KEYSER MARSTON ASSOCIATES

Non-Residential
Jobs-Housing Nexus Study

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City of Emeryville

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June 2014

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INTRODUCTION

The following report summarizes an analysis of the linkages between non-residential development in Emeryville and the demand for additional affordable housing. The analysis, which demonstrates support for a Housing Impact Fee, has been prepared by Keyser Marston Associates for the City of Emeryville in accordance with a contractual agreement.

The City of Emeryville does not currently have a housing impact fee levied on non-residential development. Residential development in Emeryville has been subject to the City's Affordable Housing Set Aside (AHSA) Ordinance, adopted in 1990, which requires a specified share of all units be deed restricted for low to moderate income households. This residential program is being updated and altered to meet changes in the legal environment since 1990. KMA is preparing a Residential Nexus Analysis as part of the revision and update program This non-residential analysis supports expansion of the affordable housing program to include fees on non-residential development. The affordable housing program is also being expanded and revised in response to the end of redevelopment in California, which generated substantial resources for affordable housing in Emeryville.

Purpose

The purpose of a nexus analysis is to quantify and document the linkages among construction of new work place buildings (office, retail, etc.), the employees that work in them, and the demand for affordable housing. Since jobs in all buildings cover a range in compensation levels, and the households of the workers range in size, there are needs at all affordability levels. This analysis quantifies the need at the moderate and lower income affordability levels associated with each type of workplace building.

This analysis is conducted to meet the requirements of several U. S. Supreme Court decisions and California Code Section 66000 et seq. (which is sometimes referred to as "the Mitigation Fee Act"). Such analyses are called linkage or nexus analyses.

Analysis Scope and Organization

The workplace buildings that are the subject of this analysis represent a cross section of typical commercial buildings developed in Emeryville in recent years and expected to be built in the near term future. For purposes of the analysis, the following building types were identified:

- Office
- Retail / Restaurant
- Hotel
- Research & Development / Biotech

For consistency among analyses being conducted at this time, the prototypes tested in the non-residential analysis are the same as those selected for the analyses being conducted by Willdan Financial Services for other types of fees.

The household income categories addressed in the analysis are the same as those in the AHSA program and the Residential Nexus Analysis also being prepared by KMA at this time.

Data Sources and Qualifications

The analyses in this report have been prepared using the best and most recent data available. Local and current data was used whenever possible. Sources such as the American Community Survey of the U.S. Census, the 2010 Census, and California Employment Department data were used extensively. Other sources and analyses when used are noted in the text and footnotes. While we believe all sources utilized are sufficiently accurate for the purposes of the analyses, we cannot guarantee their accuracy. Keyser Marston Associates, Inc. assumes no liability for information from these and other sources.

SECTION I: THE NEXUS CONCEPT

Introduction

This section outlines the nexus concept and some of the key issues surrounding the linking of new non-residential development to the demand for affordable residential units in the City of Emeryville. The nexus analysis and discussion focus on the relationships among development, growth, employment, income of workers and demand for affordable housing. The analysis yields a connection between new construction of the types of buildings in which there are workers and the need for additional affordable housing, a connection that is quantified both in terms of number of units and the amount of subsidy assistance needed to make the units affordable.

The Legal Basis and Context

The first jobs-housing linkage programs were adopted in the cities of San Francisco and Boston in the mid-1980s. To support the linkage, the City of San Francisco commissioned an analysis to show the relationships, or what might now be characterized as an early version of a nexus analysis. Since that time there have been several court cases and California statutes that affect what local jurisdictions must demonstrate when imposing impact fees on development projects. The most important U.S. Supreme Court cases are *Nollan v. California Coastal Commission* and *Dolan v. City of Tigard* (Oregon). The rulings on these cases, and others, help clarify what governments must find in the way of the nature of the relationship between the problem to be mitigated and the action contributing to the problem. Here, the problem is the lack of affordable housing and the action contributing to the problem is building workspaces that mean more jobs and worker households needing more affordable housing.

Following the Nollan decision in 1987, the California legislature enacted AB 1600 which requires local agencies proposing an impact fee on a development project to identify the purpose of the fee, the use of the fee, and to determine that there is a reasonable relationship between the fee's use and the development project on which the fee is imposed. The local agency must also demonstrate that there is a reasonable relationship between the fee amount and the cost of mitigating the problem that the fee addresses. Studies by local governments designed to fulfill the requirements of AB 1600 are often referred to as AB 1600 or "nexus" studies.

One court case that involved housing linkage fees was *Commercial Builders of Northern California v. City of Sacramento*. The commercial builders of Sacramento sued the City following the City's adoption of a housing linkage fee. Both the U.S. District Court and the Ninth Circuit Court of Appeals upheld the City of Sacramento and rejected the builders' petition. The U.S. Supreme Court denied a petition to hear the case, letting stand the lower court's opinion.

Since the Sacramento case in 1991 there have been several additional court rulings reaffirming and clarifying the ability of California cities to adopt impact fees. A notable case was *The San*

Remo Hotel v. the City and County of San Francisco, which upheld the impact fee levied by the City and County on the conversion of residence hotels to tourist hotels and other uses. The court found that a suitable nexus, or deleterious impact, had been demonstrated. In 2009, in the *Building Industry Association of Central California v. the City of Patterson*, the Court invalidated the City's fee because a valid nexus linking the impact of the proposed project to the fee, had not been demonstrated. In 2010, a court ruling upheld most of the impact fees levied by the City of Lemoore, in Southern California. Of note relevant to housing impact fees was the judges' opinion that a "fee" may be "established for a broad class of projects by legislation of general applicability….the fact that specific construction plans are not in place does not render the fee unreasonable." In other words, cities do not have to identify specific affordable housing projects to be constructed at the time of adoption.

In summary, the case law at this time appears to be fully supportive of jobs housing impact fees.

The Nexus Methodology

An overview of the basic nexus concept and methodology is helpful to understand the discussion and concepts presented in this section. This overview consists of a quick "walk through" of the major steps of the analysis. The nexus analysis links new commercial buildings with new workers in the City; these workers demand additional housing in proximity to the jobs, a portion of which needs to be affordable to the workers in lower income households.

The methodology utilized in this analysis is a "micro" analysis that examines individual buildings. The micro nexus analysis readily lends itself to quantification that serves as a basis for the nexus cost, or the maximum fee amount for each building type.

To illustrate the micro nexus analysis, very simply, we can walk through the major calculations of the analysis. We begin by assuming a prototypical building of some specific size and then make calculations as follows:

- We estimate the total number of employees working in the building based on average employment density data.
- We use occupation and income information for typical job types in the building to calculate how many of those jobs pay compensation at the levels addressed in the analysis. Compensation data is from the California Employment Development Department (EDD) and is specific to Alameda County as of 2013. Worker occupations by building type are derived from the 2012 Occupational Employment Survey by the U.S. Bureau of Labor Statistics.
- We know from the Census that many workers are members of households where more than one person is employed and there is also a range of household sizes; we use factors derived from the Census to translate the number of workers into households of various size represented in each income category.

- Then, we calculate how many of the Very Low-, Low- and Moderate-Income households are associated with the building and divide by the building size to arrive at coefficients of housing units per square foot of building area.
- In the last step, we multiply the number of lower income households per square foot by the costs of delivering housing units affordable to these income groups.

The Relationship Between Construction and Job Growth

Employment growth does not have one cause. Many factors underlie the reasons for growth in employment in a given region; these factors are complex, interrelated, and often associated with forces at the national and international levels. One of the factors is the delivery of new workspace buildings. The nexus argument does not make the case that the construction of new buildings is solely responsible for growth. However, new construction is uniquely important, first, as one of a number of parallel factors contributing to growth, and second, as a unique and essential condition precedent to growth.

As to the first, construction itself encourages growth. When the state economy is growing, the most rapidly growing areas in the state are those where new construction is vigorous as a vital industry. In regions such as the Bay Area where multiple forces of growth exist, the development industry frequently serves as a proactive force inducing growth to occur or be attracted to specific geographic areas or locations by providing new work spaces, particularly those of a speculative nature.

Second, workplace buildings bear a special relationship to growth, different from other parallel causes, in that buildings are a *condition precedent* to growth. Job growth does not occur in modern service economies without buildings to house new workers. Unlike other factors that are responsible for growth, buildings play the additional unique role in that growth cannot occur without them for a sustained period of time. Conversely, it is well established that the inability to construct new workplace buildings will constrain or even halt job growth.

Discount for Changing Industries

The local economy, like that of the U.S. as a whole, is constantly evolving. In the Oakland, Fremont, Hayward Metropolitan Division (defined as Alameda and Contra Costa Counties), over the past twenty years, employment in manufacturing sectors of the economy has continued to decline along with employment in State and Federal government, telecommunications, and banking. Defense related employment has also declined from around 12,000 jobs twenty years ago to near zero today. Jobs lost over the last decade in these declining sectors were replaced by job growth in other industry sectors.

The analysis makes an adjustment to take these declines, changes and shifts within all sectors of the economy into account, recognizing that jobs added are not 100% net new in all cases. A 25% adjustment is utilized based on the long term shifts in employment that have occurred in

some sectors of the local economy and the likelihood of continuing changes in the future. Long term declines in employment experienced in some sectors of the economy mean that some of the new jobs are being filled by workers that have been displaced from another industry and who are presumed to already have housing locally. Existing workers downsized from declining industries are assumed to be available to fill a portion of the new retail, restaurant, health care, and other jobs associated with services to residents. This is a conservative assumption given some displaced workers may exit the workforce entirely by retiring rather than seek a new job in one of the industries serving new residents.

The 25% downward adjustment used for purposes of the analysis was derived from California Employment Development Department data on employment by industry in Alameda and Contra Costa County over the twenty year period from 2012 to 1992. The 2012 data set reflects a higher unemployment rate at 9% than the 6.6% unemployment rate in 1992 which will tend to overstate any long term declines since the 2012 data also reflects some cyclical or short term declines relative to the 1992 employment data. Over this period, approximately 38,000 jobs were lost in declining industry sectors. Over the same period, growing and stable industries added a total of 158,000 jobs. Figures are adjusted to exclude losses in Department of Defense employment given there are almost no defense jobs left in the area and so continuing declines in this sector is not expected to be a factor in the future. The figures are used to establish a ratio between jobs lost in declining industries to jobs gained in growing and stable industries at 25%. The 25% factor is applied as an adjustment in the analysis, effectively assuming one in every four jobs in a building is filled by a worker down-sized from a declining industry and who already lives locally.

See the table below for additional information on the derivation of the 25% adjustment factor for declining industries:

Adjustment for Declining Industries

Jobs Lost in Declining Industries (1992 – 2012)*	(37,900)
Jobs Created in Growing Industries (1992 – 2012)	158,000
Ratio of Jobs Lost/Gained in Declining Industry Sectors versus Growing Industry Sectors	23.9%
Adjustment for Declining Industries (Rounded)	**25%**

*Excluding Department of Defense jobs, which were almost entirely eliminated over that time period. Further job loss in that sector cannot occur and therefore these jobs are not included.

Source: California Employment Development Department (EDD)

Other Factors and Assumptions

Appendix A provides a discussion of other specific factors in relation to the nexus concept including housing needs of the existing population, multiplier effects, non-duplication between a residential housing impact fee and a non-residential housing impact fee, changes in labor force participation, commuting, and economic cycles.

SECTION II: JOBS HOUSING NEXUS ANALYSIS

This section presents a summary of the analysis of the linkage between four types of workplace buildings and the estimated number of worker households in the income categories that will, on average, be employed within those buildings. This section should not be read or reproduced without the narrative presented in the previous sections.

Analysis Approach and Framework

The analysis establishes the jobs housing linkages for individual building types or land use activities, quantifying the connection between employment growth in Emeryville and affordable housing demand.

The analysis approach is to examine the employment associated with the development of workplace building prototypes. Then, through a series of linkage steps, the number of employees is converted to households and housing units by affordability level. The findings are expressed in terms of numbers of households related to building area. In the final step, we convert the numbers of households for an entire building to the number of households per square foot level.

For ease of understanding, KMA conducts the analysis on prototype buildings. The prototypes were developed by Willdan Financial Services, in their fee analysis conducted for the City (*Revised Development Fee Comparison,* Willdan Financial Services, November 8, 2013). The prototypes are based on recent development activity in the City and are designed to represent what will likely be built in Emeryville in the near-term future. The four prototypes are as follows:

- *Office – a* 100,000 square foot office building.
- *Retail / Restaurant* – 20,000 square feet of retail space and 5,000 square feet of restaurant space
- *Hotel* – a 70,000 square foot, 200-room hotel.
- *Research & Development (R&D) / Biotech* – a 150,000 square foot building.

While the prototypes represent particular examples within the categories, each category covers a wide variety of building types and together, the four categories are designed to encompass most new buildings to be constructed by the private sector in the near-term future in Emeryville. The Office category is designed to represent the range of office tenants locating in Emeryville, from small professional offices and medical offices to headquarters of companies, including Pixar. The Retail / Restaurant category encompasses the full range of retail categories, restaurants, movie theaters, as well as other entertainment uses. The Hotel category also includes motels and extended stay hotels. The R&D / Biotech category is intended to cover office and laboratory structures focused on research and development in physical, engineering and life sciences, including biotechnology.

Household Income Limits

The analysis estimates demand for affordable housing focusing on three household income categories: Very Low, Low and Moderate Income. Household income criteria for these affordability categories are published by the California Department of Housing and Community Development (HCD). For a four-person household, the maximum qualifying income levels for 2013 in Alameda County are:

Household Income Definitions (Alameda County, 2013)

Income Category	***Percent of Median***[1]	***Income Range*** (Four Person Household)
Very Low Income	0% to 50% of Median	$0 to $46,750
Low Income	51% to 80% of Median	$46,751 to $66,250
Moderate Income	81% to 120% of Median	$66,251 to $112,200

Source: California Department of Housing and Community Development.

The above income categories are set and utilized by HUD and HCD for most housing programs. Income definitions for other household sizes are presented in Appendix B Table 1.

When workers form households, their income, either alone or in combination with other workers, produces the household income. In addition, of course, there may be children and/or other household members who are not employed. According to HUD, as published by HCD, the annual median income of a four-person household in Alameda County for 2013 was $93,500.

Analysis Steps

The analysis is conducted using a model that KMA has developed for application in many jurisdictions for which the firm has conducted similar analyses. The model inputs are all local data to the extent possible, and are fully documented.

Tables II-1 through II-4 at the end of this section summarize the nexus analysis steps for the four building types. Following is a description of each step of the analysis:

Step 1 – Estimate of Total New Employees

The first step in Table II-1 identifies the total number of direct employees who will work at or in the building type being analyzed. Average employment density factors are used to make the conversion.

[1] Percentage range for Low Income households presented as 51% to 80% but technically all households earning from just above 50% through 80% of Area Median Income are included. The same is true for the Moderate income category.

The employment density estimates for office, hotel and retail space were based upon the assumptions underlying the General Plan; these assumptions were developed by the City's consultants Fehr & Peers. The assumptions are consistent with those employed in other impact fee studies being prepared at this time.

The employment density estimate for restaurant space was derived from the 2010 Restaurant Industry Operations Report produced by the National Restaurant Association. (The employment densities for retail and restaurant spaces were established separately and then weighted to establish an overall employment density for that prototype.) For R&D/Biotech spaces, KMA utilized the Association of Bay Area Government's estimate of employment density from the ITE Trip Generation Manual, 5th Edition. Average densities are computed based on gross building area taking into account the lobby, corridors, restrooms, etc. Vacancy is also built into the employment density factors:

- *Office* – 3.6 employees per 1,000 square feet of building area. This figure was derived from the General Plan.

- *Retail / Restaurant* – 2.6 employees per 1,000 square feet of building area. This is a weighted average between retail space (2.0 employees per 1,000 square feet of building area) and restaurant space (5.0 employees per 1,000 square feet of building area). The retail figure was derived from the General Plan as well, and it includes a range of retail types. The restaurant figure was derived from the 2010 Restaurant Industry Operations Report and applies to limited service restaurants. Full service restaurants at various price points all have more employees per 1,000. KMA selected the low end of the density range applicable to limited service restaurants to be conservative.

- *Hotel* – 1.0 employee per 1,000 square feet. This employment density is derived from the General Plan.

- *R&D / Biotech* – 2.5 employees per 1,000 square feet of building area.

All density factors are averages and individual uses can be expected to be fairly divergent from the average from time to time. The City may wish to include a provision in the ordinance for a waiver or a custom impact fee in cases where employment densities vary greatly from the average.

As discussed above, KMA conducted the analysis on prototype buildings, using the same size building as the other fee analyses. The prototypes facilitate the presentation of the nexus findings, as it allows us to count jobs and housing units in whole numbers that can be readily communicated and understood. At the conclusion of the analysis, the findings are divided by building size to express the linkages per square foot, which are very small fractions of housing units.

Step 2 – Adjustment for Changing Industries

This step is an adjustment to take into account any declines, changes and shifts within all sectors of the economy and to recognize that new space is not always 100% equivalent to net new employees. As discussed in Section I, a 25% adjustment is utilized to recognize the long-term shifts in employment occurring in Alameda and Contra Costa Counties and the likelihood of continuing changes to the local economy.

For demolition of existing structures, the City may wish to provide a credit or offset to the fee when demolition of existing structures occurs as part of a project. Typically, the fee would only be charged against net new space added by a project.

Step 3 – Adjustment from Employees to Employee Households

This step (Table II-1) converts the number of employees to the number of employee households that will work at or in the building type being analyzed. This step recognizes that there is, on average, more than one worker per household, and thus the number of housing units in demand for new workers must be reduced.

The workers per household characteristic provides the link between the number of employees and the number of households associated with the employees. Worker households are defined as those households with one or more persons with work related income, including the self-employed, as reported in the 2010-2012 American Community Survey (ACS). In other words, worker households are distinguished from total households in that the universe of worker households does not include elderly or other households in which members are retired or do not work for other reasons. Student households and unemployed households on public assistance are also excluded from worker households.

The number of workers per household in a given geographic area is a function of household size, labor force participation rate and employment availability, as well as other factors. According to the 2010-2012 ACS, the number of workers per worker household in Alameda County was 1.61. Since workers in the City of Emeryville live all over Alameda County and beyond, the County average is used in the analysis.

Step 4 – Occupational Distribution of Employees

The occupational breakdown of employees is the first step to arriving at income levels. Using the 2012 National Industry-Specific Occupational Estimates, a cross matrix of “industries” and occupations, produced by the Bureau of Labor Statistics (BLS), we are able to estimate the occupational composition of employees in the five types of buildings. The occupations that reflect the expected mix of activities in the new buildings are presented in Appendix B Tables 2, 4, 6, 8 and 10 (the occupations for retail and restaurants are presented separately).

- Office buildings' "industry" mix has been tailored to reflect the industry base in Alameda County and Emeryville, in particular. The industry mix has been customized based on employment by industry sector in Alameda County using California Employment Development Department data. The mix was further customized to reflect the significant presence of Pixar in Emeryville. Employment is concentrated in the motion picture production, computer systems design and information services industries. Medical offices and professional services are also represented. Occupation categories applicable to the Office industry mix in Emeryville encompass a range of management, business and financial, computer and mathematical, architecture and engineering occupations, among others. Administrative support occupations comprise 23% of all Office related employment.

- Retail employment consists of predominantly sales related occupations (54%), with office and administrative support occupations making up an additional 17%. These two occupation categories together account for 71% of retail workers. The remaining 29% of retail workers are in occupations that include food preparation, personal care and service, transportation, and production. Occupation categories are based upon a mix of Retail uses tailored to Alameda County based on current employment levels reported by EDD. The retail category includes movie theaters.

- Restaurant employment is dominated by food preparation and serving occupations (92%). The remaining 8% of occupations includes management, sales, and other occupations. Retail and restaurant employment is then weighted according to the square footage of each use in the prototype (20,000 square feet of retail, 5,000 square feet of restaurant space); the weighted employment result is presented in Table II-1.

- Hotels employ workers primarily from three main occupation categories: building and grounds cleaning and maintenance (maid service, etc.), food preparation and serving related, and office and administrative support, which together make up 77% of Hotel workers. Other Hotel occupations include personal care, management, sales, production and maintenance and repair.

- R&D / Biotech occupations include life, physical and social science occupations (26%), architecture and engineering occupations (17%), computer and mathematical occupations (12%) and management occupations (11%). Business and financial occupations, and office administration and support occupations each make up an additional 10% of R&D/Biotech occupations.

The numbers in Step #4 (Table II-1) indicate both the percentage of total employee households and the number of employee households in the prototype buildings.

Step 5 – Estimated Employee Household Income

In this step, occupation is translated to income based on recent Alameda County wage and salary information for the occupations associated with each building type. This step in the analysis calculates the number of employee households that fall into each income category for each size household.

The following is a summary of the worker compensation levels for the three top occupation groups by building type. The percentages refer to the share of employment within the building in the occupation group. Appendix B, Tables 3, 5, 7, 9 and 11 show the more detailed wage and salary information that were used as the income inputs to the model. Worker compensations used in the analysis assume full time employment (40 hours per week).

Alameda County Worker Compensations by Building Type (2013)

Building Type	**Major Occupation Group**	**% of Employment in Building**	**Average Annual Worker Compensation** (based on full time)
Office	Office and administrative support	23%	$44,400
	Computer and Mathematical	16%	$97,000
	Business and Financial	13%	$87,300
Retail/Restaurant	Food preparation and serving	38%	$22,700
	Sales and related occupations	34%	$30,500
	Office and administrative support	11%	$35,700
Hotel	Building and grounds cleaning and maintenance	32%	$30,800
	Food preparation and serving	25%	$23,700
	Office and administrative support	20%	$30,500
R&D/ Biotech	Life, Physical and Social Science	26%	$84,500
	Architecture and Engineering	17%	$105,100
	Computer and Mathematical	12%	$103,100

Source: California Employment Development Department, 2012 Occupational Employment Statistics Survey, Wages 1st Quarter 2013.

The occupations with the lowest compensation levels are in Retail / Restaurant and Hotel buildings.

Individual *employee* income data was used to calculate the number of *households* that fall into these income categories by assuming that multiple earner households are, on average, formed of individuals with similar incomes. The model recognizes some households have multiple incomes while others do not.

Step 6 – Estimate of Household Size Distribution

In this step, household size distribution is input into the model in order to estimate the income and household size combinations that meet the income definitions established by HUD and the State, as used by the City. The household size distribution utilized in the analysis is that of Alameda County since the City draws workers from throughout the County.

Step 7 – Estimate of Households that meet HUD Size and Income Criteria

For this step the KMA model incorporates a matrix of household size and income to establish probability factors for the two criteria in combination. For each occupational group a probability factor was calculated for each household income and size level. This step is performed for each occupational category and multiplied by the number of households.

Tables II-2A through II-2D show the results after completing Steps #5, #6, and #7. The calculated numbers of households that meet size and income criteria are shown in Tables II-2A for the Very Low Income category, Table II-2B for Low Income, Table II-2C for Moderate Income and Table II-2D for the Above Moderate income category. Table II-3 provides a summary for all of the income tiers.

Summary by Income Level

Table II-3 indicates the results of the analysis for income categories for the four prototypical buildings. The table presents the number of households in each affordability category, the total number up to 120% of median, and the remaining households earning over 120% of median.

Table II-3 also presents the percentage of total new worker households that fall into each income category. As indicated, over 97% of Retail / Restaurant and 93% of Hotel worker households are below the 120% of median income level. By contrast, in Office buildings, only about 51% of worker households fall below 120% of median and in R&D/Biotech buildings, only 37% of worker households.

Summary by Square Foot Building Area

The analysis thus far has worked with prototypical buildings. In this step, the conclusions are translated to a per-square-foot level and expressed as coefficients. These coefficients state the portion of a household, or housing unit, by affordability level for which each square foot of building area is associated (see Table II-4).

This is the summary of the housing nexus analysis, or the linkage from buildings to employees to housing demand, by income level. We believe that it is a conservative approximation (understates at the low end) of the households by income/affordability level associated with these building types.

TABLE II-1
NET NEW HOUSEHOLDS AND OCCUPATION DISTRIBUTION BY BUILDING TYPE
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

	OFFICE	RETAIL / RESTAURANT MIX	HOTEL	R&D / BIOTECH
Step 1 - Estimate of Number of Employees				
Size of Prototypical Building (Sq.Ft)	100,000	20,000 Retail; 5,000 Restaurant	70,000	150,000
Employee Density Factor (employees per 1,000 SF)	3.6	2.6	1.0	2.5
Number of Employees	360	65	70	375
Step 2 - Number of Employees after Changing Industries Adjustment (25%)	270	49	53	281
Step 3 - Adjustment for Number of Households (1.61)	167.8	30.3	32.6	174.8
Step 4 - Occupation Distribution[(1)]				
Management Occupations	9.6%	2.0%	4.5%	11.4%
Business and Financial Operations	12.2%	0.4%	1.5%	9.8%
Computer and Mathematical	14.7%	0.2%	0.1%	12.0%
Architecture and Engineering	6.1%	0.0%	0.0%	17.2%
Life, Physical, and Social Science	1.3%	0.0%	0.0%	26.1%
Community and Social Services	0.3%	0.0%	0.0%	0.2%
Legal	0.4%	0.0%	0.0%	0.5%
Education, Training, and Library	0.2%	0.0%	0.0%	0.5%
Arts, Design, Entertainment, Sports, and Media	11.5%	0.4%	0.3%	1.2%
Healthcare Practitioners and Technical	7.1%	0.6%	0.0%	2.0%
Healthcare Support	3.8%	0.3%	0.4%	0.7%
Protective Service	0.2%	0.3%	1.8%	0.6%
Food Preparation and Serving Related	0.2%	38.1%	24.7%	0.1%
Building and Grounds Cleaning and Maint.	0.4%	0.7%	32.0%	0.4%
Personal Care and Service	0.5%	3.7%	4.0%	0.3%
Sales and Related	5.3%	34.0%	2.1%	1.8%
Office and Administrative Support	22.2%	10.7%	20.2%	9.6%
Farming, Fishing, and Forestry	0.0%	0.1%	0.0%	0.1%
Construction and Extraction	0.8%	0.1%	0.1%	0.5%
Installation, Maintenance, and Repair	1.0%	1.0%	5.0%	1.4%
Production	1.1%	3.1%	2.1%	3.2%
Transportation and Material Moving	0.9%	4.2%	1.1%	0.5%
Totals	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Management Occupations	16.1	0.6	1.5	20.0
Business and Financial Operations	20.5	0.1	0.5	17.2
Computer and Mathematical	24.7	0.1	0.0	21.0
Architecture and Engineering	10.3	0.0	0.0	30.1
Life, Physical, and Social Science	2.3	0.0	0.0	45.7
Community and Social Services	0.5	0.0	0.0	0.4
Legal	0.7	0.0	0.0	0.8
Education, Training, and Library	0.4	0.0	0.0	0.8
Arts, Design, Entertainment, Sports, and Media	19.4	0.1	0.1	2.0
Healthcare Practitioners and Technical	11.8	0.2	0.0	3.5
Healthcare Support	6.4	0.1	0.1	1.2
Protective Service	0.4	0.1	0.6	1.0
Food Preparation and Serving Related	0.4	11.5	8.1	0.2
Building and Grounds Cleaning and Maint.	0.7	0.2	10.4	0.7
Personal Care and Service	0.9	1.1	1.3	0.5
Sales and Related	8.8	10.3	0.7	3.2
Office and Administrative Support	37.3	3.2	6.6	16.7
Farming, Fishing, and Forestry	0.1	0.0	0.0	0.2
Construction and Extraction	1.3	0.0	0.0	0.8
Installation, Maintenance, and Repair	1.6	0.3	1.6	2.4
Production	1.8	0.9	0.7	5.7
Transportation and Material Moving	1.5	1.3	0.4	0.8
Totals	**167.8**	**30.3**	**32.6**	**174.8**

Notes:
(1) See Appendix B for more information on how the percentages were derived.

TABLE II-2A
ESTIMATE OF QUALIFYING HOUSEHOLDS BY INCOME LEVEL
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

Analysis for Households Earning up to 50% of Median

	OFFICE	RETAIL / RESTAURANT MIX	HOTEL	R&D / BIOTECH
Prototypical Building Size (Sq. Ft.)	100,000	20,000 Retail; 5,000 Restaurant	70,000	150,000
Step 5, 6, & 7 - Households Earning up to 50% of Median[(1)]				
Management	0.00	0.01	0.12	0.00
Business and Financial Operations	0.08	0.00	0.00	0.08
Computer and Mathematical	0.24	0.00	0.00	0.08
Architecture and Engineering	0.04	0.00	0.00	0.12
Life, Physical and Social Science	0.00	0.00	0.00	1.28
Community and Social Services	0.00	0.00	0.00	0.00
Legal	0.00	0.00	0.00	0.00
Education Training and Library	0.00	0.00	0.00	0.00
Arts, Design, Entertainment, Sports, and Media	2.98	0.00	0.00	0.00
Healthcare Practitioners and Technical	0.28	0.00	0.00	0.12
Healthcare Support	1.94	0.00	0.00	0.00
Protective Service	0.00	0.00	0.00	0.00
Food Preparation and Serving Related	0.00	8.65	5.92	0.00
Building Grounds and Maintenance	0.00	0.00	5.19	0.00
Personal Care and Service	0.00	0.65	0.81	0.00
Sales and Related	1.63	5.86	0.24	0.00
Office and Admin	8.12	1.24	3.47	3.19
Farm, Fishing, and Forestry	0.00	0.00	0.00	0.00
Construction and Extraction	0.00	0.00	0.00	0.00
Installation Maintenance and Repair	0.00	0.00	0.33	0.00
Production	0.00	0.39	0.41	1.58
Transportation and Material Moving	0.00	0.57	0.00	0.00
HH earning up to 50% of Median - major occupations	15.32	17.38	16.48	6.46
HH earning up to 50% of Median - all other occupations	1.23	1.14	0.94	0.60
Total Households Earning up to 50% of Median	**16.6**	**18.5**	**17.4**	**7.1**

Notes:

(1) See Appendix B for additional information on Major Occupation Categories.

TABLE II-2B
ESTIMATE OF QUALIFYING HOUSEHOLDS BY INCOME LEVEL
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

Analysis for Households Earning Between 50% and 80% of Median

	OFFICE	RETAIL / RESTAURANT MIX	HOTEL	R&D / BIOTECH
Prototypical Building Size (Sq. Ft.)	100,000	20,000 Retail; 5,000 Restaurant	70,000	150,000
Step 5, 6, & 7 - Households Earning Between 50% and 80% of Median[(1)]				
Management	0.07	0.05	0.17	0.06
Business and Financial Operations	1.43	0.00	0.00	1.19
Computer and Mathematical	0.84	0.00	0.00	0.41
Architecture and Engineering	0.33	0.00	0.00	0.71
Life, Physical and Social Science	0.00	0.00	0.00	3.88
Community and Social Services	0.00	0.00	0.00	0.00
Legal	0.00	0.00	0.00	0.00
Education Training and Library	0.00	0.00	0.00	0.00
Arts, Design, Entertainment, Sports, and Media	3.11	0.00	0.00	0.00
Healthcare Practitioners and Technical	0.65	0.00	0.00	0.34
Healthcare Support	1.70	0.00	0.00	0.00
Protective Service	0.00	0.00	0.00	0.00
Food Preparation and Serving Related	0.00	2.33	1.58	0.00
Building Grounds and Maintenance	0.00	0.00	2.84	0.00
Personal Care and Service	0.00	0.26	0.28	0.00
Sales and Related	1.43	2.26	0.12	0.00
Office and Admin	9.58	0.85	1.59	4.08
Farm, Fishing, and Forestry	0.00	0.00	0.00	0.00
Construction and Extraction	0.00	0.00	0.00	0.00
Installation Maintenance and Repair	0.00	0.00	0.37	0.00
Production	0.00	0.23	0.16	1.39
Transportation and Material Moving	0.00	0.29	0.00	0.00
HH earning 50%-80% of Median - major occupations	19.14	6.27	7.11	12.07
HH earning 50%-80% of Median - all other occupations	1.53	0.45	0.40	1.13
Total Households Earning 50%-80% of Median	**20.7**	**6.7**	**7.5**	**13.2**

Notes:

(1) See Appendix B for additional information on Major Occupation Categories.

TABLE II-2C
ESTIMATE OF QUALIFYING HOUSEHOLDS BY INCOME LEVEL
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

Analysis for Households Earning Between 80% and 120% of Median

	OFFICE	RETAIL / RESTAURANT MIX	HOTEL	R&D / BIOTECH
Prototypical Building Size (Sq. Ft.)	100,000	20,000 Retail; 5,000 Restaurant	70,000	150,000
Step 5, 6, & 7 - Households Earning Between 80% and 120% of Median[(1)]				
Management	1.76	0.09	0.43	1.74
Business and Financial Operations	6.43	0.00	0.00	5.43
Computer and Mathematical	6.14	0.00	0.00	4.56
Architecture and Engineering	2.53	0.00	0.00	6.21
Life, Physical and Social Science	0.00	0.00	0.00	14.04
Community and Social Services	0.00	0.00	0.00	0.00
Legal	0.00	0.00	0.00	0.00
Education Training and Library	0.00	0.00	0.00	0.00
Arts, Design, Entertainment, Sports, and Media	6.60	0.00	0.00	0.00
Healthcare Practitioners and Technical	2.35	0.00	0.00	0.98
Healthcare Support	2.17	0.00	0.00	0.00
Protective Service	0.00	0.00	0.00	0.00
Food Preparation and Serving Related	0.00	0.55	0.52	0.00
Building Grounds and Maintenance	0.00	0.00	2.05	0.00
Personal Care and Service	0.00	0.17	0.19	0.00
Sales and Related	2.55	1.87	0.17	0.00
Office and Admin	13.59	0.84	1.15	6.28
Farm, Fishing, and Forestry	0.00	0.00	0.00	0.00
Construction and Extraction	0.00	0.00	0.00	0.00
Installation Maintenance and Repair	0.00	0.00	0.64	0.00
Production	0.00	0.20	0.10	1.83
Transportation and Material Moving	0.00	0.17	0.00	0.00
HH earning 80%-120% of Median - major occupations	44.11	3.89	5.25	41.08
HH earning 80%-120% of Median - all other occupations	3.53	0.32	0.30	3.84
Total Households Earning 80%-120% of Median	**47.6**	**4.2**	**5.5**	**44.9**

Notes:

(1) See Appendix B for additional information on Major Occupation Categories.

TABLE II-2D
ESTIMATE OF QUALIFYING HOUSEHOLDS BY INCOME LEVEL
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

Analysis for Households Earning Over 120% of Median

	OFFICE	RETAIL / RESTAURANT MIX	HOTEL	R&D / BIOTECH
Prototypical Building Size (Sq. Ft.)	100,000	20,000 Retail; 5,000 Restaurant	70,000	150,000
Step 5, 6, & 7 - Households Earning Over 120% of Median[(1)]				
Management	14.31	0.10	0.76	18.16
Business and Financial Operations	12.57	0.00	0.00	10.51
Computer and Mathematical	17.46	0.00	0.00	15.94
Architecture and Engineering	7.35	0.00	0.00	23.07
Life, Physical and Social Science	0.00	0.00	0.00	26.48
Community and Social Services	0.00	0.00	0.00	0.00
Legal	0.00	0.00	0.00	0.00
Education Training and Library	0.00	0.00	0.00	0.00
Arts, Design, Entertainment, Sports, and Media	6.67	0.00	0.00	0.00
Healthcare Practitioners and Technical	8.56	0.00	0.00	2.08
Healthcare Support	0.60	0.00	0.00	0.00
Protective Service	0.00	0.00	0.00	0.00
Food Preparation and Serving Related	0.00	0.02	0.05	0.00
Building Grounds and Maintenance	0.00	0.00	0.35	0.00
Personal Care and Service	0.00	0.02	0.03	0.00
Sales and Related	3.23	0.31	0.15	0.00
Office and Admin	6.05	0.24	0.38	3.16
Farm, Fishing, and Forestry	0.00	0.00	0.00	0.00
Construction and Extraction	0.00	0.00	0.00	0.00
Installation Maintenance and Repair	0.00	0.00	0.31	0.00
Production	0.00	0.07	0.02	0.86
Transportation and Material Moving	0.00	0.03	0.00	0.00
HH Earning Over 120% of Median - major occupations	76.79	0.79	2.04	100.25
HH Earning Over 120% of Median - all other occupations	6.15	0.07	0.12	9.36
Total Households Earning Over 120% of Median	**82.9**	**0.9**	**2.2**	**109.6**

Notes:

(1) See Appendix B for additional information on Major Occupation Categories.

TABLE II-3
WORKER HOUSEHOLDS BY AFFORDABILITY LEVEL
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

	OFFICE	RETAIL / RESTAURANT MIX	HOTEL	R&D / BIOTECH
Prototypical Building Size (Sq. Ft.)	100,000	20,000 Retail; 5,000 Restaurant	70,000	150,000
NUMBER OF HOUSEHOLDS BY INCOME TIER[(1)]				
Up to 50% Median Income	16.6	18.5	17.4	7.1
50% to 80% Median Income	20.7	6.7	7.5	13.2
80% to 120% Median Income	47.6	4.2	5.5	44.9
Subtotal to 120% AMI	**84.9**	**29.4**	**30.5**	**65.2**
Above 120% of Median	82.9	0.9	2.2	109.6
Total New Worker Households	**167.8**	**30.3**	**32.6**	**174.8**
PERCENTAGE OF HOUSEHOLDS BY INCOME TIER				
Up to 50% Median Income	9.9%	61.1%	53.4%	4.0%
50% to 80% Median Income	12.3%	22.2%	23.0%	7.6%
80% to 120% Median Income	28.4%	13.9%	17.0%	25.7%
Subtotal to 120% AMI	**50.6%**	**97.2%**	**93.4%**	**37.3%**
Above 120% of Median	49.4%	2.8%	6.6%	62.7%
Total	**100%**	**100%**	**100%**	**100%**

Notes:
(1) See Appendix B on compensation levels.

TABLE II-4
HOUSING DEMAND NEXUS FACTORS PER SQ.FT. OF BUILDING AREA
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

	Number of Housing Units per Square Foot of Building Area[1]			
	OFFICE	**RETAIL / RESTAURANT MIX**	**HOTEL**	**R&D / BIOTECH**
Up to 50% Median Income	0.00016551	0.00074062	0.00024885	0.00004709
50% to 80% Median Income	0.00020674	0.00026858	0.00010729	0.00008799
80% to 120% Median Income	0.00047638	0.00016845	0.00007924	0.00029943
Total	**0.00084863**	**0.00117765**	**0.00043538**	**0.00043452**

Notes:

[1]Calculated by dividing number of household in Table II-3 by the square footage of each prototypical building to convert to households per 1 sq. ft. of building.

SECTION III: TOTAL HOUSING NEXUS COSTS

This section takes the conclusions of the previous section on the number of households in the Very Low, Low, and Moderate income categories associated with each building type and identifies the total cost of assistance required to make housing affordable. This section puts a cost on the units at each income level to produce the "total nexus cost."

A key component of the analysis is the size of the gap between what households can afford and the cost of producing additional housing in Emeryville, known as the "affordability gap." The analysis utilizes the same affordability gaps as the Residential Nexus Analysis, also conducted by KMA. For both analyses, the assumption is that the City will assist in the development of affordable units at development cost levels based on the City's recent experience.

For Very Low and Low Income households, KMA assumes that the City will provide rental units; for Moderate Income households, the City will assist in providing ownership units. For the Very Low Income and Low Income tiers, the affordability gaps are calculated based upon rents affordable to households at the top of each income tier. For the Moderate Income tier, the affordable sales price is calculated for a household earning 110% of Median Income. Tax credit financing is assumed for the Very Low income tier, but not the Low Income tier. Additional information regarding the derivation of the affordability gaps may be found in Appendix C of this report.

Affordability Gaps

Very Low (0% - 50% AMI)	($212,500)
Low Income (51% - 80% AMI)	($255,000)
Moderate Income (81% - 120% AMI)	($115,000)

Source: KMA; see Appendix C.
AMI = Area Median Income

Total Nexus Costs

The last step in the nexus fee analysis relates the findings on the numbers of households at each of the lower income ranges associated with the four types of buildings to the affordability gaps, or the costs of delivering affordable housing for them in Emeryville.

Table III-1 summarizes the analysis. The Affordability Gaps are described above. Demand for affordable units at each of the lower income ranges that is generated per square foot of building area is drawn from Table II-4 in the previous section. At the right, the "Nexus Cost per Square Foot" shows the results of the calculation: affordability gap times the number of units per square foot of building area.

The total nexus costs for the four building types are as follows:

Total Nexus Cost Per Square Foot of Building Area

Office	$142.60 psf
Retail / Restaurant	$244.90 psf
Hotel	$89.30 psf
R&D / Biotech	$66.80 psf

Note: Nexus findings are not recommended fee levels.
See Table III-1 for detail.

These costs express the total linkage or nexus costs per square foot for the four building types. These total nexus costs represent the ceiling for any requirement placed on new construction for affordable housing. The totals are not recommended levels for fees; they represent only the maximums established by this analysis, below which fees or other requirements may be set.

These total nexus or mitigation costs are high in Alameda County due to the low compensation levels of many jobs, coupled with the high cost of developing residential units. The comparatively high median income for Alameda County is also a factor because more households fall into one of the lower affordability tiers given the comparatively high income thresholds to qualify. These factors are especially pronounced with the Retail / Restaurant category yielding a very high nexus cost. California Employment Development Department data for 2013 indicates compensation for Retail workers in Alameda County averages approximately $32,000 per year and for Restaurant workers, approximately $24,000 annually. This means many workers qualify as Very Low Income (four-person households earning $46,750 and below[2]); as shown in Table II-3, 61% of Retail/Restaurant workers fall in the Very Low Income category. Virtually all Retail/Restaurant employee households earn less than 120% of median. Hotel workers have similar compensation levels (averaging $33,000 annually); however, since there are fewer employees per square feet of building area, the resulting mitigation costs are much lower on a per square foot basis.

For Office and R&D/Biotech, workers average approximately $82,000 and $94,000 annually, respectively. This is about three times the average compensation for Retail / Restaurant and Hotel workers. The higher compensation levels result in a far lower affordable housing nexus cost for Office and R&D/Biotech as compared to Retail / Restaurant.

Conservative Assumptions

In establishing the total nexus cost many conservative assumptions were employed in the analysis that result in a total nexus cost that may be considerably understated. These conservative assumptions include:

[2] Income criteria vary by household size.

- Only direct employees are counted in the analysis. Many indirect employees are also associated with each new workspace. Indirect employees in an office building, for example, include security, delivery personnel, and a whole range of others. Hotels do have many of these workers on staff, but hotels also "contract out" a number of services that are not taken into account in the analysis.

- Trends in new Office space are for more open office floor plans which can accommodate higher employment densities. Increased densities can yield around twice as many employees in a given amount of space than the estimates applied for purposes of the analysis.

- Annual incomes for workers reflect full time employment based upon the California Employment Development Department's convention for reporting the compensation information. Of course many workers work less than full time; therefore, annual compensations used in the analysis are probably overstated, especially for retail and hotel, which tend to have a high number of part time employees.

- Affordability gaps are based upon rents affordable to households at the top of each income range (except for Moderate, which is based on 110% of median). If the mid-point of the income ranges had been used, affordability gaps would have been larger, increasing the resulting nexus costs. In addition, the affordability gap for Very Low income households assumes the availability of 4% tax credit financing, which reduces the affordability gap that needs to be filled.

In summary, many less conservative assumptions could be made that would result in higher nexus costs.

TABLE III-1
TOTAL HOUSING NEXUS COST
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

INCOME CATEGORY	Affordability Gap	Nexus Cost Per Sq.Ft. of Building Area[4] OFFICE	RETAIL / RESTAURANT MIX	HOTEL	R&D / BIOTECH
Up to 50% Median Income	$212,000 [1]	$35.10	$157.00	$52.80	$10.00
50% to 80% Median Income	$255,000 [2]	$52.70	$68.50	$27.40	$22.40
80% to 120% Median Income	$115,000 [3]	$54.80	$19.40	$9.10	$34.40
Total		**$142.60**	**$244.90**	**$89.30**	**$66.80**

Notes:

[1] Assumes rental units. Represents the remaining affordability gap after 4% tax credits.

[2] Affordability gap based on rental unit and computed based on rents affordable to the top of the income tier at 80%

[3] Affordability gap for moderate income households based on ownership units priced at 110% AMI.

[4] Calculated by multiplying housing demand factors per square foot of building area from Table II-4 by the affordability gap. Figures are rounded to the nearest $0.10.

APPENDIX A: DISCUSSION OF VARIOUS FACTORS IN RELATION TO NEXUS CONCEPT

This appendix provides a discussion of various specific factors and assumptions in relation to the nexus concept to supplement the overview provided in Section I.

Addressing the Housing Needs of a New Population vs. the Existing Population

The City of Emeryville, in its Housing Element, has clearly documented that the housing needs of existing lower income households are not being met. This existing housing shortage, especially at the lowest income levels, is manifested in numerous ways such as payment of far more than 30% of income for rent as set forth in federal and state guidelines, overcrowding, and other factors that are extensively documented by the Census and other reports.

This nexus study does not address the housing needs of the existing population. Rather, the study focuses exclusively on documenting and quantifying the housing needs of new households where an employee works in a new workplace building.

Local analyses of housing conditions have found that new housing affordable to lower income households is not being added to the supply in sufficient quantity to meet the needs of new employee households. If this were not the case and significant numbers of units were being added to the supply to accommodate the Low to Moderate income groups, or if residential units in the city were experiencing significant long term vacancy levels, particularly in affordable units, then the need for new units would be questionable.

Substitution Factor

Any given new building in the City of Emeryville may be occupied partly or even perhaps totally, by employees relocating from elsewhere in the city. Buildings are often leased entirely to firms relocating from other buildings in the same jurisdiction. However, when a firm relocates to a new building from elsewhere in the region, there is a space in an existing building that is vacated and occupied by another firm. That building in turn may be filled by some combination of newcomers to the area and existing workers. Somewhere in the chain there are jobs new to the region. The net effect is that new buildings accommodate new employees, although not necessarily inside of the new buildings themselves.

Indirect Employment and Multiplier Effects

The multiplier effect refers to the concept that the income generated by a new job recycles through the economy and results in additional jobs. The total number of jobs generated is broken down into three categories – direct, indirect and induced. In the case of the nexus analysis, the direct jobs are those located in the new workspace buildings that would be subject to the linkage fee. Multiplier effects encompass indirect and induced employment. Indirect jobs are generated by suppliers to the businesses located in the new workspace buildings. Finally, induced jobs are generated by local spending on goods and services by employees.

Multiplier effects vary by industry. Industries that draw heavily on a network of local suppliers tend to generate larger multiplier effects. Industries that are labor intensive also tend to have larger multiplier effects as a result of the induced effects of employee spending.

Theoretically, a jobs-housing nexus analysis could consider multiplier effects although the potential for double-counting exists. The potential for double counting exists to the extent indirect and induced jobs are added in other new buildings in jurisdictions that have jobs housing linkage fees. KMA chooses to omit the multiplier effects (the indirect and induced employment impacts) to avoid potential double-counting and make the analysis more conservative.

In addition, the nexus analysis addresses direct “inside” employment only. In the case of an office building, for example, direct employment covers the various managerial, professional and clerical people that work in the building; it does not include the security guards, the delivery services, the landscape maintenance workers, and many others that are associated with the normal functioning of an office building. In other words, any analysis that ties lower income housing to the number of workers inside buildings will continue to understate the demand. Thus, confining the analysis to the direct employees does not address all the lower income workers associated with each type of building and understates the impacts.

Changes in Labor Force Participation

In the 1960s through the 1980s, there were significant increases in labor force participation, primarily among women. As a result, some of the new workers were reentering the labor force and already had local housing, thus reducing demand for housing associated with job growth. In earlier nexus analyses, KMA would adjust the analysis to account for this. However, increases in participation rates by women have stabilized and even declined slightly and labor force participation rates for men have been on a downward trajectory since 1970. As such, an adjustment for increase in labor force participation is no longer warranted in a nexus analysis.

Commuting

Workers in Emeryville commute from throughout the Bay Area. Nexus analyses sometimes make a downward adjustment based on commuting. A commute adjustment reduces the findings based on an assumed portion of housing needs satisfied by other jurisdictions. Such an adjustment is not required for nexus purposes; all housing demand generated by a project may be included in the nexus. No adjustment for commuting has been reflected in the analysis.

Non-Duplication: Existing Housing Impact Fee and Proposed Rental Housing Impact Fee

Emeryville is considering adoption of an Affordable Housing Impact fee supported by a nexus analysis based upon a similar analytical framework as this jobs-housing nexus analysis. Under certain circumstances the two analyses could count some of the same jobs. KMA has

conducted an analysis of potential double-counting of jobs; this analysis is contained in Appendix D and it concludes that no double-counting would occur if the programs are implemented at the levels currently under consideration by the City.

Economic Cycles

An impact analysis of this nature is intended to support a one-time impact requirement to address impacts generated over the life of a project (generally 40 years or more). Short-term conditions, such as a recession or a vigorous boom period, are not an appropriate basis for estimating impacts over the life of the building. These cycles can produce impacts that are higher or lower on a temporary basis.

Development of new workspace buildings tends to be minimal during a recession and generally remains minimal until conditions improve or there is confidence that improved conditions are imminent. When this occurs, the improved economic condition will absorb existing vacant space and underutilized capacity of existing workers, employed and unemployed. By the time new buildings become occupied, current conditions will have likely improved.

To the limited extent that new workspace buildings are built during a recession, housing impacts from these new buildings may not be fully experienced immediately, though, the impacts will be experienced at some point. New buildings delivered during a recession can sometimes sit vacant for a period after completion. Even if new buildings are immediately occupied, overall absorption of space can still be zero or negative if other buildings are vacated in the process. Jobs added may also be filled in part by unemployed or underemployed workers who are already housed locally. As the economy recovers, firms will begin to expand and hire again filling unoccupied space as unemployment is reduced. New space delivered during the recession still adds to the total supply of employment space in the region. Though the jobs are not realized immediately, as the economy recovers and vacant space is filled, this new employment space absorbs or accommodates job growth. Although there may be a delay in time, the fundamental relationship between new buildings, added jobs, and housing needs remains over the long term.

In contrast, during a vigorous economic boom period, conditions exist in which elevated impacts are experienced on a temporary basis. As an example, compression of employment densities can occur as firms add employees while making do with existing space. Compressed employment densities mean more jobs added for a given amount of building area. Boom periods also tend to go hand-in-hand with rising development costs and increasing home prices. These factors can bring market rate housing out of reach from a larger percentage of the workforce and increase the cost of delivering affordable units.

APPENDIX B: SUPPORTING TECHNICAL TABLES

APPENDIX B TABLE 1
INCOME LIMITS
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

	Household Size					
	1-person	**2-person**	**3-person**	**4-person**	**5-person**	**6 + person**
Household Income Limit						
Very Low (50% AMI)	$32,750	$37,400	$42,100	$46,750	$50,500	$54,250
Low (80% of AMI)	$46,350	$53,000	$59,600	$66,250	$71,550	$76,850
Moderate (120% of AMI)	$78,550	$89,750	$101,000	$112,200	$121,200	$130,150
Median (100% of AMI)	$65,450	$74,800	$84,150	$93,500	$101,000	$108,450

AMI = Area Median Income

Source: California Department of Housing and Community Development FY 2013 Income Limits for Alameda County.

APPENDIX B TABLE 2
2012 NATIONAL OFFICE WORKER DISTRIBUTION BY OCCUPATION
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

Major Occupations (2% or more)	2012 National Office Industry Occupation Distribution[1]	
Management Occupations	1,438,108	*10.0%*
Business and Financial Operations Occupations	1,877,295	*13.0%*
Computer and Mathematical Occupations	2,263,438	*15.7%*
Architecture and Engineering Occupations	956,393	*6.6%*
Arts, Design, Entertainment, Sports, and Media Occupations	945,153	*6.6%*
Healthcare Practitioners and Technical Occupations	1,111,422	*7.7%*
Healthcare Support Occupations	602,318	*4.2%*
Sales and Related Occupations	791,915	*5.5%*
Office and Administrative Support Occupations	3,338,924	*23.2%*
All Other Office Occupations	1,089,692	*7.6%*
INDUSTRY TOTAL	14,414,659	100.0%

[1] Occupational distribution weighted to reflect the industry mix of Emeryville and Alameda County, using data from the California Employment Development Department Quarterly Census of Employment and Wages.

Source: Bureau of Labor Statistics; California Employment Development Department
Prepared by: Keyser Marston Associates, Inc.
Filename: \\Sf-fs2\wp\12\12090\002\Office 9-26-13; Major Occupations Matrix; 3/5/2014; dd

APPENDIX B TABLE 3
AVERAGE ANNUAL COMPENSATION, 2013
OFFICE WORKER OCCUPATIONS
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

Occupation [1]	2013 Avg. Compensation [2]	% of Total Occupation Group [3]	% of Total Office Workers
Page 1 of 3			
Management Occupations			
Chief Executives	$199,700	5.0%	0.5%
General and Operations Managers	$132,900	27.1%	2.7%
Marketing Managers	$155,500	6.3%	0.6%
Sales Managers	$141,700	6.1%	0.6%
Administrative Services Managers	$101,200	3.9%	0.4%
Computer and Information Systems Managers	$157,300	12.9%	1.3%
Financial Managers	$144,800	10.1%	1.0%
Architectural and Engineering Managers	$166,200	5.2%	0.5%
Managers, All Other	$134,300	6.2%	0.6%
All Other Management Occupations (Avg. All Categories)	$128,800	17.1%	1.7%
Weighted Mean Annual Wage	***$142,400***	**100.0%**	**10.0%**
Business and Financial Operations Occupations			
Human Resources Specialists	$74,600	5.8%	0.8%
Management Analysts	$103,200	16.5%	2.2%
Training and Development Specialists	$86,500	3.7%	0.5%
Market Research Analysts and Marketing Specialists	$86,100	10.8%	1.4%
Business Operations Specialists, All Other	$89,300	12.7%	1.7%
Accountants and Auditors	$80,100	20.3%	2.6%
Financial Analysts	$98,300	5.5%	0.7%
All Other Business and Financial Operations (Avg. All Categories)	$82,600	24.6%	3.2%
Weighted Mean Annual Wage	***$87,300***	**100.0%**	**13.0%**
Computer and Mathematical Occupations			
Computer Systems Analysts	$97,000	15.0%	2.4%
Computer Programmers	$98,800	11.5%	1.8%
Software Developers, Applications	$109,200	20.3%	3.2%
Software Developers, Systems Software	$117,700	12.5%	2.0%
Web Developers	$78,900	3.1%	0.5%
Network and Computer Systems Administrators	$92,400	7.6%	1.2%
Computer Network Architects	$109,500	4.2%	0.7%
Computer User Support Specialists	$60,300	11.5%	1.8%
Computer Network Support Specialists	$81,900	3.9%	0.6%
All Other Computer and Mathematical Occupations (Avg. All Categories)	$96,200	10.4%	1.6%
Weighted Mean Annual Wage	***$97,000***	**100.0%**	**15.7%**

Sources: Bureau of Labor Statistics; California Employment Development Department Compensation Data for Alameda County
Prepared by: Keyser Marston Associates, Inc.
Filename: \\Sf-fs2\wp\12\12090\002\Office 9-26-13; Compensation; 3/5/2014; dd

Occupation [1]	2013 Avg. Compensation [2]	% of Total Occupation Group [3]	% of Total Office Workers

Architecture and Engineering Occupations			
Architects, Except Landscape and Naval	$99,400	8.4%	0.6%
Surveyors	$97,200	3.4%	0.2%
Civil Engineers	$101,900	16.3%	1.1%
Computer Hardware Engineers	$119,900	3.8%	0.3%
Electrical Engineers	$112,400	6.1%	0.4%
Electronics Engineers, Except Computer	$102,900	3.8%	0.3%
Environmental Engineers	$103,900	3.3%	0.2%
Industrial Engineers	$105,600	4.7%	0.3%
Mechanical Engineers	$104,000	6.9%	0.5%
Engineers, All Other	$110,200	3.9%	0.3%
Architectural and Civil Drafters	$64,000	7.6%	0.5%
Civil Engineering Technicians	$72,500	3.7%	0.2%
Electrical and Electronics Engineering Technicians	$61,700	4.1%	0.3%
Surveying and Mapping Technicians	$70,700	3.5%	0.2%
All Other Architecture and Engineering Occupations (Avg. All Categories)	$98,300	20.4%	1.4%
Weighted Mean Annual Wage	***$96,100***	**100.0%**	**6.6%**
Arts, Design, Entertainment, Sports, and Media Occupations			
Multimedia Artists and Animators	$88,200	5.1%	0.3%
Graphic Designers	$62,100	9.4%	0.6%
Producers and Directors	$113,000	15.6%	1.0%
Public Relations Specialists	$75,600	6.3%	0.4%
Editors	$51,900	3.3%	0.2%
Media and Communication Workers, All Other	$53,400	3.2%	0.2%
Audio and Video Equipment Technicians	$49,500	3.3%	0.2%
Photographers	$33,100	4.0%	0.3%
Film and Video Editors	$69,700	5.7%	0.4%
All Other Arts, Design, Entertainment, Sports, and Media (Avg. All Categories)	$59,700	44.1%	2.9%
Weighted Mean Annual Wage	***$69,400***	**100.0%**	**6.6%**
Healthcare Practitioners and Technical Occupations			
Dentists, General	$160,200	7.5%	0.6%
Family and General Practitioners	$193,300	4.4%	0.3%
Physicians and Surgeons, All Other	$190,500	8.6%	0.7%
Veterinarians	$105,900	4.1%	0.3%
Registered Nurses	$115,100	12.8%	1.0%
Dental Hygienists	$98,900	15.9%	1.2%
Veterinary Technologists and Technicians	$38,800	6.2%	0.5%
Licensed Practical and Licensed Vocational Nurses	$60,400	5.4%	0.4%
Medical Records and Health Information Technicians	$50,800	3.6%	0.3%
All Other Healthcare and Technical Occupations (Avg. All Categories)	$104,100	31.5%	2.4%
Weighted Mean Annual Wage	***$112,000***	**100.0%**	**7.7%**

Occupation [1]	2013 Avg. Compensation [2]	% of Total Occupation Group [3]	% of Total Office Workers
Page 3 of 3			
Healthcare Support Occupations			
Dental Assistants	$40,300	44.8%	1.9%
Medical Assistants	$37,700	36.1%	1.5%
Medical Transcriptionists	$42,800	3.6%	0.2%
Veterinary Assistants and Laboratory Animal Caretakers	$29,400	9.0%	0.4%
All Other Healthcare Support Occupations (Avg. All Categories)	$37,100	6.5%	0.3%
Weighted Mean Annual Wage	***$38,300***	**100.0%**	**4.2%**
Sales and Related Occupations			
First-Line Supervisors of Non-Retail Sales Workers	$89,800	4.9%	0.3%
Advertising Sales Agents	$58,400	7.9%	0.4%
Insurance Sales Agents	$89,100	15.2%	0.8%
Securities, Commodities, and Financial Services Sales Agents	$97,500	4.4%	0.2%
Sales Representatives, Services, All Other	$71,400	25.0%	1.4%
Sales Representatives, Technical and Scientific Products	$100,100	9.7%	0.5%
Sales Representatives, Except Technical and Scientific Products	$73,800	9.5%	0.5%
Telemarketers	$29,900	8.4%	0.5%
All Other Sales and Related Occupations (Avg. All Categories)	$45,800	15.0%	0.8%
Weighted Mean Annual Wage	***$70,800***	**100.0%**	**5.5%**
Office and Administrative Support Occupations			
First-Line Supervisors of Office and Administrative Support Workers	$62,400	7.2%	1.7%
Bill and Account Collectors	$44,800	3.0%	0.7%
Billing and Posting Clerks	$44,000	4.6%	1.1%
Bookkeeping, Accounting, and Auditing Clerks	$45,900	9.5%	2.2%
Customer Service Representatives	$43,200	13.4%	3.1%
Receptionists and Information Clerks	$34,600	8.5%	2.0%
Executive Secretaries and Executive Administrative Assistants	$60,100	5.8%	1.3%
Medical Secretaries	$41,800	6.0%	1.4%
Administrative Assistants, Except Legal, Medical, and Executive	$43,500	10.1%	2.3%
Office Clerks, General	$37,400	12.1%	2.8%
All Other Office and Administrative Support Occupations (Avg. All Categories)	$43,200	19.7%	4.6%
Weighted Mean Annual Wage	***$44,400***	**100.0%**	**23.2%**
Weighted Average Annual Wage - All Occupations	***$82,000***		92.4%

[1] Including occupations representing 3% or more of the major occupation group.

[2] The methodology utilized by the California Employment Development Department (EDD) assumes that hourly paid employees are employed full-time. Annual compensation is calculated by EDD by multiplying hourly wages by 40 hours per work week by 52 weeks.

[3] Occupation percentages are based on the 2012 National Industry - Specific Occupational Employment survey compiled by the Bureau of Labor Statistics. Wages are based on the 2012 Occupational Employment Survey data applicable to Alameda County updated by the California Employment Development Department to 2013 wage levels.

Sources: Bureau of Labor Statistics; California Employment Development Department Compensation Data for Alameda County
Prepared by: Keyser Marston Associates, Inc.
Filename: \\Sf-fs2\wp\12\12090\002\Office 9-26-13; Compensation; 3/5/2014; dd

APPENDIX TABLE 4
2012 NATIONAL RETAIL WORKER DISTRIBUTION BY OCCUPATION
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

Major Occupations (2% or more)	2012 National Retail Industry Occupation Distribution	
Food Preparation and Serving Related Occupations	581,511	*4.8%*
Personal Care and Service Occupations	721,755	*5.9%*
Sales and Related Occupations	6,512,341	*53.5%*
Office and Administrative Support Occupations	2,073,563	*17.0%*
Production Occupations	582,152	*4.8%*
Transportation and Material Moving Occupations	692,180	*5.7%*
All Other Retail Occupations	1,020,174	*8.4%*
INDUSTRY TOTAL	12,183,676	100.0%

Source: Bureau of Labor Statistics; California Employment Development Department
Prepared by: Keyser Marston Associates, Inc.
Filename: \\Sf-fs2\wp\12\12090\002\Retail 9-26-13; Major Occupations Matrix; 3/5/2014; dd

APPENDIX B TABLE 5
AVERAGE ANNUAL COMPENSATION, 2013
RETAIL WORKER OCCUPATIONS
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

Occupation [1]	2013 Avg. Compensation [2]	% of Total Occupation Group [3]	% of Total Retail Workers
Page 1 of 2			
Food Preparation and Serving Related Occupations			
First-Line Supervisors of Food Preparation and Serving Workers	$31,700	7.7%	0.4%
Cooks, Short Order	$25,300	2.3%	0.1%
Food Preparation Workers	$22,800	25.9%	1.2%
Combined Food Preparation and Serving Workers, Including Fast Food	$21,500	36.0%	1.7%
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	$20,600	19.2%	0.9%
All Other Food Preparation and Serving Related Occupations (Avg. All Categories)	$22,900	8.8%	0.4%
Weighted Mean Annual Wage	***$22,700***	**100.0%**	**4.8%**
Personal Care and Service Occupations			
First-Line Supervisors of Personal Service Workers	$42,900	5.0%	0.3%
Nonfarm Animal Caretakers	$25,500	13.2%	0.8%
Motion Picture Projectionists	$24,400	2.2%	0.1%
Ushers, Lobby Attendants, and Ticket Takers	$22,300	10.6%	0.6%
Hairdressers, Hairstylists, and Cosmetologists	$29,500	47.0%	2.8%
Manicurists and Pedicurists	$18,900	8.1%	0.5%
Skincare Specialists	$49,300	3.1%	0.2%
Personal Care and Service Workers, All Other	$40,900	2.1%	0.1%
All Other Personal Care and Service Occupations (Avg. All Categories)	$28,100	8.6%	0.5%
Weighted Mean Annual Wage	***$28,600***	**100.0%**	**5.9%**
Sales and Related Occupations			
First-Line Supervisors of Retail Sales Workers	$49,500	12.1%	6.5%
Cashiers	$26,400	34.0%	18.2%
Retail Salespersons	$28,700	48.9%	26.1%
All Other Sales and Related Occupations (Avg. All Categories)	$45,800	4.9%	2.6%
Weighted Mean Annual Wage	***$31,300***	**100.0%**	**53.5%**
Office and Administrative Support Occupations			
First-Line Supervisors of Office and Administrative Support Workers	$62,400	6.2%	1.1%
Bookkeeping, Accounting, and Auditing Clerks	$45,900	5.2%	0.9%
Customer Service Representatives	$43,200	11.0%	1.9%
Receptionists and Information Clerks	$34,600	3.1%	0.5%
Shipping, Receiving, and Traffic Clerks	$34,300	5.2%	0.9%
Stock Clerks and Order Fillers	$29,100	54.8%	9.3%
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$43,500	2.1%	0.4%
Office Clerks, General	$37,400	5.9%	1.0%
All Other Office and Administrative Support Occupations (Avg. All Categories)	$43,200	6.4%	1.1%
Weighted Mean Annual Wage	***$35,700***	**100.0%**	**17.0%**

Sources: Bureau of Labor Statistics; California Employment Development Department Compnsation Data for Alameda County
Prepared by: Keyser Marston Associates, Inc.
Filename: \\Sf-fs2\wp\12\12090\002\Retail 9-26-13; Compensation; 3/5/2014; dd

Occupation [1]	2013 Avg. Compensation [2]	% of Total Occupation Group [3]	% of Total Retail Workers

Page 2 of 2

Production Occupations			
First-Line Supervisors of Production and Operating Workers	$69,700	6.6%	0.3%
Assemblers and Fabricators, All Other	$30,900	2.0%	0.1%
Bakers	$29,100	12.1%	0.6%
Butchers and Meat Cutters	$37,800	22.7%	1.1%
Meat, Poultry, and Fish Cutters and Trimmers	$29,200	4.9%	0.2%
Laundry and Dry-Cleaning Workers	$25,200	22.2%	1.1%
Pressers, Textile, Garment, and Related Materials	$24,200	9.2%	0.4%
Tailors, Dressmakers, and Custom Sewers	$35,400	2.5%	0.1%
Photographic Process Workers and Processing Machine Operators	$34,100	4.0%	0.2%
All Other Production Occupations (Avg. All Categories)	$40,900	14.0%	0.7%
Weighted Mean Annual Wage	***$34,500***	**100.0%**	**4.8%**
Transportation and Material Moving Occupations			
Driver/Sales Workers	$34,100	4.9%	0.3%
Light Truck or Delivery Services Drivers	$37,300	9.9%	0.6%
Parking Lot Attendants	$27,400	12.2%	0.7%
Automotive and Watercraft Service Attendants	$23,500	4.9%	0.3%
Laborers and Freight, Stock, and Material Movers, Hand	$31,400	33.7%	1.9%
Packers and Packagers, Hand	$23,700	25.6%	1.5%
All Other Transportation and Material Moving Occupations (Avg. All Categories)	$40,700	8.8%	0.5%
Weighted Mean Annual Wage	***$30,100***	**100.0%**	**5.7%**
Weighted Average Annual Wage - All Occupations	***$32,000***		91.6%

[1] Including occupations representing 2% or more of the major occupation group.

[2] The methodology utilized by the California Employment Development Department (EDD) assumes that hourly paid employees are employed full-time. Annual compensation is calculated by EDD by multiplying hourly wages by 40 hours per work week by 52 weeks.

[3] Occupation percentages are based on the 2012 National Industry - Specific Occupational Employment survey compiled by the Bureau of Labor Statistics. Wages are based on the 2012 Occupational Employment Survey data applicable to Alameda County updated by the California Employment Development Department to 2013 wage levels.

Sources: Bureau of Labor Statistics; California Employment Development Department Compnsation Data for Alameda County
Prepared by: Keyser Marston Associates, Inc.
Filename: \\Sf-fs2\wp\12\12090\002\Retail 9-26-13; Compensation; 3/5/2014; dd

APPENDIX B TABLE 6
2012 NATIONAL RESTAURANT WORKER DISTRIBUTION BY OCCUPATION
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

Major Occupations (2% or more)	2012 National Restaurant Industry Occupation Distribution	
Management Occupations	191,030	*2.1%*
Food Preparation and Serving Related Occupations	8,173,590	*91.5%*
Sales and Related Occupations	255,260	*2.9%*
All Other Restaurant Occupations	315,780	*3.5%*
INDUSTRY TOTAL	8,935,660	100.0%

Source: Bureau of Labor Statistics; California Employment Development Department
Prepared by: Keyser Marston Associates, Inc.
Filename: \\Sf-fs2\wp\12\12090\002\Restaurant 9-26-13; Major Occupations Matrix; 3/5/2014; dd

APPENDIX B TABLE 7
AVERAGE ANNUAL COMPENSATION, 2013
RESTAURANT WORKER OCCUPATIONS
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

Occupation [1]	2013 Avg. Compensation [2]	% of Total Occupation Group [3]	% of Total Restaurant Workers
Management Occupations			
General and Operations Managers	$132,900	27.1%	0.6%
Food Service Managers	$51,200	69.5%	1.5%
All Other Management Occupations (Avg. All Categories)	$128,800	3.4%	0.1%
Weighted Mean Annual Wage	***$75,900***	**100.0%**	**2.1%**
Food Preparation and Serving Related Occupations			
First-Line Supervisors of Food Preparation and Serving Workers	$31,700	7.1%	6.5%
Cooks, Fast Food	$19,900	5.9%	5.4%
Cooks, Restaurant	$26,200	10.5%	9.6%
Food Preparation Workers	$22,800	4.7%	4.3%
Bartenders	$22,600	2.9%	2.6%
Combined Food Preparation and Serving Workers, Including Fast Food	$21,500	29.0%	26.5%
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	$20,600	2.8%	2.6%
Waiters and Waitresses	$21,600	23.5%	21.5%
Dining Room and Cafeteria Attendants and Bartender Helpers	$19,400	3.1%	2.8%
Dishwashers	$21,600	4.6%	4.2%
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	$20,900	3.7%	3.4%
All Other Food Preparation and Serving Related Occupations (Avg. All Categories)	$22,900	2.4%	2.2%
Weighted Mean Annual Wage	***$22,700***	**100.0%**	**91.5%**
Sales and Related Occupations			
First-Line Supervisors of Retail Sales Workers	$49,500	2.1%	0.1%
Cashiers	$26,400	95.4%	2.7%
All Other Sales and Related Occupations (Avg. All Categories)	$45,800	2.5%	0.1%
Weighted Mean Annual Wage	***$27,400***	**100.0%**	**2.9%**
Weighted Average Annual Wage - All Occupations	***$24,000***		96.5%

[1] Including occupations representing 2% or more of the major occupation group.

[2] The methodology utilized by the California Employment Development Department (EDD) assumes that hourly paid employees are employed full-time. Annual compensation is calculated by EDD by multiplying hourly wages by 40 hours per work week by 52 weeks.

[3] Occupation percentages are based on the 2012 National Industry - Specific Occupational Employment survey compiled by the Bureau of Labor Statistics. Wages are based on the 2012 Occupational Employment Survey data applicable to Alameda County updated by the California Employment Development Department to 2013 wage levels.

Sources: Bureau of Labor Statistics; California Employment Development Department Compensation Data for Alameda County
Prepared by: Keyser Marston Associates, Inc.
Filename: \\Sf-fs2\wp\12\12090\002\Restaurant 9-26-13; Compensation; 3/5/2014; dd

APPENDIX B TABLE 8
2012 NATIONAL HOTEL WORKER DISTRIBUTION BY OCCUPATION
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

Major Occupations (2% or more)	2012 National Hotel Occupation Distribution (1)	
Management Occupations	66,890	4.5%
Food Preparation and Serving Related Occupations	364,910	*24.7%*
Building and Grounds Cleaning and Maintenance Occupations	471,690	*32.0%*
Personal Care and Service Occupations	58,770	*4.0%*
Sales and Related Occupations	30,710	*2.1%*
Office and Administrative Support Occupations	298,170	*20.2%*
Installation, Maintenance, and Repair Occupations	74,180	*5.0%*
Production Occupations	31,090	*2.1%*
All Other Hotel Related Occupations	79,550	*5.4%*
INDUSTRY TOTAL	1,475,960	100.0%

Notes
(1) Excludes casino hotels

Source: Bureau of Labor Statistics
Prepared by: Keyser Marston Associates, Inc.
Filename: \\Sf-fs2\wp\12\12090\002\Hotel 9-26-13;Major Occupations Matrix; 3/5/2014

APPENDIX B TABLE 9
AVERAGE ANNUAL COMPENSATION, 2013
HOTEL WORKER OCCUPATIONS
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

Occupation [1]	2013 Avg. Compensation [2]	% of Total Occupation Group [3]	% of Total Hotel Workers
Page 1 of 2			
Management Occupations			
General and Operations Managers	$132,900	21.4%	1.0%
Sales Managers	$141,700	9.9%	0.4%
Administrative Services Managers	$101,200	4.0%	0.2%
Financial Managers	$144,800	4.3%	0.2%
Food Service Managers	$51,200	11.6%	0.5%
Lodging Managers	$55,000	39.2%	1.8%
Managers, All Other	$134,300	2.1%	0.1%
All Other Management Occupations (Avg. All Categories)	$128,800	7.5%	0.3%
Weighted Mean Annual Wage	***$92,700***	**100.0%**	**4.5%**
Food Preparation and Serving Related Occupations			
Chefs and Head Cooks	$49,700	2.7%	0.7%
First-Line Supervisors of Food Preparation and Serving Workers	$31,700	5.1%	1.3%
Cooks, Restaurant	$26,200	13.4%	3.3%
Food Preparation Workers	$22,800	3.5%	0.9%
Bartenders	$22,600	8.0%	2.0%
Combined Food Preparation and Serving Workers, Including Fast Food	$21,500	3.9%	1.0%
Waiters and Waitresses	$21,600	29.6%	7.3%
Food Servers, Nonrestaurant	$24,100	8.8%	2.2%
Dining Room and Cafeteria Attendants and Bartender Helpers	$19,400	9.5%	2.4%
Dishwashers	$21,600	6.5%	1.6%
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	$20,900	3.7%	0.9%
All Other Food Preparation and Serving Occupations (Avg. All Categories)	$22,900	5.3%	1.3%
Weighted Mean Annual Wage	***$23,700***	**100.0%**	**24.7%**
Building and Grounds Cleaning and Maintenance Occupations			
First-Line Supervisors of Housekeeping and Janitorial Workers	$47,200	5.9%	1.9%
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	$31,800	6.4%	2.0%
Maids and Housekeeping Cleaners	$29,600	84.8%	27.1%
Landscaping and Groundskeeping Workers	$31,600	2.6%	0.8%
All Other Building and Grounds Occupations (Avg. All Categories)	$33,100	0.4%	0.1%
Weighted Mean Annual Wage	***$30,800***	**100.0%**	**32.0%**
Personal Care and Service Occupations			
First-Line Supervisors of Personal Service Workers	$42,900	4.1%	0.2%
Amusement and Recreation Attendants	$22,700	15.2%	0.6%
Locker Room, Coatroom, and Dressing Room Attendants	$20,900	3.3%	0.1%
Baggage Porters and Bellhops	$25,100	35.1%	1.4%
Concierges	$27,900	18.1%	0.7%
Fitness Trainers and Aerobics Instructors	$50,600	3.3%	0.1%
Recreation Workers	$28,200	9.6%	0.4%
Personal Care and Service Workers, All Other	$40,900	3.0%	0.1%
All Other Personal Care and Service Occupations (Avg. All Categories)	$28,100	8.2%	0.3%
Weighted Mean Annual Wage	***$27,700***	**100.0%**	**4.0%**

Sources: Bureau of Labor Statistics; California Employment Development Department Compensation Data for Alameda County
Prepared by: Keyser Marston Associates, Inc.
Filename: \\Sf-fs2\wp\12\12090\002\Hotel 9-26-13;Compensation; 3/5/2014

Occupation [1]	2013 Avg. Compensation [2]	% of Total Occupation Group [3]	% of Total Hotel Workers
Page 2 of 2			
Sales and Related Occupations			
First-Line Supervisors of Retail Sales Workers	$49,500	4.0%	0.1%
First-Line Supervisors of Non-Retail Sales Workers	$89,800	3.0%	0.1%
Cashiers	$26,400	27.9%	0.6%
Retail Salespersons	$28,700	13.8%	0.3%
Sales Representatives, Services, All Other	$71,400	42.6%	0.9%
All Other Sales and Related Occupations (Avg. All Categories)	$45,800	8.5%	0.2%
Weighted Mean Annual Wage	***$50,400***	**100.0%**	**2.1%**
Office and Administrative Support Occupations			
First-Line Supervisors of Office and Administrative Support Workers	$62,400	7.3%	1.5%
Bookkeeping, Accounting, and Auditing Clerks	$45,900	5.6%	1.1%
Customer Service Representatives	$43,200	2.0%	0.4%
Hotel, Motel, and Resort Desk Clerks	$23,600	71.1%	14.4%
Reservation and Transportation Ticket Agents and Travel Clerks	$36,100	2.3%	0.5%
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$43,500	2.0%	0.4%
Office Clerks, General	$37,400	2.3%	0.5%
All Other Office and Administrative Support Occupations (Avg. All Categories)	$43,200	7.3%	1.5%
Weighted Mean Annual Wage	***$30,500***	**100.0%**	**20.2%**
Installation, Maintenance, and Repair Occupations			
Maintenance and Repair Workers, General	$45,800	89.6%	4.5%
All Other Installation, Maint., and Repair Occupations (Avg. All Categories)	$54,600	10.4%	0.5%
Weighted Mean Annual Wage	***$46,700***	**100.0%**	**5.0%**
Production Occupations			
First-Line Supervisors of Production and Operating Workers	$69,700	2.3%	0.0%
Bakers	$29,100	6.2%	0.1%
Laundry and Dry-Cleaning Workers	$25,200	86.7%	1.8%
Stationary Engineers and Boiler Operators	$77,500	2.5%	0.1%
All Other Production Occupations (Avg. All Categories)	$40,900	2.3%	0.0%
Weighted Mean Annual Wage	***$28,100***	**100.0%**	**2.1%**
Weighted Average Annual Wage - All Occupations	***$33,000***		94.6%

[1] Including occupations representing 2% or more of the major occupation group.

[2] The methodology utilized by the California Employment Development Department (EDD) assumes that hourly paid employees are employed full-time. Annual compensation is calculated by EDD by multiplying hourly wages by 40 hours per work week by 52 weeks.

[3] Occupation percentages are based on the 2012 National Industry - Specific Occupational Employment survey compiled by the Bureau of Labor Statistics. Wages are based on the 2012 Occupational Employment Survey data applicable to Alameda County updated by the California Employment Development Department to 2013 wage levels.

Sources: Bureau of Labor Statistics; California Employment Development Department Compensation Data for Alameda County
Prepared by: Keyser Marston Associates, Inc.
Filename: \\Sf-fs2\wp\12\12090\002\Hotel 9-26-13;Compensation; 3/5/2014

APPENDIX B TABLE 10
2012 NATIONAL R&D / BIOTECH WORKER DISTRIBUTION BY OCCUPATION
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

Major Occupations (2% or more)	2012 National R&D / Biotech Occupation Distribution	
Management Occupations	65,220	11.4%
Business and Financial Operations Occupations	56,240	*9.8%*
Computer and Mathematical Occupations	68,580	*12.0%*
Architecture and Engineering Occupations	98,400	*17.2%*
Life, Physical, and Social Science Occupations	149,220	*26.1%*
Healthcare Practitioners and Technical Occupations	11,550	*2.0%*
Office and Administrative Support Occupations	54,580	*9.6%*
Production Occupations	18,500	*3.2%*
All Other R&D / Biotech Related Occupations	48,790	*8.5%*
INDUSTRY TOTAL	571,080	100.0%

Source: Bureau of Labor Statistics
Prepared by: Keyser Marston Associates, Inc.
Filename: \\Sf-fs2\wp\12\12090\002\R&D (Biotech) 9-26-13;Major Occupations Matrix; 3/5/2014

APPENDIX B TABLE 11
AVERAGE ANNUAL COMPENSATION, 2013
R&D / BIOTECH WORKER OCCUPATIONS
JOBS HOUSING NEXUS ANALYSIS
CITY OF EMERYVILLE, CA

Occupation [1]	2013 Avg. Compensation [2]	% of Total Occupation Group [3]	% of Total R&D / Biotech Workers
Page 1 of 3			
Management Occupations			
Chief Executives	$199,700	2.9%	0.3%
General and Operations Managers	$132,900	19.1%	2.2%
Marketing Managers	$155,500	4.4%	0.5%
Sales Managers	$141,700	2.6%	0.3%
Administrative Services Managers	$101,200	3.6%	0.4%
Computer and Information Systems Managers	$157,300	8.9%	1.0%
Financial Managers	$144,800	5.5%	0.6%
Industrial Production Managers	$133,500	2.2%	0.3%
Human Resources Managers	$133,700	2.2%	0.3%
Architectural and Engineering Managers	$166,200	14.4%	1.6%
Natural Sciences Managers	$166,600	18.5%	2.1%
Managers, All Other	$134,300	9.0%	1.0%
All Other Management Occupations (Avg. All Categories)	$128,800	6.8%	0.8%
Weighted Mean Annual Wage	***$148,600***	**100.0%**	**11.4%**
Business and Financial Operations Occupations			
Purchasing Agents, Except Wholesale, Retail, and Farm Products	$70,800	8.0%	0.8%
Compliance Officers	$84,500	7.8%	0.8%
Human Resources Specialists	$74,600	5.4%	0.5%
Logisticians	$81,800	5.0%	0.5%
Management Analysts	$103,200	11.6%	1.1%
Training and Development Specialists	$86,500	5.7%	0.6%
Market Research Analysts and Marketing Specialists	$86,100	8.8%	0.9%
Business Operations Specialists, All Other	$89,300	21.5%	2.1%
Accountants and Auditors	$80,100	12.6%	1.2%
Budget Analysts	$86,400	2.2%	0.2%
Financial Analysts	$98,300	5.0%	0.5%
All Other Food Preparation and Serving Occupations (Avg. All Categories)	$82,600	6.4%	0.6%
Weighted Mean Annual Wage	***$86,300***	**100.0%**	**9.8%**

Sources: Bureau of Labor Statistics; California Employment Development Department Compensation Data for Alameda County
Prepared by: Keyser Marston Associates, Inc.
Filename: \\Sf-fs2\wp\12\12090\002\R&D (Biotech) 9-26-13;Compensation; 3/5/2014

Occupation [1]	2013 Avg. Compensation [2]	% of Total Occupation Group [3]	% of Total R&D / Biotech Workers

Computer and Mathematical Occupations			
Computer and Information Research Scientists	$134,200	4.4%	0.5%
Computer Systems Analysts	$97,000	8.8%	1.1%
Information Security Analysts	$104,000	2.8%	0.3%
Computer Programmers	$98,800	8.0%	1.0%
Software Developers, Applications	$109,200	20.8%	2.5%
Software Developers, Systems Software	$117,700	21.2%	2.5%
Database Administrators	$86,700	2.6%	0.3%
Network and Computer Systems Administrators	$92,400	7.8%	0.9%
Computer Network Architects	$109,500	3.2%	0.4%
Computer User Support Specialists	$60,300	4.4%	0.5%
Computer Network Support Specialists	$81,900	2.1%	0.3%
Computer Occupations, All Other	$87,400	4.4%	0.5%
Operations Research Analysts	$90,100	2.3%	0.3%
Statisticians	$97,300	4.6%	0.6%
All Other Building and Grounds Occupations (Avg. All Categories)	$96,200	2.6%	0.3%
Weighted Mean Annual Wage	***$103,100***	**100.0%**	**12.0%**
Architecture and Engineering Occupations			
Aerospace Engineers	$124,600	13.2%	2.3%
Biomedical Engineers	$99,300	3.6%	0.6%
Chemical Engineers	$129,600	3.3%	0.6%
Computer Hardware Engineers	$119,900	9.8%	1.7%
Electrical Engineers	$112,400	6.2%	1.1%
Electronics Engineers, Except Computer	$102,900	8.1%	1.4%
Industrial Engineers	$105,600	8.4%	1.4%
Mechanical Engineers	$104,000	14.6%	2.5%
Nuclear Engineers	$137,900	2.2%	0.4%
Electrical and Electronics Engineering Technicians	$61,700	4.4%	0.8%
Mechanical Engineering Technicians	$61,300	3.4%	0.6%
Engineering Technicians, Except Drafters, All Other	$85,400	4.5%	0.8%
All Other Architecture and Engineering Occupations (Avg. All Categories)	$98,300	18.2%	3.1%
Weighted Mean Annual Wage	***$105,100***	**100.0%**	**17.2%**
Life, Physical, and Social Science Occupations			
Biochemists and Biophysicists	$82,300	9.0%	2.4%
Microbiologists	$91,500	3.0%	0.8%
Biological Scientists, All Other	$88,600	2.8%	0.7%
Medical Scientists, Except Epidemiologists	$105,500	23.0%	6.0%
Physicists	$110,500	4.0%	1.0%
Chemists	$81,300	11.8%	3.1%
Environmental Scientists and Specialists, Including Health	$80,800	2.3%	0.6%
Physical Scientists, All Other	$115,800	2.9%	0.7%
Biological Technicians	$52,600	12.0%	3.1%
Chemical Technicians	$56,500	5.3%	1.4%
Social Science Research Assistants	$57,400	2.8%	0.7%
All Other Life, Physical, and Social Science Occupations (Avg. All Categories)	$82,500	21.2%	5.5%
Weighted Mean Annual Wage	***$84,500***	**100.0%**	**26.1%**

Sources: Bureau of Labor Statistics; California Employment Development Department Compensation Data for Alameda County
Prepared by: Keyser Marston Associates, Inc.
Filename: \\Sf-fs2\wp\12\12090\002\R&D (Biotech) 9-26-13;Compensation; 3/5/2014

Occupation [1]	2013 Avg. Compensation [2]	% of Total Occupation Group [3]	% of Total R&D / Biotech Workers
Page 3 of 3			
Healthcare Practitioners and Technical Occupations			
Physicians and Surgeons, All Other	$190,500	4.5%	0.1%
Veterinarians	$105,900	2.3%	0.0%
Registered Nurses	$115,100	15.8%	0.3%
Medical and Clinical Laboratory Technologists	$86,300	15.7%	0.3%
Medical and Clinical Laboratory Technicians	$57,700	23.2%	0.5%
Veterinary Technologists and Technicians	$38,800	5.6%	0.1%
Medical Records and Health Information Technicians	$50,800	3.5%	0.1%
Occupational Health and Safety Specialists	$93,000	10.9%	0.2%
Occupational Health and Safety Technicians	$60,600	2.5%	0.1%
All Other Healthcare Practitioners and Technical Occupations (Avg. All Categories)	$104,100	15.8%	0.3%
Weighted Mean Annual Wage	***$88,300***	**100.0%**	**2.0%**
Office and Administrative Support Occupations			
First-Line Supervisors of Office and Administrative Support Workers	$62,400	5.3%	0.5%
Bookkeeping, Accounting, and Auditing Clerks	$45,900	7.3%	0.7%
Customer Service Representatives	$43,200	4.2%	0.4%
Receptionists and Information Clerks	$34,600	2.3%	0.2%
Production, Planning, and Expediting Clerks	$53,300	4.3%	0.4%
Shipping, Receiving, and Traffic Clerks	$34,300	3.0%	0.3%
Executive Secretaries and Executive Administrative Assistants	$60,100	20.5%	2.0%
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$43,500	21.8%	2.1%
Data Entry Keyers	$36,100	2.2%	0.2%
Office Clerks, General	$37,400	15.1%	1.4%
All Other Office and Administrative Support Occupations (Avg. All Categories)	$43,200	13.9%	1.3%
Weighted Mean Annual Wage	***$46,900***	**100.0%**	**9.6%**
Production Occupations			
First-Line Supervisors of Production and Operating Workers	$69,700	8.6%	0.3%
Electrical and Electronic Equipment Assemblers	$39,300	2.6%	0.1%
Team Assemblers	$32,600	15.2%	0.5%
Assemblers and Fabricators, All Other	$30,900	7.9%	0.3%
Machinists	$51,700	12.1%	0.4%
Chemical Equipment Operators and Tenders	$56,700	2.4%	0.1%
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators,	$50,500	2.0%	0.1%
Inspectors, Testers, Sorters, Samplers, and Weighers	$44,500	17.0%	0.5%
Medical Appliance Technicians	$56,200	2.3%	0.1%
Production Workers, All Other	$31,000	6.6%	0.2%
All Other Production Occupations (Avg. All Categories)	$40,900	23.2%	0.8%
Weighted Mean Annual Wage	***$43,500***	**100.0%**	**3.2%**
Weighted Average Annual Wage - All Occupations	***$94,000***		91.5%

[1] Including occupations representing 2% or more of the major occupation group.

[2] The methodology utilized by the California Employment Development Department (EDD) assumes that hourly paid employees are employed full-time. Annual compensation is calculated by EDD by multiplying hourly wages by 40 hours per work week by 52 weeks.

[3] Occupation percentages are based on the 2012 National Industry - Specific Occupational Employment survey compiled by the Bureau of Labor Statistics. Wages are based on the 2012 Occupational Employment Survey data applicable to Alameda County updated by the California Employment Development Department to 2013 wage levels.

Sources: Bureau of Labor Statistics; California Employment Development Department Compensation Data for Alameda County
Prepared by: Keyser Marston Associates, Inc.
Filename: \\Sf-fs2\wp\12\12090\002\R&D (Biotech) 9-26-13;Compensation; 3/5/2014

APPENDIX C: AFFORDABILITY GAPS

A key component of the nexus analysis is the size of the gap between what households can afford and the cost of producing new housing in Emeryville, known as the "affordability gap." In this section, we document the calculation of the affordability gaps used in the nexus analysis.

I. City-Assisted Prototypes

For estimating the affordability gap, there is a need to match a household of each income level with a unit type and size according to governmental regulations and City practices and policies. The City of Emeryville intends to assist in the production of rental units for households in the Very Low (less than 50% of median income) and Low (50 – 80% of median income) income categories, and the production of ownership units for households in the Moderate (80% - 120% of median income) income category. KMA reviewed the development program for several recent affordable rental developments assisted by the Cities of Emeryville and Oakland, and concluded that, on average, the new affordable rental units have 2.0 bedrooms. The affordable ownership units are assumed to be small condominium units with a mix of unit sizes averaging 1.5 bedrooms per unit.

The analysis assumes 4% tax credit financing for the Very Low income units only. The City of Emeryville recently assisted with the development of the Ambassador, a 68-unit apartment project targeted to Very Low income households developed by Resources for Community Development. KMA reviewed the development pro forma for this project to inform the affordability gap analysis. In addition, KMA reviewed the development cost experience of several recent affordable developments in Oakland. KMA also drew from our extensive experience with affordable housing development throughout the Bay Area to ensure that the development program and costs experienced by the Ambassador project are fairly typical, and therefore appropriate for use as a prototype going forward.

II. Affordable Rent Levels

Affordable rent levels are a function of the income level for which the unit is aimed to be affordable; affordable rent levels are estimated by KMA in accordance with the City's methodology and the tax credit program, as appropriate

For the Very Low income unit, KMA utilized the maximum rents published by the California Tax Credit Allocation Committee. The published rents include utilities, so KMA subtracted out a utility allowance based on those utilized in the Ambassador project. The two-bedroom Very Low Income unit is assumed to rent for $959 per month, after utilities. See Appendix C Table 1 for more detail on the calculation of this rent level.

For the Low Income unit, KMA calculated the maximum affordable rent based on the City's standard of 30% of household income available for rent and utilities. Per the City's direction, household income for the purposes of setting the rent is assumed to equal 80% of median,

which is the maximum income for the Low Income category (this creates a conservative estimate of the affordability gap).

Household size is determined by the number of bedrooms plus one, so the two-bedroom unit is assumed to be occupied by a three-person household. KMA calculated the gross rents based on the 2013 California Housing and Community Development Department's (HCD) income limits, and used the same utility allowance as the Very Low income units.

In the table below, the affordable rents for the Low Income category are calculated.

Calculation of Affordable Rents: Low Income	
	2 Bedroom
Area Median Income (AMI), 3-Person Household	$84,150
Household Income @ 80% of AMI	$67,320
Maximum Housing Cost (30% of Monthly Household Income)	$1,683
Utility Allowance	$ (44)
Affordable Rent Net of Utilities	$1,639

For more information on the calculation of this rent level, see Appendix C Table 2. The rent level as defined above (by unit size and income category) governs what the building owner may charge for a particular Low Income unit.

III. Affordable Sales Price

For the condominium affordable to Moderate Income households, KMA calculated the affordable sales price for the average 1.5 bedroom unit using the City of Emeryville's 2013 affordable sales prices. Per the City's direction, the affordable sales price is targeted to a household earning 110% of median; this is less than the maximum income level for the Moderate Income category (120% of median) but consistent with many state and local programs, including the former redevelopment program.

The City calculates the affordable sales prices by bedroom size. Because the condominium units average 1.5 bedrooms, KMA took the midpoint between the 1-bedroom and the 2-bedroom sales price. The maximum affordable sales price for a 1.5 bedroom unit at 110% of Area Median Income is $285,000.

IV. Affordability Gaps

In a nexus study, the affordability gap is the amount of subsidy dollars required to bridge the difference between total development costs and the value of the affordable unit. The unit value of an affordable rental unit is calculated by capitalizing the net operating income generated by the unit. The unit value of an affordable ownership unit is the affordable sales price.

For the Very Low income units, the affordability gap is calculated slightly differently because we assume that these units will receive tax credit financing. For these units, KMA estimates the total sources of funds (including permanent debt, tax credits and a deferred developer fee) and compares that to the total development costs; the difference is the affordability gap, or the amount of additional subsidy dollars necessary to make the project feasible.

a) Development Costs

For the purposes of the nexus analysis, KMA prepared an estimate of total development cost for typical affordable rental units. Total development costs include land, direct construction, all fees and permits, financing and other indirect costs, including profit. KMA drew this estimate from the development pro forma for the Ambassador project, a recent affordable rental development in Emeryville with total development costs of $400,000 per unit. KMA also reviewed the development cost experience of several recent affordable housing projects in Oakland; those projects all had higher development costs, in the $450,000 - $550,000 range per unit. KMA concluded that the experience of the Ambassador project is a reasonable, and perhaps conservative, estimate of total development costs.

The City has not recently assisted with the development of affordable condominium units. For the purposes of this analysis, therefore, KMA uses an estimate of the market rate sales price for new condominium units in Emeryville as a proxy for total development costs. However, no new market rate condominiums have been developed recently in Emeryville (the Bridgewater project is the only condominium project currently being marketed, although that project is a conversion from rental units). KMA reviewed the development program for two recent condominium projects in Oakland – Uptown Place and Broadway Grand – to approximate a new condominium in Emeryville. In addition, KMA gathered resale data for the Vue 46 project in Emeryville, which are condominiums that were built in 2008. From this market research, KMA estimates that a 1.5-bedroom condominium unit in Emeryville would have a market value of $400,000.

For many new developments, particularly City-assisted developments, total development costs could be higher than those estimated here. The conservative estimate of development costs results in a lower supportable nexus amount.

b) Unit Values

To calculate the value of the restricted rental units, KMA first estimated the Net Operating Income generated by the units. The first step is to convert monthly gross rent to an annual gross rent by multiplying by 12. Annual gross rent is then adjusted for vacancy rates during turnover, and then operating costs are netted out. Lost income due to vacancy is estimated at 5% of gross rents. Operating costs cover management, property taxes, and certain other expenses. Based on KMA's experience reviewing operating budgets for affordable apartment projects proposed or built in the local area, the operating expenses are estimated at $6,000 per unit per

year including replacement reserves but excluding property taxes. Property taxes are estimated at 1.25% of the unit's capitalized value (Very Low income units are assumed to be owned by a non-profit general partner and therefore exempt from property taxes). Net Operating Income is calculated by netting out vacancy, operating costs and property taxes from the gross income generated by the unit.

For the Low Income units, the Net Operating Income is capitalized at 7.5% to estimate the value of the restricted units. The Low Income two-bedroom unit has a capitalized value of $145,000.

For the Very Low Income units, the Net Operating Income is used to estimate the amount of permanent debt the project can support, given conservative underwriting assumptions. Additional sources of funds include the market value of 4% tax credits (estimated based on the Ambassador project in Emeryville) and the deferred developer fee. Altogether, these Sources of Funds total $187,500.

For the Moderate Income units, the unit value is the affordable sales price, or $285,000.

The results are summarized below and shown in Appendix C Tables 1, 2 and 3.

Supported Unit Values		
	Net Operating Income	*Unit Value*
Very Low Income	$5,218 per year	$187,500*
Low Income	$10,880 per year	$145,000
Moderate Income	n/a	$285,000

*Total Sources of Funds, which includes permanent debt, tax credits and deferred developer fee.

As shown in the table above, the affordable units do not generate enough value to cover the total development costs of the unit. The resulting gap between unit value and development costs is referred to as the Affordability Gap.

c) Affordability Gaps

The affordability gap conclusions are presented in Appendix C Tables 1, 2 and 3, and summarized below.

Affordability Gaps			
Income Level	*Unit Value*	*Development Cost*	*Affordability Gap*
Very Low Income	$187,500	$400,000	$212,500
Low Income	$145,000	$400,000	$255,000
Moderate Income	$285,000	$400,000	$115,000

These affordability gaps represent the mitigation cost to the City per affordable unit, by income level. They are entered into the nexus analysis to calculate the maximum supported impact fees.

APPENDIX C TABLE 1
AFFORDABILITY GAP: VERY LOW-INCOME HOUSEHOLDS
AFTER 4% TAX CREDIT FINANCING
RESIDENTIAL AND NON RESIDENTIAL NEXUS ANALYSES
CITY OF EMERYVILLE, CA

		50% AMI
I. Affordable Rent		
Average Number of Bedrooms[1]		2 Bedrooms
Maximum Rent per CTCAC		$1,003
(Less) Utility Allowance[2]		($44)
Maximum Monthly Rent per CTCAC		$959
II. Net Operating Income (NOI)		Per Unit
Gross Scheduled Income (GSI)		
Monthly		$959
Annual		$11,508
Other Income		$300
(Less) Vacancy	5%	($590)
Effective Gross Income (EGI)		$11,218
(Less) Operating Expenses[3]		($6,000)
(Less) Property Taxes	1.25%	exempt [4]
Net Operating Income (NOI)		$5,218
III. Capitalized Value and Affordability Gap		
I. Net Operating Income (NOI)		$5,218
II. Sources of Funds		
Supportable Debt		$63,000
Market Value of 4% Tax Credits		$121,000
Deferred Developer Fee		$3,500
III. Total Sources of Funds		$187,500
IV. (Less) Total Development Costs[5]		($400,000)
V. Affordability Gap		**($212,500)**

[1] Average unit size based on the Ambassador project.
[2] Utility allowances from Alameda County Housing Authority.
[3] Includes replacement reserves.
[4] Assumes non-profit general partner.
[5] Development costs based on the Ambassador affordable project (includes prevailing wages).

APPENDIX C TABLE 2
AFFORDABILITY GAP: LOW-INCOME HOUSEHOLDS
RESIDENTIAL AND NON RESIDENTIAL NEXUS ANALYSES
CITY OF EMERYVILLE, CA

		60% AMI [1]	*80% AMI*
I. Affordable Rent			
Average Number of Bedrooms[2]		2 Bedrooms	2 Bedrooms
Average Household Size		3 Persons per HH	3 Persons per HH
Household Income		$50,490	$67,320
Income Allocation to Housing		30%	30%
Monthly Housing Cost		$1,262	$1,683
(Less) Utility Allowance		($44)	($44) [3]
Maximum Monthly Rent		$1,218	$1,639
II. Net Operating Income (NOI)		Per Unit	Per Unit
Gross Scheduled Income (GSI)			
Monthly		$1,218	$1,639
Annual		$14,619	$19,668
Other Income		$300	$300
(Less) Vacancy	5%	($746)	($998)
Effective Gross Income (EGI)		$14,173	$18,970
(Less) Operating Expenses[4]		($6,000)	($6,000)
(Less) Property Taxes	1.25%	($1,320)	($2,090)
Net Operating Income (NOI)		$6,853	$10,880
III. Capitalized Value and Affordability Gap			
I. Net Operating Income (NOI)		$6,853	$10,880
II. Target Return on Investment		7.50%	7.50%
III. Total Capitalized Value		$91,000	$145,000
IV. (Less) Total Development Costs[5]		($400,000)	($400,000)
V. Affordability Gap		($309,000)	**($255,000)**
			gap with rents @80% AMI used in the analysis

[1] The California Health and Safety code standard sets rent levels for Low Income households at 60% of AMI. The Emeryville nexus analysis calculates the affordability gap assuming rents are set at 80% of AMI. This is a conservative assumption, as it results in a lower affordability gap and lower resulting maximum supported fee levels.

[2] Average unit size based on the Ambassador project.

[3] Utility allowances from Alameda County Housing Authority.

[4] Includes replacement reserves.

[5] Development costs based on the Ambassador affordable project (includes prevailing wages).

APPENDIX C TABLE 3
AFFORDABILITY GAP: MODERATE INCOME HOUSEHOLDS
RESIDENTIAL AND NON RESIDENTIAL NEXUS ANALYSES
CITY OF EMERYVILLE, CA

I. City-Assisted Affordable For-Sale Prototype

Building Type	Multi-family Condominiums
Density	80 du/ac
Number of Bedrooms	1.5
Unit Size	1,000 SF
Market Rate Sale Price	$400,000

II. Affordable Sales Price

Household Size	2.5 person HH
110% of Median Income	$79,475
Maximum Affordable Sales Price[(1)]	$285,000

III. Affordability Gap

Market Rate Sale Price	$400,000
(Less) Affordable Price	($285,000)
Affordability Gap	$115,000

[(1)] Based on City of Emeryville's methodology and assumptions, adjusted for household size.

APPENDIX D: NON-DUPLICATION BETWEEN POTENTIAL RESIDENTIAL AND NON-RESIDENTIAL FEE PROGRAMS

The City of Emeryville is currently considering establishing impact fees on non-residential and residential rental construction to help mitigate the impacts of the new buildings on the demand for affordable housing in the City. KMA conducted both a Non-Residential Nexus Analysis and a Residential Nexus; in this appendix, KMA conducts an 'overlap analysis' to determine whether any double-counting of impacts is possible.

To briefly summarize the Non-Residential Nexus Analysis (which is a jobs-housing nexus analysis), the logic begins with jobs located in new workplace buildings such as office buildings, retail spaces and hotels. The nexus analysis then identifies the compensation structure of the new jobs depending on the building type, the income of the new worker households, and the housing affordability level of the new worker households, concluding with the number of new worker households in the lower income affordability levels.

In the Residential Nexus Analysis, the logic begins with the households renting new market rate apartments. The purchasing power of those households generates new jobs in the local economy. The nexus analysis quantifies the jobs created by the spending of the new households and then identifies the compensation structure of the new jobs, the income of the new worker households, and the housing affordability level of the new worker households, concluding with the number of new worker households in the lower income affordability levels.

Some of the jobs that are counted in the Non-Residential Nexus Analysis are also counted in the Residential Nexus Analysis. The overlap potential exists in jobs generated by the expenditures of City residents, such as expenditures for food, personal services, restaurant meals and entertainment. Many jobs counted in the residential nexus are not addressed in the jobs housing analysis at all. For example, school and government employees are counted in the residential nexus analysis but are not counted in the jobs housing analysis which is limited to private sector office buildings, hotel, retail/restaurant, and research and development projects.

Theoretically, there is a set of conditions in which 100% of the jobs counted for purposes of the Non-Residential Nexus are also counted for purposes of the Residential Nexus Analysis. For example, a small retail store or restaurant might be located on the ground floor of a new apartment building and entirely dependent upon customers from the apartments in the floors above. The commercial space on the ground floor pays the Non-Residential fee and the apartments would pay a Residential Impact fee. In this special case, the two programs mitigate the affordable housing demand of the very same workers. The combined requirements of the two programs to fund construction of affordable units must not exceed 100% of the demand for affordable units generated by employees in the new commercial space.

Complete overlap between jobs counted in the Non-Residential Nexus Analysis and jobs counted in the Residential Nexus Analysis could occur only in a very narrow set of circumstances. The following analysis demonstrates that the combined mitigation requirements do not exceed the nexus even if <u>every</u> job counted in the Residential Nexus Analysis is also counted in the Non-Residential Nexus Analysis.

Non-Residential Requirement as a Percent of Nexus

The Non-Residential Nexus Analysis calculates the maximum mitigation amount supported by the analysis. For the purposes of the overlap analysis, we are assuming a fee of $2.00 per square foot for non-residential development. If the City ultimately selects a higher fee level, the overlap analysis should be rerun at the higher fee level.

	Total Nexus Amount	Illustrative Fee	Percent of Nexus
Office	$142.60	$2.00	1.4%
Retail / Restaurant	$244.90	$2.00	0.8%
Hotel	$89.30	$2.00	2.2%
R & D / Biotech	$66.80	$2.00	3.0%

The conclusion is that a fee level of $2.00 per square foot represents 1% to 3% of the nexus cost. So, the Non-Residential fee at $2.00 mitigates less than 3% of the demand for affordable units generated by the new non-residential space.

Residential Requirement under Consideration as a Percent of Nexus

City Staff is considering recommending an affordable housing impact fee for new rental development in the City. The fee currently under consideration by Staff is $20,000 per market rate unit. The table below compares the supported nexus amounts for apartment buildings with a $20,000 fee level.

Proposed Fee as Percent of Maximum Nexus Amount, Apartment Units	
Maximum Nexus Amount	$35,600
Proposed Fee	$20,000
Fee as Percent of Nexus	56%

The conclusion is that the affordable housing impact fee under consideration by City Staff is equal to 56% of the maximum supported by the Residential Nexus analysis.

Combined Requirements within Nexus

A Non-Residential housing fee of $2.00 per square foot is at 1% to 3% of the supported nexus amount and the Residential housing fee under consideration of $20,000 per unit for new apartments is 56% of the supported nexus amount. Therefore, the combined affordable housing mitigations would not exceed the nexus even if there were 100% overlap in the jobs counted in the two nexus analyses.