

# SUPPLEMENTARY REPORT



## EMERYVILLE PUBLIC MARKET – PARCEL B

EMERYVILLE, CA

PEDESTRIAN WIND STUDY

RWDI # 1902969

December 5, 2019

### SUBMITTED TO

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## EXECUTIVE SUMMARY

This report addresses the above-grade wind conditions on the existing terrace located on the building to the east of the railroad tracks at 5858 Horton St (adjacent terrace) and proposed terraces and is supplementary to the report *"Emeryville Public Market – Parcel B, RWDI Project #1902969, November 1, 2019"*.

Photographs of the wind tunnel study model are shown in Images 1 and 2, while the predicted wind hazard and comfort conditions pertaining to both terraces are graphically depicted on site plans in Figures 1A through 2B, with the associated wind speeds listed in Table 1. These results are presented in the report and can be summarized as follows:

### **Wind Hazard Conditions (For informational purposes only):**

- For the Existing configuration (without the project), wind speeds at all locations on the adjacent terrace are anticipated to comply with the wind hazard criterion.
- With the proposed development in place (Alternate G configuration), wind speeds at all locations on the proposed and existing terraces are anticipated to comply with the wind hazard criterion.

### **Wind Comfort Conditions:**

- On an annual basis, no wind speeds on the adjacent terrace in the Existing configuration are expected to exceed the comfort criterion of 11 mph.
- For the Alternate G configuration, no wind speeds on the proposed or adjacent terraces are expected to exceed the comfort criterion of 11 mph. Further, with the Alternate G configuration, there is a positive effect on the adjacent terrace.



## LIST OF FIGURES

- Figure 1A: Wind Hazard Conditions – Existing  
Figure 1B: Wind Hazard Conditions – Alternative G  
  
Figure 2A: Wind Comfort Conditions – Existing  
Figure 2B: Wind Comfort Conditions – Alternative G

## LIST OF TABLES

- Table 1: Pedestrian Wind Hazard and Comfort Results

# 1 WIND TUNNEL STUDY MODEL

A 1:300 scale model of the project site and surroundings was constructed for the wind tunnel tests. The Existing and Alternate G configurations are shown in Images 1 and 2.

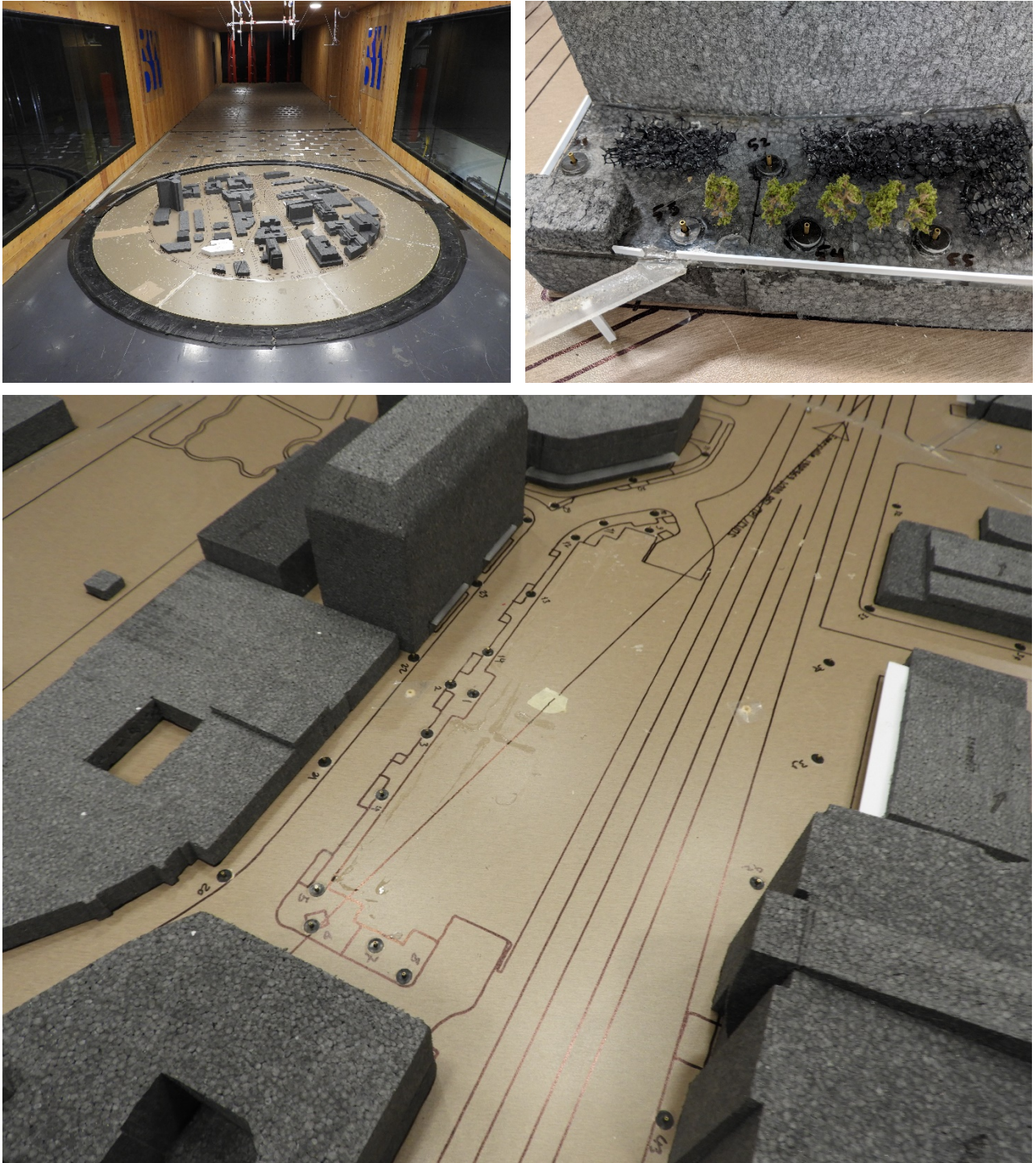


Image 1: Wind Tunnel Study Model – Existing





Image 2: Wind Tunnel Study Model – Alternate G



## 2 RESULTS AND DISCUSSION

The meteorological dataset and pedestrian wind criterion used in the analysis are outlined in the Sections 2.2 and 2.3 of the report *“Emeryville Public Market – Parcel B, RWDI Project #1902969, November 1, 2019”*.

The wind hazard conditions for the configurations tested are graphically depicted on site plans in Figures 1A and 1B located in the “Figures” section of this report. Table 1, located in the “Tables” section, numerically presents these results and lists the predicted wind speed to be exceeded one hour per year. The wind comfort results for the configurations tested are graphically depicted on site plans in Figures 2A and 2B, where locations have been color-coded according to the criteria of the 7 mph and 11 mph comfort categories. This data is also numerically presented in Table 1.

The following is a detailed discussion of the suitability of the predicted wind conditions for each area of interest.

### 2.1 Existing Configuration

For the existing configuration, the 1-hour per year wind hazard criterion is expected to be met at all test locations on the adjacent terrace (Figure 1A). For all locations tested, the average wind speed which is exceeded for 1 hour per year is 22 mph (Table 1).

For all test locations, the average wind speed for 90% of the time is below 10 mph (Table 1) and no wind speeds are predicted to exceed the informational pedestrian comfort criterion of 11 mph (see Figure 2A). On average, winds exceed the comfort criterion 8% of the time when all test locations are considered.

### 2.2 Alternate G

With the proposed Alternate G development, the 1-hour per year wind hazard criterion is expected to be met at all test locations on the proposed and adjacent terraces (Figure 1B). For all locations tested, the average wind speed exceeded for 1 hour per year is 22 mph (Table 1).

For the 11 test locations (an additional 6 on the Proposed terrace), the average wind speed for 90% of the time remains at 10 mph (Table 1) and no wind speeds are predicted to exceed the informational pedestrian comfort criterion of 11 mph (see Figure 2B). On average, winds exceed the comfort criterion 6% of the time when all applicable test locations are considered. These results, in general, indicate a positive effect of the project on the adjacent terrace across the railway tracks.



### 3 APPLICABILITY OF RESULTS

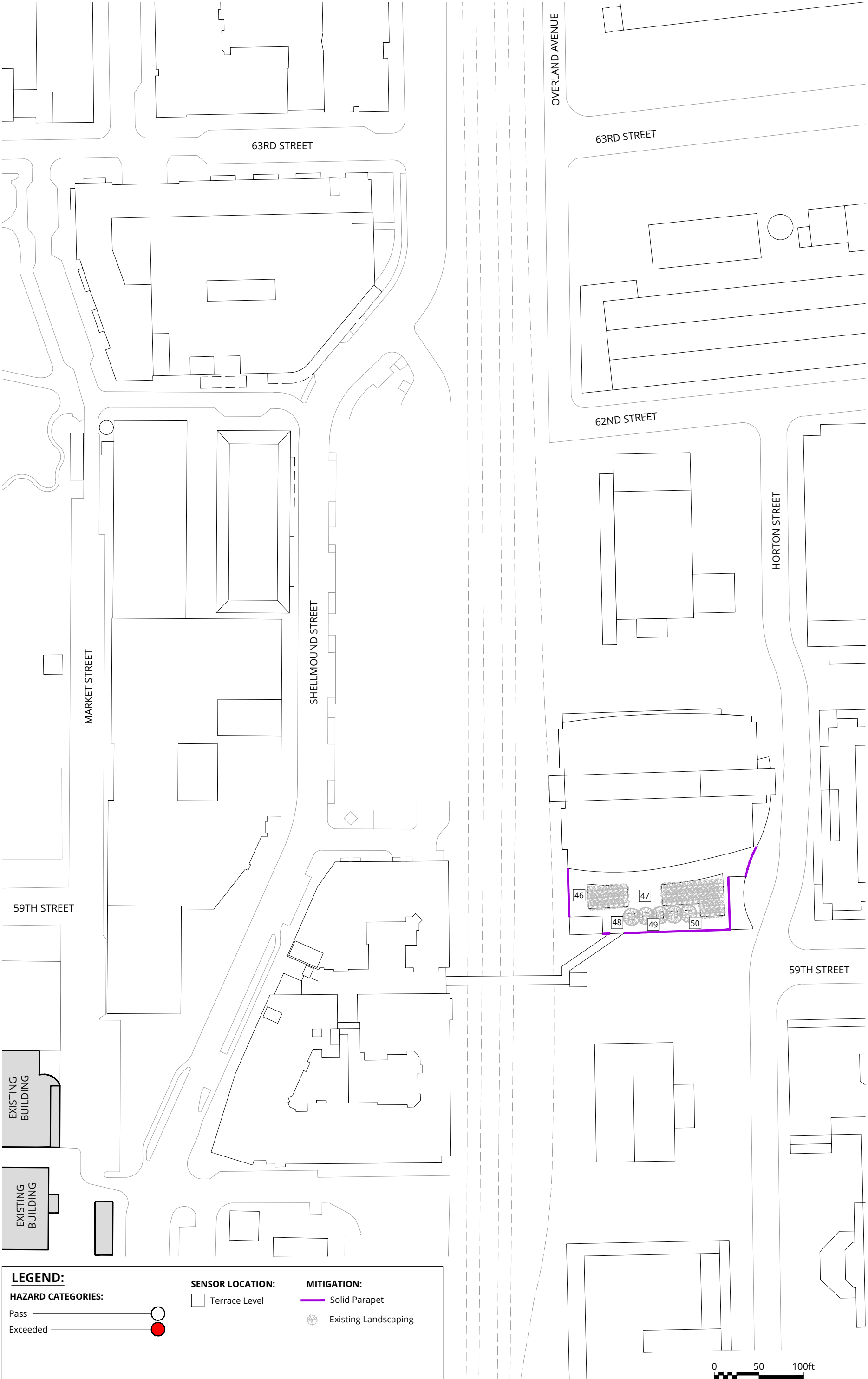
The wind conditions presented in this report pertain to the model of the Emeryville Public Market – Parcel B constructed using the drawings and information listed below. Should there be any design changes that deviate from this list of drawings, the wind condition predictions presented may change. Therefore, if changes in the design are made, it is recommended that RWDI be contacted and requested to review their potential effects on wind conditions.

File Name	File Type	Date Received (dd/mm/yyyy)
13-013_Emeryville_FDP_20190215	SketchUp	22/03/2019
10-013_Emeryville_Parcel B – Wind study-0	SketchUp	28/10/2019
10-013_Parcel B Massing for analysis	SketchUp	30/10/2019
13-013_Emeryville_Parcel B – 11x17_20191031_APPEAL ALT G_Terrace Notes	PDF	19/11/2019

FIGURES










**LEGEND:**



**HAZARD CATEGORIES:**

Pass   
Exceeded 

**SENSOR LOCATION:**

 Terrace Level

**MITIGATION:**

 Solid Parapet  
 Existing Landscaping

**Pedestrian Wind Hazard Conditions**

Existing  
Annual

Emeryville Public Market - Parcel B - Emeryville, CA

True North



Drawn by: GRE | Figure: 1A

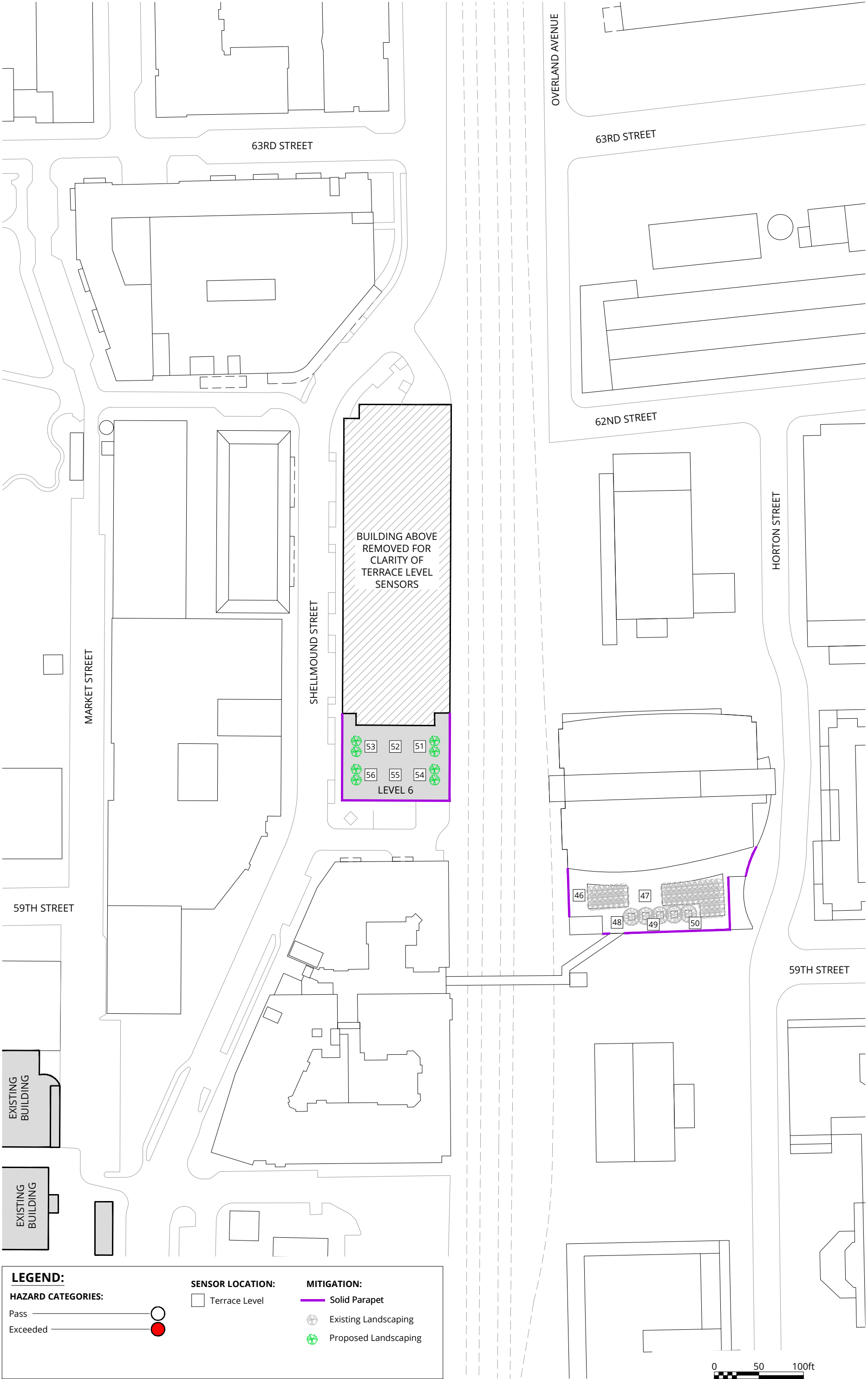
Approx. Scale: 1"=100'

Date Revised: Dec. 4, 2019

Project #1902969





AR3584



**LEGEND:**




**HAZARD CATEGORIES:**

Pass   
Exceeded 

**SENSOR LOCATION:**

 Terrace Level

**MITIGATION:**

-  Solid Parapet
-  Existing Landscaping
-  Proposed Landscaping

**Pedestrian Wind Hazard Conditions**  
Existing + Project  
Annual

Emeryville Public Market - Parcel B - Emeryville, CA



Project #1902969

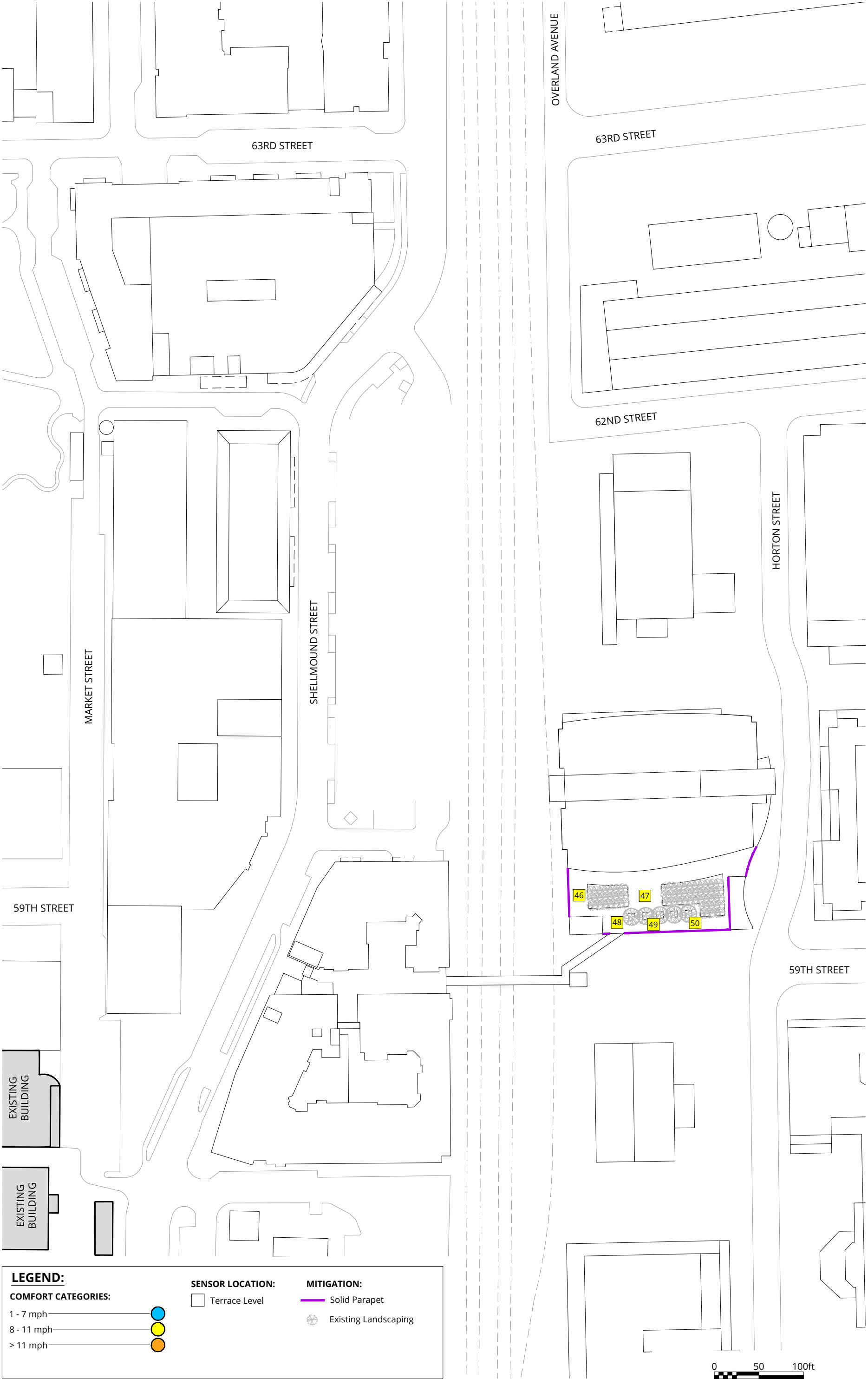
Drawn by: GRE | Figure: 1B

Approx. Scale: 1"=100'

Date Revised: Dec. 4, 2019



AR3585



**LEGEND:**

**COMFORT CATEGORIES:**

- 1 - 7 mph
- 8 - 11 mph
- > 11 mph

**SENSOR LOCATION:**

Terrace Level

**MITIGATION:**

- Solid Parapet
- Existing Landscaping

**Pedestrian Wind Comfort Conditions**

Existing  
Annual

Emeryville Public Market - Parcel B - Emeryville, CA

True North



Drawn by: GRE Figure: 2A

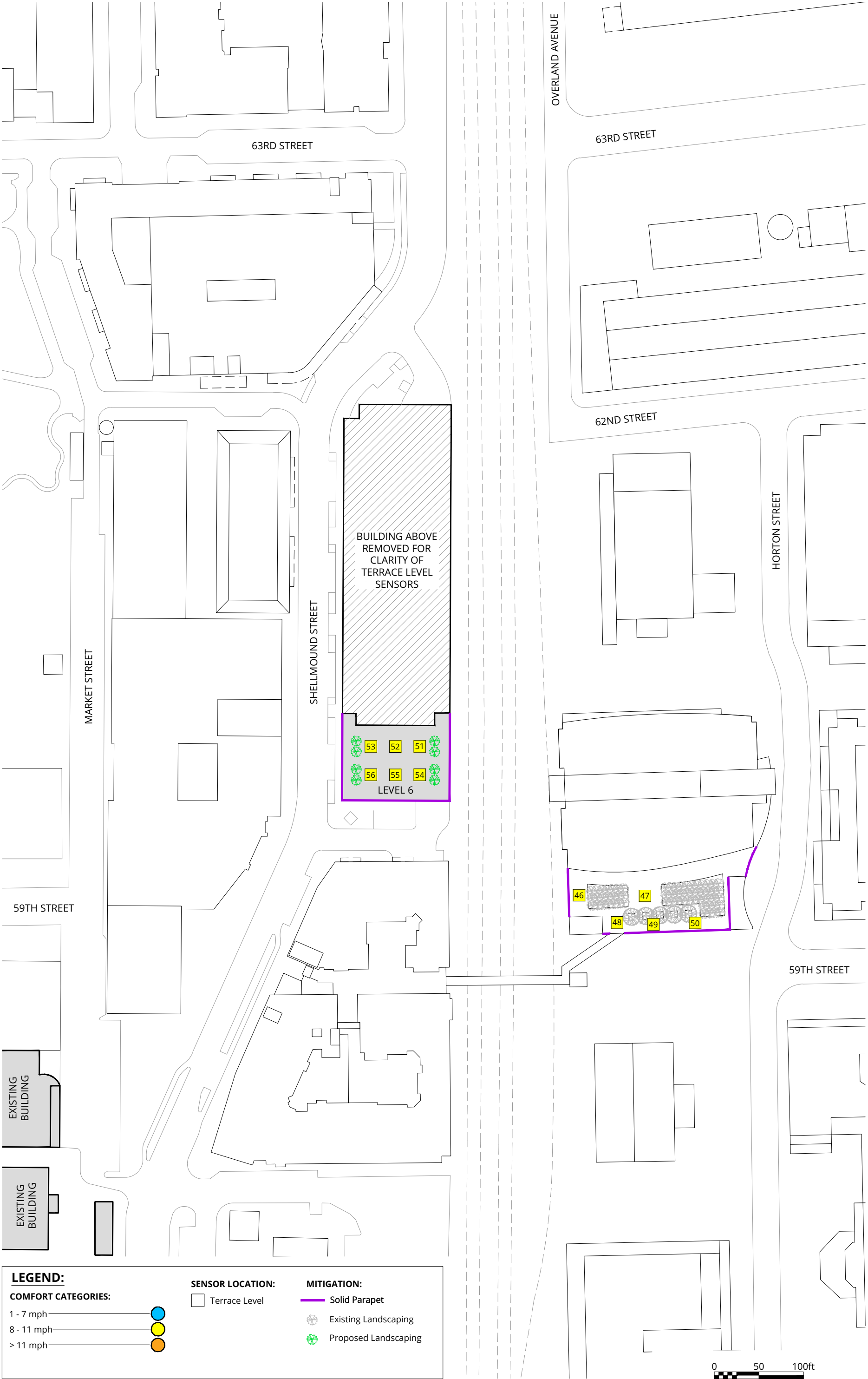
Approx. Scale: 1"=100'

Date Revised: Dec. 4, 2019

Project #1902969



AR3586



**LEGEND:**

- COMFORT CATEGORIES:**
- 1 - 7 mph
  - 8 - 11 mph
  - > 11 mph

**SENSOR LOCATION:**

Terrace Level

**MITIGATION:**

- Solid Parapet
- Existing Landscaping
- Proposed Landscaping

**Pedestrian Wind Comfort Conditions**  
Existing + Project  
Annual

Emeryville Public Market - Parcel B - Emeryville, CA



Project #1902969

Drawn by: GRE Figure: 2B

Approx. Scale: 1"=100'

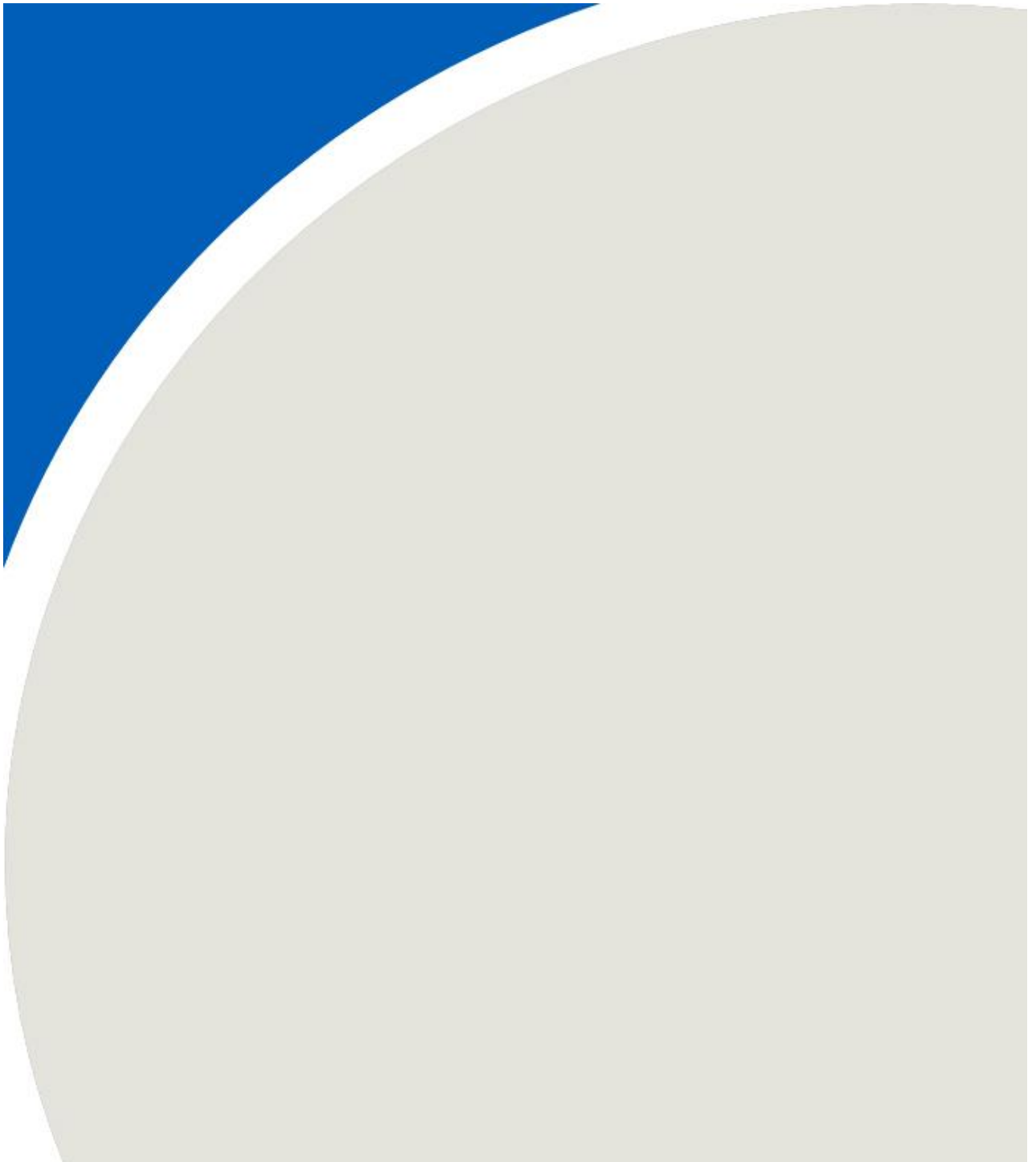
Date Revised: Dec. 4, 2019



AR3587



## TABLES



**Table 1: Pedestrian Wind Hazard and Comfort Conditions**

Location	Configuration	WIND HAZARD				WIND COMFORT			
		Wind Speed Exceeded (mph)	Hours per Year Exceeding	Hours Change	Exceeds	Wind Speed Exceeded (mph)	% of Time Exceeding	Speed Change (mph)	Exceeds
1	Existing Alternate G	24	0	-		11	10	-	
		24	0	0		11	10	0	
2	Existing Alternate G	23	0	-		10	6	-	
		23	0	0		9	5	-1	
3	Existing Alternate G	23	0	-		11	10	-	
		19	0	0		9	3	-2	
4	Existing Alternate G	24	0	-		11	10	-	
		22	0	0		9	3	-2	
5	Existing Alternate G	18	0	-		8	2	-	
		17	0	0		8	1	0	
6	Existing Alternate G	-	-	-		-	-	-	
		27	0	-		9	5	-	
7	Existing Alternate G	-	-	-		-	-	-	
		25	0	-		10	8	-	
8	Existing Alternate G	-	-	-		-	-	-	
		23	0	-		10	8	-	
9	Existing Alternate G	-	-	-		-	-	-	
		23	0	-		11	10	-	
10	Existing Alternate G	-	-	-		-	-	-	
		22	0	-		11	10	-	
11	Existing Alternate G	-	-	-		-	-	-	
		18	0	-		8	2	-	

SUMMARY	Configurations	WIND HAZARD				WIND COMFORT			
		Average (mph)	Total Hours	Hours Change	Total	Average (mph)	Average (%)	Speed Change (mph)	Total
	Existing	22 mph	0 Hrs	-	0 / 5	10 mph	8%	-	0 / 5
	Alternate G	22 mph	0 Hrs	0	0 / 11	10 mph	6%	0	0 / 11

**Notes:**

- 1) Wind Hazard = Wind speeds exceeding 36 mph for  $\geq 1$  hour/year  
 2) Wind Comfort = Wind speeds exceeding 11 mph for  $\geq 10\%$  of the time