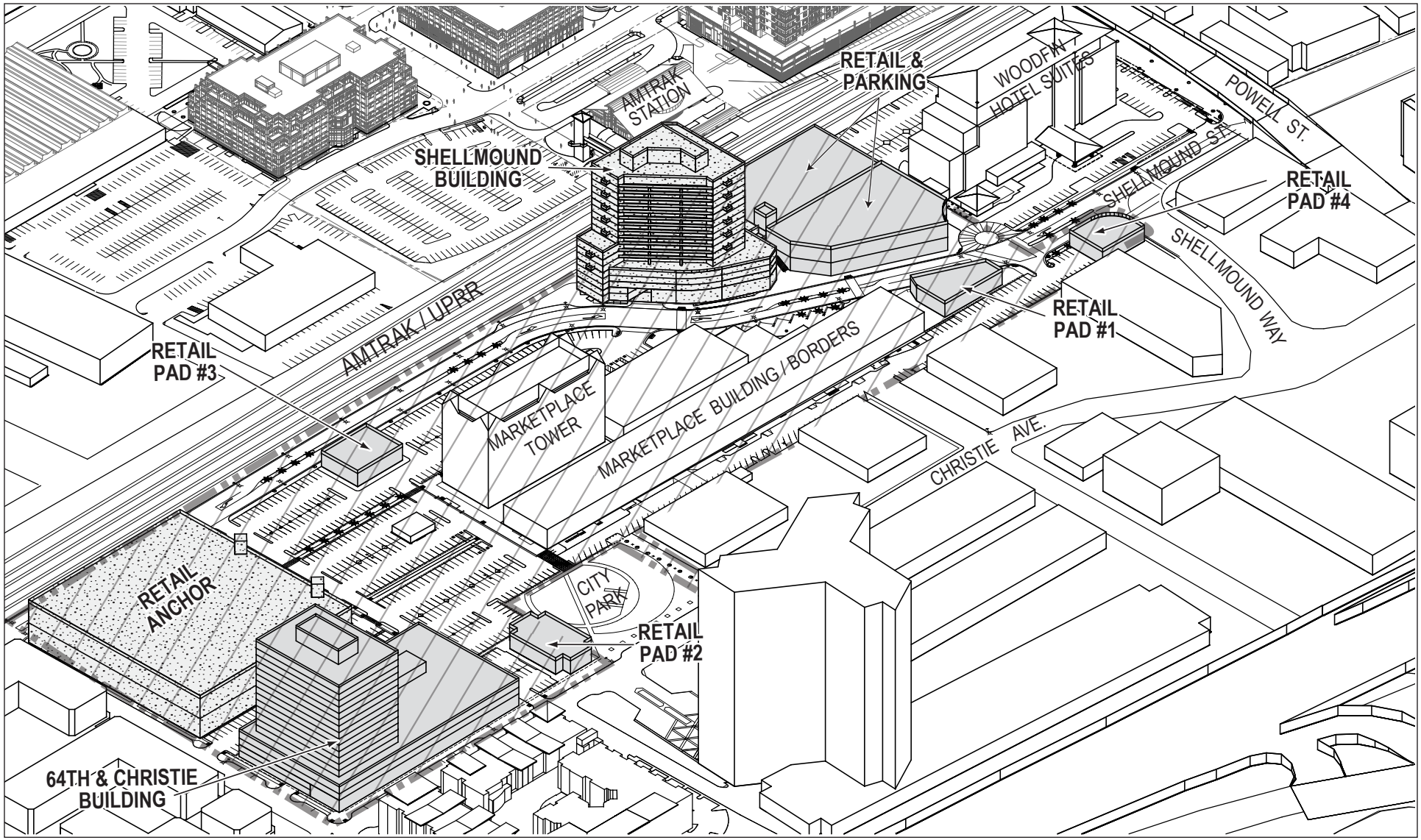
- PROJECT SITE
- PHASE I PROPOSED BUILDINGS
- PHASE II PROPOSED BUILDINGS

(E) EXISTING
(N) NEW/PROPOSED

N

0 120 240
FEET

SOURCE: HELLER·MANUS ARCHITECTS, 2006.
I:\CEM531 marketplace\figures\Fig_VI6.ai (4/25/07)



LSA

FIGURE VI-7

LEGEND

PROJECT SITE

PHASE I PROPOSED BUILDINGS

PHASE II PROPOSED BUILDINGS

NOT TO SCALE

Marketplace Redevelopment Project EIR
Tower Alternative (Phase II)
Illustrative Axonometric
(Bird's Eye View) of Built Project

SOURCE: HELLER·MANUS ARCHITECTS, 2006.
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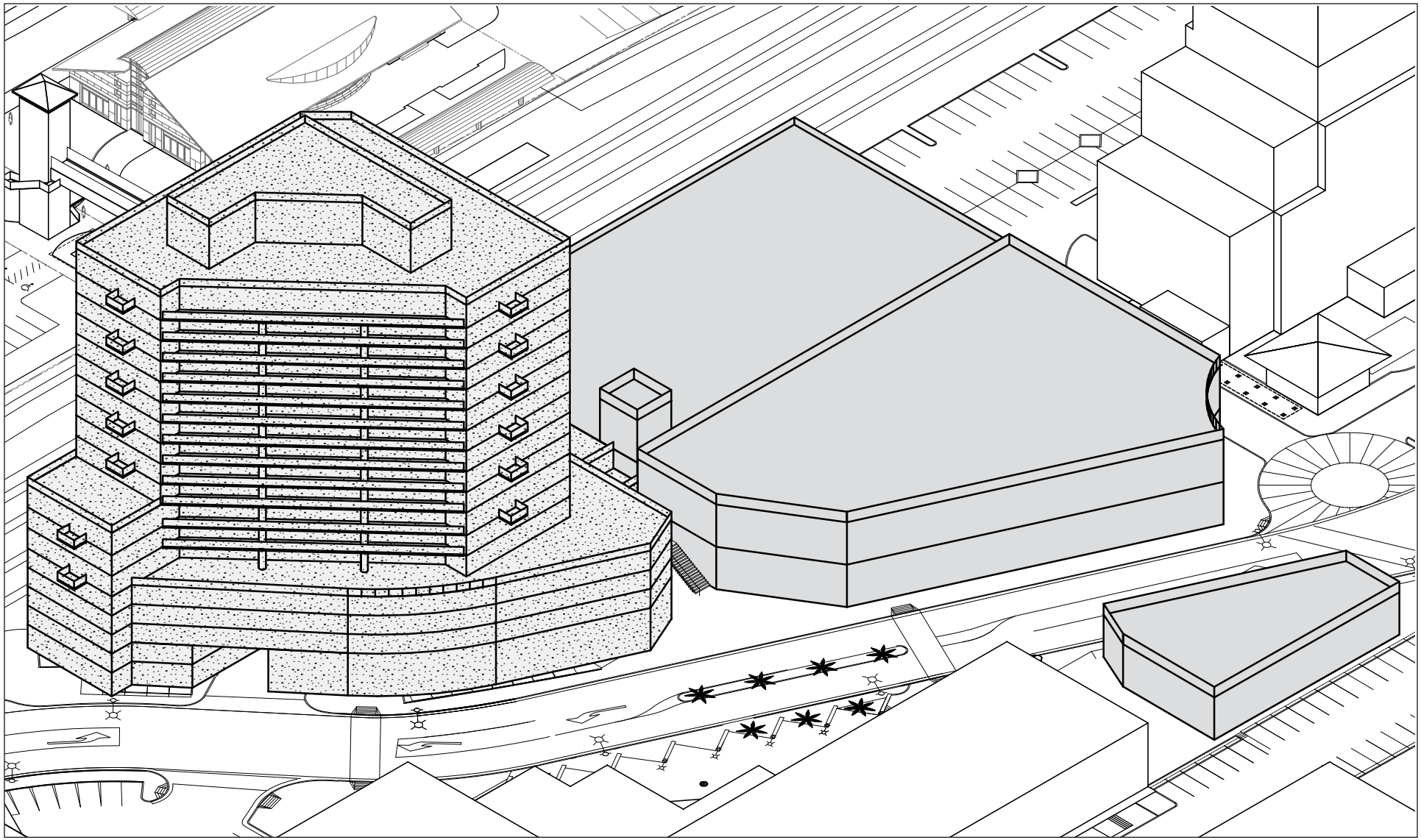

LSA

FIGURE VI-8

LEGEND

PHASE I PROPOSED BUILDINGS

PHASE II PROPOSED BUILDINGS

NOT TO SCALE

Marketplace Redevelopment Project EIR
Tower Alternative (Phase II)
Shellmound Building Zone:
Conceptual Axonometric

SOURCE: HELLER·MANUS ARCHITECTS, 2006.
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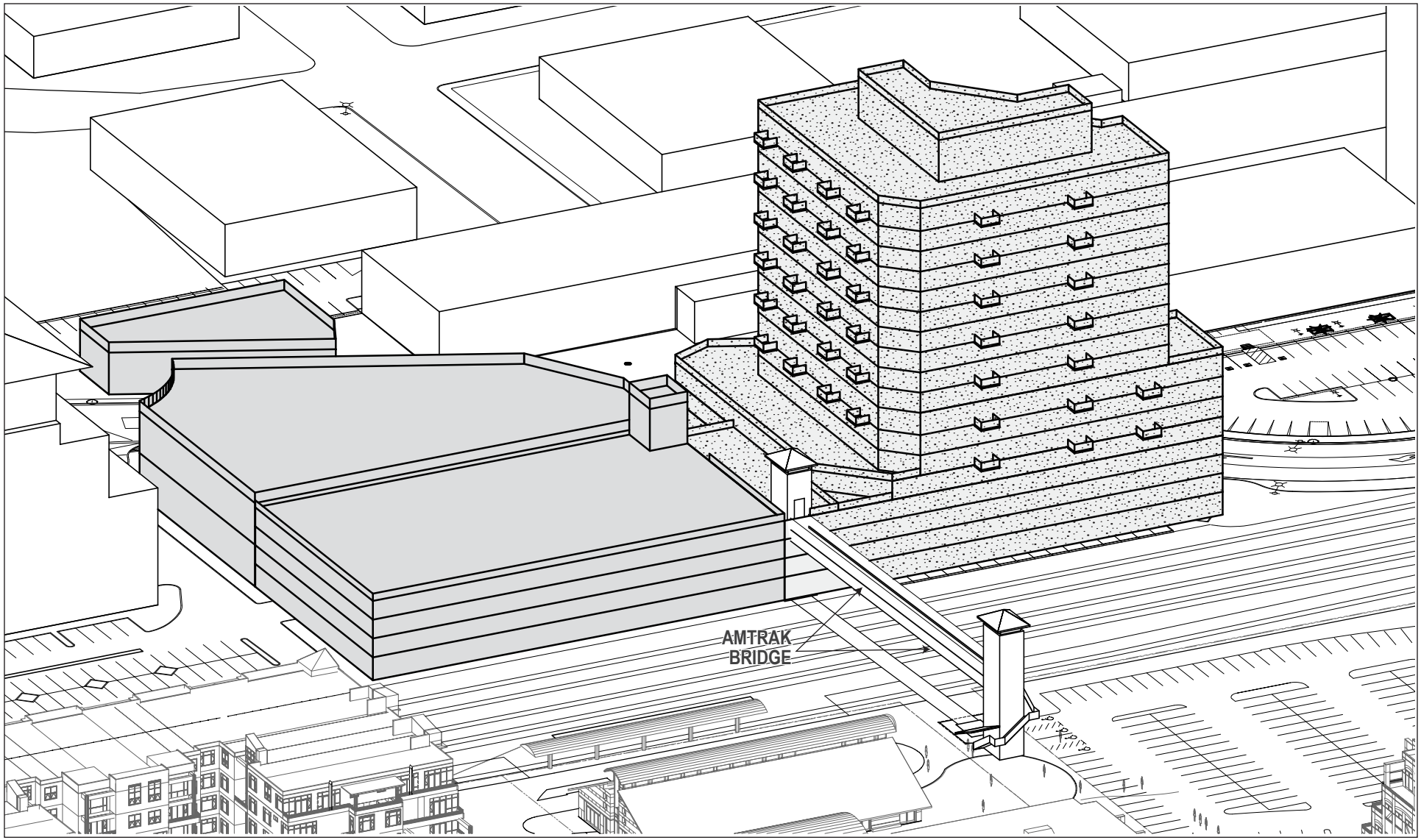


LSA

FIGURE VI-9

LEGEND

PHASE I PROPOSED BUILDINGS

PHASE II PROPOSED BUILDING

NOT TO SCALE

Marketplace Redevelopment Project EIR
Tower Alternative (Phase II)
Shellmound Building Zone:
Amtrak Pedestrian Bridge Connection

SOURCE: HELLER·MANUS ARCHITECTS, 2006.
I:\CEM531 marketplace\figures\Fig_VI9.ai (2/23/07)

Shellmound Site. The Shellmound site would be developed in two phases. Phase I development entails construction of the southern half of the site with an approximately 40-foot tall building, as depicted in Figure VI-7. The front (west) portion of this building would provide approximately 42,000 square feet of retail space distributed over two stories. The rear (east) portion of this building would provide four levels of structured parking. The surface parking area on the northern portion of this site would be partially reconfigured and would continue to be used for parking until it is redeveloped during Phase II.

Phase II development on the Shellmound site would entail construction of an 18-story, 175-foot high-rise mixed use tower on the northern half of the site, as depicted in Figures VI-7 and VI-8. This tower would be nine stories and 80 feet taller than the mid-rise building proposed by the project. This tower would include 45,370 square feet of ground-floor retail along Shellmound Street with parking to the rear; structured parking on floors two through five; and 180 multi-family residential units on floors 6 through 18. Development on the Shellmound site would represent a development reduction of 9,500 gross square feet of retail space and a development increase of 20 additional dwelling units compared to the proposed project.

Amtrak Pedestrian Connection. Figures VI-8 through VI-9 depicts how the Amtrak pedestrian over-crossing would be integrated into Phase II of this alternative. During Phase I development, the western tower would remain a stand-alone structure that would abut the four-story parking structure, connecting to the parking structure at the second level. Pedestrians would reach Shellmound Street by crossing the parking structure, exiting near the front of the building and descending two flights of stairs or using a new elevator within the parking structure. The existing elevator in the western Amtrak tower would be retained. Pedestrians utilizing the Amtrak tower elevator would reach Shellmound Street via a sidewalk located north of the four-story building, crossing vehicular traffic as it enters the parking structure. During Phase II of this alternative, the western Amtrak tower would be enclosed within the building.

64th & Christie Site. On the 64th & Christie site, a lot line adjustment would occur similar to the proposed project. The site would be developed with a four-story building that at its base would cover the site and provide approximately 24,000 square feet of ground-floor retail space (18,000 square feet more than the proposed project) and three to four levels of structured parking. Atop the northern portion of this building, a 14-floor tower would rise above the four-story base for a combined 18-story, high-rise building with an overall height of 175-feet. This tower would be 85 feet taller than the mid-rise building proposed by the project. The tower portion of this building would provide up to 208 multi-family residential units, 28 more than the proposed project. The 64th & Christie tower building is depicted in Figure VI-7.

UA Cinema Site. Under Phase II of this alternative, the UA Cinema site would be redeveloped with 160,000 square feet of retail anchor space in a two-story, 60-foot tall building (see Figure VI-7). The retail anchor building would be approximately 30 feet taller than the UA Cinema with approximately 120,000 additional gross square feet.

Site Improvements. Similar to the proposed project, the northern driveway and drive aisle would be realigned with 63rd Street west of Christie Avenue, providing access to the Pacific Park Plaza high-rise building and Avenue 64 apartments, which are under construction. Like the proposed project, a four-way stop sign would be installed at this intersection to slow traffic and enhance pedestrian

crossing safety and ease. Improvements to 64th Street and Christie Avenue proposed by the project would also occur under this alternative, including narrowing of the roadway with bulb-outs to slow vehicular traffic and enhanced sidewalk landscaping and shade trees.

Similar to the proposed project, pedestrian improvements to the UA Cinema across the surface-level parking area would be incorporated into this alternative. Under Phase II, the parking area in front (south) of the retail anchor building would be reconfigured with perpendicular surface spaces adjacent to this new building.

Under Phase I, some of the pedestrian improvements on Shellmound Street provided by the proposed project would also be provided by this alternative, including a new plaza at the base of the pedestrian stairway on the four-story portion of the Shellmound building, enhanced landscaping, and a circular driveway adjacent to the Woodfin Hotel. Under Phase II, additional improvements such as a consolidation of pedestrian crossings at one, widened crossing point and a passenger unloading area would be provided. The bus lay-over area in front of the Shellmound building provided by the proposed project would not be provided under this alternative.

Project Objectives. The Tower alternative would achieve all of the objectives of the proposed project.

2. Analysis of the Tower Alternative

The Tower alternative would add development to the site in similar locations as the proposed project. Impacts related to site demolition and construction would be similar to those associated with the proposed project.

Once constructed, the Tower alternative would provide similar pedestrian improvements as the proposed project. It would increase pedestrian safety by removing areas where vehicular and pedestrian conflict could occur. The 172,370 square feet of additional retail space and 48 additional dwelling units included in this alternative would generate more AM, PM, and Saturday peak hour trips compared to the proposed project. These additional trips would reduce level of service at eight intersections in addition to the intersections significant adversely affected by the proposed project. Noise impacts due to vehicular trips would be similar to the proposed project. Air quality impacts would require additional mitigation but would remain significant and unavoidable. This alternative would have greater aesthetic, wind, and shade and shadow impacts than the project because it would permanently block views not obstructed by the proposed project, cast shadows onto an outdoor seating area that would not be shaded by the proposed project, and would include building shapes/masses that could accelerate ground-level winds.

The following discussion provides a detailed comparison of the potential impacts of the Tower alternative compared with those of the proposed project.

a. Land Use. Under the Tower alternative, the existing mixed, retail/restaurant, service commercial, and office uses on the site would remain. The light industrial uses would be removed as part of Phase I, and the movie theater would be removed as part of Phase II. The site would be infilled with a mix of multi-family residential and retail uses. Similar to the proposed project, the existing and proposed uses on-site under this alternative would be compatible with the surrounding mixed uses on adjacent properties.

The surface-level parking areas would be reconfigured similarly to the proposed project. However, because this alternative would redevelop the UA Cinema site in Phase II with a larger building footprint, reconfiguration of surface parking near the theater would be delayed compared to the proposed project, which would make parking improvements around the theater during Phase I. Improvements to on-site vehicular and pedestrian circulation would be similar to the proposed project, including realignment of the northern driveway and drive aisle, circulation at the drop-off and parking area directly adjacent to the theater during Phase I, and improvements to Shellmound Street during Phase II to ease pedestrian safety and crossing. During Phase II, the western tower of the Amtrak overcrossing would be enclosed within a building, which, similar to the proposed project, would increase pedestrian safety and security. Consistent with the proposed project, no new roadways would be constructed under this alternative.

No land use conflicts would result from this alternative, consistent with the proposed project. The Tower alternative would provide an efficient, accessible, and usable land use plan, similar to the proposed project. The addition of residential uses to the site is in keeping with the goals of the redevelopment plan for the area and General Plan policies for mixed use sites, similar to the proposed project.

b. Population, Employment and Housing. The Tower alternative would add 388 multi-family units, including some affordable housing for lower income households, which would increase the City's resident population by approximately 660 persons. The additional office and retail space would add approximately 500 jobs. Emeryville currently provides more jobs than dwelling units, resulting in an imbalance of the City's jobs/employed residents ratio. The proposed project would accommodate 578 residents and 155 new jobs. Both the proposed project and the Tower alternative would improve the City's jobs-to-employed-residents ratio, although the proposed project would provide a slight greater benefit.

c. Transportation, Circulation, and Parking. Table VI-12 provides a summary of the Tower alternative's peak hour trip generation compared to the proposed project. As shown in this table, the Tower alternative would generate more trips than the proposed project for all peak hour periods, with the largest difference being an approximate doubling of trips in the AM peak hour.

Table VI-12: Tower Alternative Peak Hour Trip Generation Compared to Proposed Project

Scenario	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Proposed Project	71	148	**219**	261	198	**459**	298	246	**544**
Tower Alternative	282	334	**616**	523	429	**952**	806	648	**1,454**
Difference: Alternative to Project	211	186	**397**	262	231	**493**	508	402	**910**
% Difference: Alternative to Project	297%	126%	**181%**	100%	116%	**107%**	170%	163%	**167%**

Source: Fehr & Peers, 2007.

Table VI-13 compares intersection delay and LOS associated with the Tower alternative to that of the proposed project. This alternative would result in eight additional intersection impacts that would not occur with the proposed project, and would worsen queuing impacts identified for the proposed

Table VI-13: Proposed Project Intersection Delay and LOS Compared to Tower Alternative for Existing, 2010, and 2030 Conditions

Intersections	Control[1]	Peak Hour	Existing Condition				2010 Condition				2030 Condition			
			Proposed Project		Tower Alternative		Proposed Project		Tower Alternative		Proposed Project		Tower Alternative	
			Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS
2. Ashby Avenue/San Pablo Avenue	Signal	AM	33	C	36	D	33	C	34	C	41	D	43	D
		PM	42	D	44	D	84	F	***92***	***F***	***135***	***F***	***148***	***F***
4. 65th Street/Shellmound Street	AWSC/ Signal[3]	AM	10	A	11	B	14	B	15	B	13	B	14	B
		PM	***72***	***F***	***113***	***F***	25	C	26	C	26	C	36	D
		SAT	***53***	***F***	***135***	***F***	23	C	26	C	18	B	29	C
8. 64th Street/Shellmound Street	SSSC	AM	2 (11)	A (B)	2 (12)	A (B)	2 (12)	A (B)	3 (14)	A (B)	2 (13)	A (B)	3 (16)	A (C)
		PM	2 (19)	A (C)	4 (34)	A (D)	2 (21)	A (C)	5 (43)	A (E)	2 (27)	A (D)	16 (173)	C (F)
		SAT	2 (21)	A (C)	9 (86)	A (F)	3 (43)	A (E)	***69 (> 100)***	***F (F)***	8 (127)	A (F)	***>100 (>100)***	***F (F)***
11. I-80 Hook Ramps/Frontage Road	Signal	AM	15	B	15	B	15	B	15	B	16	B	16	B
		PM	38	D	40	D	44	D	47	D	43	D	46	D
		SAT	16	B	18	B	21	C	27	C	20	B	22	C
13. Powell Street/I-80 Eastbound Ramps	Signal	AM	27	C	28	C	30	C	31	C	39	D	40	D
		PM	***83***	***F***	***88***	***F***	***114***	***F***	***121***	***F***	***115***	***F***	***124***	***F***
		SAT	***62***	***E***	***66***	***E***	***106***	***F***	***118***	***F***	***112***	***F***	***119***	***F***
14. Powell Street/Christie Avenue	Signal	AM	28	C	29	C	33	C	33	C	56	E	56	E
		PM	46	D	52	D	86	F	***92***	***F***	90	F	90	F
		SAT	45	D	***62***	***E***	111	F	***126***	***F***	136	F	137	F
16. Powell Street/Hollis Street	Signal	AM	30	C	30	C	38	D	38	D	51	D	52	D
		PM	55	D	***56***	***E***	84	F	***88***	***F***	***120***	***F***	***125***	***F***
		SAT	24	C	26	C	30	C	34	C	50	D	***58***	***E***
18. 40th Street/Horton Street	Signal	AM	21	C	21	C	23	C	23	C	37	D	37	D
		PM	28	C	29	C	34	C	36	D	128	F	***133***	***F***
19. 40th Street/Hollis Street	Signal	AM	27	C	27	C	29	C	31	C	38	D	41	D
		PM	39	D	41	D	52	D	***57***	***E***	85	F	***90***	***F***
21. 40th Street/Emery Street	Signal	AM	24	C	24	C	23	C	23	C	29	C	29	C
		PM	32	C	32	C	36	D	37	D	106	F	***109***	***F***
		SAT	21	C	21	C	24	C	24	C	83	F	***88***	***F***
22. 40th Street/San Pablo Avenue	Signal	AM	33	C	33	C	36	D	36	D	45	D	45	D
		PM	45	D	47	D	74	E	***78***	***E***	145	F	***148***	***F***
		SAT	39	D	41	D	72	E	***76***	***E***	133	F	***138***	***F***
24. Mandela Pkwy/Horton Street	AWSC	AM	8	A	8	A	9	A	10	A	11	B	11	B
		PM	15	C	17	C	24	C	30	D	75	E	***85***	***F***
-- Shellmound Street/Marketplace Driveway	AWSC	AM	8	A	9	A	8	A	10	A	8	A	10	A
		PM	20	C	68	F	24	D	> 100	F	32	D	> 100	F
		SAT	16	C	90	F	28	D	> 100	F	32	D	> 100	F

Notes: Results in bold indicate deficient levels of service.
1. SSSC = side-street stop controlled intersection; AWSC = all-way stop controlled intersection; Signal = signalized intersection.
2. Average intersection control delay reported for signalized and all-way stop controlled intersections. Average intersection delay and worst case approach delay reported for side-street stop controlled intersections.
3. Intersection vehicular control is AWSC in Existing Condition scenario only. Intersection control converted to signal by 2010.
Source: Fehr & Peers, 2007

project. Implementation of the proposed project's mitigation measures, in addition to the measures described below would reduce the Tower alternative's impacts to less-than-significant levels.

Impact TRAF-1 (Tower alternative): The 65th Street/Hollis Street intersection would degrade to LOS E during the PM peak hour in the Future 2030 scenario. (S)

Mitigation Measure TRAF-1 (Tower alternative): The City shall re-time the traffic signal at the 65th Street/Hollis Street intersection so that the intersection operates at an acceptable level of service. (LTS)

Impact TRAF-2 (Tower alternative): The 64th Street/Shellmound Street intersection would degrade to LOS F(F) during the Saturday peak hour in the Future 2010 scenario with a 69 (>100)-second delay and would degrade to LOS F(F) during the Saturday peak hour in the Future 2030 scenario with a >100(>100)-second delay. (S)

Mitigation Measure TRAF-2 (Tower alternative): The City shall install a traffic signal at the intersection of 64th Street/Shellmound Street when warranted by actual conditions. (LTS)

Impact TRAF-3 (Tower alternative): The Powell Street/Christie Avenue intersection would operate at LOS E during the Saturday peak hour. The intersection would remain at LOS F and delay would increase by 6 seconds in the weekday PM peak hour and 18 seconds in the Saturday peak hour as compared to the proposed project. (S)

Mitigation Measure TRAF-3 (Tower alternative): The City shall modify the intersection to provide dual westbound left-turn lanes and an exclusive southbound left-turn lane (in addition to the shared left-through lane), and increase the storage length of the westbound right-turn pocket. These improvements would require widening of Powell Street and Christie Avenue and would also increase pedestrian crossing distance for the intersection. (LTS)

Impact TRAF-4 (Tower alternative): The 40th Street/Horton Street intersection would continue to operate at LOS F and delay would increase by 6 seconds as compared to the proposed project. (S)

Mitigation Measure TRAF-4 (Tower alternative): The City shall re-time the traffic signals along the 40th Street corridor so that the 40th Street/Horton Street, 40th Street/Hollis Street, 40th Street/Emery Street, and 40th Street/San Pablo Avenue intersections operate at an acceptable LOS. (LTS).

Impact TRAF-5 (Tower alternative): The 40th Street/Hollis Street intersection would degrade to LOS E during the PM peak hour in the Future 2010 scenario. In the Future 2030 scenario, this intersection would continue operating at LOS F and delay would increase by 8 seconds as compared to the proposed project. (S)

Mitigation Measure TRAF-5 (Tower alternative): Implement Mitigation Measure TRAF-4 (Tower alternative). (LTS)

Impact TRAF-6 (Tower alternative): The 40th Street/Emery Street intersection would continue to operate at LOS F and delay would increase by 5 seconds during the PM peak hour and 7

seconds during the Saturday peak hour in the Future 2030 scenario as compared to the proposed project. (S)

Mitigation Measure TRAF-6 (Tower alternative): Implement Mitigation Measure TRAF-4 (Tower alternative). (LTS)

Impact TRAF-7 (Tower alternative): The 40th Street/San Pablo intersection would continue to operate at LOS E and delay would increase by 6 seconds during the PM peak hour and Saturday peak hour in the Future 2010 scenario as compared to the proposed project. In the Future 2030 scenario, the intersection would continue to operate at LOS F and delay would increase by 6 seconds during the PM peak hour and 8 seconds during the Saturday peak hour as compared to the proposed project. (S)

Mitigation Measure TRAF-7 (Tower alternative): Implement the planned improvements to the 40th Street/San Pablo Avenue intersection, including the provision of an eastbound right turn lane. Install the improvement with a right turn overlap phase and retiming of the signals on the 40th Street and San Pablo Avenue corridors, taking into account BRT operation.

Implementation of this measure would reduce the project impact to a less-than-significant level. However, this intersection is under the jurisdiction of Caltrans since San Pablo Avenue is a state highway at this intersection. Implementation of the measure cannot be assured by the City of Emeryville. Therefore, this impact would remain significant and unavoidable. (PSU)

Mitigation Measure TRAF-8 (Tower alternative): The Mandela Parkway/Horton Street intersection would degrade to LOS F during the PM peak hour and delay would increase by 14 seconds in the Future 2030 scenario. (S)

Mitigation Measure TRAF-8 (Tower alternative): A traffic signal shall be installed when warranted by actual conditions.

Implementation of this measure would reduce the project impact to a less-than-significant level. However, this intersection is in the City of Oakland. Implementation of the measure cannot be assured by the City of Emeryville. Therefore, this impact would remain significant and unavoidable. (PSU)

Impact TRAF-9 (Tower alternative): The Tower alternative could result in vehicle, pedestrian, and bicycle conflicts and inadequate pedestrian and bicycle access. (S)

Mitigation Measure TRAF-9 (Tower alternative): The applicant shall prepare a detailed circulation plan that clearly depicts vehicle, pedestrian, and bicycle access and associated routes prior to obtaining a grading or building permit. The City shall review the plan for adequacy based on applicable pedestrian, bicycle, and parking safety standards prior to issuing a grading or building permit. (LTS)

d. Air Quality. Air quality impacts associated with the Tower alternative would be greater than those associated with the proposed project. The Tower alternative would have more construction

activity. The construction activity mitigation measure for the proposed project (**AIR-1**) would be applicable to the Tower alternative. Implementation of Mitigation Measure AIR-1 would reduce construction activity impacts to a less-than-significant level. The Tower Alternative would not result in CO hot-spots, similar to the proposed project.

The Tower alternative would not conflict with the Bay Area 2005 Ozone Strategy; however, regional emissions would exceed the BAAQMD standards for ozone precursor emissions, as shown in Table IV-14 (and detailed in Appendix C-4). Additional mitigation would be required to reduce vehicular trips associated with this alternative, as described below, to minimize this impact to the greatest extent feasible. Implementation of the recommended mitigation measure as described below would

Table VI-14: Tower Alternative Regional Emissions in Pounds Per Day Compared to Proposed Project

	Reactive Organic Gases		Nitrogen Oxides		PM_{10}	
	Proposed Project	**Tower Alternative**	**Proposed Project**	**Tower Alternative**	**Proposed Project**	**Tower Alternative**
Regional Emissions	52.74	97.23	67.35	115.24	40.25	66.38
BAAQMD Significance Threshold	80.0	80.0	80.0	80.0	80.0	80.0
Exceed?	**No**	**Yes**	**No**	**Yes**	**No**	**No**

Source: LSA Associates, Inc., 2007.

reduce the impact to the greatest extent feasible but the impact would remain significant and unavoidable.

Impact AIR-1 (Tower alternative): Implementation of the Tower alternative would result in regional emissions that exceed the BAAQMD standards for ozone precursor emissions. (S)

Mitigation Measure AIR-1 (Tower alternative): The *BAAQMD CEQA Guidelines* document identifies potential mitigation measures for various types of projects. The following are considered to be feasible and effective in further reducing vehicle trip generation and resulting emissions from the project. These measures shall be implemented at the project site:

- Provide transit facilities (e.g., bus bulbs/turnouts, benches, shelters).
- Provide bicycle lanes and/or paths, connected to community-wide network.
- Provide sidewalks and/or paths, connected to adjacent land uses, transit stops, and/or community-wide network.
- Provide secure and conveniently located bicycle and storage.
- Implement feasible transportation demand management (TDM) measures including a ride-matching program, coordination with regional ridesharing organizations and provision of transit information.

Implementation of an aggressive trip reduction program with the appropriate incentives for non-auto travel would reduce project impacts by approximately 10 to 15 percent. Even with

this reduction, ozone precursor emissions would still exceed the significance thresholds. As a result, the Tower alternative's regional air quality impacts would be greater than those associated with the proposed project, and would be considered significant and unavoidable. (SU)

e. Noise and Vibration. Noise and vibration impacts related to the Tower alternative would not differ substantially from the proposed project. As shown in Table VI-15, modeled traffic noise levels of affected roadway segments for this alternative would decrease slightly compared to the proposed project, but the impact would still be significant. This alternative would result in similar railroad noise and ground-borne vibration impacts as the proposed project. Short-term construction related noise

Table VI-15: Tower Alternative Traffic Noise Levels [a]

	Existing			2010			2030		
Roadway Segment	**Proposed Project (dBA)**	**Tower Alt. (dBA)**	**Change (dBA)**	**Proposed Project (dBA)**	**Tower Alt. (dBA)**	**Change (dBA)**	**Proposed Project (dBA)**	**Tower Alt. (dBA)**	**Change (dBA)**
Powell Street (Christie Avenue to Hollis Street)	66.8	66.4	-0.4	67.8	67.1	-0.7	68.2	67.4	-0.8
40th Street (Harlan Street to Emery Street)	63.5	63.0	-0.5	64.3	63.7	-0.6	65.4	64.8	-0.6
40th Street (Emery Street to San Pablo Avenue)	62.7	62.8	0.1	63.6	63.6	0.0	64.3	64.4	0.1
40th Street (San Pablo Avenue to Adeline Street)	61.2	61.3	0.1	62.2	62.2	0.0	62.9	63.0	0.1
San Pablo Avenue (Adeline Street to 36th Street)	64.3	64.4	**0.1**	65.3	65.4	**0.1**	65.9	66.0	**0.1**

[a] Data provided indicates LDN (dBA) 50 feet from Centerline of Outermost Lane.
Source: LSA Associates, Inc., 2006.

impacts would also be similar to those associated with the proposed project. Noise impacts and mitigation measures **NOISE-1 through NOISE-5** identified for the proposed project would all be applicable to the Tower alternative. Implementation of Mitigation Measures NOISE-1 to NOISE-5 would reduce the Tower alternative's noise and vibration impacts to a less-than-significant level.

f. Hazardous Materials/Public Health and Safety. Under the Tower alternative, a fourth retail pad would be added in a location that is outside the Marketplace Covenant area (see Figure V.F-1). The industrial buildings on the 64th & Christie site would be demolished in Phase I, and replaced with a high-rise building with a similar mix of uses as proposed as part of the project for this site. The Shellmound site would be constructed in two phases. Phase I development would entail construction on the southern half of the site of retail and parking uses, which would be located outside the Marketplace Covenant area. Phase II development would entail construction on the northern half of the site of a high-rise, mixed use building, including non-ground floor residential uses, as considered under the proposed project. Phase II development on this site would be partially constructed within the covenant area, similar to the proposed project. Also under Phase II, the UA Cinema would be demolished and replaced with a retail anchor store. The cinema site is located outside the covenant area.

No new impacts or mitigation measures would result from implementation of the Tower alternative. All the impacts (**HAZ-1 to HAZ-4**) and mitigation measures for the proposed project would be

applicable to the Tower alternative, with the following modifications. Mitigation Measure HAZ-1a, which requires preparation of a site health and safety plan for construction workers, and Mitigation Measure HAZ-1b, which requires preparation of a soil management plan, would need to be expanded to include the location of Retail Pad 4, the UA Cinema site, and the tower constructed in Phase I. Further, Mitigation Measure HAZ-2, which requires asbestos and lead-based paints surveys, abatement, and proper management and disposal of other hazardous building materials, would need to be expanded to cover the demolition of the UA Cinema under Phase II. Implementation of the proposed project's mitigation measures, with the above modifications, would result in less-than-significant impacts, similar to the proposed project.

g. Geology, Soils and Seismicity. Although the two phases of development proposed under the Tower alternative would increase grading activities, total developed areas, and building heights compared to the proposed project, the site would be subject to similar geologic and seismic conditions and constraints as the proposed project. An earthquake on a nearby fault, such as the Hayward, San Andreas or other regional faults, could result in strong seismic shaking at the project site. The primary geologic concerns for the site are direct damage to structures from seismic shaking, seismically induced liquefaction and attendant ground failure, expansive soils, and settlement or differential settlement. In addition, the relatively high tower construction would likely result in increased loads on foundation structures such as piers. Each of the impacts and mitigation measures identified for the proposed project (**GEO-1 to GEO-4**) would be applicable to the Tower alternative. Implementation of Mitigation Measures GEO-1 to GEO-4 would reduce the Tower alternative's impacts to a less-than-significant level, similar to the project. No additional mitigation would be required.

h. Hydrology and Storm Drainage. Under the Tower alternative, the overall intensity of development would be increased relative to the proposed project but the area of impervious surface that would generate stormwater is similar for the alternative and the proposed project. As with the proposed project, this alternative would be required to comply with City and County permit specifications for treatment of stormwater runoff prior to discharge. Each of the impacts and mitigation measures identified for the proposed project (**HYD-1 to HYD-3**) would also be applicable to this alternative. Implementation of Mitigation Measures HYD-1, HYD-2, and HYD-3 would ensure that impacts to runoff water quality would be less than significant for both the construction and the operational phases of the alternative, similar to the proposed project. No additional mitigation would be required.

i. Cultural and Paleontological Resources. Under the Tower alternative, seven new buildings would be developed in similar locations as the proposed project and the site would be subject to grading and other ground disturbing activities. The project area is sensitive for subsurface historical, archaeological, or paleontological resources, which could be unearthed during site preparation and construction of this alternative. Impacts and mitigation measures **CULT-1 to CULT-3** would be applicable to the Tower alternative. Implementation of Mitigation Measures CULT-1 to CULT-3 would reduce the Tower alternative's impacts to cultural and paleontological resources to a less-than-significant level.

j. Aesthetic Resources. The Tower alternative would add four single-story retail pad buildings, a two-story retail anchor building, and two 18-story high-rise mixed residential, retail, and parking buildings to the site. On the Shellmound site, the placement of the 18-story tower portion of this building north of the western Amtrak pedestrian bridge would permanently block northwest views of

the Bay and Mt. Tamalpais from this vantage point; these views would be preserved by the proposed project. However, because the southern portion of this building would be limited to 40 feet in height, approximately 5 to 10 feet lower than the building constructed as part of proposed project, a greater portion of views of the Bay and Mt. Tamalpais as seen from the Powell Street overcrossing would be preserved. The high-rise tower on the 64th & Christie site would also be visible from the Powell Street overcrossing and would frame the Bay view along with the Pacific Park Plaza tower. Additionally, concentrating the tower portion of development on the north half of the Shellmound site would retain a larger northwest view corridor across the project site as seen from the Powell Street overcrossing.

The placement of Retail Pad 4 on the southwest corner of Shellmound Street and Shellmound Way would block views north through the site, which, for the proposed project, include the 64th & Christie mid-rise building.

The high-rise tower on the Shellmound site would dominate south-facing views on Shellmound Street. The Shellmound building proposed by the project would be nine stories and 95 feet in height, which is similar to other mid-rise buildings in the project area. The Tower alternative would add an 18-story, 175-foot tall building to this site, which is approximately 80 feet taller than the Marketplace Tower and 50 feet taller than the Woodfin Hotel. However, because this building would have a similar east-to-west mass as the proposed project, it would have a comparable effect on views from this vantage point.

From a distance, the high-rise tower on the 64th & Christie site would be much more visually pronounced than the mid-rise building proposed by the project. Under the Tower alternative, this building would be 18 stories and 175 feet tall, which is approximately 85 feet taller than the mid-rise building proposed by the project for this site. However, by stepping-back the upper, tower portion of this building from its four-story lower base the building's adverse visual effects would be reduced on the pedestrian streetscape as well as adjacent mid-rise buildings, and the configuration would create a more comfortable space for pedestrians.

Impacts and mitigation measures **AES-1 and AES-2** identified for the proposed project would be applicable to the Tower alternative. Similar to the proposed project, the two 18-story high-rise tower buildings would be of a size and mass that would alter the intrinsic architectural character of the project site and surroundings. Implementation of Mitigation Measure AES-1 would ensure these buildings would be appropriately designed to ensure that they are visually compatible with the surrounding area. Like the project, the development proposed under this alternative would create additional sources of glare and light. Implementation of Mitigation Measure AES-2 would ensure that light and glare sources would be appropriately designed and that associated adverse effects would be minimized. Because the Tower alternative would have greater impacts on views compared to the proposed project, it would have a greater overall effect on aesthetic resources but these impacts would be less than significant with mitigation.

k. Public Services and Utilities. Impacts to public services and utilities for the Tower alternative would be comparable to those for the proposed project. The alternative would create a comparable increase in demand for fire and police protection, schools, library services, parks, water supply, wastewater collection and treatment, and post-construction solid waste facilities and infrastructure. The impacts associated with increased demand for these services and utilities would be less-than-significant with mitigation. Impacts and mitigation measures **PS-1 and PS-2** identified for the

proposed project would be applicable to the Tower alternative. Implementation of Mitigation Measures PS-1 and PS-2 would ensure that demolition, construction, and on-going operation of the Tower alternative would conform to Measure D solid waste recycling requirements, and would reduce waste generation impacts to a less-than-significant level.

l. Wind. The four single-story retail pad buildings would not extend in height above surrounding structures nor be of a large enough mass to substantially increase local winds. The two 18-story high-rise buildings would generally be oriented along a north/south axis and would extend in height over surrounding buildings. The generally square shape of the retail anchor building (on the UA Cinema site) would create an extension of the east-west axis of the building on the 64th & Christie site. The square shape and long, extended flat surfaces of this building could increase ground-level winds, if not properly designed. This impact would not occur with the proposed project. An additional mitigation measure would be required to ensure that final design of the building is reviewed by a wind consultant and incorporates sufficient building articulation, modulation, and porous materials (e.g. landscaping) to preserve pedestrian comfort.

The orientation and massing of the two 18-story buildings would intercept westerly winds year round, as well as southeasterly winds, which occur during the winter. Incorporating the walkway from the Amtrak bridge to Shellmound Street within the building would remove the proposed project's potential to accelerate wind in this corridor. However, similar to the project, the massing and shape of these buildings would create wind acceleration along the roofs of the low rise portions of the buildings, resulting in windy roof deck parking areas. Impact and mitigation measure WIND-1 for the project would be applicable to this alternative. Implementation of Mitigation Measure WIND-1a for the project would ensure that roof areas used by site patrons or residents would be designed such that wind acceleration would be reduced to less-than-significant levels.

Unlike the proposed project, the shape and massing for the two, 18-story towers is not broken-up or articulated, particularly for the 64th & Christie site, which would contain flat, extended wall surfaces. As a result, intercepted westerly winds could accelerate along these surfaces, resulting in increased ground level winds. As with the two-story retail anchor building, additional mitigation that incorporates sufficient building articulation, modulation and porous materials into final building designs would be required to reduce the potential for ground borne wind acceleration. A wind consultant would review the final building design to ensure it would adequately decrease wind acceleration to provide for pedestrian comfort. Because the Tower alternative has the potential to increase ground level winds and would require an additional mitigation measure not required for the proposed project, it would result in more substantial wind impacts. The following impact and mitigation measure would be applicable to the Tower alternative.

Impact WIND-1 (Tower alternative): The construction of the Shellmound building, 64th & Christie, and retail anchor buildings could substantially increase ground-level winds. (S)

Mitigation Measure WIND-1 (Tower alternative): Final design of the Shellmound, 64th & Christie, and retail anchor buildings shall be subject to review by a qualified wind consultant. The design review shall evaluate the architect's employment of one or more of the following design guidelines to reduce wind impacts to a less-than-significant level:

- West or southeasterly building faces shall be articulated and modulated through the use of architectural devices such as surface articulation, variation, variation of planes, wall surfaces and heights, as well as the placement of step-backs and other features.
- Utilize properly-located landscaping to mitigate winds. Porous materials (vegetation, hedges, screens, latticework, perforated or expanded metal) offer superior wind shelter compared to a solid surface.
- Avoid narrow gaps between buildings where westerly or southeasterly winds could be accelerated.
- Avoid "breezeways" or notches at the upwind corners of the building.

Wind tunnel or computerized computational fluid dynamics testing shall be required if a review of the final architectural design of the proposed mid-rise buildings is insufficient to determine whether the buildings would result in adverse wind impacts. Testing shall be used to determine if wind accelerations generated by the structure could reach hazardous levels and to develop design modifications that would reduce impacts to a less-than-significant level. (LTS)

m. Shade and Shadow. Tower alternative shadow pattern simulations for build out of Phase II development are compared to the proposed project in Appendix H (Figures A.H-19 through A.H-24).

The high-rise towers proposed for the northern portion of the Shellmound site and for the 64th and Christie site would be 80 feet and 85 feet taller, respectively, than the mid-rise buildings proposed by the project. In addition, redevelopment of the UA Cinema site would construct a 60-foot tall retail anchor building that would be approximately 30 feet taller than the existing theater. Consequently, shadows cast by the buildings constructed as part of the Tower alternative would be more extensive than those cast by the buildings constructed as part of the proposed project.

In the early morning hours, the Shellmound tower would cast new shadows on Shellmound Street, extending northwest onto the public seating area in front (east) of the Public Market main entry. Early morning shadows cast by the 64th & Christie tower and 60-foot retail anchor buildings that would not occur with the proposed project would extend northwest across the 64th Street and Christie Avenue intersection and across 64th Street, respectively. During the winter solstice, shadows cast by the two tower buildings would be extensive, extending onto the roof of the Public Market buildings and north of Christie Avenue onto the EmeryBay Apartments and Offices roofs, as well as the roadway and sidewalks.

In the late afternoon hours, shadows cast by the tower on the Shellmound site would extend farther east than the proposed project; new shadows would be created east of the UPRR tracts. Because the high-rise tower would only cover the northern half of the Shellmound site, it would not cast shadows otherwise cast by the southern half of the Shellmound building proposed by the project, including shadow on the Amtrak pedestrian bridge late in the day on the spring and fall equinoxes. The tower on the 64th & Christie site and retail anchor building would cast new shadows east and northeast that would darken 64th Street, particularly during the spring and fall equinoxes. No new shade or shadows would be cast on Christie Park; however, new shadows would be cast onto the outdoor seating area in front (east) of the Public Market building in the early morning and late afternoon hours. Overall, the Tower alternative would result in greater impacts to shade and shadow on public places compared to the proposed project.

D. MAIN STREET ALTERNATIVE

The following discussion describes the Main Street alternative and analyzes the alternative's potential impacts compared to those of the proposed project.

1. Principal Characteristics

Under the Main Street alternative, the 15-acre project site would be substantially redeveloped to: remove all surface level parking; realign Shellmound Street directly in front of the Marketplace Tower and Public Market buildings; add two new streets through the site with on-street parking (i.e., 63rd and 62nd Streets); and add seven new buildings to the site, including a mixed use building with a residential tower, low-rise retail space and structured parking; a mixed use building with two office towers, low-rise retail and structured parking, two mixed use buildings with residential, retail space and structured parking and three retail buildings. Compared to the proposed project, the Main Street alternative would provide 48 more dwelling units, an additional 134,500 square feet of retail/restaurant space, 415,000 square feet additional office space, and 40,000 fewer square feet of entertainment space (due to removal of UA Cinema). Figures VI-10 through VI-12 provides site plan and axonometric views of this alternative. Table VI-16 compares the Main Street alternative to the proposed project. The key components of the Main Street alternative compared to the proposed project are described below.

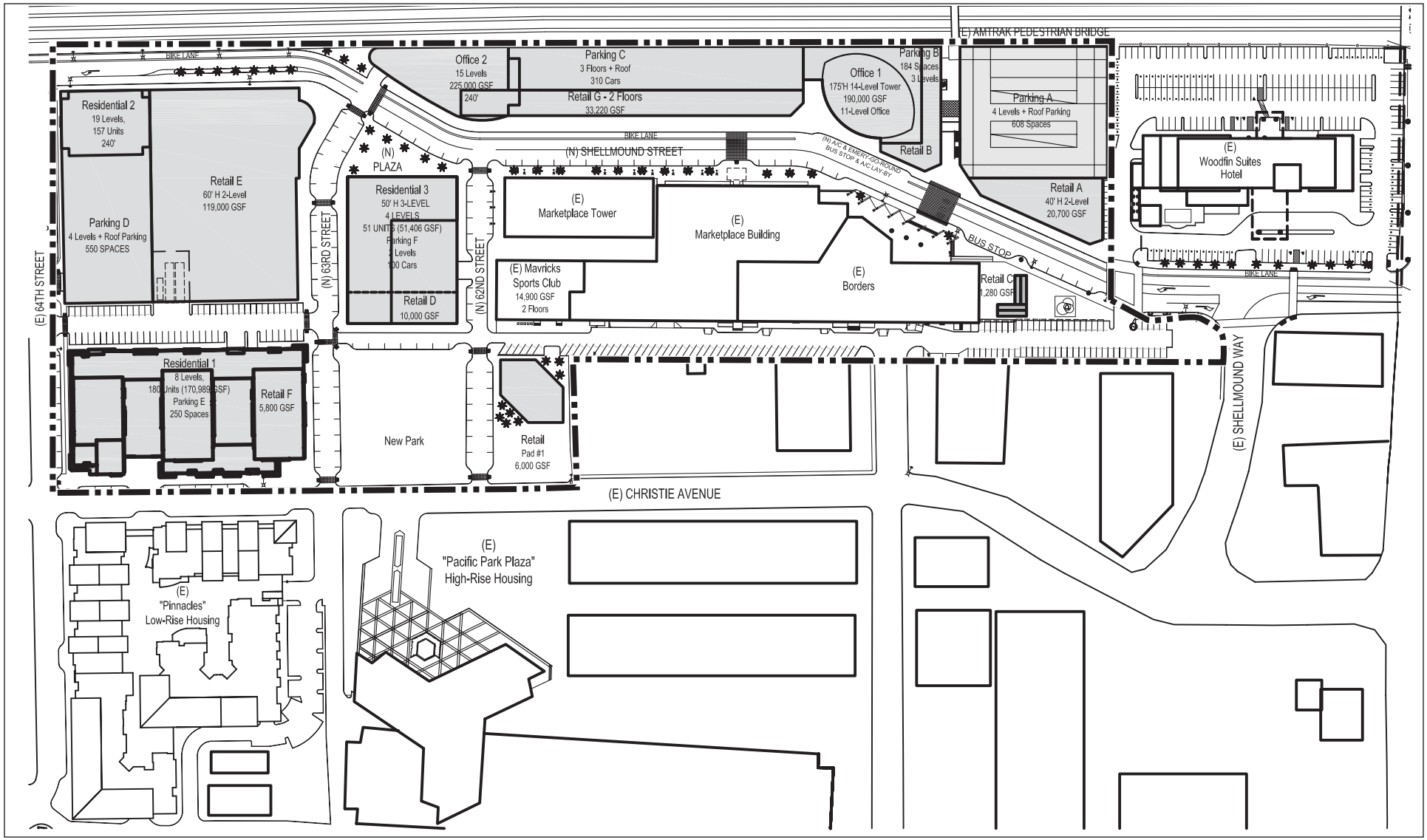
Existing Uses. Under this alternative, the Marketplace Tower and Public Market buildings would be retained, and the two light industrial buildings on the corner of 64th Street and Christie Avenue would be removed, similar to the proposed project. Unlike the proposed project, the UA Cinema buildings would be removed under this alternative. Christie Park on Christie Avenue would be shifted north about 100 feet to allow the construction of 62nd Street between Shellmound Street and Christie Avenue.

Table VI-16: Main Street Alternative Development Scenario Compared to the Proposed Project

Use	Existing	Proposed Project		Main Street Alternative		Difference
		Proposed Project	Project + Existing	Main Street Alt.	Main Street + Existing	Alternative to Project
Multi-Family (units)	0	340	340	388	388	48
Retail/Restaurant (SqFt)	94,665	77,000	169,665	209,500	304,165	134,500
Office (SqFt)	121,260	0	121,260	415,000	536,260	415,000
Entertainment (SqFt)	40,000	0	40,000	-40,000	-40,000	-40,000
Industrial (SqFt)	26,000	-26,000	-26,000	-26,000	-26,000	0

Source: LSA Associates, 2007.

Retail Pads. One retail pad and one small retail structure are proposed by this alternative. The retail pad would be located south of 62nd Street in the area currently occupied by Christie Park. To accommodate 62nd Street and the proposed retail pad the park would be moved northward. A lot line adjustment would be required but the new park is proposed to be the same size as the existing park. A 6,000 square-foot restaurant pad would be built next to the park and a 1,280 square-foot themed retail structure using recycled shipping containers or railroad cars would be constructed south of Borders.



LSA

FIGURE VI-10

Marketplace Redevelopment Project EIR
Main Street Alternative
Master Site Plan

LEGEND

PROJECT SITE
PROPOSED BUILDINGS
(E) EXISTING
(N) NEW/PROPOSED

N

0 120 240
FEET

400

SOURCE: HELLER·MANUS ARCHITECTS, JUNE 2007.
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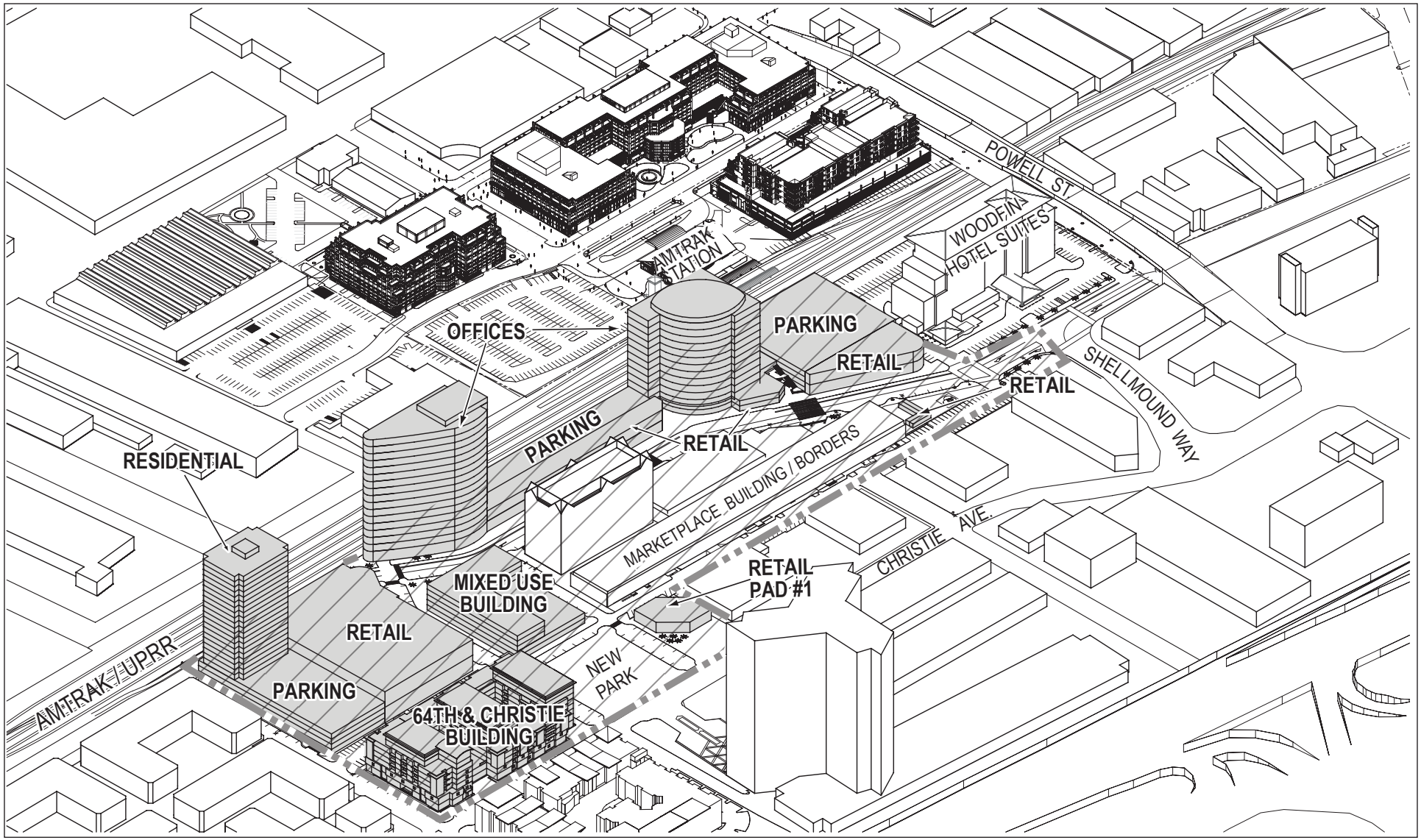

LSA

FIGURE VI-11

LEGEND

PROJECT SITE

PROPOSED BUILDING

NOT TO SCALE

Marketplace Redevelopment Project EIR
Main Street Alternative
Illustrative Axonometric
(Bird's Eye View) of Built Project

SOURCE: HELLER·MANUS ARCHITECTS, 2007.
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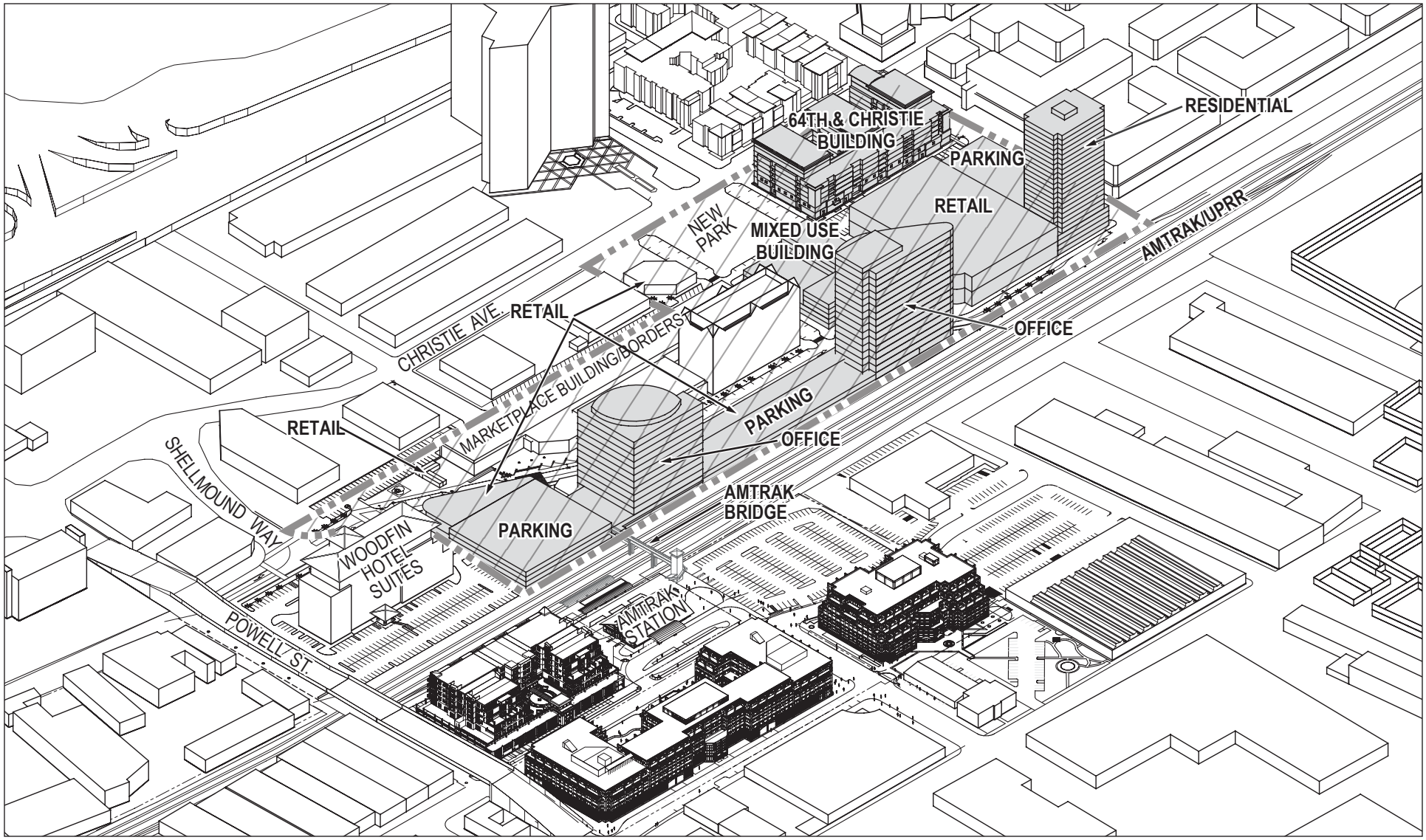

LSA

FIGURE VI-12

LEGEND

PROJECT SITE

PROPOSED BUILDINGS

NOT TO SCALE

Marketplace Redevelopment Project EIR
Main Street Alternative
Illustrative Axonometric
(Bird's Eye View) of Built Project:
Amtrak Pedestrian Bridge

SOURCE: HELLER·MANUS ARCHITECTS, JUNE 2007.
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The combined retail pad space assumed under this alternative is 7,280 square feet, which is 8,720 square feet less than would be developed as part of the proposed project.

Shellmound Site. The south half of the Shellmound site would be developed with low-rise retail space and structured parking. The north half of the site would be occupied by an office tower, low-rise retail and structured parking. The building developed on the southern half of this site would be approximately 40 feet tall where it abuts Shellmound Street and pedestrian activity areas. The front (west) portion of this building would provide 20,700 square feet of retail space distributed over two floors. The rear (east) portion of the buildings base would provide four levels plus roof of structured parking. The only surface parking area that would remain on this site would be located south of this building, adjacent to the Woodfin Hotel. The buildings' massing is depicted in Figure VI-11.

Development of the northern portion of the Shellmound site would entail construction of two office towers connected by low-rise retail space and structured parking. A 14-story, 175-foot tall office tower would anchor the south end of the complex and a 19-story, 240-foot tall office tower with 15 levels of office over four levels of parking is proposed for the north end of the complex. A two-story retail space fronting Shellmound Street and three levels plus roof of structured parking between the retail space and the railroad tracks are proposed for the area between the two towers. Uses provided in this complex of structures would include: 415,000 square feet of office space, 36,720 square feet of retail space on two floors; and three levels plus roof of structured parking.

Amtrak Pedestrian Connection. The western tower of the Amtrak bridge would remain a stand-alone structure that would abut the 14-story office tower to the north and the parking structure to the south (both on the Shellmound site). A series of stairways would extend from the western tower into a new plaza fronting Shellmound Street, bringing pedestrians into the transit center portion of the site. The existing elevator in the western Amtrak tower would be retained.

64th & Christie Site. Development of the 64th & Christie site would be the same as the proposed project. A lot line adjustment would occur and the site would be developed with an eight-story residential building that at its base would cover the site. The building would provide 180 residential units, structured parking, and approximately 5,800 square feet of ground floor retail space.

New Mixed Use Building. The Main Street alternative would develop a portion of the surface parking area north of the existing Public Market and Tower buildings with a 4-story, 50-foot tall mixed use building with three levels of residential over one level of retail. The building would provide 10,000 square feet of retail space, 51 residential units, and structured parking behind the retail.

UA Cinema Site. Under this alternative, a 24-story, 240-foot tall residential tower with 19 levels of retail over five levels of structured parking and 119,000 square feet of retail anchor space is proposed for the redeveloped UA Cinema site (see Figures VI-10 and VI-12). The northern portion of this building fronting 64th Street would provide the five levels of structured parking.

Site Improvements. This alternative would dramatically alter vehicular and pedestrian circulation through the project site by removing almost all surface parking spaces, realigning Shellmound Street adjacent to the Public Market and Tower building, extending 63rd Street east into the project site, adding 62nd Street into the site adjacent to the northern end of the Public Market and Tower buildings, and adding parallel, on-street parking throughout the site.

A four-way stop sign would be installed at the intersection of 63rd Street and Christie Avenue, similar to the proposed project, which would slow traffic and increase pedestrian crossing safety and ease. Improvements to 64th Street and Christie Avenue proposed by the project would also occur under this alternative, including narrowing of the roadway with bulb-outs to slow vehicular traffic and enhanced sidewalk landscaping and shade trees. These improvements would also be incorporated in the 63rd and 62nd Street areas in the site.

Many of the pedestrian improvements on Shellmound Street provided by the proposed project would also be provided by this alternative, including the wide pedestrian street crossing and a new plaza at the site's connection with the Amtrak bridge. This plaza would provide a transit center with a bus lay-over area and transit information kiosk. An additional large plaza would be incorporated into this alternative, adjacent to the new intersection of 63rd Street and Shellmound Street. The location of the new plaza and enhanced street crossings would create pedestrian visual connections across the site from the existing Marketplace buildings to the new buildings at the northern end of the site. A bike lane would be accommodated on the east side of Shellmound Street.

Project Objectives. The Main Street alternative would achieve all of the objectives of the proposed project.

2. Analysis of the Main Street Alternative

The Main Street alternative would add development to the site in similar locations as the proposed project and would also develop all existing surface parking areas. Impacts related to site demolition and construction would be similar to the proposed project; however, because more area would be redeveloped as part of this alternative compared to the proposed project, this alternative would generate more demolition and construction material to be hauled off site.

Once constructed, the Main Street alternative would provide similar pedestrian improvements as the proposed project. It would increase pedestrian safety by removing areas where vehicular and pedestrian conflict could occur. The 134,500 square feet of additional retail space, 415,000 square feet of additional office space, and 48 additional dwelling units included in this alternative would generate more AM, PM, and Saturday peak hour trips compared to the proposed project. These additional trips would reduce level of service at nine intersections in addition to the intersections substantially adversely affected by the proposed project; these new impacts would require additional mitigation beyond that identified for the project. Noise impacts due to vehicular trips would be similar to the proposed project. Regional air quality impacts would require additional mitigation but would remain significant and unavoidable.

This alternative would have greater aesthetic, wind, and shade and shadow impacts than the project due to the blocking of views not obstructed by the proposed project, the development of building shapes/masses that could accelerate ground-level winds, and the development of new buildings that would cast shadows onto outdoor public areas that would not be shaded by the proposed project. It would have a greater hazardous materials/public health and safety impact because it proposes residential development within the Covenant area. This alternative would also have greater water and wastewater impacts than the proposed project.

The following discussion provides a detailed comparison of the potential impacts of the Main Street alternative compared with those of the proposed project.

a. Land Use. Under the Main Street alternative, the existing mixed, retail and office uses in the Marketplace Public Market and Tower buildings would remain. The UA Cinema and light industrial buildings and uses would be removed. The site would be infilled with a mix of office, multi-family residential and retail uses. Similar to the proposed project, the existing and proposed uses on-site under this alternative would be compatible with the surrounding mixed uses on adjacent properties.

This alternative would realign Shellmound Street through the site, add two east-west streets through the site, and provide on-street parking along these roadways. These roadway improvements, resembling a traditional downtown "main street" grid pattern and setting, would allow for more efficient pedestrian and vehicular movement through the site by narrowing the street to two lanes with on-street parking and well-defined pedestrian crossing areas and plazas. These improvements would not impair or constrain travel from one side of town to the other; instead, they would provide additional routes through the site, and would distribute trips to and throughout the site.

Unlike the proposed project, this alternative would remove nearly all surface-level parking areas on the Marketplace site, relocating site patron, employee, and resident parking into structures incorporated into five of the eight new buildings. Vehicles would be confined to the roadways, all of which would have well-defined and frequent pedestrian crossing areas. As a result, potential pedestrian and vehicular conflict in the proposed project's large surface parking areas would be removed. Further, the grid street pattern and location of new buildings would create pedestrian visual connections across the site, similar to the proposed project.

The scale, bulk, and height of this alternative would be similar to development on adjacent properties, similar to the proposed project. The tower buildings would provide defining structures for the site, elevating the skyline for the project area and reducing the dominance of the adjacent, 30-story Pacific Park Plaza high-rise building. Similar to the project, upper floors would be stepped-back, away from pedestrian areas, and would reduce the apparent overall mass of these structures at street level.

The Amtrak pedestrian bridge western tower would remain a stand-alone structure, but would be flanked to the south and north with mid- and high-rise buildings. This configuration may not achieve the security benefits of the proposed project, which incorporates this tower into the Shellmound building. The proposed project's design would direct pedestrians utilizing the Amtrak crossing into the building, thereby requiring continual interaction between them and the buildings patrons and residents. The stand-alone tower proposed as part of this alternative would only peripherally achieve security benefits from persons looking out the upper floor windows of the abutting mid- and high-rise buildings.

The addition of residential uses to the site is in keeping with the goals of the redevelopment plan for the area and General Plan policies for mixed use sites, similar to the proposed project.

No land use conflicts would result from this alternative, consistent with the proposed project. Because the Main Street alternative would relocate nearly all surface parking into structures, reconfigure roadways through the site to slow vehicular traffic and reduce pedestrian-vehicular conflict, intensify the site with four additional mixed use and retail buildings, and distribute residential uses across more of the site, it would create a more efficient, accessible, and usable neighborhood compared to the proposed project.

b. Population, Employment and Housing. The Main Street alternative would add 388 multi-family units, including some affordable for lower income households, that would increase the City's resident population by approximately 660 persons. The additional office and retail space would add approximately 1,800 jobs. Emeryville currently provides more jobs than dwelling units, making its jobs-to-employed-residents ratio out of balance. The proposed project would accommodate 578 residents and 155 new jobs. The Main Street alternative would provide housing needed to support the City's job force would also create 1,800 new jobs. Therefore, the Main Street alternative would have a less beneficial effect on the City's jobs-to-employed residents ratio compared to the proposed project.

c. Transportation, Circulation, and Parking. Table VI-17 provides the peak hour trip generation for the Main Street alternative compared to the proposed project. As shown in this table, the Main Street alternative would greatly increase the peak hour trip generation compared to the proposed project, most dramatically affecting the AM peak hour with a 427 percent increase in trips over the trips that would be generated by the proposed project. PM peak hour trips would increase 211 percent and Saturday peak hour trips would increase 161 percent over the proposed project.

Table VI-17: Main Street Alternative Peak Hour Trip Generation Compared to Proposed Project

Development Scenario	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Proposed Project	71	148	**219**	261	198	**459**	298	246	**544**
Main Street	776	379	**1,155**	564	863	**1,427**	783	635	**1,418**
Difference: Alternative to Project	705	231	**936**	303	665	**968**	485	389	**874**
% Difference: Alternative to Project	993%	156%	**427%**	116%	336%	**211%**	163%	158%	**161%**

Source: Fehr & Peers, 2007.

Table VI-18 compares the intersection delay and LOS for the Main Street alternative to that associated with the proposed project. As indicated in this table, the Main Street alternative would result in nine additional intersection impacts that would not occur with the proposed project, and would exacerbate the queuing impacts identified for the project. Some measures identified to mitigate the impacts of the proposed project may not be sufficient to mitigate the Main Street alternative's impacts, and additional measures would be required. Implementation of the proposed project's mitigation measures, in addition to the following measures, would be required to reduce this alternative's impacts. The following discussion lists the additional transportation impacts that would result from implementation of the Main Street alternative.

Impact TRAF-1 (Main Street alternative): The 65th Street/Hollis Street intersection would degrade to LOS E in the PM peak hour for both the Future 2010 and Future 2030 scenarios. (S)

Mitigation Measure TRAF-1 (Main Street alternative): The City shall re-time the traffic signal at the 65th Street/Hollis Street intersection so that the intersection operates at an acceptable level of service. (LTS)

Table VI-18: Proposed Project Intersection Delay and LOS Compared to Main Street Alternative for Existing, 2010, and 2030 Conditions

Intersections	Control[1]	Peak Hour	Existing Condition				2010 Condition				2030 Condition			
			Proposed Project		Main Street Alternative		Proposed Project		Main Street Alternative		Proposed Project		Main Street Alternative	
			Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS	Delay (in seconds)[2]	LOS
2. Ashby Avenue/San Pablo Avenue	Signal	AM	33	C	34	C	33	C	36	D	41	D	50	D
		PM	42	D	44	D	84	F	***95***	***F***	***135***	***F***	***150***	***F***
4. 65th Street/Shellmound Street	AWSC/ Signal[3]	AM	10	A	15	B	14	B	15	B	13	B	17	B
		PM	***72***	***F***	***164***	***F***	25	C	***40***	***D***	26	C	54	D
		SAT	***53***	***F***	***122***	***F***	23	C	28	C	18	B	24	C
8. 64th Street/Shellmound Street	SSSC	AM	2 (11)	A (B)	2 (14)	A (B)	2 (12)	A (B)	2 (18)	A (C)	2 (13)	A (B)	6 (58)	A (F)
		PM	2 (19)	A (C)	7 (49)	A (E)	2 (21)	A (C)	8 (63)	A (F)	2 (27)	A (D)	25 (228)	C (F)
		SAT	2 (21)	A (C)	5 (55)	A (F)	3 (43)	A (E)	***32 (> 100)***	D (F)	8 (127)	A (F)	***>100 (>100)***	***F (F)***
11. I-80 Hook Ramps/Frontage Road	Signal	AM	15	B	15	B	15	B	16	B	16	B	16	B
		PM	38	D	44	D	44	D	***74***	***E***	43	D	***111***	***F***
		SAT	16	B	18	B	21	C	26	C	20	B	22	C
13. Powell Street/I-80 Eastbound Ramps	Signal	AM	27	C	37	D	30	C	41	D	39	D	***52***	D
		PM	***83***	***F***	***115***	***F***	***114***	***F***	***151***	***F***	***115***	***F***	***151***	***F***
		SAT	***62***	***E***	***72***	***E***	***106***	***F***	***124***	***F***	***112***	***F***	***127***	***F***
14. Powell Street/Christie Avenue	Signal	AM	28	C	36	C	33	C	39	D	56	E	56	E
		PM	46	D	***64***	***E***	86	F	***101***	***F***	90	F	90	F
		SAT	45	D	***68***	***E***	111	F	***132***	***F***	136	F	138	F
16. Powell Street/Hollis Street	Signal	AM	30	C	32	C	38	D	42	D	51	D	***58***	***E***
		PM	55	D	***61***	***E***	84	F	***99***	***F***	***120***	***F***	***138***	***F***
		SAT	24	C	26	C	30	C	35	C	50	D	***60***	***E***
18. 40th Street/Horton Street	Signal	AM	21	C	21	C	23	C	24	C	37	D	37	D
		PM	28	C	29	C	34	C	36	D	128	F	***137***	***F***
19. 40th Street/Hollis Street	Signal	AM	27	C	27	C	29	C	32	C	38	D	44	D
		PM	39	D	44	D	52	D	***63***	***E***	85	F	42	***F***
													99	
21. 40th Street/Emery Street	Signal	AM	24	C	24	C	23	C	23	C	29	C	29	C
		PM	32	C	32	C	36	D	39	D	106	F	***114***	***F***
		SAT	21	C	21	C	24	C	24	C	83	F	***88***	***F***
22. 40th Street/San Pablo Avenue	Signal	AM	33	C	34	C	36	D	36	D	45	D	45	D
		PM	45	D	47	D	74	E	***81***	***F***	145	F	***152***	***F***
		SAT	39	D	40	D	72	E	***76***	***E***	133	F	***138***	***F***
24. Mandela Pkwy/Horton Street	AWSC	AM	8	A	8	A	9	A	10	A	11	B	11	B
		PM	15	C	18	C	24	C	32	D	75	E	***86***	***F***
-- Shellmound Street/Marketplace Driveway	AWSC	AM	8	A	16	C	8	A	18	C	8	A	18	C
		PM	20	C	> 100	F	24	D	> 100	F	32	D	> 100	F
		SAT	16	C	> 100	F	28	D	> 100	F	32	D	> 100	F

Notes: Results in bold indicate deficient levels of service.
1. SSSC = side-street stop controlled intersection; AWSC = all-way stop controlled intersection; Signal = signalized intersection.
2. Average intersection control delay reported for signalized and all-way stop controlled intersections. Average intersection delay and worst case approach delay reported for side-street stop controlled intersections.
3. Intersection vehicular control is AWSC in Existing Condition scenario only. Intersection control converted to signal by 2010.
Source: Fehr & Peers, 2007

Impact TRAF-2 (Main Street alternative): The 64th Street/Shellmound Street intersection would degrade to LOS F(F) during the Saturday peak hour in the Future 2030 scenario with a >100(>100)-second delay. (S)

Mitigation Measure TRAF-2 (Main Street alternative): The City shall install a traffic signal at the intersection of 64th Street/Shellmound Street when warranted by actual conditions. (LTS)

Impact TRAF-3 (Main Street alternative): The I-80 Hook Ramps/Frontage Road intersection would operate at LOS E in the Future 2010 scenario and LOS F in the Future 2030 scenario. (S)

Mitigation Measure TRAF-3 (Main Street alternative): Provide a second southbound through lane at the I-80 Hook Ramps/Frontage Road intersection.

Implementation of this measure would reduce the project impact to a less-than-significant level. However, this intersection is under the jurisdiction of Caltrans and implementation of the measure cannot be assured by the City of Emeryville. Therefore, this impact would remain significant and unavoidable. (PSU)

Impact TRAF-4 (Main Street alternative): The Powell Street/Christie Avenue intersection would operate at LOS E during the PM and Saturday peak hours in the Existing Conditions scenario. The intersection would operate at LOS F in the Future 2010 scenario and delay would increase by 15 seconds in the PM peak hour and 24 seconds in the Saturday peak hour as compared to the proposed project. (S)

Mitigation Measure TRAF-4 (Main Street alternative): The City shall modify the intersection to provide dual westbound left-turn lanes and an exclusive southbound left-turn lane (in addition to the shared left-through lane), and increase the storage length of the westbound right-turn pocket. These improvements would require widening of Powell Street and Christie Avenue and would also increase pedestrian crossing distance for the intersection. (LTS)

Impact TRAF-5 (Main Street alternative): The 40th Street/Horton Street intersection would operate at LOS F during the PM peak in the Future 2030 scenario and delay would increase by 10 seconds as compared to the proposed project. (S)

Mitigation Measure TRAF-5 (Main Street alternative): The City shall re-time the traffic signals along the 40th Street corridor so that the 40th Street/Horton Street, 40th Street/Hollis Street, 40th Street/Emery Street, and 40th Street/San Pablo Avenue intersections operate at an acceptable level of service. (LTS).

Impact TRAF-6 (Main Street alternative): The 40th Street/Hollis Street intersection would operate at LOS E during the PM peak hour in the Future 2010 scenario. The intersection would operate at LOS F in the Future 2030 scenario and delay would increase by 17 seconds as compared to the proposed project. (S)

Mitigation Measure TRAF-6 (Main Street alternative): Implement Mitigation Measure TRAF-5 (Main Street alternative). (LTS)

Impact TRAF-7 (Main Street alternative): The 40th Street/Emery Street intersection would operate at LOS F in the Future 2030 scenario and delay would increase by 10 seconds during the PM peak hour and 7 seconds during the Saturday peak hour as compared to the proposed project. (S)

Mitigation Measure TRAF-7 (Main Street alternative): Implement Mitigation Measure TRAF-5 (Main Street alternative). (LTS)

Impact TRAF-8 (Main Street alternative): The 40th Street/San Pablo intersection would operate at LOS E in the Future 2010 scenario and delay would increase by 9 seconds during the PM peak hour and 6 seconds during the Saturday peak hour as compared to the proposed project. The intersection would operate at LOS F in the Future 2030 scenario and delay would increase by 10 seconds during the PM peak hour and 8 seconds during the Saturday peak hour as compared to the proposed project. (S)

Mitigation Measure TRAF-8 (Main Street alternative): Implement the planned improvements to the 40th Street/San Pablo Avenue intersection, including the provision of an eastbound right turn lane. Install the improvement with a right turn overlap phase and retiming of the signals on the 40th Street and San Pablo Avenue corridors, taking into account BRT operation.

Implementation of this measure would reduce the project impact to a less-than-significant level. However, this intersection is under the jurisdiction of Caltrans since San Pablo Avenue is a state highway at this intersection. Implementation of the measure cannot be assured by the City of Emeryville. Therefore, this impact would remain significant and unavoidable. (PSU)

Impact TRAF-9 (Main Street alternative): The Mandela Parkway/Horton Street intersection would operate at LOS F during the PM peak hour in the Future 2030 scenario and delay would increase by 15 seconds as compared to the proposed project. (S)

Mitigation Measure TRAF-9 (Main Street alternative): The City shall install a traffic signal when warranted by actual conditions.

Implementation of this measure would reduce the project impact to a less-than-significant level. However, this intersection is in the City of Oakland. Implementation of the measure cannot be assured by the City of Emeryville. Therefore, this impact would remain significant and unavoidable. (PSU)

Impact TRAF-10 (Main Street alternative): The Main Street alternative could result in vehicle, pedestrian, and bicycle conflicts and inadequate pedestrian and bicycle access. (S)

Mitigation Measure TRAF-10 (Main Street alternative): The applicant shall prepare a detailed circulation plan that clearly depicts vehicle, pedestrian, and bicycle access and associated routes prior to obtaining a grading or building permit. The City shall review the plan for adequacy based on applicable pedestrian, bicycle, and parking safety standards prior to issuing a grading or building permit. (LTS)

In addition to the intersection impacts listed above, the intersection of 63rd Street/Shellmound Street could experience operational difficulties given the amount of traffic expected to use this intersection, its skewed orientation, and provision of a ramp to the parking garage. Relocating the ramp to the parking structure opposite 62nd Street should be considered to improve traffic flow on Shellmound Street with this alternative. Additionally, the provision of on-street parking on Shellmound Street would decrease the capacity of this corridor, reducing potential traffic shifts to the Ashby Avenue interchange, resulting in additional impacts at the Powell Street interchange.

Other measures that should be considered include: converting Shellmound Street and Christie Street to a one-way loop system; improving the amount and frequency of public transit to the site; limiting the amount of parking that could be constructed with the project; improving bicycle and pedestrian connections throughout the area; and providing a car-share service on-site to minimize auto ownership/use among residents and employees of the site.

d. Air Quality. Air quality impacts associated with the Main Street alternative would be greater than those that would result from the proposed project. The Main Street alternative would have more construction activity. Implementation of Mitigation Measure **AIR-1** would reduce construction activity impacts to a less-than-significant level. The Main Street alternative would not result in CO hot-spots, similar to the proposed project.

The Main Street alternative would not conflict with the Bay Area 2005 Ozone Strategy. However, as depicted in Table VI-19, regional emissions would exceed the BAAQMD standards for ozone precursor emissions and PM_{10}. Appendix C-4 provides the detailed air quality modeling output data for the Main Street alternative. Implementation of the recommended mitigation measure as described below would reduce the impact to the greatest extent feasible but the impact would remain significant and unavoidable.

Table VI-19: Main Street Alternative Regional Emissions in Pounds Per Day Compared to the Proposed Project

	Reactive Organic Gases		Nitrogen Oxides		PM_{10}	
	Proposed Project	**Alternative**	**Proposed Project**	**Alternative**	**Proposed Project**	**Alternative**
Regional Emissions	52.74	128.95	67.35	172.60	40.25	105.47
BAAQMD Significance Threshold	80.0	80.0	80.0	80.0	80.0	80.0
Exceed?	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**

Source: LSA Associates, 2007.

<u>Impact AIR-1 (Main Street alternative)</u>: Implementation of the Main Street alternative would result in regional emissions that exceed the BAAQMD standards for ozone precursor emissions and PM_{10}. (S)

<u>Mitigation Measure AIR-1 (Main Street alternative)</u>: The *BAAQMD CEQA Guidelines* document identifies potential mitigation measures for various types of projects. The following are considered to be feasible and effective in further reducing vehicle trip generation and resulting emissions from the project. These measures shall be implemented at the project site:

- Provide transit facilities (e.g., bus bulbs/turnouts, benches, shelters).

- Provide bicycle lanes and/or paths, connected to community-wide network.
- Provide sidewalks and/or paths, connected to adjacent land uses, transit stops, and/or community-wide network.
- Provide secure and conveniently located bicycle and storage.
- Implement feasible transportation demand management (TDM) measures including a ride-matching program, coordination with regional ridesharing organizations and provision of transit information.

Implementation of an aggressive trip reduction program with the appropriate incentives for non-auto travel would reduce impacts of the alternative by approximately 10 to 15 percent. Even with this reduction, ozone precursor emissions and PM_{10} would still exceed the significance thresholds. As a result, the Main Street alternative would have a greater impact on regional air quality impacts than the proposed project, and the impact would remain significant and unavoidable after implementation of available mitigation measures. (SU)

e. Noise and Vibration. Noise and vibration impacts that would result from the Main Street alternative would be similar to those associated with the proposed project. As shown in Table VI-20, modeled traffic noise levels for the alternative would not differ substantially from the modeled traffic noise levels for the proposed project. Railroad noise and ground-borne vibration impacts would remain unchanged after implementation of the alternative from those that would result from the project. Short-term construction related impacts would also not significantly differ from those that would result from the project. Noise impacts and mitigation measures **NOISE-1 through NOISE-5** identified for the proposed project would be applicable to the Main Street alternative. Implementation of Mitigation Measures NOISE-1 to NOISE-5 would reduce noise and vibration impacts to a less-than-significant level.

Table VI-20: Main Street Alternative Traffic Noise Levels [a]

	Existing			2010			2030		
Roadway Segment	**Proposed Project (dBA)**	**Main Street Alt. (dBA)**	**Change**	**Proposed Project (dBA)**	**Main Street Alt. (dBA)**	**Change**	**Proposed Project (dBA)**	**Main Street Alt. (dBA)**	**Change**
Powell Street (Christie Avenue to Hollis Street)	66.8	66.6	0.2	67.8	67.3	-0.5	68.2	67.6	-0.6
40th Street (Harlan Street to Emery Street)	63.5	63.1	-0.4	64.3	63.8	-0.5	65.4	64.8	-0.6
40th Street (Emery Street to San Pablo Avenue)	62.7	62.9	0.2	63.6	63.7	0.1	64.3	64.5	0.2
40th Street (San Pablo Avenue to Adeline Street)	61.2	61.3	0.1	62.2	62.2	0.0	62.9	63.0	0.1
San Pablo Avenue (Adeline Street to 36th Street)	64.3	64.5	0.2	65.3	65.5	0.2	65.9	66.1	0.2

[a] Data provided indicates LDN (dBA) 50 feet from Centerline of Outermost Lane.
Source: LSA Associates, Inc., 2006.

f. Hazardous Materials/Public Health and Safety. Under the Main Street alternative, the mixed use building located north of the Marketplace Tower and Public Market would be constructed within the area covered by the Covenants to Restrict Use of Property, as would portions of the building complex on the northern portion of the Shellmound site (see Figure V.F-1). The buildings on the northern portion of the Shellmound site would be used for retail, residential, and structured parking—uses that are allowed by the Covenants. However, residential use is not currently allowed by the Covenants in the area north of the Marketplace Tower and Public Market where the mixed used building would be located.

The UA Cinema would be demolished and replaced with multi-family units, a retail anchor store and structured parking. The light industrial buildings on the 64th & Christie site would be demolished and replaced with a residential building similar to the proposed project. Both the UA Cinema and 64th & Christie sites are located outside the covenant area.

All impacts (**HAZ-1 to HAZ-4**) and mitigation measures for the proposed project would be applicable to the Main Street alternative, with the following modifications. Mitigation Measure HAZ-1a, which requires preparation of a site health and safety plan for construction workers, and Mitigation Measure HAZ-1b, which requires preparation of a soil management plan, would need to be expanded to include construction on the UA Cinema site, the mixed use building on the northern half of the Shellmound site, and the mixed use building north of the Marketplace Tower and Public Market. Further, Mitigation Measure HAZ-2, which requires asbestos and lead-based paints surveys, abatement, and proper management and disposal of other hazardous building materials, would need to be expanded to cover the demolition of the UA Cinema building. Implementation of the proposed project's mitigation measures, with the modifications above, would reduce these hazards-related impacts associated with the Main Street alternative to a less-than-significant level.

In addition to HAZ-1 to HAZ-4, a mitigation measure is recommended to address potential exposure of future residents of the mixed use building that would be constructed within the Covenant area north of the Marketplace Tower and Public Market. Because one of the covenants on the site states that "the Property shall be used in such a manner as to avoid potential harm to persons or property which may result from any waste materials remaining on the Property," residential use is generally not allowed within the Covenant area. However, in other portions of the Covenant area where vapors in the soil gas are a concern, DTSC has agreed to allow residential use on the upper floors of buildings, without amendment of the Covenant, if it could be shown that soil vapors do not present an unacceptable risk to future residents. Thus, the DTSC must be consulted to determine whether residential use would be allowed on upper floors of the mixed use building. The following measure is recommended to address this impact.

Impact HAZ-1 (Main Street alternative): The Mixed Use Building located north of the Marketplace Tower and Public Market would be within the Covenant Area, which does not currently allow residential use because existing contamination may present an unacceptable risk to future residents. (S)

> Mitigation Measure HAZ-1 (Main Street alternative): The property owner/developer shall work with the City and DTSC to determine whether contaminants in soil vapor or other media in the area north of the Marketplace Tower and Public Market present an unacceptable risk to future residents. Environmental samples shall be collected and analyzed to determine

whether chemicals present in environmental media, including vapors in air, are present in concentrations that would potentially harm future residents. If sample concentrations exceed California Human Health Screening Levels (CHHSLs), risk management measures that would prevent harm to future residents and that are acceptable to the DTSC shall be implemented. (LTS)

g. Geology, Soils and Seismicity. Under the Main Street alternative, there would be a sizeable increase in total development added to the site compared to the proposed project. This alternative would increase grading activities, total developed area, and building heights compared to the proposed project but would be subject to similar geologic and seismic conditions and constraints. An earthquake on a nearby fault, such as the Hayward, San Andreas, or other regional faults, could result in strong seismic shaking at the project site. The primary geologic concerns at the site are direct damage to structures from seismic shaking, seismically induced liquefaction and attendant ground failure, expansive soils, and settlement or differential settlement. In addition, the construction of several mid- and high-rise buildings would likely result in increased loads on foundation structures, such as piers. Each of the impacts and mitigation measures identified for the proposed project (**GEO-1 to GEO-4**) would be applicable to the Main Street alternative. Implementation of Mitigation Measures GEO-1 to GEO-4, identified for the proposed project, would reduce the impacts from the Main Street Alternative to a less-than-significant level, similar to the proposed project.

h. Hydrology and Storm Drainage. While the intensity of development considered under the Main Street alternative would be sizably greater than the proposed project, the area of impervious surfaces that would generate stormwater is similar for the alternative and the proposed project. As with the proposed project, the alternative would be required to comply with City and County permit specifications for treatment of stormwater runoff prior to discharge. Each of the impacts and mitigation measures identified for the proposed project (**HYD-1 to HYD-3**) would also be applicable to this alternative. Implementation of Mitigation Measures HYD-1, HYD-2, and HYD-3, identified for the proposed project, would ensure that impacts to runoff water quality that would result from this alternative would be less than significant for both the construction and the operational phases, similar to the proposed project.

i. Cultural and Paleontological Resources. Under the Main Street alternative, new buildings would be developed and the site would be subject to grading and other ground disturbing activities, similar to the proposed project. As described, the project area is sensitive for subsurface historical, archaeological, and paleontological resources, which could be unearthed during site preparation and construction of the alternative. The Main Street alternative would disturb a larger portion of the site compared to the proposed project. Impacts and mitigation measures **CULT-1 to CULT-3** would be applicable to the Main Street alternative. Implementation of Mitigation Measures CULT-1 to CULT-3 would reduce the Main Street alternative's impacts to cultural and paleontological resources to a less-than-significant level.

j. Aesthetic Resources. The Main Street alternative would add seven new buildings to the project site, including: a single-story retail pad building and small retail structure; a low-rise building with retail and parking; a mixed use building with 14- and 19-story office towers, a mixed use building with a 24-story residential tower on the UA Cinema site, and two mid-rise mixed use buildings with multi-family units, retail space and parking.

On the Shellmound site, the western Amtrak bridge tower would be flanked to the north and south by taller buildings. As a result, views to the northwest of San Francisco Bay and Mt. Tamalpais from the western tower would be permanently blocked; these views would be preserved by the proposed project. Further, placement of the high-rise tower on a portion of the Shellmound site would partially block northwest views from the Powell Street overcrossing. The high-rise office tower on the north end of the Shellmound site and the residential tower on the mixed use building would also be visible from this vantage point.

South-facing views on Shellmound Street would be dramatically different under the Main Street alternative due to the realignment of the roadway west, directly adjacent to the Public Market building, removing the surface parking areas, and adding the parking structure, retail space and office tower building adjacent to the UPRR tracks. Placement of the mixed use buildings adjacent to the UPRR tracks would block all views east of the site (beyond the railroad tracks). The alternative would refine the open, auto-oriented character of this street by creating an urban streetwall front with taller buildings abutting pedestrian travel and rest areas. The high-rise towers on the Shellmound site would dominate views to the northeast and southeast on Shellmound Street compared to the proposed project because they would greatly exceed the height of the connecting 2- and 3-story parking/retail structure.

The residential tower associated with the mixed use building on the UA Cinema site would dominate views up Shellmound Street to the north. From a distance, the high-rise tower on the mixed use building on the UA Cinema site would appear to be much more pronounced than the existing UA Cinema building, which would be retained as part of the alternative. Under the Main Street alternative, this building would be 24 stories and 240 feet tall, approximately 180 feet taller than the UA Cinema. However, stepping-back the upper, tower portion of the building from its 4-story lower base would reduce its intrusion on the pedestrian streetscape, as well as adjacent mid-rise buildings, and would create a more comfortable space for pedestrians.

Impacts and mitigation measures **AES-1 and AES-2** identified for the proposed project would be applicable to the Main Street alternative. Similar to the proposed project, the three high-rise towers and two mid-rise buildings would be of a size and mass that would alter the intrinsic architectural character of the project site and surroundings. Implementation of Mitigation Measure AES-1 would ensure that these buildings would be visually compatible with the surrounding area. Like the project, the development proposed under this alternative would create additional sources of glare and light. Implementation of Mitigation Measure AES-2 would ensure that light and glare sources would be appropriately designed and that associated adverse effects would be minimized.

Because the Main Street alternative would realign Shellmound Street and add a substantially greater amount of development than the proposed project, it would have a greater effect on aesthetic resources than the proposed project.

k. Public Services and Utilities. The additional office, retail, and residential uses added to the project site under this alternative would create a greater demand for fire and police protection, schools, library services, parks, water supply, wastewater collection and treatment, and post-construction solid waste facilities and infrastructure compared to the proposed project. Impacts to schools, library services, and parks, which are typically affected most by residential uses, would be similar to the proposed project, albeit slightly greater due to the net increase of 48 units under this alternative.

Impacts and mitigation measures **PS-1 and PS-2** identified for the proposed project would be applicable to the Main Street alternative. Implementation of Mitigation Measures PS-1 and PS-2 would ensure that demolition, construction, and on-going operation of the Main Street alternative would conform to Measure D solid waste recycling requirements, and would reduce impacts associated with solid waste generation to a less-than-significant level, similar to the proposed project.

Impacts to fire and police protection services and facilities could be substantially greater for the alternative than the proposed project due to the sizeable increase in jobs and corresponding daytime population on the site (i.e., a net increase of 1,645 jobs). Impacts to water supply and wastewater collection and treatment would also be substantially greater than the proposed project. The alternative could require facilities upgrades (e.g., enlargement of pipes, expansion of treatment facilities) to service the additional development. Additional mitigation measures, listed below, would be required to reduce the Main Street alternative's impacts on fire, police, water, and wastewater services and facilities to a less-than-significant level. Overall, the Main Street alternative would have greater impacts on public services and utilities than the proposed project.

Impact PS-1 (Main Street alternative): Implementation of the Main Street alternative could increase demand for fire and police services, requiring the construction of new facilities. (S)

Population and employment generated by the Main Street alternative would increase demand for fire and police services compared to the proposed project. New police and fire facilities may need to be constructed to maintain adequate emergency response times to the site. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level:

> Mitigation Measure PS-1 (Main Street alternative): The Emeryville Police and Fire Departments shall review proposed development plans for the Main Street alternative to determine whether existing police and fire facilities would be able to accommodate increased demand for emergency services. If existing facilities would be inadequate, the project sponsor shall contribute a pro rata share of the cost to construct new facilities. (LTS)

Impact PS-2 (Main Street alternative): Implementation of the Main Street alternative would substantially increase demand for water. (S)

The population and employment increase associated with the Main Street alternative would increase water demand on the site compared to the proposed project. This demand may not be met by the East Bay Municipal Utility District's (EBMUD's) existing water entitlements. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level:

> Mitigation Measure PS-2 (Main Street alternative): A Water Supply Assessment shall be prepared for the Main Street alternative. If the Water Supply Assessment shows that existing water supplies would be inadequate to serve the proposed alternative, the alternative shall be modified to reduce water demand (e.g., through the reduction of water-intensive commercial or residential uses, water conservation measures, and/or recycling of rain and graywater) such that existing water entitlements would be adequate to serve the site. (LTS)

Impact PS-3 (Main Street alternative): Wastewater conveyance pipes may have inadequate capacity to accommodate additional wastewater flows from the Main Street alternative. (S)

City sewer mains within and around the site may have inadequate capacity to accommodate additional wastewater flows from the Main Street alternative. This impact would be mitigated to a less-than-significant level through implementation of the following mitigation measure:

> Mitigation Measure PS-3 (Main Street alternative): The applicant shall prepare a sewer capacity study to determine if there is adequate sanitary sewer conveyance capacity to accommodate the proposed alternative, as shown in the utility plan. If it is determined that there is inadequate capacity for additional flows from the Main Street alternative, either of the following actions shall occur:
>
> PS-3.a: The utility plan shall be designed to convey all sewage flows on the site to the 30-inch TC pipe in the northern portion of the site. If the topography of the site is such that sanitary sewer flows would not be able to gravity feed into the 30-inch TC pipe, a sewage lift pump shall be included in the utility plan to convey wastewater to the northern basin; or
>
> PS-3.b: The project applicant shall design and fund the construction of additional downstream improvements to accommodate the increased flows from the project in the southern system which drains to the EBMUD interceptor via the existing system in Powell Street. If downstream improvements to the existing system in Powell Street are required to accommodate additional flows draining to the south, additional environmental review may be required if construction would occur outside of the existing right-of-way or involve construction beyond the scope of standard construction methods evaluated in this EIR. (LTS)

l. Wind. The single-story retail/restaurant pad and small themed retail buildings would not extend in height above surrounding structures or be of a large enough mass to substantially increase local winds.

The rectangular shape of the retail anchor building (on the UA Cinema site) would create an extension of the east-west axis of the building on the 64th & Christie site. The low-rise portion of this building would be a similar height as those located north of 64th Street. The rectangular shape and long, extended flat surfaces of this building could increase ground-level winds, if not properly designed; this impact would not occur with the proposed project. An additional mitigation measure, WIND-1 (Main Street alternative), described below, would be required to ensure that the final design of the building is reviewed by a wind consultant and incorporates sufficient building articulation, modulation, and porous materials (e.g. landscaping) to ensure pedestrian comfort. Implementation of Mitigation Measure WIND-1 (Main Street alternative), described below, would reduce this impact to a less-than-significant level.

The low-rise parking and retail structure on the Shellmound site would be oriented on a north-south axis and would be similar in height to the Marketplace Public Market, below the Marketplace Tower, and below the adjoining office towers. The stepped-back shape of the building and variation in surrounding building height would break-up and decelerate westerly winds at ground level. The office towers on the Shellmound site along with the residential tower on the UA Cinema site would generally be oriented along a north/south axis and would extend in height over surrounding buildings.

The orientation and massing of the towers are of a size large enough to intercept westerly winds year round, as well as southeasterly winds, which occur during the winter. However, similar to the project, the massing and shape of these buildings would direct wind acceleration along the roofs and the low rise portions of the building, resulting in wind accelerations in roof deck parking areas. Impact and Mitigation Measure WIND-1 required for the proposed project would be applicable to this alternative. Implementation of Mitigation Measure WIND-1a would ensure that roof areas that would be used by site patrons or residents would be designed such that wind acceleration would be reduced to less-than-significant levels.

The mixed use building north of the Marketplace Tower and Public Market buildings would be oriented along an east-west axis. The stepped shape of this building would ensure that it abuts both Marketplace Tower and Public Market buildings but at a lower height (see Figure VI-11). This building could intercept westerly and southwesterly winds. Impact and Mitigation Measure WIND-1 required for the proposed project would be applicable to this alternative. Implementation of Mitigation Measure WIND-1a would ensure that roof areas on the lower portion of this building, if used as roof deck areas for residents or patrons, would be properly landscaped to provide adequate wind protection. Interception of westerly winds could accelerate ground-level winds along Christie Avenue; this impact would not occur with the proposed project. An additional mitigation measure, WIND-1 (Main Street alternative), described below, would be required to reduce the potential for ground level wind acceleration by incorporating sufficient building articulation, modulation and porous materials into final building design. A wind consultant would review the final building design to ensure it reduces wind accelerations adequately to provide for pedestrian comfort.

Unlike the proposed project, the shape and massing for the 175-foot and 240-foot tall towers would not be broken-up or articulated, particularly for the UA Cinema site and north office, which would contain flat, extended wall surfaces. As a result, intercepted westerly winds could accelerate along these surfaces, resulting in increased ground level winds. As with the two-story retail anchor building, additional mitigation, WIND-1 (Main Street alternative) described below, would be required to reduce the potential for ground level wind acceleration by incorporating sufficient building articulation, modulation and porous materials into final building design. A wind consultant would be required to review the final building design to ensure it would decrease wind accelerations adequately to provide for pedestrian comfort.

Under this alternative, the Amtrak bridge connection to Shellmound Street would not be enclosed or incorporated into either of the two flanking buildings. This design, similar to the proposed project, would create a breezeway that would, under prevailing wind conditions, result in accelerated winds that would adversely affect pedestrian comfort. Impact and Mitigation Measure WIND-1 for the proposed project would be applicable to this alternative. Implementation of Mitigation Measure WIND-1b would identify how fast speed winds may be accelerated to in this breezeway, as well as which design modifications would be required to reduce these speeds to a less-than-significant level.

Because the Main Street alternative has the potential to increase ground level winds, it would result in greater wind impacts than the proposed project.

<u>Impact WIND-1 (Main Street alternative)</u>: The construction of the Shellmound mixed use and high-rise tower buildings and UA Cinema site could substantially increase ground-level winds. (S)

Mitigation Measure WIND-1 (Main Street Alternative): Final design of the buildings constructed on the Shellmound and UA Cinema building sites shall be subject to review by a qualified wind consultant. The design review shall evaluate the architect's employment of one or more of the following design guidelines to reduce wind impacts to a less-than-significant level:

- West or southeasterly building faces shall be articulated and modulated through the use of architectural devices such as surface articulation, variation, variation of planes, wall surfaces and heights, as well as the placement of step-backs and other features.
- Utilize properly-located landscaping to mitigate winds. Porous materials (vegetation, hedges, screens, latticework, perforated or expanded metal) offer superior wind shelter compared to a solid surface.
- Avoid narrow gaps between buildings where westerly or southeasterly winds could be accelerated.
- Avoid "breezeways" or notches at the upwind corners of the building.

Wind tunnel or computerized computational fluid dynamics testing shall be required if a review of the final architectural design of the proposed mid-rise buildings is insufficient to determine whether the buildings would result in adverse wind impacts. Testing shall be used to determine if wind accelerations generated by the structure could reach hazardous levels and to develop design modifications that would reduce impacts to a less-than-significant level. (LTS)

m. Shade and Shadow. The sizeable increase in development considered under this alternative would create many new shadows over the project site and surrounding area that would not occur with the proposed project. Shadow pattern simulations for the Main Street alternative compared to those for the proposed project are depicted in Appendix H (Figures A.H-19 through A.H-24).

In particular, this alternative would infill the proposed project's surface parking areas with mid-rise buildings, all of which contribute to the darkening of the site during times when the sun is low on the horizon, such as the winter solstice.

The 175-foot tall tower on the southern portion of the Shellmound site would be 80-feet taller than the 95-foot tall Shellmound building proposed by the project. As a result, shadows cast by this tower would be more extensive throughout the year. In the early morning hours, the Shellmound tower would cast new shadows on Shellmound Street, extending northwest onto a portion of the public seating area in front (east) of the Public Market main entry. During the winter solstice, shadows cast by this tower would be extensive, extending over the transit center plaza, over Shellmound Street and the plaza seating area outside the Public Market buildings, as well as onto the roof of the Public Market buildings. The 240-foot tower on the northern portion of the Shellmound site, like the south tower, would cast extensive shadows throughout the year. In the early morning hours, it would cast shadows on the new plaza that is proposed for the southwest corner of 63rd and Shellmound Streets. It would create new shadows along Shellmound Street to the north and on adjoining buildings as well as areas east of the UPRR tracks in the late afternoon during the winter solstice.

The UA Cinema site would also be redeveloped under this alternative with a 240-foot tall residential tower and 60-foot tail retail anchor and parking structure building that would be much taller than the

existing theater. The tower is 150 feet taller than the 90-foot tall tower proposed for the nearby 64th & Christie building as part of the project. Similar to the towers on the Shellmound site, shadows that would be cast by this 240-foot tower would be more extensive than those for the proposed project throughout the year. Early morning shadows cast by the 60-foot retail anchor building that would not occur with the proposed project would extend northwest across the 64th Street. During the winter solstice, shadows cast by this tower would extend north of Christie Avenue onto the EmeryBay Apartments and Offices roofs, as well as the roadway and sidewalk. The residential tower, combined with the retail anchor building would cast new shadows east and northeast that would darken 64th Street, particularly during the spring and fall equinoxes.

The long, rectangular shaped 2- to 3-story parking structure and retail space building on the northern portion of the Shellmound site would located between and abut Shellmound Street and the UPRR tracts. As a result, during the spring and fall equinoxes and winter solstice, early morning hour shadows cast by this building would extend west onto and across Shellmound Street, and late afternoon shadows would extend east onto and across the UPRR tracks. None of these shadows would occur with the proposed project.

The 50-foot tall mixed use building north of the Marketplace Tower and Public Market buildings would cast new shadows onto the site that would not occur with the proposed project. In particular, this alternative would provide for a new public plaza located directly east of this building. Shadows cast by the 50-foot tall building during all time periods, excepting the summer solstice, would extend east, northeast, or north onto 63rd Street or either the new outdoor plaza areas.

No new shade or shadows would be cast on the relocated Christie Park; however, new shadows would be cast onto the outdoor seating area in front (east) of the Public Market building in the early morning and late afternoon hours, and extensive shadows would be cast onto the realigned Shellmound Street and the new plaza located on the northern half of the site.

The Main Street alternative would result in greater impacts to shade and shadow on public places compared to the proposed project. The following new impact would result from implementation of the Main Street alternative. No mitigation measure is available to reduce this impact to a less-than-significant level.

Impact SHADE-1 (Main Street alternative): The Main Street alternative would create substantial shadow coverage over public spaces throughout the site. (S)

The Main Street alternative would substantially diminish sunlight availability throughout the site, including on streets and public plazas. Shadow associated with the project would substantially impair public use of outdoor spaces. Reducing this impact would involve undertaking a major reconfiguration of the alternative. Therefore, this impact would be significant and unavoidable.

> Mitigation Measure SHADE-1 (Main Street Alternative): No mitigation measure is available to reduce this impact to a less-than-significant level. (SU)

E. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The *CEQA Guidelines* state that an EIR shall identify an environmentally superior alternative. Based on the above discussion, the environmentally superior alternative is the No Project alternative, because it would avoid all of the significant impacts associated with the proposed project. However, Section 15126.6(e)(2) states that "[i]f the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

After the No Project alternative, the next environmentally superior alternative would be the Reduced Footprint alternative, because it would disturb a smaller area of the site that is sensitive for cultural resources, as well as remove the potential breezeway walkway in the Shellmound building. Additionally, the Reduced Footprint alternative, compared to the Tower and Main Street alternatives, would result in only slightly greater impacts to transportation, circulation, and parking, air quality, noise, hazardous materials/public health and safety, aesthetic resources, and shade and shadow than the proposed project.

VII. CEQA-REQUIRED ASSESSMENT CONCLUSIONS

As required by the California Environmental Quality Act (CEQA), this chapter discusses the following types of impacts that could result from development of the proposed Marketplace Redevelopment Project (project): effects found not to be significant; growth-inducing impacts; unavoidable significant environmental impacts; significant irreversible changes; and cumulative impacts.

A. EFFECTS FOUND NOT TO BE SIGNIFICANT

Meetings were held among representatives of the City of Emeryville involved in the project planning and review, consultants for the City, and the project applicant to help determine the scope of the project EIR. In addition to these meetings, a Notice of Preparation (NOP) was circulated on December 1, 2005, to solicit comments from the public about the scope of this EIR, and a public scoping meeting was conducted on December 15, 2005. Comments received on the NOP and at the public scoping meeting were considered in the preparation of this document, and are included in Appendix A.

The environmental topics analyzed in Chapter V, Setting, Impacts, and Mitigation Measures, represent those topics which generated the greatest potential controversy and expectation of adverse impacts among the project team and members of the public. As noted in Chapter I, Introduction, four topics (i.e., biological resources; mineral resources; energy resources; and agricultural resources) were considered during the scoping phase, but were not addressed in this EIR because it was determined would not be significantly affected by the proposed project.

B. GROWTH-INDUCING IMPACTS

This section summarizes the project's growth-inducing impacts on the surrounding community. In accordance with CEQA, a project is considered growth-inducing if it would foster economic or population growth. Examples of projects likely to have significant growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or industrial parks in areas that are currently only sparsely developed or undeveloped.

The proposed project would relocate approximately 340 existing parking surface spaces into a reconfigured surface parking area and two separate parking structures at an underutilized mixed use site and develop four new buildings with up to 340 for-sale condominium units; up to 77,000 square feet of commercial space; approximately 444 shared net new parking spaces; and site improvements and enhancements. As described in Chapter III, Project Description, the project site is currently developed, and is located in an urban area of Emeryville. Development of the proposed project would redevelop the underutilized mixed use site with additional commercial space, residential units, and parking space, and would not induce future development adjacent to the project site because adjacent land is already developed or entitled for development.

Utilities and infrastructure (i.e., water, sewer, storm drains, electricity, natural gas, telephone and cable) are currently available along or under Shellmound Street, 64th Street and Christie Avenue to serve the proposed project. Additional utilities and infrastructure required to serve the proposed project would be designed to only accommodate the additional demand of the project and would not include additional capacity or extensions for service into adjacent areas and, therefore, would not result in indirect population growth.

Additionally, as described in Chapter V.B, Population, Employment, and Housing, Emeryville General Plan policy encourages incorporating residential uses into large, infill mixed use developments to provide affordable and market rate housing opportunities for Emeryville employees, improve the City's jobs-housing balance, and provide additional local employment opportunities for Emeryville residents. Because the proposed project is of a type (mixed use and infill with a residential component) that is promoted in the General Plan, it would not result in adverse or growth-inducing impacts.

C. UNAVOIDABLE SIGNIFICANT ENVIRONMENTAL IMPACTS

After mitigation, the proposed project would result in tweleve potentially significant unavoidable impacts, as follows:

Impact TRAF-1: The I-80 EB Ramps/Powell Street intersection currently operates at LOS E during the PM peak hour and Saturday peak hour. Under the Existing Plus Project scenario, the intersection operation would degrade to LOS F during the PM peak hour and delay would increase by 10 seconds. On Saturday, the addition of project traffic would increase delay by 8 seconds. The addition of project traffic would also increase the 95th percentile queue lengths to four approaches that currently exceed or are projected to exceed the available storage capacity. (S)

Impact TRAF-2: The Powell Street/Christie Avenue intersection would operate at an acceptable service level under the Existing Plus Project scenario. However, vehicle queue spillback affects overall intersection and system operations. The addition of project traffic would exacerbate existing queuing problems, contributing poor operations on three intersection approaches (See Table V.C-11). (S)

Impact TRAF-3: The I-80 EB Ramps/Powell Street intersection is projected to operate at LOS F during the PM peak hour and Saturday peak hour in 2010. The addition of project traffic would increase delay by more than 4 seconds during both the PM and Saturday peak hours. The addition of project traffic would also increase the 95th percentile queue lengths for several approaches that currently exceed or are projected to exceed the available storage capacity. (S)

Impact TRAF-4: The Shellmound Way/Christie Avenue intersection is projected to operate at an acceptable service level both without and with the project in 2010. However, the addition of project traffic would result in the westbound left-turn movements, exceeding the available storage length and spilling back to Shellmound Street. (S)

Impact TRAF-5: The proposed project would increase vehicle queues at the Shellmound Way/ Shellmound Street intersection on the eastbound approach during the Saturday peak hour, resulting in vehicle queues that exceed capacity. (S)

Impact TRAF-6: The Shellmound Way/Shellmound Street intersection is projected to operate at an acceptable service level both without and with the project in 2010. However, the addition of project traffic would result in the 95th percentile eastbound vehicle queues exceeding the available storage, resulting in vehicle queue spillback to Christie Avenue. (S)

Impact TRAF-7: The Powell Street/Christie Avenue intersection would operate at an acceptable service level in 2010, both without and with the project. However, vehicle queue spillback would affect overall intersection and system operations. The addition of project traffic would exacerbate existing queuing problems, contributing to poor operations for the southbound through movement, the westbound right-turn movement and the eastbound right-turn movement. (S)

Impact TRAF-9: The Ashby Avenue/San Pablo Avenue intersection is projected to operate at LOS F with an overall average delay of 128 seconds during the PM peak hour in 2030. The addition of project trips during the weekday PM peak hour would increase overall intersection delay to 135 seconds, a seven second increase. (S)

Impact TRAF-10: The I-80 EB Ramps/Powell Street intersection is projected to operate at LOS F during the PM peak hour and Saturday peak hour in 2030. The addition of project traffic would increase delay by more than 4 seconds during both the PM and Saturday peak hours. The addition of project traffic would also increase the 95th percentile queue lengths for several approaches that currently exceed or are projected to exceed the available storage capacity. (S)

Impact TRAF-11: The Powell Street/Hollis Street intersection is projected to operate at LOS F with an overall average delay of 114 seconds during the PM peak hour in 2030. The addition of project trips during the weekday PM peak hour would increase overall intersection delay to 120 seconds, a 6 second increase. (S)

Impact TRAF-14: The addition of project traffic would result in deficient LOS F operations at the Shellmound Street/Marketplace Driveway/Shellmound Garage driveway intersection as well as at the Woodfin Hotel driveway with buildout of the project parcels on the west side of Shellmound Street. (S)

Impact TRAF-16: Vehicle queues at the pedestrian crossing are expected to increase as pedestrian activity increases around the project site. This queuing would contribute to deficient operations at the Shellmound Street/Woodfin Hotel/Marketplace Driveway and the Shellmound Street/Marketplace Driveway/Shellmound Garage driveway. (S)

Mitigation is recommended in Section V.C., Transportation, Circulation and Parking, to reduce these impacts to a less-than-significant level. However, because the City does not have jurisdictional control over the impacted intersections, the feasibility of implementing the recommended Mitigation Measure is unknown.

D. SIGNIFICANT IRREVERSIBLE CHANGES

CEQA requires that EIRs assess whether a proposed project would result in significant irreversible changes to the physical environment. The *CEQA Guidelines* discuss three categories of significant irreversible changes that should be considered. Each is discussed below.

1. Changes in Land Use Which Commit Future Generations

The project site is currently developed with six buildings and a mix of entertainment (e.g., a 10-screen movie theater), retail, commercial and light industrial buildings, and surface-level parking land uses. The proposed project would relocate approximately 340 parking spaces to a reconfigured surface lot and two separate parking structures on the underutilized mixed use site and develop four new buildings with up to 340 for-sale condominium units, up to 77,000 square feet of commercial space, approximately 444 net new parking spaces, and site improvements and enhancements.

Development of the proposed project would facilitate growth anticipated by the Emeryville General Plan. As discussed in Section VII.B, Growth Inducing-Impacts, above, the proposed project would involve the re-use of a mixed use site that is currently underutilized. Because proposed land uses would be consistent with adopted General Plan designations and similar to existing mixed uses on the site (although more intensive then the current uses), the proposed project would not commit future generations to a substantial change in land uses.

2. Irreversible Damage from Environmental Accidents

No significant environmental damage, such as that resulting from accidental spills or explosion of hazardous materials, is anticipated with development of the proposed project. Compliance with federal, State and local regulations, and the mitigation measures identified in Section V.F, Hazardous Materials/Public Health and Safety, would reduce the potential for environmental accidents to a less-than-significant level. No other irreversible changes are expected to result from the implementation of the proposed project.

3. Consumption of Nonrenewable Resources

Consumption of nonrenewable resources includes increased energy consumption, conversion of agricultural lands, and lost access to mining reserves. Because the site has not been used for mineral extraction and is not underlain by known mineral resources, the project would not resulting lost opportunities for mineral extraction. Additionally, agricultural lands are not located within the project area, and would not be provided as part of development of the proposed project.

Development of the proposed project would require additional energy of several types for construction and for on-going use. However, because the new development would occur on an underutilized site within a highly urbanized area with similar densities and intensities as the proposed project, it would not require the construction of major new lines to deliver electricity and natural gas. Because the amount of growth anticipated with the proposed project (i.e., 340 housing units and approximately 155 jobs) is consistent with the adopted General Plan, use of energy, including that from nonrenewable resources. In addition, the project would be required to incorporate energy conservation measures in compliance with Title 24 of the Uniform Building Code and Public Resources Code Section 21100(b)(3), which regulates "wasteful, inefficient, and unnecessary consumption of energy." Furthermore, redevelopment of the currently underutilized site would result in a more efficient allocation

of nonrenewable resources by intensifying development and mixing land uses in more compact nodes. As a result, the proposed project would not result in the inefficient use of nonrenewable energy resources.

E. CUMULATIVE IMPACTS

CEQA defines cumulative impacts as "two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts." Section 15130 of the *CEQA Guidelines* requires that an EIR evaluate potential environmental impacts that are individually limited, but cumulatively significant. These impacts can result from the proposed projects alone or together with other projects.

1. Methodology

When evaluating cumulative impacts, CEQA allows the use of either a list of past, present, or reasonably anticipated relevant projects, including projects outside the control of the lead agency, a summary of the projections in an adopted planning document or a thoughtful combination of the two. This cumulative impacts analysis uses information provided by the City of Emeryville on currently planned, approved or proposed projects, as listed in Appendix E. Additional development that could occur under buildout of the General Plan is also considered. The time frame for the analysis in the cumulative impacts section is through year 2030. Each of the environmental topic areas and their significance criteria analyzed in Chapter V are considered below for cumulative impacts.

2. Cumulative Effects of the Proposed Project

The following analysis examines the cumulative effects of the proposed project. Each of the environmental topic areas analyzed in Chapter V of this EIR is considered below for cumulative impacts. This cumulative analysis uses a list of foreseeable projects in Emeryville and surrounding jurisdictions and also considers additional development that could occur under buildout of the General Plan (Appendix E).

a. Land Use. The proposed project, which would redevelop an existing, urbanized, mixed use designated site with residential and additional commercial land uses, is consistent with the General Plan and Zoning Ordinance designations for the site. Additionally, the project would revitalize underutilized portions of the site in accordance with the requirements of the Redevelopment Plan. Development of the proposed project in concert with other development envisioned in the General Plan would allow for the efficient use of land and would not contribute to cumulative adverse land use impacts.

b. Population, Housing and Employment. The proposed project would result in an increase of approximately 578 residents and 155 jobs in Emeryville. This population and employment increase is consistent with ABAG regional growth projections for the City and, therefore, would not be considered unanticipated growth. Implementation of the cumulative projects would represent a substantial increase in population and employment within the City. However, this growth would have several beneficial effects, including the provision of market-rate and affordable housing (which would allow the City to meet its fair share regional housing allocations) and the efficient utilization of existing urbanized land. Cumulative infill projects are anticipated to stimulate the economy and encourage the generation of additional housing opportunities to reduce the jobs-housing imbalance within Emery-

ville. Therefore, development of the proposed project and anticipated projects in Emeryville is expected to benefit population, employment, and housing conditions in the City.

c. Transportation and Circulation. Refer to Section V.C, Transportation and Circulation, for a detailed description of the cumulative transportation-related impacts of the proposed project. Although the proposed project and many of the cumulative projects would be located in close proximity to transit stations and would allow for the utilization of alternative modes of transportation, these projects would incrementally increase traffic on City streets. A cumulative traffic analysis was completed for the years 2010 and 2030. In summary, the proposed project would result in cumulative circulation or level of service impacts to the following intersections: Shellmound Street at 65th Street; Christie Avenue at Powell Street; and I-580/80 eastbound ramps at Powell Street. However, the proposed projects' cumulative traffic impacts on these intersections would be reduced to a less-than-significant level through implementation of mitigation measures included in Section V.C, Transportation and Circulation.

During the construction of the proposed project and anticipated cumulative projects, lane closures could cause minor traffic delays, restricted access, and potential rerouting of traffic (including emergency vehicles). However, because these delays would be temporary, they are not considered significant cumulative impacts.

d. Air Quality. The BAAQMD has established thresholds of significance for ozone precursors and fugitive dust of 80 pounds per day. As described in Section V.D, Air Quality, proposed project emissions would *not* exceed these thresholds of significance for reactive organic gases (ROG), nitrogen oxides (NO_x), or particulate matter (PM_{10}). As a result, the proposed project's contribution to a regional air quality would not be considered cumulatively significant.

e. Noise and Vibration. Demolition and construction activities associated with the proposed project would result in groundbourne vibration levels in excess of 0.2 inches per second at structures within and adjacent to the project site. Foreseeable construction and remediation projects in the vicinity of the project site (especially those that require pile driving) could result in significant noise and vibration impacts. However, these noise and vibration impacts would be reduced to a less-than-significant level through the implementation of the mitigation measures recommended in Section V.E, Noise and Vibration, in addition to compliance with the City's noise ordinance, which restricts construction activities to daytime hours. Cumulative projects that involve pile driving or would otherwise generate high levels of noise and vibration would be required to implement noise and vibration mitigation measures similar to those that would be required of the proposed project. Therefore, the project would not make a significant short-term contribution to cumulative noise levels.

As indicated in Section V.E, Noise and Vibration, the cumulative roadway noise assessment for years 2010 and 2030 concludes that there would be no roadway noise impacts associated with cumulative and cumulative-plus-project conditions. The noise analysis also provides an assessment of on-site noise level impacts on existing sensitive uses adjacent to the project site. With implementation of the recommended mitigation measures, the assessment concludes that the project would not produce a significant impact on future sensitive land uses. Thus, no significant cumulative impacts would occur after implementation of the proposed mitigation measures**.**

f. Public Health and Safety/Hazardous Materials. Demolition and construction activities associated with the proposed project could increase the exposure of persons to hazardous materials, including contaminated soil, soil gas, groundwater, hazardous construction materials, and lead and asbestos in structures. However, the use, storage, and disposal of hazardous materials is highly regulated by local, State, and federal laws. The handling of hazardous materials on the project site in accordance with these regulations would reduce cumulative hazardous materials risks to a less-than-significant level. Other anticipated projects in Emeryville and surrounding areas would also be required to comply with hazardous materials regulations.

g. Geology, Soils and Seismicity. Potential cumulative geology impacts do not extend far beyond a project's boundaries, since geological impacts are typically confined to discrete spatial locations and do not combine to create an extensive cumulative impact. The exception to this generalization would occur where a large geologic feature (e.g., fault zone, massive landslide) might affect an extensive area, or where the development effects from the project could affect the geology of an off-site location. These circumstances are not present on the project site, and do not apply to the proposed project. The mitigation measures identified in section V.G, Geology, Soils and Seismicity, including appropriate grading and compliance with the Uniform Building Code and hazardous materials remediation, would reduce cumulative geologic effects of the proposed project site and surrounding area. Therefore, implementation of the project would not make a considerable contribution to a significant cumulative geologic impact.

h. Hydrology and Water Quality. The proposed project would adequately mitigate construction and operation project-related water quality impacts, and would not contribute to regional groundwater or surface water quality degradation. Construction and operational-period impacts to storm water that would result from implementation of the proposed project would be minimized through compliance with RWQCB regulations and the implementation of the mitigation measures recommended in Section V.H, Hydrology and Storm Drainage. In accordance with RWQCB regulations, other cumulative projects in Emeryville would be required incorporate water quality mitigation measures similar to the proposed project and would not result in cumulative adverse impacts to water quality. Therefore, implementation of the proposed project would not result in significant cumulative hydrology and storm water impacts.

i. Cultural and Paleotological Resources. Archaeological sites that could occur in the project area may provide valuable information about Emeryville. The Bayshore development has removed the majority of known prehistoric shellmounds in the City. If an archaeological shellmound is found within the project area, a cumulative adverse effect would occur since few of these specific San Francisco Bay area archaeological resources remain intact.

Historic buildings within and adjacent to the proposed project area have been demolished and replaced with modern buildings, or have been renovated for re-use. Two approved projects will be constructed west of and adjacent to the project area: Avenue 64, a 224-unit apartment building at 6335 Christie Avenue, and a 60-unit live/work residential project at 6150 Christie Avenue. No cumulative effects are anticipated due to the proposed project since the historic setting of the area has been previously altered and this project is not expected to have a significant cumulative effect on the historical environment.

If Native American human remains are encountered, they will be treated in accordance with Section 7050.5 of the California Health and Safety Code. Fossils could also be identified on the project site. Should significant paleontological resources be encountered, important information would be recovered and preserved. Therefore, implementation of the proposed project and cumulative projects would not result in significant cumulative impacts on cultural and paleontological resources.

j. Aesthetic Resources. The proposed project would result in the demolition of two light industrial buildings on the southeast corner of 64th Street and Christie Avenue. The demolition of these buildings would not degrade the visual character of the project area. Demolition of these buildings would benefit the project area by removing underutilized, incongruous low-rising industrial buildings from a predominately mid-rise, mixed use area. The significant historic buildings on the project site (i.e., Public Market buildings) would be retained as the focal point of the Marketplace shopping district, providing sufficient character-defining elements such that the project would not result in a significant cumulative impact to scenic resources. The proposed project would also result in the construction of buildings up to 95 feet in height. Coupled with the construction of some of the cumulative projects, the proposed project would alter the skyline of Emeryville. However, the buildings that would be developed as part of the project would not substantially adversely affect significant views. The two proposed mid-rise buildings have been designed so that the upper floors step back to reduce the mass of the structures as perceived from the street. As a result, these buildings would not result in a substantial cumulative adverse impact to the visual character of the neighborhood.

The proposed project and cumulative projects would result in substantial changes to the visual character of Emeryville and surrounding areas. These projects would result in the introduction of additional employees and residents to Emeryville, which would increase activity in portions of the City. The proposed project and the foreseeable projects would result in streetscape improvements to Emeryville, including the installation of street trees and street furniture, and the operation of new stores, residences, research, and civic facilities. Therefore, the proposed project and cumulative projects are expected to have beneficial impacts on the aesthetics of Emeryville in the cumulative condition.

k. Public Services and Utilities. Similar to other development projects, the proposed project and cumulative development would increase demand for public services and utilities, including police, fire, emergency services, water, sanitary sewer, storm drainage, solid waste, telephone and cable services, and power (e.g., electricity and gas). As noted in Section V.K, Utilities and Infrastructure, all project-related infrastructure impacts would be mitigated to a less-than-significant level. New facilities required to maintain adequate service ratios would be funded through developer fees, bond monies, and taxes on new development. Service providers regularly review growth trends and conduct long-range planning to adequately provide public services for future growth. With planned upgrade and adherence to regulatory requirements, there are currently adequate wastewater collection, treatment plant and interceptor capacity, storm drain facilities, landfill capacity, and energy and telecommunications capacity to serve cumulative development anticipated in the General Plan.

EBMUD water supplies are projected to be adequate to serve the project during years with average precipitation and during multiple year dry spells. Water conservation policies and programs and construction of new recycled water pipelines are being implemented to further ensure EBMUD will continue to have adequate water supplies to serve the proposed project in addition to cumulative

growth within the EBMUD water service area. Therefore, development of the proposed project and cumulative projects would not result in significant cumulative impacts to public services and utilities.

l. Wind. The Shellmound building, due to its massing and shape, has the potential to affect pedestrian comfort in the forth floor walkway connection with the Amtrak bridge and on roof deck terraces. However, adverse wind impacts associated with this building would be reduced to a less-than-significant level through a final building design review that would incorporate design alterations, as necessary, to mitigate wind effects. New buildings in the vicinity of the project site could intercept prevailing winds and result in increased ground-level wind speeds. However these projects, like the proposed project, would be subject to additional wind analysis to determine if they would generate significant wind. The architecture, massing, and landscaping of new buildings would be altered such that surrounding areas would not be subject to high ground-level winds. Therefore, the proposed project, in conjunction with foreseeable projects, would not result in significant cumulative wind impacts.

m. Shade and Shadow. Proposed buildings would incrementally increase shadow coverage within the project site and surrounding buildings. However, no shadow would be cast on existing public parks or open space, or on known solar collectors. Development of other foreseeable projects would also increase the amount of shade in and around the project site. However, additional shade and shadow would not substantially affect average temperatures in Emeryville and surrounding municipalities, or substantially reduce the efficacy of existing solar collectors. As a result, the proposed project would not result in a significant contribution to adverse cumulative shade and shadow effects.

VIII. REPORT PREPARATION

A. REPORT PREPARATION

LSA Associates, Inc., Prime Consultant: *Project Management and Report Production; Plans and Planning Policy; Land Use; Population and Housing; Air Quality; Noise and Vibration; Aesthetic Resources; Public Services and Utilities; Cumulative Impacts; Alternatives;* and *CEQA Required Assessment Conclusions*

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B. REFERENCES

29 Code of Federal Regulations (CFR) 1926.62.

29 Code of Federal Regulations (CFR) Part 1926.1101

29 Code of Federal Regulations (CFR) 1910.120.

ABAG, 2003. *Liquefaction Hazard Map for Emeryville, Scenario: North and South Hayward faults, Magnitude 7.1 Earthquake.* Accessed January 4, 2006. Website: www.abag.ca.gov.

ABAG, 2005. *Earthquake Shaking Scenario Map.* Website: http://www.abag.ca.gov/bayarea/eqmaps/mapsba.

Alameda County, recorded in official records, Covenant to Restrict Use of Property located at Christie Avenue and Shellmound Street, Emeryville, California, recording requested by: Christie Avenue Partners-JS, San Francisco, California, recorded August 7, 1995.

Ambro, Richard D., 1992. *Draft Archaeological Cultural Resource Study for the Bay/Shellmound Street Project*. Holman and Associates, San Francisco, California.

American Society for Testing Materials, Standard Practices for Environmental Site Assessments: Phase I Environmental Assessment Process, ASTM E 1527-00.

Aqua Terra Technologies, 1988. Memorandum regarding Classification of an Asphalt-Like Waste Material Found on the Marketplace and Nielson Site in Emeryville, California, prepared for Mr. Walter Kaczmarek , the Martin Company, July 11.

Association of Bay Area Governments, 2004. *Projections 2005, Forecasts for the San Francisco Bay Area to the Year 2030*, November.

Association of Bay Area Governments, 2005, Interactive ABAG (GIS) Maps Showing Dam Failure Inundation. Website: http://www.abag.ca.gov/bayarea/eqmaps/damfailure.

Bass, Ronald E., Albert I. Herson, and Kenneth M. Bogdan., 1999. *CEQA Deskbook: A Step-by-Step Guide on How to Comply with the California Environmental Quality Act*. Solano Press Books, Point Arena, California.

Bay Area Stormwater Management Agencies Association, 1999. *Start at the Source,* Design Guidance Manual for Stormwater Quality Protection.

Bell, C.J., E.L. Lundelius, Jr., A.D. Barnosky, R.W. Graham, E.H. Lindsay, D.R. Ruez, Jr., H.S. Semken, Jr., S.D. Webb, and R.J. Zakrzewski, 2004. The Blancan, Irvingtonian, and Rancholabrean Mammal Ages. In *Late Cretaceous and Cenozoic Mammals of North America*, edited by M.O. Woodburne, pp. 232-314. Columbia University Press, New York.

Bowman, J. N., 1951. Adobe Houses in the San Francisco Bay Region. In *Geologic Guidebook of the San Francisco Bay Counties; History Landscape, Geology, Fossils, Minerals, Industry, and Routes to Travel*, prepared by Olaf P. Jenkins, pp. 54-67. Bulletin 154. State of California, Division of Mines, San Francisco.

BRE Properties, 2004. *Pinnacles Project EIF, City of Emeryville.*

Broughton, Jack M., 1996. *Excavation of the Emeryville Shellmound, 1906: Nels C. Nelson's Final Report*. Contributions of the University of California Archaeological Research Facility 54. University of California, Berkeley.

Brown, William M. III, 1988. Historical Setting of the Storm: Perspectives on Population, Development, and Damaging Rainstorms in the San Francisco Bay Region, in Landslides, Floods, and Marine Effects of the Storm of January 3-5, 1982, in the San Francisco Bay Region, California, Stephen D. Ellen and Gerald F. Wieczorek, Eds., U.S. Geological Survey Professional Paper 1434.

Busby, Colin I., 1995. *Cultural Resources Assessment, Sybase-Hollis Street Project, Emeryville, Alameda County, California*. Basin Research Associates, San Leandro, California.

Busby, Colin I., 1999. *Archaeological Monitoring Closure Report-IKEA Project, 4400 Shellmound Street, Cities of Emeryville and Oakland, Alameda County*. Basin Research Associates, San Leandro, California.

California Code of Regulations (CCR) Title 8, Section 5192.

California Public Resources Code Section 2690-2699.6.

California Health and Safety Code Section 25501

California Department of Finance. Historical Census Populations of California State, Counties, Cities, Places, and Towns, 1850-2000. Website: www.dof.ca.gov.

California Department of Parks and Recreation, 1976. *California Inventory of Historic Resources*. California Department of Parks and Recreation, Sacramento.

California Department of Water Resources, 1988, Dams within the Jurisdiction of the State of California, Bulletin 17-88, October.

California Division of Mines and Geology (CDMG), 1982. *State of California Special Studies Zones, Oakland West Quadrangle Map.*

California Geographic Survey (CGS), 2002. *California Geomorphic Provinces, Note 36.*

California Geological Survey (CGS), 2003. State of California Seismic Hazard Zones, Oakland West Quadrangle.

California Geological Survey (CGS), 2005. *Probabilistic Seismic Hazards Mapping Ground Motion Page*. Accessed January 4, 2006. Website: www.consrv.ca.gov/cgs/rghm/pshamap.

California Integrated Waste Management Board, 2006. Website: www.ciwmb.ca.gov/SWIS.

California Integrated Waste Management Board, 2006. Estimated Solid Waste Generation Rates. Website: www.ciwmb.ca.gov/WasteChar/WasteGenRates/

California Integrated Waste Management Board, 2006. Jurisdiction Profile: Emeryville. Website: http://www.ciwmb.ca.gov/Profiles/Juris/

California Office of Historic Preservation, 1988. *Five Views: An Ethnic Sites Survey for California.* California Department of Parks and Recreation, Sacramento.

California Office of Historic Preservation, 1990. *Archaeological Resource Management Reports (ARMR): Recommended Contents and Format.* California Department of Parks and Recreation, Sacramento.

California Office of Historic Preservation, 1992. *Guidelines for the Curation of Archeological Collections*. California Department of Parks and Recreation, Sacramento.

California Office of Historic Preservation, 1992. *Points of Historical Interest.* California Department of Parks and Recreation, Sacramento.

California Office of Historic Preservation, 1995. *Instructions for Recording Historical Resources*. California Department of Parks and Recreation, Sacramento.

California Office of Historic Preservation, 1999. *California Register and National Register: A Comparison.* Technical Assistance Series 6. California Department of Parks and Recreation, Sacramento.

California Office of Historic Preservation, 2001a. *California Environmental Quality Act (CEQA) and Historical Resources*. Technical Assistance Series 1. California Department of Parks and Recreation, Sacramento.

California Office of Historic Preservation, 2001b. *California Register of Historical Resources: Q&A for Local Governments*. Technical Assistance Series 4. California Department of Parks and Recreation, Sacramento.

California Office of Historic Preservation, 2004. *Directory of Properties in the Historic Property Data File,* August 8, 2005. Department of Parks and Recreation, Sacramento.

California Office of Historic Preservation,, 1996. *California Historical Landmarks.* California Department of Parks and Recreation, Sacramento.

California State Scenic Highway Mapping System, 2006. Website: http://www.dot.ca.gov/hq/LandArch/scenic.

CDC, 1987. *Mineral Land Classification Special Report 146 part 2*, Map plate 2.20, Oakland West Quadrangle.

CDC, 2000. *Energy Map of California, Third Edition,* Division of Oil, Gas or Geothermal Resources.

Chaney, Ralph W., 1951. Prehistoric Forests of the San Francisco Bay Region. In *Geology Guide-book of the San Francisco Bay Counties: History, Landscape, Geology, Fossils, Minerals, Industry, and Routes to Travel*, prepared by Olaf P. Jenkins, pp. 193-202. Bulletin 154. California Division of Mines, San Francisco.

Chavez, David, 1977. *Preliminary Cultural Resources Assessment of the East Bay Municipal Utility District (EBMUD) Wet Weather Facilities/Overflow Project Facilities Sites, Alameda and Contra Costa Counties, California*. Mill Valley, California.

Chavez, David, and Jan M. Hupman, 2002. *Archaeological Resources Investigations for the EBMUD East Bayshore Recycled Water Project, Alameda County, California*. David Chavez & Associates, Mill Valley, California.

City of Emeryville Department of Public Works, 2004. Memorandum to John A. Flores, City Manager. December 7.

City of Emeryville, 1991. City of Emeryville Source Reduction and Recycling Element & Household Hazardous Waste Element.

City of Emeryville, 1994. *General Plan*.

City of Emeryville, 1999. *CIERRA-Public Participation Plan: Community Description*. Website: www.ci.emeryville.ca.us/bf/pp-commdescription.html.

City of Emeryville, 2005. Major Employers. Website: http://www.ci.emeryville.ca.us.

City of Emeryville, 2004. Municipal Code Article 62, Section 9-4.62.2, Definitions.

City of Emeryville, 2005. *South Bayfront Project*. Website: http://emeryville.wli.net.

City of Emeryville, 2006. Emeryville General Plan Update, Opportunities & Challenges Report.

Conformable Impact Mitigation Guidelines Committee, 1995. Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standards and Guidelines. *Society of Vertebrate Paleontology News Bulletin* 163:22-27.

Dayrit, Ignacio, 2002. Brownfields Redevelopment Demystified, Final Report, Emeryville Brown-fields Pilot Project, City of Emeryville, funded by the City of Emeryville and U.S. Environ-mental Protection Agency, July.

Department of Toxic Substances Control (DTSC), 1984. Preliminary Assessment Summary, Emeryville Marketplace, Emeryville, California, 94608, EPA CA 980694418, May.

Department of Toxic Substances Control (DTSC), 2000. *Draft Site Specific Health and Safety Plan Guidance Document For Site Assessment/Investigation, Site Mitigation Projects, Hazardous Waste Site Work, Closure, Post Closure, and Operation and Maintenance Activities.* December (or as updated or otherwise required).

Department of Toxic Substances Control (DTSC), 2003. Five Year Review, Emeryville Market, Christie Avenue and Shellmound Street, Emeryville, California, September.

DTSC, 2005. Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties, California Environmental Protection Agency, January.

Department of Toxic Substances Control (DTSC), 2005. Memoranda regarding Emery Bay Market Place, Shellmound Street, Emeryville, California, to Christie Avenue Partners-JS, Attention Thomas Gram, November 8.

Department of Toxic Substances Control (DTSC), 2005. Letter to Ms. Miroo Desani, City of Emeryville from Denise Tsuji, DTSC, regarding Notice of Preparation for the draft Environmental Impact Project for the Marketplace Redevelopment Project. December 28.

Dietz , Stephen A., 1987. *Cultural Resources Assessment, Emeryville, California Branch*. Archaeological Consulting and Research Services, Inc., Santa Cruz, California.

Dyett & Bhatia, 2005. *Emeryville General Plan Update, Opportunities and Challenges Report*. October.

Earth Metrics Inc., 1987. Draft Workplan for Soils Contamination Characterization of Marketplace Site in Emeryville, California, prepared for County of Alameda, 10 November.

Earthquake Engineering Research Institute (EERI), 1994. *Earthquake Basics: Liquefaction – What Is It and What To Do About It.*

East Bay Municipal Utility District (EBMUD), 2004. Website: www.ebmud.com/wastewater/treatment.

East Bay Municipal Utility District (EBMUD), 2005. Urban Water Management Plan (UWMP).

EBMUD, 2006. Freeport Regional Water Project. Website: www.ebmud.com/water_&_environment/water_supply/current_projects/freeport.

EBMUD, 2006. Recycled Water. Website: www.ebmud.com/conserving_&_recycling/recycling/recycled_water.

Emeryville Chamber of Commerce, 2004. *Welcome from the President & CEO*. Website: www.emeryvillechamber.com/chamber/ CEOMessage.

Federal Emergency Management Agency (FEMA)/Environmental Systems Research Institute, 2006. U.S. Flood Hazard Maps. Website: http://www.esri.com/hazards.

Frederickson, David A., 1974. Cultural Diversity in Early Central California: A View from the North Coast Ranges. *Journal of California Anthropology* 1(1):41-53.

Garaventa, Donna M., and Sondra A. Jarvis, 1990. *First Addendum Archaeological Survey Report, I-880/Cypress Replacement Project, 04-ALA-880 32.12/34.31, 04-ALA-580 45.99/46.95, 04-ALA-80 1.99/3.39, E.A.#04195-190271 MEQ 85001, Cities of Oakland and Emeryville, Alameda County, California*. Basin Research Associates, Inc., San Leandro, California.

Garaventa, Donna M., Michael R. Fong, and Sondra A. Jarvis, with Angela M. Banet, 1990. *Archaeological Survey Report, I-880/Cypress Replacement Project, 04-ALA-880 32.12/34.31, 04-ALA-580 45.99/46.95, 04-ALA-80 1.99/3.39, E.A# 04195-190271 MEQ 85001, Cities of Oakland and Emeryville, Alameda County, California*. Basin Research Associates, Inc., San Leandro, California.

Graymer, R.W., 2000. *Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California*, USGS.

Gudde, Erwin G., *California Place Names*: *The Origin and Etymology of Current Geographical Names*. Fourth edition, revised and enlarged by William Bright. University of California Press, Berkeley.

Hausler, Donald, 1992. The History of Park Avenue, Emeryville, California. *Journal of Emeryville Historical Society*.

Hausler, Donald, 1994. The Emeryville Horse Race Track: 1871-1915. *Journal of Emeryville Historical Society* V(1):3-14.

Helley, E., K. LaJoie, and D. Burke, 1972. *Geologic Map of the Late Cenozoic Deposits of Alameda County, California.* Miscellaneous Field Studies Map MF-429. United States Geological Survey, Washington, D.C.

Helley, E.J, K.R. La Joie, W.E. Spangle, and M.L. Blair, 1979. *Flatland Deposits of the San Francisco Bay Region - their geology and engineering properties, and their importance to comprehensive planning.* Geological Survey Professional Paper 943. U.S. Geological Survey and Department of Housing and Urban Development, Washington, D.C.

Helley, E.J., and R.W. Graymer, 1997. *Quaternary Geology of Contra Costa County, and Surrounding Parts of Alameda, Marin, Sonoma, Solano, and San Joaquin Counties, California: A Digital Database*. United States Geological Survey Open File Report 97-98, Washington D.C.

Helley, E.J., LaJoie, K.R., 1979. Flatlands Deposits of the San Francisco Bay Region, California, USGS Professional Paper 943.

Hertlein, L.G., 1951. Invertebrate Fossils and Fossil Localities of the San Francisco Bay Region. In *Geology Guidebook of the San Francisco Bay Counties: History, Landscape, Geology, Fossils, Minerals, Industry, and Routes to Travel*, prepared by Olaf P. Jenkins, pp. 187-192. Bulletin 154. California Division of Mines, San Francisco.

Hill, Ward, 1993. A History of the Paraffine Paint Company. *Journal of the Emeryville Historical Society* IV(2):4-7. Emeryville, California.

Hoover, Mildred.B., Hero.E. Rensch, Ethel.G. Rensch, and William.N. Abeloe, 1990. *Historic Spots in California*. Fourth edition, revised by Douglas E. Kyle. Stanford University Press, Stanford, California.

Houston, J.R., Garcia, A.W., 1975, Type 16 Flood Insurance Study: Tsunami Predictions for Monterey and San Francisco Bays and Puget Sound, Technical Report H-75-17, November.

Jeremias, Michel, 2006. BKF Engineers/Surveyors/Planners. Emeryville Marketplace Sewer Design Study. February.

Jones & Stokes, 2004. *National Register of Historic Places Evaluation Report: Emeryville Cell Site Project, Emeryville, California*. Sacramento, California.

Küchler, A. W., 1977. *The Map of the Natural Vegetation of California*. University of Kansas, Lawrence.

Levy, Richard, 1977. Costanoan. In *California*, edited by Robert F. Heizer, pp. 485-495. Handbook of North American Indians, Volume 8; William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Lightfoot, Kent, 1977. Cultural Construction of Coastal Landscapes, A Middle Holocene perspective from San Francisco Bay. In *Archaeology of the California Coast During the Middle Holocene*, edited by Jon M. Erlandson and Michael Glassow, pp.129-141. Perspectives in California Archaeology, vol. 4, Jeanne E. Arnold, senior series editor. Cotsen Institute of Archaeology, University of California, Los Angeles.

Lightfoot, Kent, 2004. Shellmounds: An Archaeologist's View. *News From Native California* Spring:16-17.

Makepeace, D.K., Smith, D.W. and Stanley, S.J., 1995. Urban Stormwater Quality: Summary of Contaminant Data, *Critical Reviews in Environmental Science and Technology*, Vol. 25, No. 2, pp. 93-139.

Margolin, Malcolm, 1978. *The Ohlone Way: Indian Life in the San Francisco-Monterey Bay Area*. Heyday Books, Berkeley, California.

Metsker, Charles F., 1938. Mestker's Map of Alameda County, California.

Milliken, Randall, 1995. *A Time of Little Choice, The Disintegration of Tribal Culture in the San Francisco Bay Area 1769-1810*. Ballena Press Anthropological Papers No. 43. Menlo Park, California.

Moratto, Michael, 1984. *California Archaeology*. Academic Press, Inc., Orlando, Florida.

Nelson, N. C., 1909. Shellmounds of the San Francisco Bay Region. *University of California Publications in American Archaeology and Ethnology* 7(4). Berkeley.

Nelson, Wendy J., 2000. *Cultural Resources Survey for the Level (3) Communications Long Haul Fiber Optics Project Segment WS07: Oakland to San Jose*. Far Western Anthropological Research Group, Inc., Davis, California.

Nichols, Donald R. and Nancy A. Wright, 1971. *Preliminary Map of Historic Margins of Marshland, San Francisco, California.* U.S. Geological Survey Open File Map. U.S. Geological Survey in Cooperation with the U.S. Department of Housing an Urban Development, Washington, D.C.

Oakland Public Library, 2006. Bookmobile Schedule. Website: www.oaklandlibrary.org.

PES Environmental, Inc., 1994. Memorandum Regarding Groundwater Monitoring Report. January. Sampling Event, Emery Bay Marketplace, Emeryville, California, prepared for Ms. Lynn Tolin, Christie Avenue Partners-J.S., Emeryville, California, 23 February.

PES Environmental, Inc. (PES), 2005a. Memorandum to Mr. Robert Wyatt-Allen Matkins Leck Gamble & Mallory, LLP, from Will Mast and Peter Gorman, PES, Regarding Phase II Environmental Subsurface Investigation Results, Gold and Wolfman Properties, Emeryville, California. January 21.

PES, 2005b. *Draft Report of Aboveground Methane Gas Assessment, 6390 Christie Avenue/1609 64th Street, Emeryville, California* for Ms. Denise Pinkston, TMG Partners, and Mr. Robert Wyatt, Allen Matkins Leck Gamble & Mallory, LLP, Privileged and Confidential Attorney Work Product. February 4.

PES, 2005c. *Phase I Environmental Site Assessment, 6390 Christie Avenue, Emeryville, California*, prepared for Allen Matkins Leck Gamble & Mallory, LLP, San Francisco, California. January 21.

PES, 2005d. *Phase I Environmental Site Assessment, 6340 Christie Avenue, Emeryville, California*, prepared for Allen Matkins Leck Gamble & Mallory LLP, San Francisco, California. January 21.

PES Environmental, Inc., 2006, Results of Soil Gas Testing, Emeryville Marketplace Mixed Use Project, Shellmound Street, Emeryville, California, prepared for Marketplace Mortgage LLC, c/o Ms. D. Pinkston, TMG Partners, San Francisco, 17 November.

Property Conditions Assessments, LLC (PCA), 2003. *Phase I Environmental Site Assessment, EmeryBay Portfolio*, Emeryville, California, prepared for Rockwood Capital Corporation. Project No. 1-02-215J. January 28.

Rauch, Alan F., 1997. EPOLLS: An Empirical Method for Predicting Surface Displacements due to Liquefaction-Induced Lateral Spreading in Earthquakes, Ph. D. Dissertation, Virginia Tech, Blacksburg, VA.

Regional Water Quality Control Board (RWQCB), San Francisco Bay Region, 2003. 2002 CWA Section 303(d) List of Water Quality Limited Segment, Approved by USEPA. July 2003.

RGA Environmental Inc., (RGA), 1996. *Phase I Environmental Site Assessment Update, 6390 Christie Avenue, Emeryville, California*. October 1.

Ritter, J., Dupre, W., 1972. Maps Showing Areas of Potential Inundation of Tsunamis in the San Francisco Bay Region, California, Department of the Interior, U.S. Geological Survey, Misc. Field Studies, MF480.

San Francisco Bay Regional Water Quality Control Board, 1995, Water Quality Control Plan, June 21.

San Francisco Regional Water Quality Control Board (RWQCB), 2006. Website: http://www.waterboards.ca.gov/sanfranciscobay.

Sanborn Map Company, 1903. *Oakland*. New York.

Sanborn Map Company, 1911. *Berkeley*. New York.

Sanborn Map Company, 1911. *Oakland*. New York.

Sanborn Map Company, 1951. *Berkeley*. New York.

Sanborn Map Company, 1951. *Oakland*. New York.

Savage, D., 1951. Late Cenozoic Vertebrates of the San Francisco Bay Region. *Bulletin of the Department of Geological Sciences* 28(10):215-314. University of California, Berkeley.

Schenck, W. Egbert, 1926. The Emeryville Shellmound: Final Report. *University of California Publications in American Archaeology and Ethnology* 23(3):147-282. Berkeley.

Scheyer, J.M., and K.W. Hipple. 2005. Urban Soil Primer. United States Department of Agriculture, Natural Resources Conservation Service, National Soil Survey Center, Lincoln, Nebraska Website: http://soils.usda.gov/use.

Society for Vertebrate Paleontology, 1995. Conformable Impact Mitigation Guidelines. *Society for Vertebrate Paleontology News Bulletin* 163: January.

Sowers, J.M., 1993. Creek and Watershed Map of Oakland and Berkeley, published by the Oakland Museum of California.

Sowers, Janet M., 1993. *Creek and Watershed Map of Oakland and Berkeley*. Revised 1995, 2000. Oakland Museum of California. Oakland, California.

State Water Resources Control Board, 2001. Modification of Water Quality Order 99-08-DWQ State Water Resources Control Board (SWRCB) National Pollutant Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity.

Stirton, R. A., 1951.Prehistoric Land Animals of the San Francisco Bay Region. In *Geology Guidebook of the San Francisco Bay Counties: History, Landscape, Geology, Fossils, Minerals, Industry, and Routes to Travel*, prepared by Olaf P. Jenkins, pp. 177-186. Bulletin 154. California Division of Mines, San Francisco.

StopWaste.org, 2003. Waste Diversion Rates for Alameda County Jurisdictions. Website: www.stopwaste.org/docs/waste_diversion_rates-2003.pdf

U.S. Census, 2000. SF-3, Table DP-4, *Profile of Selected Housing Characteristics*.

U.S. Census, 2000. SF-3, Table DP-3, *Profile of Selected Housing Characteristics*.

U.S. Department of Agriculture (USDA), 1981. *Soils of Alameda County, Western Part*, Soil Conservation Service.

U.S. Environmental Protection Agency (US EPA), 2006. Website: http://www.epa.gov/region09/waste/sfund/prg/.

U.S. EPA, 1995. The Probability of Sea Level Rise, EPA 230-R-95-008, October.

Uhle, Max, 1907. The Emeryville Shellmound. *University of California Publications in American Archaeology and Ethnology* 7(1). Berkeley.

United States Army Corps of Engineers, 1984. San Francisco Bay Tidal Stage vs. Frequency Study, October.

United States Geological Survey (USGS), 1899. *San Francisco, California* 15 minute-topographic quadrangle. United States Geological Survey, Washington, D.C.

United States Geological Survey (USGS), 1915. *San Francisco, California* 15 minute-topographic quadrangle. United States Geological Survey, Washington, D.C.

United States Geological Survey (USGS), 1942. *San Francisco, Calif.* 15-minute topographic quadrangle. United States War Department, Washington, D.C.

United States Geological Survey (USGS), 1959. *Oakland West, Calif.* 7.5-minute topographic quadrangle. Photo revised 1980. United States Geological Survey, Washington, D.C.

United States Geological Survey (USGS), 1970. *Regional Slope Stability Map of the Southern San Francisco Bay Region, Professional Paper 944.*

United States Geological Survey (USGS), 1993. *Oakland West, CA.* 7.5-minute topographic quadrangle. United States Geological Survey, Washington, D.C.

United States Geological Survey (USGS), 2003. *Earthquake Probabilities in the San Francisco Bay Region: 2002 to 2031 – A Summary of Findings*, Open File Report 03-214.

URS Greiner Woodward Clyde, 1999. *Draft Archaeological Research Design and Data Recovery Plan for the South Bayfront Project: Archaeological Sites CA-ALA-309 and CA-ALA-310*. Oakland, California.

Wagner, D.L., and E.J. Bortugno, and R. D. McJunkin, 1990. *Geologic Map of the San Francisco-San Jose Quadrangle*, 1:250,000. Map No. 5A. California Division of Mines and Geology, Sacramento.

Walker, Richard A., 2004. *Industry Builds out the City: The Suburbanization of Manufacturing in the San Francisco Bay Area, 1850-1940*. Department of Geography, University of California, Berkeley.

Welch, Lawrence E., 1975. *Soil Survey of Alameda County, California, Western Part*. United States Department of Agriculture, Soil Conservation Service, Santa Rosa, California.

Western Regional Climate Center, 2004. Website: http://www.wrcc.dri.edu.

Wood, M. W., 1883. *History of Alameda County, California*. M. W. Wood, Publisher, Oakland, California.

Woodward Clyde Consultants, 1982. Assessment of Subsurface Contaminants, Marketplace Property, Emeryville, California, prepared for Equity Financial and Management Company, Chicago, Illinois, May.

Woodward Clyde Consultants, 1987. Environmental Assessment, Former Nielsen Freight Line Site and Adjacent Parcel, Emeryville, California, prepared for the Martin Company, Pleasanton, California, August 12.

C. COMMUNICATIONS

Ballanti, Don, 2007. Wind and Comfort Evaluation for Marketplace Redevelopment Project, City of Emeryville. January 31.

Chavez, Linda, 2005. Senior Planner, East Bay Regional Park District. Personal communication with LSA Associates, Inc. December.

Clausen, Ed, President, Alameda County Historical Society, 2006. Personal communication with LSA Associates, January 9.

Conover, Doug, 2005. Engineer, Emeryville Fire Department. Personal communication with LSA Associates, Inc. July.

Dayrit, Ignacio, 2006, Personal communication with Baseline Environmental Consulting, January 13.

Hohlwein, Reinhard, 2005. Integrated Waste Management Board, Permitting and Enforcement Division. Personal communication with LSA Associates, Inc. July.

James, Ken, 2006. Chief of Police, Emeryville Police Department. Personal communication with LSA Associates, Inc. February.

James, Ken, 2007. Chief of Police, Emeryville Police Department. Personal communication with LSA Associates, Inc. February.

Kaufman, Maurice, 2007. Senior Civil Engineer, City of Emeryville Public Works Department. Personal communications with LSA Associates, Inc. January.

Kaufman, Maurice, 2006. Senior Civil Engineer, City of Emeryville Public Works Department. Personal communications with LSA Associates, Inc. March.

Mast, Will, PES, 2005. Personal communication with Baseline Environmental Consulting, January 17.

Pilas-Treadway, Debbie, Environmental Specialist III, Native American Heritage Commission, 2005. Personal Communication with LSA Associates, December 16.

Rehnstrom, David, 2006. Senior Civil Engineer, EBMUD Water Service Planning. Personal communications with LSA Associates, Inc. January.

Robinson, Adrienne, 2006. Administrative Analyst, Emeryville Police Department. Personal communication with LSA Associates, Inc. January.

Shaw, John, 2005. Chief Business Officer, Emery Unified School District. Personal communication with LSA Associates, Inc. December.

Smith, Nancy, Secretary, Emeryville Historical Society, 2005. Personal communication with LSA Associates, December.

APPENDIX A

NOTICE OF PREPARATION AND PUBLIC COMMENTS

CITY OF EMERYVILLE

INCORPORATED 1896

1333 PARK AVENUE
EMERYVILLE, CALIFORNIA 94608-3517

TEL: (510) 596-4300 FAX: (510) 658-8095

NOTICE OF PREPARATION (NOP)

TO: Affected Agencies (via Certified Mail)
Property Owners within 500 Feet of the Affected Property (via US Mail)
Interested Organizations and Persons (via US Mail)

FROM: City of Emeryville

SUBJECT: **Notice of Preparation of a Draft Environmental Impact Report**

LEAD AGENCY: City of Emeryville
1333 Park Avenue
Emeryville, CA 94608-3517
(510) 596-3785
Contact: Miroo Desai, AICP
mdesai@ci.emeryville.ca.us

CONSULTANT: LSA Associates, Inc
2215 Fifth Street
Berkeley, CA 94710
(510) 540-7331
Contact: Jennifer Craven
jennifer.craven@lsa-assoc.com

Notice is hereby given that the City of Emeryville will be the Lead Agency and will prepare an Environmental Impact Report (EIR) for the project described below. We are requesting comments on the scope and content of this EIR. The City will use the EIR prepared for this project when considering approval of the project. A description of the project, its location, and the probable environmental effects are provided in the attached materials. Please provide comments on the scope of this EIR to Miroo Desai, Senior Planner, by Friday, January 6, 2006, at the address shown above.

Further notice is hereby given that, pursuant to Section 15082 of the CEQA Guidelines, a Public Scoping Session will be held to accept comments from Responsible Agencies and the public about the scope of the EIR on Thursday, December 15, 2005, at 7 PM, in the City Council Chambers at 1333 Park Avenue.

Project Title: Marketplace Redevelopment

Project Applicant: TMG Partners on behalf of Marketplace Mortgage LLC and Rockwood Christie LLC

Project Location: The 15-acre Marketplace project site is located within the City of Emeryville in Alameda County. The site is generally bounded by 64th Street to the north, Powell Street to the south, the Amtrak/Union Pacific railroad tracks to the east, and Christie Avenue to the west. Figure 1 depicts the location of the project site.

Project Description: The proposed project would redevelop an existing, underutilized mixed-use site with additional mixed-use development in four new buildings, as shown in Figures 2 and 3. Two of the new buildings would be multi-storied with retail and parking on the lower floors and for-sale condominium units on the upper floors. The other two new buildings would provide single-story retail pad space. As a part of the project, a total of up to 340 for-sale condominium units, up to 75,000 square feet of new retail space, approximately 600 new parking garage and surface level parking spaces, and site improvements and enhancements are proposed. The major components of the project and areas of environmental concern anticipated to be analyzed in the EIR are described more fully in the attachments to this NOP. The applicant is requesting approval of a Rezoning to Planned Unit Development, a Preliminary Development Plan (PUD/PDP), a Lot Line Adjustment, and an Owner Participation Agreement Amendment. The proposed rezoning would confirm and incorporate the existing Master Use Permit for the existing uses on the site into the new PUD/PDP.

DATE: December 1, 2005 SIGNATURE: Charles S. Bryant
Charles S. Bryant, AICP, Director of Planning & Building

Attachments: Project Description and Probable Environmental Effects
Figure 1 – Project Vicinity and Regional Location Map
Figure 2 – Master Site Plan
Figure 3 – Illustrative Axonometric (Bird's Eye View) of Built Project

MARKETPLACE REDEVELOPMENT PROJECT DESCRIPTION

A brief description of the proposed project is provided below.

Site Redevelopment. The proposed project redevelops the existing Emeryville Marketplace, an existing commercial, entertainment and offices use development, as a mixed-use development with the addition of residential and additional retail uses and overall site improvements.. Figure 2 provides the proposed Master Site Plan and Figure 3 provides an Illustrative Axonometric drawing (i.e., Bird's Eye View) depicting the conceptual design and massing of the proposed four new buildings comparative to the existing development on the site. The project does not affect or change the use of the existing Public Market Building (94,665 square feet), Marketplace Office Tower (121,260 square feet), or the UA Theater Building (10-screens in 40,000 square feet). Four new buildings would be constructed on the project site, as follows:

- Shellmound Building – Located north of the Woodfin Suites Hotel, this building would be approximately 9 stories and 95 feet in height with up to 55,000 square feet of ground floor retail, three to four floors of structured parking, and up to 160 for-sale condominium units on the upper floors;
- 64th & Christie Building – Located at the southeast corner of 64th Street and Christie Avenue, this building would be approximately 8 stories and a maximum of 90 feet in height with up to 6,000 square feet of ground floor retail, two floors of structured parking, and up to 180 for-sale condominium units on the upper floors;
- Retail Pad 1 – Located west of the Shellmound Building on an existing landscaped area (west of Shellmound Street), this building would be developed with up to 6,500 square feet of retail space in a single-story building.
- Retail Pad 2 – Located directly south of the 64th & Christie Building, this building would be developed with up to 7,500 square feet of retail space in a single-story structure. The existing surface parking stalls located on this site would be relocated to reconfigured surface spaces and to the parking structures in the Shellmound and 64th & Christie Buildings.

Demolition. To ready the project site for redevelopment, the two, existing industrial/warehouse buildings located on the 64th & Christie site would be demolished and surface level parking stalls currently located under the proposed Shellmound, 64th & Christie, and Retail Pad 2 Buildings would be relocated into structured parking in the Shellmound and 64th & Christie buildings or reconfigured surface level spaces elsewhere on the site.

Site Improvements. The proposed project includes a number of site improvements and enhancements to create a more livable, usable and lively pedestrian environment including:

- Shellmound Building Zone Improvements – Improved landscaping and a new public plaza/crossing will be installed between the Shellmound Building and the existing Borders Building.
- Amtrak Connection – Improvements to the connection between the pedestrian bridge and the project site to ensure high visibility and safety for pedestrians, including ADA-compliant elevator access.
- UA Theater Zone Improvements – Addition of a new landscaped and lighted pedestrian sidewalk across the existing surface level parking lot to the UA Theater activity zone.
- Circulation Improvements – Creation of a mid-block intersection on Christie Avenue that would require vehicles to come to a full stop, thereby improving pedestrian safety and access to the project site and the City Park (i.e., Christie Park). Additional circulation improvements include new lighted project identity signage at both Shellmound Street and Christie Avenue locations to create a continuous vehicular and pedestrian circulation system.
- City Park Edge – Enhancements to the accessibility, safety and aesthetics of the City Park (i.e., Christie Park) to open the area by removing tall, dark trees and hedges, thereby creating an informal comfortable space for residents and site patrons.

Required Approvals. The project would require the approval of a Rezoning to Planned Unit Development, which would incorporate the existing Master Use Permit on the site for the existing uses, as well as approval of a new Preliminary Development Plan (PUD/PDP), a Lot Line Adjustment, and an Owner Participation Agreement Amendment. The PUD/PDP would establish a flexible zone for the proposed mix of activities, establishing the basic circulation system, massing, heights, open space, parking, and other elements. Prior to development of each phase of the project (see below), City approval of a Final Development Plan will be required to establish the detailed building and landscaping design for each building.

Project Phasing. Construction of the proposed project is anticipated to commence in Fall 2006 and be completed in Summer 2008. The project would be developed in three phases, as follows:

- Phase 1 – Relocation of Marketplace entry driveway and parking lot improvements for permanent and interim surface parking;
- Phase 2 – Construction of Shellmound and 64th & Christie Buildings; and
- Phase 3 – Construction of Retail Pad Buildings.

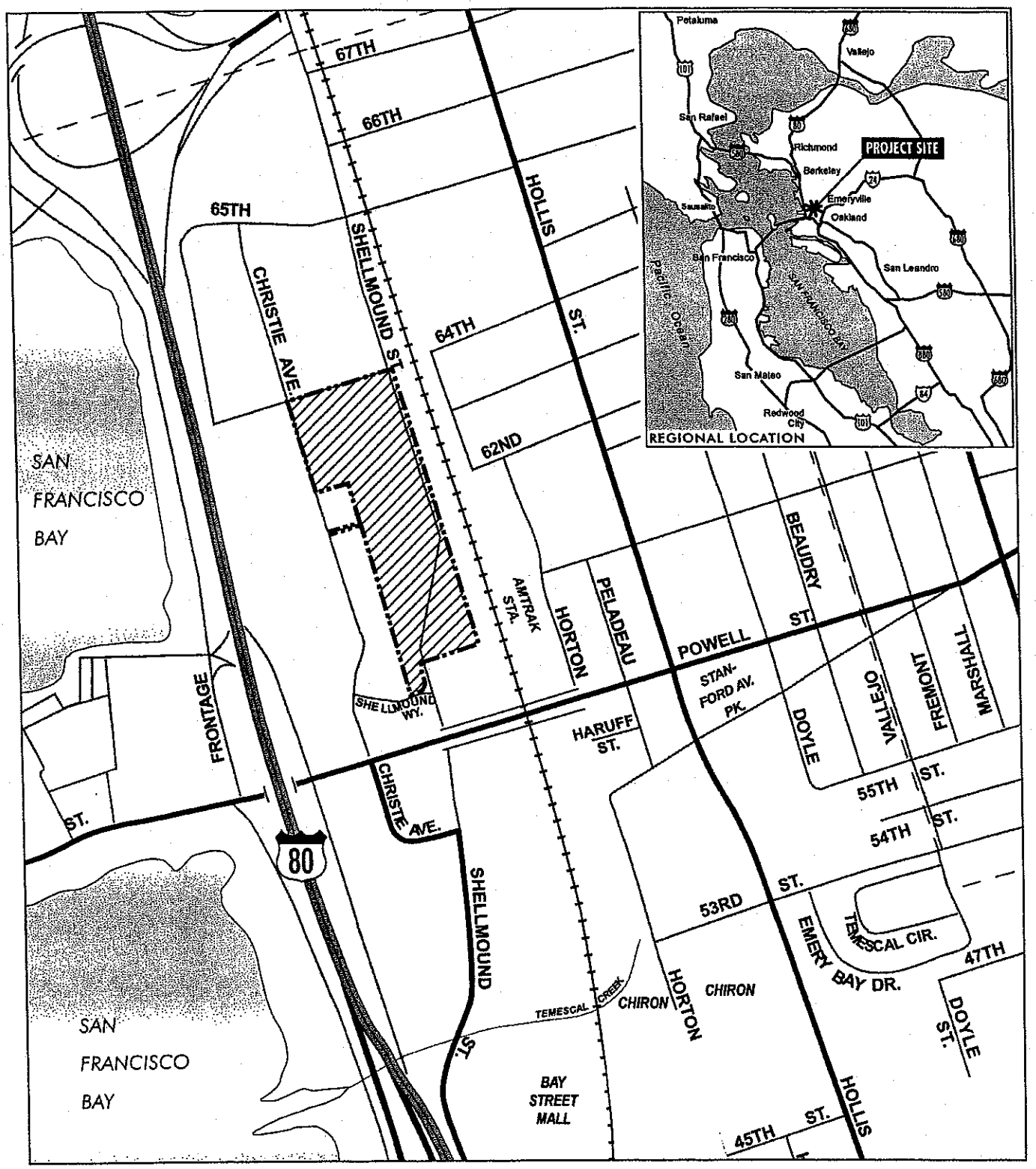
POTENTIAL ENVIRONMENTAL EFFECTS

The EIR for this project is anticipated to examine thoroughly the following probable environmental effects of the project:

- Land Use and Planning Policy
- Population and Housing
- Transportation, Circulation and Parking
- Air Quality
- Noise and Vibration
- Hazardous Materials and Public Health and Safety
- Geology, Soils and Seismicity
- Hydrology and Water Quality
- Cultural and Paleontological Resources
- Aesthetic Resources (including Wind)
- Public Services and Utilities

Topics that are not anticipated to be significant and, after review, may be excluded from a detailed analysis in the EIR include: agricultural resources, biological resources, and mineral resources.

The level of analysis for these subject areas may be refined or additional subject areas may be analyzed based on responses to this NOP and/or refinements to the project that may occur subsequent to the publication of this NOP. In addition, the EIR will include an analysis of the project's consistency with relevant City and regional planning policies, as well as potential alternatives to the proposed project.



LSA

FIGURE 1

PROJECT SITE

0 400 800
FEET

Marketplace Redevelopment Project EIR
Project Vicinity and
Regional Location

SOURCE: LSA ASSOCIATES, INC., 2004.

I:/CEM531 marketplace/figures/Fig_1.ai (11/30/05)

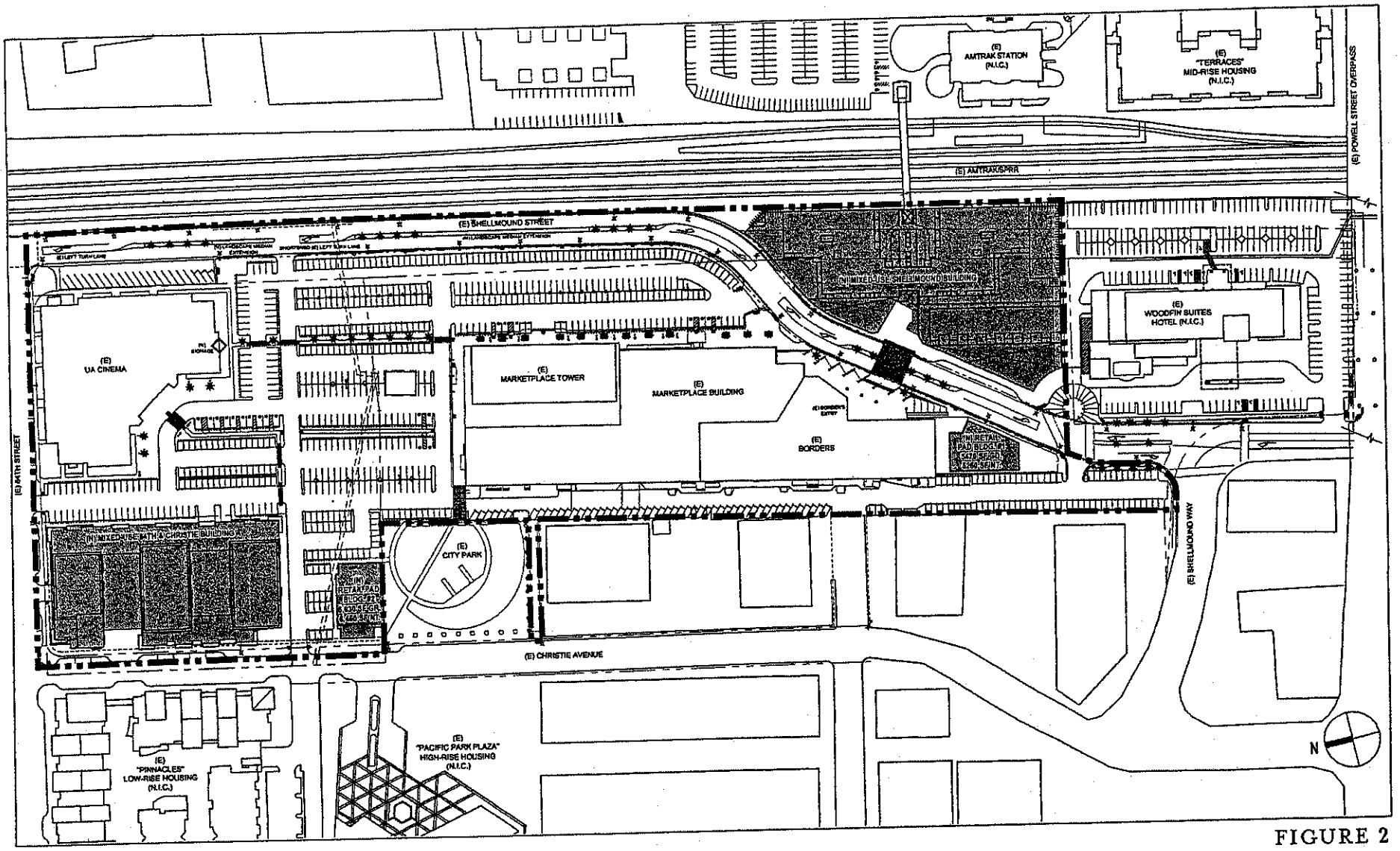


FIGURE 2

LSA

Marketplace Redevelopment Project EIR

Master Site Plan

PROJECT SITE

0 100 200

FEET

SOURCE: HELLER·MANUS ARCHITECTS, 2005.

I:\CEM531 marketplace\figures\Fig_2.ai (11/30/05)

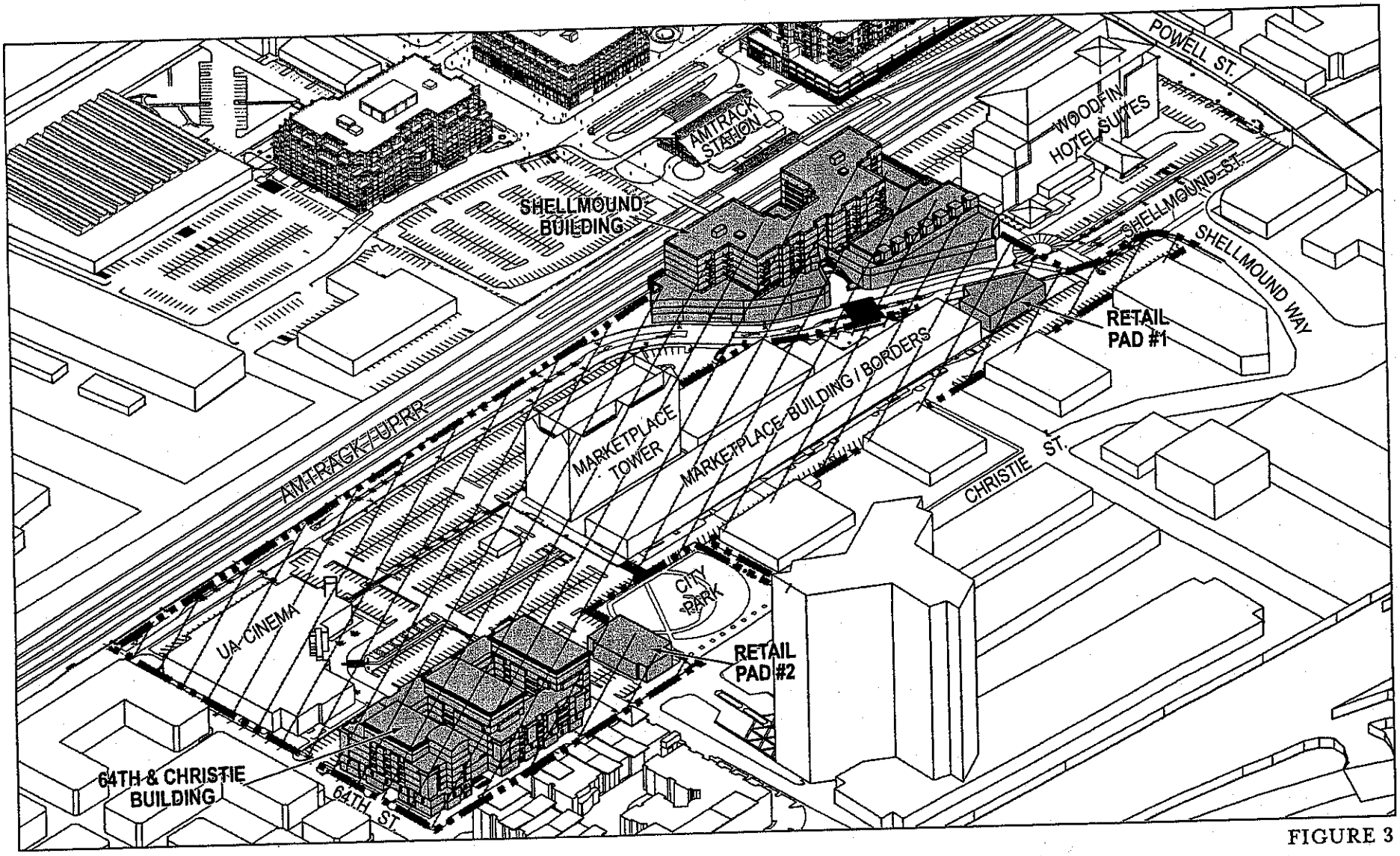


FIGURE 3

LSA

PROJECT SITE

Marketplace Redevelopment Project EIR
Illustrative Axonometric
(Bird's Eye View) of Built Project

SOURCE: HELLER·MANUS ARCHITECTS, 2005.
I:\CEM531 marketplace\figures\Fig_2.ai (11/30/05)

ALAMEDA COUNTY
CONGESTION MANAGEMENT AGENCY

1333 BROADWAY, SUITE 220 • OAKLAND, CA 94612 • PHONE: (510) 836-2560 • FAX: (510) 836-2185
E-MAIL: mail@accma.ca.gov • WEB SITE: accma.ca.gov

December 14, 2005

Miroo Desai, Senior Planner
City of Emeryville
1333 Park Avenue
Emeryville, CA 94608-3517

SUBJECT: Comments on the Notice of Preparation for a Draft Environmental Impact Report (DEIR) for the Marketplace Redevelopment Project

Dear Ms. Desai:

Thank you for the opportunity to comment on the Notice of Preparation (NOP) for a Draft Environmental Impact Report (DEIR) for the Marketplace Redevelopment Project in the City of Emeryville. The proposed project would redevelop an existing, underutilized mixed-use site with additional mixed-use development consisting of four new buildings. A total of up to 340 condominium units, 75,000 square feet of retail space and 600 parking spaces, including garage and surface parking, would be constructed. The project site is bounded by 64th Street to the north, Powell Street to the south, the Amtrak/Union Pacific railroad tracks to the east, and Christie Avenue to the west.

The ACCMA respectfully submits the following comments:

- The City of Emeryville adopted resolution number 92-152 on September 29, 1992 establishing guidelines for reviewing the impacts of local land use decisions consistent with the Alameda County Congestion Management Program (CMP). Based on our review of the NOP, the proposed project appears to generate at least 100 p.m. peak hour trips over existing conditions. If this is the case, the CMP Land Use Analysis Program requires the City to conduct a traffic analysis of the project using the Countywide Transportation Demand Model for projection years 2010 and 2025 conditions. Please note the following paragraph as it discusses the responsibility for modeling.

  - The CMA Board amended the CMP on March 26th, 1998 so that local jurisdictions are now responsible for conducting the model runs themselves or through a consultant. The City of Emeryville and the ACCMA have signed a Countywide Model Agreement on January 12, 1999. The Countywide model, updated incorporating ABAG's revisions to the employment data for Projections 2002, is available to the local jurisdictions for this purpose. However, before the model can be released to you or your consultant, a letter must be submitted to the ACCMA requesting use of the model and describing the project. A copy of a sample letter agreement is available upon request.

- Potential impacts of the project on the Metropolitan Transportation System (MTS) need to be addressed. (See 2005 CMP Figures 1 and 2). The DEIR should address all potential impacts of the project on the MTS roadway and transit systems. These include I-80, I-580, I-880, I-980, SR 24, SR13/Ashby Avenue, Powell Street and San Pablo Avenue as well as BART and AC Transit. Potential impacts of the project must be addressed for 2010 and 2025 conditions.

AC Transit
Director
Dolores Jaquez

Alameda County
Supervisors
Nate Miley
Scott Haggerty
Vice Chairperson

City of Alameda
Mayor
Beverly Johnson

City of Albany
Councilmember
Allan Maris

BART
Director
Thomas Blalock

City of Berkeley
Councilmember
Kriss Worthington

City of Dublin
Mayor
Janet Lockhart

City of Emeryville
Councilmember
Nora Davis

City of Fremont
Mayor
Robert Wasserman

City of Hayward
Mayor
Roberta Cooper

City of Livermore
Mayor
Marshall Kamena

City of Newark
Councilmember
Paul H. B. Tong

City of Oakland
Councilmember
Larry Reid
Chairperson

City of Piedmont
Councilmember
Jeff Wieler

City of Pleasanton
Mayor
Jennifer Hosterman

City of San Leandro
Mayor
Sheila Young

City of Union City
Mayor
Mark Green

Executive Director
Dennis R. Fay

- Please note that the ACCMA does not have a policy for determining a threshold of significance for Level of Service for the Land Use Analysis Program of the CMP. Professional judgment should be applied to determine the significance of project impacts (Please see chapter 6 of 2005 CMP for more information).
- In addition, the adopted 2005 CMP requires using 1985 Highway Capacity Manual for freeway capacity standards.

- The CMA requests that there be a discussion on the proposed funding sources of the transportation mitigation measures identified in the environmental documentation. The CMP establishes a Capital Improvement Program (See 2005 CMP, Chapter 7) that assigns priorities for funding roadway and transit projects throughout Alameda County. The improvements called for in the DEIR should be consistent with the CMP CIP. Given the limited resources at the state and federal levels, it would be speculative to assume funding of an improvement unless it is consistent with the project funding priorities established in the Capital Improvement Program (CIP) of the CMP, the federal Transportation Improvement Program (TIP), or the adopted Regional Transportation Plan (RTP). Therefore, we are requesting that the environmental documentation include a financial program for all roadway and transit improvements.

- The adequacy of any project mitigation measures should be discussed. On February 25, 1993 the CMA Board adopted three criteria for evaluating the adequacy of DEIR project mitigation measures:
  - Project mitigation measures must be adequate to sustain CMP service standards for roadways and transit;
  - Project mitigation measures must be fully funded to be considered adequate;
  - Project mitigation measures that rely on state or federal funds directed by or influenced by the CMA must be consistent with the project funding priorities established in the Capital Improvement Program (CIP) section of the CMP or the Regional Transportation Plan (RTP).

  It would be helpful to indicate in the DEIR the adequacy of proposed mitigation measures relative to these criteria. In particular, the DEIR should detail when proposed roadway or transit route improvements are expected to be completed, how they will be funded, and what would be the effect on LOS if only the funded portions of these projects were assumed to be built prior to project completion.

- Potential impacts of the project on CMP transit levels of service must be analyzed. (See 2005 CMP, Chapter 4). Transit service standards are 15-30 minute headways for bus service and 3.75-15 minute headways for BART during peak hours. The DEIR should address the issue of transit funding as a mitigation measure in the context of the CMA's policies as discussed above.

- The DEIR should also consider demand-related strategies that are designed to reduce the need for new roadway facilities over the long term and to make the most efficient use of existing facilities (see 2005 CMP, Chapter 5). The DEIR could consider the use of TDM measures, in conjunction with roadway and transit improvements, as a means of attaining acceptable levels of service. Whenever possible, mechanisms that encourage ridesharing, flextime, transit, bicycling, telecommuting and other means of reducing peak hour traffic trips should be considered.

Thank you for the opportunity to comment on this Notice of Preparation. Please do not hesitate to contact me at 510/836-2560 if you require additional information.

Sincerely,

Jean Hart
Deputy Director

cc: file: CMP - Environmental Review Opinions - Responses – 2005
Saravana Suthanthira, Associate Transportation Planner

DEPARTMENT OF TRANSPORTATION
111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-5505
FAX (510) 286-5559
TTY (800) 735-2929

Flex your power!
Be energy efficient!

December 22, 2005

ALA080142
ALA-80-3.79
SCH 2005122006

Mr. Miroo Desani
City of Emeryville
1333 Park Avenue
Emeryville, CA 94608

Dear Mr. Desani:

Marketplace Redevelopment Project – Notice of Preparation

Thank you for including the California Department of Transportation (Department) in the environmental review for the proposed project. The comments presented below are based on the Notice of Preparation for the Marketplace Redevelopment Project Draft Environmental Impact Report (DEIR). As lead agency, the City of Emeryville is responsible for all project mitigation, including improvements to state highways. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures. Any required roadway improvements should be completed prior to issuance of the project's building permit. While an encroachment permit is only required when the project involves work in the State Right of Way (ROW), the Department will not issue an encroachment permit until our concerns are adequately addressed. Therefore, we strongly recommend that the lead agency ensure resolution of the Department's concerns prior to submittal of an encroachment permit application. Further comments will be provided during the encroachment permit process; see the end of this letter for more information regarding encroachment permits.

Traffic Impact Analysis

Our primary concern with the project is the potentially significant impact it may have to traffic volume and congestion on the State Highway System. We recommend a traffic impact analysis be prepared. The traffic impact analysis should include, but not be limited to the following:

1. Information on the project's traffic impacts in terms of trip generation, distribution, and assignment. The assumptions and methodologies used in compiling this information should be addressed.

2. Average Daily Traffic (ADT) and AM and PM peak hour volumes on all significantly affected streets and highways, including crossroads and controlling intersections.

3. Schematic illustration of the traffic conditions for: 1) existing, 2) existing plus project, and 3) cumulative for the intersections in the project area.

4. Calculation of cumulative traffic volumes should consider all traffic-generating developments, both existing and future, that would affect the State Highway facilities being evaluated.

5. Mitigation measures should consider highway and non-highway improvements and services. Special attention should be given to the development of alternate solutions to circulation problems that do not rely on increased highway construction.

6. All mitigation measures proposed should be fully discussed, including financing, scheduling, implementation responsibilities, and lead agency monitoring.

We encourage the City of Emeryville to coordinate preparation of the study with our office, and we would appreciate the opportunity to review the scope of work. Please see the Caltrans' *"Guide for the Preparation of Traffic Impact Studies"* at the following website for more information:
http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tisguide.pdf

We look forward to reviewing the TIA, including Technical Appendices, and DEIR for this project. Please send two copies to the address at the top of this letterhead, marked ATTN: Lisa Carboni, Office of Transit and Community Planning.

Encroachment Permit

Any work or traffic control within the State ROW requires an encroachment permit that is issued by the Department. Traffic-related mitigation measures will be incorporated into the construction plans during the encroachment permit process. See the following website link for more information: http://www.dot.ca.gov/hq/traffops/developserv/permits/

To apply for an encroachment permit, submit a completed encroachment permit application, environmental documentation, and five (5) sets of plans (in metric units) which clearly indicate State ROW to the address at the top of this letterhead, marked ATTN: Sean Nozzari, Office of Permits.

Should you require further information or have any questions regarding this letter, please call Lisa Carboni of my staff at (510) 622-5491.

Sincerely,

TIMOTHY C. SABLE
District Branch Chief
IGR/CEQA

c: Scott Morgan (State Clearinghouse)

Alan C. Lloyd, Ph.D.
Agency Secretary
Cal/EPA

Department of Toxic Substances Control

700 Heinz Avenue, Suite 200
Berkeley, California 94710-2721

Arnold Schwarzenegger
Governor

December 28, 2005

Ms. Miroo Desani
City of Emeryville
1333 Park Avenue
Emeryville, California 94608

Dear Ms. Desani:

Thank you for the opportunity to comment on the Notice of Preparation (NOP) for the draft Environmental Impact Report (EIR) for the Marketplace Redevelopment Project. (the "Project") (SCH# 2005122006). As you may be aware, the California Department of Toxic Substances Control (DTSC) oversees the cleanup of sites where hazardous substances have been released pursuant to the California Health and Safety Code (HSC), Division 20, Chapter 6.8. As a Resource Agency, DTSC is submitting comments to ensure that the environmental documentation prepared for this project under the California Environmental Quality Act (CEQA) adequately addresses any remediation activities pertaining to releases of hazardous substances.

According to DTSC records, the Project site includes two properties subject to Land Use Covenants: the Emeryville Marketplace property and the local extension of Shellmound Street (formerly Bay Street). Soils on these properties were contaminated with hazardous substances, and although soils were remediated, some contamination was left on-site and covered with a cap of consisting of concrete, asphalt and landscaping. Contamination on the Emeryville Marketplace property included asphalt-like materials, kerosene-like materials, polychlorinated biphenyls (PCBs), chlorinated pesticides, and metals. Contamination on the Shellmound Street extension included petroleum hydrocarbons, lead, chromium, PCBs and polynuclear aromatic hydrocarbons (PAHs). If Project activities are expected to impact the capped areas, the owners of the Emeryville Marketplace property and the Shellmound Street extension must comply with the relevant deed restrictions contained in the Land Use Covenants. For instance, prior to any excavation or subsurface work in a capped area, the property owner must submit and DTSC must approve a site health and safety plan.

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If you have any questions or would like to schedule a meeting, please contact Allan Fone of my staff at (510) 540-3836. Thank you in advance for your cooperation in this matter.

Sincerely,

Denise M. Tsuji, Unit Chief
Northern California - Coastal Cleanup
Operations Branch

cc: Governor's Office of Planning and Research
State Clearinghouse
P. O. Box 3044
Sacramento, CA 95812-3044

Guenther Moskat
CEQA Tracking Center
Department of Toxic Substances Control
P.O. Box 806
Sacramento, California 95812-0806

EAST BAY
MUNICIPAL UTILITY DISTRICT

December 28, 2005

Miroo Desai, Senior Planner
City of Emeryville Planning Division
1333 Park Avenue
Emeryville, CA 94608

Re: Notice of Preparation of a Draft Environmental Impact Report - Marketplace Redevelopment Project, Emeryville

Dear Ms. Desai:

East Bay Municipal Utility District (EBMUD) appreciates the opportunity to comment on the Notice of Preparation of a Draft Environmental Impact Report (EIR) for the Marketplace Redevelopment Project located in the City of Emeryville. EBMUD has the following comments.

WATER SERVICE

EBMUD's Central Pressure Zone, with a service elevation between 0 and 100 feet, will serve the proposed development. A main extension, at the project sponsor's expense, may be required to serve the proposed development depending on EBMUD's metering requirements and fire flow requirements set by the local fire department. When the development plans are finalized, the project sponsor should contact EBMUD's New Business Office and request a water service estimate to determine costs and conditions for providing water service to the proposed development. Engineering and installation of water mains and services requires substantial lead-time, which should be provided for in the project sponsor's development schedule.

The project sponsor should be aware that EBMUD will not install piping or services in contaminated soil or groundwater (if groundwater is present at any time during the year at the depth piping is to be installed) that must be handled as a hazardous waste, or that may be hazardous to the health and safety of construction and maintenance personnel wearing Level D personal protective equipment. EBMUD will not install piping or services in areas where groundwater contaminant concentrations exceed specified limits for discharge to the sanitary sewer system and sewage treatment plants.

The project sponsor must submit copies to EBMUD of all known information regarding soil and groundwater quality within or adjacent to the project boundary and a legally sufficient, complete and specific written remediation plan establishing the methodology, planning and design of all necessary systems for the removal, treatment, and disposal of contaminated soil and groundwater. EBMUD will not design piping or

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services until soil and groundwater quality data and remediation plans have been received and reviewed, and will not start underground work until remediation has been carried out and documentation of the effectiveness of the remediation has been received and reviewed. If no soil or groundwater quality data exists, or the information supplied by the project sponsor is insufficient, EBMUD may require the project sponsor to perform sampling and analysis to characterize the soil and groundwater that may be encountered during excavation or EBMUD may perform such sampling and analysis at the project sponsor's expense. If evidence of contamination is discovered during EBMUD work on the project site, work may be suspended until such contamination is adequately characterized and remediated to EBMUD standards.

WASTEWATER

EBMUD's Main Wastewater Treatment Plant is anticipated to have adequate dry weather capacity to treat the proposed wastewater flow from this project, provided this wastewater meets the standards of EBMUD's Environmental Services Division. However, the City of Emeryville's Infiltration/Inflow (I/I) Correction Program set a maximum allowable peak wastewater flow from each subbasin within the City and EBMUD agreed to design and construct wet weather conveyance and treatment facilities to accommodate these flows. EBMUD prohibits discharge of wastewater flows above the allocated peak flow for a subbasin because conveyance and treatment capacity for wet weather flows may be adversely impacted by flows above this agreed limit. The developer for this project needs to confirm with the City of Emeryville Public Works Department that there is available capacity within the subbasin flow allocation and that it has not been allocated to other developments. The projected peak wet weather wastewater flows from this project need to be determined to assess the available capacity within the subbasin and confirmation included in the EIR. Suggested language to include in the EIR is as follows: "The City of Emeryville Public Works Department has confirmed that there is available wastewater capacity within Subbasin *(insert subbasin number here)* that is reserved for this project."

In general, the project should address the replacement or rehabilitation of the existing sanitary sewer collection system to prevent an increase in I/I. Please include a provision to control or reduce the amount of I/I in the environmental documentation for this project. The main concern is the increase in total wet weather flows, which could have an adverse impact if the flows are greater than the maximum allowable flows from this subbasin.

WATER RECYCLING

EBMUD's Policy 8.01 requires that customers of EBMUD use nonpotable water for nondomestic purposes when it is of adequate quality and quantity, available at reasonable cost, not detrimental to public health and not injurious to plant life, fish and wildlife. The proposed development project is located within the service area boundary of EBMUD's

East Bayshore Recycled Water Project which is now under construction. EBMUD recommends that the City of Emeryville require the project sponsor to coordinate the development of this project closely with EBMUD regarding potential uses of recycled water at the project site. If EBMUD determines that it can cost-effectively supply recycled water to the project, EBMUD will recommend that the City of Emeryville require the project sponsor to install separate plumbing for use of recycled water where feasible.

WATER CONSERVATION

The proposed project presents an opportunity to incorporate water conservation measures. EBMUD would request that the City of Emeryville include in its conditions of approval a requirement that the project sponsor comply with the Landscape Water Conservation Section of the Municipal Code of the City of Emeryville Article 9-4.54, Chapter 4 of Title 9. EBMUD staff would appreciate the opportunity to meet with the project sponsor to discuss water conservation programs and best management practices applicable to the integrated projects. A key objective of this discussion will be to explore timely opportunities to expand water conservation via early consideration of EBMUD's conservation programs and best management practices applicable to the project.

If you have any questions concerning this response, please contact David J. Rehnstrom, Senior Civil Engineer, Water Service Planning, at (510) 287-1365.

Sincerely,

David J Rehnstrom

FOR William R. Kirkpatrick
12/29/05 Manager of Water Distribution Planning

WRK:CRB:sb
sb05_350.doc

cc: Ms. Jennifer Craven
LSA Associates, Inc.
2215 Fifth Street
Berkeley, CA 94710

Cynthia J. Truelove, Ph.D.
5855 Horton St., #711
Emeryville, Ca 94608
E-mail: thetrueloveco@comcast.net

January 5, 2006

Ms. Miroo Desai
Senior Planner
City of Emeryville
E-mail: mdesai@ci.emeryville.ca.us

Dear Ms. Desai:

I would like to take this opportunity to provide Scoping comments pursuant to the Marketplace Redevelopment Project EIR in preparation by the City. First, I believe that I and many other owners of units at the Terraces-at-EmeryStation located adjacent to the project site believe that the well-planned development of this area will bring both heightened security and prosperity to our central section of the City. Second, I and many other individuals in the Terraces with whom I have spoken, and who have themselves spoken in City meetings pertaining to this project, remain vigilant and concerned with a broad array of potential environmental impacts which this development project and the many others planned in this proximate area may portend for those of us living within just a few hundred feet of this project. Therefore, I believe it both legally establishable and prudent that this EIR scope include a distinct Cumulative Impacts Analysis as outlined under CEQA.

While I am delighted to find that the handouts at the public meeting delineate that the potential for cumulative effects will be examined at the outset of the EIR process, I would like for the cumulative effects analysis for this project to particularly consider the following projects and related environmental impacts:

- Madison Marquette, North Bay Street, Site B Project
- BME?, Developer, Site adjacent to, and north of, Denny's located at the corner of Powell and Christie Streets;
- Developer unidentified, Sherwin Williams property, Horton Street South of Powell Street
- Wareham Development, Developer, Site immediately adjacent to, and north of, the Emeryville Amtrak Station, Horton St.
- Wareham Development, Developer, Office and Retail Complex planned for 59th and Hollis

:

Transportation, Circulation, and Parking: Traffic design issues associated with excessive queing of vehicles at intersections on Powell Street, heightened vehicular congestion at Christie/Powell Street intersection, public transportation alternatives, enhanced pedestrian access to site through construction of planned southern pedestrian

overpass over railroad,etc.; traffic stacking due to inadequate I-80 entry ramp at northern end of Shellmound St.

Air Quality: Heightened vehicular emissions due to qued traffic, traffic congestion, etc. on the Powell Street overpass in immediate proximity to the south and southwestern residential units of the Terraces as well as from traffic queing along Shellmound due to inadequate ramping onto to freeway.

Noise and Vibration: Design and construction material alternatives for minimizing canyoning effects of sound reverberation from train traffic between ever increasing numbers of towering concrete buildings within 500 feet of the Terraces at EmeryStation;

Visual Quality, Shadow and Wind: Combined potential effects of loss, i.e. aesthetic-perceptions of open space, natural aquatic surroundings, and sunlight; and absolute loss of tens of thousands of dollar premiums per unit paid for Bay views by more than half of Terraces residential units associated with potential combined obstruction of more than 50 percent of open viewshed; potential wind-tunneling effects due to location of a large number of solid walled, concrete structures surrounding the Terraces at EmeryStation; visual and aesthetic impacts of viewing concrete/asphalt roof tops on project buildings, among others.

To date, TMG, the developers of this project, have been keenly willing to work with concerned Terraces owners regarding the substantial impacts of the Shellmound building portion of this project on the viewshed, noise, open space, and traffic surrounding us. We look forward to continuing this good working relationship with TMG and trust that the City will exemplify a congruent level of willingness to work with the Terraces' owners and other surrounding neighbors to ensure that this project is built to the highest of standards in terms of mitigating what will surely be significant environmental impacts compounded by the unprecedented magnitude of development planned for this area over the coming three to four years. I trust that the City's decision to forego adequate CEQA analysis at the recently approved Wareham 59th and Hollis Streets site will not be duplicated with this project, nor for others surrounding it, for surely such an approach could not be substantiated in the legal and regulatory arenas charged with enforcing and interpreting CEQA and related case law.

Sincerely,
Cindy

Cynthia J. Truelove, Ph.D.
President, Terraces-at-EmeryStation Homeowner's Association (for identification purposes only)

Jennifer Craven

From: Miroo Desai [mdesai@ci.emeryville.ca.us]
Sent: Friday, February 10, 2006 11:46 AM
To: Jennifer Craven
Subject: Marketplace/Citizen Comments2

Miroo Desai, AICP
Senior Planner
City of Emeryville
Tel: 510/596-3785

-----Original Message-----
From: DrParissa@netscape.net [mailto:DrParissa@netscape.net]
Sent: Friday, January 06, 2006 6:38 PM
To: Miroo Desai
Subject: [NEWSENDER] - TMG Project - Message is from an unknown sender

Emeryville Chiropractic
Dr. Parissa Peymani Chiropractic Corporation
5858 Horton, Suite 155 Emeryville, Ca. 94608
Tel: 510/655-5540 Fax: 510/655-5542
E-mail: DrParissa@Netscape.net

Friday, January 06, 2006

Re: Comments and Concerns about the Marketplace Redevelopment

Ms. Miroo Desai
Senior Planner
City of Emeryville
E-mail: mdesai@ci.emeryville.ca.us

Dear Miroo,

As a property owner and a business owner in Emeryville, I am concerned with the expansion of EmeryBay Public Marketplace into the current parking lot north of Woodfin Suite Hotel. By allowing the developers to build mid to high rises, I believe the following problems will occur:

Wind Tunneling, Visual Quality and Shadowing

The view from my unit includes: Richmond-San Raphael Bridge, spectacular sunsets, San Francisco Bay, windsurfers and sailors, hills near Mt. Tamp and a canopy of palm trees.

Many residents at the Terraces may face loss of tens of thousands of dollar premiums per unit paid for Bay views. According to the montage presented to me by Mr. Haller, for those of us on the south side; we may lose over 85% of our view due to TMG project.

I fear with the TMG project, our northwest view will be the backside of concrete and stucco structures. I realize that TMG has made efforts to work with the Terraces HOA on design issue. Nevertheless, a design of such magnitude will negatively impact on views, sunlight and open space.
Many residents at the Terraces may face loss of tens of thousands of dollar premiums per unit paid for Bay views.

Presently, the wind whips around the Woodfin Hotel and causes extremely windy situations on the ground and in the surrounding areas.

Noise & Vibration:

There has to be a plan for designing and constructing ways to minimize the canyoning effects of sound reverberation, from the train traffic, between increasing numbers of concrete buildings, within 500 feet of the Terraces at EmeryStation.

At all time pile driving may not be permitted, as it will be too disruptive for the neighboring community.

Air Quality and Traffic Concerns:

There is inadequate ramping onto the freeway. As a result the areas around the Powell /I-80/Christie/Shellmount/Hollis Street is heavily congested during commute times and weekends. Widening Powell Street only going to further negatively impact our air quality. As it is we are subject to an extremely high traffic congestion, noise pollution and vehicular emission.

The proposed site is vast enough for the developer to find ways of building a structure with minimal damage to our views. It will be feasible to have the towers build directly in front of other existing buildings (mid rise on EmeryBay Market, old Sybase building and Pacific Park Plaza) in that vicinity, so that the residents of the Terraces will not loose so much of their open air spaces.

Thus far, the developers of this project and TMG have been kindly working with us to minimize the impact as much as possible. I hope the city will be willing to work with the residents at the Terraces to ensure this project is built to the highest of its standard.

Best regards,

Dr. Parissa Peymani

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MARKETPLACE REDEVELOPMENT PROJECT

ENVIRONMENTAL IMPACT REPORT SCOPING MEETING

December 15, 2005 - 7:00 pm
Emeryville City Council Chambers

AGENDA

I. INTRODUCTIONS
Miroo Desai, Senior Planner, City of Emeryville

II. PURPOSE OF TONIGHT'S MEETING
LSA Associates, Inc. (Environmental Consultant)
Lynette Dias, Principal

III. PROJECT OVERVIEW *(Handout #1)*
LSA Associates, Inc. (Environmental Consultant)
Jennifer Craven, Project Manager

IV. ENVIRONMENTAL REVIEW PROCESS *(Handouts #2, 3, and 4)*
LSA Associates, Inc. (Environmental Consultant)
Lynette Dias, Principal

V. PUBLIC COMMENT

VI. NEXT STEPS AND CLOSE MEETING

MARKETPLACE REDEVELOPMENT PROJECT EIR

SCOPING SESSION

OVERVIEW OF PROPOSED PROJECT
Handout #1

Site Redevelopment. The proposed project redevelops the existing Emeryville Marketplace, an existing commercial, entertainment and offices use development, as a mixed-use development with the addition of residential and additional retail uses and overall site improvements. The project does not affect or change the use of the existing Public Market Building (94,665 square feet), Marketplace Office Tower (121,260 square feet), or the UA Theater Building (10-screens in 40,000 square feet). Four new buildings would be constructed on the project site, as follows:

- Shellmound Building – Located north of the Woodfin Suites Hotel, this building would be approximately 9 stories and 95 feet in height with up to 55,000 square feet of ground floor retail, three to four floors of structured parking, and up to 160 for-sale condominium units on the upper floors;
- 64th & Christie Building – Located at the southeast corner of 64th Street and Christie Avenue, this building would be approximately 8 stories and a maximum of 90 feet in height with up to 6,000 square feet of ground floor retail, two floors of structured parking, and up to 180 for-sale condominium units on the upper floors;
- Retail Pad 1 – Located west of the Shellmound Building on an existing landscaped area (west of Shellmound Street), this building would be developed with up to 6,500 square feet of retail space in a single-story building.
- Retail Pad 2 – Located directly south of the 64th & Christie Building, this building would be developed with up to 7,500 square feet of retail space in a single-story structure. The existing surface parking stalls located on this site would be relocated to reconfigured surface spaces and to the parking structures in the Shellmound and 64th & Christie Buildings.

Demolition. To ready the project site for redevelopment, the two, existing industrial/warehouse buildings located on the 64th & Christie site would be demolished and surface level parking stalls currently located under the proposed Shellmound, 64th & Christie, and Retail Pad 2 Buildings would be relocated into structured parking in the Shellmound and 64th & Christie buildings or reconfigured surface level spaces elsewhere on the site.

Site Improvements. The proposed project includes a number of site improvements and enhancements to create a more livable, usable and lively pedestrian environment including:

- Shellmound Building Zone Improvements – Improved landscaping and a new public plaza/crossing will be installed between the Shellmound Building and the existing Borders Building.
- Amtrak Connection – Improvements to the connection between the pedestrian bridge and the project site to ensure high visibility and safety for pedestrians, including ADA-compliant elevator access.
- UA Theater Zone Improvements – Addition of a new landscaped and lighted pedestrian sidewalk across the existing surface level parking lot to the UA Theater activity zone.
- Circulation Improvements – Creation of a mid-block intersection on Christie Avenue that would require vehicles to come to a full stop, thereby improving pedestrian safety and access to the project site and the City Park (i.e., Christie Park). Additional circulation improvements include new lighted project identity signage at both Shellmound Street and Christie Avenue locations to create a continuous vehicular and pedestrian circulation system.
- City Park Edge – Enhancements to the accessibility, safety and aesthetics of the City Park (i.e., Christie Park) to open the area by removing tall, dark trees and hedges, thereby creating an informal comfortable space for residents and site patrons.

Required Approvals. The project would require the approval of a Rezoning to Planned Unit Development, which would incorporate the existing Master Use Permit on the site for the existing uses, as well as approval of a new Preliminary Development Plan (PUD/PDP), a Lot Line Adjustment, and an Owner Participation Agreement Amendment. The PUD/PDP would establish a flexible zone for the proposed mix of activities, establishing the basic circulation system, massing, heights, open space, parking, and other elements. Prior to development of each phase of the project (see below), City approval of a Final Development Plan will be required to establish the detailed building and landscaping design for each building.

Project Phasing. Construction of the proposed project is anticipated to commence in Fall 2006 and be completed in Summer 2008. The project would be developed in three phases, as follows:

- Phase 1 – Relocation of Marketplace entry driveway and parking lot improvements for permanent and interim surface parking;
- Phase 2 – Construction of Shellmound and 64th & Christie Buildings; and
- Phase 3 – Construction of Retail Pad Buildings.

MARKETPLACE REDEVELOPMENT PROJECT EIR
SCOPING SESSION

OVERVIEW OF CEQA
Handout #2

WHAT IS CEQA?

CEQA, or the California Environmental Quality Act, is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible.

The basic goal of CEQA is to develop and maintain a high-quality environment now and in the future, while the specific goals of CEQA are for agencies to:

- Identify the significant environmental effects of their actions; and, either
- Avoid those significant environmental effects, where feasible; or
- Mitigate those significant environmental effects, where feasible.

BASIC STEPS

The most basic steps of the environmental review process are:

1) Determine if the activity is a "project" subject to CEQA;

2) Determine if the "project" is exempt from CEQA;

3) Determine the appropriate environmental review document:

   - **Mitigated Negative Declaration** (with an Initial Study) if all potential impacts can be mitigated to a less-than-significant level
   - **Environmental Impact Report (EIR)** if there is a potential for "significant" impacts that cannot be mitigated

For the Marketplace Redevelopment Project, the City will be preparing an EIR.

MARKETPLACE REDEVELOPMENT PROJECT EIR

SCOPING SESSION

OVERVIEW OF EIR PROCESS

Handout #3

- Project initiated / planning application submitted
- Lead Agency (City of Emeryville) decides EIR is needed and consultant is selected
- **Scoping** of environmental issues (Winter 2005)
  - ⇒ **Notice of Preparation** distributed to property owners in the project vicinity, affected agencies and published in the newspaper
  - ⇒ **Public Scoping Session** is held (*tonight's meeting*)
  - ⇒ Written comments may be submitted to the City until January 6, 2006
- Consulting team conducts research, analysis and report writing
  - ⇒ **Draft EIR** circulated for 45-day public comment period (Spring 2006)
  - ⇒ Planning Commission Public Hearing on Draft EIR (Summer 2006)
- Preparation of **Responses to Comments** and Draft EIR Revisions
- **Final EIR** considered for Certification
  - ⇒ **Planning Commission**
  - ⇒ **City Council**

⇒ City considers **Approval of the Project** (Fall 2006)

⇒ *Indicates opportunity for public comment*

MARKETPLACE REDEVELOPMENT PROJECT EIR

SCOPING SESSION

ANTICIPATED SCOPE OF EIR
Handout #4

The EIR to be prepared for this project will discuss the setting, standards of significance, and impact for each of the following environmental topics:

- Land Use & Planning Policy
- Population and Housing
- Transportation, Circulation and Parking
- Air Quality
- Noise and Vibration
- Hazardous Materials and Public Health and Safety
- Geology, Soils and Seismicity
- Hydrology and Water Quality
- Cultural and Paleontological Resources
- Aesthetic Resources (including Wind)
- Public Services and Utilities

Topics that are not anticipated to be significant and, after review, may be excluded from a detailed analysis in the EIR include: agricultural resources, biological resources, and mineral resources.

The EIR will also include:

- Analysis of Alternatives to the Proposed Project
- Discussion of potential Cumulative Impacts

Marketplace Redevelopment Project EIR Scoping Meeting
December 15, 2005

Name Greg HARDER

Address c/o AC Transit
1600 Franklin St
Oakland CA

Phone

E-mail

Current bus layover would be wiped out

Comment ~~Also~~ Need for a bus layover facilty near MARKetplace. Best spot would be at or near pedestrian overpass to Amtrak

National Association of Railroad Passengers
900 Second Street, NE Washington, DC 20002

DORAS M. BRIGGS
Member, Board of Directors

5855 Horton St., #509
Emeryville, CA 94608

RRdoras@aol.com
(510) 595-0155

Marketplace Redevelopment Project EIR Scoping Meeting
December 15, 2005

Name RODNEY ESPERANZA
Address 5855 HORTON STREET #716 (Emeryitation Terraces)
EMERYVILLE, CA 94608
Phone 510.594.1658
E-mail rodneyesperanza@comcast.net

Comment (1) Have Preparations Notices been sent to Terraces residntes?
(2) Are impacts to viewshed covered in "Aesthetic Resources"?

Marketplace Redevelopment Project EIR Scoping Meeting
December 15, 2005

Name Parissa Peymani
Address 5855 Horton St. #809
Emeryville, CA. 94608
Phone 510.~~655~~ 305.1265
E-mail drparissa@netscape.net

Comment Please reshift or rotate the buildg (tower I & II) so that the midrise building on one side & PPP from the other side is blocked and not the mount tamp or Berkeley marina regn. I insist on lowering the height of the buildg significantly or making a lean & tall building which blocks either the midrise in marketplace or PPP

Thankx!!

Marketplace Redevelopment Project EIR Scoping Meeting
December 15, 2005

Name Brian Donahue
Address 4333 Holden St.

Phone 654.0166
E-mail Sophbeau@yahoo.com

Comment Design & General Plan compliance, Equal amount of objectivity on each topic.
Allow 50 or more private residences (off site) to be considered a significant impact (if views were to be negatively impacted)

P:\CEM531\Admin\Mtgs-Hrgs\Marketplacecommentcards.doc

Marketplace Redevelopment Project EIR Scoping Meeting
December 15, 2005

Name Marc Albert
Address 5862 Beaudry Street

Phone 658 1764
E-mail Marcalbert68@hotmail.com

Comment Elevator - remove/replace w/ramps
Views - Consider trying to minimize impacts on views
Bulk - Consider taller, less bulky buildings
Consider permiable paving stones
Consider - additional trees to soften visual impacts of surface parking
Consider - reestablishing normal street grid. This would enable placement of building further west, reducing impacts to building to the east.
Should be architectually ~~not~~ good looking

MAREKETPLACE REDEVELOPMENT PROJECT
EIR SCOPING MEETING -- SUMMARY OF COMMENTS

December 15, 2005
7:00 pm
Emeryville City Hall

Land Use

- Consider redeveloping Marketplace to be in keeping with its original vision of 15 years ago, which is more like Rockridge area of Oakland.
- Ensure that the project is consistent with existing General Plan policies.

Transportation, Circulation, and Parking

- Request that project include a bus layer over facility that would accommodate 3 buses and was located near to the Amtrak pedestrian overcrossing.
- Concern about increased traffic in the area of the proposed project.
- Consider reconfigure streets through project site to re-establish a "grid" street pattern to shift Shellmound Building further west.
- Consider removing elevator in Amtrak pedestrian overcrossing tower and replacing it with a ramp.

Air Quality

- Concern about increased pollution and associated health impacts

Noise and Vibration

- Concern that railroad noise will reverberate off of the proposed Shellmound Building toward existing Terraces apartments (located on east side of tracks).
- Concern about increased noise in the area as a result of the proposed project.

Hazardous Materials and Public Health and Safety

- Request that any toxic clean-up on the site be managed by the State Department of Toxic Control and not RWQCB.

Hydrology and Water Quality

- Consider incorporating impermeable paving in project design.

Cultural and Paleontological Resources

- Concern about potential cultural resources located under the project site.

Aesthetic Resources Including Wind

- Desire for the aesthetics analysis to utilize objective criteria and consider the use of compatible colors, textures, and design.

- Concern that new Shellmound building will create a wind tunnel effect along railroad tracks.
- Concern that new mid-rise buildings will block views of San Francisco Bay, Berkeley Marina, and Mt. Tam from private balconies at the Terraces (located directly east of the railroad tracks and the proposed Shellmound Building).
- Request to include significance criteria establishing that significant impact would occur if more than 50 private views are affected from the proposed project.
- Consider softening visual impact of parking area by adding more trees to the site.
- Consider redesigning mid-rise buildings to be taller towers, and less bulky, thereby minimizing blocking of views and massing of buildings.

APPENDIX B

TRANSPORTATION, CIRCULATION, AND PARKING STUDY

Appendix B is bound under separate cover

APPENDIX C

CALIFORNIA LINE SOURCE DISPERSION MODEL (CALINE4), URBAN EMISSION MODEL (URBEMIS 2002) MODEL, AND HUMAN HEALTH RISK ASSESSMENT (HHRA)

APPENDIX C-1

PROPOSED PROJECT
CALINE4 AIR QUALITY MODELING

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: Existing-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. 7th St. NBA	*	7	-150	7	0	* AG	515	10.0	.0	10.0
B. 7th St. NBD	*	7	0	7	150	* AG	714	6.8	.0	10.0
C. 7th St. NBL	*	5	-150	0	0	* AG	167	10.5	.0	10.0
D. 7th St. SBA	*	-7	150	-7	0	* AG	712	11.6	.0	10.0
E. 7th St. SBD	*	-7	0	-7	-150	* AG	486	8.9	.0	10.0
F. 7th St. SBL	*	-5	150	0	0	* AG	130	10.5	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	744	7.9	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	860	5.5	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	263	11.4	.0	10.0
J. Ashby Av WBA	*	150	7	0	7	* AG	797	7.9	.0	10.0
K. Ashby Av WBD	*	0	7	-150	7	* AG	1373	5.7	.0	10.0
L. Ashby Av WBL	*	150	5	0	0	* AG	105	10.5	.0	10.0
M. 7th St. NBAX	*	7	-750	7	-150	* AG	682	5.1	.0	10.0
N. 7th St. NBDX	*	7	150	7	750	* AG	714	5.1	.0	10.0
O. 7th St. SBAX	*	-7	750	-7	150	* AG	842	5.1	.0	10.0
P. 7th St. SBDX	*	-7	-150	-7	-750	* AG	486	5.1	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1007	5.1	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	860	5.1	.0	10.0
S. Ashby A WBAX	*	750	7	150	7	* AG	902	5.1	.0	10.0
T. Ashby A WBDX	*	-150	7	-750	7	* AG	1373	5.1	.0	10.0

DO

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-14	1.8
2. NW	*	-14	14	1.8
3. SW	*	-14	-14	1.8
4. NE	*	14	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

DO

JOB: CEM531
RUN: Existing-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	*	2.2	*	.3	.0	.0	.0	.2	.0	.7	.1
2. NW	*	98.	*	2.2	*	.0	.2	.0	.5	.0	.0	.0	.2
3. SW	*	8.	*	2.4	*	.0	.2	.0	1.0	.1	.1	.4	.0
4. NE	*	262.	*	2.4	*	.0	.3	.0	.3	.0	.0	.2	.0
5. ES mdblk	*	277.	*	1.6	*	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	*	98.	*	2.0	*	.0	.0	.0	.0	.0	.0	.2	.1
7. WS mdblk	*	81.	*	2.0	*	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	*	263.	*	1.9	*	.0	.0	.0	.0	.0	.0	.1	.1

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
9. SE mdblk	*	352.	*	1.8	*	.8	.0	.2	.2	.2	.0	.0	.0
10. NW mdblk	*	172.	*	2.1	*	.1	.2	.0	1.2	.0	.2	.0	.0
11. SW mdblk	*	7.	*	1.5	*	.2	.1	.1	.1	.6	.0	.0	.0
12. NE mdblk	*	188.	*	1.6	*	.0	.7	.0	.3	.1	.0	.0	.0
13. ES blk	*	276.	*	1.3	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	1.6	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	83.	*	1.5	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	*	1.3	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	*	1.2	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	186.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0

DO

JOB: CEM531
RUN: Existing-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.3	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	*	.0	.7	.2	.1	.0	.0	.0	.0	.0	.2	.0	.0
3. SW	*	.1	.0	.3	.0	.0	.1	.0	.0	.0	.0	.0	.0
4. NE	*	.2	.2	.9	.0	.0	.0	.0	.0	.2	.0	.0	.1
5. ES mdblk	*	.0	.2	.2	.3	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	*	.2	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.4	.1	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.9	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.3	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	1.0
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0	.4
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.7	.0	.0
17. SE blk	*	.0	.0	.0	.0	.6	.0	.0	.2	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.7	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.4	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.6	.3	.0	.0	.0	.0	.0

DO

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: Existing-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	957	8.9	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1121	5.9	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	172	10.5	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	884	8.9	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	942	5.7	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	181	10.5	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	747	8.6	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	843	5.7	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	96	10.5	.0	10.0
J. Ashby Av WBA	*	150	2	0	2	* AG	750	8.6	.0	10.0
K. Ashby Av WBD	*	0	2	-150	2	* AG	897	5.7	.0	10.0
L. Ashby Av WBL	*	150	2	0	0	* AG	16	10.5	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1129	5.1	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1121	5.1	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1065	5.1	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	942	5.1	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	843	5.1	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	843	5.1	.0	10.0
S. Ashby A WBAX	*	750	2	150	2	* AG	766	5.1	.0	10.0
T. Ashby A WBDX	*	-150	2	-750	2	* AG	897	5.1	.0	10.0

DO

JOB: CEM531
RUN: Existing-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-14	1.8
2. NW	*	-14	8	1.8
3. SW	*	-14	-14	1.8
4. NE	*	14	8	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	8	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	8	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	8	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	8	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

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JOB: CEM531
RUN: Existing-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	350.	* 2.3	*	.3	.7	.0	.4	.0	.2	.0	.3
2. NW	*	98.	* 2.2	*	.0	.2	.0	.5	.0	.0	.0	.3
3. SW	*	8.	* 2.4	*	.0	.2	.0	.9	.1	.2	.4	.0
4. NE	*	188.	* 2.4	*	1.1	.0	.2	.0	.2	.0	.0	.2
5. ES mdblk	*	277.	* 1.6	*	.0	.0	.0	.0	.0	.0	.0	.7
6. WN mdblk	*	97.	* 1.7	*	.0	.0	.0	.0	.0	.0	.3	.1
7. WS mdblk	*	82.	* 1.9	*	.0	.0	.0	.0	.0	.0	.9	.0
8. EN mdblk	*	263.	* 1.8	*	.0	.0	.0	.0	.0	.0	.1	.2

9. SE mdblk	*	352.	* 2.2	*	1.2	.0	.2	.2	.2	.0	.0	.0
10. NW mdblk	*	172.	* 2.2	*	.2	.2	.0	1.1	.0	.2	.0	.0
11. SW mdblk	*	8.	* 1.8	*	.3	.1	.1	.0	.7	.0	.0	.0
12. NE mdblk	*	188.	* 1.9	*	.1	.9	.0	.3	.1	.1	.0	.0
13. ES blk	*	276.	* 1.3	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	96.	* 1.3	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	* 1.3	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	* 1.2	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	* 1.5	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	* 1.5	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	* 1.4	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	187.	* 1.5	*	.0	.0	.0	.0	.0	.0	.0	.0

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JOB: CEM531
RUN: Existing-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.3	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
2. NW	*	.0	.8	.1	.0	.0	.0	.0	.0	.0	.1	.0	.0
3. SW	*	.0	.0	.2	.0	.0	.2	.1	.0	.0	.0	.0	.0
4. NE	*	.0	.4	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.3	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.1	.1	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.3	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.7
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.7	.0	.0	.3
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.6	.0
17. SE blk	*	.0	.0	.0	.0	.9	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	.8	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	.7	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.9	.3	.0	.0	.0	.0	.0

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JOB: CEM531
RUN: Existing-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Christie NBA	*	5	-150	5	0	* AG	478	7.7	.0	13.5
B. Christie NBD	*	5	0	5	150	* AG	418	5.4	.0	10.0
C. Christie NBL	*	2	-150	0	0	* AG	0	5.1	.0	10.0
D. Christie SBA	*	-4	150	-4	0	* AG	405	7.7	.0	10.0
E. Christie SBD	*	-4	0	-4	-150	* AG	995	5.5	.0	10.0
F. Christie SBL	*	-2	150	0	0	* AG	24	10.5	.0	10.0
G. Shellmou EBA	*	-150	0	0	0	* AG	0	5.1	.0	10.0
H. Shellmou EBD	*	0	0	150	0	* AG	141	5.9	.0	10.0
I. Shellmou EBL	*	-150	-2	0	0	* AG	0	5.1	.0	10.0
J. Shellmou WBA	*	150	4	0	4	* AG	57	9.6	.0	10.0
K. Shellmou WBD	*	0	4	-150	4	* AG	0	5.1	.0	10.0
L. Shellmou WBL	*	150	5	0	0	* AG	590	11.4	.0	10.0
M. Christi NBAX	*	5	-750	5	-150	* AG	478	5.1	.0	13.5
N. Christi NBDX	*	5	150	5	750	* AG	418	5.1	.0	10.0
O. Christi SBAX	*	-4	750	-4	150	* AG	429	5.1	.0	10.0
P. Christi SBDX	*	-4	-150	-4	-750	* AG	995	5.1	.0	10.0
Q. Shellmo EBAX	*	-750	0	-150	0	* AG	0	5.1	.0	10.0
R. Shellmo EBDX	*	150	0	750	0	* AG	141	5.1	.0	10.0
S. Shellmo WBAX	*	750	4	150	4	* AG	647	5.1	.0	10.0
T. Shellmo WBDX	*	-150	4	-750	4	* AG	0	5.1	.0	10.0

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JOB: CEM531
RUN: Existing-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-7	1.8
2. NW	*	-10	10	1.8
3. SW	*	-10	-7	1.8
4. NE	*	12	10	1.8
5. ES mdblk	*	150	-7	1.8
6. WN mdblk	*	-150	10	1.8
7. WS mdblk	*	-150	-7	1.8
8. EN mdblk	*	150	10	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-10	150	1.8
11. SW mdblk	*	-10	-150	1.8
12. NE mdblk	*	12	150	1.8
13. ES blk	*	600	-7	1.8
14. WN blk	*	-600	10	1.8
15. WS blk	*	-600	-7	1.8
16. EN blk	*	600	10	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-10	600	1.8
19. SW blk	*	-10	-600	1.8
20. NE blk	*	12	600	1.8

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JOB: CEM531
RUN: Existing-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	80.	* 1.2	*	.0	.0	.0	.0	.0	.0	.0	.1
2. NW	*	97.	* 1.3	*	.0	.0	.0	.2	.0	.0	.0	.0
3. SW	*	82.	* 1.7	*	.2	.0	.0	.0	.3	.0	.0	.1
4. NE	*	187.	* 1.5	*	.5	.0	.0	.0	.3	.0	.0	.0
5. ES mdblk	*	280.	* .9	*	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	*	92.	* .5	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	88.	* .5	*	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	261.	* 1.6	*	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	* 353. *	1.0 *	.5	.0	.0	.0	.2	.0	.0	.0
10. NW mdblk	* 174. *	1.0 *	.1	.1	.0	.4	.0	.0	.0	.0
11. SW mdblk	* 8. *	1.3 *	.2	.0	.0	.0	.8	.0	.0	.0
12. NE mdblk	* 185. *	.9 *	.0	.3	.0	.1	.1	.0	.0	.0
13. ES blk	* 276. *	.6 *	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* 91. *	.2 *	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	* 90. *	.2 *	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	* 264. *	.8 *	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	* 354. *	.9 *	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* 174. *	.7 *	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	* 7. *	1.2 *	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* 185. *	.7 *	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: Existing-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.9	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.9	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.4	.0	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.1	.0	1.3	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.4	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.5	.0
17. SE blk	*	.0	.0	.0	.0	.4	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.4	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.8	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.4	.2	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: Existing-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Shellmou NBA	*	9	-150	9	0	* AG	594	8.4	.0	10.0
B. Shellmou NBD	*	9	0	9	150	* AG	694	5.7	.0	10.0
C. Shellmou NBL	*	9	-150	0	0	* AG	472	11.4	.0	10.0
D. Shellmou SBA	*	-4	150	-4	0	* AG	361	7.9	.0	10.0
E. Shellmou SBD	*	-4	0	-4	-150	* AG	220	5.4	.0	10.0
F. Shellmou SBL	*	-2	150	0	0	* AG	0	5.1	.0	10.0
G. Shellmou EBA	*	-150	-5	0	-5	* AG	34	9.6	.0	10.0
H. Shellmou EBD	*	0	-5	150	-5	* AG	0	5.1	.0	10.0
I. Shellmou EBL	*	-150	-5	0	0	* AG	100	10.5	.0	10.0
J. Shellmou WBA	*	150	0	0	0	* AG	0	5.1	.0	10.0
K. Shellmou WBD	*	0	0	-150	0	* AG	647	11.0	.0	10.0
L. Shellmou WBL	*	150	2	0	0	* AG	0	5.1	.0	10.0
M. Shellmo NBAX	*	9	-750	9	-150	* AG	1066	5.1	.0	10.0
N. Shellmo NBDX	*	9	150	9	750	* AG	694	5.1	.0	10.0
O. Shellmo SBAX	*	-4	750	-4	150	* AG	361	5.1	.0	10.0
P. Shellmo SBDX	*	-4	-150	-4	-750	* AG	220	5.1	.0	10.0
Q. Shellmo EBAX	*	-750	-5	-150	-5	* AG	134	5.1	.0	10.0
R. Shellmo EBDX	*	150	-5	750	-5	* AG	0	5.1	.0	10.0
S. Shellmo WBAX	*	750	0	150	0	* AG	0	5.1	.0	10.0
T. Shellmo WBDX	*	-150	0	-750	0	* AG	647	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: Existing-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	15	-12	1.8
2. NW	*	-10	7	1.8
3. SW	*	-10	-12	1.8
4. NE	*	15	7	1.8
5. ES mdblk	*	150	-12	1.8
6. WN mdblk	*	-150	7	1.8
7. WS mdblk	*	-150	-12	1.8
8. EN mdblk	*	150	7	1.8
9. SE mdblk	*	15	-150	1.8
10. NW mdblk	*	-10	150	1.8
11. SW mdblk	*	-10	-150	1.8
12. NE mdblk	*	15	150	1.8
13. ES blk	*	600	-12	1.8
14. WN blk	*	-600	7	1.8
15. WS blk	*	-600	-12	1.8
16. EN blk	*	600	7	1.8
17. SE blk	*	15	-600	1.8
18. NW blk	*	-10	600	1.8
19. SW blk	*	-10	-600	1.8
20. NE blk	*	15	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: Existing-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG * (DEG) *	PRED * CONC * (PPM) *	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278. *	1.5 *	.3	.0	.2	.0	.0	.0	.0	.0
2. NW	*	168. *	1.7 *	.3	.0	.5	.0	.2	.0	.0	.0
3. SW	*	7. *	1.2 *	.0	.2	.0	.4	.0	.0	.0	.0
4. NE	*	264. *	1.5 *	.0	.3	.0	.1	.0	.0	.0	.0
5. ES mdblk	*	272. *	.5 *	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	100. *	1.4 *	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	78. *	1.0 *	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	268. *	.5 *	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	* 350. *	1.8 *	.7	.0	.8	.0	.0	.0	.0	.0
10. NW mdblk	* 174. *	1.0 *	.1	.1	.1	.4	.0	.0	.0	.0
11. SW mdblk	* 8. *	1.0 *	.2	.0	.3	.0	.2	.0	.0	.0
12. NE mdblk	* 186. *	1.1 *	.0	.5	.1	.1	.0	.0	.0	.0
13. ES blk	* 269. *	.2 *	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* 96. *	.8 *	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	* 84. *	.6 *	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	* 268. *	.2 *	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	* 354. *	1.1 *	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* 174. *	.7 *	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	* 6. *	.7 *	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* 186. *	.9 *	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: Existing-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.1	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.3	.0	.0	.1	.0	.0	.0	.0	.0	.0
4. NE	*	.2	.0	.8	.0	.0	.0	.0	.0	.0	.0	.0	.1
5. ES mdblk	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.1	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.2	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.3
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	.0	.0	.0	.0	.8	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.3	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	.2	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.6	.1	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: Existing-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. I-80 Eas NBA	*	7	-150	7	0	* AG	1078	11.6	.0	10.0
B. I-80 Eas NBD	*	7	0	7	150	* AG	823	11.5	.0	10.0
C. I-80 Eas NBL	*	5	-150	0	0	* AG	550	11.4	.0	10.0
D. I-80 Eas SBA	*	0	150	0	0	* AG	0	5.1	.0	10.0
E. I-80 Eas SBD	*	0	0	0	-150	* AG	0	5.1	.0	10.0
F. I-80 Eas SBL	*	-2	150	0	0	* AG	0	5.1	.0	10.0
G. Powell S EBA	*	-150	-9	0	-9	* AG	938	7.9	.0	13.5
H. Powell S EBD	*	0	-9	150	-9	* AG	1790	5.6	.0	13.5
I. Powell S EBL	*	-150	-5	0	0	* AG	141	10.5	.0	10.0
J. Powell S WBA	*	150	7	0	7	* AG	1896	8.9	.0	17.0
K. Powell S WBD	*	0	7	-150	7	* AG	1990	5.7	.0	13.5
L. Powell S WBL	*	150	2	0	0	* AG	0	5.1	.0	10.0
M. I-80 Ea NBAX	*	7	-750	7	-150	* AG	1628	5.1	.0	10.0
N. I-80 Ea NBDX	*	7	150	7	750	* AG	823	5.1	.0	10.0
O. I-80 Ea SBAX	*	0	750	0	150	* AG	0	5.1	.0	10.0
P. I-80 Ea SBDX	*	0	-150	0	-750	* AG	0	5.1	.0	10.0
Q. Powell EBAX	*	-750	-9	-150	-9	* AG	1079	5.1	.0	13.5
R. Powell EBDX	*	150	-9	750	-9	* AG	1790	5.1	.0	13.5
S. Powell WBAX	*	750	7	150	7	* AG	1896	5.1	.0	17.0
T. Powell WBDX	*	-150	7	-750	7	* AG	1990	5.1	.0	13.5

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: Existing-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-17	1.8
2. NW	*	-7	15	1.8
3. SW	*	-7	-17	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-17	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-17	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-7	150	1.8
11. SW mdblk	*	-7	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-17	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-17	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-7	600	1.8
19. SW blk	*	-7	-600	1.8
20. NE blk	*	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: Existing-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	279.	*	2.9	*	.8	.0	.3	.0	.0	.0	.8	.2
2. NW	*	97.	*	3.2	*	.0	.4	.0	.0	.0	.0	.0	.2
3. SW	*	81.	*	3.1	*	.6	.0	.4	.0	.0	.0	.0	1.1
4. NE	*	188.	*	3.5	*	1.3	.3	.5	.0	.0	.0	.0	.3
5. ES mdblk	*	278.	*	2.4	*	.0	.0	.0	.0	.0	.0	.1	1.2
6. WN mdblk	*	98.	*	2.5	*	.1	.0	.0	.0	.0	.0	.2	.2
7. WS mdblk	*	83.	*	2.3	*	.0	.0	.0	.0	.0	.0	.9	.1
8. EN mdblk	*	261.	*	2.8	*	.1	.0	.0	.0	.0	.0	.2	.2

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: Existing-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
9. SE mdblk	*	351.	*	2.8	*	1.7	.0	.7	.0	.0	.0	.0	.0
10. NW mdblk	*	174.	*	1.4	*	.3	.5	.1	.0	.0	.0	.0	.0
11. SW mdblk	*	10.	*	1.9	*	.8	.1	.5	.0	.0	.0	.0	.1
12. NE mdblk	*	185.	*	2.0	*	.2	1.2	.2	.0	.0	.0	.0	.0
13. ES blk	*	277.	*	2.1	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	2.0	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	83.	*	1.6	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	263.	*	2.0	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	1.5	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	*	.7	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	185.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: Existing-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Christie NBA	*	7	-150	7	0	* AG	102	9.6	.0	10.0
B. Christie NBD	*	7	0	7	150	* AG	515	10.5	.0	10.0
C. Christie NBL	*	5	-150	0	0	* AG	132	10.5	.0	10.0
D. Christie SBA	*	-5	150	-5	0	* AG	823	11.6	.0	11.8
E. Christie SBD	*	-5	0	-5	-150	* AG	1093	11.6	.0	10.0
F. Christie SBL	*	-2	150	0	0	* AG	163	10.5	.0	10.0
G. Powell S EBA	*	-150	-12	0	-12	* AG	1436	9.7	.0	13.5
H. Powell S EBD	*	0	-12	150	-12	* AG	1014	5.6	.0	10.0
I. Powell S EBL	*	-150	-9	0	0	* AG	354	10.5	.0	10.0
J. Powell S WBA	*	150	9	0	9	* AG	1134	8.4	.0	13.5
K. Powell S WBD	*	0	9	-150	9	* AG	1781	6.6	.0	10.0
L. Powell S WBL	*	150	5	0	0	* AG	259	11.4	.0	10.0
M. Christi NBAX	*	7	-750	7	-150	* AG	234	5.1	.0	10.0
N. Christi NBDX	*	7	150	7	750	* AG	515	5.1	.0	10.0
O. Christi SBAX	*	-5	750	-5	150	* AG	986	5.1	.0	11.8
P. Christi SBDX	*	-5	-150	-5	-750	* AG	1093	5.1	.0	10.0
Q. Powell EBAX	*	-750	-12	-150	-12	* AG	1790	5.1	.0	13.5
R. Powell EBDX	*	150	-12	750	-12	* AG	1014	5.1	.0	10.0
S. Powell WBAX	*	750	9	150	9	* AG	1393	5.1	.0	13.5
T. Powell WBDX	*	-150	9	-750	9	* AG	1781	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: Existing-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-19	1.8
2. NW	-13	15	1.8
3. SW	-12	-21	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-19	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-21	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-13	150	1.8
11. SW mdblk	-12	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-19	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-21	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-13	600	1.8
19. SW blk	-12	-600	1.8
20. NE blk	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: Existing-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	277.	3.1	.0	.0	.0	.0	.5	.0	1.5	.1
2. NW	171.	3.3	.0	.0	.1	.3	1.3	.0	.4	.0
3. SW	9.	3.4	.0	.3	.0	.9	.6	.2	.8	.0
4. NE	258.	3.0	.0	.4	.0	.4	.0	.0	.4	.0
5. ES mdblk	277.	2.0	.0	.0	.0	.0	.0	.0	.2	.8
6. WN mdblk	99.	2.6	.0	.0	.0	.0	.1	.0	.3	.1
7. WS mdblk	80.	3.0	.0	.0	.0	.0	.0	.0	1.7	.0
8. EN mdblk	262.	2.5	.0	.0	.0	.0	.1	.0	.3	.0

9. SE mdblk	351.	1.6	.2	.0	.2	.2	.5	.0	.1	.0
10. NW mdblk	173.	2.3	.0	.2	.0	1.3	.2	.2	.0	.0
11. SW mdblk	7.	2.6	.0	.1	.0	.1	1.7	.0	.0	.0
12. NE mdblk	189.	2.1	.0	.8	.0	.4	.2	.1	.1	.0
13. ES blk	277.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	2.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	2.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	5.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	1.2	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: Existing-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.2	.0	.2	.0	.0	.0	.0	.0	.2	.0	.0	.3
2. NW	.2	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.1	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.2	.3	1.1	.0	.0	.0	.0	.0	.2	.0	.0	.0
5. ES mdblk	.1	.1	.2	.1	.0	.0	.0	.0	.1	.0	.0	.1
6. WN mdblk	.2	.0	1.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.3	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	1.2	.1	.2	.0	.0	.0	.0	.2	.0	.0	.0
9. SE mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.3	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	1.3
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	.0	.3
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	1.0	.0
17. SE blk	.0	.0	.0	.0	.2	.0	.0	.3	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.2	.8	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.4	.3	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: Existing-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	5	-150	5	0	AG	446	11.4	.0	10.0
B. Hollis S NBD	5	0	5	150	AG	643	11.0	.0	10.0
C. Hollis S NBL	5	-150	0	0	AG	466	11.6	.0	10.0
D. Hollis S SBA	-7	150	-7	0	AG	354	10.8	.0	10.0
E. Hollis S SBD	-7	0	-7	-150	AG	330	6.8	.0	10.0
F. Hollis S SBL	-5	150	0	0	AG	58	10.5	.0	10.0
G. Powell S EBA	-150	-7	0	-7	AG	781	7.9	.0	10.0
H. Powell S EBD	0	-7	150	-7	AG	754	5.4	.0	10.0
I. Powell S EBL	-150	-5	0	0	AG	169	10.5	.0	10.0
J. Powell S WBA	150	7	0	7	AG	608	7.9	.0	10.0
K. Powell S WBD	0	7	-150	7	AG	1175	5.6	.0	10.0
L. Powell S WBL	150	5	0	0	AG	20	10.5	.0	10.0
M. Hollis NBAX	5	-750	5	-150	AG	912	5.1	.0	10.0
N. Hollis NBDX	5	150	5	750	AG	643	5.1	.0	10.0
O. Hollis SBAX	-7	750	-7	150	AG	412	5.1	.0	10.0
P. Hollis SBDX	-7	-150	-7	-750	AG	330	5.1	.0	10.0
Q. Powell EBAX	-750	-7	-150	-7	AG	950	5.1	.0	10.0
R. Powell EBDX	150	-7	750	-7	AG	754	5.1	.0	10.0
S. Powell WBAX	750	7	150	7	AG	628	5.1	.0	10.0
T. Powell WBDX	-150	7	-750	7	AG	1175	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: Existing-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	12	-14	1.8
2. NW	-14	14	1.8
3. SW	-14	-14	1.8
4. NE	12	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	12	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	12	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	12	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	12	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: Existing-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	2.2	.3	.0	.3	.0	.0	.0	.8	.0
2. NW	168.	2.0	.3	.0	.4	.1	.3	.0	.2	.0
3. SW	9.	1.8	.0	.4	.0	.5	.0	.0	.4	.0
4. NE	262.	2.1	.0	.5	.0	.2	.0	.0	.2	.0
5. ES mdblk	276.	1.4	.0	.0	.0	.0	.0	.0	.1	.5
6. WN mdblk	98.	1.7	.0	.0	.0	.0	.0	.0	.2	.0
7. WS mdblk	82.	1.8	.0	.0	.0	.0	.0	.0	.9	.0
8. EN mdblk	264.	1.5	.0	.0	.0	.0	.0	.0	.2	.1

9. SE mdblk	*	352.	*	2.1	*	.8	.0	.8	.1	.1	.0	.0	.0
10. NW mdblk	*	173.	*	1.5	*	.1	.3	.1	.6	.0	.0	.0	.0
11. SW mdblk	*	8.	*	1.3	*	.2	.2	.3	.0	.3	.0	.0	.0
12. NE mdblk	*	187.	*	1.8	*	.0	1.0	.1	.2	.0	.0	.0	.0
13. ES blk	*	276.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	1.5	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	83.	*	1.4	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	186.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: Existing-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.2	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	*	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.1	.1	.8	.0	.0	.0	.0	.0	.2	.0	.0	.1
5. ES mdblk	*	.0	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	*	.1	.0	.9	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.2	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.7	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0	
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.9
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0	.4
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.5	.0
17. SE blk	*	.0	.0	.0	.0	.7	.0	.0	.1	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.4	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	.3	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.5	.2	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: Existing-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1094	9.5	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1167	5.9	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	140	10.5	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	989	8.9	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1172	5.9	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	112	10.5	.0	10.0
G. Stanford EBA	*	-150	-7	0	-7	* AG	745	8.6	.0	10.0
H. Stanford EBD	*	0	-7	150	-7	* AG	787	5.6	.0	10.0
I. Stanford EBL	*	-150	-5	0	0	* AG	128	10.5	.0	10.0
J. Stanford WBA	*	150	7	0	7	* AG	419	8.4	.0	10.0
K. Stanford WBD	*	0	7	-150	7	* AG	601	5.6	.0	10.0
L. Stanford WBL	*	150	5	0	0	* AG	100	10.5	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1234	5.1	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1167	5.1	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1101	5.1	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1172	5.1	.0	10.0
Q. Stanfor EBAX	*	-750	-7	-150	-7	* AG	873	5.1	.0	10.0
R. Stanfor EBDX	*	150	-7	750	-7	* AG	787	5.1	.0	10.0
S. Stanfor WBAX	*	750	7	150	7	* AG	519	5.1	.0	10.0
T. Stanfor WBDX	*	-150	7	-750	7	* AG	601	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: Existing-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-14	1.8
2. NW	*	-14	14	1.8
3. SW	*	-14	-14	1.8
4. NE	*	14	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: Existing-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	350.	*	2.2	*	.3	.7	.0	.4	.0	.1	.0	.3
2. NW	*	170.	*	2.3	*	.5	.0	.1	.3	.7	.0	.2	.0
3. SW	*	8.	*	2.4	*	.0	.2	.0	1.0	.2	.1	.4	.0
4. NE	*	188.	*	2.5	*	1.2	.2	.1	.0	.3	.0	.0	.2
5. ES mdblk	*	276.	*	1.4	*	.0	.0	.0	.0	.0	.0	.1	.6
6. WN mdblk	*	98.	*	1.3	*	.1	.0	.0	.0	.0	.0	.2	.1
7. WS mdblk	*	82.	*	1.7	*	.0	.0	.0	.0	.0	.0	.9	.0
8. EN mdblk	*	263.	*	1.4	*	.0	.0	.0	.0	.0	.0	.2	.1

9. SE mdblk	*	352.	*	2.4	*	1.4	.0	.2	.2	.2	.0	.0	.0
10. NW mdblk	*	172.	*	2.2	*	.2	.2	.0	1.2	.0	.2	.0	.0
11. SW mdblk	*	8.	*	2.0	*	.3	.2	.0	.1	.9	.0	.0	.0
12. NE mdblk	*	188.	*	1.9	*	.1	.9	.0	.3	.2	.0	.0	.0
13. ES blk	*	276.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	96.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	*	1.2	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	353.	*	1.6	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	*	1.5	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	7.	*	1.6	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	187.	*	1.5	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: Existing-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.2	.0	.1	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.1	.0	.0	.2	.1	.0	.0	.0	.0	.0
4. NE	*	.0	.2	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.2	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.5	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.5
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.7	.0	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.4	.0
17. SE blk	*	.0	.0	.0	.0	.9	.0	.0	.4	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	.8	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.4	.0	.0	.9	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.9	.3	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: Existing-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Horton S NBA	*	5	-150	5	0	* AG	214	10.0	.0	10.0
B. Horton S NBD	*	5	0	5	150	* AG	157	5.9	.0	10.0
C. Horton S NBL	*	5	-150	0	0	* AG	173	10.5	.0	10.0
D. Horton S SBA	*	-2	150	-2	0	* AG	125	9.6	.0	10.0
E. Horton S SBD	*	-2	0	-2	-150	* AG	354	6.8	.0	10.0
F. Horton S SBL	*	-2	150	0	0	* AG	42	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	754	7.9	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	736	5.4	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	24	10.5	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	614	7.9	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	779	5.4	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	80	10.5	.0	10.0
M. Horton NBAX	*	5	-750	5	-150	* AG	387	5.1	.0	10.0
N. Horton NBDX	*	5	150	5	750	* AG	157	5.1	.0	10.0
O. Horton SBAX	*	-2	750	-2	150	* AG	167	5.1	.0	10.0
P. Horton SBDX	*	-2	-150	-2	-750	* AG	354	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	778	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	736	5.1	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	694	5.1	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	779	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: Existing-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	12	-14	1.8
2. NW	*	-8	15	1.8
3. SW	*	-8	-14	1.8
4. NE	*	12	17	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	12	-150	1.8
10. NW mdblk	*	-8	150	1.8
11. SW mdblk	*	-8	-150	1.8
12. NE mdblk	*	12	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	12	-600	1.8
18. NW blk	*	-8	600	1.8
19. SW blk	*	-8	-600	1.8
20. NE blk	*	12	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: Existing-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	*	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
4. NE	*	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.6
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.5	.0
17. SE blk	*	.0	.0	.0	.0	.3	.0	.0	.2	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.3	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: Existing-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	A	B	C	CONC/LINK (PPM) D	E	F	G	H
1. SE	*	277.	*	1.6	*	.1	.0	.0	.0	.1	.0	.7	.0
2. NW	*	172.	*	1.3	*	.2	.0	.2	.0	.3	.0	.2	.0
3. SW	*	81.	*	1.4	*	.1	.0	.1	.0	.2	.0	.0	.5
4. NE	*	187.	*	1.2	*	.3	.0	.2	.0	.2	.0	.0	.1
5. ES mdblk	*	277.	*	1.2	*	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	*	98.	*	1.2	*	.0	.0	.0	.0	.0	.0	.2	.0
7. WS mdblk	*	83.	*	1.4	*	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	*	262.	*	1.3	*	.0	.0	.0	.0	.0	.0	.2	.1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: Existing-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	7	-150	7	0	* AG	386	10.8	.0	10.0
B. Hollis S NBD	*	7	0	7	150	* AG	460	8.9	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	179	10.5	.0	10.0
D. Hollis S SBA	*	-5	150	-5	0	* AG	351	10.8	.0	10.0
E. Hollis S SBD	*	-5	0	-5	-150	* AG	555	10.5	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	147	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	658	7.9	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	806	5.5	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	46	10.5	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	641	7.9	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	728	5.4	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	141	10.5	.0	10.0
M. Hollis NBAX	*	7	-750	7	-150	* AG	565	5.1	.0	10.0
N. Hollis NBDX	*	7	150	7	750	* AG	460	5.1	.0	10.0
O. Hollis SBAX	*	-5	750	-5	150	* AG	498	5.1	.0	10.0
P. Hollis SBDX	*	-5	-150	-5	-750	* AG	555	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	704	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	806	5.1	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	782	5.1	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	728	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: Existing-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-14	1.8
2. NW	-12	15	1.8
3. SW	-12	-14	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-12	150	1.8
11. SW mdblk	-12	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-12	600	1.8
19. SW blk	-12	-600	1.8
20. NE blk	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: Existing-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.7	.3	.0	.0	.0	.2	.0	.6	.1
2. NW	171.	1.8	.2	.0	.2	.1	.7	.0	.2	.0
3. SW	81.	1.8	.2	.0	.0	.0	.4	.0	.1	.5
4. NE	189.	1.8	.5	.2	.2	.0	.3	.0	.0	.1
5. ES mdblk	278.	1.3	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	97.	1.3	.0	.0	.0	.0	.0	.0	.1	.1
7. WS mdblk	83.	1.5	.0	.0	.0	.0	.0	.0	.7	.0
8. EN mdblk	262.	1.4	.0	.0	.0	.0	.0	.0	.1	.1

9. SE mdblk	352.	1.5	.6	.0	.2	.1	.2	.0	.0	.0
10. NW mdblk	173.	1.5	.1	.2	.0	.6	.0	.2	.0	.0
11. SW mdblk	8.	1.6	.2	.1	.1	.0	.8	.0	.0	.0
12. NE mdblk	187.	1.4	.0	.6	.0	.2	.2	.0	.0	.0
13. ES blk	276.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.9	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.8	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.9	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.8	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: Existing-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1
2. NW	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.2	.0	.1	.0	.0	.0	.0	.0	.1	.0
4. NE	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.7	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.6
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.6	.0
17. SE blk	.0	.0	.0	.0	.5	.0	.0	.2	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.2	.4	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.5	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.4	.2	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: Existing-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S
BRG= WORST CASE
CLAS= 7 (G)
MIXH= 1000. M
SIGTH= 10. DEGREES
Z0= 100. CM
VD= .0 CM/S
VS= .0 CM/S
AMB= .0 PPM
TEMP= 10.0 DEGREE (C)
ALT= 6. (M)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	2	-150	2	0	AG	110	9.6	.0	10.0
B. Harlan S NBD	2	0	2	150	AG	46	5.9	.0	10.0
C. Harlan S NBL	2	-150	0	0	AG	33	10.5	.0	10.0
D. Harlan S SBA	-2	150	-2	0	AG	17	9.6	.0	10.0
E. Harlan S SBD	-2	0	-2	-150	AG	148	5.9	.0	10.0
F. Harlan S SBL	-2	150	0	0	AG	0	5.1	.0	10.0
G. 40th Str EBA	-150	-7	0	-7	AG	774	7.9	.0	10.0
H. 40th Str EBD	0	-7	150	-7	AG	828	5.5	.0	10.0
I. 40th Str EBL	-150	-5	0	0	AG	22	10.5	.0	10.0
J. 40th Str WBA	150	7	0	7	AG	787	7.9	.0	10.0
K. 40th Str WBD	0	7	-150	7	AG	817	5.5	.0	10.0
L. 40th Str WBL	150	5	0	0	AG	96	10.5	.0	10.0
M. Harlan NBAX	2	-750	2	-150	AG	143	5.1	.0	10.0
N. Harlan NBDX	2	150	2	750	AG	46	5.1	.0	10.0
O. Harlan SBAX	-2	750	-2	150	AG	17	5.1	.0	10.0
P. Harlan SBDX	-2	-150	-2	-750	AG	148	5.1	.0	10.0
Q. 40th St EBAX	-750	-7	-150	-7	AG	796	5.1	.0	10.0
R. 40th St EBDX	150	-7	750	-7	AG	828	5.1	.0	10.0
S. 40th St WBAX	750	7	150	7	AG	883	5.1	.0	10.0
T. 40th St WBDX	-150	7	-750	7	AG	817	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: Existing-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	8	-14	1.8
2. NW	-8	14	1.8
3. SW	-8	-14	1.8
4. NE	8	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	8	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	8	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	8	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	8	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: Existing-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.4	.0	.0	.0	.0	.0	.0	.8	.0
2. NW	98.	1.4	.0	.0	.0	.0	.0	.0	.0	.2
3. SW	82.	1.3	.0	.0	.0	.0	.0	.0	.0	.6
4. NE	98.	1.4	.0	.0	.0	.0	.0	.0	.0	.1
5. ES mdblk	278.	1.3	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	97.	1.2	.0	.0	.0	.0	.0	.0	.2	.1
7. WS mdblk	83.	1.4	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	262.	1.5	.0	.0	.0	.0	.0	.0	.1	.2

9. SE mdblk	*	352.	*	.5	*	.2	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	177.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	9.	*	.5	*	.1	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	*	183.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	276.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	96.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	263.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	355.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	177.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	5.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	183.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: Existing-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	*	.0	.8	.0	.1	.0	.0	.0	.0	.0	.2	.0	.0
3. SW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
4. NE	*	.0	.9	.0	.0	.0	.0	.0	.0	.0	.2	.1	.0
5. ES mdblk	*	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.9	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.3	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.7
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.3
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.7	.0	.0
17. SE blk	*	.0	.0	.0	.0	.1	.0	.0	.1	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.1	.0	.0	.1	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: Existing-12 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Emery St NBA	*	4	-150	4	0	* AG	355	10.8	.0	10.0
B. Emery St NBD	*	4	0	4	150	* AG	207	6.1	.0	10.0
C. Emery St NBL	*	2	-150	0	0	* AG	182	10.5	.0	10.0
D. Emery St SBA	*	-2	150	-2	0	* AG	149	9.6	.0	10.0
E. Emery St SBD	*	-2	0	-2	-150	* AG	355	6.8	.0	10.0
F. Emery St SBL	*	-2	150	0	0	* AG	27	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	839	8.1	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1000	5.5	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	30	10.5	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	758	7.9	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	897	5.5	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	124	10.5	.0	10.0
M. Emery S NBAX	*	4	-750	4	-150	* AG	537	5.1	.0	10.0
N. Emery S NBDX	*	4	150	4	750	* AG	207	5.1	.0	10.0
O. Emery S SBAX	*	-2	750	-2	150	* AG	176	5.1	.0	10.0
P. Emery S SBDX	*	-2	-150	-2	-750	* AG	355	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	869	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1000	5.1	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	877	5.1	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	897	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: Existing-12 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	10	-14	1.8
2. NW	*	-8	14	1.8
3. SW	*	-8	-14	1.8
4. NE	*	10	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	10	-150	1.8
10. NW mdblk	*	-8	150	1.8
11. SW mdblk	*	-8	-150	1.8
12. NE mdblk	*	10	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	10	-600	1.8
18. NW blk	*	-8	600	1.8
19. SW blk	*	-8	-600	1.8
20. NE blk	*	10	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: Existing-12 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	* 1.9	*	.2	.0	.1	.0	.1	.0	.8	.0
2. NW	*	172.	* 1.6	*	.3	.0	.2	.0	.3	.0	.2	.0
3. SW	*	82.	* 1.8	*	.2	.0	.1	.0	.2	.0	.0	.7
4. NE	*	187.	* 1.7	*	.5	.0	.2	.0	.2	.0	.0	.2
5. ES mdblk	*	277.	* 1.5	*	.0	.0	.0	.0	.0	.0	.1	.7
6. WN mdblk	*	98.	* 1.4	*	.0	.0	.0	.0	.0	.0	.2	.1
7. WS mdblk	*	83.	* 1.6	*	.0	.0	.0	.0	.0	.0	.9	.0
8. EN mdblk	*	262.	* 1.7	*	.0	.0	.0	.0	.0	.0	.2	.2

9. SE mdblk	*	352.	*	1.3	*	.6	.0	.2	.0	.2	.0	.0	.0
10. NW mdblk	*	175.	*	.9	*	.1	.0	.0	.2	.0	.0	.0	.0
11. SW mdblk	*	9.	*	1.2	*	.3	.0	.2	.0	.4	.0	.0	.0
12. NE mdblk	*	185.	*	.8	*	.0	.2	.0	.1	.0	.0	.0	.0
13. ES blk	*	276.	*	1.3	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	1.2	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	*	1.2	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	263.	*	1.2	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	175.	*	.5	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	185.	*	.5	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: Existing-12 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	*	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.2	.0	.1	.0	.0	.0	.0	.0	.0	.2	.0
4. NE	*	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.8	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.3	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.7
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.7	.0	.0	.3
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.7	.0
17. SE blk	*	.0	.0	.0	.0	.5	.0	.0	.2	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	.3	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.2	.1	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: Existing-13 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	11	-150	11	0	* AG	967	8.9	.0	10.0
B. San Pabl NBD	*	11	0	11	150	* AG	1303	6.4	.0	10.0
C. San Pabl NBL	*	9	-150	0	0	* AG	399	10.5	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1070	9.5	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1294	6.4	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	222	11.4	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	798	8.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	755	5.6	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	205	11.4	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	527	8.4	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	882	5.7	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	46	10.5	.0	10.0
M. San Pab NBAX	*	11	-750	11	-150	* AG	1366	5.1	.0	10.0
N. San Pab NBDX	*	11	150	11	750	* AG	1303	5.1	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1292	5.1	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1294	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1003	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	755	5.1	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	573	5.1	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	882	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: Existing-13 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	17	-14	1.8
2. NW	*	-14	14	1.8
3. SW	*	-14	-14	1.8
4. NE	*	17	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	17	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	17	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	17	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	17	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: Existing-13 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	* 2.5	*	.6	.0	.2	.0	.3	.0	.7	.1
2. NW	*	169.	* 2.7	*	.3	.0	.3	.3	.8	.0	.2	.0
3. SW	*	8.	* 2.9	*	.0	.2	.0	1.1	.2	.2	.4	.0
4. NE	*	188.	* 2.5	*	1.0	.2	.3	.0	.2	.0	.0	.2
5. ES mdblk	*	276.	* 1.5	*	.0	.0	.0	.0	.0	.0	.1	.6
6. WN mdblk	*	98.	* 1.7	*	.0	.0	.0	.0	.0	.2	.1	
7. WS mdblk	*	82.	* 2.0	*	.0	.0	.0	.0	.0	1.0	.0	
8. EN mdblk	*	263.	* 1.6	*	.0	.0	.0	.0	.0	.2	.1	

9. SE mdblk	*	351.	* 2.6	*	1.2	.0	.4	.2	.2	.0	.0	.0
10. NW mdblk	*	172.	* 2.6	*	.2	.2	.0	1.4	.0	.3	.0	.0
11. SW mdblk	*	8.	* 2.2	*	.2	.2	.2	.1	1.1	.0	.0	.0
12. NE mdblk	*	188.	* 2.2	*	.1	1.1	.0	.2	.2	.1	.0	.0
13. ES blk	*	276.	* 1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	* 1.3	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	* 1.4	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	* 1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	353.	* 1.7	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	173.	* 1.6	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	7.	* 1.6	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	187.	* 1.7	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: Existing-14 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	4	-150	4	0	* AG	807	8.1	.0	10.0
B. San Pabl NBD	*	4	0	4	150	* AG	1356	5.7	.0	10.0
C. San Pabl NBL	*	2	-150	0	0	* AG	19	10.5	.0	10.0
D. San Pabl SBA	*	-5	150	-5	0	* AG	1211	8.1	.0	13.5
E. San Pabl SBD	*	-5	0	-5	-150	* AG	1255	5.5	.0	11.8
F. San Pabl SBL	*	-2	150	0	0	* AG	0	5.1	.0	10.0
G. 36th Str EBA	*	-150	0	0	0	* AG	0	5.1	.0	10.0
H. 36th Str EBD	*	0	0	150	0	* AG	0	5.1	.0	10.0
I. 36th Str EBL	*	-150	-2	0	0	* AG	0	5.1	.0	10.0
J. 36th Str WBA	*	150	5	0	5	* AG	786	10.8	.0	11.8
K. 36th Str WBD	*	0	5	-150	5	* AG	276	5.9	.0	10.0
L. 36th Str WBL	*	150	2	0	0	* AG	64	10.5	.0	10.0
M. San Pab NBAX	*	4	-750	4	-150	* AG	826	5.1	.0	10.0
N. San Pab NBDX	*	4	150	4	750	* AG	1356	5.1	.0	10.0
O. San Pab SBAX	*	-5	750	-5	150	* AG	1211	5.1	.0	13.5
P. San Pab SBDX	*	-5	-150	-5	-750	* AG	1255	5.1	.0	11.8
Q. 36th St EBAX	*	-750	0	-150	0	* AG	0	5.1	.0	10.0
R. 36th St EBDX	*	150	0	750	0	* AG	0	5.1	.0	10.0
S. 36th St WBAX	*	750	5	150	5	* AG	850	5.1	.0	11.8
T. 36th St WBDX	*	-150	5	-750	5	* AG	276	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: Existing-14 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.2	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	*	.1	.0	.3	.0	.1	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.1	.0	.2	.0	.0	.2	.1	.0	.0	.0	.0	.0
4. NE	*	.0	.3	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.1	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.3	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0	
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.7
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0	.3
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.5	.0
17. SE blk	*	.0	.0	.0	.0	1.0	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	1.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.4	.0	.0	1.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	1.0	.3	.0	.0	.0	.0	.0

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JOB: CEM531
RUN: Existing-14 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	10	-7	1.8
2. NW	-14	12	1.8
3. SW	-13	-7	1.8
4. NE	10	13	1.8
5. ES mdblk	150	-7	1.8
6. WN mdblk	-150	12	1.8
7. WS mdblk	-150	-7	1.8
8. EN mdblk	150	13	1.8
9. SE mdblk	10	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-13	-150	1.8
12. NE mdblk	10	150	1.8
13. ES blk	600	-7	1.8
14. WN blk	-600	12	1.8
15. WS blk	-600	-7	1.8
16. EN blk	600	13	1.8
17. SE blk	10	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-13	-600	1.8
20. NE blk	10	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: Existing-14 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	352.	2.3	.0	1.0	.0	.6	.0	.0	.0	.0
2. NW	96.	2.1	.0	.3	.0	.6	.0	.0	.0	.0
3. SW	7.	2.1	.0	.3	.0	1.2	.0	.0	.0	.0
4. NE	188.	2.2	.8	.2	.0	.0	.4	.0	.0	.0
5. ES mdblk	281.	1.1	.0	.0	.0	.1	.0	.0	.0	.0
6. WN mdblk	93.	.8	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	85.	.7	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	261.	1.5	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
9. SE mdblk	354.	1.8	.9	.1	.0	.2	.3	.0	.0	.0
10. NW mdblk	172.	2.0	.1	.3	.0	1.2	.0	.0	.0	.0
11. SW mdblk	7.	1.8	.3	.2	.0	.2	.9	.0	.0	.0
12. NE mdblk	187.	2.0	.0	1.0	.0	.5	.1	.0	.0	.0
13. ES blk	276.	.6	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	93.	.5	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.9	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	1.7	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: Existing-14 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.4	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
2. NW	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
3. SW	.0	.0	.0	.0	.0	.2	.2	.0	.0	.0	.0	.0
4. NE	.0	.5	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	.0	.7	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.0
17. SE blk	.0	.0	.0	.0	.7	.0	.0	.5	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.5	.9	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.3	.0	.0	.9	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	1.0	.5	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S ZO= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. 7th St. NBA	7	-150	7	0	AG	518	10.0	.0	10.0
B. 7th St. NBD	7	0	7	150	AG	717	6.8	.0	10.0
C. 7th St. NBL	5	-150	0	0	AG	170	10.5	.0	10.0
D. 7th St. SBA	-7	150	-7	0	AG	717	11.6	.0	10.0
E. 7th St. SBD	-7	0	-7	-150	AG	495	8.9	.0	10.0
F. 7th St. SBL	-5	150	0	0	AG	130	10.5	.0	10.0
G. Ashby AV EBA	-150	-7	0	-7	AG	748	7.9	.0	10.0
H. Ashby AV EBD	0	-7	150	-7	AG	860	5.5	.0	10.0
I. Ashby AV EBL	-150	-5	0	0	AG	263	11.4	.0	10.0
J. Ashby AV WBA	150	7	0	7	AG	797	7.9	.0	10.0
K. Ashby AV WBD	0	7	-150	7	AG	1376	5.7	.0	10.0
L. Ashby AV WBL	150	5	0	0	AG	105	10.5	.0	10.0
M. 7th St. NBAX	7	-750	7	-150	AG	688	5.1	.0	10.0
N. 7th St. NBDX	7	150	7	750	AG	717	5.1	.0	10.0
O. 7th St. SBAX	-7	750	-7	150	AG	847	5.1	.0	10.0
P. 7th St. SBDX	-7	-150	-7	-750	AG	495	5.1	.0	10.0
Q. Ashby A EBAX	-750	-7	-150	-7	AG	1011	5.1	.0	10.0
R. Ashby A EBDX	150	-7	750	-7	AG	860	5.1	.0	10.0
S. Ashby A WBAX	750	7	150	7	AG	902	5.1	.0	10.0
T. Ashby A WBDX	-150	7	-750	7	AG	1376	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-14	1.8
2. NW	-14	14	1.8
3. SW	-14	-14	1.8
4. NE	14	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	2.2	.3	.0	.0	.0	.2	.0	.7	.1
2. NW	98.	2.2	.0	.2	.0	.5	.0	.0	.0	.2
3. SW	8.	2.4	.0	.2	.0	1.0	.1	.1	.4	.0
4. NE	262.	2.4	.0	.3	.0	.3	.0	.0	.2	.0
5. ES mdblk	277.	1.6	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	98.	2.0	.0	.0	.0	.0	.0	.0	.2	.1
7. WS mdblk	81.	2.0	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	263.	1.9	.0	.0	.0	.0	.0	.0	.1	.1

9. SE mdblk	352.	1.8	.8	.0	.2	.2	.2	.0	.0	.0
10. NW mdblk	172.	2.1	.1	.2	.0	1.2	.0	.2	.0	.0
11. SW mdblk	7.	1.5	.2	.1	.1	.1	.6	.0	.0	.0
12. NE mdblk	188.	1.6	.0	.7	.0	.3	.1	.0	.0	.0
13. ES blk	276.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.9	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	1.2	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.3	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	.0	.7	.2	.1	.0	.0	.0	.0	.2	.0	.0	.0
3. SW	.1	.0	.3	.0	.0	.1	.0	.0	.0	.0	.0	.0
4. NE	.2	.2	.9	.0	.0	.0	.0	.2	.0	.0	.0	.1
5. ES mdblk	.0	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	.2	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.4	.1	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.9	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.3	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	1.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0	.4
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.7	.0	
17. SE blk	.0	.0	.0	.0	.6	.0	.0	.2	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.2	.7	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.4	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.6	.3	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	7	-150	7	0	AG	972	8.9	.0	10.0
B. San Pabl NBD	7	0	7	150	AG	1131	5.9	.0	10.0
C. San Pabl NBL	5	-150	0	0	AG	172	10.5	.0	10.0
D. San Pabl SBA	-7	150	-7	0	AG	898	8.9	.0	10.0
E. San Pabl SBD	-7	0	-7	-150	AG	964	5.7	.0	10.0
F. San Pabl SBL	-5	150	0	0	AG	181	10.5	.0	10.0
G. Ashby Av EBA	-150	-7	0	-7	AG	747	8.6	.0	10.0
H. Ashby Av EBD	0	-7	150	-7	AG	848	5.7	.0	10.0
I. Ashby Av EBL	-150	-5	0	0	AG	96	10.5	.0	10.0
J. Ashby Av WBA	150	2	0	2	AG	750	8.6	.0	10.0
K. Ashby Av WBD	0	2	-150	2	AG	897	5.7	.0	10.0
L. Ashby Av WBL	150	2	0	0	AG	24	10.5	.0	10.0
M. San Pab NBAX	7	-750	7	-150	AG	1144	5.1	.0	10.0
N. San Pab NBDX	7	150	7	750	AG	1131	5.1	.0	10.0
O. San Pab SBAX	-7	750	-7	150	AG	1079	5.1	.0	10.0
P. San Pab SBDX	-7	-150	-7	-750	AG	964	5.1	.0	10.0
Q. Ashby A EBAX	-750	-7	-150	-7	AG	843	5.1	.0	10.0
R. Ashby A EBDX	150	-7	750	-7	AG	848	5.1	.0	10.0
S. Ashby A WBAX	750	2	150	2	AG	774	5.1	.0	10.0
T. Ashby A WBDX	-150	2	-750	2	AG	897	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-14	1.8
2. NW	-14	8	1.8
3. SW	-14	-14	1.8
4. NE	14	8	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	8	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	8	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	8	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	8	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	350.	2.3	.3	.7	.0	.4	.0	.2	.0	.3
2. NW	98.	2.3	.0	.2	.0	.5	.0	.0	.0	.3
3. SW	8.	2.4	.0	.2	.0	.9	.1	.2	.4	.0
4. NE	188.	2.4	1.1	.0	.2	.0	.2	.0	.0	.2
5. ES mdblk	277.	1.6	.0	.0	.0	.0	.0	.0	.0	.7
6. WN mdblk	97.	1.7	.0	.0	.0	.0	.0	.0	.3	.1
7. WS mdblk	83.	1.9	.0	.0	.0	.0	.0	.0	.9	.0
8. EN mdblk	263.	1.8	.0	.0	.0	.0	.0	.0	.1	.2

9. SE mdblk	352.	2.2	1.2	.0	.2	.2	.2	.0	.0	.0
10. NW mdblk	172.	2.2	.2	.2	.0	1.1	.0	.2	.0	.0
11. SW mdblk	8.	1.8	.3	.1	.1	.0	.8	.0	.0	.0
12. NE mdblk	188.	1.9	.1	.9	.0	.3	.1	.1	.0	.0
13. ES blk	276.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.5	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.3	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
2. NW	.0	.8	.1	.0	.0	.0	.0	.0	.0	.1	.0	.0
3. SW	.0	.0	.2	.0	.0	.2	.1	.0	.0	.0	.0	.0
4. NE	.0	.4	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	.0	.3	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.1	.1	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.3	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.7
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.7	.0	.0	.3
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.6	.0
17. SE blk	.0	.0	.0	.0	.9	.0	.0	.3	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.3	.8	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.3	.0	.0	.8	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.9	.3	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Christie NBA	*	5	-150	5	0	* AG	617	7.9	.0	13.5
B. Christie NBD	*	5	0	5	150	* AG	453	5.4	.0	10.0
C. Christie NBL	*	2	-150	0	0	* AG	0	5.1	.0	10.0
D. Christie SBA	*	-4	150	-4	0	* AG	446	7.7	.0	10.0
E. Christie SBD	*	-4	0	-4	-150	* AG	1103	5.6	.0	10.0
F. Christie SBL	*	-2	150	0	0	* AG	24	10.5	.0	10.0
G. Shellmou EBA	*	-150	0	0	0	* AG	0	5.1	.0	10.0
H. Shellmou EBD	*	0	0	150	0	* AG	245	6.1	.0	10.0
I. Shellmou EBL	*	-150	-2	0	0	* AG	0	5.1	.0	10.0
J. Shellmou WBA	*	150	4	0	4	* AG	57	9.6	.0	10.0
K. Shellmou WBD	*	0	4	-150	4	* AG	0	5.1	.0	10.0
L. Shellmou WBL	*	150	5	0	0	* AG	657	11.6	.0	10.0
M. Christi NBAX	*	5	-750	5	-150	* AG	617	5.1	.0	13.5
N. Christi NBDX	*	5	150	5	750	* AG	453	5.1	.0	10.0
O. Christi SBAX	*	-4	750	-4	150	* AG	470	5.1	.0	10.0
P. Christi SBDX	*	-4	-150	-4	-750	* AG	1103	5.1	.0	10.0
Q. Shellmo EBAX	*	-750	0	-150	0	* AG	0	5.1	.0	10.0
R. Shellmo EBDX	*	150	0	750	0	* AG	245	5.1	.0	10.0
S. Shellmo WBAX	*	750	4	150	4	* AG	714	5.1	.0	10.0
T. Shellmo WBDX	*	-150	4	-750	4	* AG	0	5.1	.0	10.0

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JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-7	1.8
2. NW	*	-10	10	1.8
3. SW	*	-10	-7	1.8
4. NE	*	12	10	1.8
5. ES mdblk	*	150	-7	1.8
6. WN mdblk	*	-150	10	1.8
7. WS mdblk	*	-150	-7	1.8
8. EN mdblk	*	150	10	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-10	150	1.8
11. SW mdblk	*	-10	-150	1.8
12. NE mdblk	*	12	150	1.8
13. ES blk	*	600	-7	1.8
14. WN blk	*	-600	10	1.8
15. WS blk	*	-600	-7	1.8
16. EN blk	*	600	10	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-10	600	1.8
19. SW blk	*	-10	-600	1.8
20. NE blk	*	12	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

9. SE mdblk	*	352.	*	1.2	*	.6	.0	.0	.0	.3	.0	.0	.0
10. NW mdblk	*	174.	*	1.1	*	.1	.1	.0	.5	.1	.0	.0	.0
11. SW mdblk	*	9.	*	1.4	*	.3	.0	.0	.0	.8	.0	.0	.0
12. NE mdblk	*	185.	*	1.0	*	.1	.3	.0	.1	.1	.0	.0	.0
13. ES blk	*	276.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	91.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	90.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	7.	*	1.3	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	185.	*	.7	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	80.	*	1.4	*	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	*	97.	*	1.4	*	.0	.1	.0	.2	.0	.0	.0	.2
3. SW	*	82.	*	2.0	*	.2	.0	.0	.0	.4	.0	.0	.2
4. NE	*	187.	*	1.8	*	.6	.0	.0	.0	.3	.0	.0	.0
5. ES mdblk	*	280.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	*	92.	*	.5	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	88.	*	.5	*	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	261.	*	1.9	*	.0	.0	.0	.0	.0	.0	.0	.2

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Shellmou NBA	*	9	-150	9	0	* AG	611	8.9	.0	10.0
B. Shellmou NBD	*	9	0	9	150	* AG	815	6.6	.0	10.0
C. Shellmou NBL	*	9	-150	0	0	* AG	472	11.4	.0	10.0
D. Shellmou SBA	*	-4	150	-4	0	* AG	439	8.1	.0	10.0
E. Shellmou SBD	*	-4	0	-4	-150	* AG	231	5.4	.0	10.0
F. Shellmou SBL	*	-2	150	0	0	* AG	0	5.1	.0	10.0
G. Shellmou EBA	*	-150	-5	0	-5	* AG	34	9.6	.0	10.0
H. Shellmou EBD	*	0	-5	150	-5	* AG	0	5.1	.0	10.0
I. Shellmou EBL	*	-150	-5	0	0	* AG	204	11.4	.0	10.0
J. Shellmou WBA	*	150	0	0	0	* AG	0	5.1	.0	10.0
K. Shellmou WBD	*	0	0	-150	0	* AG	714	11.4	.0	10.0
L. Shellmou WBL	*	150	2	0	0	* AG	0	5.1	.0	10.0
M. Shellmo NBAX	*	9	-750	9	-150	* AG	1083	5.1	.0	10.0
N. Shellmo NBDX	*	9	150	9	750	* AG	815	5.1	.0	10.0
O. Shellmo SBAX	*	-4	750	-4	150	* AG	439	5.1	.0	10.0
P. Shellmo SBDX	*	-4	-150	-4	-750	* AG	231	5.1	.0	10.0
Q. Shellmo EBAX	*	-750	-5	-150	-5	* AG	238	5.1	.0	10.0
R. Shellmo EBDX	*	150	-5	750	-5	* AG	0	5.1	.0	10.0
S. Shellmo WBAX	*	750	0	150	0	* AG	0	5.1	.0	10.0
T. Shellmo WBDX	*	-150	0	-750	0	* AG	714	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.4	.0	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.1	.0	1.5	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.4	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.6	.0
17. SE blk	*	.0	.0	.0	.0	.5	.0	.0	.4	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.4	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	.9	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.4	.2	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	15	-12	1.8
2. NW	-10	7	1.8
3. SW	-10	-12	1.8
4. NE	15	7	1.8
5. ES mdblk	150	-12	1.8
6. WN mdblk	-150	7	1.8
7. WS mdblk	-150	-12	1.8
8. EN mdblk	150	7	1.8
9. SE mdblk	15	-150	1.8
10. NW mdblk	-10	150	1.8
11. SW mdblk	-10	-150	1.8
12. NE mdblk	15	150	1.8
13. ES blk	600	-12	1.8
14. WN blk	-600	7	1.8
15. WS blk	-600	-12	1.8
16. EN blk	600	7	1.8
17. SE blk	15	-600	1.8
18. NW blk	-10	600	1.8
19. SW blk	-10	-600	1.8
20. NE blk	15	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	279.	1.7	.4	.0	.2	.0	.0	.0	.0	.0
2. NW	168.	1.9	.3	.0	.5	.0	.2	.0	.0	.0
3. SW	7.	1.4	.0	.2	.0	.5	.0	.0	.0	.0
4. NE	264.	1.9	.0	.3	.0	.1	.0	.0	.0	.0
5. ES mdblk	272.	.6	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	100.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	78.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	268.	.6	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	350.	1.9	.8	.0	.8	.0	.0	.0	.0	.0
10. NW mdblk	174.	1.2	.1	.2	.1	.5	.0	.0	.0	.0
11. SW mdblk	7.	1.0	.2	.1	.3	.0	.2	.0	.0	.0
12. NE mdblk	187.	1.3	.0	.7	.1	.1	.0	.0	.0	.0
13. ES blk	270.	.2	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.9	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.7	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	269.	.2	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.8	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.7	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	1.0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.2	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.1	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.1	.0	.4	.0	.0	.2	.0	.0	.0	.0	.0	.0
4. NE	.3	.0	.9	.0	.0	.0	.0	.0	.0	.0	.0	.1
5. ES mdblk	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.2	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.4	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.6
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.4
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	.0	.0	.0	.0	.8	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.3	.4	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.3	.0	.0	.2	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.7	.2	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S ZO= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. I-80 Eas NBA	7	-150	7	0	AG	1136	11.6	.0	10.0
B. I-80 Eas NBD	7	0	7	150	AG	827	11.5	.0	10.0
C. I-80 Eas NBL	5	-150	0	0	AG	550	11.4	.0	10.0
D. I-80 Eas SBA	0	150	0	0	AG	0	5.1	.0	10.0
E. I-80 Eas SBD	0	0	0	-150	AG	0	5.1	.0	10.0
F. I-80 Eas SBL	-2	150	0	0	AG	0	5.1	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	986	7.9	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	1896	5.7	.0	13.5
I. Powell S EBL	-150	-5	0	0	AG	141	10.5	.0	10.0
J. Powell S WBA	150	7	0	7	AG	1979	8.9	.0	17.0
K. Powell S WBD	0	7	-150	7	AG	2069	5.7	.0	13.5
L. Powell S WBL	150	2	0	0	AG	0	5.1	.0	10.0
M. I-80 Ea NBAX	7	-750	7	-150	AG	1686	5.1	.0	10.0
N. I-80 Ea NBDX	7	150	7	750	AG	827	5.1	.0	10.0
O. I-80 Ea SBAX	0	750	0	150	AG	0	5.1	.0	10.0
P. I-80 Ea SBDX	0	-150	0	-750	AG	0	5.1	.0	10.0
Q. Powell EBAX	-750	-9	-150	-9	AG	1127	5.1	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	1896	5.1	.0	13.5
S. Powell WBAX	750	7	150	7	AG	1979	5.1	.0	17.0
T. Powell WBDX	-150	7	-750	7	AG	2069	5.1	.0	13.5

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-17	1.8
2. NW	-7	15	1.8
3. SW	-7	-17	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-17	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-7	150	1.8
11. SW mdblk	-7	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-17	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-7	600	1.8
19. SW blk	-7	-600	1.8
20. NE blk	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	279.	3.1	.8	.0	.3	.0	.0	.0	.8	.2
2. NW	97.	3.3	.0	.4	.0	.0	.0	.0	.0	.2
3. SW	81.	3.2	.6	.0	.4	.0	.0	.0	.0	1.2
4. NE	188.	3.6	1.4	.3	.5	.0	.0	.0	.0	.3
5. ES mdblk	278.	2.5	.0	.0	.0	.0	.0	.0	.1	1.3
6. WN mdblk	98.	2.6	.1	.0	.0	.0	.0	.0	.2	.2
7. WS mdblk	83.	2.3	.0	.0	.0	.0	.0	.0	1.0	.2
8. EN mdblk	261.	2.9	.1	.0	.0	.0	.0	.0	.2	.3

9. SE mdblk	* 351. *	2.9 *	1.8	.0	.7	.0	.0	.0	.0	.0	.0
10. NW mdblk	* 174. *	1.4 *	.3	.5	.1	.0	.0	.0	.0	.0	.1
11. SW mdblk	* 10. *	1.9 *	.9	.1	.5	.0	.0	.0	.0	.0	.1
12. NE mdblk	* 185. *	2.1 *	.3	1.2	.2	.0	.0	.0	.0	.0	.0
13. ES blk	* 277. *	2.2 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* 97. *	2.1 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	* 83. *	1.7 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	* 263. *	2.1 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	* 354. *	1.5 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* 174. *	.7 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	* 6. *	1.0 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* 185. *	1.0 *	.0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.1	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.3
2. NW	.0	2.0	.0	.0	.0	.0	.0	.0	.0	.3	.2	.0
3. SW	.0	.5	.0	.0	.0	.0	.0	.0	.0	.1	.3	.0
4. NE	.0	1.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.5	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	.0	.2	1.4	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	.1	.4	.2	.0	.0	.0	.0	.0	.0	.1	.2	.0
8. EN mdblk	.0	1.9	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.2	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.1	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.3	.5	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	1.4
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0	.5
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	1.3	.0
17. SE blk	.0	.0	.0	.0	1.2	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.1	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0
19. SW blk	.0	.1	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.7	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S
BRG= WORST CASE
CLAS= 7 (G)
MIXH= 1000. M
SIGTH= 10. DEGREES
ZO= 100. CM
VD= .0 CM/S
VS= .0 CM/S
AMB= .0 PPM
TEMP= 10.0 DEGREE (C)
ALT= 6. (M)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Christie NBA	7	-150	7	0	AG	82	9.6	.0	10.0
B. Christie NBD	7	0	7	150	AG	654	11.0	.0	10.0
C. Christie NBL	5	-150	0	0	AG	132	10.5	.0	10.0
D. Christie SBA	-5	150	-5	0	AG	906	11.6	.0	11.8
E. Christie SBD	-5	0	-5	-150	AG	1093	11.6	.0	10.0
F. Christie SBL	-2	150	0	0	AG	188	10.5	.0	10.0
G. Powell S EBA	-150	-12	0	-12	AG	1436	9.7	.0	13.5
H. Powell S EBD	0	-12	150	-12	AG	1019	5.6	.0	10.0
I. Powell S EBL	-150	-9	0	0	AG	460	11.4	.0	10.0
J. Powell S WBA	150	9	0	9	AG	1167	8.4	.0	13.5
K. Powell S WBD	0	9	-150	9	AG	1864	7.6	.0	10.0
L. Powell S WBL	150	5	0	0	AG	259	11.4	.0	10.0
M. Christi NBAX	7	-750	7	-150	AG	214	5.1	.0	10.0
N. Christi NBDX	7	150	7	750	AG	654	5.1	.0	10.0
O. Christi SBAX	-5	750	-5	150	AG	1094	5.1	.0	11.8
P. Christi SBDX	-5	-150	-5	-750	AG	1093	5.1	.0	10.0
Q. Powell EBAX	-750	-12	-150	-12	AG	1896	5.1	.0	13.5
R. Powell EBDX	150	-12	750	-12	AG	1019	5.1	.0	10.0
S. Powell WBAX	750	9	150	9	AG	1426	5.1	.0	13.5
T. Powell WBDX	-150	9	-750	9	AG	1864	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-19	1.8
2. NW	-13	15	1.8
3. SW	-12	-21	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-19	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-21	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-13	150	1.8
11. SW mdblk	-12	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-19	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-21	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-13	600	1.8
19. SW blk	-12	-600	1.8
20. NE blk	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	3.2	.0	.0	.0	.0	.5	.0	1.5	.1
2. NW	171.	3.5	.0	.0	.1	.3	1.3	.0	.4	.0
3. SW	9.	3.8	.0	.4	.0	1.0	.6	.2	.8	.0
4. NE	257.	3.5	.0	.5	.0	.4	.0	.0	.5	.0
5. ES mdblk	277.	2.1	.0	.0	.0	.0	.0	.0	.2	.8
6. WN mdblk	100.	3.0	.0	.0	.0	.0	.1	.0	.3	.1
7. WS mdblk	79.	3.1	.0	.0	.0	.1	.0	.0	1.7	.0
8. EN mdblk	262.	2.6	.0	.0	.0	.0	.1	.0	.3	.0

9. SE mdblk	* 352. *	1.7 *	.1	.0	.2	.2	.5	.0	.1	.0
10. NW mdblk	* 172. *	2.5 *	.0	.3	.0	1.4	.2	.2	.0	.0
11. SW mdblk	* 7. *	2.7 *	.0	.2	.0	.2	1.7	.0	.0	.0
12. NE mdblk	* 189. *	2.4 *	.0	1.0	.0	.5	.2	.1	.1	.0
13. ES blk	* 277. *	1.6 *	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* 97. *	2.1 *	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	* 83. *	2.1 *	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	* 264. *	1.7 *	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	* 354. *	1.0 *	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* 174. *	1.4 *	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	* 5. *	1.3 *	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* 186. *	1.3 *	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.3	.0	.2	.0	.0	.0	.0	.0	.2	.0	.0	.3
2. NW	.2	.0	.9	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.2	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.3	.3	1.2	.0	.0	.0	.0	.0	.2	.0	.0	.0
5. ES mdblk	.1	.1	.3	.1	.0	.0	.0	.0	.1	.0	.0	.2
6. WN mdblk	.3	.0	1.8	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.4	.2	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.1	1.2	.2	.2	.0	.0	.0	.0	.2	.0	.0	.0
9. SE mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.3	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	1.3
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	1.3	.0	.0	.4
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	1.0	.0
17. SE blk	.0	.0	.0	.0	.2	.0	.0	.3	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.2	.8	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.5	.4	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	5	-150	5	0	* AG	446	11.4	.0	10.0
B. Hollis S NBD	*	5	0	5	150	* AG	643	11.0	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	486	11.6	.0	10.0
D. Hollis S SBA	*	-7	150	-7	0	* AG	354	10.8	.0	10.0
E. Hollis S SBD	*	-7	0	-7	-150	* AG	345	6.8	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	58	10.5	.0	10.0
G. Powell S EBA	*	-150	-7	0	-7	* AG	806	8.1	.0	10.0
H. Powell S EBD	*	0	-7	150	-7	* AG	764	5.4	.0	10.0
I. Powell S EBL	*	-150	-5	0	0	* AG	169	10.5	.0	10.0
J. Powell S WBA	*	150	7	0	7	* AG	621	7.9	.0	10.0
K. Powell S WBD	*	0	7	-150	7	* AG	1208	5.7	.0	10.0
L. Powell S WBL	*	150	5	0	0	* AG	20	10.5	.0	10.0
M. Hollis NBAX	*	5	-750	5	-150	* AG	932	5.1	.0	10.0
N. Hollis NBDX	*	5	150	5	750	* AG	643	5.1	.0	10.0
O. Hollis SBAX	*	-7	750	-7	150	* AG	412	5.1	.0	10.0
P. Hollis SBDX	*	-7	-150	-7	-750	* AG	345	5.1	.0	10.0
Q. Powell EBAX	*	-750	-7	-150	-7	* AG	975	5.1	.0	10.0
R. Powell EBDX	*	150	-7	750	-7	* AG	764	5.1	.0	10.0
S. Powell WBAX	*	750	7	150	7	* AG	641	5.1	.0	10.0
T. Powell WBDX	*	-150	7	-750	7	* AG	1208	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

Page 1

RECEPTOR	*		*								
9. SE mdblk	*	351.	*	2.1	*	.8	.0	.8	.0	.1	.0	.0	.0
10. NW mdblk	*	173.	*	1.5	*	.1	.3	.1	.6	.0	.0	.0	.0
11. SW mdblk	*	8.	*	1.4	*	.2	.2	.3	.0	.4	.0	.0	.0
12. NE mdblk	*	187.	*	1.8	*	.0	1.0	.1	.2	.0	.0	.0	.0
13. ES blk	*	276.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	1.5	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	83.	*	1.4	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	186.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.2	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	*	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.1	.1	.8	.0	.0	.0	.0	.0	.2	.0	.0	.1
5. ES mdblk	*	.0	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	*	.1	.0	.9	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.2	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.7	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0	
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.9
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0	.4
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.5	.0
17. SE blk	*	.0	.0	.0	.0	.7	.0	.0	.1	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.4	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	.3	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.5	.2	.0	.0	.0	.0	.0

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Page 3

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	12	-14	1.8
2. NW	*	-14	14	1.8
3. SW	*	-14	-14	1.8
4. NE	*	12	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	12	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	12	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	12	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	12	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	*	2.3	*	.3	.0	.3	.0	.0	.0	.8	.0
2. NW	*	168.	*	2.0	*	.3	.0	.5	.1	.3	.0	.2	.0
3. SW	*	9.	*	1.9	*	.0	.4	.0	.5	.0	.0	.4	.0
4. NE	*	262.	*	2.2	*	.0	.5	.0	.2	.0	.0	.3	.0
5. ES mdblk	*	276.	*	1.4	*	.0	.0	.0	.0	.0	.0	.1	.5
6. WN mdblk	*	99.	*	1.7	*	.0	.0	.0	.0	.0	.0	.3	.0
7. WS mdblk	*	82.	*	1.8	*	.0	.0	.0	.0	.0	.0	.9	.0
8. EN mdblk	*	264.	*	1.5	*	.0	.0	.0	.0	.0	.0	.2	.1

Page 2

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1094	9.5	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1167	5.9	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	140	10.5	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	969	8.9	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1152	5.9	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	112	10.5	.0	10.0
G. Stanford EBA	*	-150	-7	0	-7	* AG	755	8.6	.0	10.0
H. Stanford EBD	*	0	-7	150	-7	* AG	797	5.6	.0	10.0
I. Stanford EBL	*	-150	-5	0	0	* AG	128	10.5	.0	10.0
J. Stanford WBA	*	150	7	0	7	* AG	432	8.4	.0	10.0
K. Stanford WBD	*	0	7	-150	7	* AG	614	5.6	.0	10.0
L. Stanford WBL	*	150	5	0	0	* AG	100	10.5	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1234	5.1	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1167	5.1	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1081	5.1	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1152	5.1	.0	10.0
Q. Stanfor EBAX	*	-750	-7	-150	-7	* AG	883	5.1	.0	10.0
R. Stanfor EBDX	*	150	-7	750	-7	* AG	797	5.1	.0	10.0
S. Stanfor WBAX	*	750	7	150	7	* AG	532	5.1	.0	10.0
T. Stanfor WBDX	*	-150	7	-750	7	* AG	614	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

Page 1

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-14	1.8
2. NW	-14	14	1.8
3. SW	-14	-14	1.8
4. NE	14	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	350.	2.2	.3	.7	.0	.4	.0	.1	.0	.3
2. NW	170.	2.3	.5	.0	.1	.3	.7	.0	.2	.0
3. SW	8.	2.4	.0	.2	.0	1.0	.2	.1	.4	.0
4. NE	188.	2.5	1.2	.2	.1	.0	.2	.0	.0	.2
5. ES mdblk	277.	1.4	.0	.0	.0	.0	.0	.0	.1	.6
6. WN mdblk	98.	1.4	.1	.0	.0	.0	.0	.0	.2	.1
7. WS mdblk	82.	1.7	.0	.0	.0	.0	.0	.0	.9	.0
8. EN mdblk	263.	1.4	.0	.0	.0	.0	.0	.0	.2	.1

9. SE mdblk	352.	2.4	1.4	.0	.2	.2	.2	.0	.0	.0
10. NW mdblk	172.	2.2	.2	.2	.0	1.2	.0	.2	.0	.0
11. SW mdblk	8.	1.9	.3	.2	.0	.1	.9	.0	.0	.0
12. NE mdblk	188.	1.9	.1	.9	.0	.3	.1	.0	.0	.0
13. ES blk	276.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.5	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
2. NW	.0	.0	.2	.0	.1	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.1	.0	.0	.2	.1	.0	.0	.0	.0	.0
4. NE	.0	.2	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.2	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.5	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.5
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.7	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.4	.0
17. SE blk	.0	.0	.0	.0	.9	.0	.0	.4	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.3	.8	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.4	.0	.0	.9	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.9	.3	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Horton S NBA	5	-150	5	0	AG	214	10.0	.0	10.0
B. Horton S NBD	5	0	5	150	AG	157	5.9	.0	10.0
C. Horton S NBL	5	-150	0	0	AG	187	10.5	.0	10.0
D. Horton S SBA	-2	150	-2	0	AG	125	9.6	.0	10.0
E. Horton S SBD	-2	0	-2	-150	AG	363	6.8	.0	10.0
F. Horton S SBL	-2	150	0	0	AG	42	10.5	.0	10.0
G. 40th Str EBA	-150	-7	0	-7	AG	765	7.9	.0	10.0
H. 40th Str EBD	0	-7	150	-7	AG	738	5.4	.0	10.0
I. 40th Str EBL	-150	-5	0	0	AG	24	10.5	.0	10.0
J. 40th Str WBA	150	9	0	9	AG	617	7.9	.0	13.5
K. 40th Str WBD	0	9	-150	9	AG	796	5.4	.0	10.0
L. 40th Str WBL	150	5	0	0	AG	80	10.5	.0	10.0
M. Horton NBAX	5	-750	5	-150	AG	401	5.1	.0	10.0
N. Horton NBDX	5	150	5	750	AG	157	5.1	.0	10.0
O. Horton SBAX	-2	750	-2	150	AG	167	5.1	.0	10.0
P. Horton SBDX	-2	-150	-2	-750	AG	363	5.1	.0	10.0
Q. 40th St EBAX	-750	-7	-150	-7	AG	789	5.1	.0	10.0
R. 40th St EBDX	150	-7	750	-7	AG	738	5.1	.0	10.0
S. 40th St WBAX	750	9	150	9	AG	697	5.1	.0	13.5
T. 40th St WBDX	-150	9	-750	9	AG	796	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	12	-14	1.8
2. NW	-8	15	1.8
3. SW	-8	-14	1.8
4. NE	12	17	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	12	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	12	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	17	1.8
17. SE blk	12	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	12	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	277.	1.6	.1	.0	.1	.0	.1	.0	.7	.0
2. NW	172.	1.4	.2	.0	.2	.0	.3	.0	.2	.0
3. SW	81.	1.4	.1	.0	.1	.0	.2	.0	.0	.5
4. NE	187.	1.3	.3	.0	.2	.0	.2	.0	.0	.1
5. ES mdblk	277.	1.2	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	98.	1.2	.0	.0	.0	.0	.0	.0	.2	.0
7. WS mdblk	83.	1.4	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	262.	1.3	.0	.0	.0	.0	.0	.0	.2	.1

9. SE mdblk	* 351. *	1.1 *	.3	.0	.3	.0	.2	.0	.0	.0
10. NW mdblk	* 175. *	.8 *	.0	.0	.0	.2	.0	.0	.0	.0
11. SW mdblk	* 8. *	1.0 *	.2	.0	.2	.0	.4	.0	.0	.0
12. NE mdblk	* 185. *	.7 *	.0	.1	.0	.0	.0	.0	.0	.0
13. ES blk	* 276. *	1.0 *	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* 97. *	1.1 *	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	* 84. *	1.0 *	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	* 264. *	1.0 *	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	* 354. *	.7 *	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* 175. *	.4 *	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	* 6. *	.7 *	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* 185. *	.4 *	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

		CONC/LINK (PPM)									
RECEPTOR	* I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	* .0	.0	.1	.0	.0	.0	.0	.0	.1	.0	.0	.2
2. NW	* .0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	* .0	.2	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
4. NE	* .0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	* .0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	* .0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	* .0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	* .0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	* .0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0	.6
14. WN blk	* .0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
15. WS blk	* .0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.2
16. EN blk	* .0	.0	.0	.0	.0	.0	.0	.0	.2	.5	.0	.0
17. SE blk	* .0	.0	.0	.0	.4	.0	.0	.2	.0	.0	.0	.0
18. NW blk	* .0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
19. SW blk	* .0	.0	.0	.0	.2	.0	.0	.3	.0	.0	.0	.0
20. NE blk	* .0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	7	-150	7	0	* AG	390	10.8	.0	10.0
B. Hollis S NBD	*	7	0	7	150	* AG	480	8.9	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	182	10.5	.0	10.0
D. Hollis S SBA	*	-5	150	-5	0	* AG	354	10.8	.0	10.0
E. Hollis S SBD	*	-5	0	-5	-150	* AG	560	10.5	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	159	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	660	7.9	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	818	5.5	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	46	10.5	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	657	7.9	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	731	5.4	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	141	10.5	.0	10.0
M. Hollis NBAX	*	7	-750	7	-150	* AG	572	5.1	.0	10.0
N. Hollis NBDX	*	7	150	7	750	* AG	480	5.1	.0	10.0
O. Hollis SBAX	*	-5	750	-5	150	* AG	513	5.1	.0	10.0
P. Hollis SBDX	*	-5	-150	-5	-750	* AG	560	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	706	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	818	5.1	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	798	5.1	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	731	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-14	1.8
2. NW	*	-12	15	1.8
3. SW	*	-12	-14	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-12	150	1.8
11. SW mdblk	*	-12	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-12	600	1.8
19. SW blk	*	-12	-600	1.8
20. NE blk	*	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* BRG * (DEG)	* PRED * CONC * (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	* 278.	* 1.7	*	.3	.0	.0	.0	.2	.0	.6	.1
2. NW	* 171.	* 1.8	*	.2	.0	.2	.1	.7	.0	.2	.0
3. SW	* 81.	* 1.8	*	.2	.0	.0	.0	.4	.0	.1	.5
4. NE	* 189.	* 1.8	*	.5	.2	.2	.0	.3	.0	.0	.1
5. ES mdblk	* 278.	* 1.4	*	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	* 97.	* 1.3	*	.0	.0	.0	.0	.0	.0	.1	.1
7. WS mdblk	* 83.	* 1.5	*	.0	.0	.0	.0	.0	.0	.7	.0
8. EN mdblk	* 262.	* 1.4	*	.0	.0	.0	.0	.0	.0	.1	.1

9. SE mdblk	* 352. *	1.6 *	.6	.0	.2	.1	.3	.0	.0	.0
10. NW mdblk	* 173. *	1.5 *	.1	.2	.0	.6	.0	.3	.0	.0
11. SW mdblk	* 8. *	1.6 *	.2	.1	.1	.0	.9	.0	.0	.0
12. NE mdblk	* 187. *	1.4 *	.0	.6	.0	.2	.2	.0	.0	.0
13. ES blk	* 276. *	1.2 *	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* 96. *	1.1 *	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	* 84. *	1.0 *	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	* 264. *	1.1 *	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	* 354. *	.9 *	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* 174. *	.9 *	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	* 6. *	.9 *	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* 186. *	.8 *	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

		CONC/LINK (PPM)									
RECEPTOR	* I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	* .0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1
2. NW	* .0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	* .0	.2	.0	.1	.0	.0	.0	.0	.0	.1	.0	.0
4. NE	* .0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	* .0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	* .0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	* .0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	* .0	.7	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.6
15. WS blk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.2
16. EN blk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.6	.0
17. SE blk	* .0	.0	.0	.0	.5	.0	.0	.2	.0	.0	.0	.0
18. NW blk	* .0	.0	.0	.0	.0	.2	.4	.0	.0	.0	.0	.0
19. SW blk	* .0	.0	.0	.0	.2	.0	.0	.5	.0	.0	.0	.0
20. NE blk	* .0	.0	.0	.0	.0	.4	.2	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	*	2	-150	2	0	* AG	110	9.6	.0	10.0
B. Harlan S NBD	*	2	0	2	150	* AG	46	5.9	.0	10.0
C. Harlan S NBL	*	2	-150	0	0	* AG	33	10.5	.0	10.0
D. Harlan S SBA	*	-2	150	-2	0	* AG	17	9.6	.0	10.0
E. Harlan S SBD	*	-2	0	-2	-150	* AG	148	5.9	.0	10.0
F. Harlan S SBL	*	-2	150	0	0	* AG	0	5.1	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	786	7.9	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	840	5.5	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	22	10.5	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	803	8.1	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	833	5.5	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	96	10.5	.0	10.0
M. Harlan NBAX	*	2	-750	2	-150	* AG	143	5.1	.0	10.0
N. Harlan NBDX	*	2	150	2	750	* AG	46	5.1	.0	10.0
O. Harlan SBAX	*	-2	750	-2	150	* AG	17	5.1	.0	10.0
P. Harlan SBDX	*	-2	-150	-2	-750	* AG	148	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	808	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	840	5.1	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	899	5.1	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	833	5.1	.0	10.0

DO

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	A	B	C	D	E	F	G	H
9. SE mdblk	*	352.	*	.5	*	.2	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	177.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	9.	*	.5	*	.1	.0	.0	.1	.0	.0	.0	.0
12. NE mdblk	*	183.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	276.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	96.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	263.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	355.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	177.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	5.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	182.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0

DO

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	*	.0	.8	.0	.1	.0	.0	.0	.0	.0	.2	.0	.0
3. SW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
4. NE	*	.0	.9	.0	.0	.0	.0	.0	.0	.0	.2	.1	.0
5. ES mdblk	*	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.9	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.3	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.7
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.3
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.7	.0
17. SE blk	*	.0	.0	.0	.0	.1	.0	.0	.1	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.1	.0	.0	.1	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

DO

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	8	-14	1.8
2. NW	*	-8	14	1.8
3. SW	*	-8	-14	1.8
4. NE	*	8	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	8	-150	1.8
10. NW mdblk	*	-8	150	1.8
11. SW mdblk	*	-8	-150	1.8
12. NE mdblk	*	8	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	8	-600	1.8
18. NW blk	*	-8	600	1.8
19. SW blk	*	-8	-600	1.8
20. NE blk	*	8	600	1.8

DO

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	*	1.4	*	.0	.0	.0	.0	.0	.0	.8	.0
2. NW	*	98.	*	1.4	*	.0	.0	.0	.0	.0	.0	.0	.2
3. SW	*	82.	*	1.4	*	.0	.0	.0	.0	.0	.0	.0	.6
4. NE	*	98.	*	1.4	*	.0	.0	.0	.0	.0	.0	.0	.2
5. ES mdblk	*	278.	*	1.3	*	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	*	97.	*	1.3	*	.0	.0	.0	.0	.0	.0	.2	.1
7. WS mdblk	*	83.	*	1.5	*	.0	.0	.0	.0	.0	.0	.9	.0
8. EN mdblk	*	262.	*	1.6	*	.0	.0	.0	.0	.0	.0	.1	.2

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Emery St NBA	*	4	-150	4	0	* AG	355	10.8	.0	10.0
B. Emery St NBD	*	4	0	4	150	* AG	207	6.1	.0	10.0
C. Emery St NBL	*	2	-150	0	0	* AG	182	10.5	.0	10.0
D. Emery St SBA	*	-2	150	-2	0	* AG	149	9.6	.0	10.0
E. Emery St SBD	*	-2	0	-2	-150	* AG	355	6.8	.0	10.0
F. Emery St SBL	*	-2	150	0	0	* AG	27	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	851	8.1	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1012	5.6	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	30	10.5	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	769	7.9	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	913	5.5	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	124	10.5	.0	10.0
M. Emery S NBAX	*	4	-750	4	-150	* AG	537	5.1	.0	10.0
N. Emery S NBDX	*	4	150	4	750	* AG	207	5.1	.0	10.0
O. Emery S SBAX	*	-2	750	-2	150	* AG	176	5.1	.0	10.0
P. Emery S SBDX	*	-2	-150	-2	-750	* AG	355	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	881	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1012	5.1	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	893	5.1	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	913	5.1	.0	10.0

DO

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	10	-14	1.8
2. NW	-8	14	1.8
3. SW	-8	-14	1.8
4. NE	10	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	10	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	10	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	10	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	10	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.9	.2	.0	.1	.0	.1	.0	.9	.0
2. NW	172.	1.6	.3	.0	.2	.0	.3	.0	.2	.0
3. SW	82.	1.8	.2	.0	.1	.0	.2	.0	.0	.7
4. NE	187.	1.7	.5	.0	.2	.0	.2	.0	.0	.2
5. ES mdblk	277.	1.5	.0	.0	.0	.0	.0	.0	.1	.8
6. WN mdblk	98.	1.4	.0	.0	.0	.0	.0	.0	.2	.1
7. WS mdblk	83.	1.7	.0	.0	.0	.0	.0	.0	.9	.0
8. EN mdblk	262.	1.7	.0	.0	.0	.0	.0	.0	.2	.2

9. SE mdblk	352.	1.3	.6	.0	.2	.0	.2	.0	.0	.0
10. NW mdblk	175.	.9	.1	.0	.0	.2	.0	.0	.0	.0
11. SW mdblk	9.	1.2	.3	.0	.2	.0	.4	.0	.0	.0
12. NE mdblk	185.	.8	.0	.2	.0	.1	.0	.0	.0	.0
13. ES blk	276.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.8	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	175.	.5	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.8	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.5	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.2	.0	.1	.0	.0	.0	.0	.0	.1	.2	.0
4. NE	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.9	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	.3	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.7
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.7	.0	.0	.3
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.7	.0
17. SE blk	.0	.0	.0	.0	.5	.0	.0	.2	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.3	.0	.0	.3	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.2	.1	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S ZO= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	11	-150	11	0	AG	967	8.9	.0	10.0
B. San Pabl NBD	11	0	11	150	AG	1303	6.4	.0	10.0
C. San Pabl NBL	9	-150	0	0	AG	408	11.4	.0	10.0
D. San Pabl SBA	-7	150	-7	0	AG	1070	9.5	.0	10.0
E. San Pabl SBD	-7	0	-7	-150	AG	1301	6.4	.0	10.0
F. San Pabl SBL	-5	150	0	0	AG	222	11.4	.0	10.0
G. 40th Str EBA	-150	-7	0	-7	AG	810	8.9	.0	10.0
H. 40th Str EBD	0	-7	150	-7	AG	760	5.6	.0	10.0
I. 40th Str EBL	-150	-5	0	0	AG	205	11.4	.0	10.0
J. 40th Str WBA	150	7	0	7	AG	534	8.4	.0	10.0
K. 40th Str WBD	0	7	-150	7	AG	898	5.7	.0	10.0
L. 40th Str WBL	150	5	0	0	AG	46	10.5	.0	10.0
M. San Pab NBAX	11	-750	11	-150	AG	1375	5.1	.0	10.0
N. San Pab NBDX	11	150	11	750	AG	1303	5.1	.0	10.0
O. San Pab SBAX	-7	750	-7	150	AG	1292	5.1	.0	10.0
P. San Pab SBDX	-7	-150	-7	-750	AG	1301	5.1	.0	10.0
Q. 40th St EBAX	-750	-7	-150	-7	AG	1015	5.1	.0	10.0
R. 40th St EBDX	150	-7	750	-7	AG	760	5.1	.0	10.0
S. 40th St WBAX	750	7	150	7	AG	580	5.1	.0	10.0
T. 40th St WBDX	-150	7	-750	7	AG	898	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-14	1.8
2. NW	-14	14	1.8
3. SW	-14	-14	1.8
4. NE	17	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	17	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	17	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	17	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	2.6	.6	.0	.2	.0	.3	.0	.8	.1
2. NW	169.	2.8	.3	.0	.4	.3	.9	.0	.3	.0
3. SW	8.	2.9	.0	.2	.0	1.1	.2	.2	.5	.0
4. NE	188.	2.5	1.0	.2	.3	.0	.2	.0	.0	.2
5. ES mdblk	276.	1.5	.0	.0	.0	.0	.0	.0	.1	.6
6. WN mdblk	99.	1.7	.0	.0	.0	.0	.0	.0	.3	.0
7. WS mdblk	82.	2.0	.0	.0	.0	.0	.0	.0	1.0	.0
8. EN mdblk	263.	1.6	.0	.0	.0	.0	.0	.0	.2	.1

9. SE mdblk	* 351. *	2.6 *	1.2	.0	.5	.2	.2	.0	.0	.0
10. NW mdblk	* 172. *	2.6 *	.2	.2	.1	1.4	.2	.0	.3	.0	.0
11. SW mdblk	* 8. *	2.2 *	.2	.2	.2	.1	1.1	.0	.0	.0	.0
12. NE mdblk	* 188. *	2.2 *	.1	1.1	.1	.2	.2	.1	.0	.0	.0
13. ES blk	* 276. *	1.2 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* 92. *	1.4 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	* 84. *	1.4 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	* 264. *	1.1 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	* 353. *	1.7 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* 173. *	1.6 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	* 7. *	1.7 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* 187. *	1.7 *	.0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.2	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	.1	.0	.3	.0	.1	.0	.0	.0	.0	.0	.0	.0
3. SW	.1	.0	.2	.0	.0	.2	.1	.0	.0	.0	.0	.0
4. NE	.0	.3	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.1	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.3	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0	.7
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.3
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.8	.0	.0	.3
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.5	.0
17. SE blk	.0	.0	.0	.0	1.0	.0	.0	.3	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.3	1.0	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.4	.0	.0	1.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	1.0	.3	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S ZO= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	* 4	-150	4	0	* AG	816	8.1	.0	10.0
B. San Pabl NBD	* 4	0	4	150	* AG	1365	5.7	.0	10.0
C. San Pabl NBL	* 2	-150	0	0	* AG	19	10.5	.0	10.0
D. San Pabl SBA	* -5	150	-5	0	* AG	1218	8.1	.0	13.5
E. San Pabl SBD	* -5	0	-5	-150	* AG	1262	5.5	.0	11.8
F. San Pabl SBL	* -2	150	0	0	* AG	0	5.1	.0	10.0
G. 36th Str EBA	* -150	0	0	0	* AG	0	5.1	.0	10.0
H. 36th Str EBD	* 0	0	150	0	* AG	0	5.1	.0	10.0
I. 36th Str EBL	* -150	-2	0	0	* AG	0	5.1	.0	10.0
J. 36th Str WBA	* 150	5	0	5	* AG	786	10.8	.0	11.8
K. 36th Str WBD	* 0	5	-150	5	* AG	276	5.9	.0	10.0
L. 36th Str WBL	* 150	2	0	0	* AG	64	10.5	.0	10.0
M. San Pab NBAX	* 4	-750	4	-150	* AG	835	5.1	.0	10.0
N. San Pab NBDX	* 4	150	4	750	* AG	1365	5.1	.0	10.0
O. San Pab SBAX	* -5	750	-5	150	* AG	1218	5.1	.0	13.5
P. San Pab SBDX	* -5	-150	-5	-750	* AG	1262	5.1	.0	11.8
Q. 36th St EBAX	* -750	0	-150	0	* AG	0	5.1	.0	10.0
R. 36th St EBDX	* 150	0	750	0	* AG	0	5.1	.0	10.0
S. 36th St WBAX	* 750	5	150	5	* AG	850	5.1	.0	11.8
T. 36th St WBDX	* -150	5	-750	5	* AG	276	5.1	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	10	-7	1.8
2. NW	-14	12	1.8
3. SW	-13	-7	1.8
4. NE	10	13	1.8
5. ES mdblk	150	-7	1.8
6. WN mdblk	-150	12	1.8
7. WS mdblk	-150	-7	1.8
8. EN mdblk	150	13	1.8
9. SE mdblk	10	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-13	-150	1.8
12. NE mdblk	10	150	1.8
13. ES blk	600	-7	1.8
14. WN blk	-600	12	1.8
15. WS blk	-600	-7	1.8
16. EN blk	600	13	1.8
17. SE blk	10	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-13	-600	1.8
20. NE blk	10	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	352.	2.3	.0	1.0	.0	.6	.0	.0	.0	.0
2. NW	96.	2.1	.0	.3	.0	1.2	.0	.0	.0	.0
3. SW	7.	2.1	.0	.3	.0	1.2	.0	.0	.0	.0
4. NE	188.	2.2	.8	.2	.0	.0	.4	.0	.0	.0
5. ES mdblk	281.	1.1	.0	.0	.0	.1	.0	.0	.0	.0
6. WN mdblk	93.	.8	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	85.	.7	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	261.	1.5	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	* 354. *	1.8 *	.9	.1	.0	.2	.3	.0	.0	.0
10. NW mdblk	* 172. *	2.0 *	.1	.3	.0	1.2	.0	.0	.0	.0
11. SW mdblk	* 7. *	1.8 *	.3	.2	.0	.2	.9	.0	.0	.0
12. NE mdblk	* 187. *	2.0 *	.1	1.0	.0	.5	.1	.0	.0	.0
13. ES blk	* 276. *	.6 *	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* 93. *	.5 *	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	* 84. *	.4 *	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	* 264. *	.9 *	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	* 354. *	1.4 *	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* 173. *	1.6 *	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	* 6. *	1.5 *	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* 186. *	1.7 *	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: ExistingPlus (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.4	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
2. NW	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
3. SW	.0	.0	.0	.0	.0	.2	.2	.0	.0	.0	.0	.0
4. NE	.0	.5	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	.0	.7	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.0
17. SE blk	.0	.0	.0	.0	.7	.0	.0	.5	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.5	.9	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.3	.0	.0	.9	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	1.0	.5	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. 7th St. NBA	*	7	-150	7	0	* AG	570	6.8	.0	10.0
B. 7th St. NBD	*	7	0	7	150	* AG	795	4.7	.0	10.0
C. 7th St. NBL	*	5	-150	0	0	* AG	183	7.2	.0	10.0
D. 7th St. SBA	*	-7	150	-7	0	* AG	789	7.8	.0	10.0
E. 7th St. SBD	*	-7	0	-7	-150	* AG	648	7.4	.0	10.0
F. 7th St. SBL	*	-5	150	0	0	* AG	139	7.2	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	964	5.6	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	1028	3.9	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	290	7.7	.0	10.0
J. Ashby Av WBA	*	150	7	0	7	* AG	926	5.6	.0	10.0
K. Ashby Av WBD	*	0	7	-150	7	* AG	1529	4.2	.0	10.0
L. Ashby Av WBL	*	150	5	0	0	* AG	139	7.2	.0	10.0
M. 7th St. NBAX	*	7	-750	7	-150	* AG	753	3.6	.0	10.0
N. 7th St. NBDX	*	7	150	7	750	* AG	795	3.6	.0	10.0
O. 7th St. SBAX	*	-7	750	-7	150	* AG	928	3.6	.0	10.0
P. 7th St. SBDX	*	-7	-150	-7	-750	* AG	648	3.6	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1254	3.6	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	1028	3.6	.0	10.0
S. Ashby A WBAX	*	750	7	150	7	* AG	1065	3.6	.0	10.0
T. Ashby A WBDX	*	-150	7	-750	7	* AG	1529	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-14	1.8
2. NW	*	-14	14	1.8
3. SW	*	-14	-14	1.8
4. NE	*	14	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	*	1.8	*	.2	.0	.0	.0	.2	.0	.6	.1
2. NW	*	170.	*	1.8	*	.2	.0	.1	.2	.5	.0	.2	.0
3. SW	*	8.	*	1.9	*	.0	.1	.0	.7	.1	.0	.3	.0
4. NE	*	261.	*	1.9	*	.0	.2	.0	.2	.0	.0	.2	.0
5. ES mdblk	*	277.	*	1.3	*	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	*	98.	*	1.6	*	.0	.0	.0	.0	.0	.0	.2	.0
7. WS mdblk	*	82.	*	1.6	*	.0	.0	.0	.0	.0	.0	.7	.0
8. EN mdblk	*	263.	*	1.5	*	.0	.0	.0	.0	.0	.0	.1	.1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

9. SE mdblk	*	352.	*	1.4	*	.6	.0	.2	.1	.2	.0	.0	.0
10. NW mdblk	*	172.	*	1.6	*	.0	.1	.0	.9	.0	.1	.0	.0
11. SW mdblk	*	7.	*	1.4	*	.1	.0	.0	.0	.7	.0	.0	.0
12. NE mdblk	*	188.	*	1.3	*	.0	.5	.0	.2	.1	.0	.0	.0
13. ES blk	*	276.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	1.3	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	83.	*	1.2	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	186.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.2	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	*	.1	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.1	.0	.2	.0	.0	.1	.0	.0	.0	.0	.0	.0
4. NE	*	.2	.1	.7	.0	.0	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	*	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.1	.0	.8	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.3	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.7	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.8
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.7	.0	.0	.3
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.6	.0
17. SE blk	*	.0	.0	.0	.0	.4	.0	.0	.1	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.5	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.2	.0	.0	.4	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.5	.2	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1145	6.5	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1405	5.1	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	270	7.7	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1167	6.5	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1272	4.5	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	186	7.2	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	895	6.1	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	907	4.0	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	198	7.2	.0	10.0
J. Ashby Av WBA	*	150	2	0	2	* AG	813	6.1	.0	10.0
K. Ashby Av WBD	*	0	2	-150	2	* AG	1137	4.1	.0	10.0
L. Ashby Av WBL	*	150	2	0	0	* AG	47	7.2	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1415	3.6	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1405	3.6	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1353	3.6	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1272	3.6	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1093	3.6	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	907	3.6	.0	10.0
S. Ashby A WBAX	*	750	2	150	2	* AG	860	3.6	.0	10.0
T. Ashby A WBDX	*	-150	2	-750	2	* AG	1137	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-14	1.8
2. NW	-14	8	1.8
3. SW	-14	-14	1.8
4. NE	14	8	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	8	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	8	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	8	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	8	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

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JOB: CEM531
RUN: 2010-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	350.	2.0	.2	.7	.0	.3	.0	.1	.0	.2
2. NW	170.	2.0	.3	.0	.2	.0	.7	.0	.2	.0
3. SW	8.	2.2	.0	.2	.0	.8	.1	.1	.3	.0
4. NE	262.	2.1	.0	.5	.0	.3	.0	.0	.3	.0
5. ES mdblk	277.	1.3	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	98.	1.5	.0	.0	.0	.0	.0	.0	.3	.0
7. WS mdblk	82.	1.6	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	263.	1.5	.0	.0	.0	.0	.0	.0	.1	.2

9. SE mdblk	352.	2.0	1.0	.0	.2	.2	.2	.0	.0	.0
10. NW mdblk	172.	1.9	.2	.2	.0	1.0	.0	.2	.0	.0
11. SW mdblk	8.	1.7	.2	.1	.1	.0	.8	.0	.0	.0
12. NE mdblk	188.	1.8	.0	.9	.0	.2	.1	.0	.0	.0
13. ES blk	276.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.3	.0	.0	.0	.0	.0	.0	.0	.0

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JOB: CEM531
RUN: 2010-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.2	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
2. NW	.0	.0	.3	.0	.1	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.2	.0	.0	.2	.0	.0	.0	.0	.0	.0
4. NE	.2	.1	.5	.0	.0	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.1	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.2	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.2	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.6
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.3
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.5	.0
17. SE blk	.0	.0	.0	.0	.7	.0	.0	.3	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.3	.7	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.3	.0	.0	.7	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.7	.3	.0	.0	.0	.0	.0

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JOB: CEM531
RUN: 2010-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S ZO= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Christie NBA	9	-150	9	0	AG	493	5.3	.0	13.5
B. Christie NBD	9	0	9	150	AG	432	3.8	.0	10.0
C. Christie NBL	5	-150	0	0	AG	137	7.2	.0	10.0
D. Christie SBA	-2	150	-2	0	AG	415	5.3	.0	10.0
E. Christie SBD	-2	0	-2	-150	AG	967	3.9	.0	10.0
F. Christie SBL	-2	150	0	0	AG	22	7.2	.0	10.0
G. Shellmou EBA	-150	-4	0	-4	AG	100	6.5	.0	10.0
H. Shellmou EBD	0	-4	150	-4	AG	153	4.2	.0	10.0
I. Shellmou EBL	-150	-2	0	0	AG	12	7.2	.0	10.0
J. Shellmou WBA	150	5	0	5	AG	116	6.5	.0	10.0
K. Shellmou WBD	0	5	-150	5	AG	260	4.3	.0	10.0
L. Shellmou WBL	150	5	0	0	AG	517	7.7	.0	10.0
M. Christi NBAX	9	-750	9	-150	AG	630	3.6	.0	13.5
N. Christi NBDX	9	150	9	750	AG	432	3.6	.0	10.0
O. Christi SBAX	-2	750	-2	150	AG	437	3.6	.0	10.0
P. Christi SBDX	-2	-150	-2	-750	AG	967	3.6	.0	10.0
Q. Shellmo EBAX	-750	-4	-150	-4	AG	112	3.6	.0	10.0
R. Shellmo EBDX	150	-4	750	-4	AG	153	3.6	.0	10.0
S. Shellmo WBAX	750	5	150	5	AG	633	3.6	.0	10.0
T. Shellmo WBDX	-150	5	-750	5	AG	260	3.6	.0	10.0

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JOB: CEM531
RUN: 2010-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-10	1.8
2. NW	-8	12	1.8
3. SW	-8	-10	1.8
4. NE	15	12	1.8
5. ES mdblk	150	-10	1.8
6. WN mdblk	-150	12	1.8
7. WS mdblk	-150	-10	1.8
8. EN mdblk	150	12	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	15	150	1.8
13. ES blk	600	-10	1.8
14. WN blk	-600	12	1.8
15. WS blk	-600	-10	1.8
16. EN blk	600	12	1.8
17. SE blk	17	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	15	600	1.8

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JOB: CEM531
RUN: 2010-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	188.	.8	.3	.0	.0	.0	.1	.0	.0	.0
2. NW	173.	1.0	.1	.0	.1	.0	.4	.0	.0	.0
3. SW	80.	1.0	.1	.0	.0	.0	.2	.0	.0	.0
4. NE	187.	1.1	.3	.0	.0	.0	.2	.0	.0	.0
5. ES mdblk	279.	.6	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	95.	.5	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	86.	.5	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	260.	.9	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	351.	.8	.4	.0	.0	.0	.2	.0	.0	.0
10. NW mdblk	174.	.8	.0	.0	.0	.3	.0	.0	.0	.0
11. SW mdblk	9.	1.0	.2	.0	.0	.0	.5	.0	.0	.0
12. NE mdblk	185.	.7	.0	.2	.0	.0	.0	.0	.0	.0
13. ES blk	276.	.4	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	95.	.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	85.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.5	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.7	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.5	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	.8	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.5	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.2	.0	.0	.0	.1	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.1	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0
17. SE blk	.0	.0	.0	.0	.3	.0	.0	.2	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.1	.3	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.5	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.3	.1	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Shellmou NBA	9	-150	9	0	AG	662	6.1	.0	10.0
B. Shellmou NBD	9	0	9	150	AG	771	4.2	.0	10.0
C. Shellmou NBL	9	-150	0	0	AG	447	7.7	.0	10.0
D. Shellmou SBA	-4	150	-4	0	AG	382	5.4	.0	10.0
E. Shellmou SBD	-4	0	-4	-150	AG	232	3.8	.0	10.0
F. Shellmou SBL	-2	150	0	0	AG	0	3.6	.0	10.0
G. Shellmou EBA	-150	-5	0	-5	AG	37	6.5	.0	10.0
H. Shellmou EBD	0	-5	150	-5	AG	0	3.6	.0	10.0
I. Shellmou EBL	-150	-5	0	0	AG	109	7.2	.0	10.0
J. Shellmou WBA	150	0	0	0	AG	0	3.6	.0	10.0
K. Shellmou WBD	0	0	-150	0	AG	634	7.4	.0	10.0
L. Shellmou WBL	150	2	0	0	AG	0	3.6	.0	10.0
M. Shellmo NBAX	9	-750	9	-150	AG	1109	3.6	.0	10.0
N. Shellmo NBDX	9	150	9	750	AG	771	3.6	.0	10.0
O. Shellmo SBAX	-4	750	-4	150	AG	382	3.6	.0	10.0
P. Shellmo SBDX	-4	-150	-4	-750	AG	232	3.6	.0	10.0
Q. Shellmo EBAX	-750	-5	-150	-5	AG	146	3.6	.0	10.0
R. Shellmo EBDX	150	-5	750	-5	AG	0	3.6	.0	10.0
S. Shellmo WBAX	750	0	150	0	AG	0	3.6	.0	10.0
T. Shellmo WBDX	-150	0	-750	0	AG	634	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	15	-12	1.8
2. NW	-10	7	1.8
3. SW	-10	-12	1.8
4. NE	15	7	1.8
5. ES mdblk	150	-12	1.8
6. WN mdblk	-150	7	1.8
7. WS mdblk	-150	-12	1.8
8. EN mdblk	150	7	1.8
9. SE mdblk	15	-150	1.8
10. NW mdblk	-10	150	1.8
11. SW mdblk	-10	-150	1.8
12. NE mdblk	15	150	1.8
13. ES blk	600	-12	1.8
14. WN blk	-600	7	1.8
15. WS blk	-600	-12	1.8
16. EN blk	600	7	1.8
17. SE blk	15	-600	1.8
18. NW blk	-10	600	1.8
19. SW blk	-10	-600	1.8
20. NE blk	15	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.0	.3	.0	.2	.0	.0	.0	.0	.0
2. NW	168.	1.2	.2	.0	.4	.0	.1	.0	.0	.0
3. SW	7.	.8	.0	.1	.0	.3	.0	.0	.0	.0
4. NE	264.	1.1	.0	.2	.0	.0	.0	.0	.0	.0
5. ES mdblk	272.	.4	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	100.	.9	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	78.	.7	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	268.	.3	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	350.	1.3	.6	.0	.5	.0	.0	.0	.0	.0
10. NW mdblk	174.	.7	.1	.1	.0	.3	.0	.0	.0	.0
11. SW mdblk	8.	.7	.2	.0	.2	.0	.1	.0	.0	.0
12. NE mdblk	186.	.8	.0	.4	.0	.0	.0	.0	.0	.0
13. ES blk	269.	.1	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.5	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	268.	.1	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.8	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.5	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.5	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.7	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.2	.0	.0	.1	.0	.0	.0	.0	.0	.0
4. NE	.1	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.1	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	.0	.0	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.2	.2	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.2	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.4	.1	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S
BRG= WORST CASE
CLAS= 7 (G)
MIXH= 1000. M
SIGTH= 10. DEGREES
Z0= 100. CM
VD= .0 CM/S
VS= .0 CM/S
AMB= .0 PPM
TEMP= 10.0 DEGREE (C)
ALT= 6. (M)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. I-80 Eas NBA	*	7	-150	7	0	* AG	1281	7.8	.0	10.0
B. I-80 Eas NBD	*	7	0	7	150	* AG	774	7.7	.0	10.0
C. I-80 Eas NBL	*	5	-150	0	0	* AG	571	7.7	.0	10.0
D. I-80 Eas SBA	*	0	150	0	-150	* AG	0	3.6	.0	10.0
E. I-80 Eas SBD	*	0	0	0	0	* AG	0	3.6	.0	10.0
F. I-80 Eas SBL	*	-2	150	0	-9	* AG	0	3.6	.0	10.0
G. Powell S EBA	*	-150	-9	0	-9	* AG	1164	5.4	.0	13.5
H. Powell S EBD	*	0	-9	150	-9	* AG	2219	4.2	.0	13.5
I. Powell S EBL	*	-150	-5	0	0	* AG	142	7.2	.0	10.0
J. Powell S WBA	*	150	7	0	7	* AG	2025	6.1	.0	17.0
K. Powell S WBD	*	0	7	-150	7	* AG	2190	4.2	.0	13.5
L. Powell S WBL	*	150	2	0	0	* AG	0	3.6	.0	10.0
M. I-80 Ea NBAX	*	7	-750	7	-150	* AG	1852	3.6	.0	10.0
N. I-80 Ea NBDX	*	7	150	7	750	* AG	774	3.6	.0	10.0
O. I-80 Ea SBAX	*	0	750	0	150	* AG	0	3.6	.0	10.0
P. I-80 Ea SBDX	*	0	-150	0	-750	* AG	0	3.6	.0	10.0
Q. Powell EBAX	*	-750	-9	-150	-9	* AG	1306	3.6	.0	13.5
R. Powell EBDX	*	150	-9	750	-9	* AG	2219	3.6	.0	13.5
S. Powell WBAX	*	750	7	150	7	* AG	2025	3.6	.0	17.0
T. Powell WBDX	*	-150	7	-750	7	* AG	2190	3.6	.0	13.5

DD

JOB: CEM531
RUN: 2010-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-17	1.8
2. NW	*	-7	15	1.8
3. SW	*	-7	-17	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-17	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-17	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-7	150	1.8
11. SW mdblk	*	-7	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-17	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-17	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-7	600	1.8
19. SW blk	*	-7	-600	1.8
20. NE blk	*	14	600	1.8

DD

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	279.	* 2.3	*	.6	.0	.2	.0	.0	.0	.7	.2
2. NW	*	97.	* 2.3	*	.0	.3	.0	.0	.0	.0	.0	.2
3. SW	*	81.	* 2.5	*	.4	.0	.3	.0	.0	.0	.0	1.0
4. NE	*	188.	* 2.6	*	1.0	.2	.3	.0	.0	.0	.0	.3
5. ES mdblk	*	278.	* 2.0	*	.0	.0	.0	.0	.0	.0	.0	1.1
6. WN mdblk	*	98.	* 1.9	*	.0	.0	.0	.0	.0	.0	.2	.2
7. WS mdblk	*	83.	* 1.8	*	.0	.0	.0	.0	.0	.0	.8	.1
8. EN mdblk	*	261.	* 2.1	*	.0	.0	.0	.0	.0	.0	.1	.2

RECEPTOR	*	BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
9. SE mdblk	*	351.	* 2.1	*	1.4	.0	.5	.0	.0	.0	.0	.0
10. NW mdblk	*	174.	* 1.0	*	.2	.3	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	11.	* 1.4	*	.7	.0	.4	.0	.0	.0	.0	.1
12. NE mdblk	*	185.	* 1.4	*	.2	.8	.1	.0	.0	.0	.0	.0
13. ES blk	*	277.	* 1.7	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	* 1.6	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	83.	* 1.3	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	263.	* 1.5	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	* 1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	* .5	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	7.	* .7	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	185.	* .7	*	.0	.0	.0	.0	.0	.0	.0	.0

DD

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	*	.0	1.4	.0	.0	.0	.0	.0	.0	.0	.3	.2	.0
3. SW	*	.0	.4	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0
4. NE	*	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.3	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	*	.0	.2	1.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	*	.0	.3	.2	.0	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	*	.0	1.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.4	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	1.0
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.7	.0	.0	.4
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.9	.0
17. SE blk	*	.0	.0	.0	.0	.9	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0

DD

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S
BRG= WORST CASE
CLAS= 7 (G)
MIXH= 1000. M
SIGTH= 10. DEGREES
Z0= 100. CM
VD= .0 CM/S
VS= .0 CM/S
AMB= .0 PPM
TEMP= 10.0 DEGREE (C)
ALT= 6. (M)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Christie NBA	*	7	-150	7	0	* AG	82	6.5	.0	10.0
B. Christie NBD	*	7	0	7	150	* AG	657	7.4	.0	10.0
C. Christie NBL	*	5	-150	0	0	* AG	132	7.2	.0	10.0
D. Christie SBA	*	-5	150	-5	0	* AG	774	7.8	.0	11.8
E. Christie SBD	*	-5	0	-5	-150	* AG	1267	7.8	.0	10.0
F. Christie SBL	*	-2	150	0	0	* AG	207	7.7	.0	10.0
G. Powell S EBA	*	-150	-12	0	-12	* AG	1800	7.2	.0	13.5
H. Powell S EBD	*	0	-12	150	-12	* AG	1294	4.0	.0	10.0
I. Powell S EBL	*	-150	-9	0	0	* AG	419	7.7	.0	10.0
J. Powell S WBA	*	150	9	0	9	* AG	1396	6.1	.0	13.5
K. Powell S WBD	*	0	9	-150	9	* AG	1917	5.3	.0	10.0
L. Powell S WBL	*	150	5	0	0	* AG	325	7.8	.0	10.0
M. Christi NBAX	*	7	-750	7	-150	* AG	214	3.6	.0	10.0
N. Christi NBDX	*	7	150	7	750	* AG	657	3.6	.0	10.0
O. Christi SBAX	*	-5	750	-5	150	* AG	981	3.6	.0	11.8
P. Christi SBDX	*	-5	-150	-5	-750	* AG	1267	3.6	.0	10.0
Q. Powell EBAX	*	-750	-12	-150	-12	* AG	2219	3.6	.0	13.5
R. Powell EBDX	*	150	-12	750	-12	* AG	1294	3.6	.0	10.0
S. Powell WBAX	*	750	9	150	9	* AG	1721	3.6	.0	13.5
T. Powell WBDX	*	-150	9	-750	9	* AG	1917	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-19	1.8
2. NW	-13	15	1.8
3. SW	-12	-21	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-19	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-21	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-13	150	1.8
11. SW mdblk	-12	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-19	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-21	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-13	600	1.8
19. SW blk	-12	-600	1.8
20. NE blk	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	277.	2.6	.0	.0	.0	.0	.4	.0	1.4	.1
2. NW	172.	2.6	.0	.0	.0	.2	1.0	.0	.4	.0
3. SW	11.	2.8	.0	.3	.0	.5	.5	.2	.8	.0
4. NE	257.	2.6	.0	.3	.0	.2	.0	.0	.4	.0
5. ES mdblk	277.	1.7	.0	.0	.0	.0	.0	.0	.2	.7
6. WN mdblk	100.	2.2	.0	.0	.0	.0	.1	.0	.3	.1
7. WS mdblk	80.	2.6	.0	.0	.0	.0	.0	.0	1.6	.0
8. EN mdblk	262.	2.1	.0	.0	.0	.0	.0	.0	.3	.0

9. SE mdblk	351.	1.2	.0	.0	.1	.1	.4	.0	.1	.0
10. NW mdblk	173.	1.7	.0	.2	.0	.8	.1	.1	.0	.0
11. SW mdblk	7.	2.0	.0	.1	.0	.0	1.3	.0	.0	.0
12. NE mdblk	189.	1.7	.0	.7	.0	.3	.2	.1	.1	.0
13. ES blk	277.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.7	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	5.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.9	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.2	.0	.1	.0	.0	.0	.0	.0	.2	.0	.0	.2
2. NW	.1	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.1	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.2	.3	.9	.0	.0	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	.0	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	.2	.0	1.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.2	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	1.0	.1	.2	.0	.0	.0	.0	.1	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.3	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.9
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.3
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.8	.0
17. SE blk	.0	.0	.0	.0	.1	.0	.0	.3	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.2	.5	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.7	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.4	.2	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	5	-150	5	0	AG	537	7.8	.0	10.0
B. Hollis S NBD	5	0	5	150	AG	756	7.7	.0	10.0
C. Hollis S NBL	5	-150	0	0	AG	484	7.8	.0	10.0
D. Hollis S SBA	-7	150	-7	0	AG	395	7.3	.0	10.0
E. Hollis S SBD	-7	0	-7	-150	AG	481	6.1	.0	10.0
F. Hollis S SBL	-5	150	0	0	AG	68	7.2	.0	10.0
G. Powell S EBA	-150	-7	0	-7	AG	997	5.6	.0	10.0
H. Powell S EBD	0	-7	150	-7	AG	874	3.9	.0	10.0
I. Powell S EBL	-150	-5	0	0	AG	190	7.2	.0	10.0
J. Powell S WBA	150	7	0	7	AG	749	5.4	.0	10.0
K. Powell S WBD	0	7	-150	7	AG	1329	4.0	.0	10.0
L. Powell S WBL	150	5	0	0	AG	20	7.2	.0	10.0
M. Hollis NBAX	5	-750	5	-150	AG	1021	3.6	.0	10.0
N. Hollis NBDX	5	150	5	750	AG	756	3.6	.0	10.0
O. Hollis SBAX	-7	750	-7	150	AG	463	3.6	.0	10.0
P. Hollis SBDX	-7	-150	-7	-750	AG	481	3.6	.0	10.0
Q. Powell EBAX	-750	-7	-150	-7	AG	1187	3.6	.0	10.0
R. Powell EBDX	150	-7	750	-7	AG	874	3.6	.0	10.0
S. Powell WBAX	750	7	150	7	AG	769	3.6	.0	10.0
T. Powell WBDX	-150	7	-750	7	AG	1329	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	12	-14	1.8
2. NW	-14	14	1.8
3. SW	-14	-14	1.8
4. NE	12	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	12	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	12	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	12	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	12	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.8	.3	.0	.2	.0	.1	.0	.7	.0
2. NW	169.	1.7	.2	.0	.3	.0	.3	.0	.2	.0
3. SW	10.	1.5	.0	.3	.0	.3	.0	.0	.4	.0
4. NE	262.	1.7	.0	.4	.0	.1	.0	.0	.2	.0
5. ES mdblk	276.	1.1	.0	.0	.0	.0	.0	.0	.0	.4
6. WN mdblk	99.	1.4	.0	.0	.0	.0	.0	.0	.2	.0
7. WS mdblk	82.	1.5	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	263.	1.2	.0	.0	.0	.0	.0	.0	.1	.1

9. SE mdblk	*	351.	*	1.6	*	.6	.0	.5	.0	.1	.0	.0	.0
10. NW mdblk	*	173.	*	1.2	*	.1	.2	.0	.4	.0	.0	.0	.0
11. SW mdblk	*	8.	*	1.2	*	.2	.1	.2	.0	.4	.0	.0	.0
12. NE mdblk	*	187.	*	1.4	*	.0	.8	.0	.1	.0	.0	.0	.0
13. ES blk	*	276.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	1.2	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	83.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	*	.7	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.7	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	186.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.1	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
2. NW	*	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.1	.0	.6	.0	.0	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	*	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.2	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.2	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.7
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.3
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.4	.0
17. SE blk	*	.0	.0	.0	.0	.6	.0	.0	.1	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.3	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.3	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.4	.1	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1338	7.1	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1427	5.1	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	179	7.2	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1194	6.5	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1350	4.5	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	112	7.2	.0	10.0
G. Stanford EBA	*	-150	-7	0	-7	* AG	835	6.1	.0	10.0
H. Stanford EBD	*	0	-7	150	-7	* AG	876	4.0	.0	10.0
I. Stanford EBL	*	-150	-5	0	0	* AG	151	7.2	.0	10.0
J. Stanford WBA	*	150	7	0	7	* AG	522	5.8	.0	10.0
K. Stanford WBD	*	0	7	-150	7	* AG	780	4.0	.0	10.0
L. Stanford WBL	*	150	5	0	0	* AG	102	7.2	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1517	3.6	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1427	3.6	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1306	3.6	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1350	3.6	.0	10.0
Q. Stanfor EBAX	*	-750	-7	-150	-7	* AG	986	3.6	.0	10.0
R. Stanfor EBDX	*	150	-7	750	-7	* AG	876	3.6	.0	10.0
S. Stanfor WBAX	*	750	7	150	7	* AG	624	3.6	.0	10.0
T. Stanfor WBDX	*	-150	7	-750	7	* AG	780	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-14	1.8
2. NW	*	-14	14	1.8
3. SW	*	-14	-14	1.8
4. NE	*	14	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	350.	*	2.0	*	.3	.8	.0	.3	.0	.0	.0	.2
2. NW	*	169.	*	2.0	*	.4	.0	.1	.3	.6	.0	.2	.0
3. SW	*	8.	*	2.1	*	.0	.3	.0	.9	.2	.0	.3	.0
4. NE	*	188.	*	2.1	*	1.0	.2	.1	.0	.2	.0	.0	.1
5. ES mdblk	*	277.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	*	98.	*	1.1	*	.0	.0	.0	.0	.0	.0	.2	.0
7. WS mdblk	*	82.	*	1.4	*	.0	.0	.0	.0	.0	.0	.7	.0
8. EN mdblk	*	263.	*	1.2	*	.0	.0	.0	.0	.0	.0	.1	.1

9. SE mdblk	*	352.	*	2.1	*	1.3	.0	.2	.2	.2	.0	.0	.0
10. NW mdblk	*	172.	*	1.9	*	.2	.2	.0	1.0	.0	.1	.0	.0
11. SW mdblk	*	8.	*	1.7	*	.3	.1	.0	.0	.8	.0	.0	.0
12. NE mdblk	*	188.	*	1.8	*	.1	1.0	.0	.3	.1	.0	.0	.0
13. ES blk	*	276.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	96.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	353.	*	1.3	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	173.	*	1.2	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	7.	*	1.2	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	187.	*	1.3	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.2	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.1	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.1
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.4
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.4
17. SE blk	*	.0	.0	.0	.0	.8	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.3	.7	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	.7	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.8	.3	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Horton S NBA	*	5	-150	5	0	* AG	256	6.8	.0	10.0
B. Horton S NBD	*	5	0	5	150	* AG	213	4.3	.0	10.0
C. Horton S NBL	*	5	-150	0	0	* AG	207	7.7	.0	10.0
D. Horton S SBA	*	-2	150	-2	0	* AG	201	6.8	.0	10.0
E. Horton S SBD	*	-2	0	-2	-150	* AG	452	6.1	.0	10.0
F. Horton S SBL	*	-2	150	0	0	* AG	96	7.2	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	847	5.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	877	3.9	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	26	7.2	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	725	5.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	896	3.9	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	80	7.2	.0	10.0
M. Horton NBAX	*	5	-750	5	-150	* AG	463	3.6	.0	10.0
N. Horton NBDX	*	5	150	5	750	* AG	213	3.6	.0	10.0
O. Horton SBAX	*	-2	750	-2	150	* AG	297	3.6	.0	10.0
P. Horton SBDX	*	-2	-150	-2	-750	* AG	452	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	873	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	877	3.6	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	805	3.6	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	896	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	12	-14	1.8
2. NW	*	-8	15	1.8
3. SW	*	-8	-14	1.8
4. NE	*	12	17	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	12	-150	1.8
10. NW mdblk	*	-8	150	1.8
11. SW mdblk	*	-8	-150	1.8
12. NE mdblk	*	12	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	12	-600	1.8
18. NW blk	*	-8	600	1.8
19. SW blk	*	-8	-600	1.8
20. NE blk	*	12	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	*	1.3	*	.1	.0	.0	.0	.1	.0	.6	.0
2. NW	*	172.	*	1.2	*	.1	.0	.2	.0	.3	.0	.2	.0
3. SW	*	81.	*	1.2	*	.0	.0	.0	.0	.2	.0	.0	.4
4. NE	*	187.	*	1.1	*	.2	.0	.1	.0	.2	.0	.0	.1
5. ES mdblk	*	277.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	*	98.	*	1.0	*	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	*	83.	*	1.1	*	.0	.0	.0	.0	.0	.0	.6	.0
8. EN mdblk	*	262.	*	1.0	*	.0	.0	.0	.0	.0	.0	.1	.0

9. SE mdblk	*	351.	*	.9	*	.3	.0	.3	.0	.2	.0	.0	.0
10. NW mdblk	*	175.	*	.7	*	.0	.0	.0	.2	.0	.1	.0	.0
11. SW mdblk	*	8.	*	.9	*	.1	.0	.1	.0	.4	.0	.0	.0
12. NE mdblk	*	185.	*	.6	*	.0	.1	.0	.0	.0	.0	.0	.0
13. ES blk	*	276.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	83.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	263.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	.6	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	175.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.6	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	185.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1
2. NW	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.5	.2	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.5
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.4	.0
17. SE blk	*	.0	.0	.0	.0	.3	.0	.0	.2	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.2	.0	.0	.3	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.1	.1	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	7	-150	7	0	* AG	456	7.7	.0	10.0
B. Hollis S NBD	*	7	0	7	150	* AG	564	7.2	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	207	7.7	.0	10.0
D. Hollis S SBA	*	-5	150	-5	0	* AG	476	7.7	.0	10.0
E. Hollis S SBD	*	-5	0	-5	-150	* AG	691	7.4	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	231	7.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	799	5.4	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1038	3.9	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	46	7.2	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	778	5.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	841	3.9	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	141	7.2	.0	10.0
M. Hollis NBAX	*	7	-750	7	-150	* AG	663	3.6	.0	10.0
N. Hollis NBDX	*	7	150	7	750	* AG	564	3.6	.0	10.0
O. Hollis SBAX	*	-5	750	-5	150	* AG	707	3.6	.0	10.0
P. Hollis SBDX	*	-5	-150	-5	-750	* AG	691	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	845	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1038	3.6	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	919	3.6	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	841	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-14	1.8
2. NW	-12	15	1.8
3. SW	-12	-14	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-12	150	1.8
11. SW mdblk	-12	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-12	600	1.8
19. SW blk	-12	-600	1.8
20. NE blk	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	351.	1.5	.1	.5	.0	.2	.0	.1	.0	.3
2. NW	171.	1.5	.2	.0	.1	.1	.6	.0	.1	.0
3. SW	81.	1.5	.1	.0	.0	.0	.3	.0	.1	.5
4. NE	189.	1.5	.4	.2	.1	.0	.3	.0	.0	.1
5. ES mdblk	278.	1.1	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	97.	1.0	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	83.	1.2	.0	.0	.0	.0	.0	.0	.6	.0
8. EN mdblk	262.	1.1	.0	.0	.0	.0	.0	.0	.1	.0

9. SE mdblk	352.	1.3	.5	.0	.2	.0	.2	.0	.0	.0
10. NW mdblk	172.	1.4	.5	.0	.2	.0	.5	.0	.3	.0	.0
11. SW mdblk	8.	1.4	.2	.0	.1	.0	.7	.0	.0	.0
12. NE mdblk	187.	1.3	.0	.6	.0	.1	.1	.0	.0	.0
13. ES blk	277.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.9	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.9	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.9	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.7	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.8	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.8	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.7	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
4. NE	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.5
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.5	.0
17. SE blk	.0	.0	.0	.0	.4	.0	.0	.2	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.1	.4	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.4	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.3	.2	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	2	-150	2	0	AG	110	6.5	.0	10.0
B. Harlan S NBD	2	0	2	150	AG	46	4.2	.0	10.0
C. Harlan S NBL	2	-150	0	0	AG	33	7.2	.0	10.0
D. Harlan S SBA	-2	150	-2	0	AG	17	6.5	.0	10.0
E. Harlan S SBD	-2	0	-2	-150	AG	148	4.2	.0	10.0
F. Harlan S SBL	-2	150	0	0	AG	0	3.6	.0	10.0
G. 40th Str EBA	-150	-7	0	-7	AG	1006	5.8	.0	10.0
H. 40th Str EBD	0	-7	150	-7	AG	1060	3.9	.0	10.0
I. 40th Str EBL	-150	-5	0	0	AG	22	7.2	.0	10.0
J. 40th Str WBA	150	7	0	7	AG	929	5.6	.0	10.0
K. 40th Str WBD	0	7	-150	7	AG	959	3.9	.0	10.0
L. 40th Str WBL	150	5	0	0	AG	96	7.2	.0	10.0
M. Harlan NBAX	2	-750	2	-150	AG	143	3.6	.0	10.0
N. Harlan NBDX	2	150	2	750	AG	46	3.6	.0	10.0
O. Harlan SBAX	-2	750	-2	150	AG	17	3.6	.0	10.0
P. Harlan SBDX	-2	-150	-2	-750	AG	148	3.6	.0	10.0
Q. 40th St EBAX	-750	-7	-150	-7	AG	1028	3.6	.0	10.0
R. 40th St EBDX	150	-7	750	-7	AG	1060	3.6	.0	10.0
S. 40th St WBAX	750	7	150	7	AG	1025	3.6	.0	10.0
T. 40th St WBDX	-150	7	-750	7	AG	959	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	8	-14	1.8
2. NW	-8	14	1.8
3. SW	-8	-14	1.8
4. NE	8	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	8	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	8	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	8	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	8	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.2	.0	.0	.0	.0	.0	.0	.7	.0
2. NW	98.	1.1	.0	.0	.0	.0	.0	.0	.0	.1
3. SW	82.	1.1	.0	.0	.0	.0	.0	.0	.0	.5
4. NE	98.	1.1	.0	.0	.0	.0	.0	.0	.0	.1
5. ES mdblk	278.	1.1	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	98.	1.0	.0	.0	.0	.0	.0	.0	.2	.0
7. WS mdblk	83.	1.3	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	262.	1.3	.0	.0	.0	.0	.0	.0	.1	.1

9. SE mdblk	*	352.	*	.4	*	.1	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	177.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	9.	*	.4	*	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	*	183.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	277.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	263.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	355.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	177.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	5.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	183.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1
2. NW	*	.0	.7	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
3. SW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
4. NE	*	.0	.7	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
5. ES mdblk	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.5
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.6	.0	.0
17. SE blk	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010-12 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Emery St NBA	*	4	-150	4	0	*	AG	416	7.7	.0	10.0
B. Emery St NBD	*	4	0	4	150	*	AG	217	4.3	.0	10.0
C. Emery St NBL	*	2	-150	0	0	*	AG	189	7.2	.0	10.0
D. Emery St SBA	*	-2	150	-2	0	*	AG	157	6.5	.0	10.0
E. Emery St SBD	*	-2	0	-2	-150	*	AG	455	6.1	.0	10.0
F. Emery St SBL	*	-2	150	0	0	*	AG	27	7.2	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	*	AG	1071	5.8	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	*	AG	1225	4.0	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	*	AG	30	7.2	.0	10.0
J. 40th Str WBA	*	150	7	0	7	*	AG	891	5.6	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	*	AG	1042	3.9	.0	10.0
L. 40th Str WBL	*	150	5	0	0	*	AG	158	7.2	.0	10.0
M. Emery S NBAX	*	4	-750	4	-150	*	AG	605	3.6	.0	10.0
N. Emery S NBDX	*	4	150	4	750	*	AG	217	3.6	.0	10.0
O. Emery S SBAX	*	-2	750	-2	150	*	AG	184	3.6	.0	10.0
P. Emery S SBDX	*	-2	-150	-2	-750	*	AG	455	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	*	AG	1101	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	*	AG	1225	3.6	.0	10.0
S. 40th St WBAX	*	750	7	150	7	*	AG	1049	3.6	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	*	AG	1042	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010-12 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	10	-14	1.8
2. NW	*	-8	14	1.8
3. SW	*	-8	-14	1.8
4. NE	*	10	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	10	-150	1.8
10. NW mdblk	*	-8	150	1.8
11. SW mdblk	*	-8	-150	1.8
12. NE mdblk	*	10	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	10	-600	1.8
18. NW blk	*	-8	600	1.8
19. SW blk	*	-8	-600	1.8
20. NE blk	*	10	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010-12 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	*	1.6	*	.2	.0	.0	.0	.1	.0	.8	.0
2. NW	*	172.	*	1.4	*	.3	.0	.2	.0	.3	.0	.2	.0
3. SW	*	81.	*	1.6	*	.2	.0	.0	.0	.2	.0	.0	.6
4. NE	*	187.	*	1.4	*	.4	.0	.1	.0	.2	.0	.0	.2
5. ES mdblk	*	277.	*	1.2	*	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	*	98.	*	1.2	*	.0	.0	.0	.0	.0	.0	.2	.1
7. WS mdblk	*	83.	*	1.4	*	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	*	262.	*	1.4	*	.0	.0	.0	.0	.0	.0	.1	.2

9. SE mdblk	*	351.	*	1.1	*	.5	.0	.2	.0	.2	.0	.0	.0
10. NW mdblk	*	176.	*	.7	*	.0	.0	.0	.1	.0	.0	.0	.0
11. SW mdblk	*	9.	*	1.1	*	.3	.0	.2	.0	.4	.0	.0	.0
12. NE mdblk	*	184.	*	.7	*	.0	.1	.0	.0	.0	.0	.0	.0
13. ES blk	*	276.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	263.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	.7	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	175.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.7	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	185.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010-12 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1
2. NW	*	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
4. NE	*	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.7	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.2
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.6
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.6	.0
17. SE blk	*	.0	.0	.0	.0	.4	.0	.0	.2	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.3	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010-13 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S	Z0= 100. CM	ALT= 6. (M)
BRG= WORST CASE	VD= .0 CM/S	
CLAS= 7 (G)	VS= .0 CM/S	
MIXH= 1000. M	AMB= .0 PPM	
SIGTH= 10. DEGREES	TEMP= 10.0 DEGREE (C)	

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	11	-150	11	0	* AG	1218	7.1	.0	10.0
B. San Pabl NBD	*	11	0	11	150	* AG	1590	5.1	.0	10.0
C. San Pabl NBL	*	9	-150	9	0	* AG	475	7.7	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1276	7.1	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1577	5.1	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	267	7.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1021	6.5	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	947	4.0	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	207	7.7	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	658	5.9	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1055	4.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	47	7.2	.0	10.0
M. San Pab NBAX	*	11	-750	11	-150	* AG	1693	3.6	.0	10.0
N. San Pab NBDX	*	11	150	11	750	* AG	1590	3.6	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1543	3.6	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1577	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1228	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	947	3.6	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	705	3.6	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1055	3.6	.0	10.0

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JOB: CEM531
RUN: 2010-13 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	17	-14	1.8
2. NW	*	-14	14	1.8
3. SW	*	-14	-14	1.8
4. NE	*	17	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	17	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	17	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	17	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	17	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

RECEPTOR	*	2.3 *	1.2	.0	.4	.2	.2	.0	.0	.0
9. SE mdblk	*	351. *	2.3 *	1.2	.0	.4	.2	.2	.0	.0	.0
10. NW mdblk	*	172. *	2.3 *	.2	.2	.0	1.2	.0	.2	.0	.0
11. SW mdblk	*	8. *	2.0 *	.2	.2	.2	.1	1.0	.0	.0	.0
12. NE mdblk	*	188. *	2.0 *	.0	1.0	.0	.2	.2	.0	.0	.0
13. ES blk	*	276. *	1.0 *	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97. *	1.1 *	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	83. *	1.2 *	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264. *	.9 *	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	353. *	1.4 *	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	173. *	1.3 *	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	7. *	1.4 *	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	187. *	1.4 *	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010-13 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	*	2.3	*	.6	.0	.2	.0	.2	.0	.7	.1
2. NW	*	168.	*	2.4	*	.4	.0	.3	.3	.8	.0	.2	.0
3. SW	*	9.	*	2.5	*	.0	.2	.0	1.0	.2	.2	.4	.0
4. NE	*	189.	*	2.3	*	.9	.2	.2	.0	.2	.0	.0	.1
5. ES mdblk	*	276.	*	1.3	*	.0	.0	.0	.0	.0	.0	.1	.5
6. WN mdblk	*	99.	*	1.4	*	.0	.0	.0	.0	.0	.0	.2	.0
7. WS mdblk	*	82.	*	1.7	*	.0	.0	.0	.0	.0	.0	.9	.0
8. EN mdblk	*	263.	*	1.4	*	.0	.0	.0	.0	.0	.0	.2	.1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010-14 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S	Z0= 100. CM	ALT= 6. (M)
BRG= WORST CASE	VD= .0 CM/S	
CLAS= 7 (G)	VS= .0 CM/S	
MIXH= 1000. M	AMB= .0 PPM	
SIGTH= 10. DEGREES	TEMP= 10.0 DEGREE (C)	

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	4	-150	4	0	* AG	983	5.6	.0	10.0
B. San Pabl NBD	*	4	0	4	150	* AG	1715	4.6	.0	10.0
C. San Pabl NBL	*	2	-150	0	0	* AG	49	7.2	.0	10.0
D. San Pabl SBA	*	-5	150	-5	0	* AG	1523	5.8	.0	13.5
E. San Pabl SBD	*	-5	0	-5	-150	* AG	1566	3.9	.0	11.8
F. San Pabl SBL	*	-2	150	0	0	* AG	0	3.6	.0	10.0
G. 36th Str EBA	*	-150	0	0	0	* AG	0	3.6	.0	10.0
H. 36th Str EBD	*	0	0	150	0	* AG	0	3.6	.0	10.0
I. 36th Str EBL	*	-150	-2	0	0	* AG	0	3.6	.0	10.0
J. 36th Str WBA	*	150	5	0	5	* AG	1117	7.8	.0	11.8
K. 36th Str WBD	*	0	5	-150	5	* AG	455	4.3	.0	10.0
L. 36th Str WBL	*	150	2	0	0	* AG	64	7.2	.0	10.0
M. San Pab NBAX	*	4	-750	4	-150	* AG	1032	3.6	.0	10.0
N. San Pab NBDX	*	4	150	4	750	* AG	1715	3.6	.0	10.0
O. San Pab SBAX	*	-5	750	-5	150	* AG	1523	3.6	.0	13.5
P. San Pab SBDX	*	-5	-150	-5	-750	* AG	1566	3.6	.0	11.8
Q. 36th St EBAX	*	-750	0	-150	0	* AG	0	3.6	.0	10.0
R. 36th St EBDX	*	150	0	750	0	* AG	0	3.6	.0	10.0
S. 36th St WBAX	*	750	5	150	5	* AG	1181	3.6	.0	11.8
T. 36th St WBDX	*	-150	5	-750	5	* AG	455	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010-13 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.1	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
2. NW	*	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.2	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.1	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.2	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.2	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.6
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.7	.0	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.4	.0
17. SE blk	*	.0	.0	.0	.0	.0	.9	.0	.0	.3	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.3	.8	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.3	.0	.0	.8	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.0	.8	.3	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010-14 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	10	-7	1.8
2. NW	-14	12	1.8
3. SW	-13	-7	1.8
4. NE	10	13	1.8
5. ES mdblk	150	-7	1.8
6. WN mdblk	-150	12	1.8
7. WS mdblk	-150	-7	1.8
8. EN mdblk	150	13	1.8
9. SE mdblk	10	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-13	-150	1.8
12. NE mdblk	10	150	1.8
13. ES blk	600	-7	1.8
14. WN blk	-600	12	1.8
15. WS blk	-600	-7	1.8
16. EN blk	600	13	1.8
17. SE blk	10	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-13	-600	1.8
20. NE blk	10	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010-14 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	352.	2.2	.0	.9	.0	.5	.0	.0	.0	.0
2. NW	96.	2.0	.0	.3	.0	.5	.0	.0	.0	.0
3. SW	7.	1.8	.0	.3	.0	1.1	.0	.0	.0	.0
4. NE	188.	2.0	.6	.2	.0	.0	.3	.0	.0	.0
5. ES mdblk	281.	1.0	.0	.0	.0	.1	.0	.0	.0	.0
6. WN mdblk	93.	.7	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	85.	.6	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	261.	1.4	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	354.	1.6	.7	.1	.0	.2	.3	.0	.0	.0
10. NW mdblk	171.	1.8	.0	.3	.0	1.1	.0	.0	.0	.0
11. SW mdblk	7.	1.6	.2	.1	.0	.1	.8	.0	.0	.0
12. NE mdblk	188.	1.8	.0	1.0	.0	.5	.1	.0	.0	.0
13. ES blk	276.	.6	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	95.	.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.8	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.4	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010-14 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.4	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
2. NW	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
3. SW	.0	.0	.0	.0	.0	.2	.1	.0	.0	.0	.0	.0
4. NE	.0	.5	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
5. ES mdblk	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0
17. SE blk	.0	.0	.0	.0	.6	.0	.0	.4	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.4	.8	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.3	.0	.0	.8	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.9	.4	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S ZO= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. 7th St. NBA	7	-150	7	0	AG	574	6.8	.0	10.0
B. 7th St. NBD	7	0	7	150	AG	799	4.7	.0	10.0
C. 7th St. NBL	5	-150	0	0	AG	186	7.2	.0	10.0
D. 7th St. SBA	-7	150	-7	0	AG	793	7.8	.0	10.0
E. 7th St. SBD	-7	0	-7	-150	AG	656	7.4	.0	10.0
F. 7th St. SBL	-5	150	0	0	AG	139	7.2	.0	10.0
G. Ashby AV EBA	-150	-7	0	-7	AG	968	5.6	.0	10.0
H. Ashby AV EBD	0	-7	150	-7	AG	1028	3.9	.0	10.0
I. Ashby AV EBL	-150	-5	0	0	AG	290	7.7	.0	10.0
J. Ashby AV WBA	150	7	0	7	AG	926	5.6	.0	10.0
K. Ashby AV WBD	0	7	-150	7	AG	1532	4.2	.0	10.0
L. Ashby AV WBL	150	5	0	0	AG	139	7.2	.0	10.0
M. 7th St. NBAX	7	-750	7	-150	AG	760	3.6	.0	10.0
N. 7th St. NBDX	7	150	7	750	AG	799	3.6	.0	10.0
O. 7th St. SBAX	-7	750	-7	150	AG	932	3.6	.0	10.0
P. 7th St. SBDX	-7	-150	-7	-750	AG	656	3.6	.0	10.0
Q. Ashby A EBAX	-750	-7	-150	-7	AG	1258	3.6	.0	10.0
R. Ashby A EBDX	150	-7	750	-7	AG	1028	3.6	.0	10.0
S. Ashby A WBAX	750	7	150	7	AG	1065	3.6	.0	10.0
T. Ashby A WBDX	-150	7	-750	7	AG	1532	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-14	1.8
2. NW	-14	14	1.8
3. SW	-14	-14	1.8
4. NE	14	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.9	.3	.0	.0	.0	.2	.0	.6	.1
2. NW	170.	1.9	.2	.0	.1	.2	.6	.0	.2	.0
3. SW	8.	1.9	.0	.1	.0	.7	.1	.0	.3	.0
4. NE	261.	1.9	.0	.2	.0	.2	.0	.0	.2	.0
5. ES mdblk	277.	1.3	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	98.	1.6	.0	.0	.0	.0	.0	.0	.2	.0
7. WS mdblk	82.	1.7	.0	.0	.0	.0	.0	.0	.7	.0
8. EN mdblk	263.	1.5	.0	.0	.0	.0	.0	.0	.1	.1

9. SE mdblk	352.	1.4	.6	.0	.2	.1	.2	.0	.0	.0
10. NW mdblk	172.	1.6	.0	.1	.0	.9	.0	.1	.0	.0
11. SW mdblk	7.	1.4	.1	.0	.0	.0	.7	.0	.0	.0
12. NE mdblk	188.	1.3	.0	.5	.0	.2	.1	.0	.0	.0
13. ES blk	276.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.8	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.9	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.8	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.9	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.2	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	.1	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.1	.0	.2	.0	.0	.1	.0	.0	.0	.0	.0	.0
4. NE	.2	.1	.7	.0	.0	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.1	.0	.8	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.3	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.7	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.8
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.7	.0	.0	.3
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.6	.0	.0
17. SE blk	.0	.0	.0	.0	.4	.0	.0	.2	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.2	.5	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.4	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.5	.2	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	7	-150	7	0	AG	1160	6.5	.0	10.0
B. San Pabl NBD	7	0	7	150	AG	1415	5.1	.0	10.0
C. San Pabl NBL	5	-150	0	0	AG	270	7.7	.0	10.0
D. San Pabl SBA	-7	150	-7	0	AG	1181	6.5	.0	10.0
E. San Pabl SBD	-7	0	-7	-150	AG	1294	4.5	.0	10.0
F. San Pabl SBL	-5	150	0	0	AG	186	7.2	.0	10.0
G. Ashby Av EBA	-150	-7	0	-7	AG	895	6.1	.0	10.0
H. Ashby Av EBD	0	-7	150	-7	AG	912	4.0	.0	10.0
I. Ashby Av EBL	-150	-5	0	0	AG	198	7.2	.0	10.0
J. Ashby Av WBA	150	2	0	2	AG	813	6.1	.0	10.0
K. Ashby Av WBD	0	2	-150	2	AG	1137	4.1	.0	10.0
L. Ashby Av WBL	150	2	0	0	AG	55	7.2	.0	10.0
M. San Pab NBAX	7	-750	7	-150	AG	1430	3.6	.0	10.0
N. San Pab NBDX	7	150	7	750	AG	1415	3.6	.0	10.0
O. San Pab SBAX	-7	750	-7	150	AG	1367	3.6	.0	10.0
P. San Pab SBDX	-7	-150	-7	-750	AG	1294	3.6	.0	10.0
Q. Ashby A EBAX	-750	-7	-150	-7	AG	1093	3.6	.0	10.0
R. Ashby A EBDX	150	-7	750	-7	AG	912	3.6	.0	10.0
S. Ashby A WBAX	750	2	150	2	AG	868	3.6	.0	10.0
T. Ashby A WBDX	-150	2	-750	2	AG	1137	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-14	1.8
2. NW	-14	8	1.8
3. SW	-14	-14	1.8
4. NE	14	8	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	8	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	8	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	8	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	8	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	350.	2.1	.2	.7	.0	.3	.0	.1	.0	.2
2. NW	170.	2.1	.3	.0	.2	.0	.7	.0	.2	.0
3. SW	8.	2.2	.0	.2	.0	.9	.1	.1	.3	.0
4. NE	188.	2.1	.9	.0	.2	.0	.2	.0	.0	.2
5. ES mdblk	277.	1.3	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	98.	1.5	.0	.0	.0	.0	.0	.0	.3	.0
7. WS mdblk	82.	1.6	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	263.	1.5	.0	.0	.0	.0	.0	.0	.1	.2

9. SE mdblk	352.	2.0	1.0	.0	.2	.2	.2	.0	.0	.0
10. NW mdblk	172.	2.0	.2	.2	.0	1.0	.0	.2	.0	.0
11. SW mdblk	8.	1.7	.2	.1	.1	.0	.8	.0	.0	.0
12. NE mdblk	188.	1.8	.0	.9	.0	.3	.1	.0	.0	.0
13. ES blk	276.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.3	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.2	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
2. NW	.0	.0	.3	.0	.1	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.2	.0	.0	.2	.0	.0	.0	.0	.0	.0
4. NE	.0	.3	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
5. ES mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.1	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.2	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.2
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.6
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.3
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.5
17. SE blk	.0	.0	.0	.0	.8	.0	.0	.3	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.3	.7	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.3	.0	.0	.7	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.7	.3	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	ZO=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Christie NBA	*	9	-150	9	0	* AG	632	5.4	.0	13.5
B. Christie NBD	*	9	0	9	150	* AG	467	3.8	.0	10.0
C. Christie NBL	*	5	-150	0	0	* AG	137	7.2	.0	10.0
D. Christie SBA	*	-2	150	-2	0	* AG	457	5.3	.0	10.0
E. Christie SBD	*	-2	0	-2	-150	* AG	1076	3.9	.0	10.0
F. Christie SBL	*	-2	150	0	0	* AG	22	7.2	.0	10.0
G. Shellmou EBA	*	-150	-4	0	-4	* AG	100	6.5	.0	10.0
H. Shellmou EBD	*	0	-4	150	-4	* AG	257	4.3	.0	10.0
I. Shellmou EBL	*	-150	-2	0	0	* AG	12	7.2	.0	10.0
J. Shellmou WBA	*	150	5	0	5	* AG	116	6.5	.0	10.0
K. Shellmou WBD	*	0	5	-150	5	* AG	260	4.3	.0	10.0
L. Shellmou WBL	*	150	5	0	0	* AG	584	7.7	.0	10.0
M. Christi NBAX	*	9	-750	9	-150	* AG	769	3.6	.0	13.5
N. Christi NBDX	*	9	150	9	750	* AG	467	3.6	.0	10.0
O. Christi SBAX	*	-2	750	-2	150	* AG	479	3.6	.0	10.0
P. Christi SBDX	*	-2	-150	-2	-750	* AG	1076	3.6	.0	10.0
Q. Shellmo EBAX	*	-750	-4	-150	-4	* AG	112	3.6	.0	10.0
R. Shellmo EBDX	*	150	-4	750	-4	* AG	257	3.6	.0	10.0
S. Shellmo WBAX	*	750	5	150	5	* AG	700	3.6	.0	10.0
T. Shellmo WBDX	*	-150	5	-750	5	* AG	260	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
9. SE mdblk	*	351.	*	.9	*	.5	.0	.0	.0	.2	.0	.0	.0
10. NW mdblk	*	174.	*	.8	*	.0	.0	.0	.3	.0	.0	.0	.0
11. SW mdblk	*	9.	*	1.1	*	.2	.0	.0	.0	.6	.0	.0	.0
12. NE mdblk	*	185.	*	.7	*	.0	.2	.0	.0	.0	.0	.0	.0
13. ES blk	*	276.	*	.5	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	95.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	87.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	*	.6	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	353.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	*	.6	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	7.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	186.	*	.5	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.2	.0	.0	.0	.1	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.1	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.2	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0
17. SE blk	*	.0	.0	.0	.0	.4	.0	.0	.3	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.1	.3	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.6	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.3	.1	.0	.0	.0	.0	.0

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JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	17	-10	1.8
2. NW	*	-8	12	1.8
3. SW	*	-8	-10	1.8
4. NE	*	15	12	1.8
5. ES mdblk	*	150	-10	1.8
6. WN mdblk	*	-150	12	1.8
7. WS mdblk	*	-150	-10	1.8
8. EN mdblk	*	150	12	1.8
9. SE mdblk	*	17	-150	1.8
10. NW mdblk	*	-8	150	1.8
11. SW mdblk	*	-8	-150	1.8
12. NE mdblk	*	15	150	1.8
13. ES blk	*	600	-10	1.8
14. WN blk	*	-600	12	1.8
15. WS blk	*	-600	-10	1.8
16. EN blk	*	600	12	1.8
17. SE blk	*	17	-600	1.8
18. NW blk	*	-8	600	1.8
19. SW blk	*	-8	-600	1.8
20. NE blk	*	15	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	188.	*	.9	*	.4	.0	.0	.0	.1	.0	.0	.0
2. NW	*	173.	*	1.1	*	.2	.0	.1	.0	.5	.0	.0	.0
3. SW	*	80.	*	1.2	*	.1	.0	.0	.0	.3	.0	.0	.2
4. NE	*	187.	*	1.2	*	.4	.0	.0	.0	.2	.0	.0	.0
5. ES mdblk	*	279.	*	.7	*	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	*	95.	*	.6	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	86.	*	.5	*	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	*	260.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	ZO=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Shellmou NBA	*	9	-150	9	0	* AG	679	6.1	.0	10.0
B. Shellmou NBD	*	9	0	9	150	* AG	892	4.6	.0	10.0
C. Shellmou NBL	*	9	-150	0	0	* AG	447	7.7	.0	10.0
D. Shellmou SBA	*	-4	150	-4	0	* AG	460	5.6	.0	10.0
E. Shellmou SBD	*	-4	0	-4	-150	* AG	243	3.8	.0	10.0
F. Shellmou SBL	*	-2	150	0	0	* AG	0	3.6	.0	10.0
G. Shellmou EBA	*	-150	-5	0	-5	* AG	37	6.5	.0	10.0
H. Shellmou EBD	*	0	-5	150	-5	* AG	0	3.6	.0	10.0
I. Shellmou EBL	*	-150	-5	0	0	* AG	213	7.7	.0	10.0
J. Shellmou WBA	*	150	0	0	0	* AG	0	3.6	.0	10.0
K. Shellmou WBD	*	0	0	-150	0	* AG	701	7.7	.0	10.0
L. Shellmou WBL	*	150	2	0	0	* AG	0	3.6	.0	10.0
M. Shellmo NBAX	*	9	-750	9	-150	* AG	1126	3.6	.0	10.0
N. Shellmo NBDX	*	9	150	9	750	* AG	892	3.6	.0	10.0
O. Shellmo SBAX	*	-4	750	-4	150	* AG	460	3.6	.0	10.0
P. Shellmo SBDX	*	-4	-150	-4	-750	* AG	243	3.6	.0	10.0
Q. Shellmo EBAX	*	-750	-5	-150	-5	* AG	250	3.6	.0	10.0
R. Shellmo EBDX	*	150	-5	750	-5	* AG	0	3.6	.0	10.0
S. Shellmo WBAX	*	750	0	150	0	* AG	0	3.6	.0	10.0
T. Shellmo WBDX	*	-150	0	-750	0	* AG	701	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	15	-12	1.8
2. NW	-10	7	1.8
3. SW	-10	-12	1.8
4. NE	15	7	1.8
5. ES mdblk	150	-12	1.8
6. WN mdblk	-150	7	1.8
7. WS mdblk	-150	-12	1.8
8. EN mdblk	150	7	1.8
9. SE mdblk	15	-150	1.8
10. NW mdblk	-10	150	1.8
11. SW mdblk	-10	-150	1.8
12. NE mdblk	15	150	1.8
13. ES blk	600	-12	1.8
14. WN blk	-600	7	1.8
15. WS blk	-600	-12	1.8
16. EN blk	600	7	1.8
17. SE blk	15	-600	1.8
18. NW blk	-10	600	1.8
19. SW blk	-10	-600	1.8
20. NE blk	15	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.2	.3	.0	.2	.0	.0	.0	.0	.0
2. NW	168.	1.3	.2	.0	.4	.0	.1	.0	.0	.0
3. SW	7.	1.0	.0	.2	.0	.3	.0	.0	.0	.0
4. NE	264.	1.3	.0	.3	.0	.0	.0	.0	.0	.0
5. ES mdblk	272.	.4	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	100.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	78.	.9	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	268.	.4	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	350.	1.4	.6	.0	.5	.0	.0	.0	.0	.0
10. NW mdblk	174.	.8	.1	.1	.0	.4	.0	.0	.0	.0
11. SW mdblk	7.	.7	.2	.0	.2	.0	.1	.0	.0	.0
12. NE mdblk	187.	1.0	.0	.6	.0	.1	.0	.0	.0	.0
13. ES blk	270.	.1	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.6	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.5	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	269.	.1	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.8	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.6	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.5	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.8	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.2	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.1	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.3	.0	.0	.1	.0	.0	.0	.0	.0	.0
4. NE	.2	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.2	.0	.8	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.3	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.4
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	.0	.0	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.2	.3	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.2	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.5	.1	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S ZO= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. I-80 Eas NBA	7	-150	7	0	AG	1339	7.8	.0	10.0
B. I-80 Eas NBD	7	0	7	150	AG	778	7.7	.0	10.0
C. I-80 Eas NBL	5	-150	0	0	AG	571	7.7	.0	10.0
D. I-80 Eas SBA	0	150	0	0	AG	0	3.6	.0	10.0
E. I-80 Eas SBD	0	0	0	-150	AG	0	3.6	.0	10.0
F. I-80 Eas SBL	-2	150	0	0	AG	0	3.6	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	1212	5.6	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	2325	4.2	.0	13.5
I. Powell S EBL	-150	-5	0	0	AG	142	7.2	.0	10.0
J. Powell S WBA	150	7	0	7	AG	2108	6.6	.0	17.0
K. Powell S WBD	0	7	-150	7	AG	2269	4.2	.0	13.5
L. Powell S WBL	150	2	0	0	AG	0	3.6	.0	10.0
M. I-80 Ea NBAX	7	-750	7	-150	AG	1910	3.6	.0	10.0
N. I-80 Ea NBDX	7	150	7	750	AG	778	3.6	.0	10.0
O. I-80 Ea SBAX	0	750	0	150	AG	0	3.6	.0	10.0
P. I-80 Ea SBDX	0	-150	0	-750	AG	0	3.6	.0	10.0
Q. Powell EBAX	-750	-9	-150	-9	AG	1354	3.6	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	2325	3.6	.0	13.5
S. Powell WBAX	750	7	150	7	AG	2108	3.6	.0	17.0
T. Powell WBDX	-150	7	-750	7	AG	2269	3.6	.0	13.5

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-17	1.8
2. NW	-7	15	1.8
3. SW	-7	-17	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-17	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-7	150	1.8
11. SW mdblk	-7	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-17	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-7	600	1.8
19. SW blk	-7	-600	1.8
20. NE blk	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	279.	2.4	.7	.0	.2	.0	.0	.0	.7	.2
2. NW	97.	2.5	.0	.3	.0	.0	.0	.0	.0	.2
3. SW	81.	2.6	.5	.0	.3	.0	.0	.0	.0	1.1
4. NE	188.	2.8	1.1	.2	.3	.0	.0	.0	.0	.3
5. ES mdblk	279.	2.1	.0	.0	.0	.0	.0	.0	.0	1.1
6. WN mdblk	98.	2.0	.0	.0	.0	.0	.0	.0	.2	.2
7. WS mdblk	83.	1.9	.0	.0	.0	.0	.0	.0	.8	.1
8. EN mdblk	261.	2.3	.0	.0	.0	.0	.0	.0	.2	.2

9. SE mdblk	* 351.	* 2.2	* 1.4	.9	.5	.0	.0	.0	.0	.0	
10. NW mdblk	* 174.	* 1.0	* .2	.3	.0	.0	.0	.0	.0	.0	
11. SW mdblk	* 11.	* 1.5	* .7	.0	.4	.0	.0	.0	.0	.1	
12. NE mdblk	* 185.	* 1.4	* .2	.8	.1	.0	.0	.0	.0	.0	
13. ES blk	* 277.	* 1.7	* .0	.0	.0	.0	.0	.0	.0	.0	
14. WN blk	* 97.	* 1.6	* .0	.0	.0	.0	.0	.0	.0	.0	
15. WS blk	* 83.	* 1.3	* .0	.0	.0	.0	.0	.0	.0	.0	
16. EN blk	* 263.	* 1.6	* .0	.0	.0	.0	.0	.0	.0	.0	
17. SE blk	* 354.	* 1.2	* .0	.0	.0	.0	.0	.0	.0	.0	
18. NW blk	* 174.	* .5	* .0	.0	.0	.0	.0	.0	.0	.0	
19. SW blk	* 7.	* .7	* .0	.0	.0	.0	.0	.0	.0	.0	
20. NE blk	* 185.	* .7	* .0	.0	.0	.0	.0	.0	.0	.0	

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

		CONC/LINK (PPM)									
RECEPTOR	* I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	* .0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	* .0	1.6	.0	.0	.0	.0	.0	.0	.0	.3	.2	.0
3. SW	* .0	.4	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0
4. NE	* .0	.8	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	* .0	.4	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	* .0	.2	1.1	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	* .0	.3	.2	.0	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	* .0	1.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	* .0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	* .0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	1.1	.4	.0
14. WN blk	* .0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	1.0
15. WS blk	* .0	.0	.0	.0	.0	.0	.0	.0	.7	.0	.0	.4
16. EN blk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.9	.0
17. SE blk	* .0	.0	.0	.0	.9	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* .0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0
19. SW blk	* .0	.0	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* .0	.0	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Christie NBA	*	7	-150	7	0	* AG	82	6.5	.0	10.0
B. Christie NBD	*	7	0	7	150	* AG	796	7.7	.0	10.0
C. Christie NBL	*	5	-150	0	0	* AG	132	7.2	.0	10.0
D. Christie SBA	*	-5	150	-5	0	* AG	857	7.8	.0	11.8
E. Christie SBD	*	-5	0	-5	-150	* AG	1267	7.8	.0	10.0
F. Christie SBL	*	-2	150	0	0	* AG	232	7.7	.0	10.0
G. Powell S EBA	*	-150	-12	0	-12	* AG	1800	7.2	.0	13.5
H. Powell S EBD	*	0	-12	150	-12	* AG	1319	4.0	.0	10.0
I. Powell S EBL	*	-150	-9	0	0	* AG	525	7.7	.0	10.0
J. Powell S WBA	*	150	9	0	9	* AG	1429	6.6	.0	13.5
K. Powell S WBD	*	0	9	-150	9	* AG	2000	5.3	.0	10.0
L. Powell S WBL	*	150	5	0	0	* AG	325	7.8	.0	10.0
M. Christi NBAX	*	7	-750	7	-150	* AG	214	3.6	.0	10.0
N. Christi NBDX	*	7	150	7	750	* AG	796	3.6	.0	10.0
O. Christi SBAX	*	-5	750	-5	150	* AG	1089	3.6	.0	11.8
P. Christi SBDX	*	-5	-150	-5	-750	* AG	1267	3.6	.0	10.0
Q. Powell EBAX	*	-750	-12	-150	-12	* AG	2325	3.6	.0	13.5
R. Powell EBDX	*	150	-12	750	-12	* AG	1319	3.6	.0	10.0
S. Powell WBAX	*	750	9	150	9	* AG	1754	3.6	.0	13.5
T. Powell WBDX	*	-150	9	-750	9	* AG	2000	3.6	.0	10.0

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JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-19	1.8
2. NW	*	-13	15	1.8
3. SW	*	-12	-21	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-19	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-21	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-13	150	1.8
11. SW mdblk	*	-12	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-19	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-21	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-13	600	1.8
19. SW blk	*	-12	-600	1.8
20. NE blk	*	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

		BRG (DEG)	* PRED CONC (PPM)	*	A	B	C	CONC/LINK (PPM) D	E	F	G	H
1. SE	*	277.	* 2.7	*	.0	.0	.0	.0	.4	.0	1.4	.1
2. NW	*	171.	* 2.7	*	.0	.0	.0	.2	1.0	.0	.4	.0
3. SW	*	10.	* 2.9	*	.0	.3	.0	.6	.5	.2	.8	.0
4. NE	*	257.	* 2.8	*	.0	.4	.0	.3	.0	.0	.4	.0
5. ES mdblk	*	278.	* 1.8	*	.0	.0	.0	.0	.0	.0	.1	.7
6. WN mdblk	*	100.	* 2.3	*	.0	.0	.0	.0	.1	.0	.3	.1
7. WS mdblk	*	80.	* 2.7	*	.0	.0	.0	.0	.0	.0	1.6	.0
8. EN mdblk	*	262.	* 2.3	*	.0	.0	.0	.0	.0	.0	.3	.0

9. SE mdblk	* 352.	* 1.3	* .0	.0	.1	.2	.4	.0	.1	.0	
10. NW mdblk	* 172.	* 1.8	* .0	.2	.0	.9	.1	.2	.0	.0	
11. SW mdblk	* 7.	* 2.1	* .0	.1	.0	.1	1.3	.0	.0	.0	
12. NE mdblk	* 189.	* 1.9	* .0	.9	.0	.3	.2	.1	.1	.0	
13. ES blk	* 277.	* 1.3	* .0	.0	.0	.0	.0	.0	.0	.0	
14. WN blk	* 97.	* 1.6	* .0	.0	.0	.0	.0	.0	.0	.0	
15. WS blk	* 83.	* 1.7	* .0	.0	.0	.0	.0	.0	.0	.0	
16. EN blk	* 264.	* 1.4	* .0	.0	.0	.0	.0	.0	.0	.0	
17. SE blk	* 354.	* .8	* .0	.0	.0	.0	.0	.0	.0	.0	
18. NW blk	* 174.	* 1.1	* .0	.0	.0	.0	.0	.0	.0	.0	
19. SW blk	* 5.	* 1.0	* .0	.0	.0	.0	.0	.0	.0	.0	
20. NE blk	* 186.	* 1.0	* .0	.0	.0	.0	.0	.0	.0	.0	

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

		CONC/LINK (PPM)									
RECEPTOR	* I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	* .2	.0	.1	.0	.0	.0	.0	.0	.2	.0	.0	.2
2. NW	* .2	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	* .2	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	* .3	.3	.9	.0	.0	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	* .0	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	* .2	.0	1.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	* .3	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	* .0	1.2	.1	.2	.0	.0	.0	.0	.1	.0	.0	.0
9. SE mdblk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.3	.0
14. WN blk	* .0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	1.0
15. WS blk	* .0	.0	.0	.0	.0	.0	.0	.0	1.1	.0	.0	.3
16. EN blk	* .0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.9	.0
17. SE blk	* .0	.0	.0	.0	.1	.0	.0	.0	.3	.0	.0	.0
18. NW blk	* .0	.0	.0	.0	.0	.0	.2	.6	.0	.0	.0	.0
19. SW blk	* .0	.0	.0	.0	.0	.0	.0	.0	.7	.0	.0	.0
20. NE blk	* .0	.0	.0	.0	.0	.0	.5	.3	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S		Z0= 100. CM	ALT= 6. (M)
BRG= WORST CASE		VD= .0 CM/S	
CLAS= 7 (G)		VS= .0 CM/S	
MIXH= 1000. M		AMB= .0 PPM	
SIGTH= 10. DEGREES		TEMP= 10.0 DEGREE (C)	

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	5	-150	5	0	* AG	537	7.8	.0	10.0
B. Hollis S NBD	*	5	0	5	150	* AG	756	7.7	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	504	7.8	.0	10.0
D. Hollis S SBA	*	-7	150	-7	0	* AG	395	7.3	.0	10.0
E. Hollis S SBD	*	-7	0	-7	-150	* AG	496	6.1	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	68	7.2	.0	10.0
G. Powell S EBA	*	-150	-7	0	-7	* AG	1022	5.8	.0	10.0
H. Powell S EBD	*	0	-7	150	-7	* AG	884	3.9	.0	10.0
I. Powell S EBL	*	-150	-5	0	0	* AG	190	7.2	.0	10.0
J. Powell S WBA	*	150	7	0	7	* AG	762	5.4	.0	10.0
K. Powell S WBD	*	0	7	-150	7	* AG	1362	4.0	.0	10.0
L. Powell S WBL	*	150	5	0	0	* AG	20	7.2	.0	10.0
M. Hollis NBAX	*	5	-750	5	-150	* AG	1041	3.6	.0	10.0
N. Hollis NBDX	*	5	150	5	750	* AG	756	3.6	.0	10.0
O. Hollis SBAX	*	-7	750	-7	150	* AG	463	3.6	.0	10.0
P. Hollis SBDX	*	-7	-150	-7	-750	* AG	496	3.6	.0	10.0
Q. Powell EBAX	*	-750	-7	-150	-7	* AG	1212	3.6	.0	10.0
R. Powell EBDX	*	150	-7	750	-7	* AG	884	3.6	.0	10.0
S. Powell WBAX	*	750	7	150	7	* AG	782	3.6	.0	10.0
T. Powell WBDX	*	-150	7	-750	7	* AG	1362	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	A	B	C	D	E	F	G	H
9. SE mdblk	*	351.	*	1.7	*	.6	.0	.6	.0	.1	.0	.0	.0
10. NW mdblk	*	173.	*	1.2	*	.1	.2	.0	.4	.0	.0	.0	.0
11. SW mdblk	*	8.	*	1.2	*	.2	.1	.2	.0	.4	.0	.0	.0
12. NE mdblk	*	187.	*	1.4	*	.0	.8	.0	.1	.0	.0	.0	.0
13. ES blk	*	276.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	1.2	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	83.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	*	.7	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.7	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	186.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.1	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	*	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.1	.0	.6	.0	.0	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	*	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.2	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.2	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.7
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.7	.0	.0	.3
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.4	.0	.0
17. SE blk	*	.0	.0	.0	.0	.6	.0	.0	.1	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.2	.3	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.3	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.4	.1	.0	.0	.0	.0	.0

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JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	12	-14	1.8
2. NW	*	-14	14	1.8
3. SW	*	-14	-14	1.8
4. NE	*	12	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	12	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	12	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	12	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	12	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	*	1.9	*	.3	.0	.2	.0	.1	.0	.7	.0
2. NW	*	169.	*	1.7	*	.2	.0	.3	.0	.3	.0	.2	.0
3. SW	*	10.	*	1.5	*	.0	.3	.0	.3	.0	.0	.4	.0
4. NE	*	262.	*	1.8	*	.0	.4	.0	.1	.0	.0	.2	.0
5. ES mdblk	*	276.	*	1.1	*	.0	.0	.0	.0	.0	.0	.1	.5
6. WN mdblk	*	99.	*	1.4	*	.0	.0	.0	.0	.0	.0	.2	.0
7. WS mdblk	*	82.	*	1.5	*	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	*	263.	*	1.2	*	.0	.0	.0	.0	.0	.0	.1	.1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S		Z0= 100. CM	ALT= 6. (M)
BRG= WORST CASE		VD= .0 CM/S	
CLAS= 7 (G)		VS= .0 CM/S	
MIXH= 1000. M		AMB= .0 PPM	
SIGTH= 10. DEGREES		TEMP= 10.0 DEGREE (C)	

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1338	7.1	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1427	5.1	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	179	7.2	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1194	6.5	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1350	4.5	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	112	7.2	.0	10.0
G. Stanford EBA	*	-150	-7	0	-7	* AG	845	6.1	.0	10.0
H. Stanford EBD	*	0	-7	150	-7	* AG	886	4.0	.0	10.0
I. Stanford EBL	*	-150	-5	0	0	* AG	151	7.2	.0	10.0
J. Stanford WBA	*	150	7	0	7	* AG	535	5.8	.0	10.0
K. Stanford WBD	*	0	7	-150	7	* AG	793	4.0	.0	10.0
L. Stanford WBL	*	150	5	0	0	* AG	102	7.2	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1517	3.6	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1427	3.6	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1306	3.6	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1350	3.6	.0	10.0
Q. Stanfor EBAX	*	-750	-7	-150	-7	* AG	996	3.6	.0	10.0
R. Stanfor EBDX	*	150	-7	750	-7	* AG	886	3.6	.0	10.0
S. Stanfor WBAX	*	750	7	150	7	* AG	637	3.6	.0	10.0
T. Stanfor WBDX	*	-150	7	-750	7	* AG	793	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-14	1.8
2. NW	-14	14	1.8
3. SW	-14	-14	1.8
4. NE	14	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

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JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	350.	2.0	.3	.8	.0	.3	.0	.0	.0	.2
2. NW	169.	2.0	.4	.0	.1	.3	.6	.0	.2	.0
3. SW	8.	2.1	.0	.3	.0	.9	.2	.0	.3	.0
4. NE	188.	2.2	1.0	.2	.1	.0	.2	.0	.0	.1
5. ES mdblk	277.	1.1	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	98.	1.1	.0	.0	.0	.0	.0	.0	.2	.0
7. WS mdblk	82.	1.4	.0	.0	.0	.0	.0	.0	.7	.0
8. EN mdblk	263.	1.2	.0	.0	.0	.0	.0	.0	.1	.1

9. SE mdblk	352.	2.1	1.3	.0	.2	.2	.2	.0	.0	.0
10. NW mdblk	172.	1.9	.2	.2	.0	1.0	.0	.1	.0	.0
11. SW mdblk	8.	1.7	.3	.1	.0	.0	.8	.0	.0	.0
12. NE mdblk	188.	1.8	.1	1.0	.0	.3	.1	.0	.0	.0
13. ES blk	276.	.9	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.9	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.8	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.3	.0	.0	.0	.0	.0	.0	.0	.0

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JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
2. NW	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0	.0	.0
4. NE	.0	.2	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
5. ES mdblk	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.1	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.1	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.5
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.4	.0
17. SE blk	.0	.0	.0	.0	.8	.0	.0	.3	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.3	.7	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.3	.0	.0	.7	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.8	.3	.0	.0	.0	.0	.0

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JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Horton S NBA	5	-150	5	0	AG	256	6.8	.0	10.0
B. Horton S NBD	5	0	5	150	AG	213	4.3	.0	10.0
C. Horton S NBL	5	-150	0	0	AG	220	7.7	.0	10.0
D. Horton S SBA	-2	150	-2	0	AG	201	6.8	.0	10.0
E. Horton S SBD	-2	0	-2	-150	AG	461	6.1	.0	10.0
F. Horton S SBL	-2	150	0	0	AG	96	7.2	.0	10.0
G. 40th Str EBA	-150	-7	0	-7	AG	858	5.6	.0	10.0
H. 40th Str EBD	0	-7	150	-7	AG	879	3.9	.0	10.0
I. 40th Str EBL	-150	-5	0	0	AG	26	7.2	.0	10.0
J. 40th Str WBA	150	9	0	9	AG	729	5.4	.0	13.5
K. 40th Str WBD	0	9	-150	9	AG	913	3.9	.0	10.0
L. 40th Str WBL	150	5	0	0	AG	80	7.2	.0	10.0
M. Horton NBAX	5	-750	5	-150	AG	476	3.6	.0	10.0
N. Horton NBDX	5	150	5	750	AG	213	3.6	.0	10.0
O. Horton SBAX	-2	750	-2	150	AG	297	3.6	.0	10.0
P. Horton SBDX	-2	-150	-2	-750	AG	461	3.6	.0	10.0
Q. 40th St EBAX	-750	-7	-150	-7	AG	884	3.6	.0	10.0
R. 40th St EBDX	150	-7	750	-7	AG	879	3.6	.0	10.0
S. 40th St WBAX	750	9	150	9	AG	809	3.6	.0	13.5
T. 40th St WBDX	-150	9	-750	9	AG	913	3.6	.0	10.0

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JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	12	-14	1.8
2. NW	-8	15	1.8
3. SW	-8	-14	1.8
4. NE	12	17	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	12	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	12	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	17	1.8
17. SE blk	12	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	12	600	1.8

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JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.3	.1	.0	.0	.0	.1	.0	.6	.0
2. NW	172.	1.2	.1	.0	.2	.0	.3	.0	.2	.0
3. SW	81.	1.2	.0	.0	.0	.0	.2	.0	.0	.4
4. NE	187.	1.1	.2	.0	.2	.0	.2	.0	.0	.1
5. ES mdblk	277.	1.0	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	98.	1.0	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	83.	1.1	.0	.0	.0	.0	.0	.0	.7	.0
8. EN mdblk	262.	1.0	.0	.0	.0	.0	.0	.0	.1	.0

9. SE mdblk	*	351.	*	.9	*	.3	.0	.3	.0	.2	.0	.0	.0
10. NW mdblk	*	175.	*	.7	*	.0	.0	.0	.2	.0	.1	.0	.0
11. SW mdblk	*	8.	*	.9	*	.1	.0	.1	.0	.4	.0	.0	.0
12. NE mdblk	*	185.	*	.6	*	.0	.1	.0	.0	.0	.0	.0	.0
13. ES blk	*	276.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	83.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	263.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	.6	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	175.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.6	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	185.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR		CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1
2. NW	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.5	.2	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.5
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.4	.0	.0
17. SE blk	*	.0	.0	.0	.0	.3	.0	.0	.2	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.3	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.1	.1	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION		LINK COORDINATES (M) X1	Y1	X2	Y2		TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	7	-150	7	0	*	AG	459	7.7	.0	10.0
B. Hollis S NBD	*	7	0	7	150	*	AG	583	7.2	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	*	AG	210	7.7	.0	10.0
D. Hollis S SBA	*	-5	150	-5	0	*	AG	479	7.7	.0	10.0
E. Hollis S SBD	*	-5	0	-5	-150	*	AG	696	7.4	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	*	AG	243	7.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	*	AG	801	5.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	*	AG	1050	3.9	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	*	AG	46	7.2	.0	10.0
J. 40th Str WBA	*	150	9	0	9	*	AG	794	5.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	*	AG	844	3.9	.0	10.0
L. 40th Str WBL	*	150	5	0	0	*	AG	141	7.2	.0	10.0
M. Hollis NBAX	*	7	-750	7	-150	*	AG	669	3.6	.0	10.0
N. Hollis NBDX	*	7	150	7	750	*	AG	583	3.6	.0	10.0
O. Hollis SBAX	*	-5	750	-5	150	*	AG	722	3.6	.0	10.0
P. Hollis SBDX	*	-5	-150	-5	-750	*	AG	696	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	*	AG	847	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	*	AG	1050	3.6	.0	10.0
S. 40th St WBAX	*	750	9	150	9	*	AG	935	3.6	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	*	AG	844	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR		COORDINATES (M) X	Y	Z
1. SE	*	14	-14	1.8
2. NW	*	-12	15	1.8
3. SW	*	-12	-14	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-12	150	1.8
11. SW mdblk	*	-12	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-12	600	1.8
19. SW blk	*	-12	-600	1.8
20. NE blk	*	14	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR		BRG (DEG)	PRED CONC (PPM)		CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	351.	* 1.5	*	.1	.5	.0	.2	.0	.1	.0	.3
2. NW	*	171.	* 1.5	*	.2	.0	.2	.1	.6	.0	.2	.0
3. SW	*	81.	* 1.6	*	.1	.0	.0	.0	.3	.0	.1	.5
4. NE	*	189.	* 1.5	*	.4	.2	.1	.0	.3	.0	.0	.1
5. ES mdblk	*	278.	* 1.2	*	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	*	97.	* 1.1	*	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	*	83.	* 1.2	*	.0	.0	.0	.0	.0	.0	.6	.0
8. EN mdblk	*	262.	* 1.2	*	.0	.0	.0	.0	.0	.0	.1	.1

9. SE mdblk	*	352.	*	1.3	*	.5	.0	.2	.0	.2	.0	.0	.0
10. NW mdblk	*	172.	*	1.4	*	.0	.2	.0	.5	.0	.3	.0	.0
11. SW mdblk	*	8.	*	1.4	*	.2	.1	.1	.0	.7	.0	.0	.0
12. NE mdblk	*	187.	*	1.3	*	.0	.6	.0	.1	.1	.1	.0	.0
13. ES blk	*	277.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	96.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	263.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	186.	*	.7	*	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR		CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
4. NE	*	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.5
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.5	.0
17. SE blk	*	.0	.0	.0	.0	.4	.0	.0	.2	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.1	.4	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.4	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.3	.2	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S		Z0= 100. CM	ALT= 6. (M)
BRG= WORST CASE		VD= .0 CM/S	
CLAS= 7 (G)		VS= .0 CM/S	
MIXH= 1000. M		AMB= .0 PPM	
SIGTH= 10. DEGREES		TEMP= 10.0 DEGREE (C)	

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	*	2	-150	2	0	* AG	110	6.5	.0	10.0
B. Harlan S NBD	*	2	0	2	150	* AG	46	4.2	.0	10.0
C. Harlan S NBL	*	2	-150	0	0	* AG	33	7.2	.0	10.0
D. Harlan S SBA	*	-2	150	-2	0	* AG	17	6.5	.0	10.0
E. Harlan S SBD	*	-2	0	-2	-150	* AG	148	4.2	.0	10.0
F. Harlan S SBL	*	-2	150	0	0	* AG	0	3.6	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1018	5.8	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1072	3.9	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	22	7.2	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	945	5.6	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	975	3.9	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	96	7.2	.0	10.0
M. Harlan NBAX	*	2	-750	2	-150	* AG	143	3.6	.0	10.0
N. Harlan NBDX	*	2	150	2	750	* AG	46	3.6	.0	10.0
O. Harlan SBAX	*	-2	750	-2	150	* AG	17	3.6	.0	10.0
P. Harlan SBDX	*	-2	-150	-2	-750	* AG	148	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1040	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1072	3.6	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1041	3.6	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	975	3.6	.0	10.0

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III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	8	-14	1.8
2. NW	*	-8	14	1.8
3. SW	*	-8	-14	1.8
4. NE	*	8	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	8	-150	1.8
10. NW mdblk	*	-8	150	1.8
11. SW mdblk	*	-8	-150	1.8
12. NE mdblk	*	8	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	8	-600	1.8
18. NW blk	*	-8	600	1.8
19. SW blk	*	-8	-600	1.8
20. NE blk	*	8	600	1.8

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RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	A	B	C	CONC/LINK (PPM) D	E	F	G	H
9. SE mdblk	*	352.	*	.4	*	.1	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	177.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	9.	*	.4	*	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	*	183.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	277.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	263.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	355.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	177.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	5.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	183.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0

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IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	I	J	K	CONC/LINK (PPM) L	M	N	O	P	Q	R	S	T
1. SE	*	278.	*	1.2	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1
2. NW	*	98.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
3. SW	*	82.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5
4. NE	*	98.	*	1.2	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
5. ES mdblk	*	278.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	*	98.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6
7. WS mdblk	*	83.	*	1.3	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8
8. EN mdblk	*	262.	*	1.3	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S		Z0= 100. CM	ALT= 6. (M)
BRG= WORST CASE		VD= .0 CM/S	
CLAS= 7 (G)		VS= .0 CM/S	
MIXH= 1000. M		AMB= .0 PPM	
SIGTH= 10. DEGREES		TEMP= 10.0 DEGREE (C)	

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Emery St NBA	*	4	-150	4	0	* AG	416	7.7	.0	10.0
B. Emery St NBD	*	4	0	4	150	* AG	217	4.3	.0	10.0
C. Emery St NBL	*	2	-150	0	0	* AG	189	7.2	.0	10.0
D. Emery St SBA	*	-2	150	-2	0	* AG	157	6.5	.0	10.0
E. Emery St SBD	*	-2	0	-2	-150	* AG	455	6.1	.0	10.0
F. Emery St SBL	*	-2	150	0	0	* AG	27	7.2	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1083	5.8	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1237	4.0	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	30	7.2	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	907	5.6	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1058	3.9	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	158	7.2	.0	10.0
M. Emery S NBAX	*	4	-750	4	-150	* AG	605	3.6	.0	10.0
N. Emery S NBDX	*	4	150	4	750	* AG	217	3.6	.0	10.0
O. Emery S SBAX	*	-2	750	-2	150	* AG	184	3.6	.0	10.0
P. Emery S SBDX	*	-2	-150	-2	-750	* AG	455	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1113	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1237	3.6	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1065	3.6	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1058	3.6	.0	10.0

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JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	10	-14	1.8
2. NW	-8	14	1.8
3. SW	-8	-14	1.8
4. NE	10	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	10	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	10	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	10	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	10	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.6	.2	.0	.0	.0	.1	.0	.8	.0
2. NW	172.	1.4	.3	.0	.2	.0	.3	.0	.2	.0
3. SW	81.	1.6	.2	.0	.0	.0	.2	.0	.0	.6
4. NE	187.	1.5	.4	.0	.1	.0	.2	.0	.0	.2
5. ES mdblk	277.	1.3	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	98.	1.2	.0	.0	.0	.0	.0	.0	.2	.1
7. WS mdblk	83.	1.4	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	262.	1.4	.0	.0	.0	.0	.0	.0	.1	.2

9. SE mdblk	351.	1.1	.5	.0	.2	.0	.2	.0	.0	.0
10. NW mdblk	176.	.7	.0	.0	.0	.1	.0	.0	.0	.0
11. SW mdblk	9.	1.1	.3	.0	.2	.0	.4	.0	.0	.0
12. NE mdblk	184.	.7	.0	.1	.0	.0	.0	.0	.0	.0
13. ES blk	276.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.7	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	175.	.4	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.7	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.4	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1
2. NW	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
4. NE	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.7	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.2	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.6
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.6	.0
17. SE blk	.0	.0	.0	.0	.4	.0	.0	.2	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.3	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	11	-150	11	0	AG	1218	7.1	.0	10.0
B. San Pabl NBD	11	0	11	150	AG	1590	5.1	.0	10.0
C. San Pabl NBL	9	-150	0	0	AG	484	7.7	.0	10.0
D. San Pabl SBA	-7	150	-7	0	AG	1276	7.1	.0	10.0
E. San Pabl SBD	-7	0	-7	-150	AG	1584	5.1	.0	10.0
F. San Pabl SBL	-5	150	0	0	AG	267	7.7	.0	10.0
G. 40th Str EBA	-150	-7	0	-7	AG	1033	6.5	.0	10.0
H. 40th Str EBD	0	-7	150	-7	AG	952	4.0	.0	10.0
I. 40th Str EBL	-150	-5	0	0	AG	207	7.7	.0	10.0
J. 40th Str WBA	150	7	0	7	AG	665	5.9	.0	10.0
K. 40th Str WBD	0	7	-150	7	AG	1071	4.1	.0	10.0
L. 40th Str WBL	150	5	0	0	AG	47	7.2	.0	10.0
M. San Pab NBAX	11	-750	11	-150	AG	1702	3.6	.0	10.0
N. San Pab NBDX	11	150	11	750	AG	1590	3.6	.0	10.0
O. San Pab SBAX	-7	750	-7	150	AG	1543	3.6	.0	10.0
P. San Pab SBDX	-7	-150	-7	-750	AG	1584	3.6	.0	10.0
Q. 40th St EBAX	-750	-7	-150	-7	AG	1240	3.6	.0	10.0
R. 40th St EBDX	150	-7	750	-7	AG	952	3.6	.0	10.0
S. 40th St WBAX	750	7	150	7	AG	712	3.6	.0	10.0
T. 40th St WBDX	-150	7	-750	7	AG	1071	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-14	1.8
2. NW	-14	14	1.8
3. SW	-14	-14	1.8
4. NE	17	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	17	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	17	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	17	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	2.3	.6	.0	.2	.0	.2	.0	.7	.1
2. NW	168.	2.5	.4	.0	.3	.3	.8	.0	.2	.0
3. SW	9.	2.5	.0	.2	.0	1.0	.2	.2	.4	.0
4. NE	189.	2.3	.9	.2	.2	.0	.2	.0	.0	.1
5. ES mdblk	276.	1.3	.0	.0	.0	.0	.0	.0	.1	.5
6. WN mdblk	99.	1.4	.0	.0	.0	.0	.0	.0	.3	.0
7. WS mdblk	82.	1.8	.0	.0	.0	.0	.0	.0	.9	.0
8. EN mdblk	263.	1.4	.0	.0	.0	.0	.0	.0	.2	.1

9. SE mdblk	351.	2.4	1.2	.0	.4	.2	.2	.0	.0	.0
10. NW mdblk	172.	2.3	.2	.2	.0	1.2	.0	.2	.0	.0
11. SW mdblk	8.	2.0	.2	.2	.2	.1	1.0	.0	.0	.0
12. NE mdblk	188.	2.0	.0	1.0	.0	.2	.2	.0	.0	.0
13. ES blk	276.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.9	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.4	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

	CONC/LINK (PPM)										
RECEPTOR	I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.1	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
2. NW	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.2	.0	.0	.2	.0	.0	.0	.0	.0	.0
4. NE	.0	.3	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.1	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.2	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.2	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.6
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.7	.0	.0	.2
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.4	.0
16. EN blk	.0	.0	.0	.0	.9	.0	.0	.3	.0	.0	.0	.0
17. SE blk	.0	.0	.0	.0	.0	.3	.8	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.3	.0	.8	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.8	.3	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.8	.3	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S	Z0= 100. CM	ALT= 6. (M)
BRG= WORST CASE	VD= .0 CM/S	
CLAS= 7 (G)	VS= .0 CM/S	
MIXH= 1000. M	AMB= .0 PPM	
SIGTH= 10. DEGREES	TEMP= 10.0 DEGREE (C)	

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	4	-150	4	0	AG	992	5.6	.0	10.0
B. San Pabl NBD	4	0	4	150	AG	1724	4.6	.0	10.0
C. San Pabl NBL	2	-150	0	0	AG	49	7.2	.0	10.0
D. San Pabl SBA	-5	150	-5	0	AG	1530	5.8	.0	13.5
E. San Pabl SBD	-5	0	-5	-150	AG	1573	3.9	.0	11.8
F. San Pabl SBL	-2	150	0	0	AG	0	3.6	.0	10.0
G. 36th Str EBA	-150	0	0	0	AG	0	3.6	.0	10.0
H. 36th Str EBD	0	0	150	0	AG	0	3.6	.0	10.0
I. 36th Str EBL	-150	-2	0	0	AG	0	3.6	.0	10.0
J. 36th Str WBA	150	5	0	5	AG	1117	7.8	.0	11.8
K. 36th Str WBD	0	5	-150	5	AG	455	4.3	.0	10.0
L. 36th Str WBL	150	2	0	0	AG	64	7.2	.0	10.0
M. San Pab NBAX	4	-750	4	-150	AG	1041	3.6	.0	10.0
N. San Pab NBDX	4	150	4	750	AG	1724	3.6	.0	10.0
O. San Pab SBAX	-5	750	-5	150	AG	1530	3.6	.0	13.5
P. San Pab SBDX	-5	-150	-5	-750	AG	1573	3.6	.0	11.8
Q. 36th St EBAX	-750	0	-150	0	AG	0	3.6	.0	10.0
R. 36th St EBDX	150	0	750	0	AG	0	3.6	.0	10.0
S. 36th St WBAX	750	5	150	5	AG	1181	3.6	.0	11.8
T. 36th St WBDX	-150	5	-750	5	AG	455	3.6	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	10	-7	1.8
2. NW	-14	12	1.8
3. SW	-13	-7	1.8
4. NE	10	13	1.8
5. ES mdblk	150	-7	1.8
6. WN mdblk	-150	12	1.8
7. WS mdblk	-150	-7	1.8
8. EN mdblk	150	13	1.8
9. SE mdblk	10	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-13	-150	1.8
12. NE mdblk	10	150	1.8
13. ES blk	600	-7	1.8
14. WN blk	-600	12	1.8
15. WS blk	-600	-7	1.8
16. EN blk	600	13	1.8
17. SE blk	10	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-13	-600	1.8
20. NE blk	10	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	352.	2.2	.0	.9	.0	.5	.0	.0	.0	.0
2. NW	96.	2.0	.0	.3	.0	.5	.0	.0	.0	.0
3. SW	7.	1.8	.0	.3	.0	1.1	.0	.0	.0	.0
4. NE	188.	2.0	.6	.2	.0	.0	.3	.0	.0	.0
5. ES mdblk	281.	1.0	.0	.0	.0	.1	.0	.0	.0	.0
6. WN mdblk	93.	.7	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	85.	.6	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	261.	1.4	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	353.	1.6	.7	.0	.0	.2	.3	.0	.0	.0
10. NW mdblk	171.	1.8	.1	.3	.0	1.1	.0	.0	.0	.0
11. SW mdblk	7.	1.6	.2	.1	.0	.1	.8	.0	.0	.0
12. NE mdblk	188.	1.8	.0	1.0	.0	.5	.1	.0	.0	.0
13. ES blk	276.	.6	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	95.	.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.8	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.5	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2010PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

	CONC/LINK (PPM)										
RECEPTOR	I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.4	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
2. NW	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
3. SW	.0	.0	.0	.0	.0	.2	.1	.0	.0	.0	.0	.0
4. NE	.0	.5	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
5. ES mdblk	.0	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0
17. SE blk	.0	.0	.0	.0	.0	.6	.0	.0	.4	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.4	.8	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.3	.0	.0	.8	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.9	.4	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. 7th St. NBA	*	7	-150	7	0	* AG	643	1.7	.0	10.0
B. 7th St. NBD	*	7	0	7	150	* AG	879	1.5	.0	10.0
C. 7th St. NBL	*	5	-150	0	0	* AG	199	1.7	.0	10.0
D. 7th St. SBA	*	-7	150	-7	0	* AG	882	1.8	.0	10.0
E. 7th St. SBD	*	-7	0	-7	-150	* AG	729	1.8	.0	10.0
F. 7th St. SBL	*	-5	150	0	0	* AG	151	1.7	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	999	1.4	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	1085	1.1	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	300	1.8	.0	10.0
J. Ashby Av WBA	*	150	7	0	7	* AG	979	1.4	.0	10.0
K. Ashby Av WBD	*	0	7	-150	7	* AG	1608	1.2	.0	10.0
L. Ashby Av WBL	*	150	5	0	0	* AG	148	1.7	.0	10.0
M. 7th St. NBAX	*	7	-750	7	-150	* AG	842	1.0	.0	10.0
N. 7th St. NBDX	*	7	150	7	750	* AG	879	1.0	.0	10.0
O. 7th St. SBAX	*	-7	750	-7	150	* AG	1033	1.0	.0	10.0
P. 7th St. SBDX	*	-7	-150	-7	-750	* AG	729	1.0	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1299	1.0	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	1085	1.0	.0	10.0
S. Ashby A WBAX	*	750	7	150	7	* AG	1127	1.0	.0	10.0
T. Ashby A WBDX	*	-150	7	-750	7	* AG	1608	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	A	B	C	D	E	F	G	H
9. SE mdblk	*	352.	*	.4	*	.2	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	172.	*	.4	*	.0	.0	.0	.2	.0	.0	.0	.0
11. SW mdblk	*	7.	*	.4	*	.0	.0	.0	.0	.2	.0	.0	.0
12. NE mdblk	*	188.	*	.4	*	.0	.2	.0	.0	.0	.0	.0	.0
13. ES blk	*	276.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	83.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	187.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
17. SE blk	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

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JOB: CEM531
RUN: 2030-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-14	1.8
2. NW	*	-14	14	1.8
3. SW	*	-14	-14	1.8
4. NE	*	14	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	*	.5	*	.0	.0	.0	.0	.0	.0	.2	.0
2. NW	*	171.	*	.5	*	.0	.0	.0	.0	.0	.2	.0	.0
3. SW	*	8.	*	.5	*	.0	.0	.0	.2	.0	.0	.0	.0
4. NE	*	262.	*	.5	*	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	277.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	*	98.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	82.	*	.4	*	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	*	263.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1352	1.7	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1578	1.3	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	279	1.8	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1308	1.7	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1474	1.3	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	191	1.7	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	972	1.5	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	1000	1.1	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	202	1.8	.0	10.0
J. Ashby Av WBA	*	150	2	0	2	* AG	851	1.5	.0	10.0
K. Ashby Av WBD	*	0	2	-150	2	* AG	1183	1.1	.0	10.0
L. Ashby Av WBL	*	150	2	0	0	* AG	80	1.7	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1631	1.0	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1578	1.0	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1499	1.0	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1474	1.0	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1174	1.0	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	1000	1.0	.0	10.0
S. Ashby A WBAX	*	750	2	150	2	* AG	931	1.0	.0	10.0
T. Ashby A WBDX	*	-150	2	-750	2	* AG	1183	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2030-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-14	1.8
2. NW	-14	8	1.8
3. SW	-14	-14	1.8
4. NE	14	8	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	8	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	8	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	8	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	8	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

DD

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	350.	.6	.0	.2	.0	.0	.0	.0	.0	.0
2. NW	170.	.6	.0	.0	.0	.0	.2	.0	.0	.0
3. SW	8.	.6	.0	.0	.0	.2	.0	.0	.0	.0
4. NE	188.	.6	.3	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	277.	.4	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	98.	.4	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	82.	.4	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	263.	.4	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	352.	.6	.3	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	.6	.0	.0	.0	.3	.0	.0	.0	.0
11. SW mdblk	8.	.5	.0	.0	.0	.0	.3	.0	.0	.0
12. NE mdblk	188.	.5	.0	.0	.3	.0	.0	.0	.0	.0
13. ES blk	276.	.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	.4	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	.4	.0	.0	.0	.0	.0	.0	.0	.0

DD

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
17. SE blk	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S ZO= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Christie NBA	9	-150	9	0	AG	440	1.4	.0	13.5
B. Christie NBD	9	0	9	150	AG	388	1.0	.0	10.0
C. Christie NBL	5	-150	0	0	AG	130	1.7	.0	10.0
D. Christie SBA	-2	150	-2	0	AG	430	1.4	.0	10.0
E. Christie SBD	-2	0	-2	-150	AG	1030	1.1	.0	10.0
F. Christie SBL	-2	150	0	0	AG	22	1.7	.0	10.0
G. Shellmou EBA	-150	-4	0	-4	AG	100	1.6	.0	10.0
H. Shellmou EBD	0	-4	150	-4	AG	144	1.1	.0	10.0
I. Shellmou EBL	-150	-2	0	0	AG	12	1.7	.0	10.0
J. Shellmou WBA	150	5	0	5	AG	116	1.6	.0	10.0
K. Shellmou WBD	0	5	-150	5	AG	260	1.2	.0	10.0
L. Shellmou WBL	150	5	0	0	AG	572	1.8	.0	10.0
M. Christi NBAX	9	-750	9	-150	AG	570	1.0	.0	13.5
N. Christi NBDX	9	150	9	750	AG	388	1.0	.0	10.0
O. Christi SBAX	-2	750	-2	150	AG	452	1.0	.0	10.0
P. Christi SBDX	-2	-150	-2	-750	AG	1030	1.0	.0	10.0
Q. Shellmo EBAX	-750	-4	-150	-4	AG	112	1.0	.0	10.0
R. Shellmo EBDX	150	-4	750	-4	AG	144	1.0	.0	10.0
S. Shellmo WBAX	750	5	150	5	AG	688	1.0	.0	10.0
T. Shellmo WBDX	-150	5	-750	5	AG	260	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2030-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-10	1.8
2. NW	-8	12	1.8
3. SW	-8	-10	1.8
4. NE	15	12	1.8
5. ES mdblk	150	-10	1.8
6. WN mdblk	-150	12	1.8
7. WS mdblk	-150	-10	1.8
8. EN mdblk	150	12	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	15	150	1.8
13. ES blk	600	-10	1.8
14. WN blk	-600	12	1.8
15. WS blk	-600	-10	1.8
16. EN blk	600	12	1.8
17. SE blk	17	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	15	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	188.	.2	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	173.	.3	.0	.0	.0	.0	.1	.0	.0	.0
3. SW	80.	.3	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	187.	.3	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	278.	.1	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	95.	.1	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	86.	.1	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	260.	.2	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	*	351.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	174.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	8.	*	.3	*	.0	.0	.0	.0	.2	.0	.0	.0
12. NE mdblk	*	185.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	276.	*	.1	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	95.	*	.0	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	85.	*	.0	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	353.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	*	.1	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	7.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	186.	*	.1	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
17. SE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S ZO= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Shellmou NBA	*	9	-150	9	0	* AG	640	1.5	.0	10.0
B. Shellmou NBD	*	9	0	9	150	* AG	743	1.1	.0	10.0
C. Shellmou NBL	*	9	-150	0	0	* AG	474	1.8	.0	10.0
D. Shellmou SBA	*	-4	150	-4	0	* AG	471	1.4	.0	10.0
E. Shellmou SBD	*	-4	0	-4	-150	* AG	292	1.0	.0	10.0
F. Shellmou SBL	*	-2	150	0	0	* AG	0	1.0	.0	10.0
G. Shellmou EBA	*	-150	-5	0	-5	* AG	34	1.6	.0	10.0
H. Shellmou EBD	*	0	-5	150	-5	* AG	0	1.0	.0	10.0
I. Shellmou EBL	*	-150	-5	0	0	* AG	103	1.7	.0	10.0
J. Shellmou WBA	*	150	0	0	0	* AG	0	1.0	.0	10.0
K. Shellmou WBD	*	0	0	-150	0	* AG	687	1.7	.0	10.0
L. Shellmou WBL	*	150	2	0	0	* AG	0	1.0	.0	10.0
M. Shellmo NBAX	*	9	-750	9	-150	* AG	1114	1.0	.0	10.0
N. Shellmo NBDX	*	9	150	9	750	* AG	743	1.0	.0	10.0
O. Shellmo SBAX	*	-4	750	-4	150	* AG	471	1.0	.0	10.0
P. Shellmo SBDX	*	-4	-150	-4	-750	* AG	292	1.0	.0	10.0
Q. Shellmo EBAX	*	-750	-5	-150	-5	* AG	137	1.0	.0	10.0
R. Shellmo EBDX	*	150	-5	750	-5	* AG	0	1.0	.0	10.0
S. Shellmo WBAX	*	750	0	150	0	* AG	0	1.0	.0	10.0
T. Shellmo WBDX	*	-150	0	-750	0	* AG	687	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2030-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	15	-12	1.8
2. NW	*	-10	7	1.8
3. SW	*	-10	-12	1.8
4. NE	*	15	7	1.8
5. ES mdblk	*	150	-12	1.8
6. WN mdblk	*	-150	7	1.8
7. WS mdblk	*	-150	-12	1.8
8. EN mdblk	*	150	7	1.8
9. SE mdblk	*	15	-150	1.8
10. NW mdblk	*	-10	150	1.8
11. SW mdblk	*	-10	-150	1.8
12. NE mdblk	*	15	150	1.8
13. ES blk	*	600	-12	1.8
14. WN blk	*	-600	7	1.8
15. WS blk	*	-600	-12	1.8
16. EN blk	*	600	7	1.8
17. SE blk	*	15	-600	1.8
18. NW blk	*	-10	600	1.8
19. SW blk	*	-10	-600	1.8
20. NE blk	*	15	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	169.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	7.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	264.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	272.	*	.0	*	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	100.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	78.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	268.	*	.0	*	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	*	350.	*	.3	*	.1	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	174.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	7.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	187.	*	.2	*	.0	.1	.0	.0	.0	.0	.0	.0
13. ES blk	*	270.	*	.0	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	96.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	*	.1	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	268.	*	.0	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.1	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	186.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. I-80 Eas NBA	*	7	-150	7	0	* AG	1346	1.8	.0	10.0
B. I-80 Eas NBD	*	7	0	7	150	* AG	821	1.8	.0	10.0
C. I-80 Eas NBL	*	5	-150	0	0	* AG	603	1.8	.0	10.0
D. I-80 Eas SBA	*	0	150	0	0	* AG	0	1.0	.0	10.0
E. I-80 Eas SBD	*	0	0	0	-150	* AG	0	1.0	.0	10.0
F. I-80 Eas SBL	*	-2	150	0	0	* AG	0	1.0	.0	10.0
G. Powell S EBA	*	-150	-9	0	-9	* AG	1175	1.4	.0	13.5
H. Powell S EBD	*	0	-9	150	-9	* AG	2295	1.1	.0	13.5
I. Powell S EBL	*	-150	-5	0	0	* AG	153	1.7	.0	10.0
J. Powell S WBA	*	150	7	0	7	* AG	2181	1.6	.0	17.0
K. Powell S WBD	*	0	7	-150	7	* AG	2342	1.1	.0	13.5
L. Powell S WBL	*	150	2	0	0	* AG	0	1.0	.0	10.0
M. I-80 Ea NBAX	*	7	-750	7	-150	* AG	1949	1.0	.0	10.0
N. I-80 Ea NBDX	*	7	150	7	750	* AG	821	1.0	.0	10.0
O. I-80 Ea SBAX	*	0	750	0	150	* AG	0	1.0	.0	10.0
P. I-80 Ea SBDX	*	0	-150	0	-750	* AG	0	1.0	.0	10.0
Q. Powell EBAX	*	-750	-9	-150	-9	* AG	1328	1.0	.0	13.5
R. Powell EBDX	*	150	-9	750	-9	* AG	2295	1.0	.0	13.5
S. Powell WBAX	*	750	7	150	7	* AG	2181	1.0	.0	17.0
T. Powell WBDX	*	-150	7	-750	7	* AG	2342	1.0	.0	13.5

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2030-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-17	1.8
2. NW	*	-7	15	1.8
3. SW	*	-7	-17	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-17	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-17	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-7	150	1.8
11. SW mdblk	*	-7	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-17	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-17	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-7	600	1.8
19. SW blk	*	-7	-600	1.8
20. NE blk	*	14	600	1.8

DD

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	279.	*	.6	*	.2	.0	.0	.0	.0	.0	.2	.0
2. NW	*	97.	*	.6	*	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	81.	*	.7	*	.1	.0	.0	.0	.0	.0	.0	.3
4. NE	*	188.	*	.7	*	.2	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	279.	*	.5	*	.0	.0	.0	.0	.0	.0	.0	.3
6. WN mdblk	*	98.	*	.5	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	83.	*	.5	*	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	*	261.	*	.6	*	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
9. SE mdblk	*	351.	*	.5	*	.3	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	174.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	10.	*	.3	*	.2	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	185.	*	.4	*	.0	.2	.0	.0	.0	.0	.0	.0
13. ES blk	*	277.	*	.5	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	83.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	263.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	174.	*	.1	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	7.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	185.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.1	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.1
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0
17. SE blk	*	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Christie NBA	*	7	-150	7	0	* AG	82	1.6	.0	10.0
B. Christie NBD	*	7	0	7	150	* AG	598	1.7	.0	10.0
C. Christie NBL	*	5	-150	0	0	* AG	132	1.7	.0	10.0
D. Christie SBA	*	-5	150	-5	0	* AG	830	1.8	.0	11.8
E. Christie SBD	*	-5	0	-5	-150	* AG	1233	1.8	.0	10.0
F. Christie SBL	*	-2	150	0	0	* AG	213	1.8	.0	10.0
G. Powell S EBA	*	-150	-12	0	-12	* AG	1936	1.7	.0	11.8
H. Powell S EBD	*	0	-12	150	-12	* AG	1470	1.1	.0	10.0
I. Powell S EBL	*	-150	-9	0	0	* AG	359	1.7	.0	10.0
J. Powell S WBA	*	150	9	0	9	* AG	1497	1.6	.0	13.5
K. Powell S WBD	*	0	9	-150	9	* AG	2073	1.4	.0	10.0
L. Powell S WBL	*	150	5	0	0	* AG	325	1.8	.0	10.0
M. Christi NBAX	*	7	-750	7	-150	* AG	214	1.0	.0	10.0
N. Christi NBDX	*	7	150	7	750	* AG	598	1.0	.0	10.0
O. Christi SBAX	*	-5	750	-5	150	* AG	1043	1.0	.0	11.8
P. Christi SBDX	*	-5	-150	-5	-750	* AG	1233	1.0	.0	10.0
Q. Powell EBAX	*	-750	-12	-150	-12	* AG	2295	1.0	.0	11.8
R. Powell EBDX	*	150	-12	750	-12	* AG	1470	1.0	.0	10.0
S. Powell WBAX	*	750	9	150	9	* AG	1822	1.0	.0	13.5
T. Powell WBDX	*	-150	9	-750	9	* AG	2073	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2030-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-19	1.8
2. NW	-13	15	1.8
3. SW	-12	-20	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-19	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-20	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-13	150	1.8
11. SW mdblk	-12	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-19	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-20	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-13	600	1.8
19. SW blk	-12	-600	1.8
20. NE blk	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	.7	.0	.0	.0	.0	.0	.0	.3	.0
2. NW	98.	.6	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	9.	.7	.0	.0	.0	.1	.0	.0	.2	.0
4. NE	259.	.6	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	278.	.5	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	99.	.6	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	80.	.7	.0	.0	.0	.0	.0	.0	.4	.0
8. EN mdblk	262.	.6	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	352.	.3	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	173.	.4	.0	.0	.0	.2	.0	.0	.0	.0
11. SW mdblk	7.	.5	.0	.0	.0	.3	.0	.0	.0	.0
12. NE mdblk	189.	.4	.0	.1	.0	.0	.0	.0	.0	.0
13. ES blk	277.	.4	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.5	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.4	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.3	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.3	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	.2	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
17. SE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	5	-150	5	0	AG	628	1.8	.0	10.0
B. Hollis S NBD	5	0	5	150	AG	866	1.8	.0	10.0
C. Hollis S NBL	5	-150	0	0	AG	523	1.8	.0	10.0
D. Hollis S SBA	-7	150	-7	0	AG	448	1.8	.0	10.0
E. Hollis S SBD	-7	0	-7	-150	AG	582	1.7	.0	10.0
F. Hollis S SBL	-5	150	0	0	AG	69	1.7	.0	10.0
G. Powell S EBA	-150	-7	0	-7	AG	1093	1.4	.0	10.0
H. Powell S EBD	0	-7	150	-7	AG	928	1.1	.0	10.0
I. Powell S EBL	-150	-5	0	0	AG	206	1.8	.0	10.0
J. Powell S WBA	150	7	0	7	AG	797	1.4	.0	10.0
K. Powell S WBD	0	7	-150	7	AG	1411	1.1	.0	10.0
L. Powell S WBL	150	5	0	0	AG	23	1.7	.0	10.0
M. Hollis NBAX	5	-750	5	-150	AG	1151	1.0	.0	10.0
N. Hollis NBDX	5	150	5	750	AG	866	1.0	.0	10.0
O. Hollis SBAX	-7	750	-7	150	AG	517	1.0	.0	10.0
P. Hollis SBDX	-7	-150	-7	-750	AG	582	1.0	.0	10.0
Q. Powell EBAX	-750	-7	-150	-7	AG	1299	1.0	.0	10.0
R. Powell EBDX	150	-7	750	-7	AG	928	1.0	.0	10.0
S. Powell WBAX	750	7	150	7	AG	820	1.0	.0	10.0
T. Powell WBDX	-150	7	-750	7	AG	1411	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2030-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	12	-14	1.8
2. NW	-14	14	1.8
3. SW	-14	-14	1.8
4. NE	12	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	12	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	12	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	12	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	12	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	.5	.0	.0	.0	.0	.0	.0	.2	.0
2. NW	170.	.5	.0	.0	.0	.0	.1	.0	.0	.0
3. SW	9.	.4	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	262.	.5	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	276.	.3	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	99.	.4	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	82.	.4	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	263.	.3	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	* 351. *	.4 *	.2	.0	.1	.0	.0	.0	.0	.0	.0
10. NW mdblk	* 173. *	.3 *	.0	.0	.0	.1	.0	.0	.0	.0	.0
11. SW mdblk	* 8. *	.3 *	.0	.0	.0	.0	.1	.0	.0	.0	.0
12. NE mdblk	* 187. *	.4 *	.0	.2	.0	.0	.0	.0	.0	.0	.0
13. ES blk	* 276. *	.3 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* 97. *	.3 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	* 83. *	.3 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	* 264. *	.2 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	* 354. *	.3 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* 174. *	.2 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	* 6. *	.2 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* 186. *	.2 *	.0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.2
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
17. SE blk	*	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0= 100. CM	ALT= 6. (M)
BRG=	WORST CASE	VD= .0 CM/S	
CLAS=	7 (G)	VS= .0 CM/S	
MIXH=	1000. M	AMB= .0 PPM	
SIGTH=	10. DEGREES	TEMP= 10.0 DEGREE (C)	

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1512	1.7	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1625	1.5	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	185	1.7	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1387	1.7	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1531	1.3	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	112	1.7	.0	10.0
G. Stanford EBA	*	-150	-7	0	-7	* AG	906	1.5	.0	10.0
H. Stanford EBD	*	0	-7	150	-7	* AG	958	1.1	.0	10.0
I. Stanford EBL	*	-150	-5	0	0	* AG	181	1.7	.0	10.0
J. Stanford WBA	*	150	7	0	7	* AG	571	1.4	.0	10.0
K. Stanford WBD	*	0	7	-150	7	* AG	846	1.1	.0	10.0
L. Stanford WBL	*	150	5	0	0	* AG	106	1.7	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1697	1.0	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1625	1.0	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1499	1.0	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1531	1.0	.0	10.0
Q. Stanfor EBAX	*	-750	-7	-150	-7	* AG	1087	1.0	.0	10.0
R. Stanfor EBDX	*	150	-7	750	-7	* AG	958	1.0	.0	10.0
S. Stanfor WBAX	*	750	7	150	7	* AG	677	1.0	.0	10.0
T. Stanfor WBDX	*	-150	7	-750	7	* AG	846	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2030-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-14	1.8
2. NW	*	-14	14	1.8
3. SW	*	-14	-14	1.8
4. NE	*	14	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	351.	*	.6	*	.0	.3	.0	.0	.0	.0	.0	.0
2. NW	*	170.	*	.6	*	.1	.0	.0	.0	.2	.0	.0	.0
3. SW	*	8.	*	.6	*	.0	.0	.0	.3	.0	.0	.0	.0
4. NE	*	188.	*	.6	*	.3	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	277.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	*	98.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	82.	*	.4	*	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	*	263.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	* 352. *	.6 *	.3	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	* 172. *	.6 *	.0	.0	.0	.3	.0	.0	.0	.0	.0
11. SW mdblk	* 8. *	.5 *	.0	.0	.0	.0	.3	.0	.0	.0	.0
12. NE mdblk	* 188. *	.5 *	.0	.3	.0	.0	.0	.0	.0	.0	.0
13. ES blk	* 276. *	.3 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* 97. *	.3 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	* 83. *	.3 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	* 264. *	.2 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	* 353. *	.4 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* 173. *	.4 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	* 7. *	.4 *	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* 187. *	.4 *	.0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
17. SE blk	*	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Horton S NBA	*	5	-150	5	0	* AG	513	1.8	.0	10.0
B. Horton S NBD	*	5	0	5	150	* AG	482	1.5	.0	10.0
C. Horton S NBL	*	5	-150	0	0	* AG	224	1.8	.0	10.0
D. Horton S SBA	*	-2	150	-2	0	* AG	416	1.8	.0	10.0
E. Horton S SBD	*	-2	0	-2	-150	* AG	749	1.8	.0	10.0
F. Horton S SBL	*	-2	150	0	0	* AG	259	1.8	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	899	1.4	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1133	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	31	1.7	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	859	1.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	995	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	158	1.7	.0	10.0
M. Horton NBAX	*	5	-750	5	-150	* AG	737	1.0	.0	10.0
N. Horton NBDX	*	5	150	5	750	* AG	482	1.0	.0	10.0
O. Horton SBAX	*	-2	750	-2	150	* AG	675	1.0	.0	10.0
P. Horton SBDX	*	-2	-150	-2	-750	* AG	749	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	930	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1133	1.0	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	1017	1.0	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	995	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

Page 1

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

Page 2

JOB: CEM531
RUN: 2030-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	12	-14	1.8
2. NW	*	-8	15	1.8
3. SW	*	-8	-14	1.8
4. NE	*	12	17	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	12	-150	1.8
10. NW mdblk	*	-8	150	1.8
11. SW mdblk	*	-8	-150	1.8
12. NE mdblk	*	12	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	12	-600	1.8
18. NW blk	*	-8	600	1.8
19. SW blk	*	-8	-600	1.8
20. NE blk	*	12	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	*	.4	*	.0	.0	.0	.0	.0	.0	.2	.0
2. NW	*	172.	*	.4	*	.0	.0	.0	.0	.2	.0	.0	.0
3. SW	*	82.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.2
4. NE	*	188.	*	.4	*	.1	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	278.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	*	97.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	83.	*	.3	*	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	*	262.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0

Page 2

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	7	-150	7	0	* AG	521	1.8	.0	10.0
B. Hollis S NBD	*	7	0	7	150	* AG	658	1.7	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	211	1.8	.0	10.0
D. Hollis S SBA	*	-5	150	-5	0	* AG	630	1.8	.0	10.0
E. Hollis S SBD	*	-5	0	-5	-150	* AG	849	1.8	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	297	1.8	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1055	1.4	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1358	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	46	1.7	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	1018	1.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	1056	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	143	1.7	.0	10.0
M. Hollis NBAX	*	7	-750	7	-150	* AG	732	1.0	.0	10.0
N. Hollis NBDX	*	7	150	7	750	* AG	658	1.0	.0	10.0
O. Hollis SBAX	*	-5	750	-5	150	* AG	927	1.0	.0	10.0
P. Hollis SBDX	*	-5	-150	-5	-750	* AG	849	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1101	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1358	1.0	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	1161	1.0	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	1056	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

Page 1

JOB: CEM531
RUN: 2030-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-14	1.8
2. NW	*	-12	15	1.8
3. SW	*	-12	-14	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-12	150	1.8
11. SW mdblk	*	-12	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-12	600	1.8
19. SW blk	*	-12	-600	1.8
20. NE blk	*	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	351.	* .4	*	.0	.1	.0	.0	.0	.0	.0	.0
2. NW	*	97.	* .5	*	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	82.	* .5	*	.0	.0	.0	.0	.0	.0	.0	.2
4. NE	*	189.	* .4	*	.1	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	278.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	*	97.	* .3	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	83.	* .4	*	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	*	262.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	* 352.	* .4	* .1	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	* 172.	* .4	* .0	.0	.0	.2	.0	.0	.0	.0	.0
11. SW mdblk	* 7.	* .4	* .0	.0	.0	.0	.2	.0	.0	.0	.0
12. NE mdblk	* 187.	* .4	* .0	.2	.0	.0	.0	.0	.0	.0	.0
13. ES blk	* 277.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* 97.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	* 83.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	* 263.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	* 354.	* .2	* .0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* 174.	* .2	* .0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	* 6.	* .2	* .0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* 186.	* .2	* .0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
17. SE blk	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	*	2	-150	2	0	* AG	110	1.6	.0	10.0
B. Harlan S NBD	*	2	0	2	150	* AG	47	1.1	.0	10.0
C. Harlan S NBL	*	2	-150	0	0	* AG	33	1.7	.0	10.0
D. Harlan S SBA	*	-2	150	-2	0	* AG	17	1.6	.0	10.0
E. Harlan S SBD	*	-2	0	-2	-150	* AG	148	1.1	.0	10.0
F. Harlan S SBL	*	-2	150	0	0	* AG	1	1.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1326	1.5	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1381	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	22	1.7	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	1192	1.4	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1221	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	96	1.7	.0	10.0
M. Harlan NBAX	*	2	-750	2	-150	* AG	143	1.0	.0	10.0
N. Harlan NBDX	*	2	150	2	750	* AG	47	1.0	.0	10.0
O. Harlan SBAX	*	-2	750	-2	150	* AG	18	1.0	.0	10.0
P. Harlan SBDX	*	-2	-150	-2	-750	* AG	148	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1348	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1381	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1288	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1221	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2030-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	8	-14	1.8
2. NW	*	-8	14	1.8
3. SW	*	-8	-14	1.8
4. NE	*	8	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	8	-150	1.8
10. NW mdblk	*	-8	150	1.8
11. SW mdblk	*	-8	-150	1.8
12. NE mdblk	*	8	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	8	-600	1.8
18. NW blk	*	-8	600	1.8
19. SW blk	*	-8	-600	1.8
20. NE blk	*	8	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	* .4	*	.0	.0	.0	.0	.0	.0	.2	.0
2. NW	*	98.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	278.	* .4	*	.0	.0	.0	.0	.0	.0	.3	.0
4. NE	*	98.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	278.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	*	98.	* .3	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	82.	* .4	*	.0	.0	.0	.0	.0	.0	.3	.0
8. EN mdblk	*	262.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	* 352.	* .1	* .0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	* 177.	* .0	* .0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	* 8.	* .1	* .0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	* 183.	* .0	* .0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	* 277.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* 97.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	* 83.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	* 263.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	* 355.	* .0	* .0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* 177.	* .0	* .0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	* 5.	* .0	* .0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* 183.	* .0	* .0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030-12 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Emery St NBA	*	4	-150	4	0	*	AG	524	1.8	.0	10.0
B. Emery St NBD	*	4	0	4	150	*	AG	330	1.2	.0	10.0
C. Emery St NBL	*	2	-150	0	0	*	AG	272	1.8	.0	10.0
D. Emery St SBA	*	-2	150	-2	0	*	AG	168	1.6	.0	10.0
E. Emery St SBD	*	-2	0	-2	-150	*	AG	522	1.7	.0	10.0
F. Emery St SBL	*	-2	150	0	0	*	AG	30	1.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	*	AG	1391	1.5	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	*	AG	1492	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	*	AG	32	1.7	.0	10.0
J. 40th Str WBA	*	150	7	0	7	*	AG	1074	1.4	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	*	AG	1305	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	*	AG	158	1.7	.0	10.0
M. Emery S NBAX	*	4	-750	4	-150	*	AG	796	1.0	.0	10.0
N. Emery S NBDX	*	4	150	4	750	*	AG	330	1.0	.0	10.0
O. Emery S SBAX	*	-2	750	-2	150	*	AG	198	1.0	.0	10.0
P. Emery S SBDX	*	-2	-150	-2	-750	*	AG	522	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	*	AG	1423	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	*	AG	1492	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	*	AG	1232	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	*	AG	1305	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2030-12 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	10	-14	1.8
2. NW	*	-8	14	1.8
3. SW	*	-8	-14	1.8
4. NE	*	10	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	10	-150	1.8
10. NW mdblk	*	-8	150	1.8
11. SW mdblk	*	-8	-150	1.8
12. NE mdblk	*	10	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	10	-600	1.8
18. NW blk	*	-8	600	1.8
19. SW blk	*	-8	-600	1.8
20. NE blk	*	10	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030-12 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	* .5	*	.0	.0	.0	.0	.0	.0	.2	.0
2. NW	*	173.	* .4	*	.0	.0	.0	.0	.1	.0	.0	.0
3. SW	*	82.	* .5	*	.0	.0	.0	.0	.0	.0	.0	.2
4. NE	*	188.	* .4	*	.1	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	277.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	*	98.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	83.	* .4	*	.0	.0	.0	.0	.0	.0	.3	.0
8. EN mdblk	*	262.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	* 351.	* .3	* .1	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	* 176.	* .2	* .0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	* 9.	* .3	* .0	.0	.0	.0	.1	.0	.0	.0	.0
12. NE mdblk	* 185.	* .2	* .0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	* 277.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* 97.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	* 83.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	* 263.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	* 354.	* .2	* .0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* 175.	* .1	* .0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	* 6.	* .2	* .0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* 185.	* .1	* .0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030-12 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030-13 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	11	-150	11	0	* AG	1359	1.7	.0	10.0
B. San Pabl NBD	*	11	0	11	150	* AG	1754	1.5	.0	10.0
C. San Pabl NBL	*	9	-150	0	0	* AG	527	1.8	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1552	1.7	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1904	1.6	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	283	1.8	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1271	1.7	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1147	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	223	1.8	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	780	1.5	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1237	1.2	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	47	1.7	.0	10.0
M. San Pab NBAX	*	11	-750	11	-150	* AG	1886	1.0	.0	10.0
N. San Pab NBDX	*	11	150	11	750	* AG	1754	1.0	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1835	1.0	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1904	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1494	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1147	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	827	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1237	1.0	.0	10.0

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JOB: CEM531
RUN: 2030-13 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	17	-14	1.8
2. NW	*	-14	14	1.8
3. SW	*	-14	-14	1.8
4. NE	*	17	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	17	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-14	-150	1.8
12. NE mdblk	*	17	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	17	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-14	-600	1.8
20. NE blk	*	17	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030-13 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	.7	*	.1	.0	.0	.0	.0	.0	.2	.0
2. NW	*	170.	.8	*	.0	.0	.0	.0	.3	.0	.0	.0
3. SW	*	10.	.8	*	.0	.0	.0	.3	.0	.0	.1	.0
4. NE	*	190.	.7	*	.2	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	276.	.4	*	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	*	99.	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	82.	.5	*	.0	.0	.0	.0	.0	.0	.3	.0
8. EN mdblk	*	263.	.4	*	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
9. SE mdblk	*	351.	.6	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	172.	.6	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0
11. SW mdblk	*	8.	.6	.0	.0	.0	.0	.0	.4	.0	.0	.0	.0
12. NE mdblk	*	188.	.6	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	276.	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	83.	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	353.	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	173.	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	7.	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	187.	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030-13 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
17. SE blk	*	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030-14 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	6. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	4	-150	4	0	* AG	1097	1.4	.0	10.0
B. San Pabl NBD	*	4	0	4	150	* AG	1900	1.4	.0	10.0
C. San Pabl NBL	*	2	-150	0	0	* AG	49	1.7	.0	10.0
D. San Pabl SBA	*	-5	150	-5	0	* AG	1840	1.5	.0	13.5
E. San Pabl SBD	*	-5	0	-5	-150	* AG	1883	1.1	.0	11.8
F. San Pabl SBL	*	-2	150	0	0	* AG	0	1.0	.0	10.0
G. 36th Str EBA	*	-150	0	0	0	* AG	0	1.0	.0	10.0
H. 36th Str EBD	*	0	0	150	0	* AG	0	1.0	.0	10.0
I. 36th Str EBL	*	-150	-2	0	0	* AG	0	1.0	.0	10.0
J. 36th Str WBA	*	150	5	0	5	* AG	1364	1.8	.0	11.8
K. 36th Str WBD	*	0	5	-150	5	* AG	631	1.2	.0	10.0
L. 36th Str WBL	*	150	2	0	0	* AG	64	1.7	.0	10.0
M. San Pab NBAX	*	4	-750	4	-150	* AG	1146	1.0	.0	10.0
N. San Pab NBDX	*	4	150	4	750	* AG	1900	1.0	.0	10.0
O. San Pab SBAX	*	-5	750	-5	150	* AG	1840	1.0	.0	13.5
P. San Pab SBDX	*	-5	-150	-5	-750	* AG	1883	1.0	.0	11.8
Q. 36th St EBAX	*	-750	0	-150	0	* AG	0	1.0	.0	10.0
R. 36th St EBDX	*	150	0	750	0	* AG	0	1.0	.0	10.0
S. 36th St WBAX	*	750	5	150	5	* AG	1428	1.0	.0	11.8
T. 36th St WBDX	*	-150	5	-750	5	* AG	631	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2030-14 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	10	-7	1.8
2. NW	*	-14	12	1.8
3. SW	*	-13	-7	1.8
4. NE	*	10	13	1.8
5. ES mdblk	*	150	-7	1.8
6. WN mdblk	*	-150	12	1.8
7. WS mdblk	*	-150	-7	1.8
8. EN mdblk	*	150	13	1.8
9. SE mdblk	*	10	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-13	-150	1.8
12. NE mdblk	*	10	150	1.8
13. ES blk	*	600	-7	1.8
14. WN blk	*	-600	12	1.8
15. WS blk	*	-600	-7	1.8
16. EN blk	*	600	13	1.8
17. SE blk	*	10	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-13	-600	1.8
20. NE blk	*	10	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030-14 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	352.	* .7	*	.0	.3	.0	.1	.0	.0	.0	.0
2. NW	*	96.	* .6	*	.0	.0	.0	.2	.0	.0	.0	.0
3. SW	*	8.	* .6	*	.0	.1	.0	.3	.0	.0	.0	.0
4. NE	*	189.	* .6	*	.2	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	*	281.	* .3	*	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	93.	* .2	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	84.	* .2	*	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	261.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	*	354.	* .5	* .2	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	171.	* .6	* .0	.1	.0	.3	.0	.0	.0	.0
11. SW mdblk	*	7.	* .5	* .0	.0	.0	.0	.2	.0	.0	.0
12. NE mdblk	*	188.	* .6	* .0	.3	.0	.1	.0	.0	.0	.0
13. ES blk	*	276.	* .2	* .0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	95.	* .2	* .0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	* .1	* .0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	353.	* .4	* .0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	173.	* .4	* .0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	7.	* .4	* .0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	187.	* .4	* .0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030-14 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
17. SE blk	*	.0	.0	.0	.0	.2	.0	.0	.1	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.3	.1	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S ZO= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	7	-150	7	0	* AG	525	1.8	.0	10.0
B. Hollis S NBD	*	7	0	7	150	* AG	678	1.7	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	214	1.8	.0	10.0
D. Hollis S SBA	*	-5	150	-5	0	* AG	633	1.8	.0	10.0
E. Hollis S SBD	*	-5	0	-5	-150	* AG	854	1.8	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	309	1.8	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1057	1.4	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1370	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	46	1.7	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	1034	1.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	1059	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	143	1.7	.0	10.0
M. Hollis NBAX	*	7	-750	7	-150	* AG	739	1.0	.0	10.0
N. Hollis NBDX	*	7	150	7	750	* AG	678	1.0	.0	10.0
O. Hollis SBAX	*	-5	750	-5	150	* AG	942	1.0	.0	10.0
P. Hollis SBDX	*	-5	-150	-5	-750	* AG	854	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1103	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1370	1.0	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	1177	1.0	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	1059	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	14	-14	1.8
2. NW	*	-12	15	1.8
3. SW	*	-12	-14	1.8
4. NE	*	14	17	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	15	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	14	-150	1.8
10. NW mdblk	*	-12	150	1.8
11. SW mdblk	*	-12	-150	1.8
12. NE mdblk	*	14	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	15	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	14	-600	1.8
18. NW blk	*	-12	600	1.8
19. SW blk	*	-12	-600	1.8
20. NE blk	*	14	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	351.	* .5	*	.0	.1	.0	.0	.0	.0	.0	.0
2. NW	*	97.	* .5	*	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	82.	* .5	*	.0	.0	.0	.0	.0	.0	.0	.2
4. NE	*	189.	* .4	*	.1	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	278.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	*	97.	* .3	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	83.	* .4	*	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	*	262.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	* 352.	* .4	* .1	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	* 172.	* .4	* .0	.0	.0	.2	.0	.0	.0	.0	.0
11. SW mdblk	* 7.	* .4	* .0	.0	.0	.0	.2	.0	.0	.0	.0
12. NE mdblk	* 187.	* .4	* .0	.2	.0	.0	.0	.0	.0	.0	.0
13. ES blk	* 277.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* 97.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	* 83.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	* 263.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	* 354.	* .2	* .0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* 174.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	* 6.	* .2	* .0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* 186.	* .2	* .0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
17. SE blk	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	*	2	-150	2	0	* AG	110	1.6	.0	10.0
B. Harlan S NBD	*	2	0	2	150	* AG	47	1.1	.0	10.0
C. Harlan S NBL	*	2	-150	0	0	* AG	33	1.7	.0	10.0
D. Harlan S SBA	*	-2	150	-2	0	* AG	17	1.6	.0	10.0
E. Harlan S SBD	*	-2	0	-2	-150	* AG	148	1.1	.0	10.0
F. Harlan S SBL	*	-2	150	0	0	* AG	1	1.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1338	1.5	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1393	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	22	1.7	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	1208	1.5	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1237	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	96	1.7	.0	10.0
M. Harlan NBAX	*	2	-750	2	-150	* AG	143	1.0	.0	10.0
N. Harlan NBDX	*	2	150	2	750	* AG	47	1.0	.0	10.0
O. Harlan SBAX	*	-2	750	-2	150	* AG	18	1.0	.0	10.0
P. Harlan SBDX	*	-2	-150	-2	-750	* AG	148	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1360	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1393	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1304	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1237	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	8	-14	1.8
2. NW	*	-8	14	1.8
3. SW	*	-8	-14	1.8
4. NE	*	8	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	8	-150	1.8
10. NW mdblk	*	-8	150	1.8
11. SW mdblk	*	-8	-150	1.8
12. NE mdblk	*	8	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	8	-600	1.8
18. NW blk	*	-8	600	1.8
19. SW blk	*	-8	-600	1.8
20. NE blk	*	8	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	* .4	*	.0	.0	.0	.0	.0	.0	.2	.0
2. NW	*	98.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	82.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.2
4. NE	*	98.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	278.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	*	98.	* .3	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	82.	* .4	*	.0	.0	.0	.0	.0	.0	.3	.0
8. EN mdblk	*	262.	* .4	*	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	* 352.	* .1	* .0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	* 177.	* .0	* .0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	* 9.	* .1	* .0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	* 183.	* .0	* .0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	* 277.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	* 97.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	* 83.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	* 263.	* .3	* .0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	* 355.	* .0	* .0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	* 177.	* .0	* .0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	* 5.	* .0	* .0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	* 183.	* .0	* .0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
17. SE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Emery St NBA	*	4	-150	4	0	* AG	524	1.8	.0	10.0
B. Emery St NBD	*	4	0	4	150	* AG	330	1.2	.0	10.0
C. Emery St NBL	*	2	-150	0	0	* AG	272	1.8	.0	10.0
D. Emery St SBA	*	-2	150	-2	0	* AG	168	1.6	.0	10.0
E. Emery St SBD	*	-2	0	-2	-150	* AG	522	1.7	.0	10.0
F. Emery St SBL	*	-2	150	0	0	* AG	30	1.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1403	1.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1504	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	32	1.7	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	1091	1.4	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1322	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	158	1.7	.0	10.0
M. Emery S NBAX	*	4	-750	4	-150	* AG	796	1.0	.0	10.0
N. Emery S NBDX	*	4	150	4	750	* AG	330	1.0	.0	10.0
O. Emery S SBAX	*	-2	750	-2	150	* AG	198	1.0	.0	10.0
P. Emery S SBDX	*	-2	-150	-2	-750	* AG	522	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1435	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1504	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1249	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1322	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

Page 1

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	A	B	C	CONC/LINK (PPM) D	E	F	G	H
9. SE mdblk	*	351.	*	.3	*	.1	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	176.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	9.	*	.3	*	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	*	185.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	277.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	83.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	263.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	175.	*	.1	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	185.	*	.1	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
17. SE blk	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

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Page 3

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	10	-14	1.8
2. NW	*	-8	14	1.8
3. SW	*	-8	-14	1.8
4. NE	*	10	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	10	-150	1.8
10. NW mdblk	*	-8	150	1.8
11. SW mdblk	*	-8	-150	1.8
12. NE mdblk	*	10	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	10	-600	1.8
18. NW blk	*	-8	600	1.8
19. SW blk	*	-8	-600	1.8
20. NE blk	*	10	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	A	B	C	CONC/LINK (PPM) D	E	F	G	H
1. SE	*	278.	*	.5	*	.0	.0	.0	.0	.0	.0	.3	.0
2. NW	*	173.	*	.5	*	.0	.0	.0	.0	.0	.1	.0	.0
3. SW	*	82.	*	.5	*	.0	.0	.0	.0	.0	.0	.0	.2
4. NE	*	188.	*	.4	*	.1	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	277.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	*	98.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	82.	*	.5	*	.0	.0	.0	.0	.0	.0	.3	.0
8. EN mdblk	*	262.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0

Page 2

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	11	-150	11	0	* AG	1358	1.7	.0	10.0
B. San Pabl NBD	*	11	0	11	150	* AG	1754	1.5	.0	10.0
C. San Pabl NBL	*	9	-150	9	0	* AG	537	1.8	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1552	1.7	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1911	1.6	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	283	1.8	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1283	1.7	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1152	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	223	1.8	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	787	1.5	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1254	1.2	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	47	1.7	.0	10.0
M. San Pab NBAX	*	11	-750	11	-150	* AG	1896	1.0	.0	10.0
N. San Pab NBDX	*	11	150	11	750	* AG	1754	1.0	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1835	1.0	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1911	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1506	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1152	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	834	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1254	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

Page 1

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-14	1.8
2. NW	-14	14	1.8
3. SW	-14	-14	1.8
4. NE	17	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	17	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	17	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	17	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	.7	.1	.0	.0	.0	.0	.0	.2	.0
2. NW	170.	.8	.0	.0	.0	.3	.0	.0	.0	.0
3. SW	10.	.8	.0	.0	.0	.3	.0	.0	.1	.0
4. NE	190.	.7	.2	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	276.	.4	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	99.	.4	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	82.	.5	.0	.0	.0	.0	.0	.0	.3	.0
8. EN mdblk	263.	.4	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	351.	.7	.3	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	.6	.0	.0	.0	.3	.0	.0	.0	.0
11. SW mdblk	8.	.7	.0	.0	.0	.4	.0	.0	.0	.0
12. NE mdblk	188.	.6	.0	.3	.0	.0	.0	.0	.0	.0
13. ES blk	276.	.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	.4	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	.4	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
17. SE blk	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S ZO= 100. CM ALT= 6. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	4	-150	4	0	AG	1106	1.4	.0	10.0
B. San Pabl NBD	4	0	4	150	AG	1909	1.4	.0	10.0
C. San Pabl NBL	2	-150	0	0	AG	49	1.7	.0	10.0
D. San Pabl SBA	-5	150	-5	0	AG	1847	1.5	.0	13.5
E. San Pabl SBD	-5	0	-5	-150	AG	1890	1.1	.0	11.8
F. San Pabl SBL	-2	150	0	0	AG	0	1.0	.0	10.0
G. 36th Str EBA	-150	0	0	0	AG	0	1.0	.0	10.0
H. 36th Str EBD	0	0	150	0	AG	0	1.0	.0	10.0
I. 36th Str EBL	-150	-2	0	0	AG	0	1.0	.0	10.0
J. 36th Str WBA	150	5	0	5	AG	1364	1.8	.0	11.8
K. 36th Str WBD	0	5	-150	5	AG	631	1.2	.0	10.0
L. 36th Str WBL	150	2	0	0	AG	64	1.7	.0	10.0
M. San Pab NBAX	4	-750	4	-150	AG	1155	1.0	.0	10.0
N. San Pab NBDX	4	150	4	750	AG	1909	1.0	.0	10.0
O. San Pab SBAX	-5	750	-5	150	AG	1847	1.0	.0	13.5
P. San Pab SBDX	-5	-150	-5	-750	AG	1890	1.0	.0	11.8
Q. 36th St EBAX	-750	0	-150	0	AG	0	1.0	.0	10.0
R. 36th St EBDX	150	0	750	0	AG	0	1.0	.0	10.0
S. 36th St WBAX	750	5	150	5	AG	1428	1.0	.0	11.8
T. 36th St WBDX	-150	5	-750	5	AG	631	1.0	.0	10.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	10	-7	1.8
2. NW	-14	12	1.8
3. SW	-13	-7	1.8
4. NE	10	13	1.8
5. ES mdblk	150	-7	1.8
6. WN mdblk	-150	12	1.8
7. WS mdblk	-150	-7	1.8
8. EN mdblk	150	13	1.8
9. SE mdblk	10	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-13	-150	1.8
12. NE mdblk	10	150	1.8
13. ES blk	600	-7	1.8
14. WN blk	-600	12	1.8
15. WS blk	-600	-7	1.8
16. EN blk	600	13	1.8
17. SE blk	10	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-13	-600	1.8
20. NE blk	10	600	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	352.	.7	.0	.3	.0	.1	.0	.0	.0	.0
2. NW	96.	.6	.0	.0	.0	.2	.0	.0	.0	.0
3. SW	8.	.6	.0	.1	.0	.3	.0	.0	.0	.0
4. NE	189.	.6	.2	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	281.	.3	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	93.	.2	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	84.	.2	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	261.	.4	.0	.0	.0	.0	.0	.0	.0	.0

9. SE mdblk	*	354.	*	.5	*	.2	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	171.	*	.6	*	.0	.1	.0	.3	.0	.0	.0	.0
11. SW mdblk	*	7.	*	.5	*	.0	.0	.0	.0	.3	.0	.0	.0
12. NE mdblk	*	188.	*	.6	*	.0	.3	.0	.1	.0	.0	.0	.0
13. ES blk	*	276.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	95.	*	.2	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	*	.1	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	*	.3	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	353.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	173.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	7.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	187.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: 2030PlusProj (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

		CONC/LINK (PPM)										
RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	*	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
17. SE blk	*	.0	.0	.0	.0	.2	.0	.0	.1	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.3	.1	.0	.0	.0	.0	.0

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APPENDIX C-2

PROPOSED PROJECT
URBEMIS 2002 AIR QUALITY MODELING

URBEMIS 2002 For Windows 8.7.0

File Name: <Not Saved>
Project Name: emeryville marketplace admin 2
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Winter)

OPERATIONAL (VEHICLE) EMISSION ESTIMATES	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	52.74	67.35	542.96	0.24	40.25

URBEMIS 2002 For Windows 8.7.0

File Name: <Not Saved>
Project Name: emeryville marketplace admin 2
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Winter)

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Condo/townhouse general	25.39	36.55	280.67	0.13	22.97
Quality resturant	7.50	8.76	73.03	0.03	5.03
Strip mall	19.85	22.04	189.26	0.07	12.25
TOTAL EMISSIONS (lbs/day)	52.74	67.35	542.96	0.24	40.25

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2007 Temperature (F): 40 Season: Winter

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Condo/townhouse general	21.25	6.90 trips/dwelling unit	340.00	2,346.00
Quality resturant		89.95 trips/1000 sq. ft.	11.00	989.45
Strip mall		42.94 trips/1000 sq. ft.	66.00	2,834.04
		Sum of Total Trips		6,169.49
		Total Vehicle Miles Traveled		26,396.11

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	55.20	1.80	97.80	0.40
Light Truck < 3,750 lbs	15.10	3.30	94.00	2.70
Light Truck 3,751- 5,750	16.10	1.90	96.90	1.20
Med Truck 5,751- 8,500	7.10	1.40	95.80	2.80
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.40	0.00	50.00	50.00
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.10	0.00	0.00	100.00
Motorcycle	1.70	82.40	17.60	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.20	8.30	83.30	8.40

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Quality resturant				8.0	4.0	88.0
Strip mall				2.0	1.0	97.0

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Operations

The operational emission year changed from 2005 to 2007.

APPENDIX C-3

PROPOSED PROJECT
HUMAN HEALTH RISK ASSESSMENT (HHRA)

HEALTH RISK ASSESSMENT
EMERYVILLE MARKETPLACE EXPANSION PROJECT

The proposed project would construct residential units adjacent to railroad tracks and the Emeryville train station. Train engines that operate on the tracks are a source of diesel emissions, which California's Office of Environmental Health Hazard Assessment (OEHHA) has determined pose a cancer risk and may cause other health problems. LSA Associates, Inc. has completed a health risk analysis for the proposed Emeryville Marketplace project to assess the potential risk to future residents at the project site from diesel emissions generated by trains. The analysis considered specific meteorological conditions on the project site and the proximity of the project site to the adjacent railroad tracks and train station. The following discussion provides the technical background information used to determine the health risk to future residents of the project site.

General Health Risks of Toxics. Determining how hazardous a substance is depends on many factors, including the amount of the substance in the air, how it enters the body, how long the exposure lasts, and what organs in the body are affected. One major way substances enter the body is through inhalation of either gases or particulates. Diesel engine emissions contain both gases and very small particles that penetrate deeply into the lungs, contributing to a range of health problems. California's OEHHA has determined that long-term exposure to diesel exhaust particulates poses the highest cancer risk of any toxic air contaminant it has evaluated. Fortunately, improvements to diesel fuel and diesel engines have already reduced emissions of some of the contaminants. When the improvements are fully implemented it is expected that the particle emissions from diesel-powered trucks and other equipment will be reduced by 75 percent reduction by 2010 (compared to 2000 levels) and by 85 percent by 2020.

There are currently no federal project-level requirements for air toxics analysis, and CEQA only requires a consideration of the risks from toxics, with the Bay Area Air Quality Management District (BAAQMD) providing the *Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants* (July 2005) for guidance. The BAAQMD has also established a maximum individual cancer risk significance threshold of 10 in 1 million (1.0×10^{-5}) (assumes the project will be constructed with best-available control technology for toxics) and a noncarcinogenic hazard index of 1.0.

Analysis of Site Specific Toxics. According to California Air Resources Board (ARB),[1] when conducting a health risk assessment (HRA), the surrogate for whole diesel exhaust is diesel particulate matter, which is used as the basis for the potential risk calculations. When conducting an HRA, the potential cancer risk from inhalation exposure to diesel PM will outweigh the potential noncancer health impacts. Therefore, inhalation cancer risk is required for every HRA. When comparing whole diesel exhaust to speciated diesel exhaust (e.g., polynuclear aromatic hydrocarbons, metals), potential cancer risk from inhalation exposure to whole diesel exhaust will outweigh the

[1] Air Resources Board, 2005. http://www.arb.ca.gov/toxics/harp/docs/userguide/appendixK.pdf

multipathway cancer risk from the speciated components. For this reason, there will be few situations where an analysis of multipathway risk is necessary.[2]

To estimate the potential cancer risk associated with project-related diesel engine exhaust, a dispersion model is used to translate an emission rate from a source location to a concentration at a receptor location of interest. Dispersion modeling varies from the simpler, more conservative screening-level analysis to the more complex and refined detailed analysis. This assessment, which falls into the latter category, was conducted using the ARB health risk model, HARP, which includes the EPA dispersion model ISCST3. In addition to examining the risks from diesel exhaust particulate, this assessment includes the risks from diesel exhaust gases. This model provides a detailed estimate of concentrations considering site and source geometry, source strength, distance to receptor, and site specific meteorological data.

Emission Estimates. Diesel (engine) locomotives drive most freight trains and commuter passenger trains. Emissions from locomotives are relatively low. Emissions factors in the EPA's Technical Highlights: Emission Factors for Locomotives (EPA420-F-97-051, December 1997) were used to estimate train emissions. Since it is expected that some older locomotives will continue to be used into the 70-year analysis period, it is assumed that 50 percent of the locomotives are manufactured prior to 2004 and 50 percent after.

Based on on-site observations, approximately 75 to 80 trains a day operate along the Union Pacific corridor under existing conditions. It is assumed that 37 percent of the daily trains will be passenger trains using an engine of approximately 3,000 horsepower (hp) (30 per day) and 63 percent of the daily trains would be freight trains using engines of approximately 5,000 hp (50 per day). The train emission factors and rates are shown in Table 1.

Table 1: Train Emission Factors (g/bhp-hr)

Category	VOC		PM_{10}	
	Line-Haul	Idling	Line-Haul	Idling
Locomotives manufactured from 1973 – 2004	0.48	1.01	0.32	0.44
Locomotives manufactured after 2004	0.26	0.52	0.17	0.21

Notes: g/bhp-h = Grams Per Brake Horsepower-Hour.
Line-Haul = Train engaged in the transport of passenger or cargo over a long distance within the rail network.
Source: EPA EPA420-F-97-051, December 1997.

Most freight trains move through the area at approximately 40 miles per hour (mph). Passenger trains idle adjacent to the site between 5 and 7 minutes for passenger loading and unloading at the Amtrak station located north of the project site. The locomotive emission rates for each of the rail activities that are anticipated to occur adjacent to the project site are listed in Table 2.

Table 2: Locomotive Emission Rates per Type and Activity (lbs/day)

Category	VOC		PM_{10}	
	Line-Haul	Station	Line-Haul	Station
Passenger	--	17.47	--	7.42
Freight	0.049	--	0.032	--

Notes: g/bhp-h = Grams Per Brake Horsepower-Hour.
Line-Haul = Train engaged in the transport of passenger or cargo over a long distance within the rail network.
Source: LSA Associates, Inc., April 2006.

The passing and idling trains were modeled based on a series of nine sources spaced at 100-foot intervals located so that the center source was at the closest point to the nearest future residence. For

[2] OEHHA. 2003. *Air Toxics Hot Spots Program Risk Assessment Guidelines, Appendix D, Risk Assessment Procedures to Evaluate Particulate Emissions from Diesel-Fueled Vehicles, Section B.* August.

the passenger loading/unloading operations occurring approximately 50 feet to the north of the proposed residential units, it is assumed each operation results in 7 minutes of idling. The total concentration at the residential unit is the sum of all sources of emissions including the locomotive pass-bys and the idling associated with passenger loading and unloading. Such model input details as stack height, dimensions, exhaust temperature and exit velocity were based on a typical electric/diesel hybrid locomotive.
For purposes of this analysis, all locomotive exhaust was modeled from nine sources located along the railroad tracks. These extend approximately to the edge of the proposed project site in both directions.

Receptors were placed in a general grid extending in all directions to characterize the risk level isopleths and at locations of future residences. Meteorological data from the San Francisco Airport[3] were used to represent the conditions at the project site. The model input and output sheets including the model grid and isopleths results are attached.

Acute Emission Impacts. There are no significant emissions of toxic air pollutants that have short-term acute health effects in the project vicinity. Exposure to diesel exhaust can have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. However, according to the rulemaking on *Identifying Particulate Emissions from Diesel-Fueled Engines as a Toxic Air Contaminant* (ARB 1998), the available data from studies of humans exposed to diesel exhaust are not sufficient for deriving an acute noncancer health risk guidance value. While the lung is a major target organ for diesel exhaust, studies of the gross respiratory effects of diesel exhaust in exposed workers have not provided sufficient exposure information to establish a short-term noncancer health risk guidance value for respiratory effects. Therefore, the potential for short-term acute exposure will be less than significant.

Carcinogenic and Chronic Impacts. The results of the health risk assessment are shown in Table 3. Results of the analysis indicate that the maximum individual inhalation cancer risk associated with living at the proposed development for 70 years would be exposed to an inhalation cancer risk of 9.8 in 1 million which is less than the threshold of 10 in 1 million. The maximum chronic hazard index is 0.06, which is below the threshold of 1.0.

Table 3: Inhalation Health Risks from Train Sources

Nearest Future Residence (Feet)	Carcinogenic Inhalation Health Risk	Chronic Inhalation Health Index
30	9.8	0.06
Threshold	**10 in a million**	**1.0**

Source: LSA Associates, Inc., 2007.

While the above modeling and comparison to the EPA threshold addresses the single emissions source of the railroad operations adjacent to the site, the average California carcinogenic inhalation heath risk from all sources of exposure is currently 701 in a million. The California Air Resources Board (ARB) has identified diesel locomotives and railyard activities as a significant source of toxic emissions. On September 2000, the ARB approved the

[3] Downloaded from the ARB web site, www.arb.ca.gov/toxics/harp/metfiles.htm, on 2/14/07.

comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled engines and vehicles. The goal of the Plan is to reduce diesel PM emissions and the associated health risk by 75 percent in 2010 and 85 percent by 2020.

The ARB has taken steps to achieve the risk reduction goals of the Diesel Risk Reduction Plan including the facilitation of a voluntary agreement with the Union Pacific Railroad (UPRR) and Burlington Northern Santa Fe (BNSF) Railway Company which became effective on June 30, 2005. The Agreement obligates UPRR and BNSF to reduce locomotive and associated diesel particulate emissions in and around California's railyards and railroad rights-of-way. To reduce diesel emissions, the agreement includes a statewide idling reduction program and maximum use of low sulfur diesel in locomotives fueled in California. The agreement also requires a detailed evaluation of advanced control measures that could reduce diesel particulate emissions by up to 90 percent from uncontrolled levels generated by applicable locomotives. Additionally, several State and federal rulemaking efforts are underway to reduce emissions from railroads including the Carol Moyer program[4] and other incentive efforts, and Governor Schwarzenegger's Goods Movement Action Plan for California's ports, railways and highway system.[5]

[4] The Carl Moyer program is a grant program implemented by a partnership of ARB and local air districts that funds the incremental cost of cleaner-than-required engines and other sources of pollution. Projects to reduce emissions from on-road heavy duty vehicles, idle reduction technologies, locomotives and others are eligible for the program.

[5] The Goods Movement Action Plan will develop a statewide implementation plan for goods movement capacity expansion, goods movement-related environmental and community mitigation, and goods movement-related homeland security and public safety enhancement. It will define the required elements to synchronize and to integrate efforts to achieve relief and improvement.

File: P:\CEM531\HARP\RISK.csv

Receptor	Type	Cancer Risk	Chronic HI	Acute Simp HI	Acute Max Hou HI	UTME	UTMN	ZONE
1	GRID	6.27E-07	3.94E-04	0.00E+00	-1.00E+00	560985	4189648	10
2	GRID	7.11E-07	4.47E-04	0.00E+00	-1.00E+00	561085	4189648	10
3	GRID	7.97E-07	5.00E-04	0.00E+00	-1.00E+00	561185	4189648	10
4	GRID	8.82E-07	5.54E-04	0.00E+00	-1.00E+00	561285	4189648	10
5	GRID	9.74E-07	6.11E-04	0.00E+00	-1.00E+00	561385	4189648	10
6	GRID	1.08E-06	6.78E-04	0.00E+00	-1.00E+00	561485	4189648	10
7	GRID	1.23E-06	7.70E-04	0.00E+00	-1.00E+00	561585	4189648	10
8	GRID	1.38E-06	8.65E-04	0.00E+00	-1.00E+00	561685	4189648	10
9	GRID	1.61E-06	1.01E-03	0.00E+00	-1.00E+00	561785	4189648	10
10	GRID	1.92E-06	1.21E-03	0.00E+00	-1.00E+00	561885	4189648	10
11	GRID	2.21E-06	1.39E-03	0.00E+00	-1.00E+00	561985	4189648	10
12	GRID	3.25E-06	2.04E-03	0.00E+00	-1.00E+00	562085	4189648	10
13	GRID	3.12E-06	1.96E-03	0.00E+00	-1.00E+00	562185	4189648	10
14	GRID	3.53E-06	2.22E-03	0.00E+00	-1.00E+00	562285	4189648	10
15	GRID	3.07E-06	1.93E-03	0.00E+00	-1.00E+00	562385	4189648	10
16	GRID	3.29E-06	2.07E-03	0.00E+00	-1.00E+00	562485	4189648	10
17	GRID	2.63E-06	1.65E-03	0.00E+00	-1.00E+00	562585	4189648	10
18	GRID	2.85E-06	1.79E-03	0.00E+00	-1.00E+00	562685	4189648	10
19	GRID	2.72E-06	1.70E-03	0.00E+00	-1.00E+00	562785	4189648	10
20	GRID	2.47E-06	1.55E-03	0.00E+00	-1.00E+00	562885	4189648	10
21	GRID	2.45E-06	1.54E-03	0.00E+00	-1.00E+00	562985	4189648	10
22	GRID	2.25E-06	1.41E-03	0.00E+00	-1.00E+00	563085	4189648	10
23	GRID	2.18E-06	1.37E-03	0.00E+00	-1.00E+00	563185	4189648	10
24	GRID	2.08E-06	1.31E-03	0.00E+00	-1.00E+00	563285	4189648	10
25	GRID	2.08E-06	1.31E-03	0.00E+00	-1.00E+00	563385	4189648	10
26	GRID	6.20E-07	3.89E-04	0.00E+00	-1.00E+00	560985	4189548	10
27	GRID	7.10E-07	4.46E-04	0.00E+00	-1.00E+00	561085	4189548	10
28	GRID	8.13E-07	5.11E-04	0.00E+00	-1.00E+00	561185	4189548	10
29	GRID	9.19E-07	5.77E-04	0.00E+00	-1.00E+00	561285	4189548	10
30	GRID	1.03E-06	6.44E-04	0.00E+00	-1.00E+00	561385	4189548	10
31	GRID	1.14E-06	7.18E-04	0.00E+00	-1.00E+00	561485	4189548	10
32	GRID	1.30E-06	8.17E-04	0.00E+00	-1.00E+00	561585	4189548	10
33	GRID	1.47E-06	9.24E-04	0.00E+00	-1.00E+00	561685	4189548	10
34	GRID	1.72E-06	1.08E-03	0.00E+00	-1.00E+00	561785	4189548	10
35	GRID	2.04E-06	1.28E-03	0.00E+00	-1.00E+00	561885	4189548	10
36	GRID	2.45E-06	1.54E-03	0.00E+00	-1.00E+00	561985	4189548	10
37	GRID	3.71E-06	2.33E-03	0.00E+00	-1.00E+00	562085	4189548	10
38	GRID	3.53E-06	2.21E-03	0.00E+00	-1.00E+00	562185	4189548	10
39	GRID	3.99E-06	2.50E-03	0.00E+00	-1.00E+00	562285	4189548	10
40	GRID	3.42E-06	2.14E-03	0.00E+00	-1.00E+00	562385	4189548	10
41	GRID	3.84E-06	2.41E-03	0.00E+00	-1.00E+00	562485	4189548	10
42	GRID	3.06E-06	1.92E-03	0.00E+00	-1.00E+00	562585	4189548	10
43	GRID	3.22E-06	2.02E-03	0.00E+00	-1.00E+00	562685	4189548	10
44	GRID	2.88E-06	1.81E-03	0.00E+00	-1.00E+00	562785	4189548	10
45	GRID	2.79E-06	1.75E-03	0.00E+00	-1.00E+00	562885	4189548	10
46	GRID	2.69E-06	1.69E-03	0.00E+00	-1.00E+00	562985	4189548	10
47	GRID	2.47E-06	1.55E-03	0.00E+00	-1.00E+00	563085	4189548	10
48	GRID	2.34E-06	1.47E-03	0.00E+00	-1.00E+00	563185	4189548	10
49	GRID	2.33E-06	1.46E-03	0.00E+00	-1.00E+00	563285	4189548	10

50	GRID	2.19E-06	1.37E-03	0.00E+00	-1.00E+00	563385	4189548	10
51	GRID	6.16E-07	3.87E-04	0.00E+00	-1.00E+00	560985	4189448	10
52	GRID	7.03E-07	4.41E-04	0.00E+00	-1.00E+00	561085	4189448	10
53	GRID	8.14E-07	5.11E-04	0.00E+00	-1.00E+00	561185	4189448	10
54	GRID	9.43E-07	5.92E-04	0.00E+00	-1.00E+00	561285	4189448	10
55	GRID	1.08E-06	6.75E-04	0.00E+00	-1.00E+00	561385	4189448	10
56	GRID	1.21E-06	7.61E-04	0.00E+00	-1.00E+00	561485	4189448	10
57	GRID	1.39E-06	8.73E-04	0.00E+00	-1.00E+00	561585	4189448	10
58	GRID	1.58E-06	9.93E-04	0.00E+00	-1.00E+00	561685	4189448	10
59	GRID	1.83E-06	1.15E-03	0.00E+00	-1.00E+00	561785	4189448	10
60	GRID	2.23E-06	1.40E-03	0.00E+00	-1.00E+00	561885	4189448	10
61	GRID	2.70E-06	1.70E-03	0.00E+00	-1.00E+00	561985	4189448	10
62	GRID	3.05E-06	1.92E-03	0.00E+00	-1.00E+00	562085	4189448	10
63	GRID	3.49E-06	2.19E-03	0.00E+00	-1.00E+00	562185	4189448	10
64	GRID	4.39E-06	2.76E-03	0.00E+00	-1.00E+00	562285	4189448	10
65	GRID	4.05E-06	2.55E-03	0.00E+00	-1.00E+00	562385	4189448	10
66	GRID	4.33E-06	2.72E-03	0.00E+00	-1.00E+00	562485	4189448	10
67	GRID	3.57E-06	2.24E-03	0.00E+00	-1.00E+00	562585	4189448	10
68	GRID	3.42E-06	2.15E-03	0.00E+00	-1.00E+00	562685	4189448	10
69	GRID	3.32E-06	2.09E-03	0.00E+00	-1.00E+00	562785	4189448	10
70	GRID	3.04E-06	1.91E-03	0.00E+00	-1.00E+00	562885	4189448	10
71	GRID	2.96E-06	1.86E-03	0.00E+00	-1.00E+00	562985	4189448	10
72	GRID	2.84E-06	1.78E-03	0.00E+00	-1.00E+00	563085	4189448	10
73	GRID	2.79E-06	1.75E-03	0.00E+00	-1.00E+00	563185	4189448	10
74	GRID	2.62E-06	1.64E-03	0.00E+00	-1.00E+00	563285	4189448	10
75	GRID	2.51E-06	1.58E-03	0.00E+00	-1.00E+00	563385	4189448	10
76	GRID	6.12E-07	3.84E-04	0.00E+00	-1.00E+00	560985	4189348	10
77	GRID	6.98E-07	4.38E-04	0.00E+00	-1.00E+00	561085	4189348	10
78	GRID	8.06E-07	5.06E-04	0.00E+00	-1.00E+00	561185	4189348	10
79	GRID	9.46E-07	5.94E-04	0.00E+00	-1.00E+00	561285	4189348	10
80	GRID	1.11E-06	6.97E-04	0.00E+00	-1.00E+00	561385	4189348	10
81	GRID	1.28E-06	8.05E-04	0.00E+00	-1.00E+00	561485	4189348	10
82	GRID	1.49E-06	9.36E-04	0.00E+00	-1.00E+00	561585	4189348	10
83	GRID	1.72E-06	1.08E-03	0.00E+00	-1.00E+00	561685	4189348	10
84	GRID	1.95E-06	1.23E-03	0.00E+00	-1.00E+00	561785	4189348	10
85	GRID	2.38E-06	1.49E-03	0.00E+00	-1.00E+00	561885	4189348	10
86	GRID	2.98E-06	1.87E-03	0.00E+00	-1.00E+00	561985	4189348	10
87	GRID	3.48E-06	2.19E-03	0.00E+00	-1.00E+00	562085	4189348	10
88	GRID	4.59E-06	2.88E-03	0.00E+00	-1.00E+00	562185	4189348	10
89	GRID	5.07E-06	3.18E-03	0.00E+00	-1.00E+00	562285	4189348	10
90	GRID	4.57E-06	2.87E-03	0.00E+00	-1.00E+00	562385	4189348	10
91	GRID	4.95E-06	3.11E-03	0.00E+00	-1.00E+00	562485	4189348	10
92	GRID	4.17E-06	2.62E-03	0.00E+00	-1.00E+00	562585	4189348	10
93	GRID	3.93E-06	2.47E-03	0.00E+00	-1.00E+00	562685	4189348	10
94	GRID	3.72E-06	2.34E-03	0.00E+00	-1.00E+00	562785	4189348	10
95	GRID	3.44E-06	2.16E-03	0.00E+00	-1.00E+00	562885	4189348	10
96	GRID	3.27E-06	2.06E-03	0.00E+00	-1.00E+00	562985	4189348	10
97	GRID	3.16E-06	1.98E-03	0.00E+00	-1.00E+00	563085	4189348	10
98	GRID	3.06E-06	1.92E-03	0.00E+00	-1.00E+00	563185	4189348	10
99	GRID	2.91E-06	1.83E-03	0.00E+00	-1.00E+00	563285	4189348	10
100	GRID	2.72E-06	1.71E-03	0.00E+00	-1.00E+00	563385	4189348	10
101	GRID	5.96E-07	3.74E-04	0.00E+00	-1.00E+00	560985	4189248	10

102	GRID	6.91E-07	4.34E-04	0.00E+00	-1.00E+00	561085	4189248	10
103	GRID	8.01E-07	5.03E-04	0.00E+00	-1.00E+00	561185	4189248	10
104	GRID	9.38E-07	5.89E-04	0.00E+00	-1.00E+00	561285	4189248	10
105	GRID	1.12E-06	7.02E-04	0.00E+00	-1.00E+00	561385	4189248	10
106	GRID	1.33E-06	8.38E-04	0.00E+00	-1.00E+00	561485	4189248	10
107	GRID	1.61E-06	1.01E-03	0.00E+00	-1.00E+00	561585	4189248	10
108	GRID	1.86E-06	1.17E-03	0.00E+00	-1.00E+00	561685	4189248	10
109	GRID	2.18E-06	1.37E-03	0.00E+00	-1.00E+00	561785	4189248	10
110	GRID	2.63E-06	1.65E-03	0.00E+00	-1.00E+00	561885	4189248	10
111	GRID	3.30E-06	2.07E-03	0.00E+00	-1.00E+00	561985	4189248	10
112	GRID	4.01E-06	2.52E-03	0.00E+00	-1.00E+00	562085	4189248	10
113	GRID	4.65E-06	2.92E-03	0.00E+00	-1.00E+00	562185	4189248	10
114	GRID	5.95E-06	3.74E-03	0.00E+00	-1.00E+00	562285	4189248	10
115	GRID	5.67E-06	3.56E-03	0.00E+00	-1.00E+00	562385	4189248	10
116	GRID	4.63E-06	2.91E-03	0.00E+00	-1.00E+00	562485	4189248	10
117	GRID	5.04E-06	3.16E-03	0.00E+00	-1.00E+00	562585	4189248	10
118	GRID	4.46E-06	2.80E-03	0.00E+00	-1.00E+00	562685	4189248	10
119	GRID	4.30E-06	2.70E-03	0.00E+00	-1.00E+00	562785	4189248	10
120	GRID	3.90E-06	2.45E-03	0.00E+00	-1.00E+00	562885	4189248	10
121	GRID	3.71E-06	2.33E-03	0.00E+00	-1.00E+00	562985	4189248	10
122	GRID	3.54E-06	2.22E-03	0.00E+00	-1.00E+00	563085	4189248	10
123	GRID	3.44E-06	2.16E-03	0.00E+00	-1.00E+00	563185	4189248	10
124	GRID	3.31E-06	2.08E-03	0.00E+00	-1.00E+00	563285	4189248	10
125	GRID	3.02E-06	1.90E-03	0.00E+00	-1.00E+00	563385	4189248	10
126	GRID	5.65E-07	3.55E-04	0.00E+00	-1.00E+00	560985	4189148	10
127	GRID	6.67E-07	4.19E-04	0.00E+00	-1.00E+00	561085	4189148	10
128	GRID	7.88E-07	4.95E-04	0.00E+00	-1.00E+00	561185	4189148	10
129	GRID	9.32E-07	5.85E-04	0.00E+00	-1.00E+00	561285	4189148	10
130	GRID	1.11E-06	6.97E-04	0.00E+00	-1.00E+00	561385	4189148	10
131	GRID	1.35E-06	8.48E-04	0.00E+00	-1.00E+00	561485	4189148	10
132	GRID	1.70E-06	1.07E-03	0.00E+00	-1.00E+00	561585	4189148	10
133	GRID	2.01E-06	1.26E-03	0.00E+00	-1.00E+00	561685	4189148	10
134	GRID	2.41E-06	1.51E-03	0.00E+00	-1.00E+00	561785	4189148	10
135	GRID	2.88E-06	1.81E-03	0.00E+00	-1.00E+00	561885	4189148	10
136	GRID	3.66E-06	2.30E-03	0.00E+00	-1.00E+00	561985	4189148	10
137	GRID	4.62E-06	2.90E-03	0.00E+00	-1.00E+00	562085	4189148	10
138	GRID	5.48E-06	3.44E-03	0.00E+00	-1.00E+00	562185	4189148	10
139	GRID	6.04E-06	3.79E-03	0.00E+00	-1.00E+00	562285	4189148	10
140	GRID	6.90E-06	4.34E-03	0.00E+00	-1.00E+00	562385	4189148	10
141	GRID	5.55E-06	3.48E-03	0.00E+00	-1.00E+00	562485	4189148	10
142	GRID	5.78E-06	3.63E-03	0.00E+00	-1.00E+00	562585	4189148	10
143	GRID	5.39E-06	3.38E-03	0.00E+00	-1.00E+00	562685	4189148	10
144	GRID	4.81E-06	3.02E-03	0.00E+00	-1.00E+00	562785	4189148	10
145	GRID	4.46E-06	2.80E-03	0.00E+00	-1.00E+00	562885	4189148	10
146	GRID	4.41E-06	2.77E-03	0.00E+00	-1.00E+00	562985	4189148	10
147	GRID	4.05E-06	2.54E-03	0.00E+00	-1.00E+00	563085	4189148	10
148	GRID	3.95E-06	2.48E-03	0.00E+00	-1.00E+00	563185	4189148	10
149	GRID	3.65E-06	2.29E-03	0.00E+00	-1.00E+00	563285	4189148	10
150	GRID	3.37E-06	2.12E-03	0.00E+00	-1.00E+00	563385	4189148	10
151	GRID	5.29E-07	3.32E-04	0.00E+00	-1.00E+00	560985	4189048	10
152	GRID	6.26E-07	3.93E-04	0.00E+00	-1.00E+00	561085	4189048	10
153	GRID	7.51E-07	4.72E-04	0.00E+00	-1.00E+00	561185	4189048	10

154 GRID	9.09E-07	5.71E-04	0.00E+00	-1.00E+00	561285	4189048	10
155 GRID	1.10E-06	6.91E-04	0.00E+00	-1.00E+00	561385	4189048	10
156 GRID	1.34E-06	8.43E-04	0.00E+00	-1.00E+00	561485	4189048	10
157 GRID	1.71E-06	1.07E-03	0.00E+00	-1.00E+00	561585	4189048	10
158 GRID	2.15E-06	1.35E-03	0.00E+00	-1.00E+00	561685	4189048	10
159 GRID	2.62E-06	1.64E-03	0.00E+00	-1.00E+00	561785	4189048	10
160 GRID	3.19E-06	2.00E-03	0.00E+00	-1.00E+00	561885	4189048	10
161 GRID	4.06E-06	2.55E-03	0.00E+00	-1.00E+00	561985	4189048	10
162 GRID	5.33E-06	3.35E-03	0.00E+00	-1.00E+00	562085	4189048	10
163 GRID	6.50E-06	4.08E-03	0.00E+00	-1.00E+00	562185	4189048	10
164 GRID	7.39E-06	4.64E-03	0.00E+00	-1.00E+00	562285	4189048	10
165 GRID	8.32E-06	5.22E-03	0.00E+00	-1.00E+00	562385	4189048	10
166 GRID	7.11E-06	4.47E-03	0.00E+00	-1.00E+00	562485	4189048	10
167 GRID	6.91E-06	4.34E-03	0.00E+00	-1.00E+00	562585	4189048	10
168 GRID	6.15E-06	3.86E-03	0.00E+00	-1.00E+00	562685	4189048	10
169 GRID	5.87E-06	3.68E-03	0.00E+00	-1.00E+00	562785	4189048	10
170 GRID	5.38E-06	3.38E-03	0.00E+00	-1.00E+00	562885	4189048	10
171 GRID	5.00E-06	3.14E-03	0.00E+00	-1.00E+00	562985	4189048	10
172 GRID	4.73E-06	2.97E-03	0.00E+00	-1.00E+00	563085	4189048	10
173 GRID	4.36E-06	2.74E-03	0.00E+00	-1.00E+00	563185	4189048	10
174 GRID	4.09E-06	2.57E-03	0.00E+00	-1.00E+00	563285	4189048	10
175 GRID	3.69E-06	2.32E-03	0.00E+00	-1.00E+00	563385	4189048	10
176 GRID	5.01E-07	3.15E-04	0.00E+00	-1.00E+00	560985	4188948	10
177 GRID	5.86E-07	3.68E-04	0.00E+00	-1.00E+00	561085	4188948	10
178 GRID	7.00E-07	4.39E-04	0.00E+00	-1.00E+00	561185	4188948	10
179 GRID	8.55E-07	5.37E-04	0.00E+00	-1.00E+00	561285	4188948	10
180 GRID	1.06E-06	6.67E-04	0.00E+00	-1.00E+00	561385	4188948	10
181 GRID	1.33E-06	8.38E-04	0.00E+00	-1.00E+00	561485	4188948	10
182 GRID	1.66E-06	1.04E-03	0.00E+00	-1.00E+00	561585	4188948	10
183 GRID	2.19E-06	1.37E-03	0.00E+00	-1.00E+00	561685	4188948	10
184 GRID	2.82E-06	1.77E-03	0.00E+00	-1.00E+00	561785	4188948	10
185 GRID	3.54E-06	2.22E-03	0.00E+00	-1.00E+00	561885	4188948	10
186 GRID	4.56E-06	2.86E-03	0.00E+00	-1.00E+00	561985	4188948	10
187 GRID	6.21E-06	3.90E-03	0.00E+00	-1.00E+00	562085	4188948	10
188 GRID	7.98E-06	5.01E-03	0.00E+00	-1.00E+00	562185	4188948	10
189 GRID	9.28E-06	5.83E-03	0.00E+00	-1.00E+00	562285	4188948	10
190 GRID	7.87E-06	4.94E-03	0.00E+00	-1.00E+00	562385	4188948	10
191 GRID	9.25E-06	5.81E-03	0.00E+00	-1.00E+00	562485	4188948	10
192 GRID	8.35E-06	5.24E-03	0.00E+00	-1.00E+00	562585	4188948	10
193 GRID	7.31E-06	4.59E-03	0.00E+00	-1.00E+00	562685	4188948	10
194 GRID	6.93E-06	4.35E-03	0.00E+00	-1.00E+00	562785	4188948	10
195 GRID	6.35E-06	3.99E-03	0.00E+00	-1.00E+00	562885	4188948	10
196 GRID	6.16E-06	3.87E-03	0.00E+00	-1.00E+00	562985	4188948	10
197 GRID	5.43E-06	3.41E-03	0.00E+00	-1.00E+00	563085	4188948	10
198 GRID	5.11E-06	3.21E-03	0.00E+00	-1.00E+00	563185	4188948	10
199 GRID	4.51E-06	2.83E-03	0.00E+00	-1.00E+00	563285	4188948	10
200 GRID	3.92E-06	2.46E-03	0.00E+00	-1.00E+00	563385	4188948	10
201 GRID	4.93E-07	3.09E-04	0.00E+00	-1.00E+00	560985	4188848	10
202 GRID	5.64E-07	3.54E-04	0.00E+00	-1.00E+00	561085	4188848	10
203 GRID	6.60E-07	4.15E-04	0.00E+00	-1.00E+00	561185	4188848	10
204 GRID	7.95E-07	4.99E-04	0.00E+00	-1.00E+00	561285	4188848	10
205 GRID	9.86E-07	6.19E-04	0.00E+00	-1.00E+00	561385	4188848	10

206	GRID	1.26E-06	7.89E-04	0.00E+00	-1.00E+00	561485	4188848	10
207	GRID	1.63E-06	1.02E-03	0.00E+00	-1.00E+00	561585	4188848	10
208	GRID	2.13E-06	1.34E-03	0.00E+00	-1.00E+00	561685	4188848	10
209	GRID	2.93E-06	1.84E-03	0.00E+00	-1.00E+00	561785	4188848	10
210	GRID	3.94E-06	2.48E-03	0.00E+00	-1.00E+00	561885	4188848	10
211	GRID	5.19E-06	3.26E-03	0.00E+00	-1.00E+00	561985	4188848	10
212	GRID	7.10E-06	4.46E-03	0.00E+00	-1.00E+00	562085	4188848	10
213	GRID	9.89E-06	6.21E-03	0.00E+00	-1.00E+00	562185	4188848	10
214	GRID	1.18E-05	7.41E-03	0.00E+00	-1.00E+00	562285	4188848	10
215	GRID	1.01E-05	6.37E-03	0.00E+00	-1.00E+00	562385	4188848	10
216	GRID	9.14E-06	5.74E-03	0.00E+00	-1.00E+00	562485	4188848	10
217	GRID	9.90E-06	6.21E-03	0.00E+00	-1.00E+00	562585	4188848	10
218	GRID	9.37E-06	5.88E-03	0.00E+00	-1.00E+00	562685	4188848	10
219	GRID	8.37E-06	5.25E-03	0.00E+00	-1.00E+00	562785	4188848	10
220	GRID	7.91E-06	4.97E-03	0.00E+00	-1.00E+00	562885	4188848	10
221	GRID	6.98E-06	4.38E-03	0.00E+00	-1.00E+00	562985	4188848	10
222	GRID	6.18E-06	3.88E-03	0.00E+00	-1.00E+00	563085	4188848	10
223	GRID	5.24E-06	3.29E-03	0.00E+00	-1.00E+00	563185	4188848	10
224	GRID	4.63E-06	2.91E-03	0.00E+00	-1.00E+00	563285	4188848	10
225	GRID	3.97E-06	2.49E-03	0.00E+00	-1.00E+00	563385	4188848	10
226	GRID	5.12E-07	3.21E-04	0.00E+00	-1.00E+00	560985	4188748	10
227	GRID	5.75E-07	3.61E-04	0.00E+00	-1.00E+00	561085	4188748	10
228	GRID	6.57E-07	4.12E-04	0.00E+00	-1.00E+00	561185	4188748	10
229	GRID	7.68E-07	4.82E-04	0.00E+00	-1.00E+00	561285	4188748	10
230	GRID	9.26E-07	5.82E-04	0.00E+00	-1.00E+00	561385	4188748	10
231	GRID	1.16E-06	7.28E-04	0.00E+00	-1.00E+00	561485	4188748	10
232	GRID	1.52E-06	9.52E-04	0.00E+00	-1.00E+00	561585	4188748	10
233	GRID	2.06E-06	1.29E-03	0.00E+00	-1.00E+00	561685	4188748	10
234	GRID	2.90E-06	1.82E-03	0.00E+00	-1.00E+00	561785	4188748	10
235	GRID	4.16E-06	2.61E-03	0.00E+00	-1.00E+00	561885	4188748	10
236	GRID	5.94E-06	3.73E-03	0.00E+00	-1.00E+00	561985	4188748	10
237	GRID	8.32E-06	5.22E-03	0.00E+00	-1.00E+00	562085	4188748	10
238	GRID	1.29E-05	8.12E-03	0.00E+00	-1.00E+00	562185	4188748	10
239	GRID	1.55E-05	9.72E-03	0.00E+00	-1.00E+00	562285	4188748	10
240	GRID	1.32E-05	8.29E-03	0.00E+00	-1.00E+00	562385	4188748	10
241	GRID	1.18E-05	7.43E-03	0.00E+00	-1.00E+00	562485	4188748	10
242	GRID	1.05E-05	6.61E-03	0.00E+00	-1.00E+00	562585	4188748	10
243	GRID	1.15E-05	7.24E-03	0.00E+00	-1.00E+00	562685	4188748	10
244	GRID	1.06E-05	6.67E-03	0.00E+00	-1.00E+00	562785	4188748	10
245	GRID	9.59E-06	6.02E-03	0.00E+00	-1.00E+00	562885	4188748	10
246	GRID	8.01E-06	5.03E-03	0.00E+00	-1.00E+00	562985	4188748	10
247	GRID	6.63E-06	4.16E-03	0.00E+00	-1.00E+00	563085	4188748	10
248	GRID	5.72E-06	3.59E-03	0.00E+00	-1.00E+00	563185	4188748	10
249	GRID	5.03E-06	3.16E-03	0.00E+00	-1.00E+00	563285	4188748	10
250	GRID	4.30E-06	2.70E-03	0.00E+00	-1.00E+00	563385	4188748	10
251	GRID	5.52E-07	3.47E-04	0.00E+00	-1.00E+00	560985	4188648	10
252	GRID	6.18E-07	3.88E-04	0.00E+00	-1.00E+00	561085	4188648	10
253	GRID	7.00E-07	4.39E-04	0.00E+00	-1.00E+00	561185	4188648	10
254	GRID	8.04E-07	5.05E-04	0.00E+00	-1.00E+00	561285	4188648	10
255	GRID	9.41E-07	5.91E-04	0.00E+00	-1.00E+00	561385	4188648	10
256	GRID	1.13E-06	7.12E-04	0.00E+00	-1.00E+00	561485	4188648	10
257	GRID	1.42E-06	8.92E-04	0.00E+00	-1.00E+00	561585	4188648	10

258	GRID	1.88E-06	1.18E-03	0.00E+00	-1.00E+00	561685	4188648	10
259	GRID	2.73E-06	1.71E-03	0.00E+00	-1.00E+00	561785	4188648	10
260	GRID	4.08E-06	2.56E-03	0.00E+00	-1.00E+00	561885	4188648	10
261	GRID	6.31E-06	3.96E-03	0.00E+00	-1.00E+00	561985	4188648	10
262	GRID	1.00E-05	6.31E-03	0.00E+00	-1.00E+00	562085	4188648	10
263	GRID	1.71E-05	1.07E-02	0.00E+00	-1.00E+00	562185	4188648	10
264	GRID	2.16E-05	1.36E-02	0.00E+00	-1.00E+00	562285	4188648	10
265	GRID	1.73E-05	1.09E-02	0.00E+00	-1.00E+00	562385	4188648	10
266	GRID	1.56E-05	9.79E-03	0.00E+00	-1.00E+00	562485	4188648	10
267	GRID	1.40E-05	8.78E-03	0.00E+00	-1.00E+00	562585	4188648	10
268	GRID	1.26E-05	7.90E-03	0.00E+00	-1.00E+00	562685	4188648	10
269	GRID	1.29E-05	8.10E-03	0.00E+00	-1.00E+00	562785	4188648	10
270	GRID	1.04E-05	6.54E-03	0.00E+00	-1.00E+00	562885	4188648	10
271	GRID	8.25E-06	5.18E-03	0.00E+00	-1.00E+00	562985	4188648	10
272	GRID	7.38E-06	4.63E-03	0.00E+00	-1.00E+00	563085	4188648	10
273	GRID	5.77E-06	3.62E-03	0.00E+00	-1.00E+00	563185	4188648	10
274	GRID	5.01E-06	3.15E-03	0.00E+00	-1.00E+00	563285	4188648	10
275	GRID	4.31E-06	2.71E-03	0.00E+00	-1.00E+00	563385	4188648	10
276	GRID	5.96E-07	3.74E-04	0.00E+00	-1.00E+00	560985	4188548	10
277	GRID	6.72E-07	4.22E-04	0.00E+00	-1.00E+00	561085	4188548	10
278	GRID	7.67E-07	4.81E-04	0.00E+00	-1.00E+00	561185	4188548	10
279	GRID	8.84E-07	5.55E-04	0.00E+00	-1.00E+00	561285	4188548	10
280	GRID	1.03E-06	6.50E-04	0.00E+00	-1.00E+00	561385	4188548	10
281	GRID	1.23E-06	7.73E-04	0.00E+00	-1.00E+00	561485	4188548	10
282	GRID	1.50E-06	9.42E-04	0.00E+00	-1.00E+00	561585	4188548	10
283	GRID	1.89E-06	1.19E-03	0.00E+00	-1.00E+00	561685	4188548	10
284	GRID	2.56E-06	1.61E-03	0.00E+00	-1.00E+00	561785	4188548	10
285	GRID	3.80E-06	2.38E-03	0.00E+00	-1.00E+00	561885	4188548	10
286	GRID	6.18E-06	3.88E-03	0.00E+00	-1.00E+00	561985	4188548	10
287	GRID	1.10E-05	6.92E-03	0.00E+00	-1.00E+00	562085	4188548	10
288	GRID	2.07E-05	1.30E-02	0.00E+00	-1.00E+00	562185	4188548	10
289	GRID	3.08E-05	1.93E-02	0.00E+00	-1.00E+00	562285	4188548	10
290	GRID	2.40E-05	1.51E-02	0.00E+00	-1.00E+00	562385	4188548	10
291	GRID	2.17E-05	1.36E-02	0.00E+00	-1.00E+00	562485	4188548	10
292	GRID	1.99E-05	1.25E-02	0.00E+00	-1.00E+00	562585	4188548	10
293	GRID	1.88E-05	1.18E-02	0.00E+00	-1.00E+00	562685	4188548	10
294	GRID	1.49E-05	9.38E-03	0.00E+00	-1.00E+00	562785	4188548	10
295	GRID	1.16E-05	7.26E-03	0.00E+00	-1.00E+00	562885	4188548	10
296	GRID	9.27E-06	5.82E-03	0.00E+00	-1.00E+00	562985	4188548	10
297	GRID	7.50E-06	4.71E-03	0.00E+00	-1.00E+00	563085	4188548	10
298	GRID	6.37E-06	4.00E-03	0.00E+00	-1.00E+00	563185	4188548	10
299	GRID	5.41E-06	3.40E-03	0.00E+00	-1.00E+00	563285	4188548	10
300	GRID	4.72E-06	2.97E-03	0.00E+00	-1.00E+00	563385	4188548	10
301	GRID	6.35E-07	3.99E-04	0.00E+00	-1.00E+00	560985	4188448	10
302	GRID	7.21E-07	4.53E-04	0.00E+00	-1.00E+00	561085	4188448	10
303	GRID	8.29E-07	5.20E-04	0.00E+00	-1.00E+00	561185	4188448	10
304	GRID	9.66E-07	6.06E-04	0.00E+00	-1.00E+00	561285	4188448	10
305	GRID	1.14E-06	7.18E-04	0.00E+00	-1.00E+00	561385	4188448	10
306	GRID	1.38E-06	8.66E-04	0.00E+00	-1.00E+00	561485	4188448	10
307	GRID	1.70E-06	1.07E-03	0.00E+00	-1.00E+00	561585	4188448	10
308	GRID	2.16E-06	1.35E-03	0.00E+00	-1.00E+00	561685	4188448	10
309	GRID	2.89E-06	1.82E-03	0.00E+00	-1.00E+00	561785	4188448	10

310	GRID	4.06E-06	2.55E-03	0.00E+00	-1.00E+00	561885	4188448	10
311	GRID	6.09E-06	3.83E-03	0.00E+00	-1.00E+00	561985	4188448	10
312	GRID	1.07E-05	6.70E-03	0.00E+00	-1.00E+00	562085	4188448	10
313	GRID	2.61E-05	1.64E-02	0.00E+00	-1.00E+00	562185	4188448	10
314	GRID	4.88E-05	3.06E-02	0.00E+00	-1.00E+00	562285	4188448	10
315	GRID	3.81E-05	2.40E-02	0.00E+00	-1.00E+00	562385	4188448	10
316	GRID	3.43E-05	2.15E-02	0.00E+00	-1.00E+00	562485	4188448	10
317	GRID	2.52E-05	1.58E-02	0.00E+00	-1.00E+00	562585	4188448	10
318	GRID	2.21E-05	1.39E-02	0.00E+00	-1.00E+00	562685	4188448	10
319	GRID	1.68E-05	1.06E-02	0.00E+00	-1.00E+00	562785	4188448	10
320	GRID	1.32E-05	8.28E-03	0.00E+00	-1.00E+00	562885	4188448	10
321	GRID	1.05E-05	6.61E-03	0.00E+00	-1.00E+00	562985	4188448	10
322	GRID	8.31E-06	5.22E-03	0.00E+00	-1.00E+00	563085	4188448	10
323	GRID	6.91E-06	4.34E-03	0.00E+00	-1.00E+00	563185	4188448	10
324	GRID	6.04E-06	3.79E-03	0.00E+00	-1.00E+00	563285	4188448	10
325	GRID	5.05E-06	3.17E-03	0.00E+00	-1.00E+00	563385	4188448	10
326	GRID	6.56E-07	4.12E-04	0.00E+00	-1.00E+00	560985	4188348	10
327	GRID	7.47E-07	4.69E-04	0.00E+00	-1.00E+00	561085	4188348	10
328	GRID	8.63E-07	5.42E-04	0.00E+00	-1.00E+00	561185	4188348	10
329	GRID	1.01E-06	6.35E-04	0.00E+00	-1.00E+00	561285	4188348	10
330	GRID	1.21E-06	7.57E-04	0.00E+00	-1.00E+00	561385	4188348	10
331	GRID	1.47E-06	9.23E-04	0.00E+00	-1.00E+00	561485	4188348	10
332	GRID	1.84E-06	1.16E-03	0.00E+00	-1.00E+00	561585	4188348	10
333	GRID	2.38E-06	1.50E-03	0.00E+00	-1.00E+00	561685	4188348	10
334	GRID	3.28E-06	2.06E-03	0.00E+00	-1.00E+00	561785	4188348	10
335	GRID	4.86E-06	3.05E-03	0.00E+00	-1.00E+00	561885	4188348	10
336	GRID	7.41E-06	4.65E-03	0.00E+00	-1.00E+00	561985	4188348	10
337	GRID	1.34E-05	8.39E-03	0.00E+00	-1.00E+00	562085	4188348	10
338	GRID	3.31E-05	2.08E-02	0.00E+00	-1.00E+00	562185	4188348	10
339	GRID	2.61E-06	1.64E-03	0.00E+00	-1.00E+00	562285	4188348	10
340	GRID	1.75E-04	1.10E-01	0.00E+00	-1.00E+00	562385	4188348	10
341	GRID	6.53E-05	4.10E-02	0.00E+00	-1.00E+00	562485	4188348	10
342	GRID	3.94E-05	2.48E-02	0.00E+00	-1.00E+00	562585	4188348	10
343	GRID	3.07E-05	1.92E-02	0.00E+00	-1.00E+00	562685	4188348	10
344	GRID	2.23E-05	1.40E-02	0.00E+00	-1.00E+00	562785	4188348	10
345	GRID	1.66E-05	1.04E-02	0.00E+00	-1.00E+00	562885	4188348	10
346	GRID	1.28E-05	8.05E-03	0.00E+00	-1.00E+00	562985	4188348	10
347	GRID	1.02E-05	6.38E-03	0.00E+00	-1.00E+00	563085	4188348	10
348	GRID	8.30E-06	5.21E-03	0.00E+00	-1.00E+00	563185	4188348	10
349	GRID	6.94E-06	4.35E-03	0.00E+00	-1.00E+00	563285	4188348	10
350	GRID	5.91E-06	3.71E-03	0.00E+00	-1.00E+00	563385	4188348	10
351	GRID	6.31E-07	3.96E-04	0.00E+00	-1.00E+00	560985	4188248	10
352	GRID	7.19E-07	4.51E-04	0.00E+00	-1.00E+00	561085	4188248	10
353	GRID	8.27E-07	5.19E-04	0.00E+00	-1.00E+00	561185	4188248	10
354	GRID	9.71E-07	6.09E-04	0.00E+00	-1.00E+00	561285	4188248	10
355	GRID	1.16E-06	7.29E-04	0.00E+00	-1.00E+00	561385	4188248	10
356	GRID	1.44E-06	9.01E-04	0.00E+00	-1.00E+00	561485	4188248	10
357	GRID	1.82E-06	1.15E-03	0.00E+00	-1.00E+00	561585	4188248	10
358	GRID	2.43E-06	1.53E-03	0.00E+00	-1.00E+00	561685	4188248	10
359	GRID	3.45E-06	2.16E-03	0.00E+00	-1.00E+00	561785	4188248	10
360	GRID	5.44E-06	3.41E-03	0.00E+00	-1.00E+00	561885	4188248	10
361	GRID	8.97E-06	5.63E-03	0.00E+00	-1.00E+00	561985	4188248	10

362	GRID	1.82E-05	1.14E-02	0.00E+00	-1.00E+00	562085	4188248	10
363	GRID	4.39E-05	2.76E-02	0.00E+00	-1.00E+00	562185	4188248	10
364	GRID	5.02E-05	3.15E-02	0.00E+00	-1.00E+00	562285	4188248	10
365	GRID	1.18E-04	7.39E-02	0.00E+00	-1.00E+00	562385	4188248	10
366	GRID	9.98E-05	6.26E-02	0.00E+00	-1.00E+00	562485	4188248	10
367	GRID	5.17E-05	3.24E-02	0.00E+00	-1.00E+00	562585	4188248	10
368	GRID	3.04E-05	1.91E-02	0.00E+00	-1.00E+00	562685	4188248	10
369	GRID	2.54E-05	1.59E-02	0.00E+00	-1.00E+00	562785	4188248	10
370	GRID	1.82E-05	1.14E-02	0.00E+00	-1.00E+00	562885	4188248	10
371	GRID	1.43E-05	8.96E-03	0.00E+00	-1.00E+00	562985	4188248	10
372	GRID	1.11E-05	7.00E-03	0.00E+00	-1.00E+00	563085	4188248	10
373	GRID	8.98E-06	5.64E-03	0.00E+00	-1.00E+00	563185	4188248	10
374	GRID	7.13E-06	4.48E-03	0.00E+00	-1.00E+00	563285	4188248	10
375	GRID	6.19E-06	3.88E-03	0.00E+00	-1.00E+00	563385	4188248	10
376	GRID	6.20E-07	3.89E-04	0.00E+00	-1.00E+00	560985	4188148	10
377	GRID	7.18E-07	4.51E-04	0.00E+00	-1.00E+00	561085	4188148	10
378	GRID	8.45E-07	5.30E-04	0.00E+00	-1.00E+00	561185	4188148	10
379	GRID	1.01E-06	6.37E-04	0.00E+00	-1.00E+00	561285	4188148	10
380	GRID	1.25E-06	7.82E-04	0.00E+00	-1.00E+00	561385	4188148	10
381	GRID	1.58E-06	9.93E-04	0.00E+00	-1.00E+00	561485	4188148	10
382	GRID	2.06E-06	1.29E-03	0.00E+00	-1.00E+00	561585	4188148	10
383	GRID	2.78E-06	1.74E-03	0.00E+00	-1.00E+00	561685	4188148	10
384	GRID	3.98E-06	2.50E-03	0.00E+00	-1.00E+00	561785	4188148	10
385	GRID	6.34E-06	3.98E-03	0.00E+00	-1.00E+00	561885	4188148	10
386	GRID	1.00E-05	6.28E-03	0.00E+00	-1.00E+00	561985	4188148	10
387	GRID	1.57E-05	9.87E-03	0.00E+00	-1.00E+00	562085	4188148	10
388	GRID	2.27E-05	1.42E-02	0.00E+00	-1.00E+00	562185	4188148	10
389	GRID	1.97E-05	1.24E-02	0.00E+00	-1.00E+00	562285	4188148	10
390	GRID	1.85E-05	1.16E-02	0.00E+00	-1.00E+00	562385	4188148	10
391	GRID	4.64E-05	2.92E-02	0.00E+00	-1.00E+00	562485	4188148	10
392	GRID	5.42E-05	3.40E-02	0.00E+00	-1.00E+00	562585	4188148	10
393	GRID	3.84E-05	2.41E-02	0.00E+00	-1.00E+00	562685	4188148	10
394	GRID	3.02E-05	1.90E-02	0.00E+00	-1.00E+00	562785	4188148	10
395	GRID	2.09E-05	1.31E-02	0.00E+00	-1.00E+00	562885	4188148	10
396	GRID	1.55E-05	9.76E-03	0.00E+00	-1.00E+00	562985	4188148	10
397	GRID	1.14E-05	7.17E-03	0.00E+00	-1.00E+00	563085	4188148	10
398	GRID	8.77E-06	5.50E-03	0.00E+00	-1.00E+00	563185	4188148	10
399	GRID	7.28E-06	4.57E-03	0.00E+00	-1.00E+00	563285	4188148	10
400	GRID	6.39E-06	4.01E-03	0.00E+00	-1.00E+00	563385	4188148	10
401	GRID	6.78E-07	4.25E-04	0.00E+00	-1.00E+00	560985	4188048	10
402	GRID	7.92E-07	4.97E-04	0.00E+00	-1.00E+00	561085	4188048	10
403	GRID	9.38E-07	5.89E-04	0.00E+00	-1.00E+00	561185	4188048	10
404	GRID	1.13E-06	7.08E-04	0.00E+00	-1.00E+00	561285	4188048	10
405	GRID	1.38E-06	8.69E-04	0.00E+00	-1.00E+00	561385	4188048	10
406	GRID	1.74E-06	1.09E-03	0.00E+00	-1.00E+00	561485	4188048	10
407	GRID	2.26E-06	1.42E-03	0.00E+00	-1.00E+00	561585	4188048	10
408	GRID	3.08E-06	1.94E-03	0.00E+00	-1.00E+00	561685	4188048	10
409	GRID	4.34E-06	2.72E-03	0.00E+00	-1.00E+00	561785	4188048	10
410	GRID	6.15E-06	3.86E-03	0.00E+00	-1.00E+00	561885	4188048	10
411	GRID	8.41E-06	5.28E-03	0.00E+00	-1.00E+00	561985	4188048	10
412	GRID	1.07E-05	6.75E-03	0.00E+00	-1.00E+00	562085	4188048	10
413	GRID	1.25E-05	7.86E-03	0.00E+00	-1.00E+00	562185	4188048	10

414	GRID	1.06E-05	6.64E-03	0.00E+00	-1.00E+00	562285	4188048	10
415	GRID	8.38E-06	5.26E-03	0.00E+00	-1.00E+00	562385	4188048	10
416	GRID	1.53E-05	9.58E-03	0.00E+00	-1.00E+00	562485	4188048	10
417	GRID	2.62E-05	1.64E-02	0.00E+00	-1.00E+00	562585	4188048	10
418	GRID	3.08E-05	1.93E-02	0.00E+00	-1.00E+00	562685	4188048	10
419	GRID	3.12E-05	1.96E-02	0.00E+00	-1.00E+00	562785	4188048	10
420	GRID	2.37E-05	1.49E-02	0.00E+00	-1.00E+00	562885	4188048	10
421	GRID	1.77E-05	1.11E-02	0.00E+00	-1.00E+00	562985	4188048	10
422	GRID	1.30E-05	8.19E-03	0.00E+00	-1.00E+00	563085	4188048	10
423	GRID	1.03E-05	6.45E-03	0.00E+00	-1.00E+00	563185	4188048	10
424	GRID	8.07E-06	5.07E-03	0.00E+00	-1.00E+00	563285	4188048	10
425	GRID	6.81E-06	4.28E-03	0.00E+00	-1.00E+00	563385	4188048	10
426	GRID	7.36E-07	4.62E-04	0.00E+00	-1.00E+00	560985	4187948	10
427	GRID	8.53E-07	5.36E-04	0.00E+00	-1.00E+00	561085	4187948	10
428	GRID	1.01E-06	6.31E-04	0.00E+00	-1.00E+00	561185	4187948	10
429	GRID	1.21E-06	7.61E-04	0.00E+00	-1.00E+00	561285	4187948	10
430	GRID	1.50E-06	9.39E-04	0.00E+00	-1.00E+00	561385	4187948	10
431	GRID	1.90E-06	1.19E-03	0.00E+00	-1.00E+00	561485	4187948	10
432	GRID	2.44E-06	1.53E-03	0.00E+00	-1.00E+00	561585	4187948	10
433	GRID	3.14E-06	1.97E-03	0.00E+00	-1.00E+00	561685	4187948	10
434	GRID	4.03E-06	2.53E-03	0.00E+00	-1.00E+00	561785	4187948	10
435	GRID	5.17E-06	3.24E-03	0.00E+00	-1.00E+00	561885	4187948	10
436	GRID	8.54E-06	5.36E-03	0.00E+00	-1.00E+00	561985	4187948	10
437	GRID	7.71E-06	4.84E-03	0.00E+00	-1.00E+00	562085	4187948	10
438	GRID	7.56E-06	4.75E-03	0.00E+00	-1.00E+00	562185	4187948	10
439	GRID	6.78E-06	4.26E-03	0.00E+00	-1.00E+00	562285	4187948	10
440	GRID	5.32E-06	3.34E-03	0.00E+00	-1.00E+00	562385	4187948	10
441	GRID	6.61E-06	4.15E-03	0.00E+00	-1.00E+00	562485	4187948	10
442	GRID	1.14E-05	7.17E-03	0.00E+00	-1.00E+00	562585	4187948	10
443	GRID	1.67E-05	1.05E-02	0.00E+00	-1.00E+00	562685	4187948	10
444	GRID	1.94E-05	1.22E-02	0.00E+00	-1.00E+00	562785	4187948	10
445	GRID	2.23E-05	1.40E-02	0.00E+00	-1.00E+00	562885	4187948	10
446	GRID	1.83E-05	1.15E-02	0.00E+00	-1.00E+00	562985	4187948	10
447	GRID	1.46E-05	9.20E-03	0.00E+00	-1.00E+00	563085	4187948	10
448	GRID	1.18E-05	7.39E-03	0.00E+00	-1.00E+00	563185	4187948	10
449	GRID	9.26E-06	5.81E-03	0.00E+00	-1.00E+00	563285	4187948	10
450	GRID	7.57E-06	4.75E-03	0.00E+00	-1.00E+00	563385	4187948	10
451	GRID	7.76E-07	4.87E-04	0.00E+00	-1.00E+00	560985	4187848	10
452	GRID	9.05E-07	5.68E-04	0.00E+00	-1.00E+00	561085	4187848	10
453	GRID	1.08E-06	6.76E-04	0.00E+00	-1.00E+00	561185	4187848	10
454	GRID	1.31E-06	8.20E-04	0.00E+00	-1.00E+00	561285	4187848	10
455	GRID	1.61E-06	1.01E-03	0.00E+00	-1.00E+00	561385	4187848	10
456	GRID	1.97E-06	1.24E-03	0.00E+00	-1.00E+00	561485	4187848	10
457	GRID	2.40E-06	1.50E-03	0.00E+00	-1.00E+00	561585	4187848	10
458	GRID	2.89E-06	1.81E-03	0.00E+00	-1.00E+00	561685	4187848	10
459	GRID	3.49E-06	2.19E-03	0.00E+00	-1.00E+00	561785	4187848	10
460	GRID	4.14E-06	2.60E-03	0.00E+00	-1.00E+00	561885	4187848	10
461	GRID	4.89E-06	3.07E-03	0.00E+00	-1.00E+00	561985	4187848	10
462	GRID	5.62E-06	3.53E-03	0.00E+00	-1.00E+00	562085	4187848	10
463	GRID	5.02E-06	3.15E-03	0.00E+00	-1.00E+00	562185	4187848	10
464	GRID	4.75E-06	2.98E-03	0.00E+00	-1.00E+00	562285	4187848	10
465	GRID	3.78E-06	2.37E-03	0.00E+00	-1.00E+00	562385	4187848	10

466	GRID	4.03E-06	2.53E-03	0.00E+00	-1.00E+00	562485	4187848	10
467	GRID	5.67E-06	3.56E-03	0.00E+00	-1.00E+00	562585	4187848	10
468	GRID	8.64E-06	5.43E-03	0.00E+00	-1.00E+00	562685	4187848	10
469	GRID	1.16E-05	7.30E-03	0.00E+00	-1.00E+00	562785	4187848	10
470	GRID	1.62E-05	1.02E-02	0.00E+00	-1.00E+00	562885	4187848	10
471	GRID	1.60E-05	1.01E-02	0.00E+00	-1.00E+00	562985	4187848	10
472	GRID	1.42E-05	8.91E-03	0.00E+00	-1.00E+00	563085	4187848	10
473	GRID	1.21E-05	7.59E-03	0.00E+00	-1.00E+00	563185	4187848	10
474	GRID	9.95E-06	6.25E-03	0.00E+00	-1.00E+00	563285	4187848	10
475	GRID	8.20E-06	5.15E-03	0.00E+00	-1.00E+00	563385	4187848	10
476	GRID	8.33E-07	5.23E-04	0.00E+00	-1.00E+00	560985	4187748	10
477	GRID	9.80E-07	6.15E-04	0.00E+00	-1.00E+00	561085	4187748	10
478	GRID	1.16E-06	7.29E-04	0.00E+00	-1.00E+00	561185	4187748	10
479	GRID	1.38E-06	8.65E-04	0.00E+00	-1.00E+00	561285	4187748	10
480	GRID	1.62E-06	1.02E-03	0.00E+00	-1.00E+00	561385	4187748	10
481	GRID	1.89E-06	1.19E-03	0.00E+00	-1.00E+00	561485	4187748	10
482	GRID	2.20E-06	1.38E-03	0.00E+00	-1.00E+00	561585	4187748	10
483	GRID	2.58E-06	1.62E-03	0.00E+00	-1.00E+00	561685	4187748	10
484	GRID	2.95E-06	1.85E-03	0.00E+00	-1.00E+00	561785	4187748	10
485	GRID	3.30E-06	2.07E-03	0.00E+00	-1.00E+00	561885	4187748	10
486	GRID	3.90E-06	2.45E-03	0.00E+00	-1.00E+00	561985	4187748	10
487	GRID	4.07E-06	2.55E-03	0.00E+00	-1.00E+00	562085	4187748	10
488	GRID	3.62E-06	2.27E-03	0.00E+00	-1.00E+00	562185	4187748	10
489	GRID	3.52E-06	2.21E-03	0.00E+00	-1.00E+00	562285	4187748	10
490	GRID	2.85E-06	1.79E-03	0.00E+00	-1.00E+00	562385	4187748	10
491	GRID	2.88E-06	1.81E-03	0.00E+00	-1.00E+00	562485	4187748	10
492	GRID	3.36E-06	2.11E-03	0.00E+00	-1.00E+00	562585	4187748	10
493	GRID	4.86E-06	3.05E-03	0.00E+00	-1.00E+00	562685	4187748	10
494	GRID	6.79E-06	4.27E-03	0.00E+00	-1.00E+00	562785	4187748	10
495	GRID	1.10E-05	6.92E-03	0.00E+00	-1.00E+00	562885	4187748	10
496	GRID	1.17E-05	7.36E-03	0.00E+00	-1.00E+00	562985	4187748	10
497	GRID	1.21E-05	7.61E-03	0.00E+00	-1.00E+00	563085	4187748	10
498	GRID	1.10E-05	6.93E-03	0.00E+00	-1.00E+00	563185	4187748	10
499	GRID	9.86E-06	6.19E-03	0.00E+00	-1.00E+00	563285	4187748	10
500	GRID	8.41E-06	5.28E-03	0.00E+00	-1.00E+00	563385	4187748	10
501	GRID	8.95E-07	5.62E-04	0.00E+00	-1.00E+00	560985	4187648	10
502	GRID	1.03E-06	6.50E-04	0.00E+00	-1.00E+00	561085	4187648	10
503	GRID	1.19E-06	7.47E-04	0.00E+00	-1.00E+00	561185	4187648	10
504	GRID	1.36E-06	8.52E-04	0.00E+00	-1.00E+00	561285	4187648	10
505	GRID	1.54E-06	9.64E-04	0.00E+00	-1.00E+00	561385	4187648	10
506	GRID	1.75E-06	1.10E-03	0.00E+00	-1.00E+00	561485	4187648	10
507	GRID	2.00E-06	1.25E-03	0.00E+00	-1.00E+00	561585	4187648	10
508	GRID	2.25E-06	1.41E-03	0.00E+00	-1.00E+00	561685	4187648	10
509	GRID	2.44E-06	1.53E-03	0.00E+00	-1.00E+00	561785	4187648	10
510	GRID	2.77E-06	1.74E-03	0.00E+00	-1.00E+00	561885	4187648	10
511	GRID	3.14E-06	1.97E-03	0.00E+00	-1.00E+00	561985	4187648	10
512	GRID	3.00E-06	1.89E-03	0.00E+00	-1.00E+00	562085	4187648	10
513	GRID	2.76E-06	1.73E-03	0.00E+00	-1.00E+00	562185	4187648	10
514	GRID	2.73E-06	1.72E-03	0.00E+00	-1.00E+00	562285	4187648	10
515	GRID	2.25E-06	1.41E-03	0.00E+00	-1.00E+00	562385	4187648	10
516	GRID	2.17E-06	1.36E-03	0.00E+00	-1.00E+00	562485	4187648	10
517	GRID	2.35E-06	1.48E-03	0.00E+00	-1.00E+00	562585	4187648	10

518 GRID	3.00E-06	1.88E-03	0.00E+00	-1.00E+00	562685	4187648	10
519 GRID	4.19E-06	2.63E-03	0.00E+00	-1.00E+00	562785	4187648	10
520 GRID	6.75E-06	4.24E-03	0.00E+00	-1.00E+00	562885	4187648	10
521 GRID	8.55E-06	5.37E-03	0.00E+00	-1.00E+00	562985	4187648	10
522 GRID	8.78E-06	5.52E-03	0.00E+00	-1.00E+00	563085	4187648	10
523 GRID	9.26E-06	5.81E-03	0.00E+00	-1.00E+00	563185	4187648	10
524 GRID	9.13E-06	5.73E-03	0.00E+00	-1.00E+00	563285	4187648	10
525 GRID	8.05E-06	5.05E-03	0.00E+00	-1.00E+00	563385	4187648	10
526 GRID	9.24E-07	5.80E-04	0.00E+00	-1.00E+00	560985	4187548	10
527 GRID	1.04E-06	6.51E-04	0.00E+00	-1.00E+00	561085	4187548	10
528 GRID	1.15E-06	7.24E-04	0.00E+00	-1.00E+00	561185	4187548	10
529 GRID	1.28E-06	8.05E-04	0.00E+00	-1.00E+00	561285	4187548	10
530 GRID	1.43E-06	8.99E-04	0.00E+00	-1.00E+00	561385	4187548	10
531 GRID	1.61E-06	1.01E-03	0.00E+00	-1.00E+00	561485	4187548	10
532 GRID	1.78E-06	1.12E-03	0.00E+00	-1.00E+00	561585	4187548	10
533 GRID	1.91E-06	1.20E-03	0.00E+00	-1.00E+00	561685	4187548	10
534 GRID	2.08E-06	1.31E-03	0.00E+00	-1.00E+00	561785	4187548	10
535 GRID	2.38E-06	1.49E-03	0.00E+00	-1.00E+00	561885	4187548	10
536 GRID	2.52E-06	1.58E-03	0.00E+00	-1.00E+00	561985	4187548	10
537 GRID	2.30E-06	1.44E-03	0.00E+00	-1.00E+00	562085	4187548	10
538 GRID	2.20E-06	1.38E-03	0.00E+00	-1.00E+00	562185	4187548	10
539 GRID	2.19E-06	1.37E-03	0.00E+00	-1.00E+00	562285	4187548	10
540 GRID	1.84E-06	1.16E-03	0.00E+00	-1.00E+00	562385	4187548	10
541 GRID	1.72E-06	1.08E-03	0.00E+00	-1.00E+00	562485	4187548	10
542 GRID	1.82E-06	1.14E-03	0.00E+00	-1.00E+00	562585	4187548	10
543 GRID	2.05E-06	1.29E-03	0.00E+00	-1.00E+00	562685	4187548	10
544 GRID	2.72E-06	1.71E-03	0.00E+00	-1.00E+00	562785	4187548	10
545 GRID	3.58E-06	2.24E-03	0.00E+00	-1.00E+00	562885	4187548	10
546 GRID	5.64E-06	3.54E-03	0.00E+00	-1.00E+00	562985	4187548	10
547 GRID	6.83E-06	4.29E-03	0.00E+00	-1.00E+00	563085	4187548	10
548 GRID	7.07E-06	4.44E-03	0.00E+00	-1.00E+00	563185	4187548	10
549 GRID	7.28E-06	4.57E-03	0.00E+00	-1.00E+00	563285	4187548	10
550 GRID	7.46E-06	4.69E-03	0.00E+00	-1.00E+00	563385	4187548	10
551 GRID	9.11E-07	5.72E-04	0.00E+00	-1.00E+00	560985	4187448	10
552 GRID	9.97E-07	6.26E-04	0.00E+00	-1.00E+00	561085	4187448	10
553 GRID	1.09E-06	6.86E-04	0.00E+00	-1.00E+00	561185	4187448	10
554 GRID	1.20E-06	7.56E-04	0.00E+00	-1.00E+00	561285	4187448	10
555 GRID	1.33E-06	8.37E-04	0.00E+00	-1.00E+00	561385	4187448	10
556 GRID	1.46E-06	9.16E-04	0.00E+00	-1.00E+00	561485	4187448	10
557 GRID	1.55E-06	9.76E-04	0.00E+00	-1.00E+00	561585	4187448	10
558 GRID	1.65E-06	1.04E-03	0.00E+00	-1.00E+00	561685	4187448	10
559 GRID	1.84E-06	1.16E-03	0.00E+00	-1.00E+00	561785	4187448	10
560 GRID	2.05E-06	1.29E-03	0.00E+00	-1.00E+00	561885	4187448	10
561 GRID	2.02E-06	1.27E-03	0.00E+00	-1.00E+00	561985	4187448	10
562 GRID	1.82E-06	1.14E-03	0.00E+00	-1.00E+00	562085	4187448	10
563 GRID	1.81E-06	1.14E-03	0.00E+00	-1.00E+00	562185	4187448	10
564 GRID	1.81E-06	1.14E-03	0.00E+00	-1.00E+00	562285	4187448	10
565 GRID	1.55E-06	9.70E-04	0.00E+00	-1.00E+00	562385	4187448	10
566 GRID	1.40E-06	8.79E-04	0.00E+00	-1.00E+00	562485	4187448	10
567 GRID	1.47E-06	9.23E-04	0.00E+00	-1.00E+00	562585	4187448	10
568 GRID	1.55E-06	9.74E-04	0.00E+00	-1.00E+00	562685	4187448	10
569 GRID	1.89E-06	1.18E-03	0.00E+00	-1.00E+00	562785	4187448	10

570	GRID	2.46E-06	1.55E-03	0.00E+00	-1.00E+00	562885	4187448	10
571	GRID	3.88E-06	2.43E-03	0.00E+00	-1.00E+00	562985	4187448	10
572	GRID	4.56E-06	2.86E-03	0.00E+00	-1.00E+00	563085	4187448	10
573	GRID	5.58E-06	3.50E-03	0.00E+00	-1.00E+00	563185	4187448	10
574	GRID	5.95E-06	3.73E-03	0.00E+00	-1.00E+00	563285	4187448	10
575	GRID	5.83E-06	3.66E-03	0.00E+00	-1.00E+00	563385	4187448	10
576	GRID	8.75E-07	5.49E-04	0.00E+00	-1.00E+00	560985	4187348	10
577	GRID	9.48E-07	5.95E-04	0.00E+00	-1.00E+00	561085	4187348	10
578	GRID	1.03E-06	6.50E-04	0.00E+00	-1.00E+00	561185	4187348	10
579	GRID	1.13E-06	7.11E-04	0.00E+00	-1.00E+00	561285	4187348	10
580	GRID	1.23E-06	7.70E-04	0.00E+00	-1.00E+00	561385	4187348	10
581	GRID	1.30E-06	8.16E-04	0.00E+00	-1.00E+00	561485	4187348	10
582	GRID	1.36E-06	8.54E-04	0.00E+00	-1.00E+00	561585	4187348	10
583	GRID	1.47E-06	9.24E-04	0.00E+00	-1.00E+00	561685	4187348	10
584	GRID	1.65E-06	1.04E-03	0.00E+00	-1.00E+00	561785	4187348	10
585	GRID	1.75E-06	1.10E-03	0.00E+00	-1.00E+00	561885	4187348	10
586	GRID	1.64E-06	1.03E-03	0.00E+00	-1.00E+00	561985	4187348	10
587	GRID	1.49E-06	9.35E-04	0.00E+00	-1.00E+00	562085	4187348	10
588	GRID	1.52E-06	9.53E-04	0.00E+00	-1.00E+00	562185	4187348	10
589	GRID	1.51E-06	9.49E-04	0.00E+00	-1.00E+00	562285	4187348	10
590	GRID	1.32E-06	8.29E-04	0.00E+00	-1.00E+00	562385	4187348	10
591	GRID	1.17E-06	7.37E-04	0.00E+00	-1.00E+00	562485	4187348	10
592	GRID	1.21E-06	7.59E-04	0.00E+00	-1.00E+00	562585	4187348	10
593	GRID	1.26E-06	7.90E-04	0.00E+00	-1.00E+00	562685	4187348	10
594	GRID	1.40E-06	8.78E-04	0.00E+00	-1.00E+00	562785	4187348	10
595	GRID	1.76E-06	1.10E-03	0.00E+00	-1.00E+00	562885	4187348	10
596	GRID	2.92E-06	1.83E-03	0.00E+00	-1.00E+00	562985	4187348	10
597	GRID	3.40E-06	2.13E-03	0.00E+00	-1.00E+00	563085	4187348	10
598	GRID	3.99E-06	2.51E-03	0.00E+00	-1.00E+00	563185	4187348	10
599	GRID	4.69E-06	2.95E-03	0.00E+00	-1.00E+00	563285	4187348	10
600	GRID	4.79E-06	3.01E-03	0.00E+00	-1.00E+00	563385	4187348	10
601	GRID	8.35E-07	5.25E-04	0.00E+00	-1.00E+00	560985	4187248	10
602	GRID	9.04E-07	5.68E-04	0.00E+00	-1.00E+00	561085	4187248	10
603	GRID	9.80E-07	6.15E-04	0.00E+00	-1.00E+00	561185	4187248	10
604	GRID	1.05E-06	6.61E-04	0.00E+00	-1.00E+00	561285	4187248	10
605	GRID	1.11E-06	6.98E-04	0.00E+00	-1.00E+00	561385	4187248	10
606	GRID	1.15E-06	7.24E-04	0.00E+00	-1.00E+00	561485	4187248	10
607	GRID	1.22E-06	7.64E-04	0.00E+00	-1.00E+00	561585	4187248	10
608	GRID	1.35E-06	8.45E-04	0.00E+00	-1.00E+00	561685	4187248	10
609	GRID	1.48E-06	9.29E-04	0.00E+00	-1.00E+00	561785	4187248	10
610	GRID	1.48E-06	9.29E-04	0.00E+00	-1.00E+00	561885	4187248	10
611	GRID	1.35E-06	8.47E-04	0.00E+00	-1.00E+00	561985	4187248	10
612	GRID	1.26E-06	7.90E-04	0.00E+00	-1.00E+00	562085	4187248	10
613	GRID	1.30E-06	8.14E-04	0.00E+00	-1.00E+00	562185	4187248	10
614	GRID	1.29E-06	8.12E-04	0.00E+00	-1.00E+00	562285	4187248	10
615	GRID	1.14E-06	7.18E-04	0.00E+00	-1.00E+00	562385	4187248	10
616	GRID	1.00E-06	6.30E-04	0.00E+00	-1.00E+00	562485	4187248	10
617	GRID	1.02E-06	6.39E-04	0.00E+00	-1.00E+00	562585	4187248	10
618	GRID	1.06E-06	6.66E-04	0.00E+00	-1.00E+00	562685	4187248	10
619	GRID	1.11E-06	6.96E-04	0.00E+00	-1.00E+00	562785	4187248	10
620	GRID	1.31E-06	8.20E-04	0.00E+00	-1.00E+00	562885	4187248	10
621	GRID	2.00E-06	1.26E-03	0.00E+00	-1.00E+00	562985	4187248	10

622	GRID	2.65E-06	1.66E-03	0.00E+00	-1.00E+00	563085	4187248	10
623	GRID	3.03E-06	1.91E-03	0.00E+00	-1.00E+00	563185	4187248	10
624	GRID	3.42E-06	2.14E-03	0.00E+00	-1.00E+00	563285	4187248	10
625	GRID	4.01E-06	2.52E-03	0.00E+00	-1.00E+00	563385	4187248	10
626	BOUNDAR	1.09E-05	6.85E-03	0.00E+00	-1.00E+00	562137	4188725	10
627	BOUNDAR	1.16E-05	7.31E-03	0.00E+00	-1.00E+00	562141.7	4188706	10
628	BOUNDAR	1.25E-05	7.83E-03	0.00E+00	-1.00E+00	562146.4	4188686	10
629	BOUNDAR	1.32E-05	8.31E-03	0.00E+00	-1.00E+00	562151	4188667	10
630	BOUNDAR	1.41E-05	8.86E-03	0.00E+00	-1.00E+00	562155.7	4188647	10
631	BOUNDAR	1.50E-05	9.40E-03	0.00E+00	-1.00E+00	562160.4	4188628	10
632	BOUNDAR	1.60E-05	1.00E-02	0.00E+00	-1.00E+00	562165.1	4188608	10
633	BOUNDAR	1.71E-05	1.07E-02	0.00E+00	-1.00E+00	562169.8	4188589	10
634	BOUNDAR	1.84E-05	1.15E-02	0.00E+00	-1.00E+00	562174.4	4188569	10
635	BOUNDAR	1.98E-05	1.25E-02	0.00E+00	-1.00E+00	562179.1	4188550	10
636	BOUNDAR	2.15E-05	1.35E-02	0.00E+00	-1.00E+00	562183.8	4188531	10
637	BOUNDAR	2.36E-05	1.48E-02	0.00E+00	-1.00E+00	562188.5	4188511	10
638	BOUNDAR	2.59E-05	1.63E-02	0.00E+00	-1.00E+00	562193.2	4188492	10
639	BOUNDAR	2.86E-05	1.80E-02	0.00E+00	-1.00E+00	562197.9	4188472	10
640	BOUNDAR	3.13E-05	1.97E-02	0.00E+00	-1.00E+00	562202.5	4188453	10
641	BOUNDAR	3.39E-05	2.13E-02	0.00E+00	-1.00E+00	562207.2	4188433	10
642	BOUNDAR	3.57E-05	2.24E-02	0.00E+00	-1.00E+00	562211.9	4188414	10
643	BOUNDAR	3.67E-05	2.30E-02	0.00E+00	-1.00E+00	562216.6	4188394	10
644	BOUNDAR	3.79E-05	2.38E-02	0.00E+00	-1.00E+00	562221.3	4188375	10
645	BOUNDAR	4.34E-05	2.72E-02	0.00E+00	-1.00E+00	562225.9	4188356	10
646	BOUNDAR	6.36E-05	4.00E-02	0.00E+00	-1.00E+00	562230.6	4188336	10
647	BOUNDAR	9.05E-05	5.69E-02	0.00E+00	-1.00E+00	562235.3	4188317	10
648	BOUNDAR	9.78E-05	6.14E-02	0.00E+00	-1.00E+00	562240	4188297	10
649	BOUNDAR	9.65E-05	6.06E-02	0.00E+00	-1.00E+00	562241	4188293	10
650	BOUNDAR	7.71E-05	4.84E-02	0.00E+00	-1.00E+00	562224.1	4188282	10
651	BOUNDAR	6.11E-05	3.83E-02	0.00E+00	-1.00E+00	562207.3	4188272	10
652	BOUNDAR	4.91E-05	3.08E-02	0.00E+00	-1.00E+00	562190.4	4188261	10
653	BOUNDAR	4.02E-05	2.52E-02	0.00E+00	-1.00E+00	562173.5	4188250	10
654	BOUNDAR	3.35E-05	2.10E-02	0.00E+00	-1.00E+00	562156.7	4188239	10
655	BOUNDAR	3.13E-05	1.97E-02	0.00E+00	-1.00E+00	562150	4188235	10
656	BOUNDAR	3.10E-05	1.94E-02	0.00E+00	-1.00E+00	562144.5	4188254	10
657	BOUNDAR	2.89E-05	1.81E-02	0.00E+00	-1.00E+00	562139	4188273	10
658	BOUNDAR	2.58E-05	1.62E-02	0.00E+00	-1.00E+00	562133.6	4188293	10
659	BOUNDAR	2.19E-05	1.38E-02	0.00E+00	-1.00E+00	562128.1	4188312	10
660	BOUNDAR	1.90E-05	1.19E-02	0.00E+00	-1.00E+00	562122.6	4188331	10
661	BOUNDAR	1.68E-05	1.06E-02	0.00E+00	-1.00E+00	562117.1	4188350	10
662	BOUNDAR	1.50E-05	9.44E-03	0.00E+00	-1.00E+00	562111.6	4188370	10
663	BOUNDAR	1.36E-05	8.52E-03	0.00E+00	-1.00E+00	562106.2	4188389	10
664	BOUNDAR	1.24E-05	7.80E-03	0.00E+00	-1.00E+00	562100.7	4188408	10
665	BOUNDAR	1.16E-05	7.26E-03	0.00E+00	-1.00E+00	562095.2	4188427	10
666	BOUNDAR	1.10E-05	6.92E-03	0.00E+00	-1.00E+00	562089.7	4188447	10
667	BOUNDAR	1.07E-05	6.71E-03	0.00E+00	-1.00E+00	562084.3	4188466	10
668	BOUNDAR	1.04E-05	6.54E-03	0.00E+00	-1.00E+00	562078.8	4188485	10
669	BOUNDAR	1.02E-05	6.38E-03	0.00E+00	-1.00E+00	562073.3	4188504	10
670	BOUNDAR	9.89E-06	6.21E-03	0.00E+00	-1.00E+00	562067.8	4188524	10
671	BOUNDAR	9.59E-06	6.02E-03	0.00E+00	-1.00E+00	562062.3	4188543	10
672	BOUNDAR	9.28E-06	5.83E-03	0.00E+00	-1.00E+00	562056.9	4188562	10
673	BOUNDAR	9.24E-06	5.80E-03	0.00E+00	-1.00E+00	562056	4188565	10

674	BOUNDAR	8.27E-06	5.19E-03	0.00E+00	-1.00E+00	562036.8	4188560	10
675	BOUNDAR	7.42E-06	4.66E-03	0.00E+00	-1.00E+00	562017.5	4188554	10
676	BOUNDAR	7.11E-06	4.47E-03	0.00E+00	-1.00E+00	562010	4188552	10
677	BOUNDAR	6.96E-06	4.37E-03	0.00E+00	-1.00E+00	562004.6	4188571	10
678	BOUNDAR	6.79E-06	4.26E-03	0.00E+00	-1.00E+00	561999.2	4188591	10
679	BOUNDAR	6.61E-06	4.15E-03	0.00E+00	-1.00E+00	561993.7	4188610	10
680	BOUNDAR	6.43E-06	4.04E-03	0.00E+00	-1.00E+00	561988.3	4188629	10
681	BOUNDAR	6.25E-06	3.92E-03	0.00E+00	-1.00E+00	561982.9	4188648	10
682	BOUNDAR	6.07E-06	3.81E-03	0.00E+00	-1.00E+00	561977.5	4188668	10
683	BOUNDAR	5.89E-06	3.70E-03	0.00E+00	-1.00E+00	561972.1	4188687	10
684	BOUNDAR	5.88E-06	3.69E-03	0.00E+00	-1.00E+00	561972	4188687	10
685	BOUNDAR	6.36E-06	3.99E-03	0.00E+00	-1.00E+00	561991.5	4188691	10
686	BOUNDAR	6.84E-06	4.30E-03	0.00E+00	-1.00E+00	562011	4188696	10
687	BOUNDAR	7.30E-06	4.58E-03	0.00E+00	-1.00E+00	562030.5	4188700	10
688	BOUNDAR	7.78E-06	4.88E-03	0.00E+00	-1.00E+00	562050	4188705	10
689	BOUNDAR	8.41E-06	5.28E-03	0.00E+00	-1.00E+00	562069.4	4188709	10
690	BOUNDAR	8.97E-06	5.63E-03	0.00E+00	-1.00E+00	562088.9	4188714	10
691	BOUNDAR	9.64E-06	6.05E-03	0.00E+00	-1.00E+00	562108.4	4188718	10
692	BOUNDAR	1.05E-05	6.57E-03	0.00E+00	-1.00E+00	562127.9	4188723	10

	Train Emission Factors (g/bhp-hr)			
	VOC		PM_{10}	
	Line-Haul	Idling	Line-Haul	Idling
Baseline	0.48	1.01	0.32	0.44
Tier 2	0.26	0.52	0.17	0.21

Assuming the train distribution is 50% Baseline, 50% Tier 2

Passenger Trains per day =	37%	HP= 3000	
Freight Trains per day =	63%	HP= 5000	
Total Trains per day =	80		5 days/week
Thru speed=	40	mph	13.6 sec/train pass
Station idle time=	7	minutes	5-10

	Train Emission Rates (lb/day)				
	VOC		PM_{10}		
	Line-Haul	Station	Line-Haul	Station	
Passenger	--	17.47	--	7.42	
Freight	0.049	--	0.032	--	
	0.00023	0.73	0.00015	0.31	lb/hr/source
	1.4	4,560	0.93	1,937	lb/yr/source
Total (g/s)	0.00026	0.092	0.00017	0.039	

	Unitized concentrations		
	PM_{10}		VOC
Dist (m)	1-hr	Annua	1-hr
20	361.9	29.0	361.9
25	411	32.9	411
30	413.9	33.1	413.9
35	390.5	31.2	390.5
40	385.9	30.9	385.9
45	364.5	29.2	364.5
50	348.9	27.9	348.9
60	315.2	25.2	315.2
70	297.1	23.8	297.1
80	277.1	22.2	277.1
90	259	20.7	259
100	242.9	19.4	242.9
110	227.3	18.2	227.3
120	214.6	17.2	214.6
130	200.9	16.1	200.9
140	192	15.4	192
150	182	14.6	182
160	171.8	13.7	171.8
170	164	13.1	164
180	158	12.6	158
190	151.6	12.1	151.6

				PM_{10}		VOC
	Source spacing on track (ft)	Distance from residence (ft)	Distance from residence (m)	conc. at residence from each source	Annual conc. at residence from each source	1-hr conc. at residence from each source
	400	407	124.0	214.6	17.168	214.6
	300	309	94.3	259	20.72	259
	200	214	65.1	297.1	23.768	297.1
	100	125	38.1	385.9	30.872	385.9
	0	75	22.9	361.9	28.952	361.9
	100	125	38.1	385.9	30.872	385.9
	200	214	65.1	297.1	23.768	297.1
	300	309	94.3	259	20.72	259
	400	407	124.0	214.6	17.168	214.6
avg spacing:	100			2675.1	214.008	2675.1

acrolein weight percentage of diesel VOC= 0.0035

Health Risk Parameters

DBR	302	Daily breathing rate (L/kg-day)	
A	1	Inhalation absorption factor	
EF	260	Exposure frequency (days/yr)	
ED	70	Exposure duration (years)	
AT	25,550	Avg. time period of exposure	(days)
Diesel PM_{10}	1.1	Inhalation Cancer Potency factor	$(mg/kg\text{-}d)^{-1}$
Diesel PM_{10}	5	Inhalation Chronic HI (ug/m^3)	
Acrolein	0.19	Inhalation Chronic HI (ug/m^3)	

Center

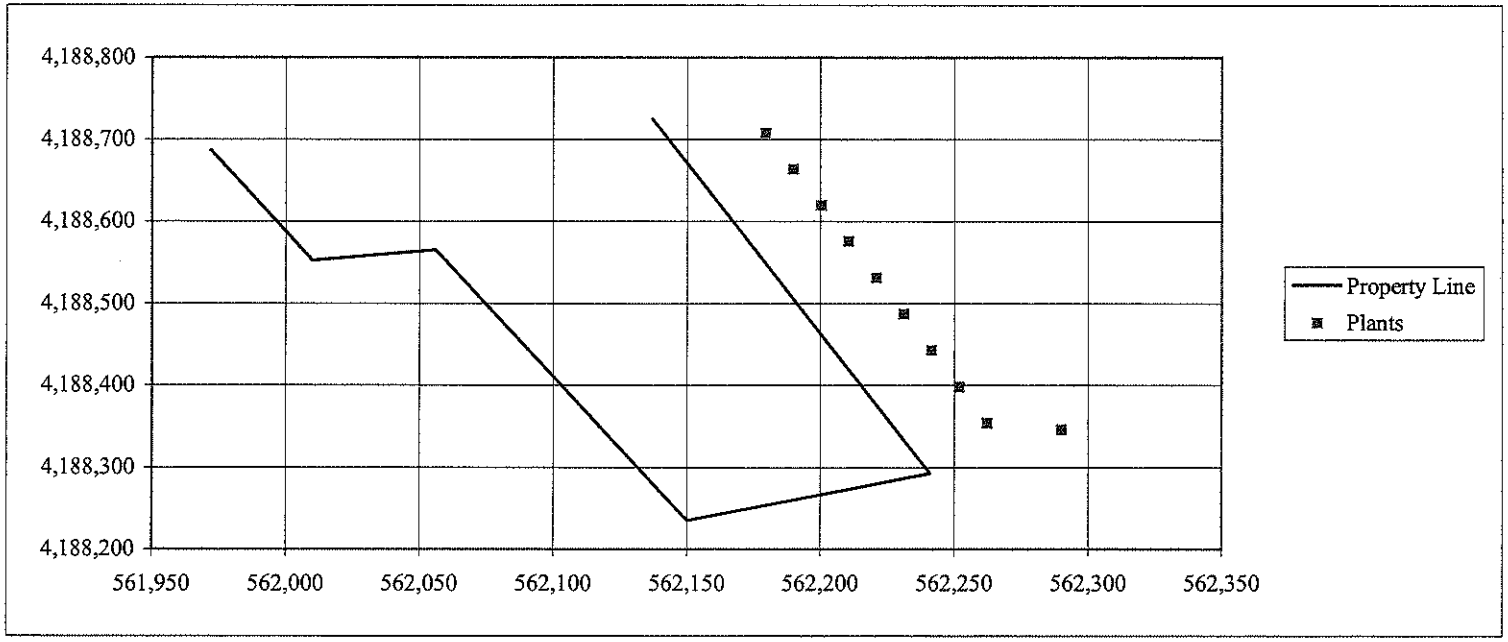
562,185	4,188,448

Property Line

562,137	4,188,725	-48	277
562,241	4,188,293	56	-155
562,150	4,188,235	-35	-213
562,056	4,188,565	-129	117
562,010	4,188,552	-175	104
561,972	4,188,687	-213	239

Sources

VOLUME	562,180	4,188,708	8	
VOLUME	562,190	4,188,664	**45.4**	149
VOLUME	562,200	4,188,620		
VOLUME	562,211	4,188,576		
VOLUME	562,221	4,188,531		
VOLUME	562,231	4,188,487		
VOLUME	562,242	4,188,443		
VOLUME	562,252	4,188,399		
VOLUME	562,262	4,188,355		
VOLUME	562,290	4,188,346		



APPENDIX C-4

ALTERNATIVES
CALINE4 AIR QUALITY MODELING

- **Alternative 1: No Project (see Appendix C-1 Outputs for No Project Condition)**
- **Alternative 2: Reduced Project Alternative**
- **Alternative 3: Tower Alternative**
- **Alternative 4: Main Street Alternative**

Reduced Project Alternative

CO Concentrations for Reduced Project Alternative and Proposed Project
Year 2007

Intersection	Receptor Distance to Road Centerline (Meters)	Reduced Project Alternative Related Increase 1 hr/8 hr (ppm)	Reduced Project Alternative/ Project One-Hour CO Concentration (ppm)	Reduced Project Alternative/ Project Eight-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
7th St. & Ashby Avenue	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
San Pablo Avenue & Ashby Avenue	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.6 / 5.6	4.1 / 4.1	No	No
	14	0.0 / 0.0	5.6 / 5.6	4.1 / 4.1	No	No
Hollis Street & Powell Street	14	0.0 / 0.0	5.6 / 5.6	4.1 / 4.1	No	No
	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	12	0.0 / 0.0	5.3 / 5.3	3.9 / 3.9	No	No
San Pablo Avenue & Stanford Avenue	14	0.0 / 0.0	5.8 / 5.8	4.3 / 4.3	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.6 / 5.6	4.1 / 4.1	No	No
Horton Street & 40th Street	15	0.0 / 0.0	4.9 / 4.9	3.6 / 3.6	No	No
	14	0.0 / 0.0	4.7 / 4.7	3.5 / 3.5	No	No
	14	0.0 / 0.0	4.7 / 4.7	3.5 / 3.5	No	No
	14	0.0 / 0.0	4.7 / 4.7	3.5 / 3.5	No	No
Hollis Street & 40th Street	17	0.0 / 0.0	5.1 / 5.1	3.8 / 3.8	No	No
	15	0.0 / 0.0	5.1 / 5.1	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.1 / 5.1	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.0 / 5.0	3.7 / 3.7	No	No
Harlan Street & 40th Street	14	0.0 / 0.0	4.9 / 4.9	3.6 / 3.6	No	No
	14	0.1 / 0.0	4.9 / 4.8	3.6 / 3.6	No	No
	14	0.2 / 0.1	4.9 / 4.7	3.6 / 3.5	No	No
	14	0.1 / 0.1	4.8 / 4.7	3.6 / 3.5	No	No
Emery Street & 40th Street	14	0.0 / 0.0	5.2 / 5.2	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.1 / 5.1	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.0 / 5.0	3.7 / 3.7	No	No
	14	0.0 / 0.0	5.0 / 5.0	3.7 / 3.7	No	No
San Pablo Avenue & 40th Street	17	0.0 / 0.0	6.2 / 6.2	4.5 / 4.5	No	No
	17	0.0 / 0.0	6.1 / 6.1	4.5 / 4.5	No	No
	14	0.0 / 0.0	5.9 / 5.9	4.3 / 4.3	No	No
	14	0.0 / 0.0	5.9 / 5.9	4.3 / 4.3	No	No
San Pablo Avenue & 36th Street	14	0.0 / 0.0	5.6 / 5.6	4.1 / 4.1	No	No
	13	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	13	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	10	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No

Includes ambient one-hour concentration of 3.3 ppm and ambient eight-hour concentration of 2.5 ppm. Measured at the 822 Alice St., Oakland,CA, AQ Station (Alameda County).

CO Concentrations for Reduced Project Alternative and Proposed Project
Year 2010

Intersection	Receptor Distance to Road Centerline (Meters)	Reduced Project Alternative Related Increase 1 hr/8 hr (ppm)	Reduced Project Alternative/ Project One-Hour CO Concentration (ppm)	Reduced Project Alternative/ Project Eight-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
7th St. & Ashby Avenue	14	0.1 / 0.1	5.3 / 5.2	3.9 / 3.8	No	No
	14	0.1 / 0.1	5.3 / 5.2	3.9 / 3.8	No	No
	14	0.0 / 0.0	5.2 / 5.2	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.2 / 5.2	3.8 / 3.8	No	No
San Pablo Avenue & Ashby Avenue	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
Hollis Street & Powell Street	14	0.0 / 0.0	5.2 / 5.2	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.1 / 5.1	3.8 / 3.8	No	No
	14	0.1 / 0.1	5.1 / 5.0	3.8 / 3.7	No	No
	12	0.0 / 0.0	5.0 / 5.0	3.7 / 3.7	No	No
San Pablo Avenue & Stanford Avenue	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.3 / 5.3	3.9 / 3.9	No	No
Horton Street & 40th Street	17	0.0 / 0.0	4.6 / 4.6	3.4 / 3.4	No	No
	15	0.0 / 0.0	4.5 / 4.5	3.3 / 3.3	No	No
	14	0.0 / 0.0	4.5 / 4.5	3.3 / 3.3	No	No
	14	0.0 / 0.0	4.4 / 4.4	3.3 / 3.3	No	No
Hollis Street & 40th Street	17	0.0 / 0.0	4.9 / 4.9	3.6 / 3.6	No	No
	15	0.1 / 0.0	4.9 / 4.8	3.6 / 3.6	No	No
	14	0.0 / 0.0	4.8 / 4.8	3.6 / 3.6	No	No
	14	0.0 / 0.0	4.8 / 4.8	3.6 / 3.6	No	No
Harlan Street & 40th Street	14	0.0 / 0.0	4.6 / 4.6	3.4 / 3.4	No	No
	14	0.0 / 0.0	4.6 / 4.6	3.4 / 3.4	No	No
	14	0.1 / 0.1	4.6 / 4.5	3.4 / 3.3	No	No
	14	0.0 / 0.0	4.5 / 4.5	3.3 / 3.3	No	No
Emery Street & 40th Street	14	0.0 / 0.0	4.9 / 4.9	3.6 / 3.6	No	No
	14	0.0 / 0.0	4.9 / 4.9	3.6 / 3.6	No	No
	14	0.0 / 0.0	4.8 / 4.8	3.6 / 3.6	No	No
	14	0.0 / 0.0	4.7 / 4.7	3.5 / 3.5	No	No
San Pablo Avenue & 40th Street	17	0.0 / 0.0	5.8 / 5.8	4.3 / 4.3	No	No
	17	0.0 / 0.0	5.8 / 5.8	4.3 / 4.3	No	No
	14	-0.1 / -0.1	5.6 / 5.7	4.1 / 4.2	No	No
	14	0.0 / 0.0	5.6 / 5.6	4.1 / 4.1	No	No
San Pablo Avenue & 36th Street	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	13	0.0 / 0.0	5.3 / 5.3	3.9 / 3.9	No	No
	13	0.0 / 0.0	5.3 / 5.3	3.9 / 3.9	No	No
	10	0.0 / 0.0	5.1 / 5.1	3.8 / 3.8	No	No

Includes ambient one-hour concentration of 3.3 ppm and ambient eight-hour concentration of 2.5 ppm. Measured at the 822 Alice St., Oakland,CA, AQ Station (Alameda County).

CO Concentrations for Reduced Project Alternative and Proposed Project
Year 2030

Intersection	Receptor Distance to Road Centerline (Meters)	Reduced Project Alternative Related Increase 1 hr/8 hr (ppm)	Reduced Project Alternative/ Project One-Hour CO Concentration (ppm)	Reduced Project Alternative/ Project Eight-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
7th St. & Ashby Avenue	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
San Pablo Avenue & Ashby Avenue	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
Hollis Street & Powell Street	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
San Pablo Avenue & Stanford Avenue	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
Horton Street & 40th Street	17	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	15	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
Hollis Street & 40th Street	17	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	15	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
Harlan Street & 40th Street	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
Emery Street & 40th Street	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
San Pablo Avenue & 40th Street	17	0.0 / 0.0	4.1 / 4.1	3.1 / 3.1	No	No
	17	0.0 / 0.0	4.1 / 4.1	3.1 / 3.1	No	No
	14	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No
	14	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No
San Pablo Avenue & 36th Street	14	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No
	13	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	13	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	10	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No

Includes ambient one-hour concentration of 3.3 ppm and ambient eight-hour concentration of 2.5 ppm. Measured at the 822 Alice St., Oakland,CA, AQ Station (Alameda County).

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2EPP-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S	Z0= 100. CM	ALT= 3. (M)
BRG= WORST CASE	VD= .0 CM/S	
CLAS= 7 (G)	VS= .0 CM/S	
MIXH= 1000. M	AMB= .0 PPM	
SIGTH= 10. DEGREES	TEMP= 10.0 DEGREE (C)	

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	4	-150	4	0	* AG	813	8.1	.0	10.0
B. San Pabl NBD	*	4	0	4	150	* AG	1362	5.7	.0	10.0
C. San Pabl NBL	*	2	-150	0	0	* AG	19	10.5	.0	10.0
D. San Pabl SBA	*	-5	150	-5	0	* AG	1221	8.1	.0	13.5
E. San Pabl SBD	*	-5	0	-5	-150	* AG	1265	5.5	.0	11.8
F. San Pabl SBL	*	-2	150	0	0	* AG	0	5.1	.0	10.0
G. 36th Str EBA	*	-150	0	0	0	* AG	0	5.1	.0	10.0
H. 36th Str EBD	*	0	0	150	0	* AG	0	5.1	.0	10.0
I. 36th Str EBL	*	-150	-2	0	0	* AG	0	5.1	.0	10.0
J. 36th Str WBA	*	150	5	0	5	* AG	786	10.8	.0	11.8
K. 36th Str WBD	*	0	5	-150	5	* AG	276	5.9	.0	10.0
L. 36th Str WBL	*	150	2	0	0	* AG	64	10.5	.0	10.0
M. San Pab NBAX	*	4	-750	4	-150	* AG	832	5.1	.0	10.0
N. San Pab NBDX	*	4	150	4	750	* AG	1362	5.1	.0	10.0
O. San Pab SBAX	*	-5	750	-5	150	* AG	1221	5.1	.0	13.5
P. San Pab SBDX	*	-5	-150	-5	-750	* AG	1265	5.1	.0	11.8
Q. 36th St EBAX	*	-750	0	-150	0	* AG	0	5.1	.0	10.0
R. 36th St EBDX	*	150	0	750	0	* AG	0	5.1	.0	10.0
S. 36th St WBAX	*	750	5	150	5	* AG	850	5.1	.0	11.8
T. 36th St WBDX	*	-150	5	-750	5	* AG	276	5.1	.0	10.0

DD

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	A	B	C	D	E	F	G	H
9. SE mdblk	*	354.	*	1.8	*	.9	.1	.0	.2	.3	.0	.0	.0
10. NW mdblk	*	172.	*	2.0	*	.1	.3	.0	1.2	.0	.0	.0	.0
11. SW mdblk	*	7.	*	1.8	*	.3	.2	.0	.2	.9	.0	.0	.0
12. NE mdblk	*	187.	*	2.0	*	.1	1.0	.0	.5	.1	.0	.0	.0
13. ES blk	*	276.	*	.6	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	93.	*	.5	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	264.	*	.9	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	1.4	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	173.	*	1.6	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	1.5	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	186.	*	1.7	*	.0	.0	.0	.0	.0	.0	.0	.0

DD

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: CEM531
RUN: ALT2EPP-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.4	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
2. NW	*	.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
3. SW	*	.0	.0	.0	.0	.0	.2	.2	.0	.0	.0	.0	.0
4. NE	*	.0	.5	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	*	.0	.7	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.0
17. SE blk	*	.0	.0	.0	.0	.7	.0	.0	.5	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.5	.9	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.3	.0	.0	.9	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	1.0	.5	.0	.0	.0	.0	.0

DD

JOB: CEM531
RUN: ALT2EPP-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	10	-7	1.8
2. NW	*	-14	12	1.8
3. SW	*	-13	-7	1.8
4. NE	*	10	13	1.8
5. ES mdblk	*	150	-7	1.8
6. WN mdblk	*	-150	12	1.8
7. WS mdblk	*	-150	-7	1.8
8. EN mdblk	*	150	13	1.8
9. SE mdblk	*	10	-150	1.8
10. NW mdblk	*	-14	150	1.8
11. SW mdblk	*	-13	-150	1.8
12. NE mdblk	*	10	150	1.8
13. ES blk	*	600	-7	1.8
14. WN blk	*	-600	12	1.8
15. WS blk	*	-600	-7	1.8
16. EN blk	*	600	13	1.8
17. SE blk	*	10	-600	1.8
18. NW blk	*	-14	600	1.8
19. SW blk	*	-13	-600	1.8
20. NE blk	*	10	600	1.8

DD

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ALT2EPP-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	352.	*	2.3	*	.0	1.0	.0	.6	.0	.0	.0	.0
2. NW	*	96.	*	2.1	*	.0	.3	.0	.6	.0	.0	.0	.0
3. SW	*	7.	*	2.1	*	.0	.3	.0	1.3	.0	.0	.0	.0
4. NE	*	188.	*	2.2	*	.8	.2	.0	.0	.4	.0	.0	.0
5. ES mdblk	*	281.	*	1.1	*	.0	.0	.0	.1	.0	.0	.0	.0
6. WN mdblk	*	93.	*	.8	*	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	85.	*	.7	*	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	261.	*	1.5	*	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2EPP-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S	Z0= 100. CM	ALT= 3. (M)
BRG= WORST CASE	VD= .0 CM/S	
CLAS= 7 (G)	VS= .0 CM/S	
MIXH= 1000. M	AMB= .0 PPM	
SIGTH= 10. DEGREES	TEMP= 10.0 DEGREE (C)	

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	11	-150	11	0	* AG	967	8.9	.0	10.0
B. San Pabl NBD	*	11	0	11	150	* AG	1303	6.4	.0	10.0
C. San Pabl NBL	*	9	-150	0	0	* AG	405	11.4	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1070	9.5	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1304	6.4	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	222	11.4	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	816	8.9	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	763	5.6	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	205	11.4	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	531	8.4	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	892	5.7	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	46	10.5	.0	10.0
M. San Pab NBAX	*	11	-750	11	-150	* AG	1372	5.1	.0	10.0
N. San Pab NBDX	*	11	150	11	750	* AG	1303	5.1	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1292	5.1	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1304	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1021	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	763	5.1	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	577	5.1	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	892	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2EPP-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Emery St NBA	*	4	-150	4	0	* AG	355	10.8	.0	10.0
B. Emery St NBD	*	4	0	4	150	* AG	207	6.1	.0	10.0
C. Emery St NBL	*	2	-150	0	0	* AG	182	10.5	.0	10.0
D. Emery St SBA	*	-2	150	-2	0	* AG	149	9.6	.0	10.0
E. Emery St SBD	*	-2	0	-2	-150	* AG	355	6.8	.0	10.0
F. Emery St SBL	*	-2	150	0	0	* AG	27	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	857	8.1	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1018	5.6	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	30	10.5	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	763	7.9	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	907	5.5	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	124	10.5	.0	10.0
M. Emery S NBAX	*	4	-750	4	-150	* AG	537	5.1	.0	10.0
N. Emery S NBDX	*	4	150	4	750	* AG	207	5.1	.0	10.0
O. Emery S SBAX	*	-2	750	-2	150	* AG	176	5.1	.0	10.0
P. Emery S SBDX	*	-2	-150	-2	-750	* AG	355	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	887	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1018	5.1	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	887	5.1	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	907	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2EPP-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	*	2	-150	2	0	* AG	113	9.6	.0	10.0
B. Harlan S NBD	*	2	0	2	150	* AG	434	6.1	.0	10.0
C. Harlan S NBL	*	2	-150	0	0	* AG	42	10.5	.0	10.0
D. Harlan S SBA	*	-2	150	-2	0	* AG	0	5.1	.0	10.0
E. Harlan S SBD	*	-2	0	-2	-150	* AG	423	8.9	.0	10.0
F. Harlan S SBL	*	-2	150	0	0	* AG	18	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	861	8.1	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	560	5.4	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	24	10.5	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	866	8.1	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	611	5.4	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	104	10.5	.0	10.0
M. Harlan NBAX	*	2	-750	2	-150	* AG	155	5.1	.0	10.0
N. Harlan NBDX	*	2	150	2	750	* AG	434	5.1	.0	10.0
O. Harlan SBAX	*	-2	750	-2	150	* AG	18	5.1	.0	10.0
P. Harlan SBDX	*	-2	-150	-2	-750	* AG	423	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	885	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	560	5.1	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	970	5.1	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	611	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2EPP-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	7	-150	7	0	* AG	388	10.8	.0	10.0
B. Hollis S NBD	*	7	0	7	150	* AG	472	8.9	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	181	10.5	.0	10.0
D. Hollis S SBA	*	-5	150	-5	0	* AG	357	10.8	.0	10.0
E. Hollis S SBD	*	-5	0	-5	-150	* AG	563	10.5	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	165	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	660	7.9	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	824	5.5	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	46	10.5	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	651	7.9	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	730	5.4	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	141	10.5	.0	10.0
M. Hollis NBAX	*	7	-750	7	-150	* AG	569	5.1	.0	10.0
N. Hollis NBDX	*	7	150	7	750	* AG	472	5.1	.0	10.0
O. Hollis SBAX	*	-5	750	-5	150	* AG	522	5.1	.0	10.0
P. Hollis SBDX	*	-5	-150	-5	-750	* AG	563	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	706	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	824	5.1	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	792	5.1	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	730	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2EPP-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Horton S NBA	*	5	-150	5	0	* AG	214	10.0	.0	10.0
B. Horton S NBD	*	5	0	5	150	* AG	157	5.9	.0	10.0
C. Horton S NBL	*	5	-150	0	0	* AG	182	10.5	.0	10.0
D. Horton S SBA	*	-2	150	-2	0	* AG	125	9.6	.0	10.0
E. Horton S SBD	*	-2	0	-2	-150	* AG	363	6.8	.0	10.0
F. Horton S SBL	*	-2	150	0	0	* AG	42	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	765	7.9	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	738	5.4	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	24	10.5	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	616	7.9	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	790	5.4	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	80	10.5	.0	10.0
M. Horton NBAX	*	5	-750	5	-150	* AG	396	5.1	.0	10.0
N. Horton NBDX	*	5	150	5	750	* AG	157	5.1	.0	10.0
O. Horton SBAX	*	-2	750	-2	150	* AG	167	5.1	.0	10.0
P. Horton SBDX	*	-2	-150	-2	-750	* AG	363	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	789	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	738	5.1	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	696	5.1	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	790	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2EPP-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1094	9.5	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1167	5.9	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	140	10.5	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	969	8.9	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1152	5.9	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	112	10.5	.0	10.0
G. Stanford EBA	*	-150	-7	0	-7	* AG	764	8.6	.0	10.0
H. Stanford EBD	*	0	-7	150	-7	* AG	806	5.7	.0	10.0
I. Stanford EBL	*	-150	-5	0	0	* AG	128	10.5	.0	10.0
J. Stanford WBA	*	150	7	0	7	* AG	426	8.4	.0	10.0
K. Stanford WBD	*	0	7	-150	7	* AG	608	5.6	.0	10.0
L. Stanford WBL	*	150	5	0	0	* AG	100	10.5	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1234	5.1	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1167	5.1	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1081	5.1	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1152	5.1	.0	10.0
Q. Stanfor EBAX	*	-750	-7	-150	-7	* AG	892	5.1	.0	10.0
R. Stanfor EBDX	*	150	-7	750	-7	* AG	806	5.1	.0	10.0
S. Stanfor WBAX	*	750	7	150	7	* AG	526	5.1	.0	10.0
T. Stanfor WBDX	*	-150	7	-750	7	* AG	608	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2EPP-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	5	-150	5	0	* AG	446	11.4	.0	10.0
B. Hollis S NBD	*	5	0	5	150	* AG	643	11.0	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	477	11.6	.0	10.0
D. Hollis S SBA	*	-7	150	-7	0	* AG	354	10.8	.0	10.0
E. Hollis S SBD	*	-7	0	-7	-150	* AG	354	6.8	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	58	10.5	.0	10.0
G. Powell S EBA	*	-150	-7	0	-7	* AG	824	8.1	.0	10.0
H. Powell S EBD	*	0	-7	150	-7	* AG	773	5.4	.0	10.0
I. Powell S EBL	*	-150	-5	0	0	* AG	169	10.5	.0	10.0
J. Powell S WBA	*	150	7	0	7	* AG	615	7.9	.0	10.0
K. Powell S WBD	*	0	7	-150	7	* AG	1193	5.6	.0	10.0
L. Powell S WBL	*	150	5	0	0	* AG	20	10.5	.0	10.0
M. Hollis NBAX	*	5	-750	5	-150	* AG	923	5.1	.0	10.0
N. Hollis NBDX	*	5	150	5	750	* AG	643	5.1	.0	10.0
O. Hollis SBAX	*	-7	750	-7	150	* AG	412	5.1	.0	10.0
P. Hollis SBDX	*	-7	-150	-7	-750	* AG	354	5.1	.0	10.0
Q. Powell EBAX	*	-750	-7	-150	-7	* AG	993	5.1	.0	10.0
R. Powell EBDX	*	150	-7	750	-7	* AG	773	5.1	.0	10.0
S. Powell WBAX	*	750	7	150	7	* AG	635	5.1	.0	10.0
T. Powell WBDX	*	-150	7	-750	7	* AG	1193	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
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JOB: CEM531
RUN: ALT2EPP-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	976	8.9	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1136	5.9	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	172	10.5	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	892	8.9	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	956	5.7	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	181	10.5	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	747	8.6	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	847	5.7	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	96	10.5	.0	10.0
J. Ashby Av WBA	*	150	2	0	2	* AG	750	8.6	.0	10.0
K. Ashby Av WBD	*	0	2	-150	2	* AG	897	5.7	.0	10.0
L. Ashby Av WBL	*	150	2	0	0	* AG	22	10.5	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1148	5.1	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1136	5.1	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1073	5.1	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	956	5.1	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	843	5.1	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	847	5.1	.0	10.0
S. Ashby A WBAX	*	750	2	150	2	* AG	772	5.1	.0	10.0
T. Ashby A WBDX	*	-150	2	-750	2	* AG	897	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
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JOB: CEM531
RUN: ALT2EPP-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. 7th St. NBA	*	7	-150	7	0	* AG	520	10.0	.0	10.0
B. 7th St. NBD	*	7	0	7	150	* AG	719	6.8	.0	10.0
C. 7th St. NBL	*	5	-150	0	0	* AG	173	10.5	.0	10.0
D. 7th St. SBA	*	-7	150	-7	0	* AG	715	11.6	.0	10.0
E. 7th St. SBD	*	-7	0	-7	-150	* AG	491	8.9	.0	10.0
F. 7th St. SBL	*	-5	150	0	0	* AG	130	10.5	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	746	7.9	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	860	5.5	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	263	11.4	.0	10.0
J. Ashby Av WBA	*	150	7	0	7	* AG	797	7.9	.0	10.0
K. Ashby Av WBD	*	0	7	-150	7	* AG	1379	5.7	.0	10.0
L. Ashby Av WBL	*	150	5	0	0	* AG	105	10.5	.0	10.0
M. 7th St. NBAX	*	7	-750	7	-150	* AG	693	5.1	.0	10.0
N. 7th St. NBDX	*	7	150	7	750	* AG	719	5.1	.0	10.0
O. 7th St. SBAX	*	-7	750	-7	150	* AG	845	5.1	.0	10.0
P. 7th St. SBDX	*	-7	-150	-7	-750	* AG	491	5.1	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1009	5.1	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	860	5.1	.0	10.0
S. Ashby A WBAX	*	750	7	150	7	* AG	902	5.1	.0	10.0
T. Ashby A WBDX	*	-150	7	-750	7	* AG	1379	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	4	-150	4	0	* AG	1104	1.4	.0	10.0
B. San Pabl NBD	*	4	0	4	150	* AG	1907	1.4	.0	10.0
C. San Pabl NBL	*	2	-150	0	0	* AG	49	1.7	.0	10.0
D. San Pabl SBA	*	-5	150	-5	0	* AG	1857	1.5	.0	13.5
E. San Pabl SBD	*	-5	0	-5	-150	* AG	1900	1.1	.0	11.8
F. San Pabl SBL	*	-2	150	0	0	* AG	0	1.0	.0	10.0
G. 36th Str EBA	*	-150	0	0	0	* AG	0	1.0	.0	10.0
H. 36th Str EBD	*	0	0	150	0	* AG	0	1.0	.0	10.0
I. 36th Str EBL	*	-150	-2	0	0	* AG	0	1.0	.0	10.0
J. 36th Str WBA	*	150	5	0	5	* AG	1364	1.8	.0	11.8
K. 36th Str WBD	*	0	5	-150	5	* AG	631	1.2	.0	10.0
L. 36th Str WBL	*	150	2	0	0	* AG	64	1.7	.0	10.0
M. San Pab NBAX	*	4	-750	4	-150	* AG	1153	1.0	.0	10.0
N. San Pab NBDX	*	4	150	4	750	* AG	1907	1.0	.0	10.0
O. San Pab SBAX	*	-5	750	-5	150	* AG	1857	1.0	.0	13.5
P. San Pab SBDX	*	-5	-150	-5	-750	* AG	1900	1.0	.0	11.8
Q. 36th St EBAX	*	-750	0	-150	0	* AG	0	1.0	.0	10.0
R. 36th St EBDX	*	150	0	750	0	* AG	0	1.0	.0	10.0
S. 36th St WBAX	*	750	5	150	5	* AG	1428	1.0	.0	11.8
T. 36th St WBDX	*	-150	5	-750	5	* AG	631	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
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JOB: CEM531
RUN: ALT2 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	11	-150	11	0	* AG	1359	1.7	.0	10.0
B. San Pabl NBD	*	11	0	11	150	* AG	1754	1.5	.0	10.0
C. San Pabl NBL	*	9	-150	0	0	* AG	533	1.8	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1552	1.7	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1914	1.6	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	283	1.8	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1289	1.7	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1155	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	223	1.8	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	784	1.5	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1247	1.2	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	47	1.7	.0	10.0
M. San Pab NBAX	*	11	-750	11	-150	* AG	1892	1.0	.0	10.0
N. San Pab NBDX	*	11	150	11	750	* AG	1754	1.0	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1835	1.0	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1914	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1512	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1155	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	831	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1247	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
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JOB: CEM531
RUN: ALT2 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Emery St NBA	*	4	-150	4	0	* AG	524	1.8	.0	10.0
B. Emery St NBD	*	4	0	4	150	* AG	330	1.2	.0	10.0
C. Emery St NBL	*	2	-150	0	0	* AG	272	1.8	.0	10.0
D. Emery St SBA	*	-2	150	-2	0	* AG	168	1.6	.0	10.0
E. Emery St SBD	*	-2	0	-2	-150	* AG	522	1.7	.0	10.0
F. Emery St SBL	*	-2	150	0	0	* AG	30	1.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1409	1.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1510	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	32	1.7	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	1084	1.4	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1315	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	158	1.7	.0	10.0
M. Emery S NBAX	*	4	-750	4	-150	* AG	796	1.0	.0	10.0
N. Emery S NBDX	*	4	150	4	750	* AG	330	1.0	.0	10.0
O. Emery S SBAX	*	-2	750	-2	150	* AG	198	1.0	.0	10.0
P. Emery S SBDX	*	-2	-150	-2	-750	* AG	522	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1441	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1510	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1242	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1315	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	*	2	-150	2	0	* AG	109	1.6	.0	10.0
B. Harlan S NBD	*	2	0	2	150	* AG	563	1.2	.0	10.0
C. Harlan S NBL	*	2	-150	0	0	* AG	41	1.7	.0	10.0
D. Harlan S SBA	*	-2	150	-2	0	* AG	0	1.0	.0	10.0
E. Harlan S SBD	*	-2	0	-2	-150	* AG	603	1.7	.0	10.0
F. Harlan S SBL	*	-2	150	0	0	* AG	19	1.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1414	1.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	931	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	23	1.7	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	1265	1.5	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	875	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	101	1.7	.0	10.0
M. Harlan NBAX	*	2	-750	2	-150	* AG	150	1.0	.0	10.0
N. Harlan NBDX	*	2	150	2	750	* AG	563	1.0	.0	10.0
O. Harlan SBAX	*	-2	750	-2	150	* AG	19	1.0	.0	10.0
P. Harlan SBDX	*	-2	-150	-2	-750	* AG	603	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1437	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	931	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1366	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	875	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	*	2	-150	2	0	* AG	109	1.6	.0	10.0
B. Harlan S NBD	*	2	0	2	150	* AG	563	1.2	.0	10.0
C. Harlan S NBL	*	2	-150	0	0	* AG	41	1.7	.0	10.0
D. Harlan S SBA	*	-2	150	-2	0	* AG	0	1.0	.0	10.0
E. Harlan S SBD	*	-2	0	-2	-150	* AG	603	1.7	.0	10.0
F. Harlan S SBL	*	-2	150	0	0	* AG	19	1.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1414	1.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	931	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	23	1.7	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	1265	1.5	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	875	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	101	1.7	.0	10.0
M. Harlan NBAX	*	2	-750	2	-150	* AG	150	1.0	.0	10.0
N. Harlan NBDX	*	2	150	2	750	* AG	563	1.0	.0	10.0
O. Harlan SBAX	*	-2	750	-2	150	* AG	19	1.0	.0	10.0
P. Harlan SBDX	*	-2	-150	-2	-750	* AG	603	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1437	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	931	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1366	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	875	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	7	-150	7	0	* AG	523	1.8	.0	10.0
B. Hollis S NBD	*	7	0	7	150	* AG	669	1.7	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	213	1.8	.0	10.0
D. Hollis S SBA	*	-5	150	-5	0	* AG	636	1.8	.0	10.0
E. Hollis S SBD	*	-5	0	-5	-150	* AG	857	1.8	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	315	1.8	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1057	1.4	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1376	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	46	1.7	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	1027	1.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	1058	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	143	1.7	.0	10.0
M. Hollis NBAX	*	7	-750	7	-150	* AG	736	1.0	.0	10.0
N. Hollis NBDX	*	7	150	7	750	* AG	669	1.0	.0	10.0
O. Hollis SBAX	*	-5	750	-5	150	* AG	951	1.0	.0	10.0
P. Hollis SBDX	*	-5	-150	-5	-750	* AG	857	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1103	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1376	1.0	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	1170	1.0	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	1058	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Horton S NBA	*	5	-150	5	0	* AG	513	1.8	.0	10.0
B. Horton S NBD	*	5	0	5	150	* AG	482	1.5	.0	10.0
C. Horton S NBL	*	5	-150	0	0	* AG	233	1.8	.0	10.0
D. Horton S SBA	*	-2	150	-2	0	* AG	416	1.8	.0	10.0
E. Horton S SBD	*	-2	0	-2	-150	* AG	759	1.8	.0	10.0
F. Horton S SBL	*	-2	150	0	0	* AG	259	1.8	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	911	1.4	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1135	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	31	1.7	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	862	1.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	1007	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	158	1.7	.0	10.0
M. Horton NBAX	*	5	-750	5	-150	* AG	746	1.0	.0	10.0
N. Horton NBDX	*	5	150	5	750	* AG	482	1.0	.0	10.0
O. Horton SBAX	*	-2	750	-2	150	* AG	675	1.0	.0	10.0
P. Horton SBDX	*	-2	-150	-2	-750	* AG	759	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	942	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1135	1.0	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	1020	1.0	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	1007	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1512	1.7	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1625	1.5	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	185	1.7	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1387	1.7	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1531	1.3	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	112	1.7	.0	10.0
G. Stanford EBA	*	-150	-7	0	-7	* AG	926	1.5	.0	10.0
H. Stanford EBD	*	0	-7	150	-7	* AG	978	1.1	.0	10.0
I. Stanford EBL	*	-150	-5	0	0	* AG	181	1.7	.0	10.0
J. Stanford WBA	*	150	7	0	7	* AG	578	1.4	.0	10.0
K. Stanford WBD	*	0	7	-150	7	* AG	853	1.1	.0	10.0
L. Stanford WBL	*	150	5	0	0	* AG	106	1.7	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1697	1.0	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1625	1.0	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1499	1.0	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1531	1.0	.0	10.0
Q. Stanfor EBAX	*	-750	-7	-150	-7	* AG	1107	1.0	.0	10.0
R. Stanfor EBDX	*	150	-7	750	-7	* AG	978	1.0	.0	10.0
S. Stanfor WBAX	*	750	7	150	7	* AG	684	1.0	.0	10.0
T. Stanfor WBDX	*	-150	7	-750	7	* AG	853	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	5	-150	5	0	* AG	628	1.8	.0	10.0
B. Hollis S NBD	*	5	0	5	150	* AG	866	1.8	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	535	1.8	.0	10.0
D. Hollis S SBA	*	-7	150	-7	0	* AG	448	1.8	.0	10.0
E. Hollis S SBD	*	-7	0	-7	-150	* AG	606	1.7	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	69	1.7	.0	10.0
G. Powell S EBA	*	-150	-7	0	-7	* AG	1136	1.4	.0	10.0
H. Powell S EBD	*	0	-7	150	-7	* AG	947	1.1	.0	10.0
I. Powell S EBL	*	-150	-5	0	0	* AG	206	1.8	.0	10.0
J. Powell S WBA	*	150	7	0	7	* AG	803	1.4	.0	10.0
K. Powell S WBD	*	0	7	-150	7	* AG	1429	1.1	.0	10.0
L. Powell S WBL	*	150	5	0	0	* AG	23	1.7	.0	10.0
M. Hollis NBAX	*	5	-750	5	-150	* AG	1163	1.0	.0	10.0
N. Hollis NBDX	*	5	150	5	750	* AG	866	1.0	.0	10.0
O. Hollis SBAX	*	-7	750	-7	150	* AG	517	1.0	.0	10.0
P. Hollis SBDX	*	-7	-150	-7	-750	* AG	606	1.0	.0	10.0
Q. Powell EBAX	*	-750	-7	-150	-7	* AG	1342	1.0	.0	10.0
R. Powell EBDX	*	150	-7	750	-7	* AG	947	1.0	.0	10.0
S. Powell WBAX	*	750	7	150	7	* AG	826	1.0	.0	10.0
T. Powell WBDX	*	-150	7	-750	7	* AG	1429	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1371	1.7	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1593	1.3	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	279	1.8	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1316	1.7	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1488	1.3	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	191	1.7	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	972	1.5	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	1004	1.1	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	202	1.8	.0	10.0
J. Ashby Av WBA	*	150	2	0	2	* AG	851	1.5	.0	10.0
K. Ashby Av WBD	*	0	2	-150	2	* AG	1183	1.1	.0	10.0
L. Ashby Av WBL	*	150	2	0	0	* AG	86	1.7	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1650	1.0	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1593	1.0	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1507	1.0	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1488	1.0	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1174	1.0	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	1004	1.0	.0	10.0
S. Ashby A WBAX	*	750	2	150	2	* AG	937	1.0	.0	10.0
T. Ashby A WBDX	*	-150	2	-750	2	* AG	1183	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. 7th St. NBA	*	7	-150	7	0	* AG	648	1.7	.0	10.0
B. 7th St. NBD	*	7	0	7	150	* AG	884	1.5	.0	10.0
C. 7th St. NBL	*	5	-150	0	0	* AG	205	1.8	.0	10.0
D. 7th St. SBA	*	-7	150	-7	0	* AG	885	1.8	.0	10.0
E. 7th St. SBD	*	-7	0	-7	-150	* AG	734	1.8	.0	10.0
F. 7th St. SBL	*	-5	150	0	0	* AG	151	1.7	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	1001	1.4	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	1085	1.1	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	300	1.8	.0	10.0
J. Ashby Av WBA	*	150	7	0	7	* AG	979	1.4	.0	10.0
K. Ashby Av WBD	*	0	7	-150	7	* AG	1614	1.2	.0	10.0
L. Ashby Av WBL	*	150	5	0	0	* AG	148	1.7	.0	10.0
M. 7th St. NBAX	*	7	-750	7	-150	* AG	853	1.0	.0	10.0
N. 7th St. NBDX	*	7	150	7	750	* AG	884	1.0	.0	10.0
O. 7th St. SBAX	*	-7	750	-7	150	* AG	1036	1.0	.0	10.0
P. 7th St. SBDX	*	-7	-150	-7	-750	* AG	734	1.0	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1301	1.0	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	1085	1.0	.0	10.0
S. Ashby A WBAX	*	750	7	150	7	* AG	1127	1.0	.0	10.0
T. Ashby A WBDX	*	-150	7	-750	7	* AG	1614	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	4	-150	4	0	* AG	990	5.6	.0	10.0
B. San Pabl NBD	*	4	0	4	150	* AG	1722	4.6	.0	10.0
C. San Pabl NBL	*	2	-150	0	0	* AG	49	7.2	.0	10.0
D. San Pabl SBA	*	-5	150	-5	0	* AG	1539	5.8	.0	13.5
E. San Pabl SBD	*	-5	0	-5	-150	* AG	1582	3.9	.0	11.8
F. San Pabl SBL	*	-2	150	0	0	* AG	0	3.6	.0	10.0
G. 36th Str EBA	*	-150	0	0	0	* AG	0	3.6	.0	10.0
H. 36th Str EBD	*	0	0	150	0	* AG	0	3.6	.0	10.0
I. 36th Str EBL	*	-150	-2	0	0	* AG	0	3.6	.0	10.0
J. 36th Str WBA	*	150	5	0	5	* AG	1117	7.8	.0	11.8
K. 36th Str WBD	*	0	5	-150	5	* AG	455	4.3	.0	10.0
L. 36th Str WBL	*	150	2	0	0	* AG	64	7.2	.0	10.0
M. San Pab NBAX	*	4	-750	4	-150	* AG	1039	3.6	.0	10.0
N. San Pab NBDX	*	4	150	4	750	* AG	1722	3.6	.0	10.0
O. San Pab SBAX	*	-5	750	-5	150	* AG	1539	3.6	.0	13.5
P. San Pab SBDX	*	-5	-150	-5	-750	* AG	1582	3.6	.0	11.8
Q. 36th St EBAX	*	-750	0	-150	0	* AG	0	3.6	.0	10.0
R. 36th St EBDX	*	150	0	750	0	* AG	0	3.6	.0	10.0
S. 36th St WBAX	*	750	5	150	5	* AG	1181	3.6	.0	11.8
T. 36th St WBDX	*	-150	5	-750	5	* AG	455	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	11	-150	11	0	* AG	1218	7.1	.0	10.0
B. San Pabl NBD	*	11	0	11	150	* AG	1590	5.1	.0	10.0
C. San Pabl NBL	*	9	-150	0	0	* AG	481	7.7	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1276	7.1	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1594	5.1	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	267	7.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1050	6.5	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	959	4.0	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	207	7.7	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	663	5.9	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1066	4.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	47	7.2	.0	10.0
M. San Pab NBAX	*	11	-750	11	-150	* AG	1699	3.6	.0	10.0
N. San Pab NBDX	*	11	150	11	750	* AG	1590	3.6	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1543	3.6	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1594	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1257	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	959	3.6	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	710	3.6	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1066	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Emery St NBA	*	4	-150	4	0	* AG	416	7.7	.0	10.0
B. Emery St NBD	*	4	0	4	150	* AG	217	4.3	.0	10.0
C. Emery St NBL	*	2	-150	0	0	* AG	189	7.2	.0	10.0
D. Emery St SBA	*	-2	150	-2	0	* AG	157	6.5	.0	10.0
E. Emery St SBD	*	-2	0	-2	-150	* AG	455	6.1	.0	10.0
F. Emery St SBL	*	-2	150	0	0	* AG	27	7.2	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1100	5.8	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1254	4.0	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	30	7.2	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	903	5.6	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1054	3.9	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	158	7.2	.0	10.0
M. Emery S NBAX	*	4	-750	4	-150	* AG	605	3.6	.0	10.0
N. Emery S NBDX	*	4	150	4	750	* AG	217	3.6	.0	10.0
O. Emery S SBAX	*	-2	750	-2	150	* AG	184	3.6	.0	10.0
P. Emery S SBDX	*	-2	-150	-2	-750	* AG	455	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1130	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1254	3.6	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1061	3.6	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1054	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: CEM531
RUN: ALT2 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	10	-14	1.8
2. NW	*	-8	14	1.8
3. SW	*	-8	-14	1.8
4. NE	*	10	14	1.8
5. ES mdblk	*	150	-14	1.8
6. WN mdblk	*	-150	14	1.8
7. WS mdblk	*	-150	-14	1.8
8. EN mdblk	*	150	14	1.8
9. SE mdblk	*	10	-150	1.8
10. NW mdblk	*	-8	150	1.8
11. SW mdblk	*	-8	-150	1.8
12. NE mdblk	*	10	150	1.8
13. ES blk	*	600	-14	1.8
14. WN blk	*	-600	14	1.8
15. WS blk	*	-600	-14	1.8
16. EN blk	*	600	14	1.8
17. SE blk	*	10	-600	1.8
18. NW blk	*	-8	600	1.8
19. SW blk	*	-8	-600	1.8
20. NE blk	*	10	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	*	2	-150	2	0	* AG	109	6.5	.0	10.0
B. Harlan S NBD	*	2	0	2	150	* AG	471	4.3	.0	10.0
C. Harlan S NBL	*	2	-150	0	0	* AG	41	7.2	.0	10.0
D. Harlan S SBA	*	-2	150	-2	0	* AG	0	3.6	.0	10.0
E. Harlan S SBD	*	-2	0	-2	-150	* AG	495	6.1	.0	10.0
F. Harlan S SBL	*	-2	150	0	0	* AG	18	7.2	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1089	5.8	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	713	3.8	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	23	7.2	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	991	5.6	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	693	3.8	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	101	7.2	.0	10.0
M. Harlan NBAX	*	2	-750	2	-150	* AG	150	3.6	.0	10.0
N. Harlan NBDX	*	2	150	2	750	* AG	471	3.6	.0	10.0
O. Harlan SBAX	*	-2	750	-2	150	* AG	18	3.6	.0	10.0
P. Harlan SBDX	*	-2	-150	-2	-750	* AG	495	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1112	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	713	3.6	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1092	3.6	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	693	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	7	-150	7	0	* AG	458	7.7	.0	10.0
B. Hollis S NBD	*	7	0	7	150	* AG	578	7.2	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	209	7.7	.0	10.0
D. Hollis S SBA	*	-5	150	-5	0	* AG	486	7.7	.0	10.0
E. Hollis S SBD	*	-5	0	-5	-150	* AG	702	7.7	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	260	7.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	800	5.4	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1067	3.9	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	46	7.2	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	790	5.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	843	3.9	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	141	7.2	.0	10.0
M. Hollis NBAX	*	7	-750	7	-150	* AG	667	3.6	.0	10.0
N. Hollis NBDX	*	7	150	7	750	* AG	578	3.6	.0	10.0
O. Hollis SBAX	*	-5	750	-5	150	* AG	746	3.6	.0	10.0
P. Hollis SBDX	*	-5	-150	-5	-750	* AG	702	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	846	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1067	3.6	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	931	3.6	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	843	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Horton S NBA	*	5	-150	5	0	* AG	256	6.8	.0	10.0
B. Horton S NBD	*	5	0	5	150	* AG	213	4.3	.0	10.0
C. Horton S NBL	*	5	-150	0	0	* AG	217	7.7	.0	10.0
D. Horton S SBA	*	-2	150	-2	0	* AG	201	6.8	.0	10.0
E. Horton S SBD	*	-2	0	-2	-150	* AG	464	6.1	.0	10.0
F. Horton S SBL	*	-2	150	0	0	* AG	96	7.2	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	860	5.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	878	3.9	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	26	7.2	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	728	5.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	909	3.9	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	80	7.2	.0	10.0
M. Horton NBAX	*	5	-750	5	-150	* AG	473	3.6	.0	10.0
N. Horton NBDX	*	5	150	5	750	* AG	213	3.6	.0	10.0
O. Horton SBAX	*	-2	750	-2	150	* AG	297	3.6	.0	10.0
P. Horton SBDX	*	-2	-150	-2	-750	* AG	464	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	886	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	878	3.6	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	808	3.6	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	909	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1338	7.1	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1427	5.1	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	179	7.2	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1194	6.5	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1350	4.5	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	112	7.2	.0	10.0
G. Stanford EBA	*	-150	-7	0	-7	* AG	868	6.1	.0	10.0
H. Stanford EBD	*	0	-7	150	-7	* AG	909	4.0	.0	10.0
I. Stanford EBL	*	-150	-5	0	0	* AG	151	7.2	.0	10.0
J. Stanford WBA	*	150	7	0	7	* AG	532	5.8	.0	10.0
K. Stanford WBD	*	0	7	-150	7	* AG	790	4.0	.0	10.0
L. Stanford WBL	*	150	5	0	0	* AG	102	7.2	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1517	3.6	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1427	3.6	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1306	3.6	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1350	3.6	.0	10.0
Q. Stanfor EBAX	*	-750	-7	-150	-7	* AG	1019	3.6	.0	10.0
R. Stanfor EBDX	*	150	-7	750	-7	* AG	909	3.6	.0	10.0
S. Stanfor WBAX	*	750	7	150	7	* AG	634	3.6	.0	10.0
T. Stanfor WBDX	*	-150	7	-750	7	* AG	790	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	5	-150	5	0	* AG	537	7.8	.0	10.0
B. Hollis S NBD	*	5	0	5	150	* AG	756	7.7	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	499	7.8	.0	10.0
D. Hollis S SBA	*	-7	150	-7	0	* AG	395	7.3	.0	10.0
E. Hollis S SBD	*	-7	0	-7	-150	* AG	521	7.2	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	68	7.2	.0	10.0
G. Powell S EBA	*	-150	-7	0	-7	* AG	1070	5.8	.0	10.0
H. Powell S EBD	*	0	-7	150	-7	* AG	907	3.9	.0	10.0
I. Powell S EBL	*	-150	-5	0	0	* AG	190	7.2	.0	10.0
J. Powell S WBA	*	150	7	0	7	* AG	759	5.4	.0	10.0
K. Powell S WBD	*	0	7	-150	7	* AG	1354	4.0	.0	10.0
L. Powell S WBL	*	150	5	0	0	* AG	20	7.2	.0	10.0
M. Hollis NBAX	*	5	-750	5	-150	* AG	1036	3.6	.0	10.0
N. Hollis NBDX	*	5	150	5	750	* AG	756	3.6	.0	10.0
O. Hollis SBAX	*	-7	750	-7	150	* AG	463	3.6	.0	10.0
P. Hollis SBDX	*	-7	-150	-7	-750	* AG	521	3.6	.0	10.0
Q. Powell EBAX	*	-750	-7	-150	-7	* AG	1260	3.6	.0	10.0
R. Powell EBDX	*	150	-7	750	-7	* AG	907	3.6	.0	10.0
S. Powell WBAX	*	750	7	150	7	* AG	779	3.6	.0	10.0
T. Powell WBDX	*	-150	7	-750	7	* AG	1354	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1173	6.5	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1430	5.1	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	270	7.7	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1178	6.5	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1288	4.5	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	186	7.2	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	895	6.1	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	910	4.0	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	198	7.2	.0	10.0
J. Ashby Av WBA	*	150	2	0	2	* AG	813	6.1	.0	10.0
K. Ashby Av WBD	*	0	2	-150	2	* AG	1137	4.1	.0	10.0
L. Ashby Av WBL	*	150	2	0	0	* AG	52	7.2	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1443	3.6	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1430	3.6	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1364	3.6	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1288	3.6	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1093	3.6	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	910	3.6	.0	10.0
S. Ashby A WBAX	*	750	2	150	2	* AG	865	3.6	.0	10.0
T. Ashby A WBDX	*	-150	2	-750	2	* AG	1137	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. 7th St. NBA	*	7	-150	7	0	* AG	579	6.8	.0	10.0
B. 7th St. NBD	*	7	0	7	150	* AG	804	6.1	.0	10.0
C. 7th St. NBL	*	5	-150	0	0	* AG	194	7.2	.0	10.0
D. 7th St. SBA	*	-7	150	-7	0	* AG	792	7.8	.0	10.0
E. 7th St. SBD	*	-7	0	-7	-150	* AG	654	7.4	.0	10.0
F. 7th St. SBL	*	-5	150	0	0	* AG	139	7.2	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	967	5.6	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	1028	3.9	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	290	7.7	.0	10.0
J. Ashby Av WBA	*	150	7	0	7	* AG	926	5.6	.0	10.0
K. Ashby Av WBD	*	0	7	-150	7	* AG	1540	4.2	.0	10.0
L. Ashby Av WBL	*	150	5	0	0	* AG	139	7.2	.0	10.0
M. 7th St. NBAX	*	7	-750	7	-150	* AG	773	3.6	.0	10.0
N. 7th St. NBDX	*	7	150	7	750	* AG	804	3.6	.0	10.0
O. 7th St. SBAX	*	-7	750	-7	150	* AG	931	3.6	.0	10.0
P. 7th St. SBDX	*	-7	-150	-7	-750	* AG	654	3.6	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1257	3.6	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	1028	3.6	.0	10.0
S. Ashby A WBAX	*	750	7	150	7	* AG	1065	3.6	.0	10.0
T. Ashby A WBDX	*	-150	7	-750	7	* AG	1540	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT2EPP-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	4	-150	4	0	* AG	813	8.1	.0	10.0
B. San Pabl NBD	*	4	0	4	150	* AG	1362	5.7	.0	10.0
C. San Pabl NBL	*	2	-150	0	0	* AG	19	10.5	.0	10.0
D. San Pabl SBA	*	-5	150	-5	0	* AG	1221	8.1	.0	13.5
E. San Pabl SBD	*	-5	0	-5	-150	* AG	1265	5.5	.0	11.8
F. San Pabl SBL	*	-2	150	0	0	* AG	0	5.1	.0	10.0
G. 36th Str EBA	*	-150	0	0	0	* AG	0	5.1	.0	10.0
H. 36th Str EBD	*	0	0	150	0	* AG	0	5.1	.0	10.0
I. 36th Str EBL	*	-150	-2	0	0	* AG	0	5.1	.0	10.0
J. 36th Str WBA	*	150	5	0	5	* AG	786	10.8	.0	11.8
K. 36th Str WBD	*	0	5	-150	5	* AG	276	5.9	.0	10.0
L. 36th Str WBL	*	150	2	0	0	* AG	64	10.5	.0	10.0
M. San Pab NBAX	*	4	-750	4	-150	* AG	832	5.1	.0	10.0
N. San Pab NBDX	*	4	150	4	750	* AG	1362	5.1	.0	10.0
O. San Pab SBAX	*	-5	750	-5	150	* AG	1221	5.1	.0	13.5
P. San Pab SBDX	*	-5	-150	-5	-750	* AG	1265	5.1	.0	11.8
Q. 36th St EBAX	*	-750	0	-150	0	* AG	0	5.1	.0	10.0
R. 36th Str EBDX	*	150	0	750	0	* AG	0	5.1	.0	10.0
S. 36th St WBAX	*	750	5	150	5	* AG	850	5.1	.0	11.8
T. 36th St WBDX	*	-150	5	-750	5	* AG	276	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: CEM531
RUN: ALT2 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	*	278.	*	1.6	*	.2	.0	.0	.0	.1	.0	.8	.0
2. NW	*	172.	*	1.4	*	.3	.0	.2	.0	.3	.0	.2	.0
3. SW	*	81.	*	1.6	*	.2	.0	.0	.0	.2	.0	.0	.6
4. NE	*	187.	*	1.5	*	.4	.0	.1	.0	.2	.0	.0	.2
5. ES mdblk	*	277.	*	1.3	*	.0	.0	.0	.0	.0	.0	.0	.7
6. WN mdblk	*	98.	*	1.2	*	.0	.0	.0	.0	.0	.0	.2	.1
7. WS mdblk	*	83.	*	1.4	*	.0	.0	.0	.0	.0	.0	.8	.0
8. EN mdblk	*	262.	*	1.4	*	.0	.0	.0	.0	.0	.0	.1	.2
9. SE mdblk	*	351.	*	1.1	*	.5	.0	.2	.0	.2	.0	.0	.0
10. NW mdblk	*	176.	*	.7	*	.0	.0	.0	.1	.0	.0	.0	.0
11. SW mdblk	*	9.	*	1.1	*	.3	.0	.2	.0	.4	.0	.0	.0
12. NE mdblk	*	184.	*	.7	*	.0	.1	.0	.0	.0	.0	.0	.0
13. ES blk	*	276.	*	1.1	*	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	*	97.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	*	84.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	*	263.	*	1.0	*	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	*	354.	*	.7	*	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	*	175.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	*	6.	*	.7	*	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	*	185.	*	.4	*	.0	.0	.0	.0	.0	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   4

      JOB: CEM531
      RUN: ALT2 2010pp-      (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV.  MODEL RESULTS (WORST CASE WIND ANGLE)      (CONT.)
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RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1
2. NW	*	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
4. NE	*	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	*	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	*	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	*	.0	.7	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	.2	.0
14. WN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.6
15. WS blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.2
16. EN blk	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.6	.0
17. SE blk	*	.0	.0	.0	.0	.4	.0	.0	.2	.0	.0	.0	.0
18. NW blk	*	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
19. SW blk	*	.0	.0	.0	.0	.2	.0	.0	.3	.0	.0	.0	.0
20. NE blk	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

Tower Alternative

CO Concentrations for Tower Alternative and Proposed Project
Year 2007

Intersection	Receptor Distance to Road Centerline (Meters)	Tower Alternative Related Increase 1 hr/8 hr (ppm)	Tower Alternative / Proposed Project One-Hour CO Concentration (ppm)	Tower Alternative / Proposed Project Eight-Hour CO Concentration (ppm)	Exceeds State Standards 1-Hr	8-Hr
7th St. & Ashby Avenue	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
San Pablo Avenue & Ashby Avenue	14	0.2 / 0.1	5.9 / 5.7	4.3 / 4.2	No	No
	14	0.1 / 0.1	5.8 / 5.7	4.3 / 4.2	No	No
	14	0.1 / 0.1	5.7 / 5.6	4.2 / 4.1	No	No
	14	0.1 / 0.1	5.7 / 5.6	4.2 / 4.1	No	No
Hollis Street & Powell Street	14	0.0 / 0.0	5.6 / 5.6	4.1 / 4.1	No	No
	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	14	0.1 / 0.0	5.5 / 5.4	4.0 / 4.0	No	No
	12	0.1 / 0.1	5.4 / 5.3	4.0 / 3.9	No	No
San Pablo Avenue & Stanford Avenue	14	0.0 / 0.0	5.8 / 5.8	4.3 / 4.3	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.6 / 5.6	4.1 / 4.1	No	No
Horton Street & 40th Street	15	0.1 / 0.1	5.0 / 4.9	3.7 / 3.6	No	No
	14	0.1 / 0.1	4.8 / 4.7	3.6 / 3.5	No	No
	14	0.1 / 0.1	4.8 / 4.7	3.6 / 3.5	No	No
	14	0.1 / 0.1	4.8 / 4.7	3.6 / 3.5	No	No
Hollis Street & 40th Street	17	0.1 / 0.0	5.2 / 5.1	3.8 / 3.8	No	No
	15	0.1 / 0.0	5.2 / 5.1	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.1 / 5.1	3.8 / 3.8	No	No
	14	0.1 / 0.1	5.1 / 5.0	3.8 / 3.7	No	No
Harlan Street & 40th Street	14	0.1 / 0.1	5.0 / 4.9	3.7 / 3.6	No	No
	14	0.1 / 0.0	4.9 / 4.8	3.6 / 3.6	No	No
	14	0.2 / 0.1	4.9 / 4.7	3.6 / 3.5	No	No
	14	0.2 / 0.1	4.9 / 4.7	3.6 / 3.5	No	No
Emery Street & 40th Street	14	0.0 / 0.0	5.2 / 5.2	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.1 / 5.1	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.0 / 5.0	3.7 / 3.7	No	No
	14	0.0 / 0.0	5.0 / 5.0	3.7 / 3.7	No	No
San Pablo Avenue & 40th Street	17	0.0 / 0.0	6.2 / 6.2	4.5 / 4.5	No	No
	17	0.0 / 0.0	6.1 / 6.1	4.5 / 4.5	No	No
	14	0.0 / 0.0	5.9 / 5.9	4.3 / 4.3	No	No
	14	0.0 / 0.0	5.9 / 5.9	4.3 / 4.3	No	No
San Pablo Avenue & 36th Street	14	0.1 / 0.1	5.7 / 5.6	4.2 / 4.1	No	No
	13	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	13	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	10	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No

Includes ambient one-hour concentration of 3.3 ppm and ambient eight-hour concentration of 2.5 ppm. Measured at the 822 Alice St., Oakland,CA, AQ Station (Alameda County).

CO Concentrations for Tower Alternative and Proposed Project
Year 2010

Intersection	Receptor Distance to Road Centerline (Meters)	Tower Alternative Related Increase 1 hr/8 hr (ppm)	Tower Alternative / Proposed Project One-Hour CO Concentration (ppm)	Tower Alternative / Proposed Project Eight-Hour CO Concentration (ppm)	Exceeds State Standards 1-Hr	8-Hr
7th St. & Ashby Avenue	14	0.1 / 0.1	5.3 / 5.2	3.9 / 3.8	No	No
	14	0.1 / 0.1	5.3 / 5.2	3.9 / 3.8	No	No
	14	0.0 / 0.0	5.2 / 5.2	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.2 / 5.2	3.8 / 3.8	No	No
San Pablo Avenue & Ashby Avenue	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
Hollis Street & Powell Street	14	0.0 / 0.0	5.2 / 5.2	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.1 / 5.1	3.8 / 3.8	No	No
	14	0.1 / 0.1	5.1 / 5.0	3.8 / 3.7	No	No
	12	0.0 / 0.0	5.0 / 5.0	3.7 / 3.7	No	No
San Pablo Avenue & Stanford Avenue	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.3 / 5.3	3.9 / 3.9	No	No
Horton Street & 40th Street	15	0.0 / 0.0	4.6 / 4.6	3.4 / 3.4	No	No
	14	0.1 / 0.1	4.6 / 4.5	3.4 / 3.3	No	No
	14	0.0 / 0.0	4.5 / 4.5	3.3 / 3.3	No	No
	14	0.1 / 0.0	4.5 / 4.4	3.3 / 3.3	No	No
Hollis Street & 40th Street	17	0.0 / 0.0	4.9 / 4.9	3.6 / 3.6	No	No
	15	0.1 / 0.0	4.9 / 4.8	3.6 / 3.6	No	No
	14	0.1 / 0.0	4.9 / 4.8	3.6 / 3.6	No	No
	14	0.1 / 0.0	4.9 / 4.8	3.6 / 3.6	No	No
Harlan Street & 40th Street	14	0.0 / 0.0	4.6 / 4.6	3.4 / 3.4	No	No
	14	0.0 / 0.0	4.6 / 4.6	3.4 / 3.4	No	No
	14	0.1 / 0.1	4.6 / 4.5	3.4 / 3.3	No	No
	14	0.0 / 0.0	4.5 / 4.5	3.3 / 3.3	No	No
Emery Street & 40th Street	14	0.0 / 0.0	4.9 / 4.9	3.6 / 3.6	No	No
	14	0.0 / 0.0	4.9 / 4.9	3.6 / 3.6	No	No
	14	0.0 / 0.0	4.8 / 4.8	3.6 / 3.6	No	No
	14	0.0 / 0.0	4.7 / 4.7	3.5 / 3.5	No	No
San Pablo Avenue & 40th Street	17	0.0 / 0.0	5.8 / 5.8	4.3 / 4.3	No	No
	17	0.0 / 0.0	5.8 / 5.8	4.3 / 4.3	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.6 / 5.6	4.1 / 4.1	No	No
San Pablo Avenue & 36th Street	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	13	0.0 / 0.0	5.3 / 5.3	3.9 / 3.9	No	No
	13	0.0 / 0.0	5.3 / 5.3	3.9 / 3.9	No	No
	10	0.1 / 0.0	5.2 / 5.1	3.8 / 3.8	No	No

Includes ambient one-hour concentration of 3.3 ppm and ambient eight-hour concentration of 2.5 ppm. Measured at the 822 Alice St., Oakland,CA, AQ Station (Alameda County).

P:\CEM531\BACKGROUND\Air, Noise Traffic\Air1oise, ADMIN#2\CEM531-Air\Alternatives\ALT3

CO Concentratoins for Tower Alternative and Proposed Project
Year 2030

Intersection	Receptor Distance to Road Centerline (Meters)	Tower Alternative Related Increase 1 hr/8 hr (ppm)	Tower Alternative / Proposed Project One-Hour CO Concentration (ppm)	Tower Alternative / Proposed Project Eight-Hour CO Concentration (ppm)	Exceeds State Standards 1-Hr	Exceeds State Standards 8-Hr
7th St. & Ashby Avenue	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
San Pablo Avenue & Ashby Avenue	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
Hollis Street & Powell Street	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	12	0.1 / 0.1	3.8 / 3.7	2.9 / 2.8	No	No
San Pablo Avenue & Stanford Avenue	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
Horton Street & 40th Street	17	0.1 / 0.1	3.8 / 3.7	2.9 / 2.8	No	No
	15	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
Hollis Street & 40th Street	17	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	15	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
Harlan Street & 40th Street	14	0.1 / 0.1	3.8 / 3.7	2.9 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
Emery Street & 40th Street	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
San Pablo Avenue & 40th Street	17	0.0 / 0.0	4.1 / 4.1	3.1 / 3.1	No	No
	17	0.0 / 0.0	4.1 / 4.1	3.1 / 3.1	No	No
	14	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No
	14	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No
San Pablo Avenue & 36th Street	14	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No
	13	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	13	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	10	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No

Includes ambient one-hour concentration of 3.3 ppm and ambient eight-hour concentration of 2.5 ppm. Measured at the 822 Alice St., Oakland,CA, AQ Station (Alameda County).


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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

      JOB: CEM531
      RUN: ALT3 Epp-01       (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

 I.  SITE VARIABLES

      U=    .5 M/S              Z0= 100. CM               ALT=     3. (M)
    BRG= WORST CASE             VD=   .0 CM/S
   CLAS=     7 (G)              VS=   .0 CM/S
  MIXH= 1000. M                 AMB=  .0 PPM
  SIGTH=   10. DEGREES          TEMP= 10.0 DEGREE (C)

 II.  LINK VARIABLES

     LINK          *  LINK COORDINATES (M)    *                  EF     H      W
  DESCRIPTION      *   X1     Y1     X2     Y2  * TYPE  VPH   (G/MI)   (M)    (M)
-------------------*-------------------------- *-----------------------------------
A. 7th St. NBA     *    7   -150      7      0 * AG    524    10.0     .0   10.0
B. 7th St. NBD     *    7      0      7    150 * AG    723     6.8     .0   10.0
C. 7th St. NBL     *    5   -150      0      0 * AG    170    10.5     .0   10.0
D. 7th St. SBA     *   -7    150     -7      0 * AG    722    11.6     .0   10.0
E. 7th St. SBD     *   -7      0     -7   -150 * AG    500     8.9     .0   10.0
F. 7th St. SBL     *   -5    150      0      0 * AG    130    10.5     .0   10.0
G. Ashby Av EBA    * -150     -7      0     -7 * AG    748     7.9     .0   10.0
H. Ashby Av EBD    *    0     -7    150     -7 * AG    860     5.5     .0   10.0
I. Ashby Av EBL    * -150     -5      0      0 * AG    263    11.4     .0   10.0
J. Ashby Av WBA    *  150      7      0      7 * AG    797     7.9     .0   10.0
K. Ashby Av WBD    *    0      7   -150      7 * AG   1376     5.7     .0   10.0
L. Ashby Av WBL    *  150      5      0      0 * AG    105    10.5     .0   10.0
M. 7th St. NBAX    *    7   -750      7   -150 * AG    694     5.1     .0   10.0
N. 7th St. NBDX    *    7    150      7    750 * AG    723     5.1     .0   10.0
O. 7th St. SBAX    *   -7    750     -7    150 * AG    852     5.1     .0   10.0
P. 7th St. SBDX    *   -7   -150     -7   -750 * AG    500     5.1     .0   10.0
Q. Ashby A EBAX    * -750     -7   -150     -7 * AG   1011     5.1     .0   10.0
R. Ashby A EBDX    *  150     -7    750     -7 * AG    860     5.1     .0   10.0
S. Ashby A WBAX    *  750      7    150      7 * AG    902     5.1     .0   10.0
T. Ashby A WBDX    * -150      7   -750      7 * AG   1376     5.1     .0   10.0
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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

      JOB: CEM531
      RUN: ALT3 Epp-02       (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

 I.  SITE VARIABLES

      U=    .5 M/S              Z0= 100. CM               ALT=     3. (M)
    BRG= WORST CASE             VD=   .0 CM/S
   CLAS=     7 (G)              VS=   .0 CM/S
  MIXH= 1000. M                 AMB=  .0 PPM
  SIGTH=   10. DEGREES          TEMP= 10.0 DEGREE (C)

 II.  LINK VARIABLES

     LINK          *  LINK COORDINATES (M)    *                  EF     H      W
  DESCRIPTION      *   X1     Y1     X2     Y2  * TYPE  VPH   (G/MI)   (M)    (M)
-------------------*-------------------------- *-----------------------------------
A. San Pabl NBA    *    7   -150      7      0 * AG   1006     9.5     .0   10.0
B. San Pabl NBD    *    7      0      7    150 * AG   1147     5.9     .0   10.0
C. San Pabl NBL    *    5   -150      0      0 * AG    172    10.5     .0   10.0
D. San Pabl SBA    *   -7    150     -7      0 * AG    915     8.9     .0   10.0
E. San Pabl SBD    *   -7      0     -7   -150 * AG   1001     5.9     .0   10.0
F. San Pabl SBL    *   -5    150      0      0 * AG    181    10.5     .0   10.0
G. Ashby Av EBA    * -150     -7      0     -7 * AG    747     8.6     .0   10.0
H. Ashby Av EBD    *    0     -7    150     -7 * AG    866     5.7     .0   10.0
I. Ashby Av EBL    * -150     -5      0      0 * AG     96    10.5     .0   10.0
J. Ashby Av WBA    *  150      2      0      2 * AG    750     8.6     .0   10.0
K. Ashby Av WBD    *    0      2   -150      2 * AG    897     5.7     .0   10.0
L. Ashby Av WBL    *  150      2      0      0 * AG     44    10.5     .0   10.0
M. San Pab NBAX    *    7   -750      7   -150 * AG   1178     5.1     .0   10.0
N. San Pab NBDX    *    7    150      7    750 * AG   1147     5.1     .0   10.0
O. San Pab SBAX    *   -7    750     -7    150 * AG   1096     5.1     .0   10.0
P. San Pab SBDX    *   -7   -150     -7   -750 * AG   1001     5.1     .0   10.0
Q. Ashby A EBAX    * -750     -7   -150     -7 * AG    843     5.1     .0   10.0
R. Ashby A EBDX    *  150     -7    750     -7 * AG    866     5.1     .0   10.0
S. Ashby A WBAX    *  750      2    150      2 * AG    794     5.1     .0   10.0
T. Ashby A WBDX    * -150      2   -750      2 * AG    897     5.1     .0   10.0
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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

      JOB: CEM531
      RUN: ALT3 Epp-03       (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

 I.  SITE VARIABLES

      U=    .5 M/S              Z0= 100. CM               ALT=     3. (M)
    BRG= WORST CASE             VD=   .0 CM/S
   CLAS=     7 (G)              VS=   .0 CM/S
  MIXH= 1000. M                 AMB=  .0 PPM
  SIGTH=   10. DEGREES          TEMP= 10.0 DEGREE (C)

 II.  LINK VARIABLES

     LINK          *  LINK COORDINATES (M)    *                  EF     H      W
  DESCRIPTION      *   X1     Y1     X2     Y2  * TYPE  VPH   (G/MI)   (M)    (M)
-------------------*-------------------------- *-----------------------------------
A. Hollis S NBA    *    5   -150      5      0 * AG    446    11.4     .0   10.0
B. Hollis S NBD    *    5      0      5    150 * AG    643    11.0     .0   10.0
C. Hollis S NBL    *    5   -150      0      0 * AG    507    11.6     .0   10.0
D. Hollis S SBA    *   -7    150     -7      0 * AG    354    10.8     .0   10.0
E. Hollis S SBD    *   -7      0     -7   -150 * AG    363     6.8     .0   10.0
F. Hollis S SBL    *   -5    150      0      0 * AG     58    10.5     .0   10.0
G. Powell S EBA    * -150     -7      0     -7 * AG    829     8.1     .0   10.0
H. Powell S EBD    *    0     -7    150     -7 * AG    769     5.4     .0   10.0
I. Powell S EBL    * -150     -5      0      0 * AG    169    10.5     .0   10.0
J. Powell S WBA    *  150      7      0      7 * AG    628     7.9     .0   10.0
K. Powell S WBD    *    0      7   -150      7 * AG   1236     5.7     .0   10.0
L. Powell S WBL    *  150      5      0      0 * AG     20    10.5     .0   10.0
M. Hollis  NBAX    *    5   -750      5   -150 * AG    953     5.1     .0   10.0
N. Hollis  NBDX    *    5    150      5    750 * AG    643     5.1     .0   10.0
O. Hollis  SBAX    *   -7    750     -7    150 * AG    412     5.1     .0   10.0
P. Hollis  SBDX    *   -7   -150     -7   -750 * AG    363     5.1     .0   10.0
Q. Powell  EBAX    * -750     -7   -150     -7 * AG    998     5.1     .0   10.0
R. Powell  EBDX    *  150     -7    750     -7 * AG    769     5.1     .0   10.0
S. Powell  WBAX    *  750      7    150      7 * AG    648     5.1     .0   10.0
T. Powell  WBDX    * -150      7   -750      7 * AG   1236     5.1     .0   10.0
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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 Epp-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1094	9.5	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1167	5.9	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	140	10.5	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	969	8.9	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1152	5.9	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	112	10.5	.0	10.0
G. Stanford EBA	*	-150	-7	0	-7	* AG	760	8.6	.0	10.0
H. Stanford EBD	*	0	-7	150	-7	* AG	802	5.7	.0	10.0
I. Stanford EBL	*	-150	-5	0	0	* AG	128	10.5	.0	10.0
J. Stanford WBA	*	150	7	0	7	* AG	439	8.4	.0	10.0
K. Stanford WBD	*	0	7	-150	7	* AG	621	5.6	.0	10.0
L. Stanford WBL	*	150	5	0	0	* AG	100	10.5	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1234	5.1	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1167	5.1	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1081	5.1	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1152	5.1	.0	10.0
Q. Stanfor EBAX	*	-750	-7	-150	-7	* AG	888	5.1	.0	10.0
R. Stanfor EBDX	*	150	-7	750	-7	* AG	802	5.1	.0	10.0
S. Stanfor WBAX	*	750	7	150	7	* AG	539	5.1	.0	10.0
T. Stanfor WBDX	*	-150	7	-750	7	* AG	621	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 Epp-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Horton S NBA	*	5	-150	5	0	* AG	214	10.0	.0	10.0
B. Horton S NBD	*	5	0	5	150	* AG	157	5.9	.0	10.0
C. Horton S NBL	*	5	-150	0	0	* AG	215	11.4	.0	10.0
D. Horton S SBA	*	-2	150	-2	0	* AG	125	9.6	.0	10.0
E. Horton S SBD	*	-2	0	-2	-150	* AG	389	6.8	.0	10.0
F. Horton S SBL	*	-2	150	0	0	* AG	42	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	799	7.9	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	746	5.4	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	24	10.5	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	626	7.9	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	833	5.5	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	80	10.5	.0	10.0
M. Horton NBAX	*	5	-750	5	-150	* AG	429	5.1	.0	10.0
N. Horton NBDX	*	5	150	5	750	* AG	157	5.1	.0	10.0
O. Horton SBAX	*	-2	750	-2	150	* AG	167	5.1	.0	10.0
P. Horton SBDX	*	-2	-150	-2	-750	* AG	389	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	823	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	746	5.1	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	706	5.1	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	833	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 Epp-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	7	-150	7	0	* AG	390	10.8	.0	10.0
B. Hollis S NBD	*	7	0	7	150	* AG	501	10.5	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	191	10.5	.0	10.0
D. Hollis S SBA	*	-5	150	-5	0	* AG	354	10.8	.0	10.0
E. Hollis S SBD	*	-5	0	-5	-150	* AG	568	10.5	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	177	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	668	7.9	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	836	5.5	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	46	10.5	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	678	7.9	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	740	5.4	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	141	10.5	.0	10.0
M. Hollis NBAX	*	7	-750	7	-150	* AG	581	5.1	.0	10.0
N. Hollis NBDX	*	7	150	7	750	* AG	501	5.1	.0	10.0
O. Hollis SBAX	*	-5	750	-5	150	* AG	531	5.1	.0	10.0
P. Hollis SBDX	*	-5	-150	-5	-750	* AG	568	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	714	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	836	5.1	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	819	5.1	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	740	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 Epp-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	*	2	-150	2	0	* AG	113	9.6	.0	10.0
B. Harlan S NBD	*	2	0	2	150	* AG	444	6.1	.0	10.0
C. Harlan S NBL	*	2	-150	0	0	* AG	42	10.5	.0	10.0
D. Harlan S SBA	*	-2	150	-2	0	* AG	0	5.1	.0	10.0
E. Harlan S SBD	*	-2	0	-2	-150	* AG	427	8.9	.0	10.0
F. Harlan S SBL	*	-2	150	0	0	* AG	18	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	874	8.1	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	569	5.4	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	24	10.5	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	895	8.1	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	630	5.4	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	104	10.5	.0	10.0
M. Harlan NBAX	*	2	-750	2	-150	* AG	155	5.1	.0	10.0
N. Harlan NBDX	*	2	150	2	750	* AG	444	5.1	.0	10.0
O. Harlan SBAX	*	-2	750	-2	150	* AG	18	5.1	.0	10.0
P. Harlan SBDX	*	-2	-150	-2	-750	* AG	427	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	898	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	569	5.1	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	999	5.1	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	630	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 Epp-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Emery St NBA	*	4	-150	4	0	* AG	355	10.8	.0	10.0
B. Emery St NBD	*	4	0	4	150	* AG	207	6.1	.0	10.0
C. Emery St NBL	*	2	-150	0	0	* AG	182	10.5	.0	10.0
D. Emery St SBA	*	-2	150	-2	0	* AG	149	9.6	.0	10.0
E. Emery St SBD	*	-2	0	-2	-150	* AG	355	6.8	.0	10.0
F. Emery St SBL	*	-2	150	0	0	* AG	27	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	869	8.1	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1030	5.6	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	30	10.5	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	790	7.9	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	934	5.5	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	124	10.5	.0	10.0
M. Emery S NBAX	*	4	-750	4	-150	* AG	537	5.1	.0	10.0
N. Emery S NBDX	*	4	150	4	750	* AG	207	5.1	.0	10.0
O. Emery S SBAX	*	-2	750	-2	150	* AG	176	5.1	.0	10.0
P. Emery S SBDX	*	-2	-150	-2	-750	* AG	355	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	899	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1030	5.1	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	914	5.1	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	934	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 Epp-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	11	-150	11	0	* AG	967	8.9	.0	10.0
B. San Pabl NBD	*	11	0	11	150	* AG	1303	6.4	.0	10.0
C. San Pabl NBL	*	9	-150	0	0	* AG	420	11.4	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1070	9.5	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1311	6.4	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	222	11.4	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	828	8.9	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	768	5.6	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	205	11.4	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	543	8.4	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	919	5.7	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	46	10.5	.0	10.0
M. San Pab NBAX	*	11	-750	11	-150	* AG	1387	5.1	.0	10.0
N. San Pab NBDX	*	11	150	11	750	* AG	1303	5.1	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1292	5.1	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1311	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1033	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	768	5.1	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	589	5.1	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	919	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 Epp-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	4	-150	4	0	* AG	828	8.1	.0	10.0
B. San Pabl NBD	*	4	0	4	150	* AG	1377	5.7	.0	10.0
C. San Pabl NBL	*	2	-150	0	0	* AG	19	10.5	.0	10.0
D. San Pabl SBA	*	-5	150	-5	0	* AG	1229	8.1	.0	13.5
E. San Pabl SBD	*	-5	0	-5	-150	* AG	1272	5.5	.0	11.8
F. San Pabl SBL	*	-2	150	0	0	* AG	0	5.1	.0	10.0
G. 36th Str EBA	*	-150	0	0	0	* AG	0	5.1	.0	10.0
H. 36th Str EBD	*	0	0	150	0	* AG	0	5.1	.0	10.0
I. 36th Str EBL	*	-150	-2	0	0	* AG	0	5.1	.0	10.0
J. 36th Str WBA	*	150	5	0	5	* AG	786	10.8	.0	11.8
K. 36th Str WBD	*	0	5	-150	5	* AG	277	5.9	.0	10.0
L. 36th Str WBL	*	150	2	0	0	* AG	64	10.5	.0	10.0
M. San Pab NBAX	*	4	-750	4	-150	* AG	847	5.1	.0	10.0
N. San Pab NBDX	*	4	150	4	750	* AG	1377	5.1	.0	10.0
O. San Pab SBAX	*	-5	750	-5	150	* AG	1229	5.1	.0	13.5
P. San Pab SBDX	*	-5	-150	-5	-750	* AG	1272	5.1	.0	11.8
Q. 36th St EBAX	*	-750	0	-150	0	* AG	0	5.1	.0	10.0
R. 36th St EBDX	*	150	0	750	0	* AG	0	5.1	.0	10.0
S. 36th St WBAX	*	750	5	150	5	* AG	850	5.1	.0	11.8
T. 36th St WBDX	*	-150	5	-750	5	* AG	277	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	4	-150	4	0	* AG	1118	1.4	.0	10.0
B. San Pabl NBD	*	4	0	4	150	* AG	1921	1.4	.0	10.0
C. San Pabl NBL	*	2	-150	0	0	* AG	49	1.7	.0	10.0
D. San Pabl SBA	*	-5	150	-5	0	* AG	1858	1.5	.0	13.5
E. San Pabl SBD	*	-5	0	-5	-150	* AG	1901	1.1	.0	11.8
F. San Pabl SBL	*	-2	150	0	0	* AG	0	1.0	.0	10.0
G. 36th Str EBA	*	-150	0	0	0	* AG	0	1.0	.0	10.0
H. 36th Str EBD	*	0	0	150	0	* AG	0	1.0	.0	10.0
I. 36th Str EBL	*	-150	-2	0	0	* AG	0	1.0	.0	10.0
J. 36th Str WBA	*	150	5	0	5	* AG	1364	1.8	.0	11.8
K. 36th Str WBD	*	0	5	-150	5	* AG	631	1.2	.0	10.0
L. 36th Str WBL	*	150	2	0	0	* AG	64	1.7	.0	10.0
M. San Pab NBAX	*	4	-750	4	-150	* AG	1167	1.0	.0	10.0
N. San Pab NBDX	*	4	150	4	750	* AG	1921	1.0	.0	10.0
O. San Pab SBAX	*	-5	750	-5	150	* AG	1858	1.0	.0	13.5
P. San Pab SBDX	*	-5	-150	-5	-750	* AG	1901	1.0	.0	11.8
Q. 36th St EBAX	*	-750	0	-150	0	* AG	0	1.0	.0	10.0
R. 36th St EBDX	*	150	0	750	0	* AG	0	1.0	.0	10.0
S. 36th St WBAX	*	750	5	150	5	* AG	1428	1.0	.0	11.8
T. 36th St WBDX	*	-150	5	-750	5	* AG	631	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	11	-150	11	0	* AG	1359	1.7	.0	10.0
B. San Pabl NBD	*	11	0	11	150	* AG	1754	1.5	.0	10.0
C. San Pabl NBL	*	9	-150	9	0	* AG	548	1.8	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1552	1.7	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1921	1.6	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	283	1.8	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1301	1.7	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1160	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	223	1.8	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	795	1.5	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1273	1.2	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	47	1.7	.0	10.0
M. San Pab NBAX	*	11	-750	11	-150	* AG	1907	1.0	.0	10.0
N. San Pab NBDX	*	11	150	11	750	* AG	1754	1.0	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1835	1.0	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1921	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1524	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1160	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	842	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1273	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Emery St NBA	*	4	-150	4	0	* AG	524	1.8	.0	10.0
B. Emery St NBD	*	4	0	4	150	* AG	330	1.2	.0	10.0
C. Emery St NBL	*	2	-150	0	0	* AG	272	1.8	.0	10.0
D. Emery St SBA	*	-2	150	-2	0	* AG	168	1.6	.0	10.0
E. Emery St SBD	*	-2	0	-2	-150	* AG	522	1.7	.0	10.0
F. Emery St SBL	*	-2	150	0	0	* AG	30	1.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1421	1.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1522	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	32	1.7	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	1111	1.4	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1342	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	158	1.7	.0	10.0
M. Emery S NBAX	*	4	-750	4	-150	* AG	796	1.0	.0	10.0
N. Emery S NBDX	*	4	150	4	750	* AG	330	1.0	.0	10.0
O. Emery S SBAX	*	-2	750	-2	150	* AG	198	1.0	.0	10.0
P. Emery S SBDX	*	-2	-150	-2	-750	* AG	522	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1453	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1522	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1269	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1342	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	*	2	-150	2	0	* AG	109	1.6	.0	10.0
B. Harlan S NBD	*	2	0	2	150	* AG	572	1.2	.0	10.0
C. Harlan S NBL	*	2	-150	0	0	* AG	41	1.7	.0	10.0
D. Harlan S SBA	*	-2	150	-2	0	* AG	0	1.0	.0	10.0
E. Harlan S SBD	*	-2	0	-2	-150	* AG	608	1.7	.0	10.0
F. Harlan S SBL	*	-2	150	0	0	* AG	19	1.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1428	1.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	940	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	23	1.7	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	1293	1.5	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	894	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	101	1.7	.0	10.0
M. Harlan NBAX	*	2	-750	2	-150	* AG	150	1.0	.0	10.0
N. Harlan NBDX	*	2	150	2	750	* AG	572	1.0	.0	10.0
O. Harlan SBAX	*	-2	750	-2	150	* AG	19	1.0	.0	10.0
P. Harlan SBDX	*	-2	-150	-2	-750	* AG	608	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1451	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	940	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1394	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	894	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	7	-150	7	0	* AG	525	1.8	.0	10.0
B. Hollis S NBD	*	7	0	7	150	* AG	698	1.7	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	222	1.8	.0	10.0
D. Hollis S SBA	*	-5	150	-5	0	* AG	633	1.8	.0	10.0
E. Hollis S SBD	*	-5	0	-5	-150	* AG	862	1.8	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	327	1.8	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1065	1.4	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1388	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	46	1.7	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	1054	1.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	1067	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	143	1.7	.0	10.0
M. Hollis NBAX	*	7	-750	7	-150	* AG	747	1.0	.0	10.0
N. Hollis NBDX	*	7	150	7	750	* AG	698	1.0	.0	10.0
O. Hollis SBAX	*	-5	750	-5	150	* AG	960	1.0	.0	10.0
P. Hollis SBDX	*	-5	-150	-5	-750	* AG	862	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1111	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1388	1.0	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	1197	1.0	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	1067	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Horton S NBA	*	5	-150	5	0	* AG	513	1.8	.0	10.0
B. Horton S NBD	*	5	0	5	150	* AG	482	1.5	.0	10.0
C. Horton S NBL	*	5	-150	0	0	* AG	266	1.8	.0	10.0
D. Horton S SBA	*	-2	150	-2	0	* AG	416	1.8	.0	10.0
E. Horton S SBD	*	-2	0	-2	-150	* AG	785	1.8	.0	10.0
F. Horton S SBL	*	-2	150	0	0	* AG	259	1.8	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	945	1.4	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1143	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	31	1.7	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	871	1.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	1049	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	158	1.7	.0	10.0
M. Horton NBAX	*	5	-750	5	-150	* AG	779	1.0	.0	10.0
N. Horton NBDX	*	5	150	5	750	* AG	482	1.0	.0	10.0
O. Horton SBAX	*	-2	750	-2	150	* AG	675	1.0	.0	10.0
P. Horton SBDX	*	-2	-150	-2	-750	* AG	785	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	976	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1143	1.0	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	1029	1.0	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	1049	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1512	1.7	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1625	1.5	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	185	1.7	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1387	1.7	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1531	1.3	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	112	1.7	.0	10.0
G. Stanford EBA	*	-150	-7	0	-7	* AG	922	1.5	.0	10.0
H. Stanford EBD	*	0	-7	150	-7	* AG	974	1.1	.0	10.0
I. Stanford EBL	*	-150	-5	0	0	* AG	181	1.7	.0	10.0
J. Stanford WBA	*	150	7	0	7	* AG	591	1.4	.0	10.0
K. Stanford WBD	*	0	7	-150	7	* AG	866	1.1	.0	10.0
L. Stanford WBL	*	150	5	0	0	* AG	106	1.7	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1697	1.0	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1625	1.0	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1499	1.0	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1531	1.0	.0	10.0
Q. Stanfor EBAX	*	-750	-7	-150	-7	* AG	1103	1.0	.0	10.0
R. Stanfor EBDX	*	150	-7	750	-7	* AG	974	1.0	.0	10.0
S. Stanfor WBAX	*	750	7	150	7	* AG	697	1.0	.0	10.0
T. Stanfor WBDX	*	-150	7	-750	7	* AG	866	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	5	-150	5	0	* AG	628	1.8	.0	10.0
B. Hollis S NBD	*	5	0	5	150	* AG	866	1.8	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	564	1.8	.0	10.0
D. Hollis S SBA	*	-7	150	-7	0	* AG	448	1.8	.0	10.0
E. Hollis S SBD	*	-7	0	-7	-150	* AG	615	1.7	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	69	1.7	.0	10.0
G. Powell S EBA	*	-150	-7	0	-7	* AG	1141	1.4	.0	10.0
H. Powell S EBD	*	0	-7	150	-7	* AG	943	1.1	.0	10.0
I. Powell S EBL	*	-150	-5	0	0	* AG	206	1.8	.0	10.0
J. Powell S WBA	*	150	7	0	7	* AG	816	1.4	.0	10.0
K. Powell S WBD	*	0	7	-150	7	* AG	1471	1.1	.0	10.0
L. Powell S WBL	*	150	5	0	0	* AG	23	1.7	.0	10.0
M. Hollis NBAX	*	5	-750	5	-150	* AG	1192	1.0	.0	10.0
N. Hollis NBDX	*	5	150	5	750	* AG	866	1.0	.0	10.0
O. Hollis SBAX	*	-7	750	-7	150	* AG	517	1.0	.0	10.0
P. Hollis SBDX	*	-7	-150	-7	-750	* AG	615	1.0	.0	10.0
Q. Powell EBAX	*	-750	-7	-150	-7	* AG	1347	1.0	.0	10.0
R. Powell EBDX	*	150	-7	750	-7	* AG	943	1.0	.0	10.0
S. Powell WBAX	*	750	7	150	7	* AG	839	1.0	.0	10.0
T. Powell WBDX	*	-150	7	-750	7	* AG	1471	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1400	1.7	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1603	1.5	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	279	1.8	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1340	1.7	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1534	1.3	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	191	1.7	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	972	1.5	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	1023	1.1	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	202	1.8	.0	10.0
J. Ashby Av WBA	*	150	2	0	2	* AG	851	1.5	.0	10.0
K. Ashby Av WBD	*	0	2	-150	2	* AG	1183	1.1	.0	10.0
L. Ashby Av WBL	*	150	2	0	0	* AG	108	1.7	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1679	1.0	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1603	1.0	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1531	1.0	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1534	1.0	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1174	1.0	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	1023	1.0	.0	10.0
S. Ashby A WBAX	*	750	2	150	2	* AG	959	1.0	.0	10.0
T. Ashby A WBDX	*	-150	2	-750	2	* AG	1183	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. 7th St. NBA	*	7	-150	7	0	* AG	652	1.7	.0	10.0
B. 7th St. NBD	*	7	0	7	150	* AG	888	1.5	.0	10.0
C. 7th St. NBL	*	5	-150	0	0	* AG	203	1.8	.0	10.0
D. 7th St. SBA	*	-7	150	-7	0	* AG	893	1.8	.0	10.0
E. 7th St. SBD	*	-7	0	-7	-150	* AG	745	1.8	.0	10.0
F. 7th St. SBL	*	-5	150	0	0	* AG	151	1.7	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	1004	1.4	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	1085	1.1	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	300	1.8	.0	10.0
J. Ashby Av WBA	*	150	7	0	7	* AG	979	1.4	.0	10.0
K. Ashby Av WBD	*	0	7	-150	7	* AG	1612	1.2	.0	10.0
L. Ashby Av WBL	*	150	5	0	0	* AG	148	1.7	.0	10.0
M. 7th St. NBAX	*	7	-750	7	-150	* AG	855	1.0	.0	10.0
N. 7th St. NBDX	*	7	150	7	750	* AG	888	1.0	.0	10.0
O. 7th St. SBAX	*	-7	750	-7	150	* AG	1044	1.0	.0	10.0
P. 7th St. SBDX	*	-7	-150	-7	-750	* AG	745	1.0	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1304	1.0	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	1085	1.0	.0	10.0
S. Ashby A WBAX	*	750	7	150	7	* AG	1127	1.0	.0	10.0
T. Ashby A WBDX	*	-150	7	-750	7	* AG	1612	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	4	-150	4	0	* AG	1004	5.8	.0	10.0
B. San Pabl NBD	*	4	0	4	150	* AG	1736	4.6	.0	10.0
C. San Pabl NBL	*	2	-150	0	0	* AG	49	7.2	.0	10.0
D. San Pabl SBA	*	-5	150	-5	0	* AG	1541	5.8	.0	13.5
E. San Pabl SBD	*	-5	0	-5	-150	* AG	1584	3.9	.0	11.8
F. San Pabl SBL	*	-2	150	0	0	* AG	0	3.6	.0	10.0
G. 36th Str EBA	*	-150	0	0	0	* AG	0	3.6	.0	10.0
H. 36th Str EBD	*	0	0	150	0	* AG	0	3.6	.0	10.0
I. 36th Str EBL	*	-150	-2	0	0	* AG	0	3.6	.0	10.0
J. 36th Str WBA	*	150	5	0	5	* AG	1117	7.8	.0	11.8
K. 36th Str WBD	*	0	5	-150	5	* AG	455	4.3	.0	10.0
L. 36th Str WBL	*	150	2	0	0	* AG	64	7.2	.0	10.0
M. San Pab NBAX	*	4	-750	4	-150	* AG	1053	3.6	.0	10.0
N. San Pab NBDX	*	4	150	4	750	* AG	1736	3.6	.0	10.0
O. San Pab SBAX	*	-5	750	-5	150	* AG	1541	3.6	.0	13.5
P. San Pab SBDX	*	-5	-150	-5	-750	* AG	1584	3.6	.0	11.8
Q. 36th St EBAX	*	-750	0	-150	0	* AG	0	3.6	.0	10.0
R. 36th St EBDX	*	150	0	750	0	* AG	0	3.6	.0	10.0
S. 36th St WBAX	*	750	5	150	5	* AG	1181	3.6	.0	11.8
T. 36th St WBDX	*	-150	5	-750	5	* AG	455	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	11	-150	11	0	* AG	1218	7.1	.0	10.0
B. San Pabl NBD	*	11	0	11	150	* AG	1590	5.1	.0	10.0
C. San Pabl NBL	*	9	-150	0	0	* AG	496	7.7	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1276	7.1	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1595	5.1	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	267	7.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1052	6.5	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	960	4.0	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	207	7.7	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	674	5.9	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1092	4.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	47	7.2	.0	10.0
M. San Pab NBAX	*	11	-750	11	-150	* AG	1714	3.6	.0	10.0
N. San Pab NBDX	*	11	150	11	750	* AG	1590	3.6	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1543	3.6	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1595	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1259	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	960	3.6	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	721	3.6	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1092	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Emery St NBA	*	4	-150	4	0	* AG	416	7.7	.0	10.0
B. Emery St NBD	*	4	0	4	150	* AG	217	4.3	.0	10.0
C. Emery St NBL	*	2	-150	0	0	* AG	189	7.2	.0	10.0
D. Emery St SBA	*	-2	150	-2	0	* AG	157	6.5	.0	10.0
E. Emery St SBD	*	-2	0	-2	-150	* AG	455	6.1	.0	10.0
F. Emery St SBL	*	-2	150	0	0	* AG	27	7.2	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1102	5.8	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1256	4.0	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	30	7.2	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	929	5.6	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1080	3.9	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	158	7.2	.0	10.0
M. Emery S NBAX	*	4	-750	4	-150	* AG	605	3.6	.0	10.0
N. Emery S NBDX	*	4	150	4	750	* AG	217	3.6	.0	10.0
O. Emery S SBAX	*	-2	750	-2	150	* AG	184	3.6	.0	10.0
P. Emery S SBDX	*	-2	-150	-2	-750	* AG	455	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1132	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1256	3.6	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1087	3.6	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1080	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	*	2	-150	2	0	* AG	109	6.5	.0	10.0
B. Harlan S NBD	*	2	0	2	150	* AG	479	4.3	.0	10.0
C. Harlan S NBL	*	2	-150	0	0	* AG	41	7.2	.0	10.0
D. Harlan S SBA	*	-2	150	-2	0	* AG	0	3.6	.0	10.0
E. Harlan S SBD	*	-2	0	-2	-150	* AG	496	6.1	.0	10.0
F. Harlan S SBL	*	-2	150	0	0	* AG	18	7.2	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1092	5.8	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	715	3.8	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	23	7.2	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	1016	5.8	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	710	3.8	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	101	7.2	.0	10.0
M. Harlan NBAX	*	2	-750	2	-150	* AG	150	3.6	.0	10.0
N. Harlan NBDX	*	2	150	2	750	* AG	479	3.6	.0	10.0
O. Harlan SBAX	*	-2	750	-2	150	* AG	18	3.6	.0	10.0
P. Harlan SBDX	*	-2	-150	-2	-750	* AG	496	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1115	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	715	3.6	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1117	3.6	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	710	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	7	-150	7	0	* AG	460	7.7	.0	10.0
B. Hollis S NBD	*	7	0	7	150	* AG	605	7.4	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	218	7.7	.0	10.0
D. Hollis S SBA	*	-5	150	-5	0	* AG	479	7.7	.0	10.0
E. Hollis S SBD	*	-5	0	-5	-150	* AG	704	7.7	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	262	7.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	809	5.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1069	3.9	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	46	7.2	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	815	5.6	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	852	3.9	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	141	7.2	.0	10.0
M. Hollis NBAX	*	7	-750	7	-150	* AG	678	3.6	.0	10.0
N. Hollis NBDX	*	7	150	7	750	* AG	605	3.6	.0	10.0
O. Hollis SBAX	*	-5	750	-5	150	* AG	741	3.6	.0	10.0
P. Hollis SBDX	*	-5	-150	-5	-750	* AG	704	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	855	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1069	3.6	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	956	3.6	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	852	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Horton S NBA	*	5	-150	5	0	* AG	256	6.8	.0	10.0
B. Horton S NBD	*	5	0	5	150	* AG	213	4.3	.0	10.0
C. Horton S NBL	*	5	-150	0	0	* AG	249	7.7	.0	10.0
D. Horton S SBA	*	-2	150	-2	0	* AG	201	6.8	.0	10.0
E. Horton S SBD	*	-2	0	-2	-150	* AG	487	6.1	.0	10.0
F. Horton S SBL	*	-2	150	0	0	* AG	96	7.2	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	892	5.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	887	3.9	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	26	7.2	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	737	5.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	950	3.9	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	80	7.2	.0	10.0
M. Horton NBAX	*	5	-750	5	-150	* AG	505	3.6	.0	10.0
N. Horton NBDX	*	5	150	5	750	* AG	213	3.6	.0	10.0
O. Horton SBAX	*	-2	750	-2	150	* AG	297	3.6	.0	10.0
P. Horton SBDX	*	-2	-150	-2	-750	* AG	487	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	918	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	887	3.6	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	817	3.6	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	950	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1338	7.1	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1427	5.1	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	179	7.2	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1194	6.5	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1350	4.5	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	112	7.2	.0	10.0
G. Stanford EBA	*	-150	-7	0	-7	* AG	851	6.1	.0	10.0
H. Stanford EBD	*	0	-7	150	-7	* AG	892	4.0	.0	10.0
I. Stanford EBL	*	-150	-5	0	0	* AG	151	7.2	.0	10.0
J. Stanford WBA	*	150	7	0	7	* AG	543	5.8	.0	10.0
K. Stanford WBD	*	0	7	-150	7	* AG	801	4.0	.0	10.0
L. Stanford WBL	*	150	5	0	0	* AG	102	7.2	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1517	3.6	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1427	3.6	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1306	3.6	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1350	3.6	.0	10.0
Q. Stanfor EBAX	*	-750	-7	-150	-7	* AG	1002	3.6	.0	10.0
R. Stanfor EBDX	*	150	-7	750	-7	* AG	892	3.6	.0	10.0
S. Stanfor WBAX	*	750	7	150	7	* AG	645	3.6	.0	10.0
T. Stanfor WBDX	*	-150	7	-750	7	* AG	801	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	5	-150	5	0	* AG	537	7.8	.0	10.0
B. Hollis S NBD	*	5	0	5	150	* AG	756	7.7	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	525	7.8	.0	10.0
D. Hollis S SBA	*	-7	150	-7	0	* AG	395	7.3	.0	10.0
E. Hollis S SBD	*	-7	0	-7	-150	* AG	514	7.2	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	68	7.2	.0	10.0
G. Powell S EBA	*	-150	-7	0	-7	* AG	1045	5.8	.0	10.0
H. Powell S EBD	*	0	-7	150	-7	* AG	889	3.9	.0	10.0
I. Powell S EBL	*	-150	-5	0	0	* AG	190	7.2	.0	10.0
J. Powell S WBA	*	150	7	0	7	* AG	768	5.4	.0	10.0
K. Powell S WBD	*	0	7	-150	7	* AG	1389	4.0	.0	10.0
L. Powell S WBL	*	150	5	0	0	* AG	20	7.2	.0	10.0
M. Hollis NBAX	*	5	-750	5	-150	* AG	1062	3.6	.0	10.0
N. Hollis NBDX	*	5	150	5	750	* AG	756	3.6	.0	10.0
O. Hollis SBAX	*	-7	750	-7	150	* AG	463	3.6	.0	10.0
P. Hollis SBDX	*	-7	-150	-7	-750	* AG	514	3.6	.0	10.0
Q. Powell EBAX	*	-750	-7	-150	-7	* AG	1235	3.6	.0	10.0
R. Powell EBDX	*	150	-7	750	-7	* AG	889	3.6	.0	10.0
S. Powell WBAX	*	750	7	150	7	* AG	788	3.6	.0	10.0
T. Powell WBDX	*	-150	7	-750	7	* AG	1389	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1195	6.5	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1430	5.1	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	270	7.7	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1200	6.5	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1332	4.5	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	186	7.2	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	895	6.1	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	930	4.0	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	196	7.2	.0	10.0
J. Ashby Av WBA	*	150	2	0	2	* AG	813	6.1	.0	10.0
K. Ashby Av WBD	*	0	2	-150	2	* AG	1137	4.1	.0	10.0
L. Ashby Av WBL	*	150	2	0	0	* AG	74	7.2	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1465	3.6	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1430	3.6	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1386	3.6	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1332	3.6	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1091	3.6	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	930	3.6	.0	10.0
S. Ashby A WBAX	*	750	2	150	2	* AG	887	3.6	.0	10.0
T. Ashby A WBDX	*	-150	2	-750	2	* AG	1137	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT3 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. 7th St. NBA	*	7	-150	7	0	* AG	579	6.8	.0	10.0
B. 7th St. NBD	*	7	0	7	150	* AG	804	6.1	.0	10.0
C. 7th St. NBL	*	5	-150	0	0	* AG	186	7.2	.0	10.0
D. 7th St. SBA	*	-7	150	-7	0	* AG	799	7.8	.0	10.0
E. 7th St. SBD	*	-7	0	-7	-150	* AG	663	7.4	.0	10.0
F. 7th St. SBL	*	-5	150	0	0	* AG	139	7.2	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	969	5.6	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	1028	3.9	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	290	7.7	.0	10.0
J. Ashby Av WBA	*	150	7	0	7	* AG	926	5.6	.0	10.0
K. Ashby Av WBD	*	0	7	-150	7	* AG	1532	4.2	.0	10.0
L. Ashby Av WBL	*	150	5	0	0	* AG	139	7.2	.0	10.0
M. 7th St. NBAX	*	7	-750	7	-150	* AG	765	3.6	.0	10.0
N. 7th St. NBDX	*	7	150	7	750	* AG	804	3.6	.0	10.0
O. 7th St. SBAX	*	-7	750	-7	150	* AG	938	3.6	.0	10.0
P. 7th St. SBDX	*	-7	-150	-7	-750	* AG	663	3.6	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1259	3.6	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	1028	3.6	.0	10.0
S. Ashby A WBAX	*	750	7	150	7	* AG	1065	3.6	.0	10.0
T. Ashby A WBDX	*	-150	7	-750	7	* AG	1532	3.6	.0	10.0

Main Street Alternative

CO Concentrations for Main Street Alternative and Proposed Project Year 2007

Intersection	Receptor Distance to Road Centerline (Meters)	Main Street Alternative Project Related Increase 1 hr/8 hr (ppm)	Main Street Alternative / Proposed Project One-Hour CO Concentration (ppm)	Main street Alternative / Proposed Project Eight-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
7th St. & Ashby Avenue	14	0.1 / 0.1	5.8 / 5.7	4.3 / 4.2	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.1 / 0.1	5.6 / 5.5	4.1 / 4.0	No	No
	14	0.1 / 0.1	5.6 / 5.5	4.1 / 4.0	No	No
San Pablo Avenue & Ashby Avenue	14	0.2 / 0.1	5.9 / 5.7	4.3 / 4.2	No	No
	14	0.1 / 0.1	5.8 / 5.7	4.3 / 4.2	No	No
	14	0.1 / 0.1	5.7 / 5.6	4.2 / 4.1	No	No
	14	0.1 / 0.1	5.7 / 5.6	4.2 / 4.1	No	No
Hollis Street & Powell Street	14	0.1 / 0.1	5.7 / 5.6	4.2 / 4.1	No	No
	14	0.1 / 0.1	5.6 / 5.5	4.1 / 4.0	No	No
	14	0.2 / 0.1	5.6 / 5.4	4.1 / 4.0	No	No
	12	0.2 / 0.1	5.5 / 5.3	4.0 / 3.9	No	No
San Pablo Avenue & Stanford Avenue	14	0.0 / 0.0	5.8 / 5.8	4.3 / 4.3	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.1 / 0.1	5.7 / 5.6	4.2 / 4.1	No	No
Horton Street & 40th Street	15	0.1 / 0.1	5.0 / 4.9	3.7 / 3.6	No	No
	14	0.2 / 0.1	4.9 / 4.7	3.6 / 3.5	No	No
	14	0.1 / 0.1	4.8 / 4.7	3.6 / 3.5	No	No
	14	0.1 / 0.1	4.8 / 4.7	3.6 / 3.5	No	No
Hollis Street & 40th Street	17	0.1 / 0.0	5.2 / 5.1	3.8 / 3.8	No	No
	15	0.1 / 0.0	5.2 / 5.1	3.8 / 3.8	No	No
	14	0.1 / 0.0	5.2 / 5.1	3.8 / 3.8	No	No
	14	0.1 / 0.1	5.1 / 5.0	3.8 / 3.7	No	No
Harlan Street & 40th Street	14	0.1 / 0.1	5.0 / 4.9	3.7 / 3.6	No	No
	14	0.2 / 0.1	5.0 / 4.8	3.7 / 3.6	No	No
	14	0.2 / 0.1	4.9 / 4.7	3.6 / 3.5	No	No
	14	0.2 / 0.1	4.9 / 4.7	3.6 / 3.5	No	No
Emery Street & 40th Street	14	0.1 / 0.1	5.3 / 5.2	3.9 / 3.8	No	No
	14	0.1 / 0.0	5.2 / 5.1	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.0 / 5.0	3.7 / 3.7	No	No
	14	0.0 / 0.0	5.0 / 5.0	3.7 / 3.7	No	No
San Pablo Avenue & 40th Street	17	0.0 / 0.0	6.2 / 6.2	4.5 / 4.5	No	No
	17	0.0 / 0.0	6.1 / 6.1	4.5 / 4.5	No	No
	14	0.1 / 0.1	6.0 / 5.9	4.4 / 4.3	No	No
	14	0.0 / 0.0	5.9 / 5.9	4.3 / 4.3	No	No
San Pablo Avenue & 36th Street	14	0.1 / 0.1	5.7 / 5.6	4.2 / 4.1	No	No
	13	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	13	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	10	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No

Includes ambient one-hour concentration of 3.3 ppm and ambient eight-hour concentration of 2.5 ppm. Measured at the 822 Alice St., Oakland,CA, AQ Station (Alameda County).

CO Concentrations for Main Street Alternative and Proposed Project Year 2010

Intersection	Receptor Distance to Road Centerline (Meters)	Main Street Alternative Project Related Increase 1 hr/8 hr (ppm)	Main Street Alternative / Proposed Project One-Hour CO Concentration (ppm)	Main street Alternative / Proposed Project Eight-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
7th St. & Ashby Avenue	14	0.1 / 0.1	5.3 / 5.2	3.9 / 3.8	No	No
	14	0.1 / 0.1	5.3 / 5.2	3.9 / 3.8	No	No
	14	0.0 / 0.0	5.2 / 5.2	3.8 / 3.8	No	No
	14	0.0 / 0.0	5.2 / 5.2	3.8 / 3.8	No	No
San Pablo Avenue & Ashby Avenue	14	0.2 / 0.2	5.7 / 5.5	4.2 / 4.0	No	No
	14	0.2 / 0.1	5.6 / 5.4	4.1 / 4.0	No	No
	14	0.1 / 0.0	5.5 / 5.4	4.0 / 4.0	No	No
	14	0.1 / 0.0	5.5 / 5.4	4.0 / 4.0	No	No
Hollis Street & Powell Street	14	0.2 / 0.2	5.4 / 5.2	4.0 / 3.8	No	No
	14	0.2 / 0.1	5.3 / 5.1	3.9 / 3.8	No	No
	14	0.2 / 0.1	5.2 / 5.0	3.8 / 3.7	No	No
	12	0.1 / 0.1	5.1 / 5.0	3.8 / 3.7	No	No
San Pablo Avenue & Stanford Avenue	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.4 / 5.4	4.0 / 4.0	No	No
	14	0.0 / 0.0	5.3 / 5.3	3.9 / 3.9	No	No
Horton Street & 40th Street	17	0.2 / 0.2	4.8 / 4.6	3.6 / 3.4	No	No
	15	0.2 / 0.2	4.7 / 4.5	3.5 / 3.3	No	No
	14	0.1 / 0.1	4.6 / 4.5	3.4 / 3.3	No	No
	14	0.1 / 0.0	4.5 / 4.4	3.3 / 3.3	No	No
Hollis Street & 40th Street	17	0.1 / 0.1	5.0 / 4.9	3.7 / 3.6	No	No
	15	0.2 / 0.1	5.0 / 4.8	3.7 / 3.6	No	No
	14	0.1 / 0.0	4.9 / 4.8	3.6 / 3.6	No	No
	14	0.1 / 0.0	4.9 / 4.8	3.6 / 3.6	No	No
Harlan Street & 40th Street	14	0.1 / 0.1	4.7 / 4.6	3.5 / 3.4	No	No
	14	0.1 / 0.1	4.7 / 4.6	3.5 / 3.4	No	No
	14	0.2 / 0.2	4.7 / 4.5	3.5 / 3.3	No	No
	14	0.1 / 0.1	4.6 / 4.5	3.4 / 3.3	No	No
Emery Street & 40th Street	14	0.1 / 0.1	5.0 / 4.9	3.7 / 3.6	No	No
	14	0.0 / 0.0	4.9 / 4.9	3.6 / 3.6	No	No
	14	0.0 / 0.0	4.8 / 4.8	3.6 / 3.6	No	No
	14	0.1 / 0.1	4.8 / 4.7	3.6 / 3.5	No	No
San Pablo Avenue & 40th Street	17	0.2 / 0.1	6.0 / 5.8	4.4 / 4.3	No	No
	17	0.1 / 0.0	5.9 / 5.8	4.3 / 4.3	No	No
	14	0.0 / 0.0	5.7 / 5.7	4.2 / 4.2	No	No
	14	0.1 / 0.1	5.7 / 5.6	4.2 / 4.1	No	No
San Pablo Avenue & 36th Street	14	0.0 / 0.0	5.5 / 5.5	4.0 / 4.0	No	No
	13	0.1 / 0.1	5.4 / 5.3	4.0 / 3.9	No	No
	13	0.0 / 0.0	5.3 / 5.3	3.9 / 3.9	No	No
	10	0.1 / 0.0	5.2 / 5.1	3.8 / 3.8	No	No

Includes ambient one-hour concentration of 3.3 ppm and ambient eight-hour concentration of 2.5 ppm. Measured at the 822 Alice St., Oakland,CA, AQ Station (Alameda County).

CO Concentrations for Main Street Alternative and Proposed Project Year 2030

Intersection	Receptor Distance to Road Centerline (Meters)	Main Street Alternative Project Related Increase 1 hr/8 hr (ppm)	Main Street Alternative / Proposed Project One-Hour CO Concentration (ppm)	Main street Alternative / Proposed Project Eight-Hour CO Concentration (ppm)	Exceeds State Standards	
					1-Hr	8-Hr
7th St. & Ashby Avenue	14	0.1 / 0.0	3.9 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
San Pablo Avenue & Ashby Avenue	14	0.1 / 0.1	4.0 / 3.9	3.0 / 2.9	No	No
	14	0.1 / 0.1	4.0 / 3.9	3.0 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
Hollis Street & Powell Street	14	0.1 / 0.0	3.9 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.1 / 0.1	3.8 / 3.7	2.9 / 2.8	No	No
San Pablo Avenue & Stanford Avenue	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
Horton Street & 40th Street	17	0.1 / 0.1	3.8 / 3.7	2.9 / 2.8	No	No
	15	0.1 / 0.1	3.8 / 3.7	2.9 / 2.8	No	No
	14	0.1 / 0.1	3.8 / 3.7	2.9 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
Hollis Street & 40th Street	17	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	15	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.1 / 0.1	3.8 / 3.7	2.9 / 2.8	No	No
Harlan Street & 40th Street	14	0.1 / 0.1	3.8 / 3.7	2.9 / 2.8	No	No
	14	0.1 / 0.1	3.8 / 3.7	2.9 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
	14	0.0 / 0.0	3.7 / 3.7	2.8 / 2.8	No	No
Emery Street & 40th Street	14	0.1 / 0.0	3.9 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
	14	0.0 / 0.0	3.8 / 3.8	2.9 / 2.9	No	No
San Pablo Avenue & 40th Street	17	0.0 / 0.0	4.1 / 4.1	3.1 / 3.1	No	No
	17	0.0 / 0.0	4.1 / 4.1	3.1 / 3.1	No	No
	14	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No
	14	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No
San Pablo Avenue & 36th Street	14	0.0 / 0.0	4.0 / 4.0	3.0 / 3.0	No	No
	13	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	13	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No
	10	0.0 / 0.0	3.9 / 3.9	2.9 / 2.9	No	No

Includes ambient one-hour concentration of 3.3 ppm and ambient eight-hour concentration of 2.5 ppm. Measured at the 822 Alice St., Oakland,CA, AQ Station (Alameda County).


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     CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
              JUNE 1989 VERSION
              PAGE   1

           JOB: CEM531
           RUN: ALT4 Epp-01        (WORST CASE ANGLE)
    POLLUTANT: Carbon Monoxide

 I.  SITE VARIABLES

       U=     .5 M/S              Z0= 100. CM              ALT=     3. (M)
     BRG= WORST CASE             VD=    .0 CM/S
    CLAS=     7 (G)              VS=    .0 CM/S
    MIXH= 1000. M                AMB=   .0 PPM
   SIGTH=   10. DEGREES          TEMP= 10.0 DEGREE (C)

 II.  LINK VARIABLES

      LINK      *  LINK COORDINATES (M)   *              EF     H     W
   DESCRIPTION  *   X1     Y1     X2     Y2  * TYPE  VPH  (G/MI)  (M)   (M)
---------------*-------------------------*-------------------------------
A. 7th St. NBA  *    7   -150      7      0 *  AG    532   10.0    .0  10.0
B. 7th St. NBD  *    7      0      7    150 *  AG    731    6.8    .0  10.0
C. 7th St. NBL  *    5   -150      0      0 *  AG    178   10.5    .0  10.0
D. 7th St. SBA  *   -7    150     -7      0 *  AG    723   11.6    .0  10.0
E. 7th St. SBD  *   -7      0     -7   -150 *  AG    505   10.5    .0  10.0
F. 7th St. SBL  *   -5    150      0      0 *  AG    130   10.5    .0  10.0
G. Ashby Av EBA *  -150    -7      0     -7 *  AG    752    7.9    .0  10.0
H. Ashby Av EBD *    0    -7    150     -7 *  AG    860    5.5    .0  10.0
I. Ashby Av EBL *  -150    -5      0      0 *  AG    263   11.4    .0  10.0
J. Ashby Av WBA *   150     7      0      7 *  AG    797    7.9    .0  10.0
K. Ashby Av WBD *     0     7   -150      7 *  AG   1384    5.7    .0  10.0
L. Ashby Av WBL *   150     5      0      0 *  AG    105   10.5    .0  10.0
M. 7th St. NBAX *     7  -750      7   -150 *  AG    710    5.1    .0  10.0
N. 7th St. NBDX *     7   150      7    750 *  AG    731    5.1    .0  10.0
O. 7th St. SBAX *    -7   750     -7    150 *  AG    853    5.1    .0  10.0
P. 7th St. SBDX *    -7  -150     -7   -750 *  AG    505    5.1    .0  10.0
Q. Ashby A EBAX *  -750    -7   -150     -7 *  AG   1015    5.1    .0  10.0
R. Ashby A EBDX *   150    -7    750     -7 *  AG    860    5.1    .0  10.0
S. Ashby A WBAX *   750     7    150      7 *  AG    902    5.1    .0  10.0
T. Ashby A WBDX *  -150     7   -750      7 *  AG   1384    5.1    .0  10.0
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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 Epp-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1043	9.5	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1173	5.9	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	172	10.5	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	918	8.9	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	997	5.7	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	181	10.5	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	747	8.6	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	877	5.7	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	96	10.5	.0	10.0
J. Ashby Av WBA	*	150	2	0	2	* AG	750	8.6	.0	10.0
K. Ashby Av WBD	*	0	2	-150	2	* AG	897	5.7	.0	10.0
L. Ashby Av WBL	*	150	2	0	0	* AG	37	10.5	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1215	5.1	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1173	5.1	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1099	5.1	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	997	5.1	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	843	5.1	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	877	5.1	.0	10.0
S. Ashby A WBAX	*	750	2	150	2	* AG	787	5.1	.0	10.0
T. Ashby A WBDX	*	-150	2	-750	2	* AG	897	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 Epp-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	5	-150	5	0	* AG	446	11.4	.0	10.0
B. Hollis S NBD	*	5	0	5	150	* AG	643	11.0	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	514	11.6	.0	10.0
D. Hollis S SBA	*	-7	150	-7	0	* AG	354	10.8	.0	10.0
E. Hollis S SBD	*	-7	0	-7	-150	* AG	401	8.9	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	58	10.5	.0	10.0
G. Powell S EBA	*	-150	-7	0	-7	* AG	895	8.1	.0	10.0
H. Powell S EBD	*	0	-7	150	-7	* AG	797	5.4	.0	10.0
I. Powell S EBL	*	-150	-5	0	0	* AG	169	10.5	.0	10.0
J. Powell S WBA	*	150	7	0	7	* AG	638	7.9	.0	10.0
K. Powell S WBD	*	0	7	-150	7	* AG	1253	5.7	.0	10.0
L. Powell S WBL	*	150	5	0	0	* AG	20	10.5	.0	10.0
M. Hollis NBAX	*	5	-750	5	-150	* AG	960	5.1	.0	10.0
N. Hollis NBDX	*	5	150	5	750	* AG	643	5.1	.0	10.0
O. Hollis SBAX	*	-7	750	-7	150	* AG	412	5.1	.0	10.0
P. Hollis SBDX	*	-7	-150	-7	-750	* AG	401	5.1	.0	10.0
Q. Powell EBAX	*	-750	-7	-150	-7	* AG	1064	5.1	.0	10.0
R. Powell EBDX	*	150	-7	750	-7	* AG	797	5.1	.0	10.0
S. Powell WBAX	*	750	7	150	7	* AG	658	5.1	.0	10.0
T. Powell WBDX	*	-150	7	-750	7	* AG	1253	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 Epp-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1094	9.5	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1167	5.9	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	140	10.5	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	969	8.9	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1152	5.9	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	112	10.5	.0	10.0
G. Stanford EBA	*	-150	-7	0	-7	* AG	788	8.6	.0	10.0
H. Stanford EBD	*	0	-7	150	-7	* AG	830	5.7	.0	10.0
I. Stanford EBL	*	-150	-5	0	0	* AG	128	10.5	.0	10.0
J. Stanford WBA	*	150	7	0	7	* AG	449	8.4	.0	10.0
K. Stanford WBD	*	0	7	-150	7	* AG	631	5.6	.0	10.0
L. Stanford WBL	*	150	5	0	0	* AG	100	10.5	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1234	5.1	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1167	5.1	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1081	5.1	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1152	5.1	.0	10.0
Q. Stanfor EBAX	*	-750	-7	-150	-7	* AG	916	5.1	.0	10.0
R. Stanfor EBDX	*	150	-7	750	-7	* AG	830	5.1	.0	10.0
S. Stanfor WBAX	*	750	7	150	7	* AG	549	5.1	.0	10.0
T. Stanfor WBDX	*	-150	7	-750	7	* AG	631	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 Epp-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Horton S NBA	*	5	-150	5	0	* AG	214	10.0	.0	10.0
B. Horton S NBD	*	5	0	5	150	* AG	157	5.9	.0	10.0
C. Horton S NBL	*	5	-150	0	0	* AG	208	11.4	.0	10.0
D. Horton S SBA	*	-2	150	-2	0	* AG	125	9.6	.0	10.0
E. Horton S SBD	*	-2	0	-2	-150	* AG	410	8.9	.0	10.0
F. Horton S SBL	*	-2	150	0	0	* AG	42	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	825	8.1	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	751	5.4	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	24	10.5	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	623	7.9	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	823	5.5	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	80	10.5	.0	10.0
M. Horton NBAX	*	5	-750	5	-150	* AG	422	5.1	.0	10.0
N. Horton NBDX	*	5	150	5	750	* AG	157	5.1	.0	10.0
O. Horton SBAX	*	-2	750	-2	150	* AG	167	5.1	.0	10.0
P. Horton SBDX	*	-2	-150	-2	-750	* AG	410	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	849	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	751	5.1	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	703	5.1	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	823	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 Epp-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	7	-150	7	0	* AG	394	10.8	.0	10.0
B. Hollis S NBD	*	7	0	7	150	* AG	507	10.5	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	188	10.5	.0	10.0
D. Hollis S SBA	*	-5	150	-5	0	* AG	362	10.8	.0	10.0
E. Hollis S SBD	*	-5	0	-5	-150	* AG	581	10.5	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	207	11.4	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	673	7.9	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	866	5.5	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	46	10.5	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	680	7.9	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	737	5.4	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	141	10.5	.0	10.0
M. Hollis NBAX	*	7	-750	7	-150	* AG	582	5.1	.0	10.0
N. Hollis NBDX	*	7	150	7	750	* AG	507	5.1	.0	10.0
O. Hollis SBAX	*	-5	750	-5	150	* AG	569	5.1	.0	10.0
P. Hollis SBDX	*	-5	-150	-5	-750	* AG	581	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	719	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	866	5.1	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	821	5.1	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	737	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 Epp-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	*	2	-150	2	0	* AG	113	9.6	.0	10.0
B. Harlan S NBD	*	2	0	2	150	* AG	445	6.1	.0	10.0
C. Harlan S NBL	*	2	-150	0	0	* AG	42	10.5	.0	10.0
D. Harlan S SBA	*	-2	150	-2	0	* AG	0	5.1	.0	10.0
E. Harlan S SBD	*	-2	0	-2	-150	* AG	438	8.9	.0	10.0
F. Harlan S SBL	*	-2	150	0	0	* AG	18	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	906	8.1	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	590	5.4	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	24	10.5	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	898	8.1	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	632	5.4	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	104	10.5	.0	10.0
M. Harlan NBAX	*	2	-750	2	-150	* AG	155	5.1	.0	10.0
N. Harlan NBDX	*	2	150	2	750	* AG	445	5.1	.0	10.0
O. Harlan SBAX	*	-2	750	-2	150	* AG	18	5.1	.0	10.0
P. Harlan SBDX	*	-2	-150	-2	-750	* AG	438	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	930	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	590	5.1	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1002	5.1	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	632	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 Epp-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Emery St NBA	*	4	-150	4	0	* AG	355	10.8	.0	10.0
B. Emery St NBD	*	4	0	4	150	* AG	207	6.1	.0	10.0
C. Emery St NBL	*	2	-150	0	0	* AG	182	10.5	.0	10.0
D. Emery St SBA	*	-2	150	-2	0	* AG	149	9.6	.0	10.0
E. Emery St SBD	*	-2	0	-2	-150	* AG	355	6.8	.0	10.0
F. Emery St SBL	*	-2	150	0	0	* AG	27	10.5	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	899	8.1	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1060	5.6	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	30	10.5	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	792	7.9	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	936	5.5	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	124	10.5	.0	10.0
M. Emery S NBAX	*	4	-750	4	-150	* AG	537	5.1	.0	10.0
N. Emery S NBDX	*	4	150	4	750	* AG	207	5.1	.0	10.0
O. Emery S SBAX	*	-2	750	-2	150	* AG	176	5.1	.0	10.0
P. Emery S SBDX	*	-2	-150	-2	-750	* AG	355	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	929	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1060	5.1	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	916	5.1	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	936	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 Epp-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	11	-150	11	0	* AG	967	8.9	.0	10.0
B. San Pabl NBD	*	11	0	11	150	* AG	1303	6.4	.0	10.0
C. San Pabl NBL	*	9	-150	0	0	* AG	422	11.4	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1070	9.5	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1328	6.4	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	222	11.4	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	858	8.9	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	781	5.6	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	205	11.4	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	544	8.4	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	922	5.7	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	46	10.5	.0	10.0
M. San Pab NBAX	*	11	-750	11	-150	* AG	1369	5.1	.0	10.0
N. San Pab NBDX	*	11	150	11	750	* AG	1303	5.1	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1292	5.1	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1328	5.1	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1063	5.1	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	781	5.1	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	590	5.1	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	922	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 Epp-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	4	-150	4	0	* AG	830	8.1	.0	10.0
B. San Pabl NBD	*	4	0	4	150	* AG	1379	5.7	.0	10.0
C. San Pabl NBL	*	2	-150	0	0	* AG	19	10.5	.0	10.0
D. San Pabl SBA	*	-5	150	-5	0	* AG	1245	8.1	.0	13.5
E. San Pabl SBD	*	-5	0	-5	-150	* AG	1289	5.5	.0	11.8
F. San Pabl SBL	*	-2	150	0	0	* AG	0	5.1	.0	10.0
G. 36th Str EBA	*	-150	0	0	0	* AG	0	5.1	.0	10.0
H. 36th Str EBD	*	0	0	150	0	* AG	0	5.1	.0	10.0
I. 36th Str EBL	*	-150	-2	0	0	* AG	0	5.1	.0	10.0
J. 36th Str WBA	*	150	5	0	5	* AG	786	10.8	.0	11.8
K. 36th Str WBD	*	0	5	-150	5	* AG	276	5.9	.0	10.0
L. 36th Str WBL	*	150	2	0	0	* AG	64	10.5	.0	10.0
M. San Pab NBAX	*	4	-750	4	-150	* AG	849	5.1	.0	10.0
N. San Pab NBDX	*	4	150	4	750	* AG	1379	5.1	.0	10.0
O. San Pab SBAX	*	-5	750	-5	150	* AG	1245	5.1	.0	13.5
P. San Pab SBDX	*	-5	-150	-5	-750	* AG	1289	5.1	.0	11.8
Q. 36th St EBAX	*	-750	0	-150	0	* AG	0	5.1	.0	10.0
R. 36th St EBDX	*	150	0	750	0	* AG	0	5.1	.0	10.0
S. 36th St WBAX	*	750	5	150	5	* AG	850	5.1	.0	11.8
T. 36th St WBDX	*	-150	5	-750	5	* AG	276	5.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	4	-150	4	0	* AG	1119	1.4	.0	10.0
B. San Pabl NBD	*	4	0	4	150	* AG	1922	1.4	.0	10.0
C. San Pabl NBL	*	2	-150	0	0	* AG	49	1.7	.0	10.0
D. San Pabl SBA	*	-5	150	-5	0	* AG	1875	1.5	.0	13.5
E. San Pabl SBD	*	-5	0	-5	-150	* AG	1918	1.1	.0	11.8
F. San Pabl SBL	*	-2	150	0	0	* AG	0	1.0	.0	10.0
G. 36th Str EBA	*	-150	0	0	0	* AG	0	1.0	.0	10.0
H. 36th Str EBD	*	0	0	150	0	* AG	0	1.0	.0	10.0
I. 36th Str EBL	*	-150	-2	0	0	* AG	0	1.0	.0	10.0
J. 36th Str WBA	*	150	5	0	5	* AG	1364	1.8	.0	11.8
K. 36th Str WBD	*	0	5	-150	5	* AG	631	1.2	.0	10.0
L. 36th Str WBL	*	150	2	0	0	* AG	64	1.7	.0	10.0
M. San Pab NBAX	*	4	-750	4	-150	* AG	1168	1.0	.0	10.0
N. San Pab NBDX	*	4	150	4	750	* AG	1922	1.0	.0	10.0
O. San Pab SBAX	*	-5	750	-5	150	* AG	1875	1.0	.0	13.5
P. San Pab SBDX	*	-5	-150	-5	-750	* AG	1918	1.0	.0	11.8
Q. 36th St EBAX	*	-750	0	-150	0	* AG	0	1.0	.0	10.0
R. 36th St EBDX	*	150	0	750	0	* AG	0	1.0	.0	10.0
S. 36th St WBAX	*	750	5	150	5	* AG	1428	1.0	.0	11.8
T. 36th St WBDX	*	-150	5	-750	5	* AG	631	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	11	-150	11	0	* AG	1359	1.7	.0	10.0
B. San Pabl NBD	*	11	0	11	150	* AG	1754	1.5	.0	10.0
C. San Pabl NBL	*	9	-150	0	0	* AG	550	1.8	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1552	1.7	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1939	1.6	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	283	1.8	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1332	1.7	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1173	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	223	1.8	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	797	1.5	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1277	1.2	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	47	1.7	.0	10.0
M. San Pab NBAX	*	11	-750	11	-150	* AG	1909	1.0	.0	10.0
N. San Pab NBDX	*	11	150	11	750	* AG	1754	1.0	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1835	1.0	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1939	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1555	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1173	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	844	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1277	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Emery St NBA	*	4	-150	4	0	* AG	524	1.8	.0	10.0
B. Emery St NBD	*	4	0	4	150	* AG	330	1.2	.0	10.0
C. Emery St NBL	*	2	-150	0	0	* AG	272	1.8	.0	10.0
D. Emery St SBA	*	-2	150	-2	0	* AG	168	1.6	.0	10.0
E. Emery St SBD	*	-2	0	-2	-150	* AG	522	1.7	.0	10.0
F. Emery St SBL	*	-2	150	0	0	* AG	30	1.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1451	1.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1552	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	32	1.7	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	1114	1.4	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1345	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	158	1.7	.0	10.0
M. Emery S NBAX	*	4	-750	4	-150	* AG	796	1.0	.0	10.0
N. Emery S NBDX	*	4	150	4	750	* AG	330	1.0	.0	10.0
O. Emery S SBAX	*	-2	750	-2	150	* AG	198	1.0	.0	10.0
P. Emery S SBDX	*	-2	-150	-2	-750	* AG	522	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1483	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1552	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1272	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1345	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	*	2	-150	2	0	* AG	109	1.6	.0	10.0
B. Harlan S NBD	*	2	0	2	150	* AG	573	1.2	.0	10.0
C. Harlan S NBL	*	2	-150	0	0	* AG	41	1.7	.0	10.0
D. Harlan S SBA	*	-2	150	-2	0	* AG	0	1.0	.0	10.0
E. Harlan S SBD	*	-2	0	-2	-150	* AG	618	1.7	.0	10.0
F. Harlan S SBL	*	-2	150	0	0	* AG	19	1.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1459	1.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	961	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	23	1.7	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	1296	1.5	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	896	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	101	1.7	.0	10.0
M. Harlan NBAX	*	2	-750	2	-150	* AG	150	1.0	.0	10.0
N. Harlan NBDX	*	2	150	2	750	* AG	573	1.0	.0	10.0
O. Harlan SBAX	*	-2	750	-2	150	* AG	19	1.0	.0	10.0
P. Harlan SBDX	*	-2	-150	-2	-750	* AG	618	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1482	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	961	1.0	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1397	1.0	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	896	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	7	-150	7	0	* AG	529	1.8	.0	10.0
B. Hollis S NBD	*	7	0	7	150	* AG	705	1.8	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	219	1.8	.0	10.0
D. Hollis S SBA	*	-5	150	-5	0	* AG	642	1.8	.0	10.0
E. Hollis S SBD	*	-5	0	-5	-150	* AG	876	1.8	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	357	1.8	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1070	1.4	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1418	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	46	1.7	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	1057	1.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	1064	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	143	1.7	.0	10.0
M. Hollis NBAX	*	7	-750	7	-150	* AG	748	1.0	.0	10.0
N. Hollis NBDX	*	7	150	7	750	* AG	705	1.0	.0	10.0
O. Hollis SBAX	*	-5	750	-5	150	* AG	999	1.0	.0	10.0
P. Hollis SBDX	*	-5	-150	-5	-750	* AG	876	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1116	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1418	1.0	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	1200	1.0	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	1064	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Horton S NBA	*	5	-150	5	0	* AG	513	1.8	.0	10.0
B. Horton S NBD	*	5	0	5	150	* AG	482	1.5	.0	10.0
C. Horton S NBL	*	5	-150	0	0	* AG	259	1.8	.0	10.0
D. Horton S SBA	*	-2	150	-2	0	* AG	416	1.8	.0	10.0
E. Horton S SBD	*	-2	0	-2	-150	* AG	806	1.8	.0	10.0
F. Horton S SBL	*	-2	150	0	0	* AG	259	1.8	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	971	1.4	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1148	1.1	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	31	1.7	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	868	1.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	1039	1.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	158	1.7	.0	10.0
M. Horton NBAX	*	5	-750	5	-150	* AG	772	1.0	.0	10.0
N. Horton NBDX	*	5	150	5	750	* AG	482	1.0	.0	10.0
O. Horton SBAX	*	-2	750	-2	150	* AG	675	1.0	.0	10.0
P. Horton SBDX	*	-2	-150	-2	-750	* AG	806	1.0	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1002	1.0	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1148	1.0	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	1026	1.0	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	1039	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1512	1.7	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1625	1.5	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	185	1.7	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1387	1.7	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1531	1.3	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	112	1.7	.0	10.0
G. Stanford EBA	*	-150	-7	0	-7	* AG	950	1.5	.0	10.0
H. Stanford EBD	*	0	-7	150	-7	* AG	1002	1.1	.0	10.0
I. Stanford EBL	*	-150	-5	0	0	* AG	181	1.7	.0	10.0
J. Stanford WBA	*	150	7	0	7	* AG	601	1.5	.0	10.0
K. Stanford WBD	*	0	7	-150	7	* AG	876	1.1	.0	10.0
L. Stanford WBL	*	150	5	0	0	* AG	106	1.7	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1697	1.0	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1625	1.0	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1499	1.0	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1531	1.0	.0	10.0
Q. Stanfor EBAX	*	-750	-7	-150	-7	* AG	1131	1.0	.0	10.0
R. Stanfor EBDX	*	150	-7	750	-7	* AG	1002	1.0	.0	10.0
S. Stanfor WBAX	*	750	7	150	7	* AG	707	1.0	.0	10.0
T. Stanfor WBDX	*	-150	7	-750	7	* AG	876	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	5	-150	5	0	* AG	628	1.8	.0	10.0
B. Hollis S NBD	*	5	0	5	150	* AG	866	1.8	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	571	1.8	.0	10.0
D. Hollis S SBA	*	-7	150	-7	0	* AG	448	1.8	.0	10.0
E. Hollis S SBD	*	-7	0	-7	-150	* AG	654	1.7	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	69	1.7	.0	10.0
G. Powell S EBA	*	-150	-7	0	-7	* AG	1208	1.5	.0	10.0
H. Powell S EBD	*	0	-7	150	-7	* AG	971	1.1	.0	10.0
I. Powell S EBL	*	-150	-5	0	0	* AG	206	1.8	.0	10.0
J. Powell S WBA	*	150	7	0	7	* AG	827	1.4	.0	10.0
K. Powell S WBD	*	0	7	-150	7	* AG	1489	1.1	.0	10.0
L. Powell S WBL	*	150	5	0	0	* AG	23	1.7	.0	10.0
M. Hollis NBAX	*	5	-750	5	-150	* AG	1199	1.0	.0	10.0
N. Hollis NBDX	*	5	150	5	750	* AG	866	1.0	.0	10.0
O. Hollis SBAX	*	-7	750	-7	150	* AG	517	1.0	.0	10.0
P. Hollis SBDX	*	-7	-150	-7	-750	* AG	654	1.0	.0	10.0
Q. Powell EBAX	*	-750	-7	-150	-7	* AG	1414	1.0	.0	10.0
R. Powell EBDX	*	150	-7	750	-7	* AG	971	1.0	.0	10.0
S. Powell WBAX	*	750	7	150	7	* AG	850	1.0	.0	10.0
T. Powell WBDX	*	-150	7	-750	7	* AG	1489	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1437	1.7	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1629	1.5	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	279	1.8	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1342	1.7	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1529	1.3	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	191	1.7	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	972	1.5	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	1034	1.1	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	202	1.8	.0	10.0
J. Ashby Av WBA	*	150	2	0	2	* AG	851	1.5	.0	10.0
K. Ashby Av WBD	*	0	2	-150	2	* AG	1183	1.1	.0	10.0
L. Ashby Av WBL	*	150	2	0	0	* AG	101	1.7	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1716	1.0	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1629	1.0	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1533	1.0	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1529	1.0	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1174	1.0	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	1034	1.0	.0	10.0
S. Ashby A WBAX	*	750	2	150	2	* AG	952	1.0	.0	10.0
T. Ashby A WBDX	*	-150	2	-750	2	* AG	1183	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2030pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. 7th St. NBA	*	7	-150	7	0	* AG	660	1.7	.0	10.0
B. 7th St. NBD	*	7	0	7	150	* AG	896	1.5	.0	10.0
C. 7th St. NBL	*	5	-150	0	0	* AG	211	1.8	.0	10.0
D. 7th St. SBA	*	-7	150	-7	0	* AG	893	1.8	.0	10.0
E. 7th St. SBD	*	-7	0	-7	-150	* AG	748	1.8	.0	10.0
F. 7th St. SBL	*	-5	150	0	0	* AG	151	1.7	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	1007	1.4	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	1085	1.1	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	300	1.8	.0	10.0
J. Ashby Av WBA	*	150	7	0	7	* AG	979	1.4	.0	10.0
K. Ashby Av WBD	*	0	7	-150	7	* AG	1620	1.2	.0	10.0
L. Ashby Av WBL	*	150	5	0	0	* AG	148	1.7	.0	10.0
M. 7th St. NBAX	*	7	-750	7	-150	* AG	871	1.0	.0	10.0
N. 7th St. NBDX	*	7	150	7	750	* AG	896	1.0	.0	10.0
O. 7th St. SBAX	*	-7	750	-7	150	* AG	1044	1.0	.0	10.0
P. 7th St. SBDX	*	-7	-150	-7	-750	* AG	748	1.0	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1307	1.0	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	1085	1.0	.0	10.0
S. Ashby A WBAX	*	750	7	150	7	* AG	1127	1.0	.0	10.0
T. Ashby A WBDX	*	-150	7	-750	7	* AG	1620	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	4	-150	4	0	* AG	1005	5.8	.0	10.0
B. San Pabl NBD	*	4	0	4	150	* AG	1737	4.6	.0	10.0
C. San Pabl NBL	*	2	-150	0	0	* AG	49	7.2	.0	10.0
D. San Pabl SBA	*	-5	150	-5	0	* AG	1557	5.8	.0	13.5
E. San Pabl SBD	*	-5	0	-5	-150	* AG	1600	3.9	.0	11.8
F. San Pabl SBL	*	-2	150	0	0	* AG	0	3.6	.0	10.0
G. 36th Str EBA	*	-150	0	0	0	* AG	0	3.6	.0	10.0
H. 36th Str EBD	*	0	0	150	0	* AG	0	3.6	.0	10.0
I. 36th Str EBL	*	-150	-2	0	0	* AG	0	3.6	.0	10.0
J. 36th Str WBA	*	150	5	0	5	* AG	1117	7.8	.0	11.8
K. 36th Str WBD	*	0	5	-150	5	* AG	455	4.3	.0	10.0
L. 36th Str WBL	*	150	2	0	0	* AG	64	7.2	.0	10.0
M. San Pab NBAX	*	4	-750	4	-150	* AG	1054	3.6	.0	10.0
N. San Pab NBDX	*	4	150	4	750	* AG	1737	3.6	.0	10.0
O. San Pab SBAX	*	-5	750	-5	150	* AG	1557	3.6	.0	13.5
P. San Pab SBDX	*	-5	-150	-5	-750	* AG	1600	3.6	.0	11.8
Q. 36th St EBAX	*	-750	0	-150	0	* AG	0	3.6	.0	10.0
R. 36th St EBDX	*	150	0	750	0	* AG	0	3.6	.0	10.0
S. 36th St WBAX	*	750	5	150	5	* AG	1181	3.6	.0	11.8
T. 36th St WBDX	*	-150	5	-750	5	* AG	455	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	11	-150	11	0	* AG	1218	7.1	.0	10.0
B. San Pabl NBD	*	11	0	11	150	* AG	1590	5.1	.0	10.0
C. San Pabl NBL	*	9	-150	0	0	* AG	497	7.7	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1276	7.1	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1612	6.0	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	267	7.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1082	6.5	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	973	4.0	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	207	7.7	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	675	5.9	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1094	4.1	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	47	7.2	.0	10.0
M. San Pab NBAX	*	11	-750	11	-150	* AG	1715	3.6	.0	10.0
N. San Pab NBDX	*	11	150	11	750	* AG	1590	3.6	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1543	3.6	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1612	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1289	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	973	3.6	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	722	3.6	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1094	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Emery St NBA	*	4	-150	4	0	* AG	416	7.7	.0	10.0
B. Emery St NBD	*	4	0	4	150	* AG	217	4.3	.0	10.0
C. Emery St NBL	*	2	-150	0	0	* AG	189	7.2	.0	10.0
D. Emery St SBA	*	-2	150	-2	0	* AG	157	6.5	.0	10.0
E. Emery St SBD	*	-2	0	-2	-150	* AG	455	6.1	.0	10.0
F. Emery St SBL	*	-2	150	0	0	* AG	27	7.2	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1131	5.8	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1285	4.0	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	30	7.2	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	931	5.6	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	1082	3.9	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	158	7.2	.0	10.0
M. Emery S NBAX	*	4	-750	4	-150	* AG	605	3.6	.0	10.0
N. Emery S NBDX	*	4	150	4	750	* AG	217	3.6	.0	10.0
O. Emery S SBAX	*	-2	750	-2	150	* AG	184	3.6	.0	10.0
P. Emery S SBDX	*	-2	-150	-2	-750	* AG	455	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1161	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1285	3.6	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1089	3.6	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	1082	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Harlan S NBA	*	2	-150	2	0	* AG	109	6.5	.0	10.0
B. Harlan S NBD	*	2	0	2	150	* AG	480	4.3	.0	10.0
C. Harlan S NBL	*	2	-150	0	0	* AG	41	7.2	.0	10.0
D. Harlan S SBA	*	-2	150	-2	0	* AG	0	3.6	.0	10.0
E. Harlan S SBD	*	-2	0	-2	-150	* AG	506	7.2	.0	10.0
F. Harlan S SBL	*	-2	150	0	0	* AG	18	7.2	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	1122	5.8	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	735	3.8	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	23	7.2	.0	10.0
J. 40th Str WBA	*	150	7	0	7	* AG	1019	5.8	.0	10.0
K. 40th Str WBD	*	0	7	-150	7	* AG	712	3.8	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	101	7.2	.0	10.0
M. Harlan NBAX	*	2	-750	2	-150	* AG	150	3.6	.0	10.0
N. Harlan NBDX	*	2	150	2	750	* AG	480	3.6	.0	10.0
O. Harlan SBAX	*	-2	750	-2	150	* AG	18	3.6	.0	10.0
P. Harlan SBDX	*	-2	-150	-2	-750	* AG	506	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	1145	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	735	3.6	.0	10.0
S. 40th St WBAX	*	750	7	150	7	* AG	1120	3.6	.0	10.0
T. 40th St WBDX	*	-150	7	-750	7	* AG	712	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	7	-150	7	0	* AG	464	7.7	.0	10.0
B. Hollis S NBD	*	7	0	7	150	* AG	611	7.4	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	215	7.7	.0	10.0
D. Hollis S SBA	*	-5	150	-5	0	* AG	487	7.7	.0	10.0
E. Hollis S SBD	*	-5	0	-5	-150	* AG	716	7.7	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	291	7.7	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	813	5.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	1098	3.9	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	46	7.2	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	817	5.6	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	849	3.9	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	141	7.2	.0	10.0
M. Hollis NBAX	*	7	-750	7	-150	* AG	679	3.6	.0	10.0
N. Hollis NBDX	*	7	150	7	750	* AG	611	3.6	.0	10.0
O. Hollis SBAX	*	-5	750	-5	150	* AG	778	3.6	.0	10.0
P. Hollis SBDX	*	-5	-150	-5	-750	* AG	716	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	859	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	1098	3.6	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	958	3.6	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	849	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Horton S NBA	*	5	-150	5	0	* AG	256	6.8	.0	10.0
B. Horton S NBD	*	5	0	5	150	* AG	213	4.3	.0	10.0
C. Horton S NBL	*	5	-150	0	0	* AG	242	7.7	.0	10.0
D. Horton S SBA	*	-2	150	-2	0	* AG	201	6.8	.0	10.0
E. Horton S SBD	*	-2	0	-2	-150	* AG	508	7.2	.0	10.0
F. Horton S SBL	*	-2	150	0	0	* AG	96	7.2	.0	10.0
G. 40th Str EBA	*	-150	-7	0	-7	* AG	917	5.6	.0	10.0
H. 40th Str EBD	*	0	-7	150	-7	* AG	891	3.9	.0	10.0
I. 40th Str EBL	*	-150	-5	0	0	* AG	26	7.2	.0	10.0
J. 40th Str WBA	*	150	9	0	9	* AG	734	5.4	.0	13.5
K. 40th Str WBD	*	0	9	-150	9	* AG	940	3.9	.0	10.0
L. 40th Str WBL	*	150	5	0	0	* AG	80	7.2	.0	10.0
M. Horton NBAX	*	5	-750	5	-150	* AG	498	3.6	.0	10.0
N. Horton NBDX	*	5	150	5	750	* AG	213	3.6	.0	10.0
O. Horton SBAX	*	-2	750	-2	150	* AG	297	3.6	.0	10.0
P. Horton SBDX	*	-2	-150	-2	-750	* AG	508	3.6	.0	10.0
Q. 40th St EBAX	*	-750	-7	-150	-7	* AG	943	3.6	.0	10.0
R. 40th St EBDX	*	150	-7	750	-7	* AG	891	3.6	.0	10.0
S. 40th St WBAX	*	750	9	150	9	* AG	814	3.6	.0	13.5
T. 40th St WBDX	*	-150	9	-750	9	* AG	940	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1338	7.1	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1427	5.1	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	179	7.2	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1194	6.5	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1350	4.5	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	112	7.2	.0	10.0
G. Stanford EBA	*	-150	-7	0	-7	* AG	878	6.1	.0	10.0
H. Stanford EBD	*	0	-7	150	-7	* AG	919	4.0	.0	10.0
I. Stanford EBL	*	-150	-5	0	0	* AG	151	7.2	.0	10.0
J. Stanford WBA	*	150	7	0	7	* AG	552	5.8	.0	10.0
K. Stanford WBD	*	0	7	-150	7	* AG	810	4.0	.0	10.0
L. Stanford WBL	*	150	5	0	0	* AG	102	7.2	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1517	3.6	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1427	3.6	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1306	3.6	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1350	3.6	.0	10.0
Q. Stanfor EBAX	*	-750	-7	-150	-7	* AG	1029	3.6	.0	10.0
R. Stanfor EBDX	*	150	-7	750	-7	* AG	919	3.6	.0	10.0
S. Stanfor WBAX	*	750	7	150	7	* AG	654	3.6	.0	10.0
T. Stanfor WBDX	*	-150	7	-750	7	* AG	810	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	*	5	-150	5	0	* AG	537	7.8	.0	10.0
B. Hollis S NBD	*	5	0	5	150	* AG	756	7.7	.0	10.0
C. Hollis S NBL	*	5	-150	0	0	* AG	532	7.8	.0	10.0
D. Hollis S SBA	*	-7	150	-7	0	* AG	395	7.3	.0	10.0
E. Hollis S SBD	*	-7	0	-7	-150	* AG	553	7.2	.0	10.0
F. Hollis S SBL	*	-5	150	0	0	* AG	68	7.2	.0	10.0
G. Powell S EBA	*	-150	-7	0	-7	* AG	1112	5.8	.0	10.0
H. Powell S EBD	*	0	-7	150	-7	* AG	917	3.9	.0	10.0
I. Powell S EBL	*	-150	-5	0	0	* AG	190	7.2	.0	10.0
J. Powell S WBA	*	150	7	0	7	* AG	779	5.4	.0	10.0
K. Powell S WBD	*	0	7	-150	7	* AG	1407	4.2	.0	10.0
L. Powell S WBL	*	150	5	0	0	* AG	20	7.2	.0	10.0
M. Hollis NBAX	*	5	-750	5	-150	* AG	1069	3.6	.0	10.0
N. Hollis NBDX	*	5	150	5	750	* AG	756	3.6	.0	10.0
O. Hollis SBAX	*	-7	750	-7	150	* AG	463	3.6	.0	10.0
P. Hollis SBDX	*	-7	-150	-7	-750	* AG	553	3.6	.0	10.0
Q. Powell EBAX	*	-750	-7	-150	-7	* AG	1302	3.6	.0	10.0
R. Powell EBDX	*	150	-7	750	-7	* AG	917	3.6	.0	10.0
S. Powell WBAX	*	750	7	150	7	* AG	799	3.6	.0	10.0
T. Powell WBDX	*	-150	7	-750	7	* AG	1407	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: CEM531
RUN: ALT4 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	3. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	7	-150	7	0	* AG	1231	7.1	.0	10.0
B. San Pabl NBD	*	7	0	7	150	* AG	1457	5.1	.0	10.0
C. San Pabl NBL	*	5	-150	0	0	* AG	270	7.7	.0	10.0
D. San Pabl SBA	*	-7	150	-7	0	* AG	1201	7.1	.0	10.0
E. San Pabl SBD	*	-7	0	-7	-150	* AG	1326	4.5	.0	10.0
F. San Pabl SBL	*	-5	150	0	0	* AG	186	7.2	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	895	6.1	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	941	4.0	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	198	7.2	.0	10.0
J. Ashby Av WBA	*	150	2	0	2	* AG	813	6.1	.0	10.0
K. Ashby Av WBD	*	0	2	-150	2	* AG	1137	4.1	.0	10.0
L. Ashby Av WBL	*	150	2	0	0	* AG	67	7.2	.0	10.0
M. San Pab NBAX	*	7	-750	7	-150	* AG	1501	3.6	.0	10.0
N. San Pab NBDX	*	7	150	7	750	* AG	1457	3.6	.0	10.0
O. San Pab SBAX	*	-7	750	-7	150	* AG	1387	3.6	.0	10.0
P. San Pab SBDX	*	-7	-150	-7	-750	* AG	1326	3.6	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1093	3.6	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	941	3.6	.0	10.0
S. Ashby A WBAX	*	750	2	150	2	* AG	880	3.6	.0	10.0
T. Ashby A WBDX	*	-150	2	-750	2	* AG	1137	3.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION

JOB: CEM531
RUN: ALT4 2010pp- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 3. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. 7th St. NBA	*	7	-150	7	0	* AG	588	6.8	.0	10.0
B. 7th St. NBD	*	7	0	7	150	* AG	813	6.1	.0	10.0
C. 7th St. NBL	*	5	-150	0	0	* AG	194	7.2	.0	10.0
D. 7th St. SBA	*	-7	150	-7	0	* AG	800	7.8	.0	10.0
E. 7th St. SBD	*	-7	0	-7	-150	* AG	667	7.4	.0	10.0
F. 7th St. SBL	*	-5	150	0	0	* AG	139	7.2	.0	10.0
G. Ashby Av EBA	*	-150	-7	0	-7	* AG	972	5.6	.0	10.0
H. Ashby Av EBD	*	0	-7	150	-7	* AG	1028	3.9	.0	10.0
I. Ashby Av EBL	*	-150	-5	0	0	* AG	290	7.7	.0	10.0
J. Ashby Av WBA	*	150	7	0	7	* AG	926	5.6	.0	10.0
K. Ashby Av WBD	*	0	7	-150	7	* AG	1540	4.2	.0	10.0
L. Ashby Av WBL	*	150	5	0	0	* AG	139	7.2	.0	10.0
M. 7th St. NBAX	*	7	-750	7	-150	* AG	782	3.6	.0	10.0
N. 7th St. NBDX	*	7	150	7	750	* AG	813	3.6	.0	10.0
O. 7th St. SBAX	*	-7	750	-7	150	* AG	939	3.6	.0	10.0
P. 7th St. SBDX	*	-7	-150	-7	-750	* AG	667	3.6	.0	10.0
Q. Ashby A EBAX	*	-750	-7	-150	-7	* AG	1262	3.6	.0	10.0
R. Ashby A EBDX	*	150	-7	750	-7	* AG	1028	3.6	.0	10.0
S. Ashby A WBAX	*	750	7	150	7	* AG	1065	3.6	.0	10.0
T. Ashby A WBDX	*	-150	7	-750	7	* AG	1540	3.6	.0	10.0

APPENDIX D

FEDERAL HIGHWAY ADMINISTRATION (FHWA) HIGHWAY NOISE PREDICTION MODEL RESULTS

APPENDIX D-1

PROPOSED PROJECT
FHWA HIGHWAY NOISE PREDICTION MODEL RESULTS

TABLE Existing-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Bay Street (Ashby Avenue to 65th Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.72

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	65.7	140.5

TABLE Existing-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 65th Street (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.62

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	75.3

TABLE Existing-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 65th Street (Shellmound Street to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.71

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	56.5	120.4

TABLE Existing-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Street (65th Street to 64th Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8200 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	68.5	146.5

TABLE Existing-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 64th Street (La Coste Street to Christie Avenue)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 51.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	0.0

TABLE Existing-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 64th Street (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1200 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 52.65

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	0.0

TABLE Existing-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Christie Avenue (64th Street to Shellmound Way)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.15

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	70.1	150.0

TABLE Existing-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Street (64th Street to Shellmound Way)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.11

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	81.1	173.7

TABLE Existing-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Way (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.06

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	68.6	143.6

TABLE Existing-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Christie Avenue (Shellmound Way to Powell Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	103.5	220.2

TABLE Existing-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (Peladeau Street to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21300 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.21

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	100.7	205.8	437.9

TABLE Existing-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.71

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	107.8	221.7	472.7

TABLE Existing-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (I-80 EB to Christie Avenue)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 36900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.60

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
72.5	140.4	294.4	620.4

TABLE Existing-14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Frontage Road (I-80 WB to Powel Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 48 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
70.0	119.8	241.3	511.6

TABLE Existing-15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17200 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.44

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	54.6	112.5	240.0

TABLE Existing-16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	65.4	123.1	256.1

TABLE Existing-17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13300 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	100.2	204.5

TABLE Existing-18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: San Pablo Avenue (40th Street to Adeline Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	71.3	149.7	320.5

TABLE Existing-19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.24

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	72.4	145.1	307.4

TABLE Existing Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Bay Street (Ashby Avenue to 65th Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.15

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	70.1	150.0

TABLE Existing Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 65th Street (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	77.0

TABLE Existing Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 65th Street (Shellmound Street to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.05

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	59.4	126.8

TABLE Existing Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Street (65th Street to 64th Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9400 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.58

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	74.9	160.4

TABLE Existing Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 64th Street (La Coste Street to Christie Avenue)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 51.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	0.0

TABLE Existing Plus Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 64th Street (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	0.0

TABLE Existing Plus Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Christie Avenue (64th Street to Shellmound Way)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9300 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.54

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	74.4	159.3

TABLE Existing Plus Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Street (64th Street to Shellmound Way)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.86

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	90.8	194.9

TABLE Existing Plus Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Way (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.91

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	77.4	163.3

TABLE Existing Plus Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Christie Avenue (Shellmound Way to Powell Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.51

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	55.2	118.8	242.8

TABLE Existing Plus Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (Peladeau Street to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	102.4	209.5	446.1

TABLE Existing Plus Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24500 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.82

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	109.4	225.3	480.5

TABLE Existing Plus Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (I-80 EB to Christie Avenue)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38800 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.82

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
74.4	144.8	304.3	651.8

TABLE Existing Plus Project-14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Frontage Road (I-80 WB to Powel Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 28100 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.42

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
63.7	118.7	246.3	526.1

TABLE Existing Plus Project-15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17400 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.49

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	55.0	113.4	241.8

TABLE Existing Plus Project-16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19100 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.74

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	65.9	124.3	258.7

TABLE Existing Plus Project-17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13400 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	100.6	205.5

TABLE Existing Plus Project-18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: San Pablo Avenue (40th Street to Adeline Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.36

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	71.6	150.4	322.1

TABLE Existing Plus Project-19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Marketplace Expansion EIR - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.25

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	72.6	145.5	308.2

TABLE 2010 without Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Bay Street (Ashby Avenue to 65th Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.23

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	82.6	177.0

TABLE 2010 without Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 65th Street (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3200 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.91

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	78.6

TABLE 2010 without Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 65th Street (Shellmound Street to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.72

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	65.7	140.5

TABLE 2010 without Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Street (65th Street to 64th Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.72

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	76.5	163.8

TABLE 2010 without Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 64th Street (La Coste Street to Christie Avenue)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 51.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	0.0

TABLE 2010 without Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 64th Street (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 54.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	54.0

TABLE 2010 without Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Christie Avenue (64th Street to Shellmound Way)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.25

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	71.2	152.4

TABLE 2010 without Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Street (64th Street to Shellmound Way)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.50

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	86.0	184.5

TABLE 2010 without Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Way (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.00

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	68.0	142.4

TABLE 2010 without Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Christie Avenue (Shellmound Way to Powell Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16400 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.23

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	109.1	232.6

TABLE 2010 without Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (Peladeau Street to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25200 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.94

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	111.2	229.5	489.5

TABLE 2010 without Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 30200 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
65.8	124.0	258.2	551.9

TABLE 2010 without Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (I-80 EB to Christie Avenue)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 42500 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.21

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
78.0	153.3	323.1	692.5

TABLE 2010 without Project-14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Frontage Road (I-80 WB to Powel Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 31100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.86

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
66.7	126.3	263.2	562.8

TABLE 2010 without Project-15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 20900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.28

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	61.4	127.8	273.1

TABLE 2010 without Project-16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.51

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	71.8	138.6	290.5

TABLE 2010 without Project-17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	61.8	114.1	236.1

TABLE 2010 without Project-18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: San Pablo Avenue (40th Street to Adeline Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 32700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.23

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	81.2	171.4	367.7

TABLE 2010 without Project-19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 31500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.26

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	82.7	168.8	359.1

TABLE 2010 Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Bay Street (Ashby Avenue to 65th Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.54

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	86.5	185.5

TABLE 2010 Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 65th Street (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3300 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 57.04

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	80.2

TABLE 2010 Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 65th Street (Shellmound Street to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8200 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	68.5	146.5

TABLE 2010 Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Street (65th Street to 64th Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.23

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	82.6	177.0

TABLE 2010 Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 64th Street (La Coste Street to Christie Avenue)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 51.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	0.0

TABLE 2010 Plus Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 64th Street (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.08

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	59.7

TABLE 2010 Plus Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Christie Avenue (64th Street to Shellmound Way)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	75.4	161.5

TABLE 2010 Plus Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Street (64th Street to Shellmound Way)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.19

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	95.5	205.1

TABLE 2010 Plus Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Way (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.91

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	77.4	163.3

TABLE 2010 Plus Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Christie Avenue (Shellmound Way to Powell Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	57.8	119.7	255.5

TABLE 2010 Plus Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (Peladeau Street to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25800 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.05

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	112.8	233.0	497.2

TABLE 2010 Plus Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 30800 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.82

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
66.4	125.5	261.5	559.1

TABLE 2010 Plus Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (I-80 EB to Christie Avenue)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 44400 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.40

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
79.8	157.6	332.5	713.0

TABLE 2010 Plus Project-14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Frontage Road (I-80 WB to Powel Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 32300 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.02

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
67.9	129.2	269.8	577.1

TABLE 2010 Plus Project-15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21200 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.35

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	62.0	129.0	275.7

TABLE 2010 Plus Project-16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.57

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	72.3	139.7	293.0

TABLE 2010 Plus Project-17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	62.0	114.6	237.0

TABLE 2010 Plus Project-18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: San Pablo Avenue (40th Street to Adeline Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 32900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.25

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	81.5	172.1	369.2

TABLE 2010 Plus Project-19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Marketplace Expansion EIR - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 31700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.28

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	83.0	169.5	360.6

TABLE 2030 without Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Bay Street (Ashby Avenue to 65th Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.61

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	101.9	218.9

TABLE 2030 without Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 65th Street (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 57.42

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	85.0

TABLE 2030 without Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 65th Street (Shellmound Street to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.88

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	67.4	144.1

TABLE 2030 without Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Street (65th Street to 64th Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.11

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	81.1	173.7

TABLE 2030 without Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 64th Street (La Coste Street to Christie Avenue)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 51.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	0.0

TABLE 2030 without Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 64th Street (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 54.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	55.9

TABLE 2030 without Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Christie Avenue (64th Street to Shellmound Way)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8400 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.10

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	69.6	148.9

TABLE 2030 without Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Street (64th Street to Shellmound Way)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12200 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.72

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	88.9	190.8

TABLE 2030 without Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Way (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8300 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.27

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	70.7	148.4

TABLE 2030 without Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Christie Avenue (Shellmound Way to Powell Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.26

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	53.3	109.6	233.5

TABLE 2030 without Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (Peladeau Street to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.26

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
62.6	116.1	240.6	513.6

TABLE 2030 without Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33000 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.11

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
68.7	131.0	273.6	585.4

TABLE 2030 without Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (I-80 EB to Christie Avenue)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 44800 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.44

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
80.2	158.5	334.5	717.2

TABLE 2030 without Project-14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Frontage Road (I-80 WB to Powel Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 32200 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.01

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
67.8	129.0	269.3	575.9

TABLE 2030 without Project-15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.35

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	71.5	150.0	321.3

TABLE 2030 without Project-16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24400 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.81

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	74.3	144.6	303.8

TABLE 2030 without Project-17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	67.0	127.0	264.9

TABLE 2030 without Project-18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: San Pablo Avenue (40th Street to Adeline Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	89.2	189.0	405.6

TABLE 2030 without Project-19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 36600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.91

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	90.4	186.0	396.6

TABLE 2030 Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Bay Street (Ashby Avenue to 65th Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	105.9	227.5

TABLE 2030 Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 65th Street (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 57.54

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	86.5

TABLE 2030 Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 65th Street (Shellmound Street to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.15

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	70.1	150.0

TABLE 2030 Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Street (65th Street to 64th Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.65

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	88.0	188.7

TABLE 2030 Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 64th Street (La Coste Street to Christie Avenue)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 51.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	0.0

TABLE 2030 Plus Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 64th Street (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2200 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.28

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	61.5

TABLE 2030 Plus Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Christie Avenue (64th Street to Shellmound Way)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.44

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	73.3	157.0

TABLE 2030 Plus Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Street (64th Street to Shellmound Way)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14200 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 9 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.38

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	98.3	211.0

TABLE 2030 Plus Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Shellmound Way (Christie Avenue to Shellmound Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.08

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	79.5	167.7

TABLE 2030 Plus Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Christie Avenue (Shellmound Way to Powell Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.80

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	57.4	118.8	253.7

TABLE 2030 Plus Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (Peladeau Street to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27700 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.35

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
63.3	117.7	244.0	521.1

TABLE 2030 Plus Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33500 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
69.2	132.2	276.3	591.2

TABLE 2030 Plus Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Powell Street (I-80 EB to Christie Avenue)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 46500 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.60

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
81.8	162.3	342.8	735.2

TABLE 2030 Plus Project-14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: Frontage Road (I-80 WB to Powel Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33200 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.14

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
68.9	131.5	274.7	587.7

TABLE 2030 Plus Project-15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.40

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	72.0	151.1	323.7

TABLE 2030 Plus Project-16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.34

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	79.2	156.2	329.4

TABLE 2030 Plus Project-17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.92

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	67.2	127.4	265.8

TABLE 2030 Plus Project-18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: San Pablo Avenue (40th Street to Adeline Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.89

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	89.5	189.6	407.0

TABLE 2030 Plus Project-19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Marketplace Expansion EIR - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 36700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.92

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	90.5	186.4	397.9

APPENDIX D-2

ALTERNATIVES
FHWA HIGHWAY NOISE PREDICTION MODEL RESULTS

- **Alternative 1: No Project (see Appendix D-1 Outputs for No Project Condition)**
- **Alternative 2: Reduced Project Alternative**
- **Alternative 3: Tower Alternative**
- **Alternative 4: Main Street Alternative**

REDUCED PROJECT ALTERNATIVE

TABLE Existing-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt2 - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.71

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	107.8	221.7	472.7

TABLE Existing-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt2 - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.56

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	55.6	114.7	244.6

TABLE Existing-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt2 - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	65.4	123.1	256.1

TABLE Existing-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt2 - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13300 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	100.2	204.5

TABLE Existing-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt2 - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.24

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	72.4	145.1	307.4

TABLE Existing Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt2 - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	102.4	209.5	446.1

TABLE Existing Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt2 - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15300 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	104.3	222.1

TABLE Existing Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt2 - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19100 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.74

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	65.9	124.3	258.7

TABLE Existing Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt2 - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13400 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	100.6	208.5

TABLE Existing Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt2 - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25900 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	74.0	148.8	315.5

TABLE 2010 without Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt2 - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 30200 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
65.8	124.0	258.2	551.9

TABLE 2010 without Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt2 - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	62.5	130.2	278.3

TABLE 2010 without Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt2 - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.51

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	71.8	138.6	290.5

TABLE 2010 without Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt2 - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	61.8	114.1	236.1

TABLE 2010 without Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt2 - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 31500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.26

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	82.7	168.8	359.1

TABLE 2010 Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt2 - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26200 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.11

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
61.7	113.8	235.3	502.2

TABLE 2010 Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt2 - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.66

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	56.3	116.3	248.2

TABLE 2010 Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt2 - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23200 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.59

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	72.4	140.1	293.9

TABLE 2010 Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt2 - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	62.0	114.6	237.0

TABLE 2010 Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt2 - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 32700 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.42

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	84.6	172.9	368.1

TABLE 2030 without Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt2 - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33000 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.11

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
68.7	131.0	273.6	585.4

TABLE 2030 without Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt2 - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27300 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.44

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	72.5	152.2	326.1

TABLE 2030 without Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt2 - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24400 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.81

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	74.3	144.6	303.8

TABLE 2030 without Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt2 - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19800 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	67.0	127.0	264.9

TABLE 2030 without Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt2 - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 36600 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.91

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	90.4	186.0	396.6

TABLE 2030 Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt2 - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27800 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.37

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
63.4	117.9	244.6	522.4

TABLE 2030 Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt2 - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23000 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.70

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	65.1	136.0	291.0

TABLE 2030 Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt2 - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.34

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	79.2	156.2	329.4

TABLE 2030 Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt2 - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.92

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	67.2	127.4	265.8

TABLE 2030 Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt2 - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.04

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	92.0	189.6	404.5

TOWER ALTERNATIVE

TABLE Existing-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt3 - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.71

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	107.8	221.7	472.7

TABLE Existing-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt3 - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.56

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	55.6	114.7	244.6

TABLE Existing-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt3 - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	65.4	123.1	256.1

TABLE Existing-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt3 - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13300 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	100.2	204.5

TABLE Existing-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt3 - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.24

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	72.4	145.1	307.4

TABLE Existing Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt3 - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22400 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.43

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	103.7	212.6	452.8

TABLE Existing Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt3 - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.04

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	106.1	225.9

TABLE Existing Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt3 - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.83

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	66.6	125.9	262.2

TABLE Existing Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt3 - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.27

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	101.5	207.8

TABLE Existing Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt3 - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.44

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	74.4	149.6	317.1

TABLE 2010 without Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt3 - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 30200 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
65.8	124.0	258.2	551.9

TABLE 2010 without Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt3 - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	62.5	130.2	278.3

TABLE 2010 without Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt3 - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.51

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	71.8	138.6	290.5

TABLE 2010 without Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt3 - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	61.8	114.1	236.1

TABLE 2010 without Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt3 - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 31500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.26

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	82.7	168.8	359.1

TABLE 2010 Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt3 - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26300 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
61.8	114.1	235.9	503.5

TABLE 2010 Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt3 - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18400 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	56.9	117.6	251.0

TABLE 2010 Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt3 - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23500 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	72.9	141.2	296.4

TABLE 2010 Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt3 - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16900 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.21

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	62.3	115.4	238.9

TABLE 2010 Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt3 - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 32800 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.43

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	84.7	173.3	368.8

TABLE 2030 without Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt3 - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33000 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.11

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
68.7	131.0	273.6	585.4

TABLE 2030 without Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt3 - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27300 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.44

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	72.5	152.2	326.1

TABLE 2030 without Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt3 - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24400 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.81

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	74.3	144.6	303.8

TABLE 2030 without Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt3 - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	67.0	127.0	264.9

TABLE 2030 without Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt3 - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 36600 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.91

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	90.4	186.0	396.6

TABLE 2030 Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt3 - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 28200 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.43

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
63.8	119.0	246.9	527.4

TABLE 2030 Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt3 - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23400 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	65.8	137.6	294.4

TABLE 2030 Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt3 - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 28000 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.40

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	79.8	157.7	332.6

TABLE 2030 Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt3 - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 20100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.96

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	67.5	128.2	267.5

MAIN STREET ALTERNATIVE

TABLE 2030 Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt3 - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.05

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	92.1	190.0	405.2

TABLE Existing-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt4 - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.71

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	107.8	221.7	472.7

TABLE Existing-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt4 - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17700 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES	
	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.56

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	55.6	114.7	244.6

TABLE Existing-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt4 - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18800 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES	
	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	65.4	123.1	256.1

TABLE Existing-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt4 - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13300 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES	
	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	100.2	204.5

TABLE Existing-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt4 - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24900 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES	
	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.24

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	72.4	145.1	307.4

TABLE Existing Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt4 - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23200 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.58

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	105.9	217.5	463.4

TABLE Existing Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt4 - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16000 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.12

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	107.4	228.8

TABLE Existing Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt4 - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19800 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	67.0	127.0	264.9

TABLE Existing Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt4 - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13800 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	102.3	209.4

TABLE Existing Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt4 - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26300 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.47

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	74.7	160.3	318.7

TABLE 2010 without Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt4 - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 30200 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
65.8	124.0	258.2	551.9

TABLE 2010 without Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt4 - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	62.5	130.2	278.3

TABLE 2010 without Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt4 - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.51

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	71.8	138.6	290.5

TABLE 2010 without Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt4 - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	61.8	114.1	236.1

TABLE 2010 without Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt4 - 2010 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 31500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.26

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	82.7	168.8	359.1

TABLE 2010 Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt4 - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.26

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
62.6	116.1	240.6	513.6

TABLE 2010 Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt4 - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.78

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	57.2	118.4	252.8

TABLE 2010 Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt4 - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.70

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	73.4	142.4	298.8

TABLE 2010 Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt4 - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.24

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	62.5	115.8	239.8

TABLE 2010 Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt4 - 2010 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.46

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	85.0	174.0	370.3

TABLE 2030 without Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt4 - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33000 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.11

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
68.7	131.0	273.6	585.4

TABLE 2030 without Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt4 - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27300 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.44

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	72.5	152.2	326.1

TABLE 2030 without Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt4 - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24400 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.81

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	74.3	144.6	303.8

TABLE 2030 without Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt4 - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	67.0	127.0	264.9

TABLE 2030 without Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt4 - 2030 without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 36600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.91

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	90.4	186.0	396.6

TABLE 2030 Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: Powell Street (Christie Avenue to Hollis Street)
NOTES: Emeryville Alt4 - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 29100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.57

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
64.7	121.3	252.0	538.5

TABLE 2030 Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Harlan Street to Emery Street)
NOTES: Emeryville Alt4 - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.81

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	66.2	138.4	296.0

TABLE 2030 Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (Emery Street to San Pablo Avenue)
NOTES: Emeryville Alt4 - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 28300 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.45

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	80.3	158.7	334.9

TABLE 2030 Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: 40th Street (San Pablo Avenue to Adeline Street)
NOTES: Emeryville Alt4 - 2030 Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 20200 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	67.7	128.6	268.4

TABLE 2030 Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 03/05/2007
ROADWAY SEGMENT: San Pablo Avenue (Adeline Street to 36th Street)
NOTES: Emeryville Alt4 - 2030 Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38000 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.07

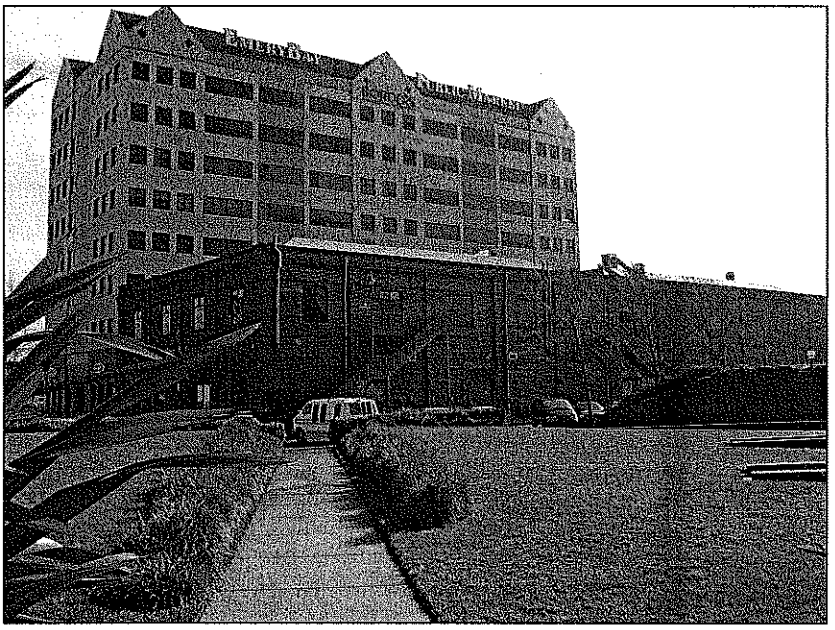
DISTANCE (FEET) FROM ROADWAY CENTERLINE TO	70 Ldn	65 Ldn	60 Ldn	55 Ldn
	0.0	92.4	190.6	406.6

APPENDIX E

CULTURAL AND PALEONTOLOGICAL RESOURCES STUDY

DRAFT
A CULTURAL AND PALEONTOLOGICAL RESOURCES STUDY FOR THE MARKETPLACE EXPANSION PROJECT

EMERYVILLE, ALAMEDA COUNTY, CALIFORNIA



LSA

January 2006

DRAFT
A CULTURAL AND PALEONTOLOGICAL RESOURCES STUDY FOR THE MARKETPLACE EXPANSION PROJECT

EMERYVILLE, ALAMEDA COUNTY, CALIFORNIA

Submitted to:

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City of Emeryville
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LSA Project No. CEM531

LSA

January 13, 2006

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INTRODUCTION

TMG Partners is proposing the phased redevelopment of the Emery Bay Public Market. The approximately 15-acre Marketplace project area is in Emeryville, Alameda County, California. The project area is roughly bordered by Powell Street to the south, Christie Avenue to the west, 64th Street to the north, and Southern Pacific Railroad tracks to the east, and contains the Emery Bay Public Market buildings (Figures 1 and 2). Project plans propose two new mixed use retail/residential buildings and parking to replace the two buildings in the northwest portion and the parking lot in the southeast portion of the project area.

LSA Associates, Inc. (LSA), prepared this cultural and paleontological resources study for the City of Emeryville and TMG Partners in support of environmental documentation being prepared by LSA for the proposed project.

The purpose of this study is to (1) identify cultural resources that may meet the California Environmental Quality Act (CEQA) definition of a historical resource or unique archaeological resource and may be affected by the proposed project; and (2) identify paleontological resources (fossils) that may be significant and may be affected by the proposed project.

The cultural resources study consisted of background research, which included a records search and a literature review; consultation with potentially interested parties; and a field survey. Background and field study indicated that the project area has a possibility of prehistoric archaeological deposits and a high possibility of historical archaeological deposits. Archaeological monitoring is recommended to avoid project impacts to possibly significant archaeological deposits in the project area. The paleontological resources study consisted of a fossil locality search and literature review. No known paleontological resources (fossils) were identified within the project area. There is, however, a high possibility that fossils may be encountered beneath the fill and soils of the project area. Paleontological monitoring is recommended to avoid project impacts to possibly significant paleontological deposits in the project area. Please refer to the Study Results and Recommendations sections for details.

LEGISLATIVE CONTEXT

California Environmental Quality Act (CEQA)

CEQA applies to all discretionary projects undertaken or subject to approval by the state's public agencies (California Code of Regulations [CCR] Title 14(3) § 15002(i)). CEQA states that it is the policy of the State of California to "take all action necessary to provide the people of this state with... historic environmental qualities...and preserve for future generations examples of the major periods of California history" (Public Resources Code [PRC] § 21001(b), (c)). Under the provisions of CEQA, "A project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment" (CCR Title 14(3) § 15064.5(b)).

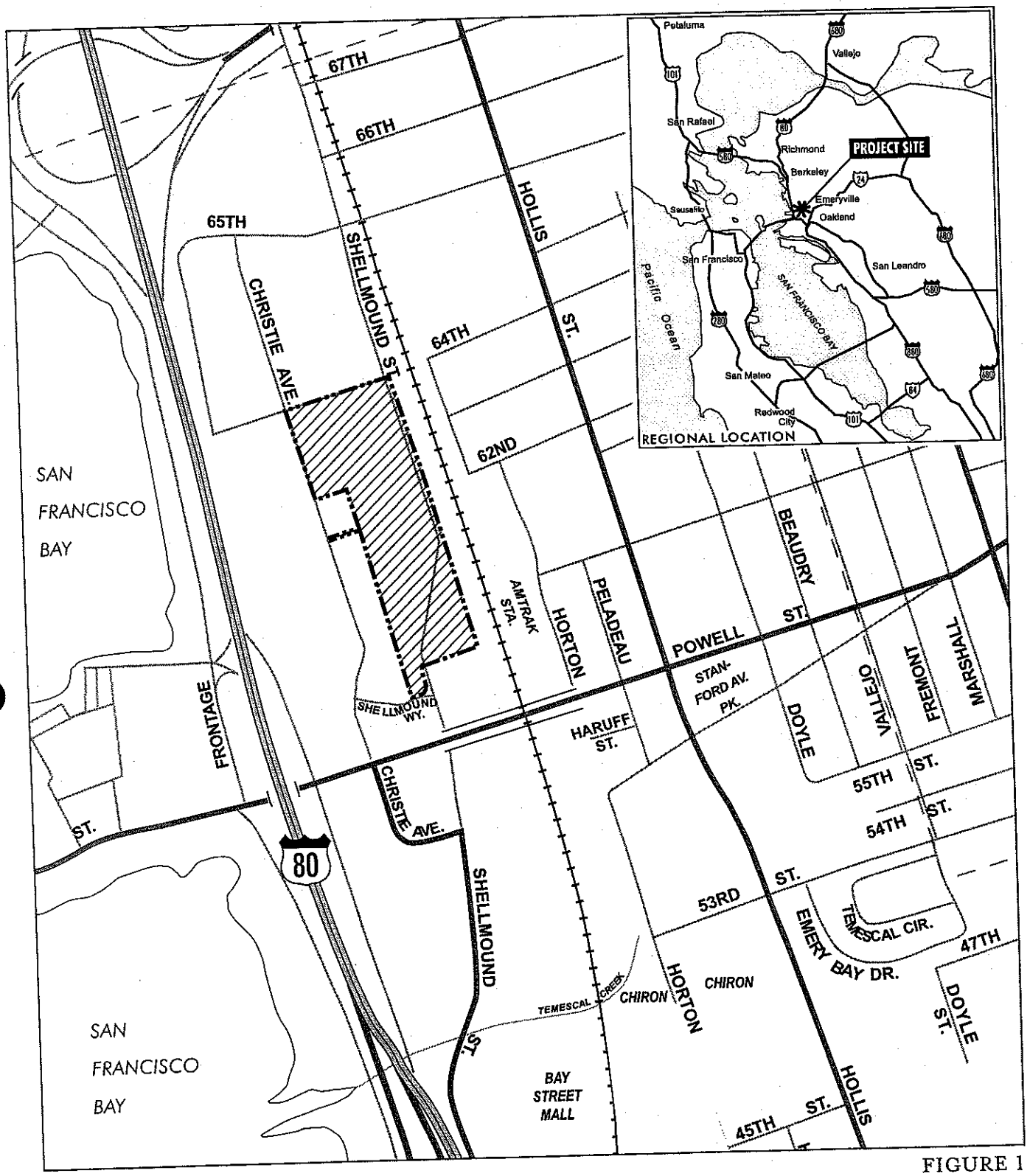

FIGURE 1

LSA

PROJECT SITE

Marketplace Expansion Project EIR
Project Vicinity and
Regional Location

SOURCE: LSA ASSOCIATES, INC., 2004.
I:/CEM430 sherwin williams/figures/Fig_1.ai (11/23/05)

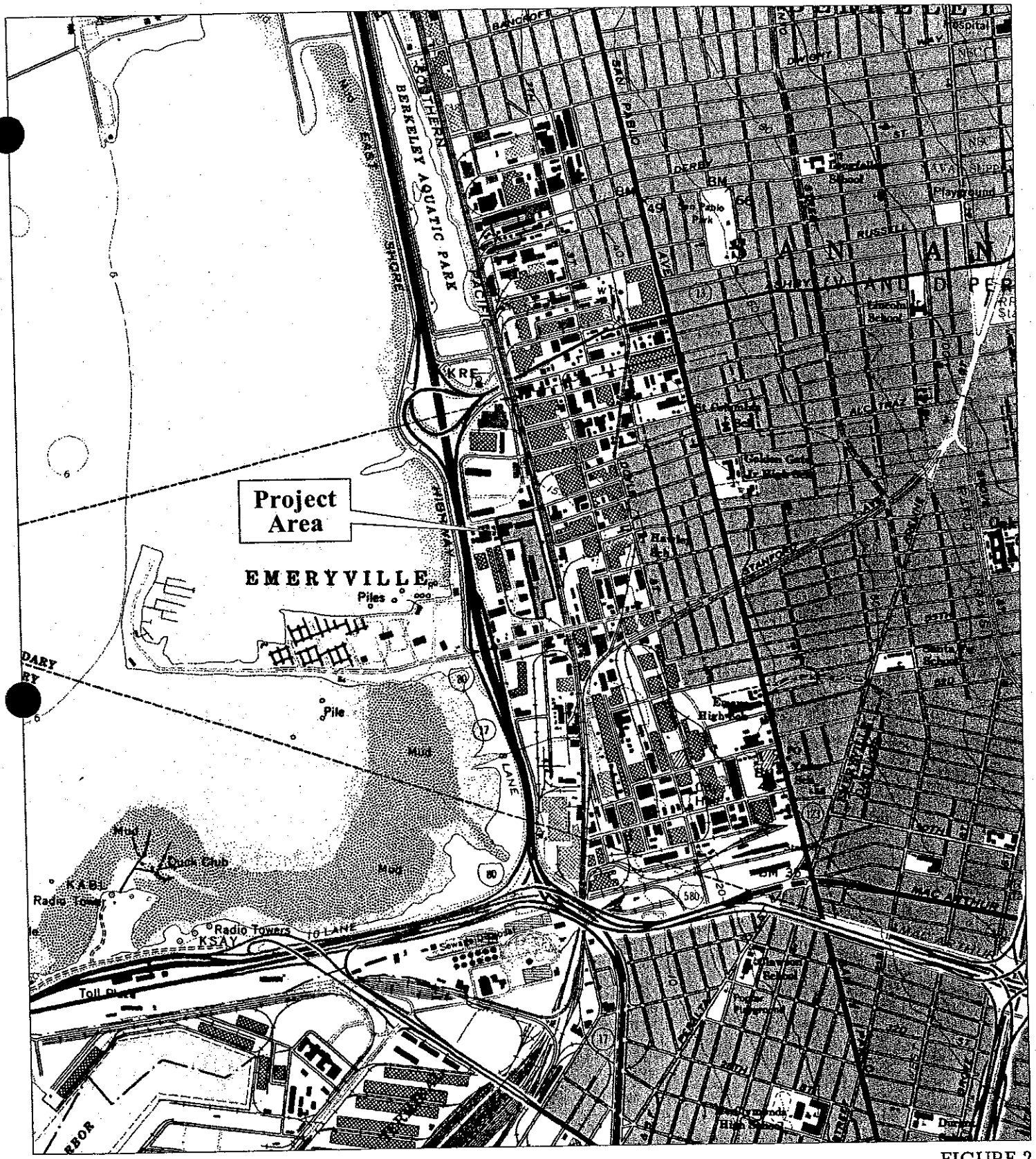

FIGURE 2

Marketplace Expansion Project
Emeryville, Alameda County, California
Project Area

LSA

0 2000
FEET

SOURCE: USGS 7.5' QUAD - OAKLAND WEST, CALIF.

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CEQA defines a "historical resource" as a resource which meets one or more of the following criteria:

- Listed in, or eligible for listing in, the California Register;
- Listed in a local register of historical resources (as defined at PRC § 5020.1(k));
- Identified as significant in a historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code; or
- Determined to be a historical resource by a project's lead agency (CCR Title 14(3) § 15064.5(a)).

A historical resource consists of "Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California . . . Generally, a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing in the California Register of Historical Resources" (CCR Title 14(3) § 15064.5(a)(3)).

CEQA requires that historical resources and unique archaeological resources be taken into consideration during the CEQA planning process (CCR Title 14(3) § 15064.5; PRC § 21083.2). If feasible, adverse effects to the significance of historical resources must be avoided, or the effects mitigated (CCR Title 14(3) § 15064.5(b)(4)). The significance of an historical resource is materially impaired when a project demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for the California Register of Historical Resources. If there is a substantial adverse change in the significance of a historical resource, the preparation of an environmental impact report may be required (CCR Title 14(3) § 15065(a)).

If the cultural resource in question is an archaeological site, CEQA (CCR Title 14(3) § 15064.5(c)(1)) requires that the lead agency first determine if the site is a historic resource as defined in CCR Title 14(3) § 15064.5(a). If the site qualifies as a historical resource, potential adverse impacts must be considered in the same manner as a historical resource (California Office of Historic Preservation 2001a:5.) If the archaeological site does not qualify as a historical resource but does qualify as a unique archaeological site, then the archaeological site is treated in accordance with PRC § 21083.2 (CCR Title 14(3) § 15069.5(c)(3)). In practice, most archaeological sites that meet the definition of a unique archaeological resource will also meet the definition of a historical resource (Bass, Herson, and Bogdan 1999:105).

CEQA defines a "unique archaeological resource" as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; or
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC § 21083.2(g)).

If an impact to a historical or archaeological resource is significant, CEQA requires feasible measures to minimize the impact (CCR Title 14(3) § 15126.4 (a)(1)). Mitigation of significant impacts must lessen or eliminate the physical impact that the project will have on the resource. Generally, the use of drawings, photographs, and/or displays does not mitigate the physical impact on the environment caused by demolition or destruction of a historical resource. However, CEQA requires that all feasible mitigation be undertaken even if it does not mitigate impacts to a less than significant level of impact (California Office of Historic Preservation 2001b:6; see also CCR Title 14(3) § 15126.4 (a)(1)).

California Register of Historical Resources

The California Register of Historical Resources (California Register) is a guide to cultural resources that must be considered when a government agency undertakes a discretionary action subject to CEQA. The California Register helps government agencies identify, evaluate, and protect California's historical resources (California Office of Historic Preservation 2001b:1), and indicates which properties are to be protected from substantial adverse change (PRC § 5024.1(a)). Any resource listed in, or eligible for listing in, the California Register is to be considered during the CEQA process (California Office of Historic Preservation 2001b:4).

A cultural resource is evaluated under four California Register criteria to determine its historical significance. A resource must be significant at the local, state, or national level in accordance with one or more of the following criteria:

1) Is associated with events that have made a significant contribution to the broad pattern of California's history and cultural heritage;
2) Is associated with the lives of persons important in our past;
3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4) Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, the California Register requires that sufficient time must have passed to allow a "scholarly perspective on the events or individuals associated with the resource." Fifty years is used as a general estimate of the time needed to understand the historical importance of a resource (California Office of Historic Preservation 1999:3; CCR Title 14(115) § 4852 (0)(2)). The State of California Office of Historic Preservation recommends documenting, and taking into consideration in the planning process, any cultural resource that is 45 years or older (California Office of Historic Preservation 1995:2).

The California Register also requires a resource to possess integrity, which is defined as "the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association" (California Office of Historic Preservation 1999:2).

Resources that are significant, meet the age guidelines, and possess integrity will generally be considered eligible for listing in the California Register.

Public Resources Code § 5097.5

California Public Resources Code § 5097.5 prohibits excavation or removal of any "vertebrate paleontological site...or any other archaeological, paleontological or historical feature, situated on public lands, except with express permission of the public agency having jurisdiction over such lands." Public lands are defined to include lands owned by or under the jurisdiction of the state or any city, county, district, authority or public corporation, or any agency thereof. Section 5097.5 states that any unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor.

City Of Emeryville General Plan

The City's General Plan (1994:29-30) protects "Emeryville's historic and cultural resources and encourage(s) future development to reflect that heritage." City policies require archaeological evaluation and construction monitoring if archaeological resources are likely; protection or removal of significant findings; preservation of cultural and historic resources; and the reuse of heritage buildings.

Human Remains

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

Paleontological Resources

Paleontological resources are the fossilized remains of plants and animals, and associated deposits. CEQA requires that a determination be made as to whether a project would directly or indirectly destroy a unique paleontological resource or site or unique geological feature (CEQA Appendix G(v)(c)). If an impact is significant, CEQA requires feasible measures to minimize the impact (CCR Title 14(3) § 15126.4 (a)(1)). Also pertinent is California Public Resources Code § 5097.5 (see above).

The Society of Vertebrate Paleontology has identified vertebrate fossils, their taphonomic and associated environmental indicators, and fossiliferous deposits as significant nonrenewable paleontological resources. Botanical and invertebrate fossils and assemblages may also be considered significant resources (Conformable Impact Mitigation Guidelines Committee 1995).

PROJECT AREA

The project area consists of approximately 15 acres on level terrain in Emeryville, in western Alameda County. The project area lies on Bay mud, approximately ten feet above mean sea level, less than a ¼ mile east of the current shoreline of San Francisco Bay, and within the former

boundaries of Rancho San Antonio. In the 1850s, the shoreline was just west of the location now occupied by Union Pacific Railroad tracks, which are immediately east of the project area (Nichols and Wright 1971). Geologically, the project area lies on Holocene (10,000 years old [10ka] to the present) estuarine deposits (Wagner, Bortugno and McJunkin 1990; Helley and Graymer 1997). These deposits contain Holocene molluscan fossils and are generally found below a depth of 8 feet (Helley et al. 1979:21). Below this mud are older vertebrate fossil bearing sediments that are Late Pleistocene in age (40ka to 10ka). These Pleistocene sediments are typically up to 150 feet thick (Helley et al. 1979). Project soils consist of urban land, which is comprised of heterogeneous fill and is covered by urban structures, including roads, buildings, and parking lots (Welch 1975:24).

In the 1850s, Derby Creek ran west from the Oakland Hills (which are approximately 3 miles east of the project area) and entered the proposed project area in the northeast corner and then ran south through the project area. Derby Creek was filled in and only a small portion of the creek exists in Berkeley (Sowers 1993). Temescal Creek, channelized in the 1920s, also ran west from the Oakland Hills and entered San Francisco Bay approximately 2,000 feet south of the project area. The original native flora was coastal prairie-scrub mosaic which consists of graminoids, forbs, and bunchgrasses (Kuchler 1977:30-31). Currently, the project area consists of two 1960s commercial single-story buildings, the Emery Bay Public Market (the former PABCO buildings) and Tower buildings, a movie theater, landscaping, and paved and concrete areas.

BACKGROUND RESEARCH

Cultural Resources

Background research was conducted to identify previously-recorded cultural resources and previous cultural resource studies within and adjacent to the project area. The background research consisted of a records search and a literature review.

Records Search. A records search (# 05-500) was conducted on December 6, 2005, at the Northwest Information Center (NWIC) of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California. The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of cultural resource records and reports for Alameda County

Four cultural resource studies have been done adjacent to the project area. None of the studies identified any cultural resources within the current Marketplace project area. Five prehistoric archaeological sites have been recorded within a quarter-mile of the project area. Please see the Study Results section for details.

As part of the records search, LSA reviewed the following State of California inventories for cultural resources in and adjacent to the project areas:

- *California Inventory of Historic Resources* (California Department of Parks and Recreation 1976);
- *Five Views: An Ethnic Historic Site Survey for California* (California Office of Historic Preservation 1988);
- *California Historical Landmarks* (California Office of Historic Preservation 1996);

- *California Points of Historical Interest* (California Office of Historic Preservation 1992); and
- *Directory of Properties in the Historic Property Data File* (California Office of Historic Preservation, August 8, 2005). The directory includes the listings of the National Register of Historic Places, the California Register of Historical Resources, California Historical Landmarks, and California Points of Historical Interest.

California Historic Landmark number 335, listed in *California Historical Landmarks*, "Site of Shell Mound" (the Emeryville Shellmound), is approximately ¼ mile south of the project area (California Office of Historic Preservation 1996). No other cultural resources listed in these inventories are within or adjacent to the project area.

Literature Review. LSA reviewed publications and maps for archaeological, historical, ethnographic, and environmental information about the project area and its vicinity. The review indicated several known and possible cultural resources in the vicinity of, and within, the project area. Approximately ¼ mile south of the project area is the Emeryville Shellmound, the largest shellmound on San Francisco Bay. The mound was designated number 309 by N.C. Nelson during his 1909 shellmound survey (Nelson 1909; Hoover et al. 1990:1).

The Paraffine Paint Company was established in 1884 within the project area on landfill. The 1942 San Francisco, Calif. 15-minute topographic quadrangle depicts San Francisco Bay extending into the northwest portion of the project area. Between 1902 and 1950, numerous buildings and structures were established within the project area (Sanborn 1902, 1911, 1951). No other cultural resources are mentioned or depicted within or adjacent to the project area in the publications and maps. See the References Consulted section for the literature reviewed.

Paleontological Resources

Background research was conducted to identify paleontological resources in and adjacent to the project area. This research consisted of a fossil locality search and a review of paleontological and geological literature.

Fossil Locality Search. A fossil locality search was conducted on January 3, 2006, using the Berkeley Natural History Museum online database, specifically data from the University of California Museum of Paleontology (UCMP). The purpose of this search was to (1) identify previous studies and known paleontological sites within and near the project area; and (2) identify the formations and types of fossils that might be expected within and adjacent to the project area based on the existing paleontological data. No known fossil localities are within the project area; however, twelve known vertebrate fossil localities are within five miles of the project area, two of which lie less than one half of a mile from the project area. These fossil localities contain significant vertebrate fossils from geologic units similar to those underlying the project area.

Literature Review. LSA reviewed paleontological and geological literature relevant to the project area and its vicinity. This literature was reviewed to (1) identify locations where paleontological resources are known to occur; and (2) identify the geological formations and paleontological resources that may occur in the project area. No fossil resources are reported as being within the project area, though well documented localities are within five miles of the project area. See References Consulted for the literature reviewed.

CONSULTATION

On December 6, 2005, LSA sent a letter and maps depicting the project area to the Native American Heritage Commission (NAHC) requesting a review of their sacred lands file for any Native American cultural resources that might be affected by the proposed project. Ms. Debbie Pilas-Treadway, NAHC Environmental Specialist III, in a faxed letter dated December 16, 2005, the sacred lands file showed no known Native American sites "in the immediate project area" (Appendix A).

On December 6, 2005, LSA sent a letter and maps depicting the project area to the Alameda County Historical Society, asking if they had any information or concerns about the project area. On January 9, 2006, LSA made a follow-up phone call to the historical society. Ed Clausen, historical society president, stated neither he nor the society has any concerns regarding the proposed project.

On December 6, 2005, LSA sent a letter and maps depicting the project area to the Emeryville Historical Society, asking if they had any information or concerns about the project area. Nancy Smith, the society's secretary, mailed LSA a note and a society newletter containing an article about the Paraffine Companies, Inc., whose buildings were within and adjacent to the project area.

FIELD SURVEY

Cultural Resources

LSA archaeologist Randy Groza conducted a pedestrian field survey of the project area on December 8, 2005. Ms. Groza surveyed the approximately 15 acres of developed land of the Marketplace property. Most of the project area is covered with asphalt, paving, and buildings. The few areas of soil surface in the project area were scraped clear of obstructions by trowel and examined for archaeological deposits. The survey was documented with field notes, photographs, and maps.

Paleontological Survey

A paleontological survey was not conducted because the extensive urbanization of the project area precluded an effective survey.

SETTING

Prehistory and Ethnography

California was probably settled by native Californians between 12,000 and 6,000 years ago (Moratto 1984:76). Penutian-speaking peoples migrated into central California around 4,500 year ago and were settled around San Francisco Bay by 1,500 years ago. The descendants of the native groups who lived between the Carquinez Strait and the Monterey area prefer to be called Ohlone, although they are often referred to by the name of their linguistic group, Costanoan (Margolin 1978). Emeryville is located within the former territory of the Huchuin who spoke Chochenyo or Chocheno, one of eight Costanoan languages. Huchuin territory extended from Wildcat and San Pablo Creeks in the city of Richmond south to Mission San Jose at Fremont (Levy 1978:485-486; Milliken 1995:243).

Historic records from Hispanic explorations describe shell mounds situated along the San Francisco Bay shore, usually beside freshwater creeks that drained into the bay. The mounds are often in groups or clusters of mounds of four to six mounds or more. The size, shape, use, internal composition, and age of these shellmounds varied. However, they were all used for hundreds or thousands of years by Bay area Native Americans for residential locations (possibly constructed to protect native villages from increasing high tide levels due to sea level rising), resource processing sites, repositories for their dead, and ceremonial purposes. The Emeryville Shellmound, the largest shellmound in the Bay area when it was extant, was established in the early Late Holocene (ca. 3000-2500 RYBP) according to radiocarbon dating results (Lightfoot 1997, 2004). Originally, the Emeryville Shellmound was a complex of six or more shellmounds (Broughton 1996:27).

Intensive Hispanic exploration of the Bay Area began in the late eighteenth century. Ohlone culture was radically transformed when European settlers moved into northern California. These settlers established the mission system and exposed the Ohlone to diseases to which they had no immunity. Mission San Francisco de Assisi (Mission Dolores) was founded in 1776. Situated directly across the Bay from what is today the city of Emeryville, the Mission drew native people from the entire Bay area. Mission records indicate that Huchuin people moved to Mission San Francisco from 1787 until 1805 (Milliken 1995:243). Following the secularization of the missions in 1834, native people in the Bay Area moved to ranchos, where they worked as manual laborers (Levy 1978).

Historic Period

On August 3, 1820, Luis Maria Peralta was granted Rancho San Antonio for his service to the Spanish government. His 43,000 acre rancho comprised what was to become the cities of Emeryville, Albany, Oakland, Berkeley, Alameda, part of San Leandro, and a part of Piedmont. The Peralta land grant was confirmed after Mexico's independence from Spain in 1822, and honored by the Treaty of Guadalupe Hidalgo in 1848 when California became part of the United States. Peralta's son Vicente received the southwestern portion of the rancho lands, which included today's Emeryville, central and north Oakland, and Piedmont. Peralta's cattle and under-developed lands were a prime target for squatters. His cattle were poached and slaughtered, and trees were removed by squatters and by people traveling to and from the gold fields. Vicente sold off small parcels of land that were then used for farming and homesteads (Hoover et al. 1990:9-10).

In 1859, Joseph Emery, whom the city is named, purchased 185 acres north of Oakland. At that time, Emeryville was an unincorporated section of Oakland that contained two major thoroughfares, Park Avenue to the south, and San Pablo Avenue to the east. Emery built a Victorian mansion on the corners of San Pablo and Park avenues, and then subdivided and sold the remainder of his land. In 1871, Emery built the San Pablo Avenue Horse Car Railroad which connected Oakland with Emeryville, drawing new residents and development to Emeryville (Hausler 1992:1).

Emeryville's first major development was the construction of the Oakland Trotting Park in 1871. The popularity of the race track drew supporting businesses including saloons, restaurants, hotels and bordellos to the surrounding area. By 1874, the Northern Railway connected Oakland to Martinez, through Emeryville. The same year, Shell Mound Park, a picnic area and resort with a dance hall, was developed on top of the Emeryville Shellmound, a substantial prehistoric archaeological site adjacent and west of the race track. The park drew local residents and weekend visitors from around the Bay. Emery Station, at the foot of Park Avenue, and Shellmound Station provided rail access to the park and to the race track (Hausler 1994:6-13).

In addition to the entertainment facilities in Emeryville, the developing area contained residential housing, and an area known as Butchertown. Meatpacking plants and slaughterhouses were situated adjacent to and west of the Northern Railway just south of Berkeley.

Business investors and concerned citizens, including Joseph Emery, proposed to incorporate Emeryville in 1896. The group was interested in maintaining control of profits and taxes related to their investments in the community. Local voters agreed and the city of Emeryville was established (Hausler 1994:6-13).

The devastation of the 1906 earthquake and fire in San Francisco prompted the development of new businesses and residential areas in Emeryville to accommodate displaced San Franciscans. As a result, despite the closure of the race track in 1911 and Shell Mound Park in 1924, Emeryville continued to develop and prosper. In the 1920s, the City's Board of Trustees promoted Emeryville's prime location on San Francisco Bay as an excellent location for business enterprises, and its proximity to major cities, ports, and transportation. Coupled with the offer of reduced taxes, Emeryville became the home of industrial businesses. By 1935, 100 manufacturing plants operated within the city (Walker 2004:18). The construction of the Bay Bridge connected Emeryville with San Francisco in 1939 and led to further industrial growth. Paint factories, steel mills, and other heavy industries continued to thrive during and after World War II.

Today, Emeryville is less reliant on industry and has moved towards restoring former factories and converting them into work/live spaces. Service, shopping facilities, educational, entertainment, and biological and other high tech industries are the new industries of this urban residential city (Emeryville Chamber of Commerce 2004).

Project Area History

This section provides a historical background of the project area. The background is based on the literature review, historical map analysis, and *A History of the Paraffine Paint Company* (Hill 1993).

Until the late 1800s, the project area was beneath San Francisco Bay. In 1874, Northern Railway train tracks were built adjacent to the Bay and gradually, the land west of the tracks was filled in to support new businesses.

The Paraffine Paint Company. The Paraffine Paint Company occupied approximately 38 acres in Emeryville including the project area. In 1884, the company began operations within a two-acre parcel in the same location as the parking lot east of the Emery Bay Public Market building. Brick buildings replaced original wood-frame buildings in the 1890s and as the business expanded, the Paraffine Paint Company continued to fill in San Francisco Bay.

The Paraffine Paint Company was established in 1884 in San Francisco by Truman Pierce and Melvin Beardsley. The partners produced P&B Paint, asphalt paint that waterproofed and preserved wood and metal. By 1887, the Paraffine Paint Company produced 15,000 gallons of asphalt paint annually in their Emeryville plant. The company began producing waterproof roofing and building papers in the 1890s. The 1906 earthquake brought an increased demand for building materials and the company continued to add new products. In 1912, Paraffine began diversifying and purchasing companies unrelated to paint and building materials. By 1918, the company owned eight subsidiaries

that it incorporated into Paraffine Companies, Inc. In 1928, Paraffine was the second-largest industrial firm in Alameda County; its products were shipped throughout the United States and to Australia, China, India, and South America. Just prior to World War II, the company expanded into new manufacturing lines including insulation materials, fiber shipping cases, glass bottles, corrugated cartons, and paper pails and cartons. With eleven manufacturing plants, the company changed its name to PABCO. During the War, PABCO factories operated 24 hours a day and employed 3,000 people. In the 1940s the northwest portion of the project area was filled in with construction materials. By 1956 the Emeryville site had nine manufacturing plants in and outside of California. PABCO closed the Emeryville plant in 1972. The company continues to operate as a division of Fibreboard Corporation.

Prior to the demise of PABCO's Emeryville operation, the company occupied approximately 38 acres with eleven plants containing 90 buildings. Buildings extended from Powell Street, just south of the project area; north to 63rd Street (which no longer runs through the project area); west to the Bayshore Freeway; and east to the Southern Pacific tracks.

Emery Bay Public Market. The Emery Bay Public Market building is comprised of two warehouses. The Paraffine Companies, Inc. built the first warehouse in 1919, and almost doubled its size in 1923 with additions to the north and south elevations. During World War II, a concrete-block warehouse was constructed adjacent and east of the first warehouse. Following the closure of PABCO, most of the over 30 warehouse buildings were demolished in the 1970s. The two Market building warehouses, however, were converted to retail spaces and restaurants in the early 1970s. In 1988, in the first major redevelopment in the City, the buildings were extensively remodeled with a gabled arcade joining the two original warehouse buildings to form a single structure. The renovation included the addition of an eight-story office and retail business building; a concrete walkway separates the new building from the former warehouses. The buildings are currently used for retail, restaurants, and office space for service, commercial, biotech, and high-tech enterprises.

San Francisco Bay was not filled in between 63rd and 64th streets until the 1940s. The northwestern portion of the project area appears to have been used as a parking lot between the 1940s and the 1960s. In 1966, two commercial buildings were constructed in this northwest portion of the project area. 6390 Christie Avenue and 1609 64th Street are within the northernmost building. 6390 Christie Avenue was a tool warehouse and 1609 64th Street was a photo lab. Currently, Inter-Tel Technologies occupies 6390 Christie Avenue, and ProMeetium, a video conferencing company, occupies 1609 64th Street. 6340 Christie Avenue is just south of the northernmost building. Lerer Brothers Transmission Service occupied 6340 Christie Avenue from 1966 until 1998. The building has been vacant since 1998.

Butchertown. Butchertown extended along both sides of the Northern Railroad train tracks, just north of 63rd Street and the project area, to just south of 67th Street and the Berkeley city boundary. This area of slaughterhouses, stockyards, tanneries, and wool-works, processed large quantities of animal products from the late 1870s until the early 20th century (Wood 1884:804; Sanborn 1903, 1911; Ambro 1992:13).

Bayle Lacoste & Company, a fertilizer, bone, and tripe works, was located in the northeast portion of the project area, in the same location as todays United Artist Theater until 1929.

Historical Development Adjacent to the Project Area

Areas adjacent to the project area contained industrial enterprises and most of the buildings were PABCO buildings. Many of these industrial facilities have been replaced since the 1980s with modern buildings and some have been renovated and converted into retail, office or live/work spaces.

The Woodfin Suites Hotel, 5800 Shellmound Street, is just southwest of the project area. Former PABCO buildings were removed in the 1970s and replaced in 2000 with this twelve-story hotel.

South of Powell Street, the southern boundary of the proposed project area, and west of the railroad tracks was also an industrial area. However, prior to 1924, only Union Oil Company of California and the Western Carbonic Acid Company separated the project area from the Emeryville Shellmound.

Emeryville Shellmound. In 1902, Max Uhle, with the support of the University of California, Berkeley conducted the first archaeological excavations of the Emeryville Shellmound, ALA-309. The shellmound measured approximately 100 meters by 300 meters, and 10 meters high. Uhle determined two components, each containing five strata, were present. Upper shellmound levels contained cremations, flaked obsidian and polished stone artifacts, and more bent-nose clam shells than bay oyster. Lower levels contained flexed burials with red ochre, chert bifaces, bone tools, charmstones, and more oyster shells than clam (Moratto 1984:224-226).

Prohibition led to the closure of Shellmound Park in 1924. The same year planned construction of a dry pigments factory for the C. K. Williams Company required the demolition of the park and leveling the shellmound. Prior to leveling, emergency recovery was conducted by archaeologist W. E. Schenck, University of California, Berkeley. Seven-hundred burials, shell beads, mortars, charmstones and mica ornaments were recovered during Schenck's excavation (Shenck 1926, Moratto 1984:229). Resultant data and recovered artifacts from Uhle's and Schenck's archaeological excavations have aided in the development of a chronological dating scheme for central California.

The former site of the Emeryville Shellmound and Shellmound Park was recently developed as the South Bayfront Project. During archaeological data recovery in 1999, more than 120 burials and over 1800 artifacts including shell beads and ornaments, bone tools, stone tools, and groundstone were recovered (City of Emeryville 2005).

Paleontology

Geologically, the project area consists of Quaternary alluvium (Wagner et al. 1990). Deposits within the project area consist of the following geological units which are described in stratigraphic sequence from youngest to oldest.

Artificial Fill. Artificial fill is unconsolidated earth brought to the East Bay margins to expand the amount of developable land above sea level. Fill within the project area is between 3 and 15 feet deep (PES Environmental 2005).

Bay Mud (Holocene). This geologic unit consists of well-saturated, dark plastic clay rich in organic material common along the shores of San Francisco Bay (Helley et al. 1979; Helley and Graymer 1997). Bay mud is as much as 120 deep feet beneath the Bay, but thins to less than 1 foot in depth along the shoreline. This mud may contain shells of extant mollusks, but is not known to contain fossils.

Younger Quaternary (Holocene) Alluvium. Though currently still being deposited, the oldest deposits of these medium-grained alluvial sediments, which overlie the older Pleistocene alluvium in the East Bay, are between 5 – 7ka. These alluvial deposits can be up to 10 feet thick. In some areas this sediment layer may not be present, and the Older Quaternary Alluvium is exposed at the ground surface (Helley et al. 1979).

Older Quaternary (Late Pleistocene) Alluvium. The majority of earth underlying the project area consists of Late Pleistocene (30ka – 10ka) alluvial sedimentary deposits that are generally 150 feet thick (Helley et al. 1979; Wagner et al. 1990). Late Pleistocene alluvium contains vertebrate and invertebrate fossils (Helley et al. 1979). Vertebrate fossils found in alluvium of this age include, but are not limited to, bison, mammoth, ground sloths, saber-toothed cats, dire wolves, cave bears, rodents, birds, reptiles and amphibians (Bell et al. 2004; Helley et al. 1979; Helley et al. 1972; Hertlein 1951; Savage 1951; Stirton 1951). More than 50 vertebrate fossil specimens from twelve separate localities have been documented within Older Quaternary alluvial sediments within five miles of the project area. The invertebrates are generally pelecypods and gastropod shells (Helley et al. 1979).

STUDY RESULTS

This study identified architectural cultural resources within the project area. No prehistoric or historical archaeological resources were identified within or adjacent to the project area by the background research and field survey. There is, however, a possibility of subsurface prehistoric and historical resources. While no previously recorded paleontological resources were identified within or directly adjacent to the project area, there is a possibility that the geological units that underlie the project area contain paleontological resources.

Cultural Resources

The Emery Bay Public Market buildings consist of two parallel rectangular buildings joined by an enclosed, laminated truss roofed arcade with gabled entrance. Both of the former PABCO warehouse buildings have composite truss roofs and concrete frames. The westernmost two-story building built in 1911-1924 is constructed of red brick walls supported by pilasters. The truss roof is clad in rolled composition roofing with fixed skylights. Major renovation has replaced the original fenestration with aluminum framed transom-over-fixed-plate glass windows. Some bay door openings remain; most have been converted to windows or have been bricked in. Metal downspouts perforate a parapet and are mounted flush to the building sides. The easternmost building was built during World War II and retains the reinforced concrete frame curtain walls with multiple wood-framed skylights. The 1988 renovation of the complex included the addition of an eight-story reinforced concrete office/ retail building. Its roof is cross-gabled and clad in corrugated metal. A concrete walkway separates the new building from the two original buildings.

Architectural Resources Evaluation

The architectural resources are evaluated in accordance with Criterion 1, 2, and 3 of the California Register (see the Legislative section of this report). Criterion 4 is not addressed as it is generally only used in evaluating archaeological resources.

Judith Marvin, LSA architectural historian, evaluated the cultural resources within the project area. The building's evaluation is presented below.

These buildings do not appear eligible for listing on the California Register, nor to be a historical resource for the purposes of CEQA. Under Criterion 1, although associated with the early industrial development of Emeryville, many industrial enterprises began in Emeryville during the same period. Under Criterion 2 they are not associated with any persons important in history. Under Criterion 3, they are a typical example of a common resource type, not the work of a master, nor do they possess high artistic values. The buildings lack the integrity to convey their historical significance, as both the brick building and the concrete building has been extensively altered. The buildings' interiors have been completely gutted, the fenestration has been changed, doorways and walls have been removed, and the industrial setting of the buildings has been transformed into a modern commercial shopping mall.

All of the adjacent associated original Paraffine Paint Company buildings have been demolished, so there is no longer the possibility of the buildings being contributing element to a historic district.

Jones & Stokes (2004) evaluated a former PABCO building at 5901 Christie Avenue, one block west of the project area. They determined the buildings was not eligible for listing in the National Register of Historic Places due to a loss of integrity. Monitoring for prehistoric midden deposits and human burials was recommended during ground disturbing activities due to the proximity of former shellmounds.

Archaeological Resources

No cultural resources studies have been previously done of the project area. Four cultural resources studies have been conducted adjacent to the project area, and numerous studies have been conducted in the vicinity of the project area. Two of the cultural resources studies adjacent to the project area (Dietz 1987; Busby 1995) found historic fill containing wire nails, ceramic fragments, bottle and window glass fragments, large pieces of unidentified metal, and ceramic pipe fragments. The other two cultural resources studies adjacent to the project area (Garaventa, Fong, Jarvis, with Banet 1990; Garaventa and Jarvis 1990) noted the locations of five prehistoric prehistoric archaeological sites, CA-ALA-309, -310, -311, -312, and -313, as being less than ½ mile south of the current project area.

Within a ½ mile of the proposed project, cultural resources studies have found

- midden deposits (Ambro 1992; Nelson 2000); and
- several prehistoric cultural deposits containing human remains (Uhle 1907; Shenck 1926; URS Greiner Woodward Clyde 1999; William Self Associates 2005).

Prehistoric Archaeological Resources. The project area's high prehistoric archaeological sensitivity is indicated by the following:

- Prehistoric archaeological sites CA-ALA-309, -310, -311, -312, and -313 are less than ½ mile from the project area;
- Nearby Emeryville Shellmound (CA-ALA-309): In the early 1900s this was the largest and best preserved shellmound in the San Francisco Bay area. As early as 1871 several mounds,

associated with or part of the Emeryville Shellmound, were leveled during construction of the Oakland Trotting Park with burials and artifacts unearthed at that time. In 1874 approximately twenty burials were found during construction of the Northern Railway. Hundreds of burials and artifacts were also recovered by archaeologists Uhle (1907) and Shenck (1926). Two data recovery programs were conducted for the Bay Street shopping center, south of the project area. In 1999, URS recovered more than 120 burials and over 1800 artifacts including shell beads and ornaments, bone tools, stone tools, and groundstone (City of Emeryville 2005). In 2002, William Self Associates (2005) recovered more than 160 burials and thousands of artifacts. Emeryville Shellmound was originally comprised of 6 or more mounds (Broughton 1996:1), and the approximate location of only five of the mounds has been recorded.

- Midden was commonly used for fill during construction and road building and there is a possibility that midden from one of the five shellmounds near the project area was redeposited within the project area. Therefore, there is a possibility for human remains and cultural resources within the project area.
- Former Derby Creek, a fresh water course that flowed through the project area and its proximity to the former shore line indicates high archaeological sensitivity.

Historical Archaeological Resources. Portions of the project area have been in use since the late 1800s, and associated subsurface historic archaeological resources are likely. There was no evidence that the northwest corner of the project area was used prior to the 1940s when it was filled in with construction material in the, and this area may not contain intact archaeological deposits that may contain important information about the City's historical development. The southwest corner of the project area, however, was filled in the early 1870s, at which time the location was used to construct buildings, and is more likely to contain intact archaeological deposits.

Paleontological Resources

No fossil localities have been recorded within or adjacent to the project area. The artificial fill of the project area is not likely to contain significant fossil resources, and it is also unlikely, though possible, that the thin layer of Bay Mud and Holocene alluvium within the project area contains modern (i.e., insignificant) vertebrate and invertebrate fossils (Helley et al. 1979). The Late Pleistocene alluvium that underlies these units in the project area, however, may contain significant vertebrate and/or invertebrate fossils (Helley et al. 1979; Bell et al. 2004) and therefore has high paleontological sensitivity.

It is important to note that artificial Fill and Holocene alluvial deposits within the project area, including Bay mud, may be thin or not present. Therefore the paleontologically sensitive Older Quaternary Alluvium from the Late Pleistocene that underlies these sediments may be encountered near the ground surface or directly below it. There is a high potential that the Older Quaternary Alluvium that underlies the project area contains fossils.

PROJECT EFFECTS

Direct Effects

Current project plans propose to demolish two 1960s buildings within the project area and alter the setting of the former PABCO warehouses. Project plans have the potential to affect prehistoric and historical archaeological resources, and paleontological resources.

Architectural Resources. The project will not significantly impact any of the buildings within the proposed project area. The Emery Bay Public Market buildings, the former PABCO warehouses, were evaluated and do not appear eligible for listing in the California Register and do not constitute historical resources for the purpose of CEQA. The 1960s buildings lack the 50-year age requirement or significance necessary for listing in the California Register.

Archaeological Resources.

Historical Archaeological Sensitivity

The project area's sensitivity is indicated long-term historical use and by buildings that are depicted on Sanborn maps. While these features are no longer present in the project area, associated subsurface archaeological deposits may be present. Such deposits may include privies, trash pits, or structural remains associated with Emeryville's industrial development, and in turn may contain important information about several distinct periods in the City's historical development. The southeastern portion of the project area is more sensitive for historic archaeological deposits since the area was filled in the early 1870s, while the northwestern portion of the project area was filled in the 1940s.

Prehistoric Archaeological Sensitivity

Due to the proximity of several shellmounds to the project area, favorable environmental features such as fresh water from the former Derby Creek, the mouth of the creek at the shoreline, and level territory, and the use of redeposited midden for landfill and construction, subsurface prehistoric archaeological resources are possible. Additionally, redeposited midden can often contain human remains. The southeastern portion of the project area is more sensitive for prehistoric archaeological deposits since the area was filled in the early 1870s when five shellmounds within the vicinity of the project area were extant. Since the northwestern portion of the project area was filled in the 1940s, it is less likely to contain prehistoric archaeological deposits.

Paleontological Resources. Though this study did no identify paleontological resources (fossils) within or adjacent to the project area, there is a possibility that significant paleontological resources will be encountered during ground-disturbing construction below the project soil and fill layers.

Indirect Effects

The area adjacent to the proposed project area is a combination of modern and renovated historic buildings and structures, and it is not anticipated that the proposed project would cause an adverse effect.

RECOMMENDATIONS

This study identified unrecorded cultural resources; a high sensitivity for historical archaeological resources; a possibility of prehistoric archaeological resources that may contain human remains; and the possibility of paleontological resources within the project area. Recommendations for the treatment of such resources are presented below in two sections: Potentially Significant Project Impacts, and Less than Significant Project Impacts.

Project personnel should not collect or move any archaeological or paleontological materials or human remains and associated materials. Fill soils used for construction purposes should not contain archaeological or paleontological materials.

Potentially Significant Project Impacts

Archaeological Sensitivity. Due to the potential for prehistoric and historical archaeological sensitivity, LSA recommends a qualified archaeologist monitor all ground-disturbing activities within the project area for historical and prehistoric archaeological resources. A cultural resources monitoring plan should be prepared prior to the issuance of a grading or building permit. The monitoring plan should describe how project construction will be monitored to reduce impacts to cultural resources which may be identified within the project site. The monitoring plan should also include a review of Sanborn fire insurance maps, historical photographs, and other appropriate historical materials to identify potentially archaeologically sensitive areas for monitoring. Limited subsurface testing may be appropriate prior to construction to identify archaeological deposits.

Since research indicates the northwest section of the proposed project area lacks intact historic archaeological deposits, LSA recommends a qualified archaeologist be present during initial project ground-disturbance in the northwest portion of the project area. The archaeologist can then determine if further monitoring of project ground-disturbing activities is necessary. Periodic reviews of ground-disturbing activities and limited subsurface testing may be appropriate to identify archaeological deposits.

If deposits of prehistoric or historical archaeological materials are encountered during project activities, all work within 25 feet of the discovery should be redirected until the archaeological monitor can review the finds and make recommendations. It is recommended that such deposits be avoided by project activities. If such deposits cannot be avoided, they should be evaluated for their California Register eligibility. If the deposits are not eligible, avoidance is not necessary. If the deposits are eligible, they will need to be avoided. If avoidance is not feasible, project impacts should be mitigated in accordance with the recommendations of the evaluating archaeologist and CEQA Guidelines PRC § 15126.4 (b)(3)(C), which requires implementation of a data recovery plan and treatment of human remains in accordance with Health and Safety Code § 70505. Upon completion of the assessment, the archaeologist should prepare a report documenting the methods and results, and provide recommendations for the treatment of the archaeological materials discovered. The report should be submitted to appropriate City agencies, and the NWIC.

Prehistoric materials can include flaked-stone tools (e.g. projectile points, knives, choppers) or obsidian, chert, basalt, or quartzite toolmaking debris; bone tools; culturally darkened soil (i.e., midden soil often containing heat-affected rock, ash and charcoal, shellfish remains, faunal bones, and cultural materials); and stone milling equipment (e.g., mortars, pestles, handstones). Prehistoric archaeological sites often contain human remains. Historical materials can include wood, stone, concrete, or adobe footings, walls and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramics, metal, and other refuse.

Encountering Human Remains. If human remains are encountered, work within 25 feet of the discovery should be redirected and the County Coroner notified immediately. At the same time, an archaeologist should be contacted to assess the situation. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours

of this identification. The Native American Heritage Commission will identify a Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

Upon completion of the assessment, the archaeologist should prepare a report documenting the methods and results, and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report should be submitted to appropriate City agencies, and the NWIC.

Paleontological Resources. While no paleontological resources (fossils) were identified within or adjacent to the project area by this study, there is a possibility that significant paleontological resources will be encountered during project ground-disturbing construction below the soil and fill layers. Project fill and soils are approximately ten feet deep within the project area (Welch 1975:24; PES Environmental 2005). If fossils are encountered in this layer, they should be handled according to the accidental discovery section below.

The Late Pleistocene alluvium that underlies the fill and soil layers of the project area is highly sensitive for fossil resources (Savage 1951; Stirton 1951; Bell et al. 2004). A qualified paleontologist should be present during initial project ground-disturbance at or below ten feet from original ground surface. The paleontologist can then determine if further monitoring, or if periodic site reviews, or no monitoring would be appropriate. Prior to project ground-disturbing construction, pre-field preparation by a qualified paleontologist should take into account specific details of project construction plans for each project area as well as information from available paleontological, geological, and geotechnical studies. Limited subsurface investigations may be appropriate for defining areas of paleontological sensitivity prior to ground disturbance.

If paleontological resources are encountered during project activities, all work within 25 feet of the discovery should be redirected until the paleontological monitor has documented the resource on a locality form, elvaluated the resources significance, and made recommendations regarding the resource's treatment. If paleontological deposits are identified, it is recommended that such deposits be avoided by project activities. Paleontological monitors must be empowered to halt construction activities within 25 feet of the discovery to review the possible paleontological material and to protect the resource while it is being evaluated. If avoidance is not feasible, adverse effects to such resources should be mitigated. Mitigation can include data recovery and analysis, preparation of a report of findings, and accessioning the fossil material recovered to an accredited paleontological repository, such as the UCMP.

Monitoring should continue until, in the paleontologist's judgment, paleontological resources are no longer likely to be encountered. Upon project completion, a report should be prepared documenting the methods and results of monitoring. Copies of this report should be submitted to appropriate City agencies, and to the repository to which any fossils were accessioned.

Accidental Discovery. If paleontological resources are encountered during project activities, all work within 25 feet of the discovery should be redirected until a qualified paleontologist has evaluated the discoveries, prepared a fossil locality form documenting the discovery, and made recommendations regarding the treatment of the resources. If the paleontological resources are found to be significant, adverse effects to such resources should be avoided by project activities. If project activities cannot avoid the resources, adverse effects should be mitigated. At a minimum, mitigation should include

data recovery and analysis, preparation of a report of findings, and accessioning the fossil material recovered to a paleontological repository, such as the UCMP. Upon completion of project activities, a report that documents the methods and findings of the mitigation should be prepared and copies submitted to the appropriate City agencies, as well as to the repository to which fossils were accessioned.

Less than Significant Project Impacts

Architectural Resources. All the buildings within the project area appear to lack the age requirement or integrity to be listed in the California Register, nor to be a historical resources for the purposes of CEQA. These buildings need no further study or protection.

REFERENCES CONSULTED

Ambro, Richard D.
1992 *Draft Archaeological Cultural Resource Study for the Bay/Shellmound Street Project.* Holman and Associates, San Francisco, California.

Bass, Ronald E., Albert I. Herson, and Kenneth M. Bogdan
1999 *CEQA Deskbook: A Step-by-Step Guide on How to Comply with the California Environmental Quality Act.* Solano Press Books, Point Arena, California.

Bell, C.J., E.L. Lundelius, Jr., A.D. Barnosky, R.W. Graham, E.H. Lindsay, D.R. Ruez, Jr., H.S. Semken, Jr., S.D. Webb, and R.J. Zakrzewski
2004 The Blancan, Irvingtonian, and Rancholabrean Mammal Ages. In *Late Cretaceous and Cenozoic Mammals of North America*, edited by M.O. Woodburne, pp. 232-314. Columbia University Press, New York.

Bowman, J. N.
1951 Adobe Houses in the San Francisco Bay Region. In *Geologic Guidebook of the San Francisco Bay Counties; History Landscape, Geology, Fossils, Minerals, Industry, and Routes to Travel,* prepared by Olaf P. Jenkins, pp. 54-67. Bulletin 154. State of California, Division of Mines, San Francisco.

Broughton, Jack M.
1996 *Excavation of the Emeryville Shellmound, 1906: Nels C. Nelson's Final Report.* Contributions of the University of California Archaeological Research Facility 54. University of California, Berkeley.

Busby, Colin I.
1995 *Cultural Resources Assessment, Sybase-Hollis Street Project, Emeryville, Alameda County, California.* Basin Research Associates, San Leandro, California.
1999 *Archaeological Monitoring Closure Report-IKEA Project, 4400 Shellmound Street, Cities of Emeryville and Oakland, Alameda County.* Basin Research Associates, San Leandro, California.

California Department of Parks and Recreation
1976 *California Inventory of Historic Resources.* California Department of Parks and Recreation, Sacramento.

California Office of Historic Preservation
1988 *Five Views: An Ethnic Sites Survey for California.* California Department of Parks and Recreation, Sacramento.
1990 *Archaeological Resource Management Reports (ARMR): Recommended Contents and Format.* California Department of Parks and Recreation, Sacramento
1992 *Points of Historical Interest.* California Department of Parks and Recreation, Sacramento.
1993 *Guidelines for the Curation of Archeological Collections.* California Department of Parks and Recreation, Sacramento.

1995 *Instructions for Recording Historical Resources*. California Department of Parks and Recreation, Sacramento.

1996 *California Historical Landmarks*. California Department of Parks and Recreation, Sacramento.

1999 *California Register and National Register: A Comparison*. Technical Assistance Series 6. California Department of Parks and Recreation, Sacramento.

2001a *California Environmental Quality Act (CEQA) and Historical Resources*. Technical Assistance Series 1. California Department of Parks and Recreation, Sacramento.

2001b *California Register of Historical Resources: Q&A for Local Governments*. Technical Assistance Series 4. California Department of Parks and Recreation, Sacramento.

2004 *Directory of Properties in the Historic Property Data File*, August 8, 2005. Department of Parks and Recreation, Sacramento.

Chaney, Ralph W.

1951 Prehistoric Forests of the San Francisco Bay Region. In *Geology Guidebook of the San Francisco Bay Counties: History, Landscape, Geology, Fossils, Minerals, Industry, and Routes to Travel*, prepared by Olaf P. Jenkins, pp. 193-202. Bulletin 154. California Division of Mines, San Francisco.

Chavez, David

1977 *Preliminary Cultural Resources Assessment of the East Bay Municipal Utility District (EBMUD) Wet Weather Facilities/Overflow Project Facilities Sites, Alameda and Contra Costa Counties, California*. Mill Valley, California.

Chavez, David, and Jan M. Hupman

2002 *Archaeological Resources Investigations for the EBMUD East Bayshore Recycled Water Project, Alameda County, California*. David Chavez & Associates, Mill Valley, California.

City of Emeryville

1994 *General Plan City of Emeryville*. City of Emeryville Planning Department, Emeryville, California.

1999 *CIERRA-Public Participation Plan: Community Description*. <www.ci.emeryville.ca.us/bf/pp-commdescription.html>.

2005 *South Bayfront Project*. <http://emeryville.wli.net>.

Conformable Impact Mitigation Guidelines Committee

1995 Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standards and Guidelines. *Society of Vertebrate Paleontology News Bulletin* 163:22-27.

Dietz , Stephen A.

1987 *Cultural Resources Assessment, Emeryville, California Branch*. Archaeological Consulting and Research Services, Inc., Santa Cruz, California.

Emeryville Chamber of Commerce

2004 *Welcome from the President & CEO*. <www.emeryvillechamber.com/chamber/CEO_Message.htm>.

Frederickson, David A.
1974 Cultural Diversity in Early Central California: A View from the North Coast Ranges. *Journal of California Anthropology* 1(1):41-53.

Garaventa, Donna M., Michael R. Fong, and Sondra A. Jarvis, with Angela M. Banet
1990 *Archaeological Survey Report, I-880/Cypress Replacement Project, 04-ALA-880 32.12/34.31, 04-ALA-580 45.99/46.95, 04-ALA-80 1.99/3.39, E.A# 04195-190271 MEQ 85001, Cities of Oakland and Emeryville, Alameda County, California.* Basin Research Associates, Inc., San Leandro, California.

Garaventa, Donna M., and Sondra A. Jarvis
1990 *First Addendum Archaeological Survey Report, I-880/Cypress Replacement Project, 04-ALA-880 32.12/34.31, 04-ALA-580 45.99/46.95, 04-ALA-80 1.99/3.39, E.A.#04195-190271 MEQ 85001, Cities of Oakland and Emeryville, Alameda County, California.* Basin Research Associates, Inc., San Leandro, California.

Gudde, Erwin G.
1998 *California Place Names*: *The Origin and Etymology of Current Geographical Names*. Fourth edition, revised and enlarged by William Bright. University of California Press, Berkeley.

Hausler, Donald
1992 The History of Park Avenue, Emeryville, California. *Journal of Emeryville Historical Society*.
1994 The Emeryville Horse Race Track: 1871-1915. *Journal of Emeryville Historical Society* V(1):3-14.

Helley, E., K. LaJoie, and D. Burke
1972 *Geologic Map of the Late Cenozoic Deposits of Alameda County, California.* Miscellaneous Field Studies Map MF-429. United States Geological Survey, Washington, D.C.

Helley, E.J, K.R. La Joie, W.E. Spangle, and M.L. Blair
1979 *Flatland Deposits of the San Francisco Bay Region - their geology and engineering properties, and their importance to comprehensive planning.* Geological Survey Professional Paper 943. U.S. Geological Survey and Department of Housing and Urban Development, Washington, D.C.

Helley, E.J., and R.W. Graymer
1997 *Quaternary Geology of Contra Costa County, and Surrounding Parts of Alameda, Marin, Sonoma, Solano, and San Joaquin Counties, California: A Digital Database*. United States Geological Survey Open File Report 97-98, Washington D.C.

Hertlein, L.G.
1951 Invertebrate Fossils and Fossil Localities of the San Francisco Bay Region. In *Geology Guidebook of the San Francisco Bay Counties: History, Landscape, Geology, Fossils, Minerals, Industry, and Routes to Travel*, prepared by Olaf P. Jenkins, pp. 187-192. Bulletin 154. California Division of Mines, San Francisco.

Hill, Ward
1993 A History of the Paraffine Paint Company. *Journal of the Emeryville Historical Society* IV(2):4-7. Emeryville, California.

Hoover, Mildred.B., Hero.E. Rensch, Ethel.G. Rensch, and William.N. Abeloe
1990 *Historic Spots in California.* Fourth edition, revised by Douglas E. Kyle. Stanford University Press, Stanford, California.

Jones & Stokes
2004 *National Register of Historic Places Evaluation Report: Emeryville Cell Site Project, Emeryville, California.* Sacramento, California.

Küchler, A. W.
1977 *The Map of the Natural Vegetation of California.* University of Kansas, Lawrence.

Levy, Richard
1977 Costanoan. In *California*, edited by Robert F. Heizer, pp. 485-495. Handbook of North American Indians, Volume 8; William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Lightfoot, Kent
1997 Cultural Construction of Coastal Landscapes, A Middle Holocene perspective from San Francisco Bay. In *Archaeology of the California Coast During the Middle Holocene*, edited by Jon M. Erlandson and Michael Glassow, pp.129-141. Perspectives in California Archaeology, vol. 4, Jeanne E. Arnold, senior series editor. Cotsen Institute of Archaeology, University of California, Los Angeles.
2004 Shellmounds: An Archaeologist's View. *News From Native California* Spring:16-17.

Margolin, Malcolm
1978 *The Ohlone Way: Indian Life in the San Francisco-Monterey Bay Area.* Heyday Books, Berkeley, California.

Milliken, Randall
1995 *A Time of Little Choice, The Disintegration of Tribal Culture in the San Francisco Bay Area 1769-1810.* Ballena Press Anthropological Papers No. 43. Menlo Park, California.

Moratto, Michael
1984 *California Archaeology.* Academic Press, Inc., Orlando, Florida.

Nelson, N. C.
1909 Shellmounds of the San Francisco Bay Region. *University of California Publications in American Archaeology and Ethnology* 7(4). Berkeley.

Nelson, Wendy J
2000 *Cultural Resources Survey for the Level (3) Communications Long Haul Fiber Optics Project Segment WS07: Oakland to San Jose.* Far Western Anthropological Research Group, Inc., Davis, California.

Nichols, Donald R. and Nancy A. Wright
1971 *Preliminary Map of Historic Margins of Marshland, San Francisco, California.* U.S. Geological Survey Open File Map. U.S. Geological Survey in Cooperation with the U.S. Department of Housing an Urban Development, Washington, D.C.

PES Environmental, Inc.
2005 *Phase 1 Environmental Assessment, 6390 Christie Avenue, Emeryville, California.* PES Environmental, Inc., Novato, California.

Sanborn Map Company
1903 *Oakland.* New York.
1911 *Berkeley.* New York.
1911 *Oakland.* New York.
1951 *Oakland.* New York.
1951 *Berkeley.* New York.

Savage, D.
1951 Late Cenozoic Vertebrates of the San Francisco Bay Region. *Bulletin of the Department of Geological Sciences* 28(10):215-314. University of California, Berkeley.

Schenck, W. Egbert
1926 The Emeryville Shellmound: Final Report. *University of California Publications in American Archaeology and Ethnology* 23(3):147-282. Berkeley.

Sowers, Janet M.
1993 *Creek and Watershed Map of Oakland and Berkeley.* Revised 1995, 2000. Oakland Museum of California. Oakland, California.

Stirton, R. A.
1951 Prehistoric Land Animals of the San Francisco Bay Region. In *Geology Guidebook of the San Francisco Bay Counties: History, Landscape, Geology, Fossils, Minerals, Industry, and Routes to Travel*, prepared by Olaf P. Jenkins, pp. 177-186. Bulletin 154. California Division of Mines, San Francisco.

Uhle, Max
1907 The Emeryville Shellmound. *University of California Publications in American Archaeology and Ethnology* 7(1). Berkeley.

United States Geological Survey
1899 *San Francisco, California* 15 minute-topographic quadrangle. United States Geological Survey, Washington, D.C.
1915 *San Francisco, California* 15 minute-topographic quadrangle. United States Geological Survey, Washington, D.C.
1942 *San Francisco, Calif.* 15-minute topographic quadrangle. United States War Department, Washington, D.C.
1959 *Oakland West, Calif.* 7.5-minute topographic quadrangle. Photo revised 1980. United States Geological Survey, Washington, D.C.

1993 *Oakland West, CA.* 7.5-minute topographic quadrangle. United States Geological Survey, Washington, D.C.

URS Greiner Woodward Clyde
1999 *Draft Archaeological Research Design and Data Recovery Plan for the South Bayfront Project: Archaeological Sites CA-ALA-309 and CA-ALA-310.* Oakland, California.

Wagner, D.L., and E.J. Bortugno, and R. D. McJunkin
1990 *Geologic Map of the San Francisco-San Jose Quadrangle*, 1:250,000. Map No. 5A. California Division of Mines and Geology, Sacramento.

Welch, Lawrence E.
1975 *Soil Survey of Alameda County, California, Western Part.* United States Department of Agriculture, Soil Conservation Service, Santa Rosa, California.

Wood, M. W.
1883 *History of Alameda County, California.* M. W. Wood, Publisher, Oakland, California.

Walker, Richard A.
2004 *Industry Builds out the City: The Suburbanization of Manufacturing in the San Francisco Bay Area, 1850-1940.* Department of Geography, University of California, Berkeley.

APPENDIX A

Consultation:

Native American and

Historical Society Correspondence

APPENDIX B

Department of Parks and Recreation 523 Forms:

Emery Bay Public Market Buildings

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code
Other Listings
Review Code _____ Reviewer _____ Date

Resource Name: Emery Bay Public Market Buildings

P1. Other Identifier: PABCO Warehouses

P2. Location: Unrestricted

a. **County:** Alameda

b. **USGS 7.5' Quad:** Oakland West, CA **Date:** 1993; in unsectioned lands of Rancho San Antonio (V and D Peralta); Mount Diablo **Baseline & Meridian**

c. **Address:** 5959 Shellmound Street **City** Emeryville **Zip** 94608-1962

d. **UTM: Zone** 10; 562105**mE** /4188506**mN**

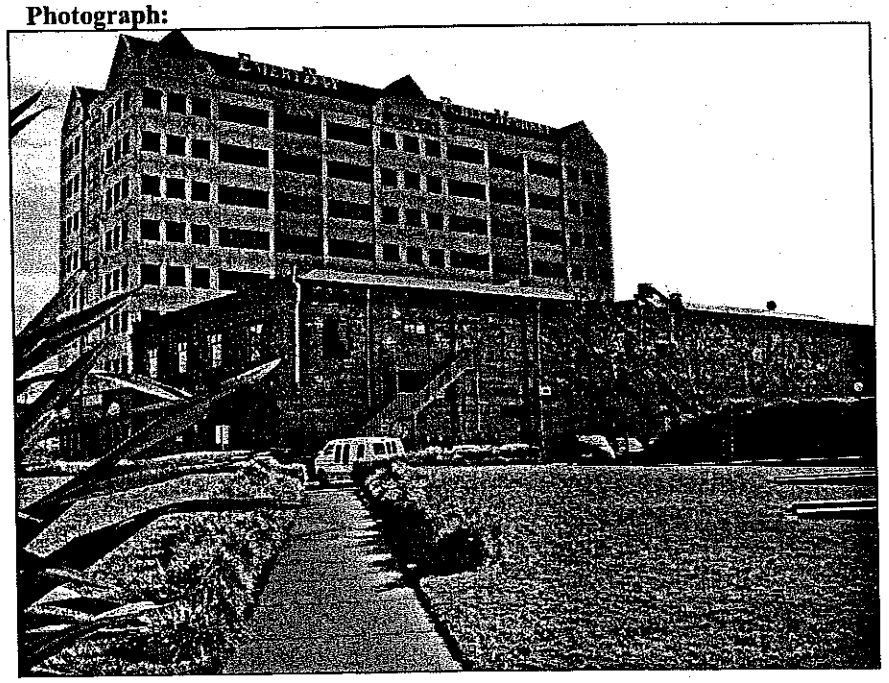
e. **Other Locational Data:** Between Christie Avenue and the Southern Pacific railroad, 64th Street and Powell Street

P3a. Description: The Emery Bay Public Market buildings consist of two parallel rectangular buildings joined by an enclosed, laminated truss roofed arcade with gabled entrance. Both of the former warehouse buildings have composite truss roofs and reinforced concrete framing. The westernmost two-story building built in 1919-1923 and is constructed of red brick walls supported by pilasters. The truss roof is clad in rolled composition roofing with fixed skylights. Major renovation resulted in the replacement of the original fenestration with aluminum framed transom-over-fixed-plate glass windows. Some bay door openings remain; most have been converted to windows or have been bricked in. Metal downspouts perforate the parapet and are mounted flush to the building sides. The easternmost building was built during World War II and retains the reinforced concrete frame curtain walls with multiple wood-framed skylights. The 1988 renovation of the complex included the addition of an eight-story reinforced concrete office/ retail building. The roof of the new building is cross-gabled and clad in corrugated metal. A concrete walkway separates the new building from the two original PABCO buildings.

P3b. Resource Attributes: HP7, commercial building over 3 stories and HP8, two-story industrial warehouse

P4. Resources Present: Building

P5a. Photograph:



P5b. Description of Photo: West and north elevation showing brick warehouse with new high-rise in background

P6. Date Constructed/Age and Source: 1919-1940s: Sanborn Insurance Maps and Hill (1993)

P7. Owner and Address: Undetermined

P8. Recorded by:
Judith Marvin, Joy Longfellow, and Randy Groza
LSA Associates, Inc.
157 Park Place
Point Richmond, CA 94801

P9. Date recorded: December 8, 2005

P10. Survey Type: Intensive

P11. Report citation: Groza, Randy, and Ben Matzen, 2006, *A Cultural and Paleontological Resources Study for the Marketplace Expansion Project, Emeryville, Alameda County, California*. LSA Associates, Inc., Point Richmond, California.

Hill, Ward, 1993, A History of the Paraffine Paint Company. *Journal of the Emeryville Historical Society* IV(2):4-7. Emeryville, California.

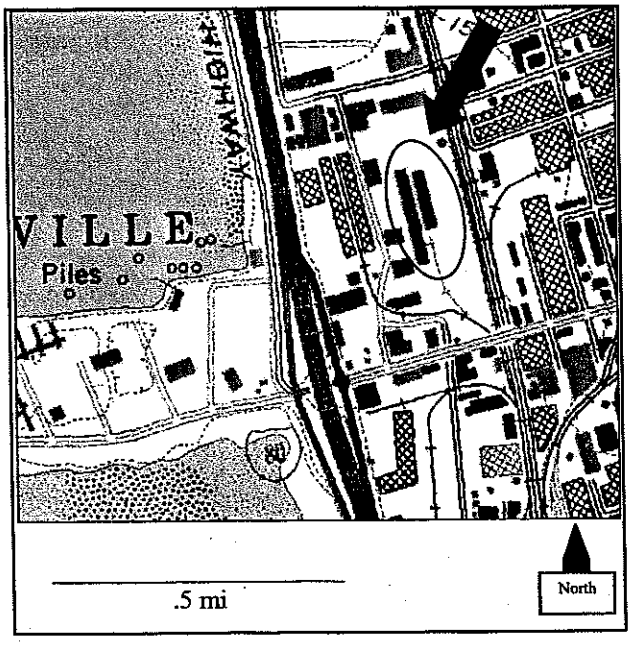
Attachments: ⊠Location Map ⊠ Continuation Sheets ⊠ Building, Structure, and Object Record **DPR 523A (1/95)**

B1. **Historic Name:** PABCO Warehouses
B2. **Common Name:** Emery Bay Public Market
B3. **Original Use:** Paint factory warehouses
B4. **Present Use:** Restaurant, retail, and office spaces
B5. **Architectural Style:** Industrial Warehouses
B6. **Construction History:** The Emery Bay Public Market buildings are comprised of two former warehouses and a recent, multistory office/retail building. The Paraffine Companies, Inc., built the first warehouse of brick in 1919 (Hill 1993), and almost doubled its size in 1923 with additions to the north and south elevations. During World War II, a concrete-block warehouse was constructed adjacent to and east of the first warehouse. Following the closure of the paint factory in 1972, most of the more than 30 warehouse buildings were demolished. The two remaining buildings were converted to retail and restaurant spaces in the early 1970s. In 1988, the buildings were extensively remodeled with a gabled arcade joining the two original warehouse buildings, resulting in a single structure for restaurants, retail, and service business spaces.

B7. **Moved?** No
B8. **Related Features:** Automobile parking lot and modern landscaping
B9. **a. Architect:** Unknown
b. Builder: Unknown

B10. **Significance:** **Theme:** Commercial **Area:** Emeryville
Period of Significance: 1919-1955 **Property Type:** Warehouses **Applicable Criteria:** N/A
The Paraffine Paint Company was established in 1884 in San Francisco by Truman Pierce and Melvin Beardsley. The partners produced P&B Paint, an asphalt paint that waterproofed and preserved wood and metal. In the same year, the company established an Emeryville office and factory on a two-acre parcel on San Francisco Bay fill. Brick buildings replaced original wood-frame buildings in the 1890s and, as the business expanded, Paraffine continued to fill in San Francisco Bay. The company began producing waterproof roofing and building papers in the 1890s and continued to add new products. By 1918, the company owned eight subsidiaries that it incorporated into Paraffine Companies, Inc. In 1928, Paraffine was the second-largest industrial firm in Alameda County; its products were shipped throughout the United States and to Australia, China, India, and South America. Just prior to World War II, the company expanded into new manufacturing lines including insulation materials, fiber shipping cases, glass bottles, corrugated cartons, and paper pails and cartons and changed its name to PABCO. **Continued on Page 3.**

(This space reserved for official comments.)



Recorded by: Judith Marvin, Joy Longfellow, and Randy Groza Date: December 8, 2005 ⊠ Continuation

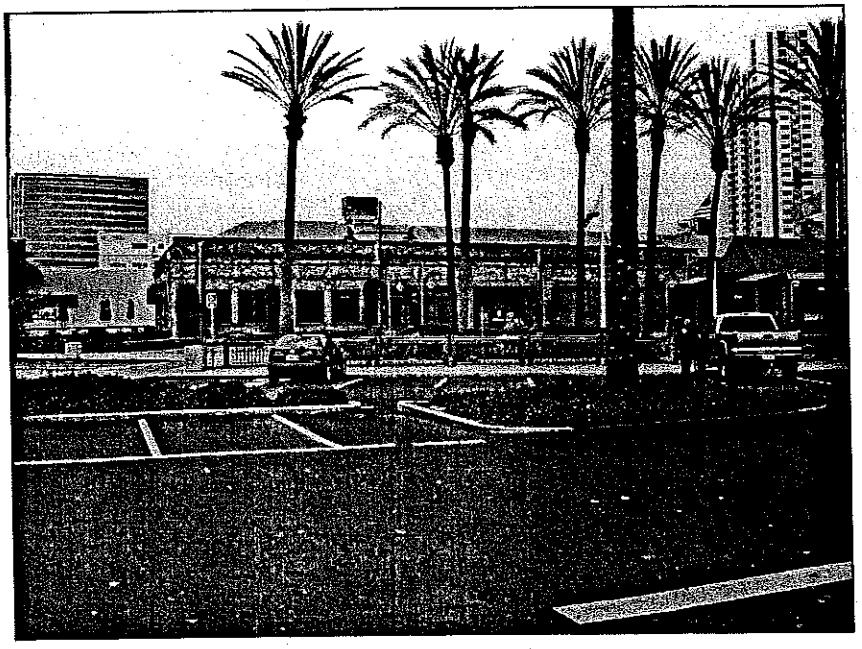
Continued from Page 2. By 1956 the Emeryville site had grown to 38 acres and the company had nine manufacturing plants in and outside California. PABCO closed the Emeryville plant in 1972. These buildings do not appear eligible for listing on the California Register, nor are they a historical resource for the purposes of CEQA. Under Criterion 1, although associated with the early industrial development of Emeryville, many industrial enterprises began in Emeryville during the same period. Under Criterion 2 they are not associated with any persons important in history. Under Criterion 3, they are a typical example of a common resource type, not the work of a master, nor do they possess high artistic values. Under Criterion 4, the buildings do not appear able to answer questions important in history. The buildings also lack the integrity to convey their historical significance, as both the brick and the concrete building have been extensively altered. The buildings' interiors have been completely gutted, the fenestration has been changed, doorways and walls have been removed, and the industrial setting of the buildings has been transformed into a modern commercial shopping mall.

All of the adjacent associated original Paraffine Paint Company buildings have been demolished, so there is no longer the possibility of the buildings being contributing element to a historic district.

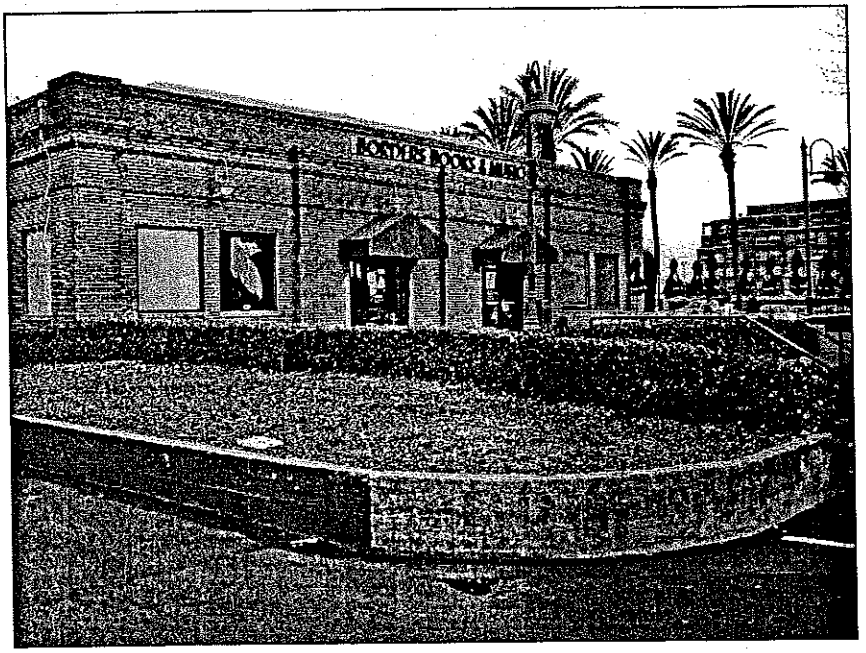
B11. Additional Resource Attributes: None

B12. References: Hill, Ward, 1993, A History of the Paraffine Paint Company. *Journal of the Emeryville Historical Society* IV(2):4-7. Emeryville, California.

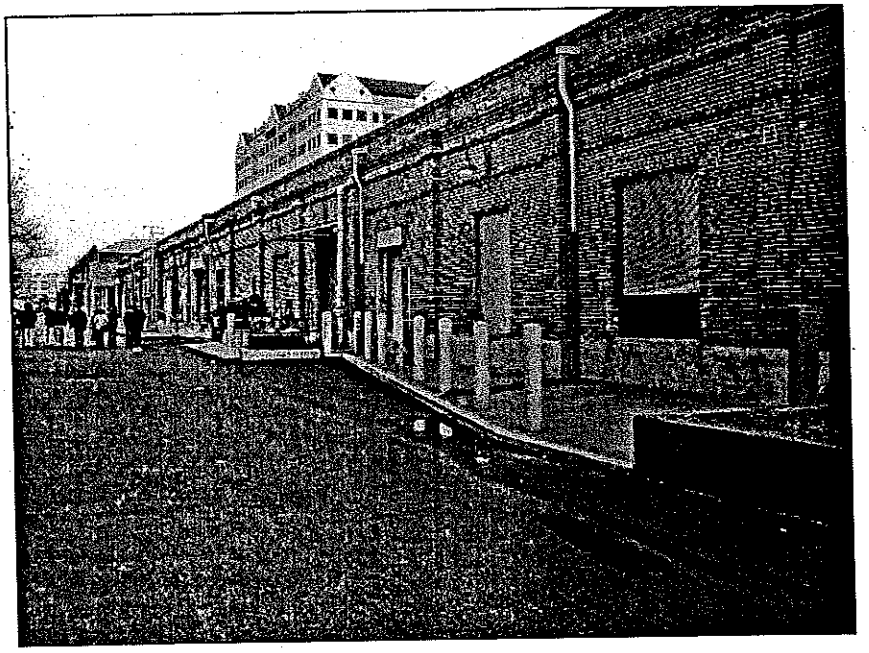
Recorded by: Judith Marvin, Joy Longfellow, and Randy Groza Date: December 8, 2005 ☒ Continuation



East Elevation, main entrance at the extreme right.



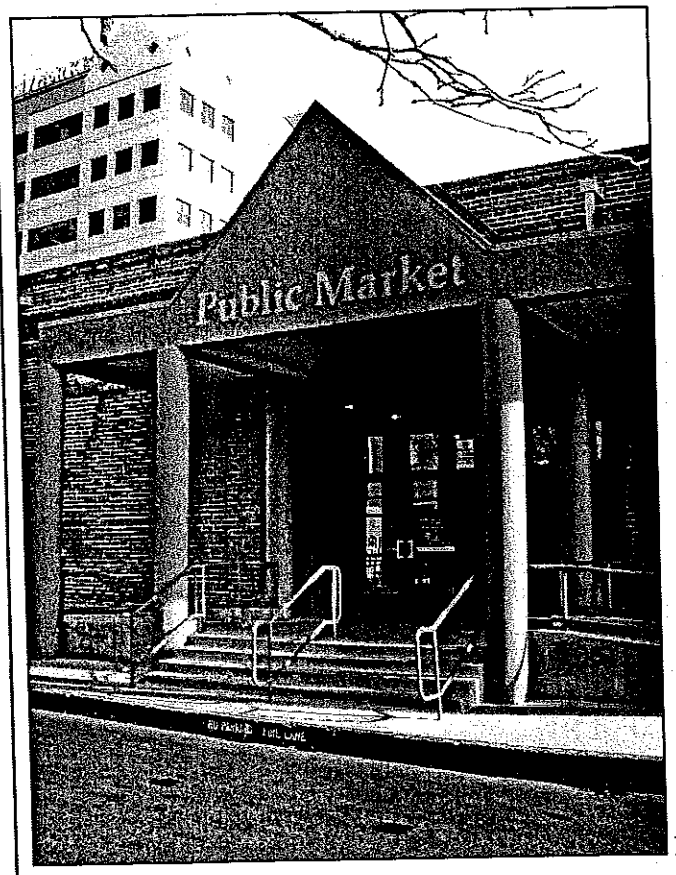
South elevation



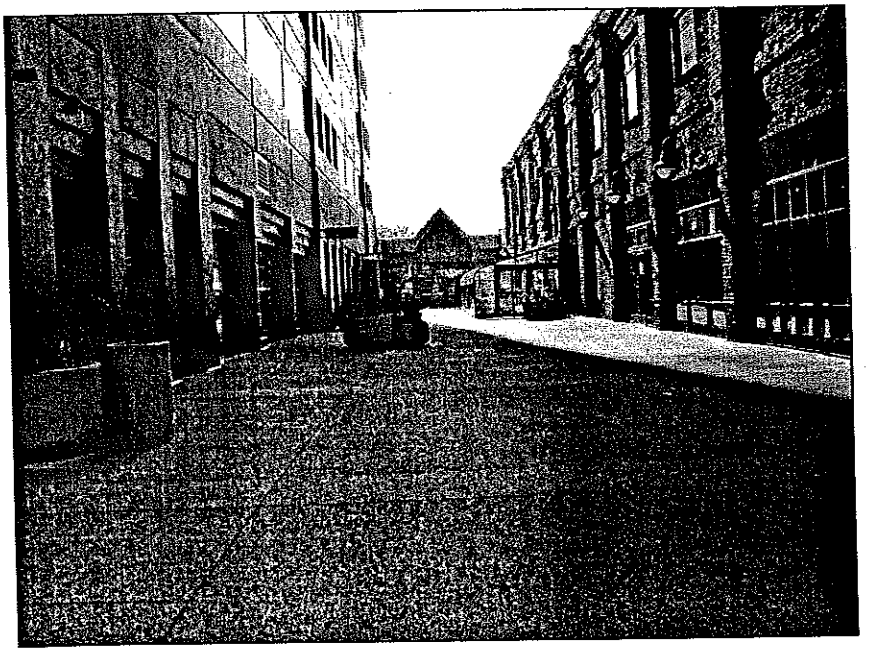
West Elevation

West elevation

Recorded by: Judith Marvin, Joy Longfellow, and Randy Groza Date: December 8, 2005 ⊠ Continuation



Entrance, west elevation



Walkway between new office building and original brick warehouse, rear arcade entrance in background.

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #
HRI #
Trinomial

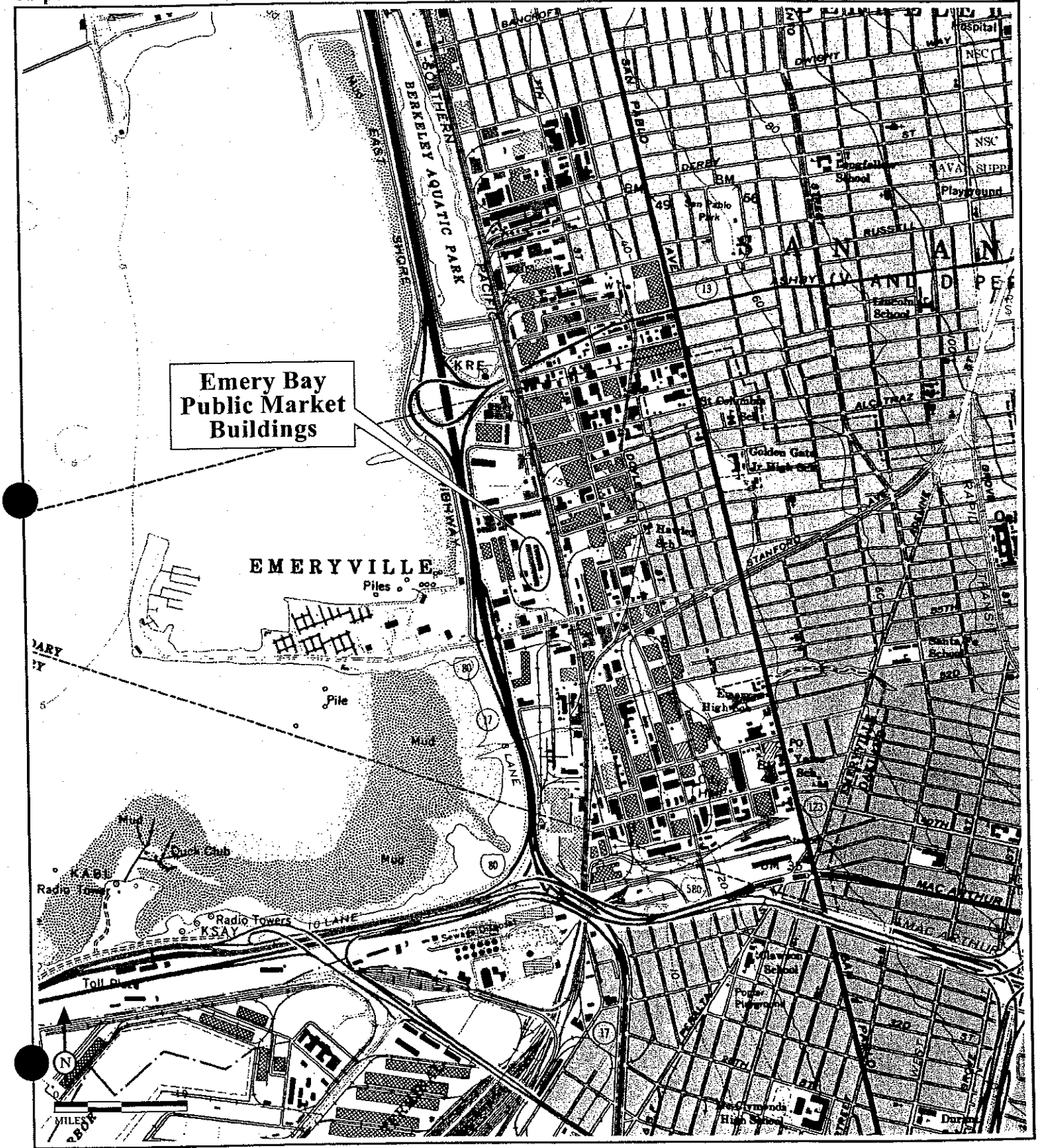
Page: 7 of 7

Resource Name: Emery Bay Public Market Buildings

Map Name: Oakland West, Calif.

Scale: 1:2000 feet

Date of Map: 1959 (photorevised 1980)



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LSA

LSA ASSOCIATES, INC.
157 PARK PLACE
PT. RICHMOND, CA 94801

510.236.6810 TEL
510.236.3480 FAX

BERKELEY
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COLMA
FORT COLLINS
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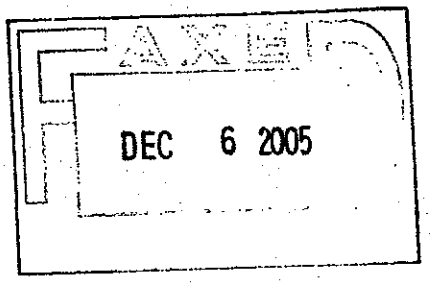
PALM SPRINGS
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO



December 6, 2005

Larry Myers
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814

Subject: Marketplace Expansion Project, Emeryville, Alameda County, California
(LSA Project #CEM531)

Dear Mr. Myers:

TMG Partners is proposing the phased redevelopment of the Emeryville Marketplace, an approximately 15-acre property. LSA Associates, Inc., is conducting a study to determine if the project might affect cultural resources. Please review the sacred lands files for any Native American cultural resources that may be within or adjacent to the project area. The project area is roughly bordered by Powell Street to the south, Christie Avenue to the west, 64th Street to the north, and Southern Pacific Railroad tracks to the east, in unsectioned lands of the Rancho San Antonio Land Grant, Mount Diablo Base Line and Meridian, as depicted on the accompanying portion of the USGS *Oakland West* 7.5' topographic quadrangle.

We also request a list of Native American individuals and organizations who may have knowledge of cultural resources in the project area. If you have any questions, please contact me at the address and phone number above or via e-mail <randy.groza@lsa-assoc.com>. We look forward to hearing from you. Thank you.

Sincerely,

LSA ASSOCIATES, INC.

Randy Groza, M.A., RPA #12670
Archaeologist
Cultural Resources Group

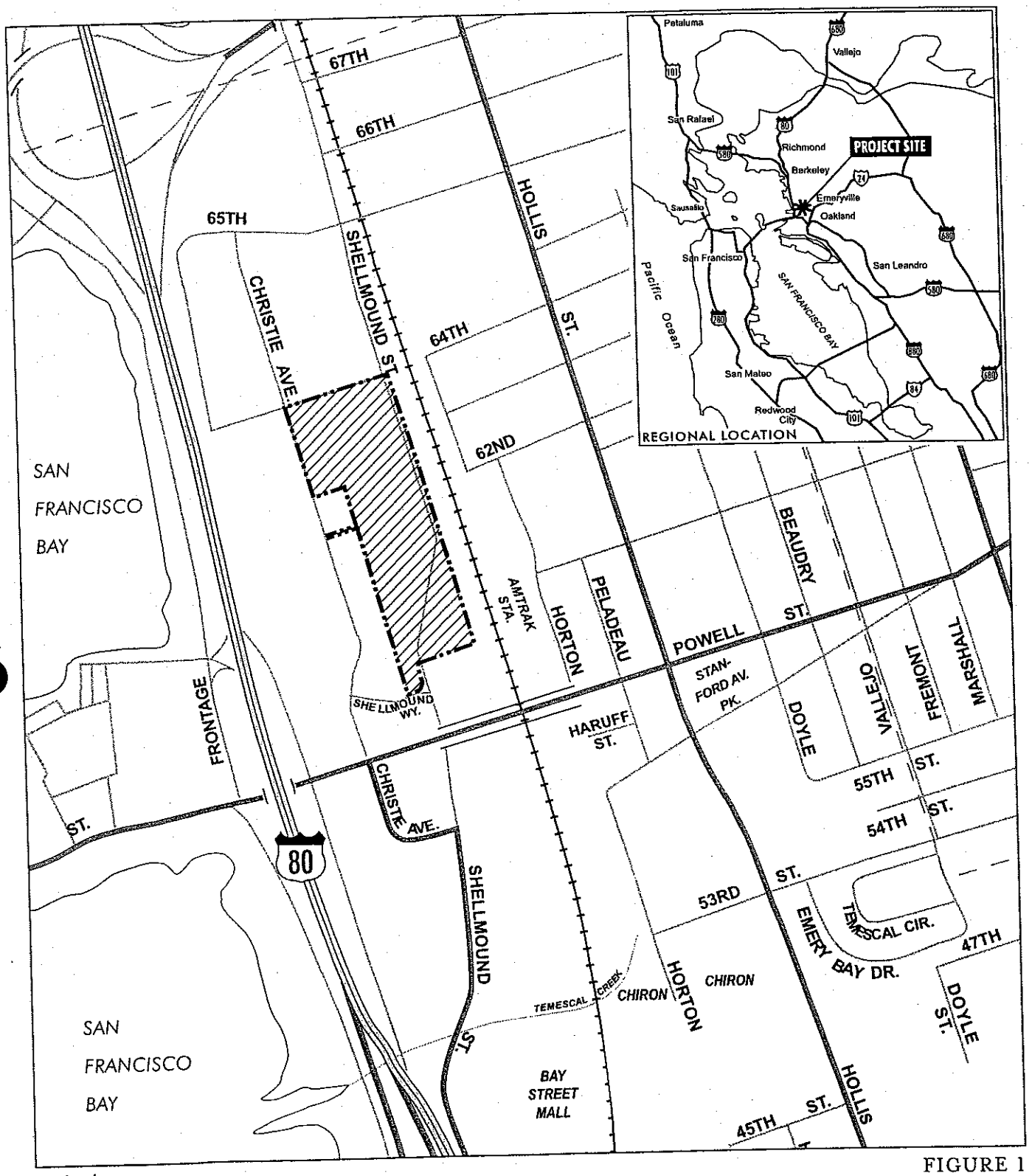


FIGURE 1

LSA

PROJECT SITE

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FEET

SOURCE: LSA ASSOCIATES, INC., 2004.

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Marketplace Expansion Project EIR
Project Vicinity and
Regional Location

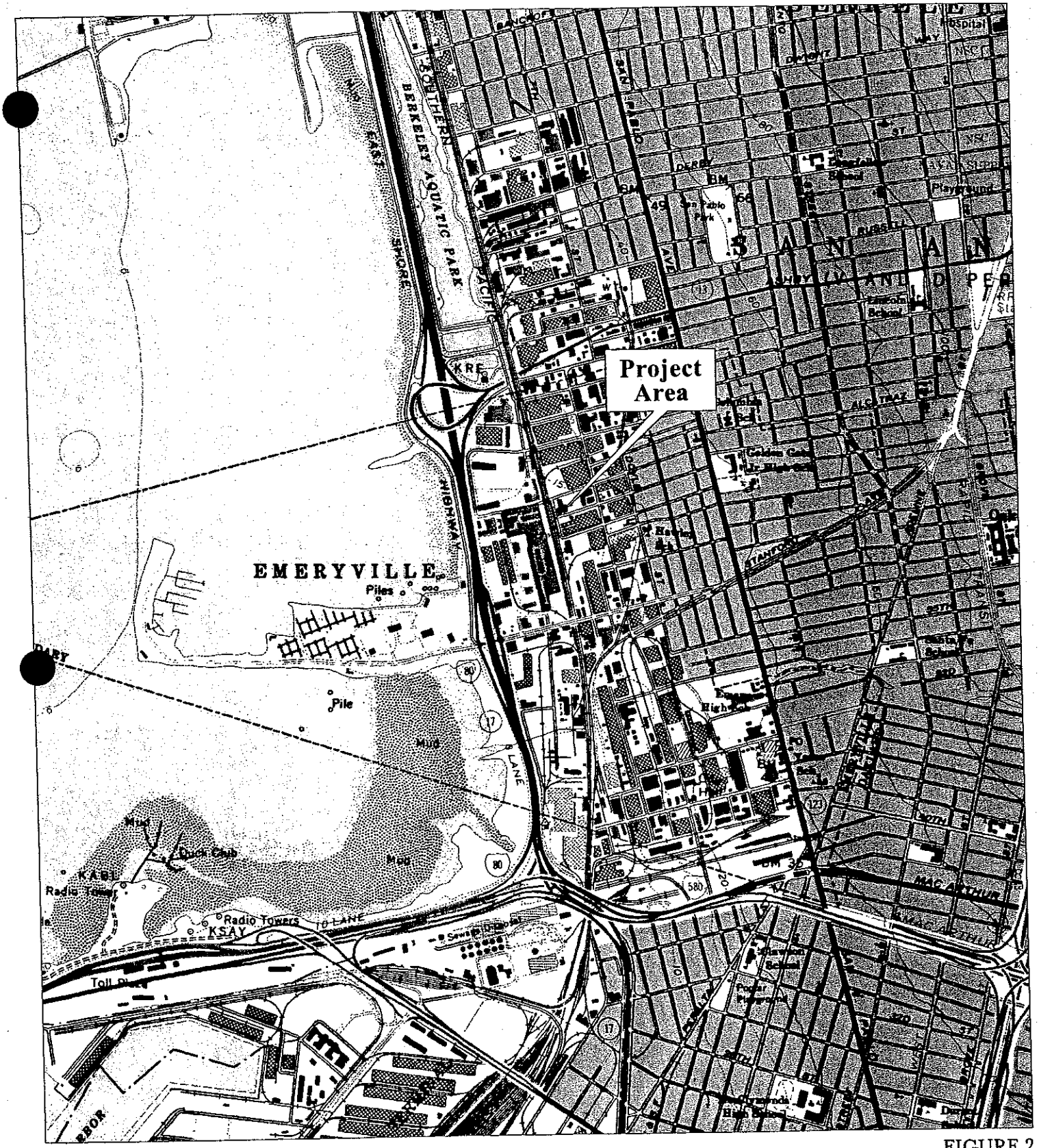

FIGURE 2

LSA

Market Place Expansion Project
Emeryville, Alameda County, California
Project Area

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SOURCE: USGS 7.5' QUAD - OAKLAND WEST, CALIF.

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STATE OF CALIFORNIA — Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390
Web Site www.nahc.ca.gov

December 16, 2005

Randy Groza
LSA Associates
157 Park Place
Pt. Richmond, CA 94801

Sent by Fax: 510-236-3480
Number of Pages: 2

RE: **Proposed Marketplace Expansion project, Alameda County**

Dear Mr. Groza:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Alameda County
December 14, 2005

Jakki Kehl
720 North 2nd Street
Patterson , CA 95363
jakki@bigvalley.net
(209) 892-2436
(209) 892-2435 - Fax

Ohlone/Costanoan

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister , CA 95024

Ohlone/Costanoan

Katherine Erolinda Perez
1234 Luna Lane
Stockton , CA 95206
canutes@comcast.net
(209) 462-2680

Ohlone/Costanoan
Northern Valley Yokuts
Bay Miwok

The Ohlone Indian Tribe
Andrew Galvan
PO Box 3152
Mission San Jose , CA 94539
chochenyo@AOL.com
(510) 656-0787 - Voice
(510) 882-0527 - Cell
(510) 687-9393 - Fax

Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

Ella Rodriguez
PO Box 1411
Salinas , CA 93902
(831) 632-0490 - home
(831) 261-5827 - cell

Ohlone/Costanoan
Esselen

Trina Marine Ruano Family
Ramona Garibay, Representative
5816 Thornton Ave
Newark , CA 94560
510-300-5971 - cell

Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

Amah/MutsunTribal Band
Irene Zwierlein, Chairperson
789 Canada Road
Woodside , CA 94062
amah_mutsun@yahoo.com
(650) 851-7747 - Home
(650) 851-7489 - Fax

Ohlone/Costanoan

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resource assessment for the proposed Marketplace Expansion project, Alameda County.

LSA

LSA ASSOCIATES, INC.
157 PARK PLACE
PT. RICHMOND, CA 94801

510.236.6810 TEL
510.236.3480 FAX

BERKELEY
CARLSBAD
COLMA
FORT COLLINS
IRVINE
PALM SPRINGS
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO

December 6, 2005

Alameda County Historical Society
Attention: Ed Clausen
6730 Thornhill Drive
Oakland, CA 94611

Subject: Marketplace Expansion Project, Emeryville, Alameda County, California
(LSA Project #CEM531)

Dear Mr. Clausen:

TMG Partners is proposing the phased redevelopment of the Emeryville Marketplace, an approximately 15-acre property. LSA Associates, Inc. is conducting a study to determine if the project might affect cultural resources. The study area is roughly bordered by Powell Street to the south, Christie Avenue to the west, 64th Street to the north, and Southern Pacific Railroad tracks to the east, in unsectioned lands of the Rancho San Antonio Land Grant, Mount Diablo Base Line and Meridian, as depicted on the accompanying portion of the USGS *Oakland West* 7.5' topographic quadrangle.

Please notify us if your organization has any information or concerns about historical sites in the study area. This is not a request for research; it is solely a request for public input for any concerns that the historical society may have. To reach us, please contact me at (510) 236-6810 or via email <randy.groza@lsa-assoc.com>. I look forward to hearing from you. Thank you.

Sincerely,

LSA ASSOCIATES, INC.

Randy Groza, M.A., RPA #12670
Archaeologist
Cultural Resources Group

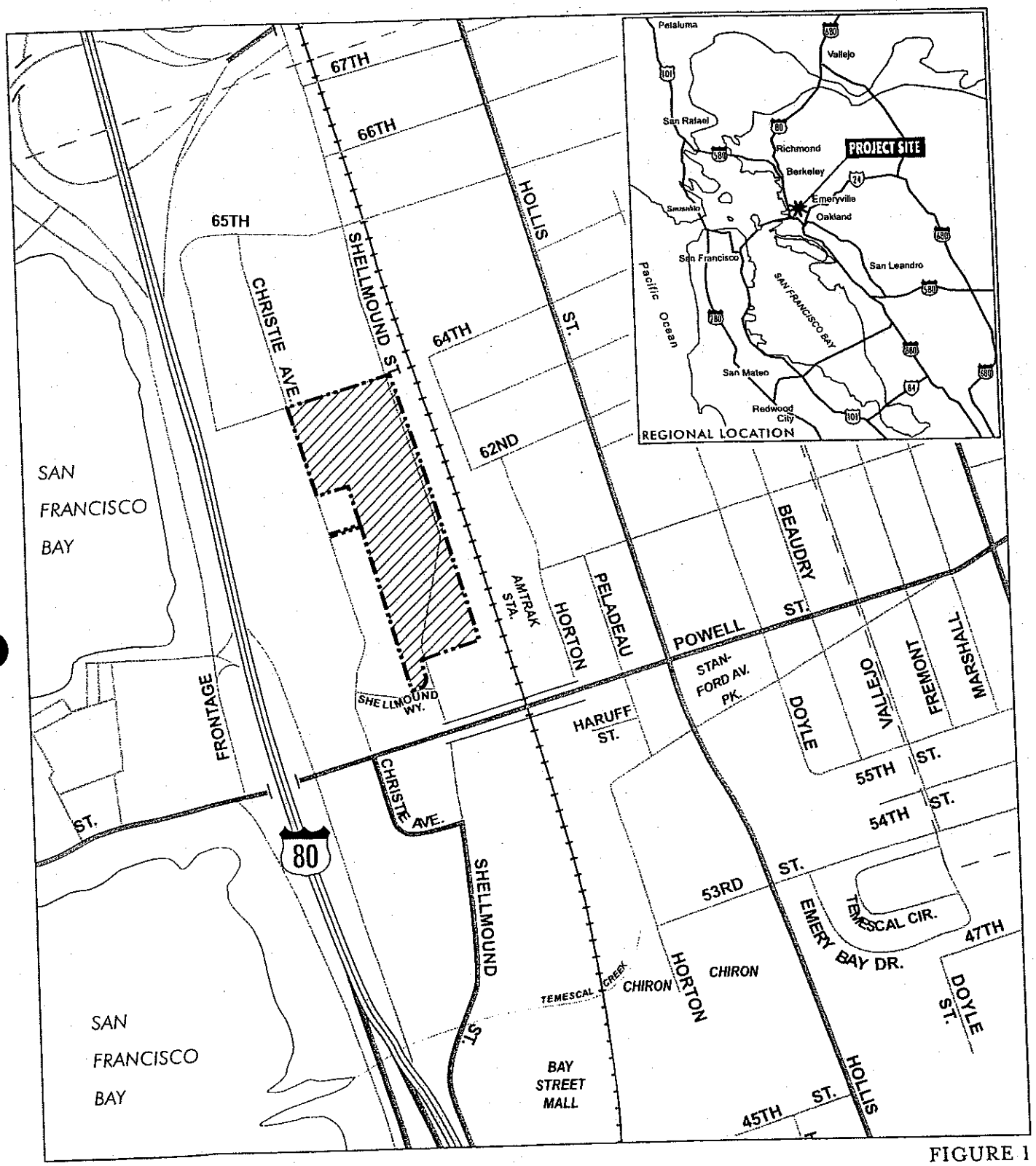

FIGURE 1

LSA

PROJECT SITE

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FEET

Marketplace Expansion Project EIR
Project Vicinity and
Regional Location

SOURCE: LSA ASSOCIATES, INC., 2004.
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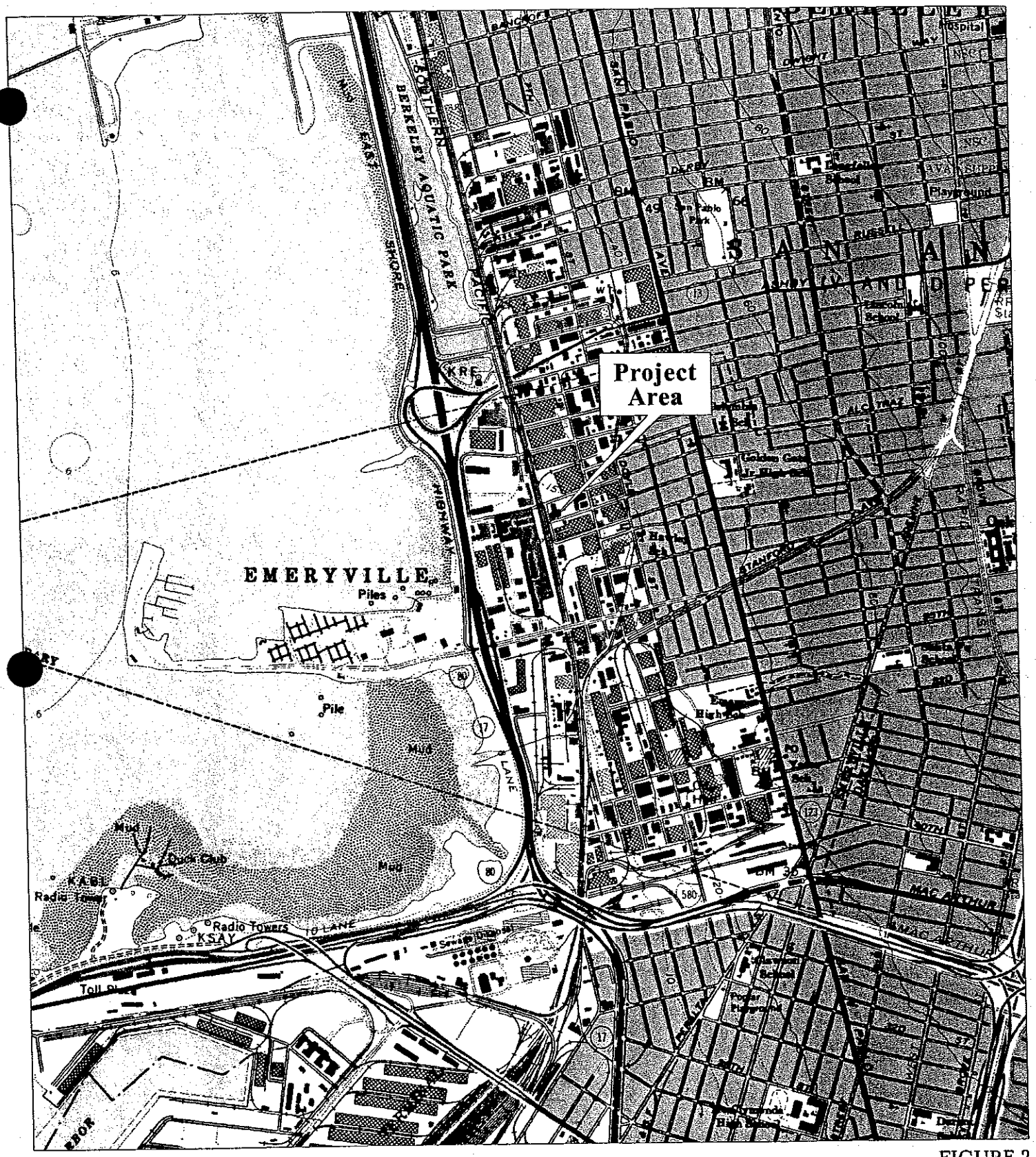

FIGURE 2

LSA

Market Place Expansion Project
Emeryville, Alameda County, California
Project Area

N

0 2000
FEET

SOURCE: USGS 7.5' QUAD - OAKLAND WEST, CALIF.

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LSA

LSA ASSOCIATES, INC.
157 PARK PLACE
PT. RICHMOND, CA 94801

510.236.6810 TEL
510.236.3480 FAX

BERKELEY
CARLSBAD
COLMA
FORT COLLINS
IRVINE
PALM SPRINGS
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO

December 6, 2005

Emeryville Historical Society
6389 Racine Street
Oakland, CA 94609

Subject: Marketplace Expansion Project, Emeryville, Alameda County, California
(LSA Project #CEM531)

Dear Historical Society:

TMG Partners is proposing the phased redevelopment of the Emeryville Marketplace, an approximately 15-acre property. LSA Associates, Inc. is conducting a study to determine if the project might affect cultural resources. The study area is roughly bordered by Powell Street to the south, Christie Avenue to the west, 64th Street to the north, and Southern Pacific Railroad tracks to the east, in unsectioned lands of the Rancho San Antonio Land Grant, Mount Diablo Base Line and Meridian, as depicted on the accompanying portion of the USGS *Oakland West* 7.5' topographic quadrangle.

Please notify us if your organization has any information or concerns about historical sites in the study area. This is not a request for research; it is solely a request for public input for any concerns that the historical society may have. To reach us, please contact me at (510) 236-6810 or via email <randy.groza@lsa-assoc.com>. I look forward to hearing from you. Thank you.

Sincerely,

LSA ASSOCIATES, INC.

Randy Groza, M.A., RPA #12670
Archaeologist
Cultural Resources Group

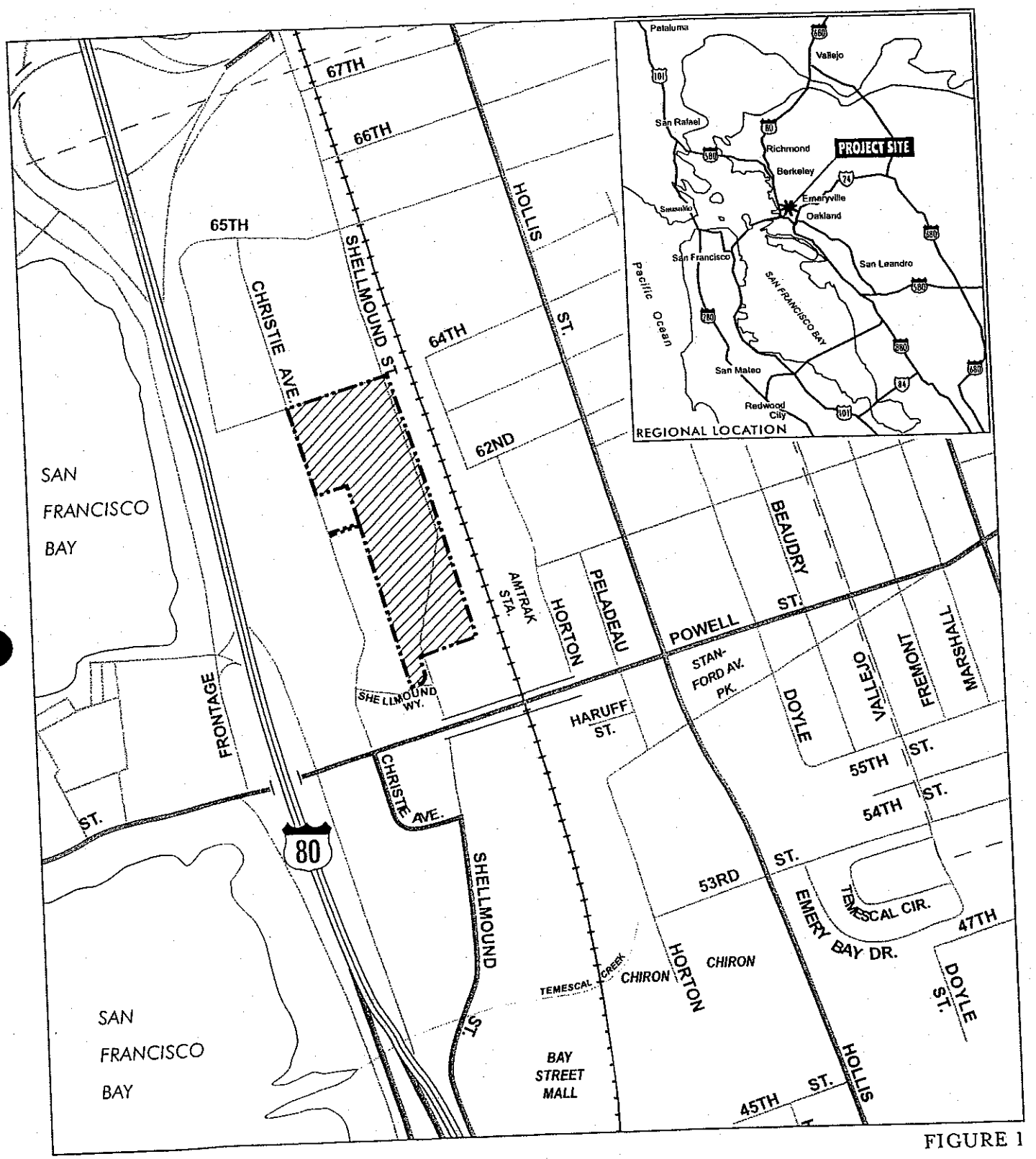

FIGURE 1

LSA

Marketplace Expansion Project EIR
Project Vicinity and Regional Location

PROJECT SITE

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FEET

SOURCE: LSA ASSOCIATES, INC., 2004.
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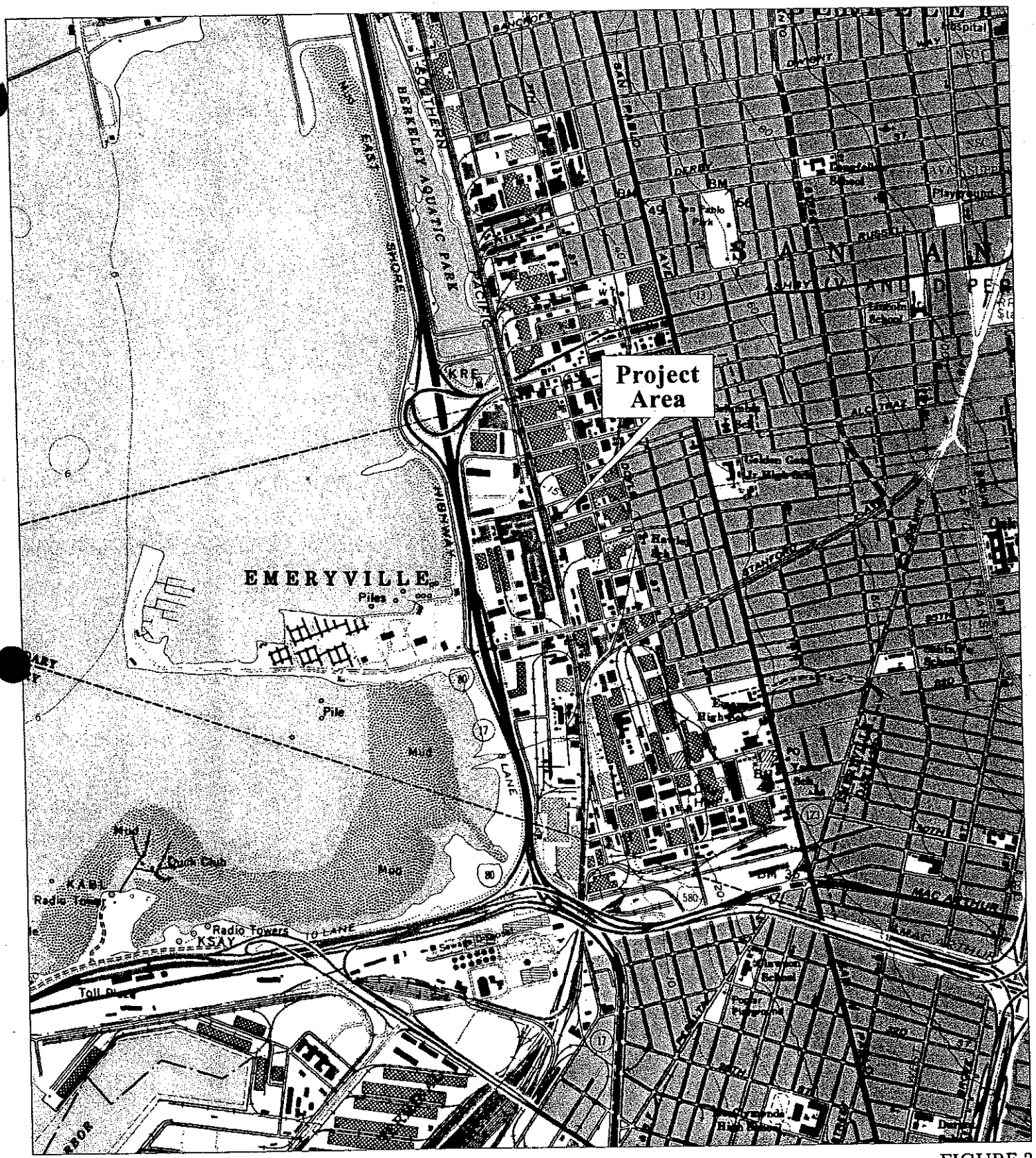

LSA

FIGURE 2

Market Place Expansion Project
Emeryville, Alameda County, California
Project Area

SOURCE: USGS 7.5' QUAD - OAKLAND WEST, CALIF.

P:\CPM4531\gi\ProjArea.cdr (12/2/05)

APPENDIX F

WIND ANALYSIS MEMORANDUM

Donald Ballanti
Certified Consulting Meteorologist

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January 31, 2007

Jennifer Craven
LSA Associates
2215 Fifth Street
Berkeley, CA. 94710

Subject: Wind and Comfort Evaluation for Marketplace Redevelopment Project, City of Emeryville

Dear Ms. Craven:

This letter-report summarizes my findings and recommendations concerning microclimate and wind conditions of the proposed Marketplace Redevelopment Project. I have based this report on my analysis of the climate of the area, a site visit and a review of project plans and elevations. My purpose is to provide an evaluation of outdoor comfort conditions within the proposed facility, identify potential problems and, where possible, provide recommendations for improving on-site comfort conditions.

Existing Conditions

The closest source of long-term wind data to the project site is the former Alameda Naval Air Station, located about 5 miles southwest of the project site. Data from this site show that westerly winds are the most frequent and strongest winds during all seasons.[1] This is the primary wind direction during the spring and summer months when sea breezes predominate. A secondary maxima in wind direction frequency is evident for southeasterly winds, which is the wind direction associated with winter storms. While the average wind speed for southeasterly winds is not the highest of all wind directions, this is the likely wind direction of peak winds measured over the year. Calm winds occur about 10% of the time. The annual average wind speed at Alameda Naval Air Station is 8.6 miles per hour and annual average wind speed at the project site would be somewhat less than this.

Wind conditions partly determine pedestrian comfort and safety on sidewalks and in other public areas. Large buildings can redirect wind flows around and down to street level, resulting in increased wind speed and turbulence at street level. The generally breezy character of Emeryville results from its flat, open land and exposure to persistent wind off of the San Francisco Bay.
The project site is occupied by a mixture of open areas and buildings up to eight stories in

[1]Wind direction refers to the direction from which the wind is moving. Thus, a westerly or west wind moves from west to east.

height. To the west, a mixture of building from one to 30 stories in height offer some shelter from prevailing westerly winds off San Francisco Bay. The project is partially sheltered from prevailing winds from the west and southeast.

The 8-story Marketplace tower is the tallest structure within the existing site. It has only minimal wind shelter from other structures, and has a relatively broad and continuous west face. It intercepts a substantial amount of wind, and winds tend to be accelerated around the base of this building.

Building Aerodynamics

The construction of a building results in severe distortions of the wind field. The building acts as an obstacle to wind flow. The deceleration of wind on the upwind side of the structure creates an area of increased atmospheric pressure, while an area of decreased atmospheric pressure develops on the downwind side. Accelerated winds generally occur on the upwind face of the building, particularly near the upwind corners and along the building sides. The downwind side has generally light, although variable, winds.

The strength of ground-level wind accelerations near buildings is controlled by exposure, massing and orientation or the structure. Exposure is a measure of the extent that the building extends above surrounding structures into the wind stream. A building that is surrounded by taller structures is not likely to cause adverse wind accelerations at ground level, while even a small building can cause wind problems if it is freestanding and exposed.

Massing is important in determining wind impact because it controls how much wind is intercepted by the structure and whether building-generated wind accelerations occur above-ground or at ground level. In general, slab-shaped buildings have the greatest potential for wind problems. Buildings that have an unusual shape or utilize set-backs have a lesser effect. A general rule is that the less continuous a building's faces are (vertically or horizontally), the lesser the probable wind impact at ground level.

Orientation determines how much wind is intercepted by the structure, a factor that directly determines wind acceleration. In general, buildings that are oriented with their wide axis across the prevailing wind direction will have a greater impact on ground-level winds than a building oriented with its long axis along the prevailing wind direction.

Evaluation of Project

The existing project site contains six buildings and surface parking lots. The proposed project would three small retail buildings at three locations within the site. These would only be one story in height, and would be too small to significantly alter pedestrian wind or comfort.

There would be two project elements large enough to potentially affect on-site wind and comfort. These are an 8-story mixed use building at 64th and Christie Avenue at the northwest corner of the project site, and the 9-story Shellmound building to be constructed north of the Woodfin Suites Hotel at the southeast corner of the site.

64th and Christie Building

This structure would be an 8-story building with ground floor retail, condominiums on the upper six floors and two floors of parking. This building would be only partially exposed to wind due to the presence of existing structures on the north and west. It would have a complex shape with multiple set-backs and cut-outs. This building would not have the potential to adversely affect wind or comfort for pedestrians. Its construction would probable result in lower wind strengths near the UA Cinema to the east, but would not have any affect on winds near the Marketplace Tower or Marketplace Building.

Shellmound Building

The proposed Shellmound Building would be a 9-story, 95-foot tall mid-rise structure providing a mixture of commercial and condominium uses, and would provide 3 or 4 floors of structured parking. This building would be generally exposed to prevailing winds as the area immediately west of the site is occupied by relatively short buildings. The building has a complex geometry with multiple set-backs and cut-outs. The design is unlikely to create wind accelerations within sidewalk areas near the site.

The current design includes two features that may adversely influence pedestrian comfort within the site itself. First, the design shows the condominium structure rising above a low-rise parking structure. While this design ensures that any wind accelerations generated by the condominium tower do not affect ground level pedestrians it also places these wind accelerations along the roof of the low rise structure in areas shown as landscaped terraces. Landscaped terraces at the northwest and southwest corners of the condominium tower would be affected.

Secondly, the current plans show a passageway going east-west through the building at the fourth floor. This passageway through the building will act as a "breezeway" under prevailing westerly winds, connecting an area of decreased atmospheric pressure on the east side of the building with an area of increased atmospheric pressure on the west side of the structure. This means that the passageway through the building would have accelerated winds that would affect the pedestrian walkway to the bridge over the railroad on the east side of the structure.

Recommendations

Roof deck open space terraces should be heavily landscaped to reduce wind and improve usability. Porous materials or structures (vegetation, hedges, screens, latticework, perforated or expanded metal) offer superior wind shelter compared to a solid surface. Outdoor furnishings such as tables should be either weighted or attached to the deck.

It is not possible to determine how strong winds will be through the breezeway at the fourth level of the building except through wind tunnel testing. It is recommended that testing of a scale model be conducted if this feature is included in the final design. Alternatively, the design could be altered to eliminate the breezeway or it could be retained but glazed on the west side.

I hope that you find this report helpful. Please call if you have questions or would like more information.

Sincerely,

Donald Ballanti
Certified Consulting Meteorologist

APPENDIX G

CITY OF EMERYVILLE
CUMULATIVE PROJECTS LIST

Approved Development Projects

Years	Name	Address	Status	Residential (units)	Livework (units)	Laboratory (KSF)	Retail (KSF)	Office (KSF)	Education/ Art/Civic (KSF)	Hotel (Rooms)	Industrial (KSF)
06-10	Marina office bldg	Powell	approved					4			
06-10	Adeline Place	3801 San Pablo	approved	30			1				
06-10	AgeSong Senior living	4050 Horton	approved	145			3	2	1		
06-10	Paula LeDuc Catering	1350 Park	approved				0.9	1.7			
06-10	Ambassador Housing	1168 46th	approved	55							
06-10	Salem Manor	4333 Salem	approved	2							
06-10	Oak Walk	4098 San Pablo	approved	46			4				-9
06-10	Flatiron	3645 San Pablo	approved				-1				2
10-20	Chiron Bldg 1 office	1403 Stanford	prelim dev plan approved					220			
10-20	Pixar 3	Park N	prelim dev plan approved			162					
20-30	Chiron future lab	4560 Horton	prelim dev plan approved			350					
20-30	Pixar 4	Hollis 45 SE	prelim dev plan approved			207	-2				-36
			Total	**278**	**0**	**719**	**5.9**	**227.7**	**1**	**0**	**-43**

Source: City of Emeryville, 2007.

Underconstruction and Recently Completed Development Projects

Years	Name	Address	Status	Residential (units)	Livework (units)	Laboratory (KSF)	Retail (KSF)	Office (KSF)	Education/ Art/Civic (KSF)	Hotel (Rooms)	Industrial (KSF)
06-10	Artisan Walk/Meyer	66th Vallejo SE	final sign off	72							
06-10	Glashaus Townhouses	1289, 1313 65th	under construction	145			1				-22
06-10	City Limit townhouses	1249 67th	construction complete	92							
06-10	Emery Station East	5885 Hollis	building permit ap filed			225	8				-33
06-10	Christie Park Towers	6150 Christie	building permit issued	43	17		4				
06-10	Avenue 64 (Pinnacle)	6335 Christie	under construction	224							-54
06-10	Volvo	Shellmound	building permit issued				19				
06-10	Bay St Residential	Shellmound Bay	construction complete	379							
06-10	Blue Star Corner	4226 Halleck	under construction	20							
06-10	1401 Park Condos	1401 Park	under construction	43	11		2				
06-10	Pixar 2	Park HollisNE	building permit ap filed			165					
06-10	Green City Lofts	1007 41st	under construction	62							-9
06-10	Andante II	San Pablo Adeline	construction complete	23			.				
06-10	46th St Lofts Flecto	1012 45th	under construction	79			3				
06-10	Doyle St Condos	5509 Beaudry	under construction	19	8						
			Total	**1201**	**36**	**390**	**37**	**0**	**0**	**0**	**-118**

Source: City of Emeryville, 2007.

Pending Development Projects

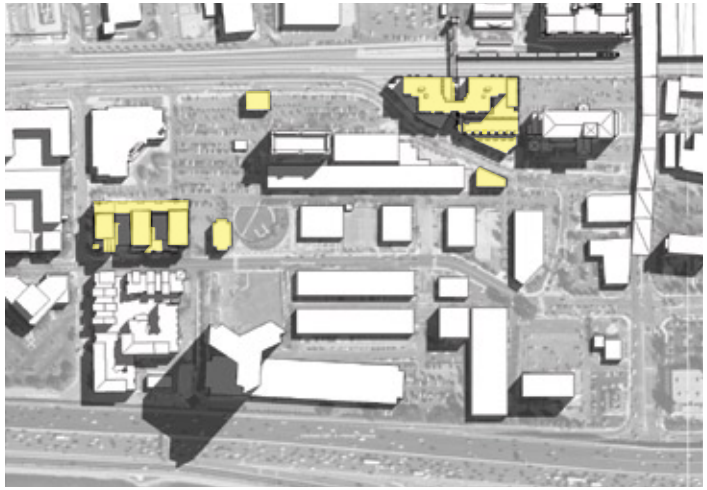
Years	Name	Address	Status	Residential (units)	Livework (units)	Laboratory (KSF)	Retail (KSF)	Office (KSF)	Education/ Art/Civic (KSF)	Hotel (Rooms)	Industrial (KSF)
06-10	Bay St Hotel	Shellmound Bay	study session scheduled							200	
06-10	Bay St Site B	1535 Powell	application filed	337		170	67			200	
06-10	Baker block	1265 65th	discussed	57							
06-10	Doyle-Hollis Park	61-Hollis-62-Doyle	design ready for PC								-29
06-10	Ex'pression college	6603 Shellmound	discussed						26		-26
06-10	Cultural Arts Center	4062 Hollis	discussed				3	3	31		-31
06-10	Golden Gate Key	San Pablo	discussed	45							
06-10	BRE Gateway	5801 Christie, 5800 Shellmound, 1776 Powell	study session held	450			8				
06-10	Alders	5812 Hollis	RFP issued	40				7			-7
06-10	Miller	5850 Holis	RFP issued	49			22				-50
06-10	Ocean Lofts	1258 Ocean	study session held	2							
06-10	Intermodal Transit Ctr	Horton 59th NW	developer selected			225		75			
06-10	Marketplace	Shellmound/Christie	application filed	340			77				
10-20	Ctr Cmty Life AC Trans	47th San P 53rd	planning ongoing					22	140		-53
10-20	Sherwin-Williams	1500 Sherwin	study sessions held	375				235			-216
10-20	Calvest	1289 67th	discussed	72				-42			
10-20	Farb-Garrett	1315 67th	discussed	125							-5
10-20	Collins	5900 Hollis	discussed	177	-29				-44		-44
10-20	Sheet Music Ralston	1300 64th	discussed	26							-25
10-20	Heritage Square Parking	6121 Hollis	discussed	48			4	4			
10-20	Hollis St Complex	6261 Hollis	discussed					70			-70
10-20	Nady	6707 Shellmound	discussed	102							-66
10-20	Gerow industrial rentals	1555 Park	discussed				6				-6
10-20	Hollis Realty Group	4065 Hollis	discussed	110			4				-57
10-20	Industrial Safety	4041 Hollis	discussed				8	17			-8
10-20	Level 3	5000 Hollis	discussed	155							-150
10-20	East Baybridge west	4050 Horton	discussed				120				
10-20	Black & White Liquor	4089 San Pablo	discussed	55							
10-20	Old Post Office site	4300 San Pablo	discussed	30					-2		
20-30	Green Storage	Doyle 59th NE	discussed	26							-17
20-30	PG&E South	4245 Hollis	discussed	50				22			-15
20-30	Sushi Powell Peladeau	5772 Peladeau	discussed	5							
20-30	Parking Powell Hollis	1407 Powell	discussed	6			2				
20-30	Lab Hollis Stanford	5701 Hollis	discussed	13							
20-30	Multitenant Pel Stanford	5768 Peladeau	discussed	11							
20-30	Parking Peladeau	5764 Peladeau	discussed	11							
			Total	**2717**	**-29**	**395**	**321**	**413**	**151**	**400**	**-875**

Source: City of Emeryville, 2007.

APPENDIX H

ALTERNATIVES
SHADOW SIMULATIONS

- **Alternative 1: No Project Alternative, Figures A.H-1 through A.H-6**
- **Alternative 2: Reduced Project Alternative, Figures A.H-7 through A.H-12**
- **Alternative 3: Tower Alternative, Figures A.H-13 through A.H-18**
- **Alternative 4: Main Street Alternative, Figures A.H-19 through A.H-24**



Proposed Project - 10:00 AM

Proposed Project - 12:00 noon

Alternative - 10:00 AM

Alternative - 12:00 noon

LSA

FIGURE A.H-1

Marketplace Redevelopment Project EIR

Shadow Patterns:

No Project Alternative

Spring/Fall Equinox - March 21/September 21

10 AM - 12 Noon

N

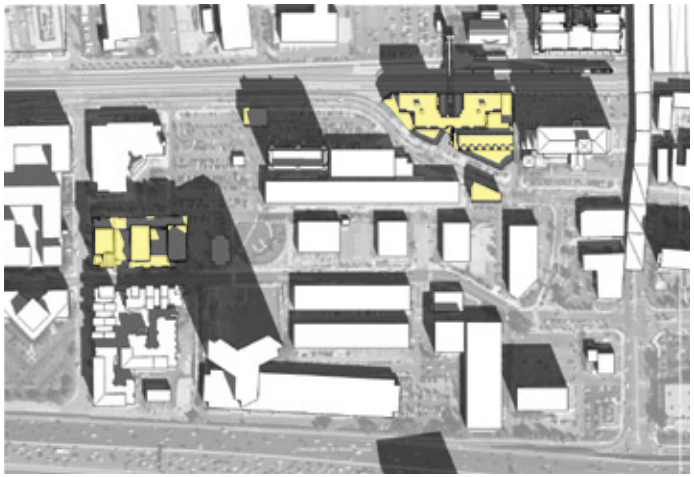
NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

I:\CEM531 marketplace\figures\Fig_AH1.ai (2/23/07)

Proposed Project - 2:00 PM



Proposed Project - 4:00 PM

Alternative - 2:00 PM

Alternative - 4:00 PM

LSA

FIGURE A.H-2

N

NOT TO SCALE

PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR

Shadow Patterns:

No Project Alternative

Spring/Fall Equinox - March 21/September 21

2 PM - 4 PM

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

I:\CEM531 marketplace\figures\Fig_AH2.ai (2/23/07)

Proposed Project - 10:00 AM

Proposed Project - 12:00 noon

Alternative - 10:00 AM

Alternative - 12:00 noon

LSA

FIGURE A.H-3

Marketplace Redevelopment Project EIR

Shadow Patterns:
No Project Alternative
Summer Solstice - June 21
10 AM - 12 Noon

N

NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

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Proposed Project - 2:00 PM

Proposed Project - 4:00 PM

Alternative - 2:00 PM

Alternative - 4:00 PM

LSA

FIGURE A.H-4

Marketplace Redevelopment Project EIR

Shadow Patterns:
No Project Alternative
Summer Solstice - June 21
2 PM - 4 PM

N

NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

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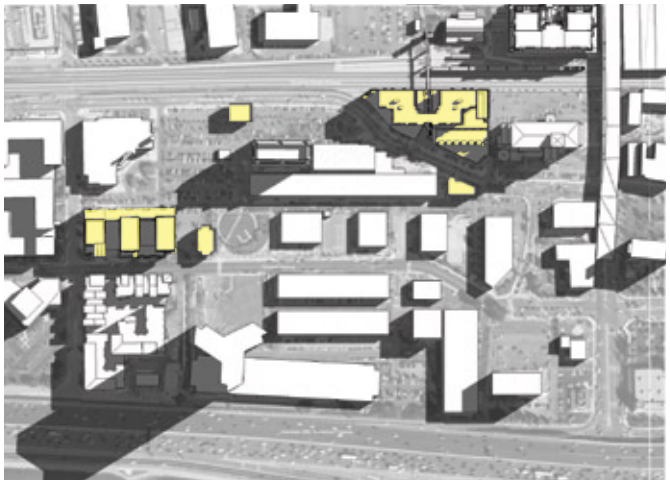
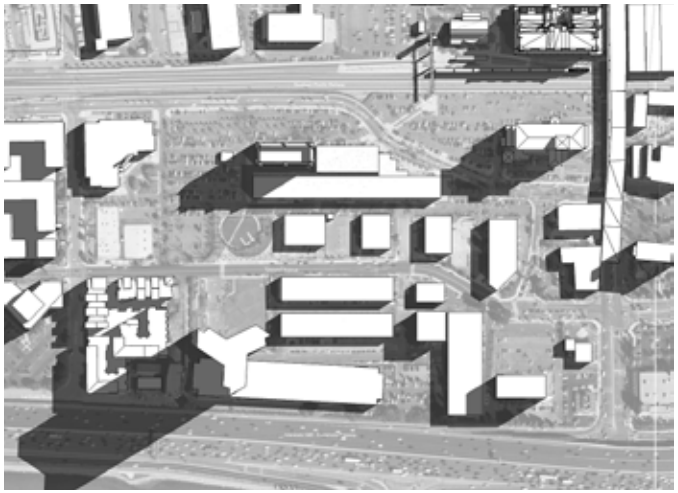


Proposed Project - 10:00 AM

Proposed Project - 12:00 noon



Alternative - 10:00 AM

Alternative - 12:00 noon

LSA

FIGURE A.H-5

Marketplace Redevelopment Project EIR

Shadow Patterns:
No Project Alternative
Winter Solstice - December 21
10 AM - 12 Noon

N

NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

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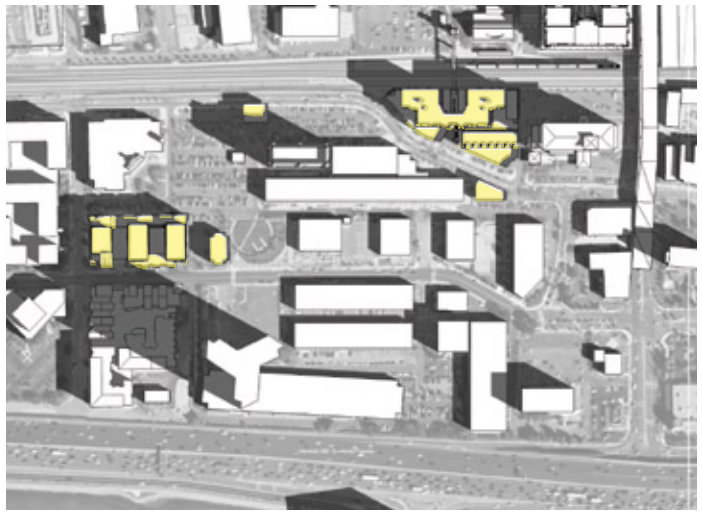

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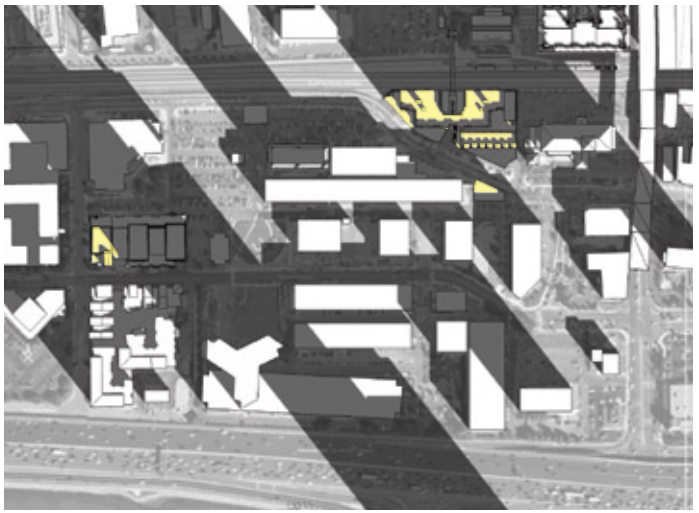

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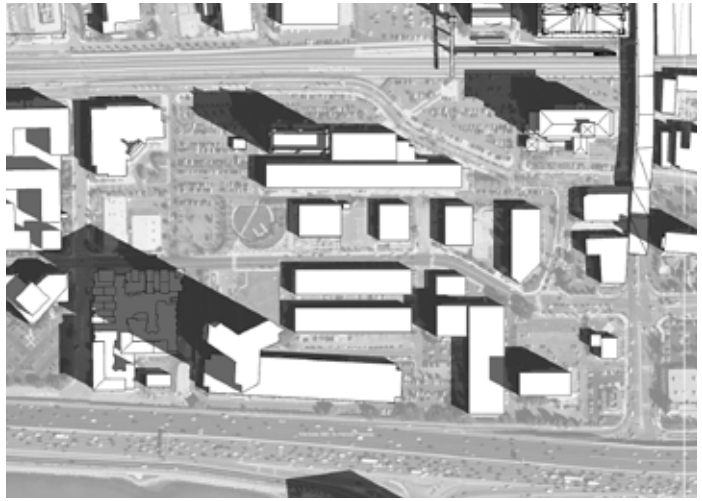

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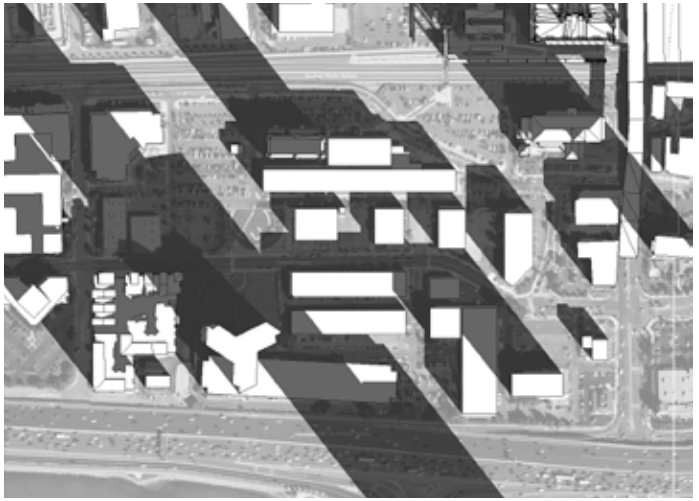

Alternative - 4:00 PM

LSA

FIGURE A.H-6

N

NOT TO SCALE

PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR

Shadow Patterns:

No Project Alternative

Winter Solstice - December 21

2 PM - 4 PM

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

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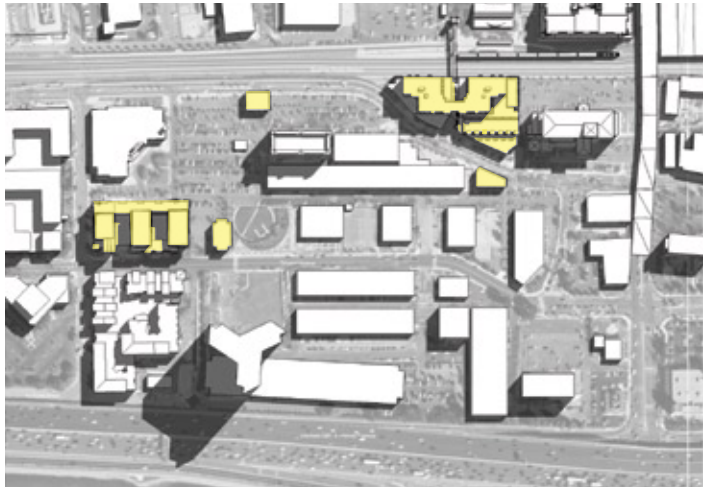
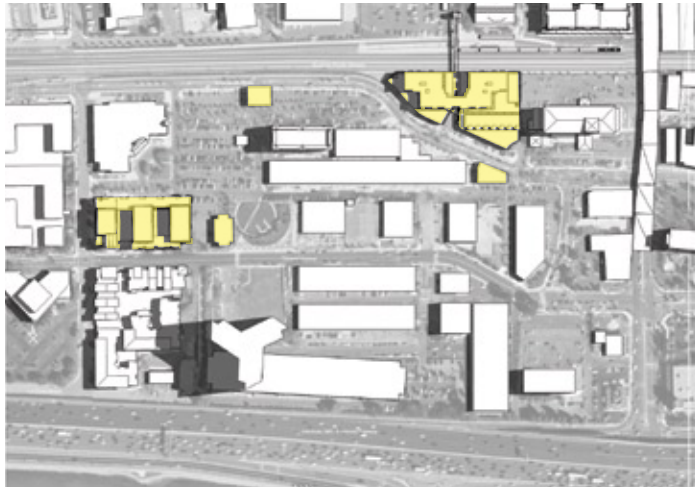


Proposed Project - 10:00 AM



Proposed Project - 12:00 noon

Alternative - 10:00 AM

Alternative - 12:00 noon

LSA

FIGURE A.H-7

Marketplace Redevelopment Project EIR

Shadow Patterns:
Reduced Project Alternative
Spring/Fall Equinox - March 21/September 21
10 AM - 12 Noon

N

NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

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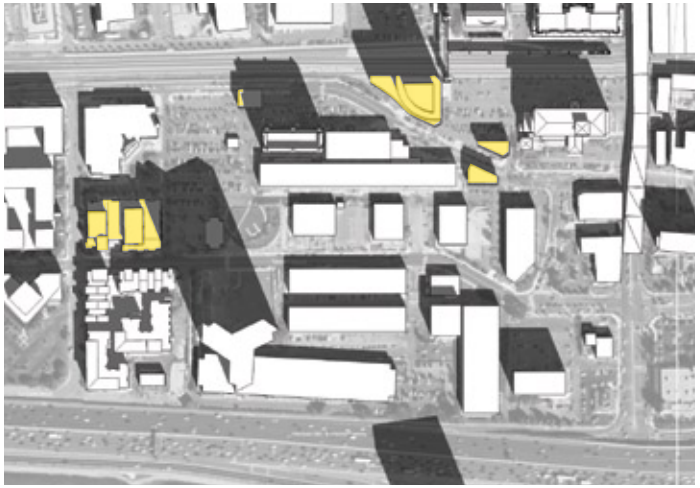
Proposed Project - 2:00 PM

Proposed Project - 4:00 PM

Alternative - 2:00 PM



Alternative - 4:00 PM

LSA

FIGURE A.H-8

Marketplace Redevelopment Project EIR

Shadow Patterns:
Reduced Project Alternative
Spring/Fall Equinox - March 21/September 21
2 PM - 4 PM

N

NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.
I:\CEM531 marketplace\figures\ADEIR #2\Fig_AH8.ai (2/23/07)

Proposed Project - 10:00 AM

Proposed Project - 12:00 noon

Alternative - 10:00 AM

Alternative - 12:00 noon

LSA

FIGURE A.H-9

Marketplace Redevelopment Project EIR

Shadow Patterns:
Reduced Project Alternative
Summer Solstice - June 21
10 AM - 12 Noon

N

NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

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Proposed Project - 2:00 PM

Proposed Project - 4:00 PM

Alternative - 2:00 PM

Alternative - 4:00 PM

LSA

FIGURE A.H-10

N

NOT TO SCALE

PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR

Shadow Patterns:
Reduced Project Alternative
Summer Solstice - June 21
2 PM - 4 PM

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

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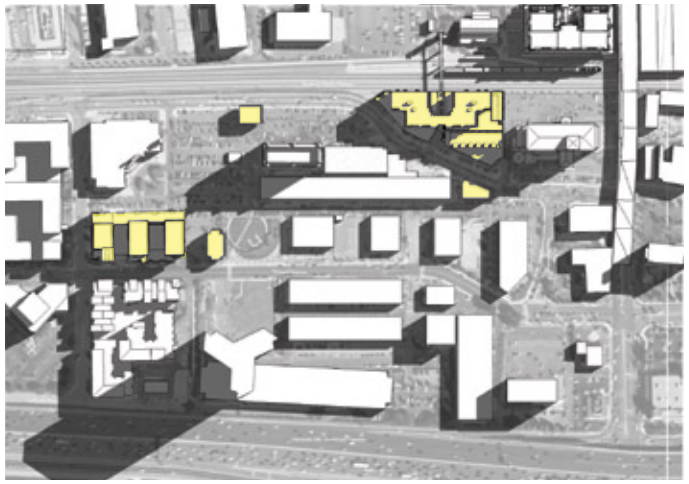

Proposed Project - 10:00 AM

Proposed Project - 12:00 noon

Alternative - 10:00 AM

Alternative - 12:00 noon

LSA

FIGURE A.H-11

Marketplace Redevelopment Project EIR

Shadow Patterns:
Reduced Project Alternative
Winter Solstice - December 21
10 AM - 12 Noon

N

NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

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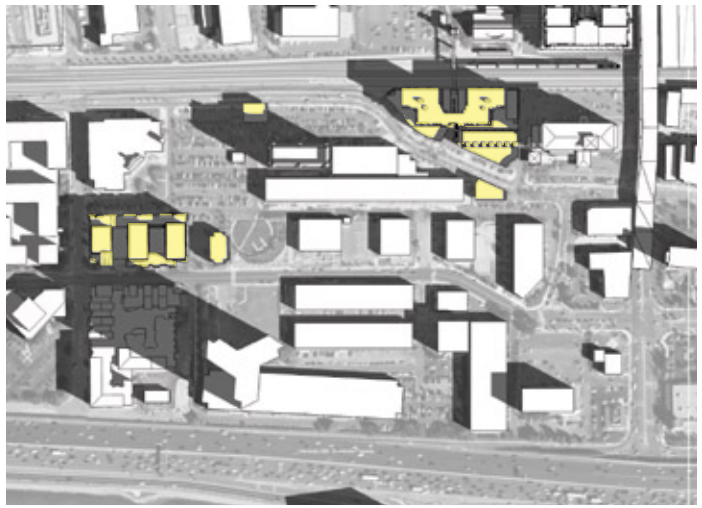
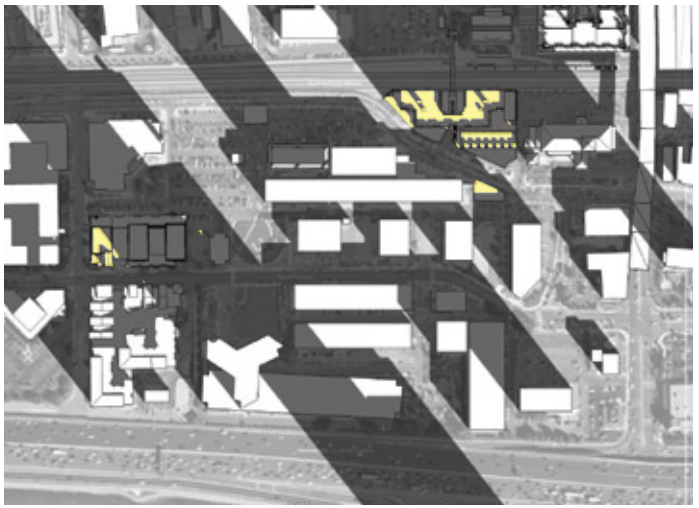


Proposed Project - 2:00 PM



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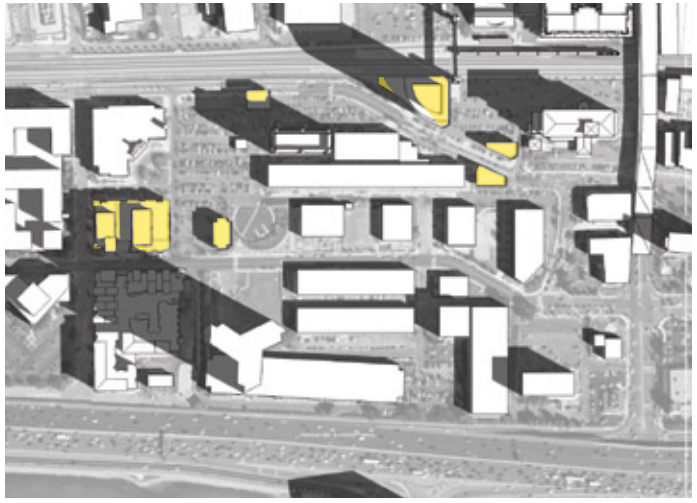

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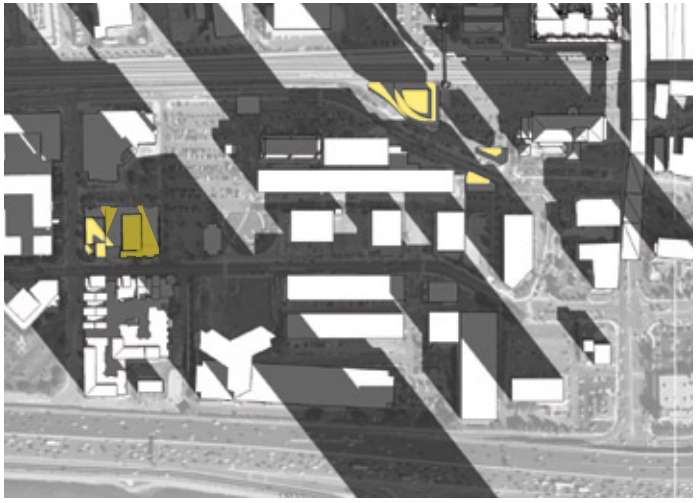


Alternative - 4:00 PM

LSA

FIGURE A.H-12

Marketplace Redevelopment Project EIR

Shadow Patterns:
Reduced Project Alternative
Winter Solstice - December 21
2 PM - 4 PM

N

NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

I:\CEM531 marketplace\figures\ADEIR #2\Fig_AH12.ai (2/23/07)

Proposed Project - 10:00 AM

Proposed Project - 12:00 noon

Alternative - 10:00 AM

Alternative - 12:00 noon

LSA

FIGURE A.H-13

Marketplace Redevelopment Project EIR

Shadow Patterns:

Tower Alternative (Phase II)

Spring/Fall Equinox - March 21/September 21

10 AM - 12 Noon

N

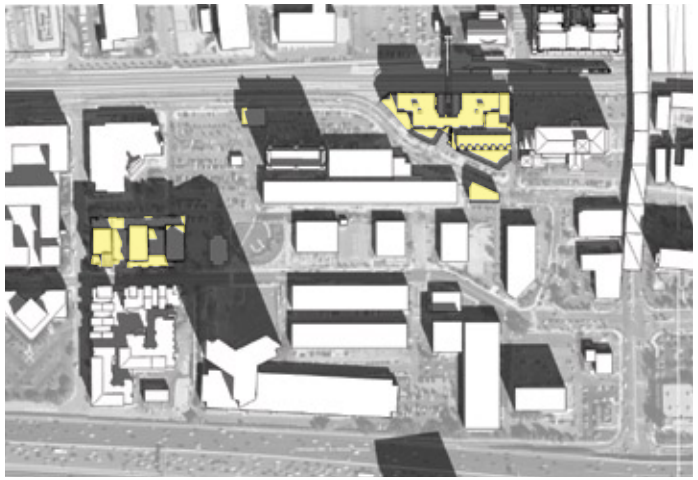
NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

I:\CEM531 marketplace\figures\ADEIR #2\Fig_AH13.ai (2/23/07)

Proposed Project - 2:00 PM



Proposed Project - 4:00 PM

Alternative - 2:00 PM

Alternative - 4:00 PM

LSA

FIGURE A.H-14

Marketplace Redevelopment Project EIR

Shadow Patterns:

Tower Alternative (Phase II)

Spring/Fall Equinox - March 21/September 21

2 PM - 4 PM

N

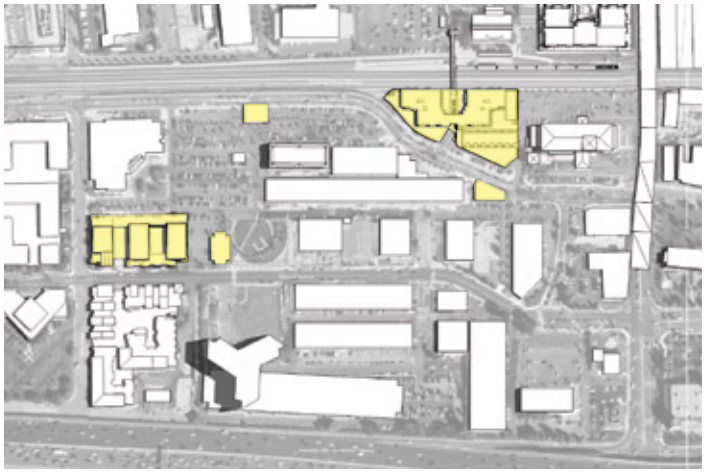
NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

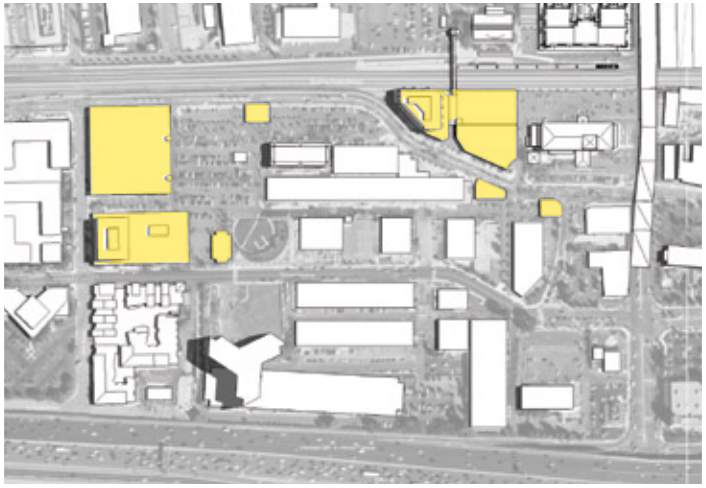
I:\CEM531 marketplace\figures\ADEIR #2\Fig_AH14.ai (2/26/07)

Proposed Project - 10:00 AM



Proposed Project - 12:00 noon

Alternative - 10:00 AM



Alternative - 12:00 noon

LSA

FIGURE A.H-15

Marketplace Redevelopment Project EIR

Shadow Patterns:
Tower Alternative (Phase II)
Summer Solstice - June 21
10 AM - 12 Noon

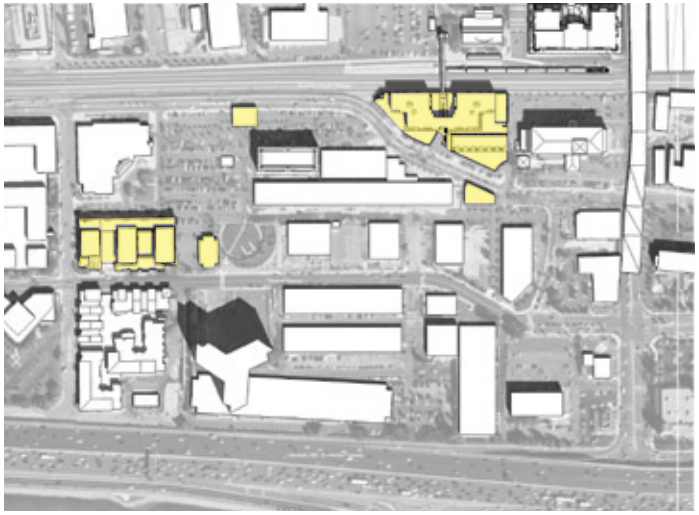
N

NOT TO SCALE

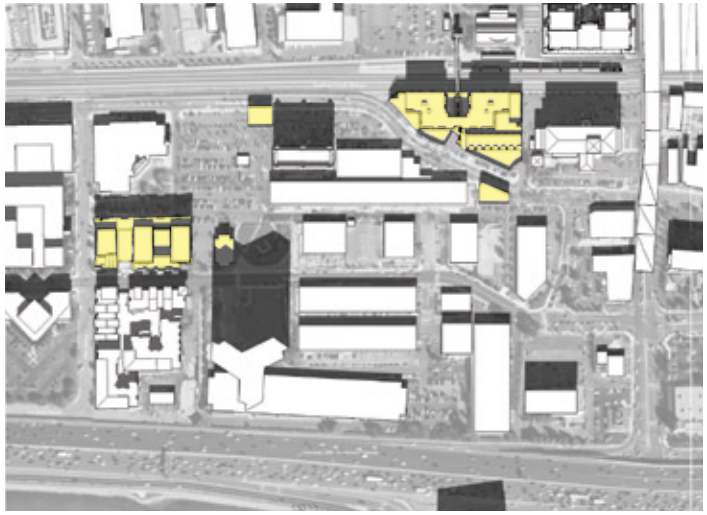
PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

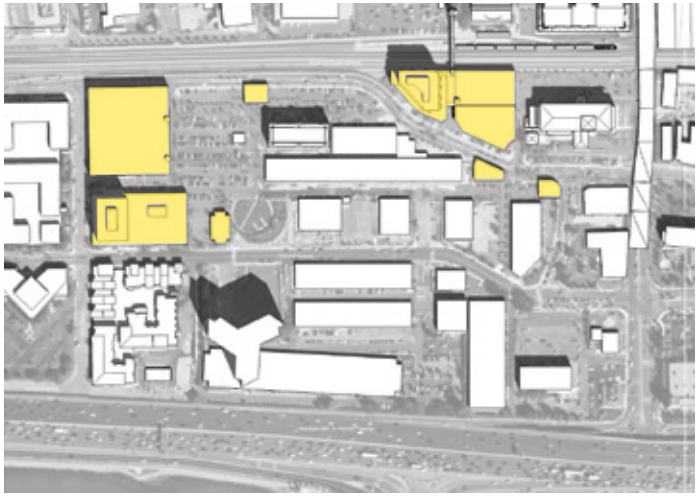
I:\CEM531 marketplace\figures\ADEIR #2\Fig_AH15.ai (2/26/07)



Proposed Project - 2:00 PM



Proposed Project - 4:00 PM



Alternative - 2:00 PM

Alternative - 4:00 PM

LSA

FIGURE A.H-16

N

NOT TO SCALE

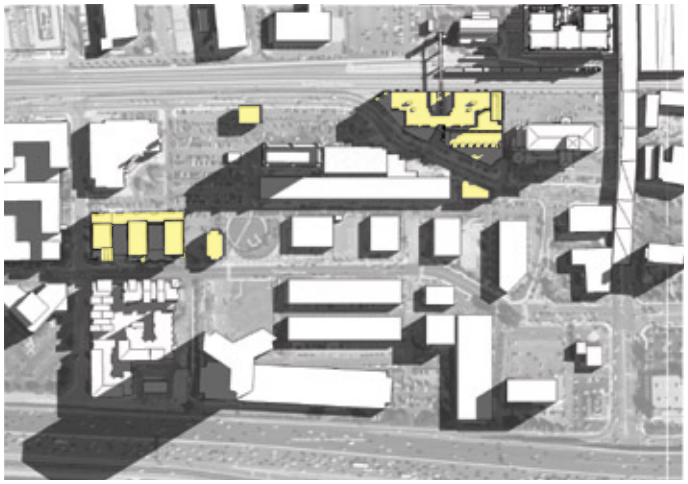
PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR

Shadow Patterns:
Tower Alternative (Phase II)
Summer Solstice - June 21
2 PM - 4 PM

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

I:\CEM531 marketplace\figures\ADEIR #2\Fig_AH16.ai (2/26/07)



Proposed Project - 10:00 AM

Proposed Project - 12:00 noon

Alternative - 10:00 AM

Alternative - 12:00 noon

LSA

FIGURE A.H-17

Marketplace Redevelopment Project EIR

Shadow Patterns:
Tower Alternative (Phase II)
Winter Solstice - December 21
10 AM - 12 Noon

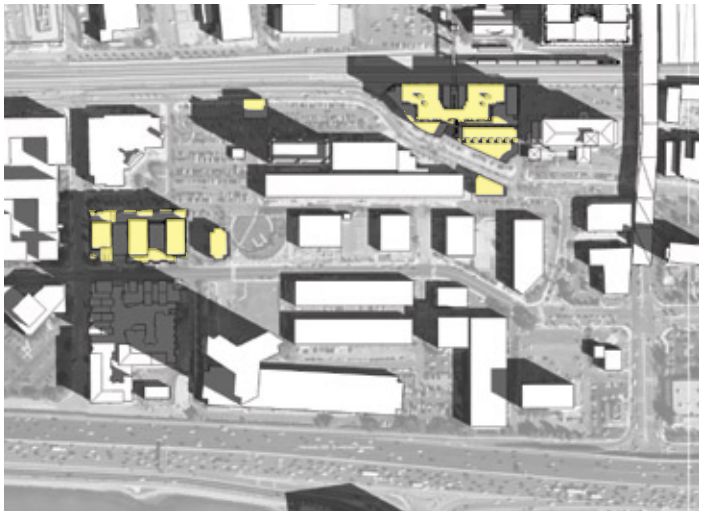
N

NOT TO SCALE

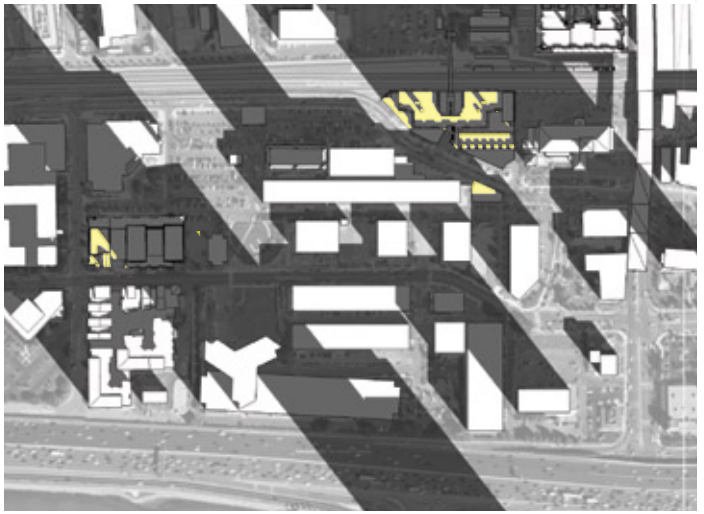
PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

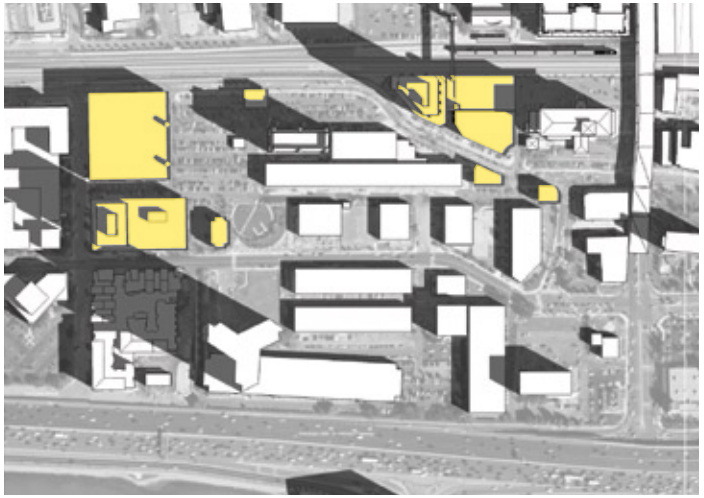
I:\CEM531 marketplace\figures\ADEIR #2\Fig_AH17.ai (2/26/07)



Proposed Project - 2:00 PM



Proposed Project - 4:00 PM



Alternative - 2:00 PM

Alternative - 4:00 PM

LSA

FIGURE A.H-18

Marketplace Redevelopment Project EIR

Shadow Patterns:
Tower Alternative (Phase II)
Winter Solstice - December 21
2 PM - 4 PM

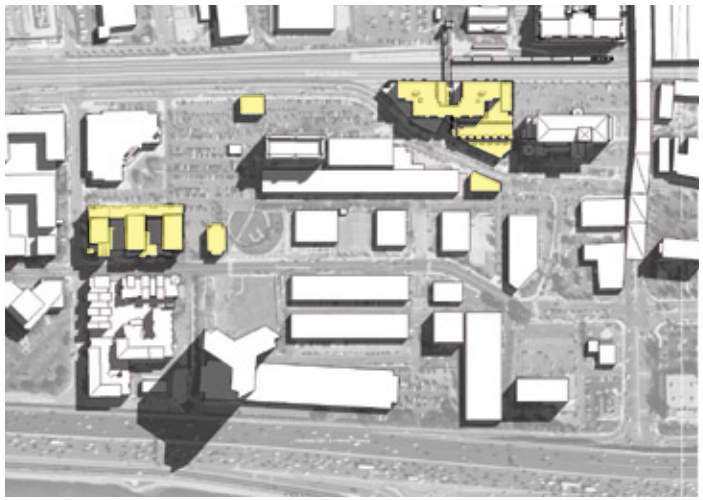
N

NOT TO SCALE

PROPOSED BUILDINGS

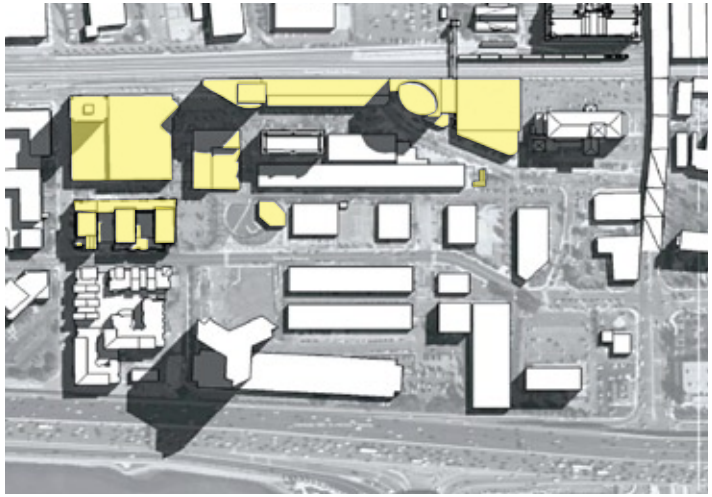
SOURCE: HELLER·MANUS ARCHITECTS, OCTOBER, 2006.

I:\CEM531 marketplace\figures\ADEIR #2\Fig_AH18.ai (2/26/07)



Proposed Project - 10:00 AM

Proposed Project - 12:00 noon



Alternative - 10:00 AM

Alternative - 12:00 noon

LSA

FIGURE A.H-19

Marketplace Redevelopment Project EIR

Shadow Patterns:
Main Street Alternative
Spring/Fall Equinox - March 21/September 21
10 AM - 12 Noon

N

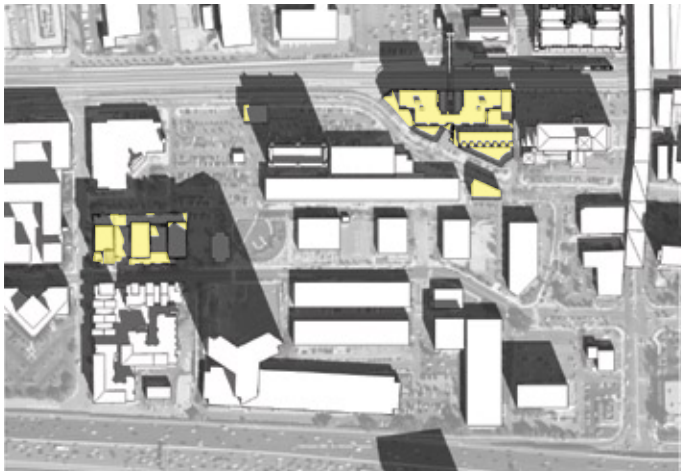
NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, 2007.

I:\CEM531 marketplace\figures\Fig_AH19.ai (6/6/07)

Proposed Project - 2:00 PM



Proposed Project - 4:00 PM

Alternative - 2:00 PM

Alternative - 4:00 PM

LSA

FIGURE A.H-20

Marketplace Redevelopment Project EIR

Shadow Patterns:

Main Street Alternative

Spring/Fall Equinox - March 21/September 21

2 PM - 4 PM

N

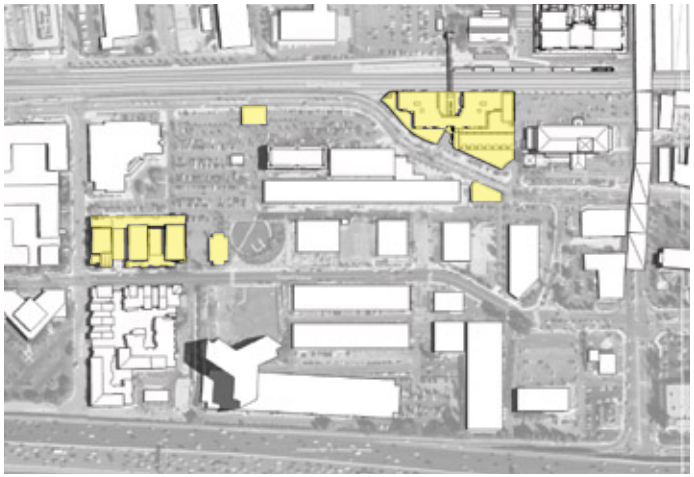
NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, JUNE 2007.

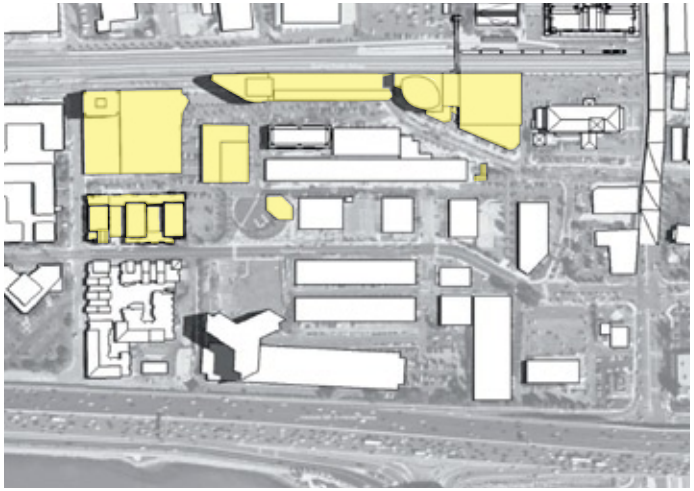
I:\CEM531 marketplace\figures\ADEIR #2\Fig_AH20.ai (6/6/07)

Proposed Project - 10:00 AM



Proposed Project - 12:00 noon

Alternative - 10:00 AM



Alternative - 12:00 noon

LSA

FIGURE A.H-21

Marketplace Redevelopment Project EIR

Shadow Patterns:
Main Street Alternative
Summer Solstice - June 21
10 AM - 12 Noon

N

NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, JUNE 2007

I:\CEM531 marketplace\figures\ADEIR #2\Fig_AH21.ai (6/6/07)

Proposed Project - 2:00 PM

Proposed Project - 4:00 PM

Alternative - 2:00 PM

Alternative - 4:00 PM

LSA

FIGURE A.H-22

Marketplace Redevelopment Project EIR

Shadow Patterns:
Main Street Alternative
Summer Solstice - June 21
2 PM - 4 PM

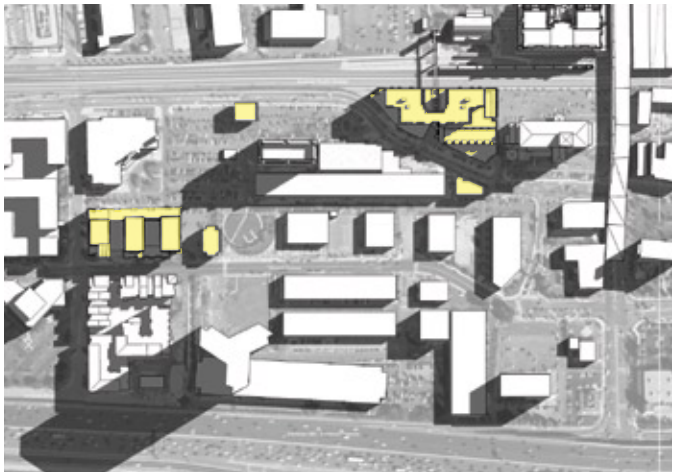
N

NOT TO SCALE

PROPOSED BUILDINGS

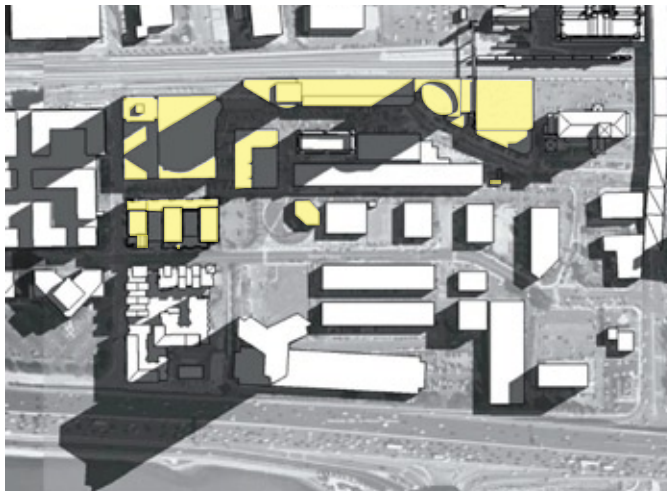
SOURCE: HELLER·MANUS ARCHITECTS, 2007.

I:\CEM531 marketplace\figures\ADEIR #2\Fig_AH22.ai (6/6/07)



Proposed Project - 10:00 AM

Proposed Project - 12:00 noon



Alternative - 10:00 AM

Alternative - 12:00 noon

LSA

FIGURE A.H-23

N

NOT TO SCALE

PROPOSED BUILDINGS

Marketplace Redevelopment Project EIR

Shadow Patterns:

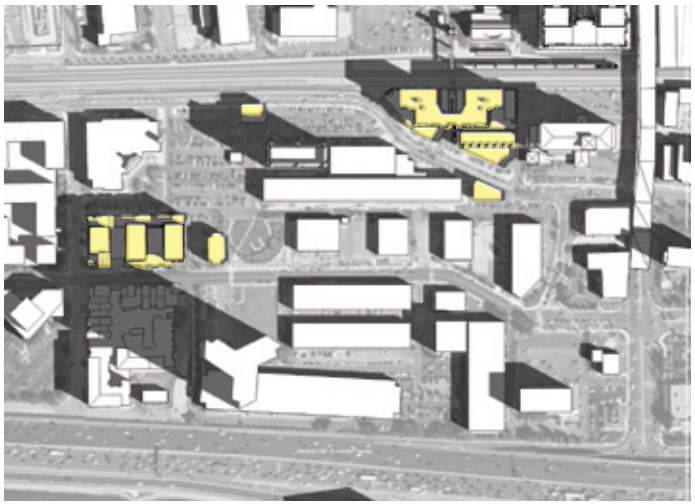
Main Street Alternative

Winter Solstice - December 21

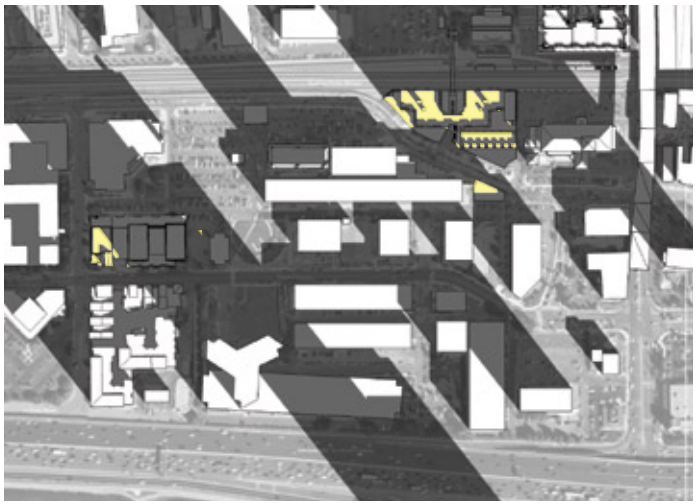
10 AM - 12 Noon

SOURCE: HELLER·MANUS ARCHITECTS, JUNE 2007.

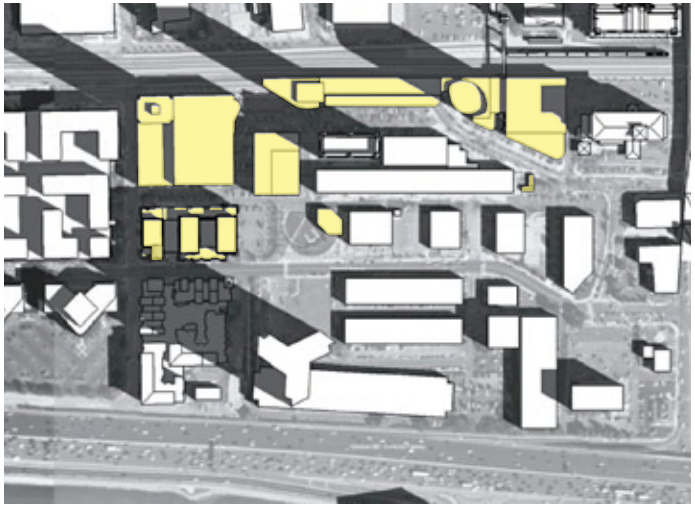
I:\CEM531 marketplace\figures\ADEIR #2\Fig_AH23.ai (6/6/07)



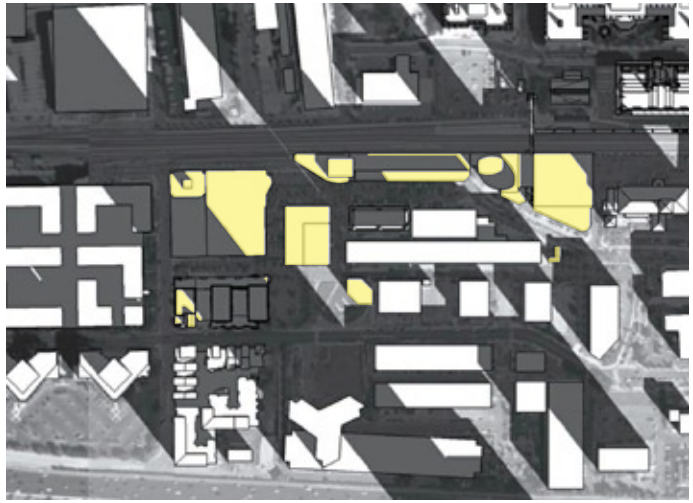
Proposed Project - 2:00 PM



Proposed Project - 4:00 PM



Alternative - 2:00 PM



Alternative - 4:00 PM

LSA

FIGURE A.H-24

Marketplace Redevelopment Project EIR

Shadow Patterns:
Main Street Alternative
Winter Solstice - December 21
2 PM - 4 PM

N

NOT TO SCALE

PROPOSED BUILDINGS

SOURCE: HELLER·MANUS ARCHITECTS, JUNE 2007.

I:\CEM531 marketplace\figures\ADEIR #2\Fig_AH24.ai (6/6/07)