

**Appendix E There is no appendix associated
with Section III.E**

**Appendix F There is no appendix associated
with Section III.F**

**Appendix G Cermak Peterka Petersen
Pedestrian Wind Assessment,
March 10, 2008**



Monday, March 10, 2008

Stuart Jones
IBI Group
700 – 1285 W. Pender St.
Vancouver, BC
V6E 4B1

Re: Preliminary Pedestrian Wind Assessment: Response to Comments
Candlestick Point and Hunter's Point Developments, CPP Project 4139,
Addendum 1.

Dear Stuart:

This letter report addresses three issues related to the Preliminary Pedestrian Wind Assessment Final Report issued by CPP in June of 2007.

The first issue concerns changes to some of the tower locations. In some cases, the movement of the tower is expected to improve wind conditions, while in other cases, ground level winds will increase. However, the basic merits of the original layout are maintained, which is that the random layout of the towers (see Figures 1 and 2) is an excellent design feature in terms of mitigating a number of wind effects (when compared to closely grouped towers which can effectively form a wall for certain wind directions).

The second issue concerns the effects of Bayview Hill and Hunter's Point Hill on the wind conditions in the proposed developments. Both hills are directly upwind of the developments for the prevailing westerly winds. As stated in the final report, the hills will:

1. accelerate the wind,
2. change the direction slightly, and
3. cause additional turbulence or gustiness.

1. Accelerated wind flows around hills are most pronounced at the crests and near the sides. For the dominant west winds, the primary location of concern for wind acceleration is at the south end of the hill. As most of the development lies to the west of the hill, acceleration is not considered a major concern.

2. Around San Francisco Bay, high winds are most common in the late afternoon between March and October. During these times, the atmosphere is often quite stable, with a thermal inversion between 1000 ft and 3000 ft above sea level. The lower the temperature inversion, the more wind is forced around the hills, rather than flowing over the top of the hills. This is particularly pronounced for hills which are as high as, or higher than, the inversion level. On days with a particularly low inversion, winds would be expected to be channeled along the direction of the hill, which would produce more of a west-northwest wind at the development site. This possibility is addressed in Figure 11 of the final report. Given that the streets are required to

follow a grid pattern (staggered or meandering streets would further reduce the likelihood of high wind speeds at street level), the streets are well aligned to minimize the likelihood of high pedestrian winds for both the prevailing W and W winds.

3. The full effects of the hills on local wind patterns are difficult to predict. However, one effect which is certain is that much of the Candlestick development will be in the wake of the Bayview hill most afternoons and evenings from spring through autumn. As noted in the final report, wakes tend to feature lower mean wind speeds, but higher turbulence or gustiness. A wind tunnel study of Candlestick Park performed by Jack Cermak at Colorado State University shortly after the stadium was built revealed that it is the turbulence from Bayview Hill which caused wind gusting problems at the Park, making field goals and fly balls more difficult. The wake effect (more gusts, lower average speeds) will diminish with distance from the hill. The wake effect behind Hunter's Point Hill will be much less pronounced than at Candlestick, as the hill is much lower.

Hunter's Point and Candlestick Point are known to be windy locations. Both the proposed arrangement of the streets (at angles to the dominant winds) and the proposed locations of the towers (spread about the development) are well designed to avoid exacerbating wind conditions for pedestrians. Nonetheless, it is likely that mitigation will be desirable in many locations. Potential mitigation measures include

- a. Winding or staggered streets (rather than a clean grid pattern) would keep with winds from sweeping along the streets from end to end, thus helping to keep the faster winds above building height.
- b. Narrow streets would also help to keep high winds above the low-rise buildings and therefore above street level.
- c. Taller buildings will channel high winds from their upper floors down to street level. This phenomenon is called "downwash". It can be mitigated using podium setbacks and street level awnings; for effective mitigation the setback and awnings would have to be of the order of 15 ft. As the winds are highly directional, setbacks may only be needed for buildings faces exposed to the west. Note however that San Francisco Bay does occasionally see strong winds from the south during the winter months. The benefit provided by setbacks can be quantified with a wind tunnel study.
- d. Trees, trellises and porous fences are all common mitigation techniques for locations with higher than desirable pedestrian winds. The benefits of these measures can also be quantified by a wind tunnel study.

Pedestrian level wind conditions around the site are expected to be acceptable for use as a main public accessway, but amelioration techniques as discussed above are likely to be required at specific sites, particularly to ensure the retail areas are fit for purpose and where outdoor dining is being considered. Additional advice on these matters can be given once the detailed design has commenced. Please do not hesitate to contact me with questions or comments.

Sincerely,



David Banks
Sr. Associate

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Figure 1: Proposed development at Candlestick Point

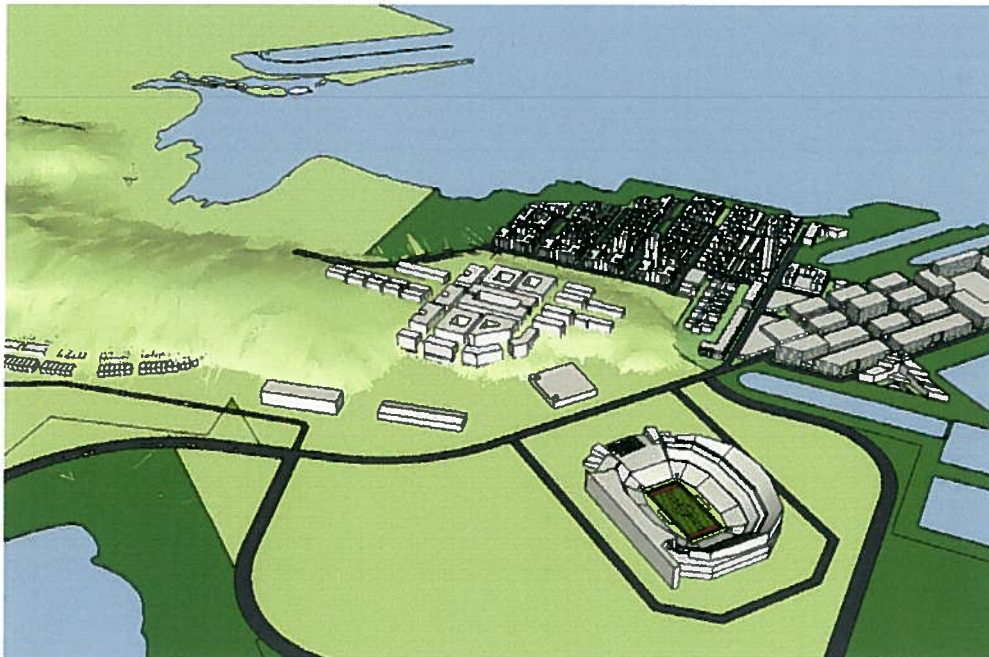


Figure 2: Proposed development at Hunter's Point

FINAL REPORT

PRELIMINARY PEDESTRIAN WIND ASSESSMENT
CANDLESTICK POINT AND HUNTERS POINT DEVELOPMENTS
San Francisco, California

CPP Project 07-4129

June 2007

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EXECUTIVE SUMMARY

An assessment has been made of the likely environmental wind conditions around the proposed Candlestick and Hunters Point developments, San Francisco. This report follows on from a study of the local wind climate, architectural sketch drawings, and discussion with the client. The purpose of the report is to offer advice on the orientation of the development with regard to the likely wind conditions.

Pedestrian level wind conditions around the site are expected to be acceptable for use as a main public accessway, but amelioration techniques are suggested to ensure the retail areas are fit for purpose. No change in the orientation of the roads is recommended.

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1. INTRODUCTION

It is generally accepted that wind speed and the rate of change of wind velocity are the primary parameters that should be used in the assessment of how wind affects pedestrians. Local wind effects can be assessed with respect to a number of environmental wind speed criteria established by various researchers. Despite the apparent differences in numerical values and assumptions made in their development, it has been found that when these are compared on a probabilistic basis, there is remarkably good agreement. Because pedestrians will tolerate higher wind speeds for a smaller period of time than for lower wind speeds, these criteria provide a means of evaluating the overall acceptability of a pedestrian location. Also, a location can be evaluated for its intended use, such as for an outdoor café or a sidewalk. One of the most widely accepted set of criteria was developed by Lawson (1990).

Lawson's criteria have categories for discomfort, based on wind speeds exceeded 5% of the time. The criteria also include a distress rating, for safety assessment, which is based on occasional (once or twice per year) wind speeds. In both cases, the wind speed used the larger of a mean or gust-equivalent-mean (GEM) wind speed. The criteria based on the mean wind speeds define when the steady component of the wind causes discomfort, whereas the GEM wind speeds define when the wind gusts cause discomfort. For this report only the mean wind speeds for distress are discussed. The wind speed categories are listed in Table 1.

A detailed assessment of the acceptability of the pedestrian-wind environment is often desirable (and is required in windier cities such as Boston or San Francisco) during the project design phase so that mitigation measures (typically changes to the landscaping) can be made, if necessary, to improve areas found to be excessively windy. Such an assessment is carried out using scaled-models in a boundary layer wind tunnel, as analytical methods such as computational fluid dynamics (CFD) are not capable at this time, except in very simple geometries, to estimate wind pressures, frame loads, or windiness in pedestrian areas.

In some situations, however, the massing of the buildings presents adverse wind conditions which cannot be easily remedied through local mitigation. A good example of this is Candlestick Park, which was studied by Dr. Jack Cermak at Colorado State University, in a pioneering wind

tunnel test in 1963 (see Figure 1). This study revealed that many of the wind problems experienced in the stadium could have been avoided if the stadium and the parking lot locations had been reversed.

It is the goal of this report to make preliminary assessment of the potential for pedestrian wind problems at the Hunter's Point and Candlestick Point developments. In a detailed assessment, the wind speeds at several points around the site would be measured for 16 wind directions, and the results would be compared to the Lawson criteria at each location. For this preliminary assessment, the criteria of Lawson will serve primarily as a guidelines for the discussion, as we discuss the wind conditions necessary for ratings of suitable for sitting, standing, walking, or business walking.

The proposed developments are depicted in Figure 2 and Figure 3. In the plan view of Figure 2, difference section of the developments are identified:

A. Residential, primarily townhomes. There is a retail strip along the main road running along the NW border of the section, which is expected to have café's and outdoor seating. The street orientation is section A is set by the planners.

B. Retail, with a parking garage on the western edge. Two residential towers are visible to the west of section B. These towers are on the side of the 400 ft-tall hill located to the west of the site.

C. Residential, including several high-rise towers. As with section A, there is a retail corridor along some of the perimeter roads. The street orientation is section C is designed to match that of the existing streets to the northwest of the section.

D. Residential, a mix of 4-story wood frame and three towers. The street orientation is designed to match an existing street grid.

E. Office space and parking structures. The street grid orientation is set by the planners.

F. A residential space which includes many existing buildings.

Note that a proposed football stadium for the San Francisco 49ers is shown at the southern end of the Hunters Point images.

2. WIND CLIMATE

Wind climatology for the everyday winds that affect pedestrians was defined using wind statistics from nearby anemometers. The locations of these anemometers relative to the proposed developments sites are shown in Figure 4. For wind engineering analysis along the San Francisco peninsula, it is customary to use data from San Francisco International Airport (SFO).

The wind roses of Figure 5 indicate the direction and strength of winds at a height of 10m at this airport. The wind roses are simply stacked bar charts arranged in a circle— the longer the bar, the more often the winds originate from that direction. For example, we see in Figure 5a that the dominant wind direction is the West-Northwest, with winds coming out of this direction 23% of the time. Of these winds, winds exceeding 12 mph account for 14%, or nearly two thirds of these winds. Winds come from the neighboring wind directions (West and Northwest) 13% of the time each, so that these three wind directions account for roughly half of the winds.

To get some sense what these winds speeds entail, the Beaufort wind scale is provided in Table 2. Sir Francis Beaufort established the earliest quantitative description of wind effects in 1806, for use at sea. It is still in use today (Penwarden and Wise 1975). The Beaufort scale is based on *mean* velocity only, and includes qualitative descriptions of wind effects. Table 2 suggests that mean wind speeds below 12 mph are of minor concern and that mean wind speeds above 24 mph are definitely inconvenient.

A closer examination of the wind patterns in San Francisco reveals that the winds change markedly during the winter months (Figure 5c), becoming milder and less dominated by the west-northwesterly winds. Figure 6 indicates that the winds also change significantly during the day, typically intensifying from late morning until reaching an average peak of 20 knots (23 mph) in the late afternoon, then diminishing in the evening. As it is the highest 5% of the wind speeds which dictate the pedestrian wind rating system of Table 1, this report will focus on the potential impact of these summer afternoon winds, shown in Figure 5b. Locations which are susceptible to these directions can be expected to experience higher speeds more often, and will develop reputations as windy places. The high exceedance of the wind speed governing the criteria for long term stationary activities, Table 1, means that any outdoor eating areas will have to be carefully located to ensure acceptable conditions and profitable tenancies.

Figure 7a illustrate one of the ways in which a location can be susceptible to winds. When strong winds are aligned with a street grid, then the winds tend to sweep along the streets. Conversely, if the winds and the street are at angles to each other, then the wind tends to pass over the streets, as shown in Figure 7b. This issue is further addressed in the Discussion section below. However, in order to avoid aligning the streets with the dominant wind direction, it is important to identify this wind direction accurately. Figure 8 plots the fraction of the time that a given wind direction was measured at SFO for three different time periods, which represent different anemometer locations. Prior to 1995, the dominant wind direction was 300° (270° is winds from the west; 315° is winds from the NW). After the anemometer was moved in 1995, the dominant wind direction is now reported as 290°.

Given the sensitivity of street orientation to wind direction, CPP pursued additional wind data closer to the sites. Reliable wind data was located for three years from a downtown anemometer, and this data is overlaid with the SFO data in Figure 8. This data indicates less of a shift to the west than had been expected, and that winds from the NW are less of a concern than winds from the west.

CPP has also determined that reliable wind data from a well sited anemometer was recorded at the Hunters Point Naval Shipyard as part of the Superfund Site monitoring. Only 16 months of data from this anemometer are available. To avoid seasonal bias, one full calendar year from Hunters Point is presented in Figure 8 and Figure 9a. This data indicates a clear dominance of westerly winds; strong winds outside a band from 240° to 300° are quite rare.

This shift between the airport and downtown is not unexpected. The dominant wind direction is known to shift with locations around the bay. Figure 9b shows wind data taken from an anemometer across the bay in Oakland, indicating that winds generally come more from the west (270°). Figure 10 shows data taken from around the bay area. We see that on this summer afternoon, winds at SFO are out of the west, but out of the west-southwest at Golden Gate. Wind direction is affected by local topography.

The Candlestick Point development will be influenced by the relatively large hill to the west, which will tend to accelerate the wind and may change the direction from west towards west-north-west. It is the turbulence from this hill which causes wind gusting problems at Candlestick Park.

3. DISCUSSION

3.1 Street Orientation

As mentioned above, when looking at the overall orientation of the scheme it is important to ensure that the streets do not align with the strong prevailing summer afternoon winds, otherwise the wind will be funneled along these streets causing uncomfortable conditions. The funneling of wind will occur along any street when there is a continuous street front with buildings in the order of 4 storeys or taller.

Figure 11 illustrates the street alignment when compared to the prevailing wind directions. None of the streets are vulnerable to west winds. The sections in which the street plan is based upon the existing street plan are vulnerable as the winds shift towards the NW, but these winds are outside the dominant range at Hunters Point.

The streets in each of the sections are aligned in a manner to encourage the wind to flow over the top of the buildings reducing the wind speed at ground level. This becomes more important the wider the street, which may be of importance for the park areas in embedded in the residential areas. Wide streets bordered by tall buildings are especially vulnerable to this so-called “wind tunnel” funneling phenomenon.

Winding streets that do not follow a grid, such as those in section B, can keep high winds above the buildings as well. The impact of wind funneling can be reduced by planting tall, bushy trees along these streets to force the winds to stay above the street level.

3.2 Retail Areas

Candlestick Point has a retail block, and two retail strips; the primary one running south-west to north-east which is understood to contain outdoor eating areas, and the secondary running north-west to south east. The retail block (section B), with its irregular street pattern, is ideal for minimising adverse wind conditions. While the gridded street plans of sections A and C are well aligned to minimize the adverse effects of the dominant winds, the street orientations will nonetheless occasionally tend to encourage wind to be funneled to the retail crossroads, particularly if the local topography shifts the wind directions to align with the nearby hill. The full effects of the hill are

difficult to predict. It is likely that much of the candlestick development will be in the wake of the hill much of the time. Wakes tend to feature lower mean wind speeds, but higher turbulence or gustiness.

Wind conditions at the main crossroads are likely to be gusty and outdoor eating should not be located on this corner (see red highlighted region in Figure 11a). It is best to locate the outdoor eating areas towards the centre of the blocks. Awnings along the street front will give additional protection not only from wind, but also rain, thereby encouraging patrons to come even in inclement weather.

While the street alignments are close to ideal, the potential need to mitigate remains considerable in the face of such a strong dominant afternoon winds. Mitigation measures to counteract pedestrian wind problems could include awnings along the retail strip, combined with local screening and roadside tree planting.

3.3 General Guidelines

Corners: It is best to locate entrances at least 5 m away from the corners of buildings, as these are typically the windiest locations.

Balconies: Any balconies on the high-rise towers should be located away from the building corners, otherwise they will only be usable for a short period of the year. Balconies facing into the prevailing wind direction will be equally uncomfortable for a large portion of the year and can cause issues with building operations due to internal pressurisation.

Towers:

1. By setting the tower on a podium with about a 5 m setback from the street edge, the downwash is forced into the street away from the pedestrian areas. The current scheme typically has the tall towers on the street edge and it would be preferable to mount these on podiums, alternatively include awnings along all frontages in the vicinity of the towers.
2. The random layout of the towers is an excellent design feature in terms of mitigating a number of wind effects. The only tower that causes slight concern is the one on the corner of the main retail streets as this has the potential to cause problems along the main retail strip. It would be better if this tower could be located away from this corner.

3.4 Conclusion

This area of San Francisco is known to be windy, especially in summer afternoons when winds from the west quadrant dominate the wind climate. Based on the Hunters Point wind data, the street

alignments are close to ideal to reducing the effects of winds. In spite of this, it is likely that some locations will be too windy for certain uses, simply because of how windy the site is.

Pedestrian level wind conditions around the site are expected to be acceptable for use as a main public accessway, but amelioration techniques as discussed above will be required to ensure the retail areas are fit for purpose, particularly where outdoor dining is being considered.

Additional advice on these matters can be given once the detailed design has commenced.

REFERENCES

- Hunt, J.C.R., Poulton, E.C., and Mumford, J.C. (1976), "The Effects of Wind on People; New Criteria Based on Wind Tunnel Experiments," *Building and Environment*, Vol. II, pp. 15 – 28.
- Isyumov, N., and Davenport, A.G. (1976), "The Ground Level Wind Environment in Built-Up Areas," *Proceedings of the Fourth International Conference on Wind Effects on Buildings and Structures*, Cambridge University Press, United Kingdom, pp. 403 – 422.
- Lawson, T.V., and Penwarden, A.D. (1976), "The Effects of Wind on People in the Vicinity of Buildings," *Proceedings of the Fourth International Conference on Wind Effects on Buildings and Structures*, Cambridge University Press, United Kingdom, pp. 605 – 622.
- Penwarden, A.D., and Wise, A.F.E. (1975), "Wind Environment Around Buildings," *Building Research Establishment Report*, HMSO.

FIGURES



Figure 1 Original Candlestick Park wind tunnel test model



Figure 2a Proposed development at Candlestick Point

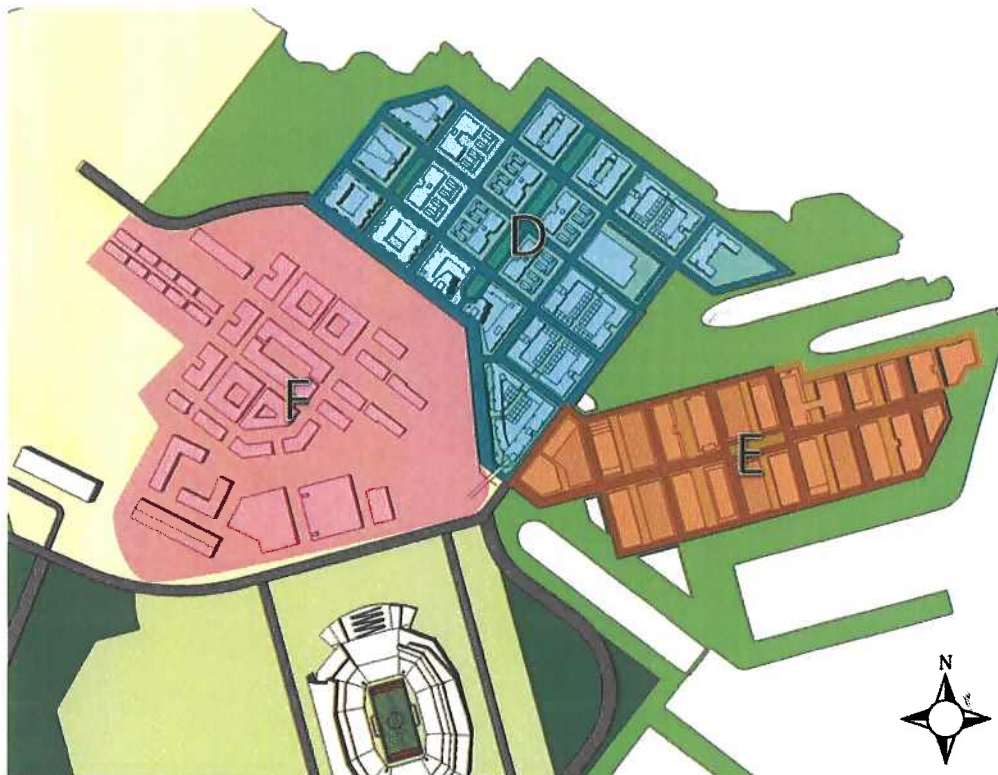


Figure 2b Proposed development at Hunters Point



Figure 3a Proposed development at Candlestick Point

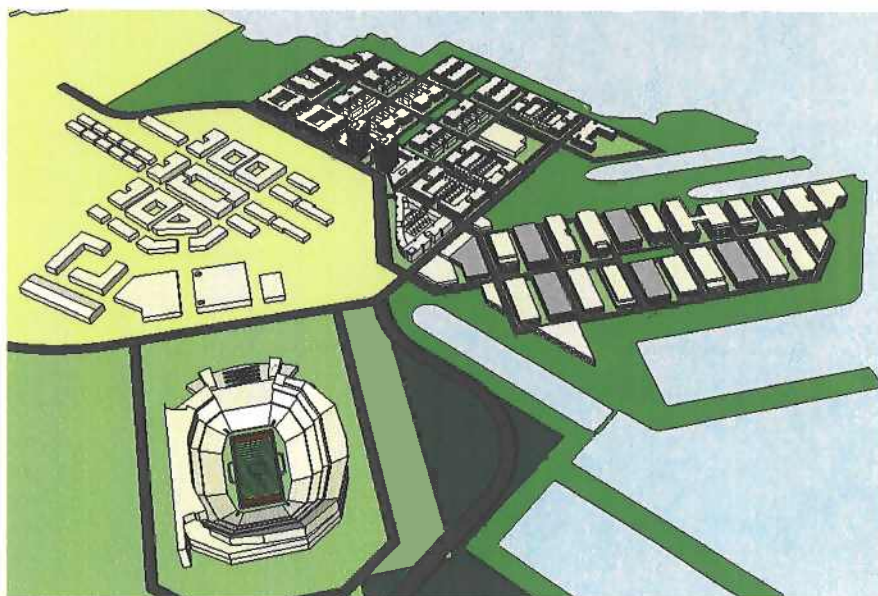


Figure 3b Proposed development at Hunters Point

BayAnemometersP



Figure 4. Project location.

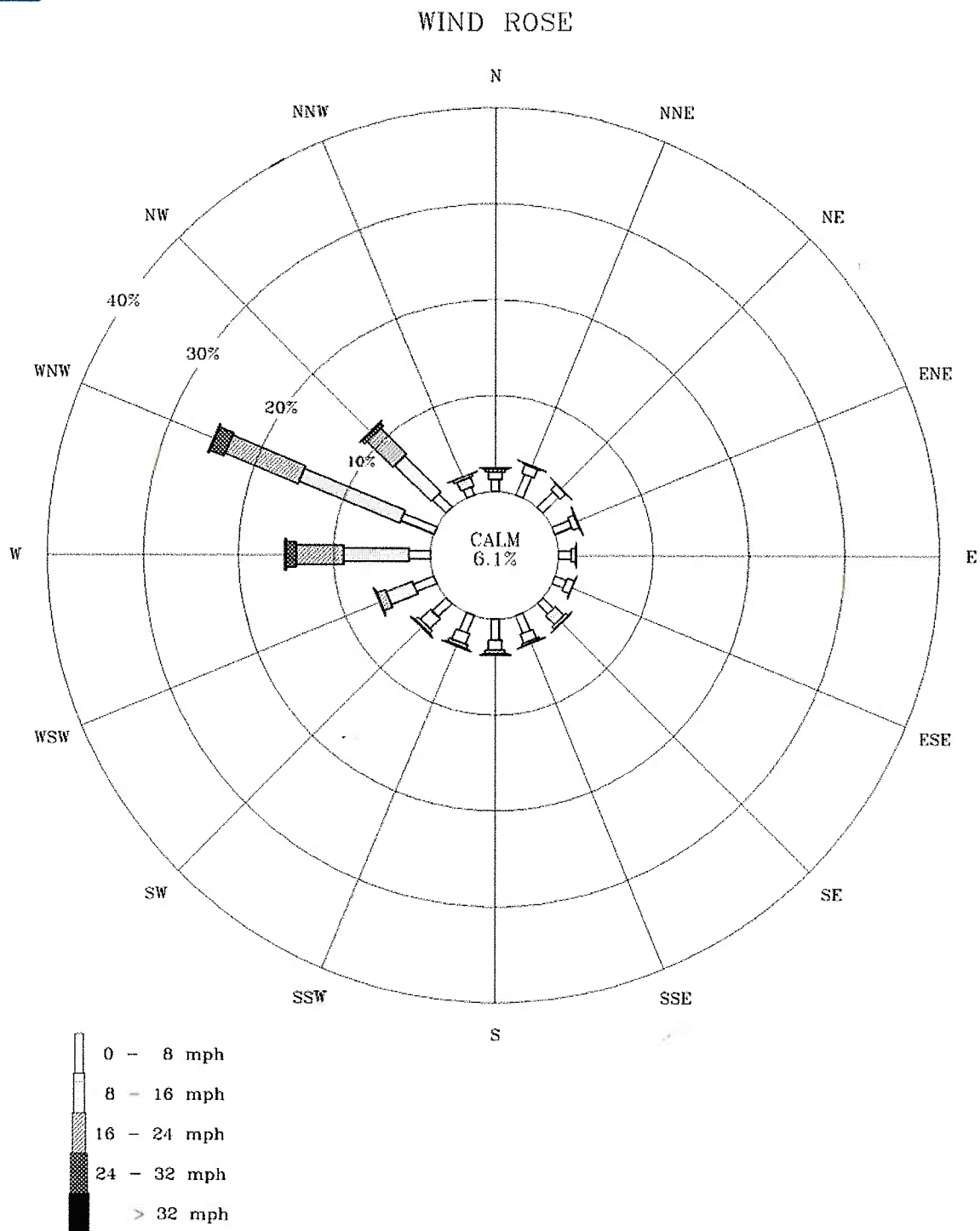
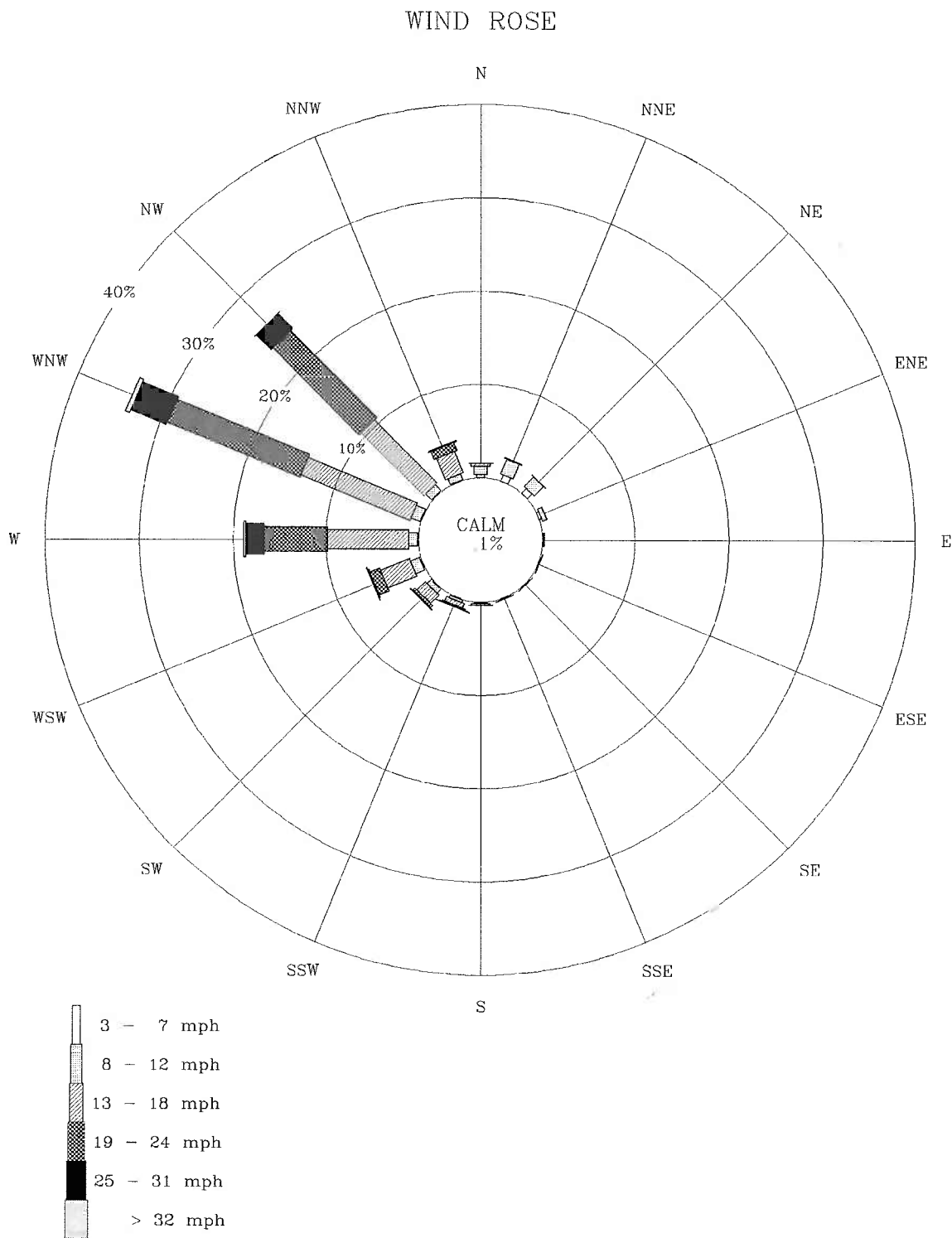
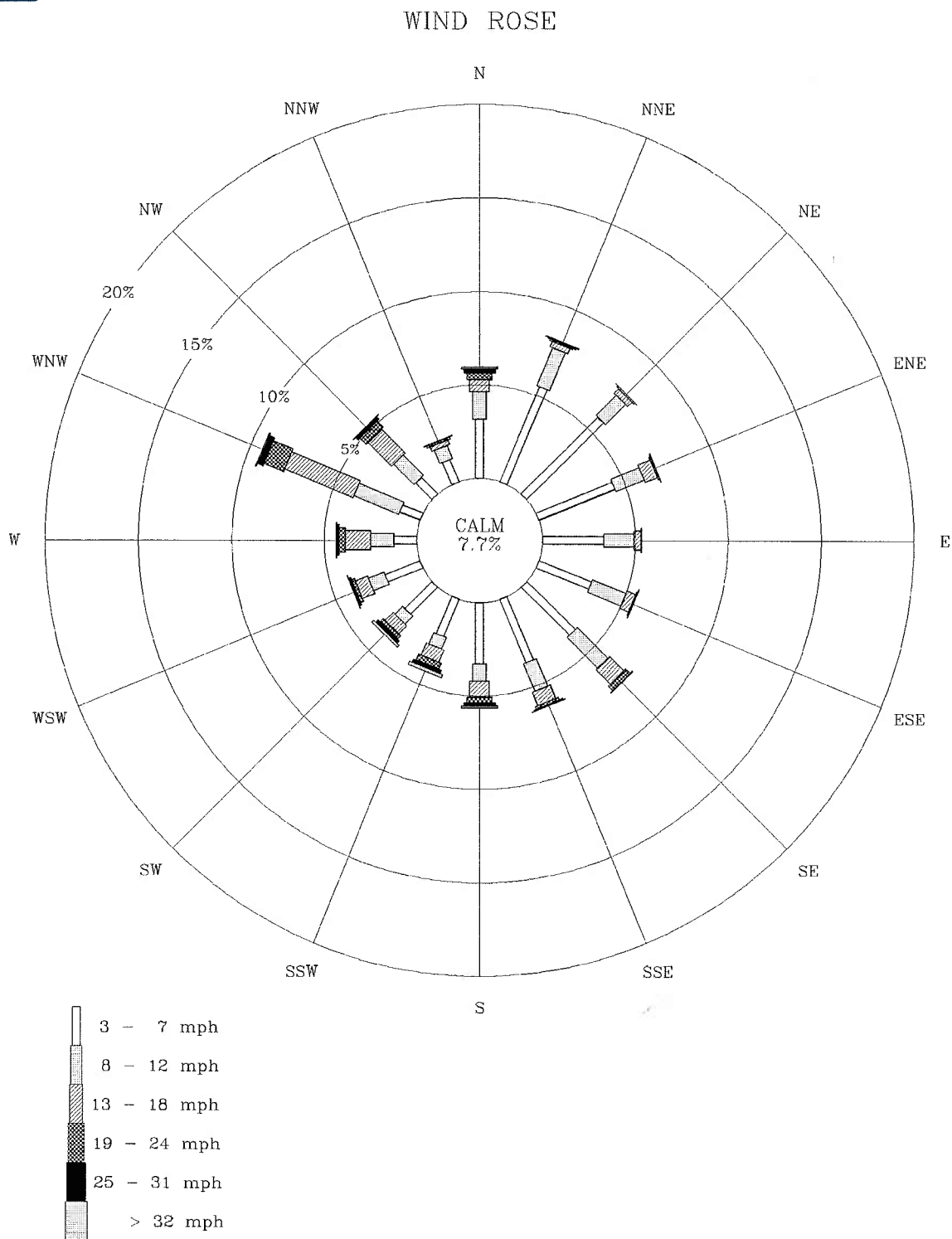


Figure 5a. San Francisco International Airport wind rose (all year, all hours).



San Francisco International Airport – June–August, noon–8pm
 1981–1995: 10 m Anemometer
 Source: Earth Info CD

Figure 5b. San Francisco International Airport wind rose, summer afternoons.



San Francisco International Airport - Dec-Feb, 6am-8pm

1981-1995: 10 m Anemometer

Source: Earth Info CD

Figure 5c. San Francisco International Airport wind rose, winter daytime.

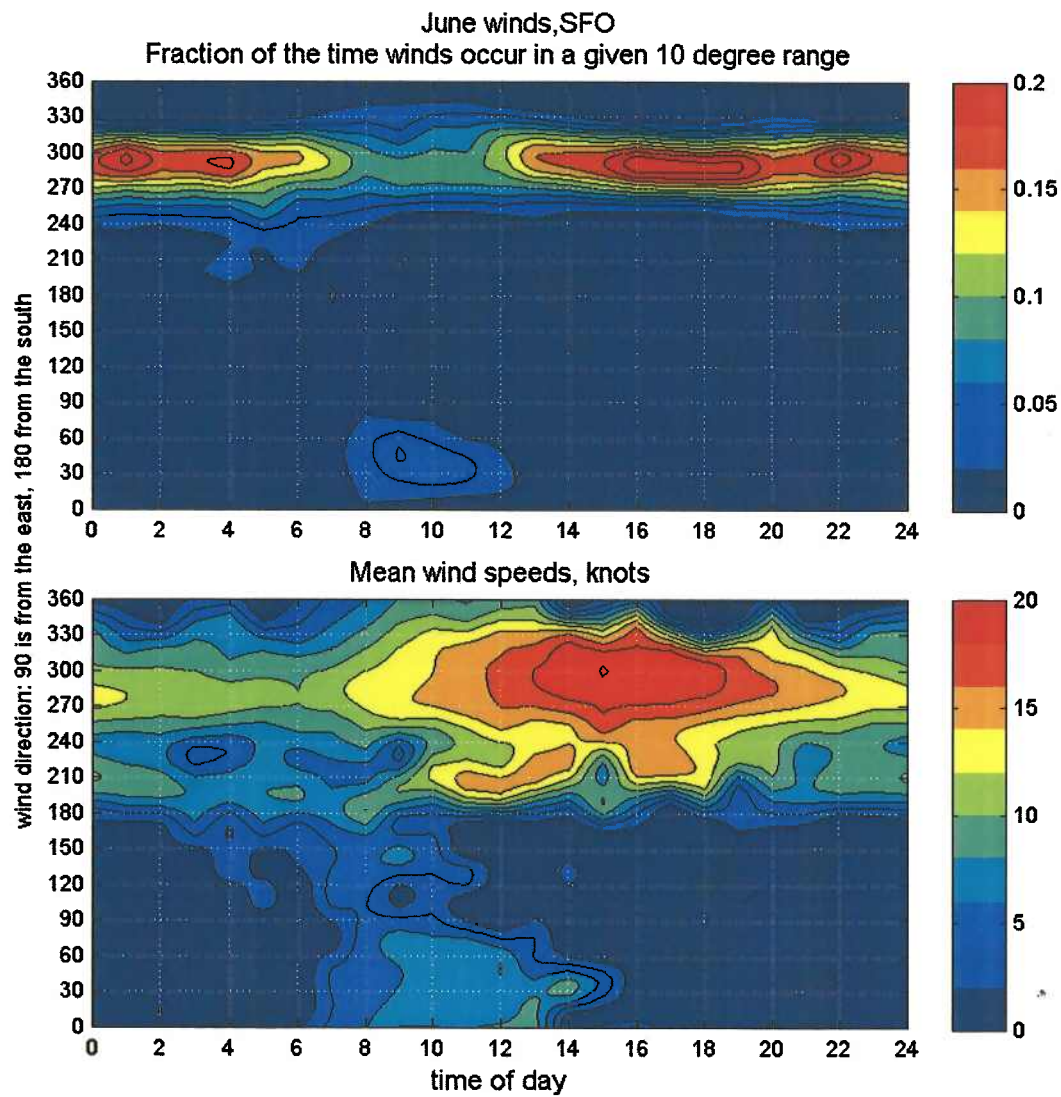


Figure 6 San Francisco International Airport wind speed and direction contours vs. time of day.

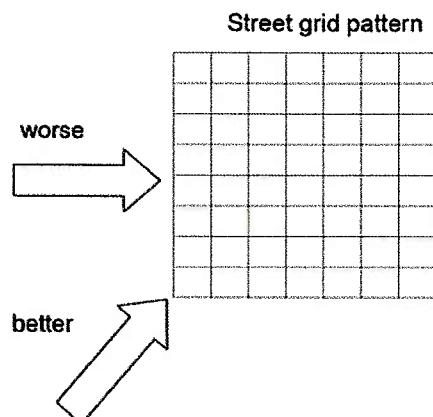


Figure 7a Winds which are not aligned with the direction of the street typically reduce wind speeds at street level.



Figure 7b Illustration of recirculating flows in a street canyon

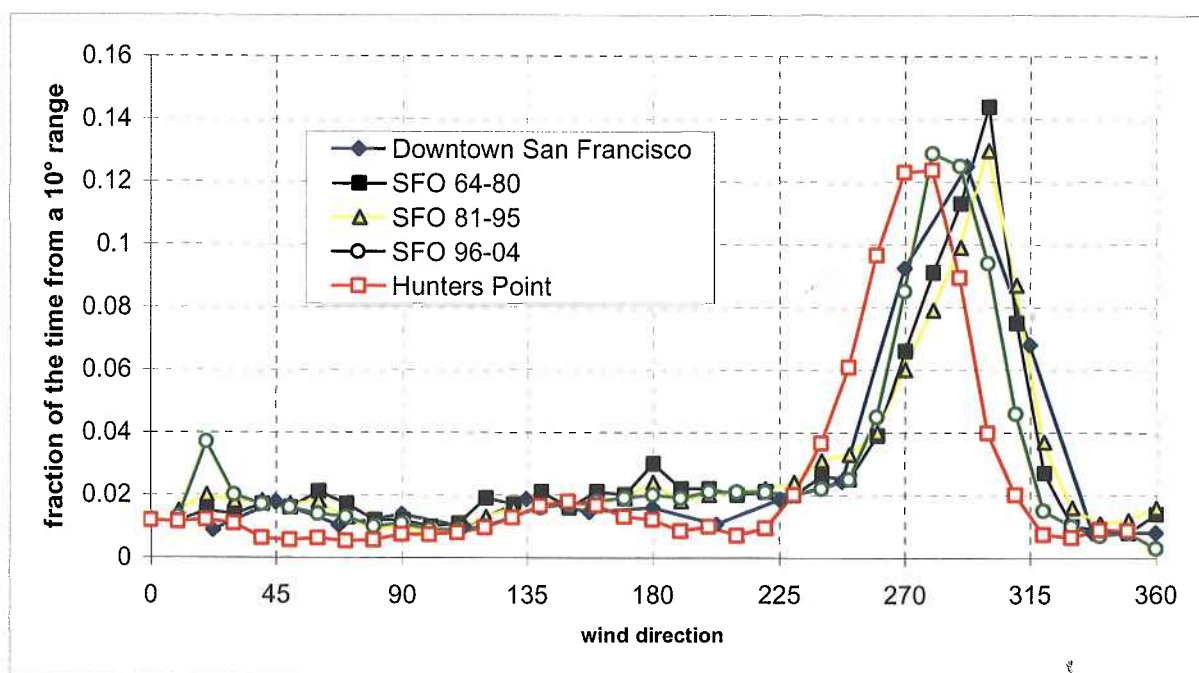
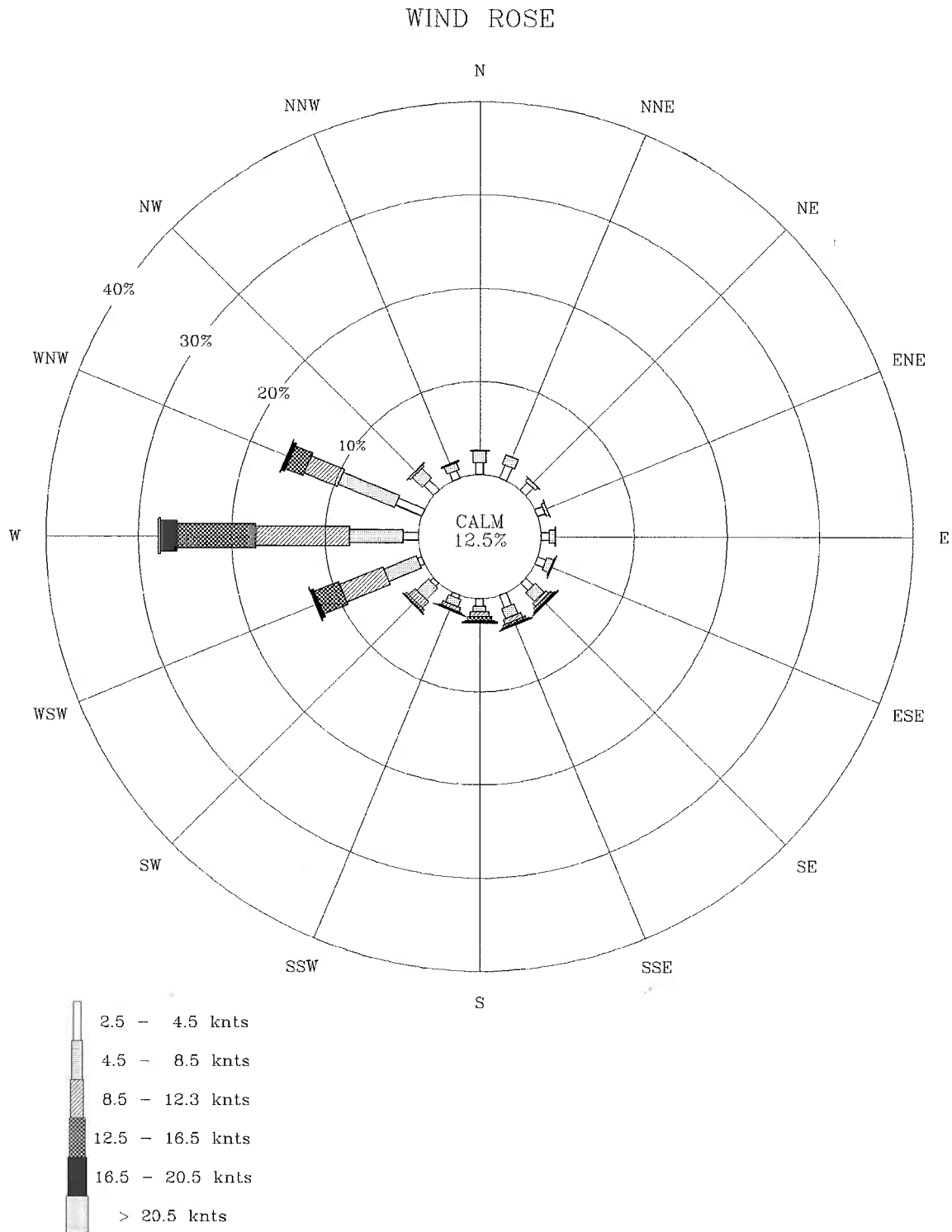


Figure 8 Uncertainty in the dominant wind direction related to anemometer position.

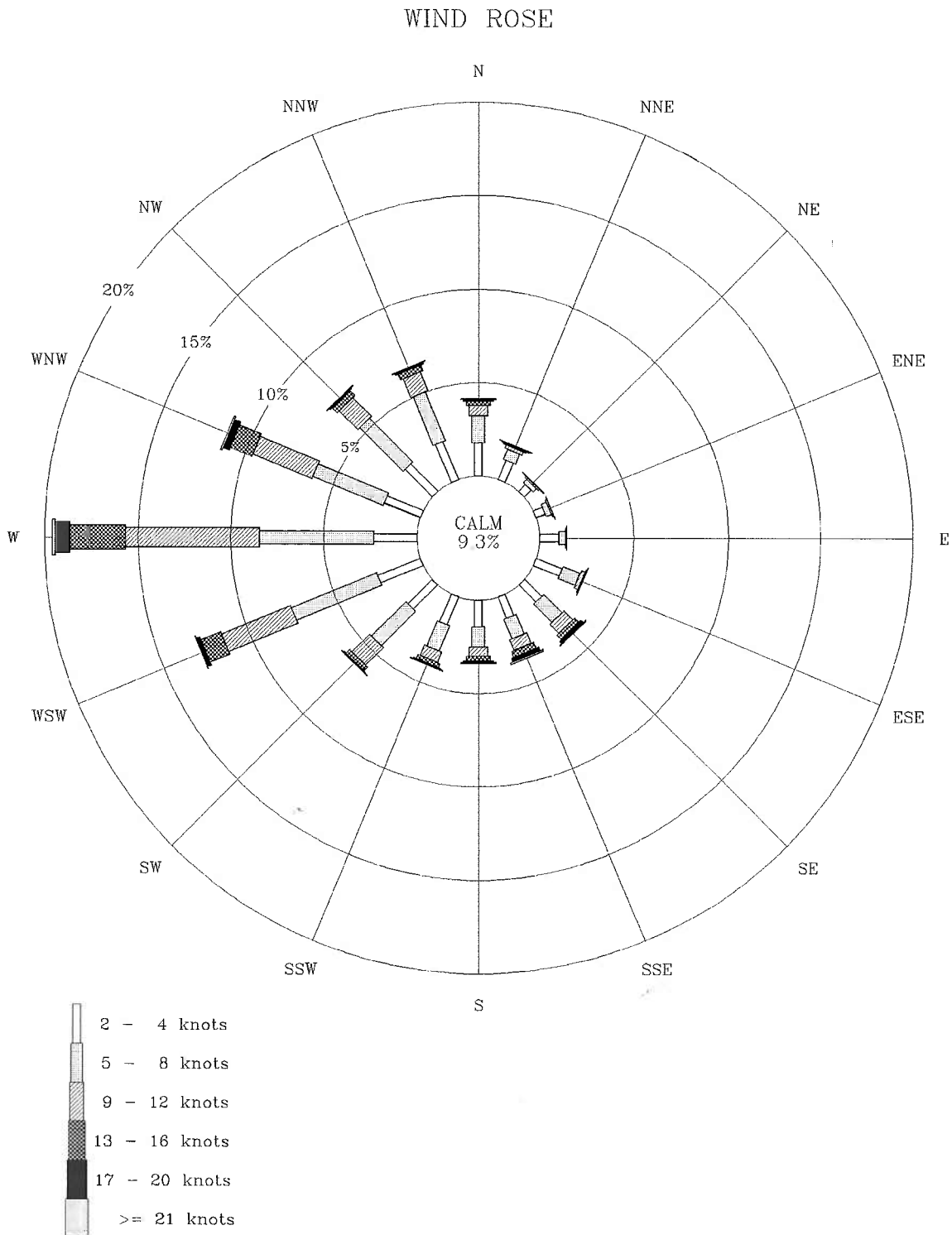


Hunters Point Anemometer, 10m

Dec 1 2002 - Nov 30 2003 (1 hr avg)

Source: Bay Area Air Quality Management District

Figure 9 Hunters Points naval shipyard anemometer. 7 knots = 8 mph.



Alameda Naval Air Station - all seasons
1964-1997

Source: Earth Info CD

Figure 9 Oakland Alameda Naval Air Station wind rose. 7 knots = 8 mph.

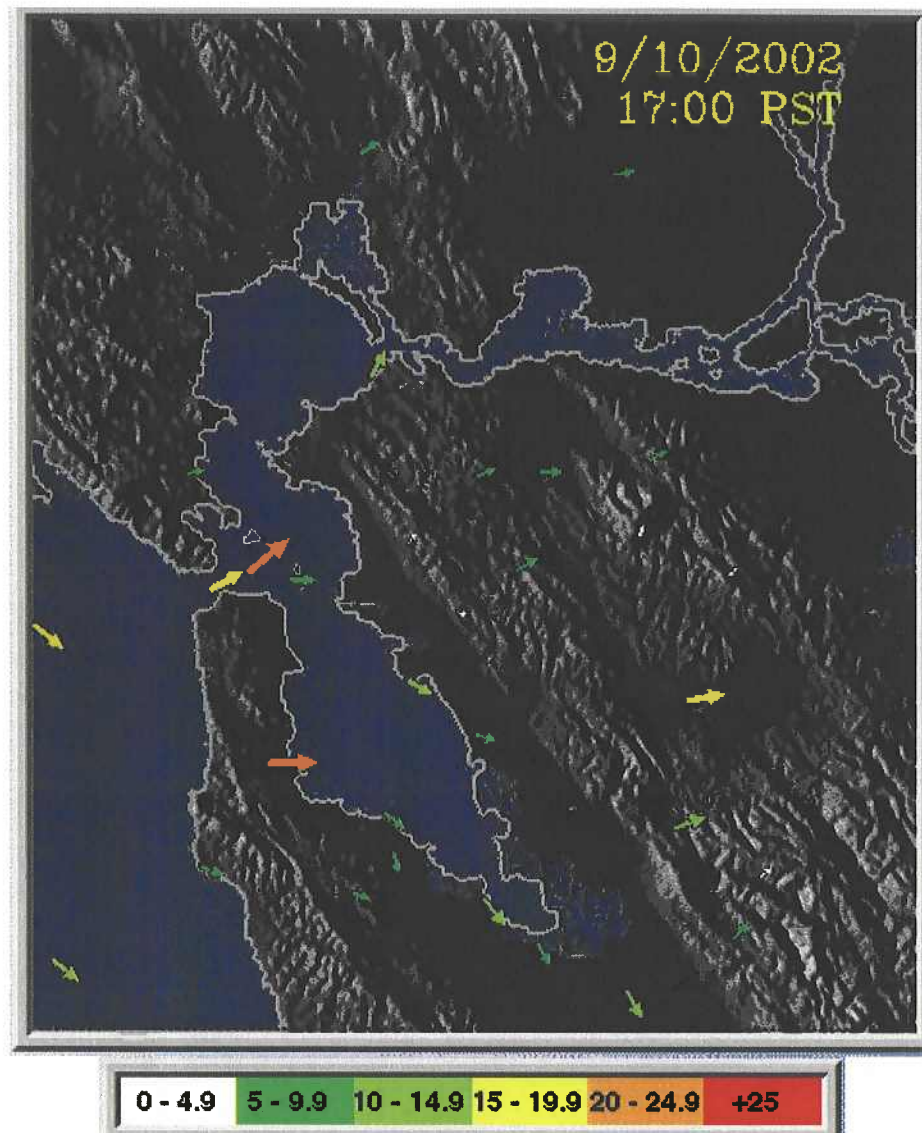
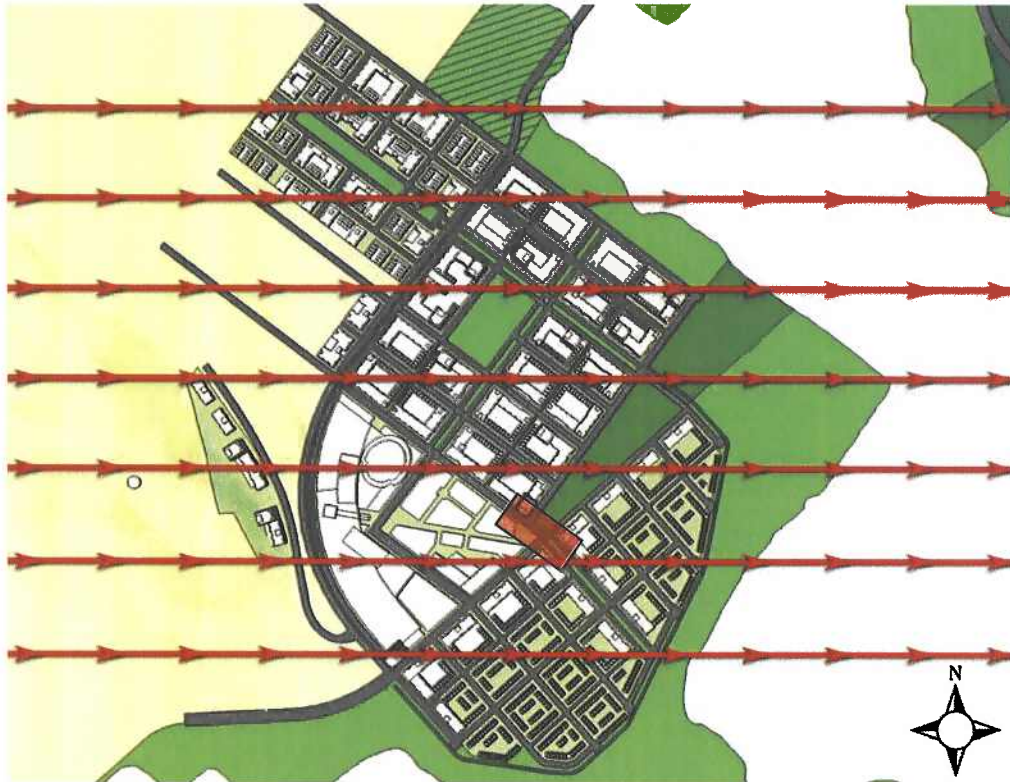


Figure 10: San Francisco Bay anemometer readings for 5 pm, Sept 10, 2002
(from <http://sfports.wr.usgs.gov/cgi-bin/wind/windbin.cgi>)



Westerly



WNW

Figure 11a. Plan view of Candlestick showing comparing street alignment with dominant wind directions. Red highlighted boxes indicate areas of concern.

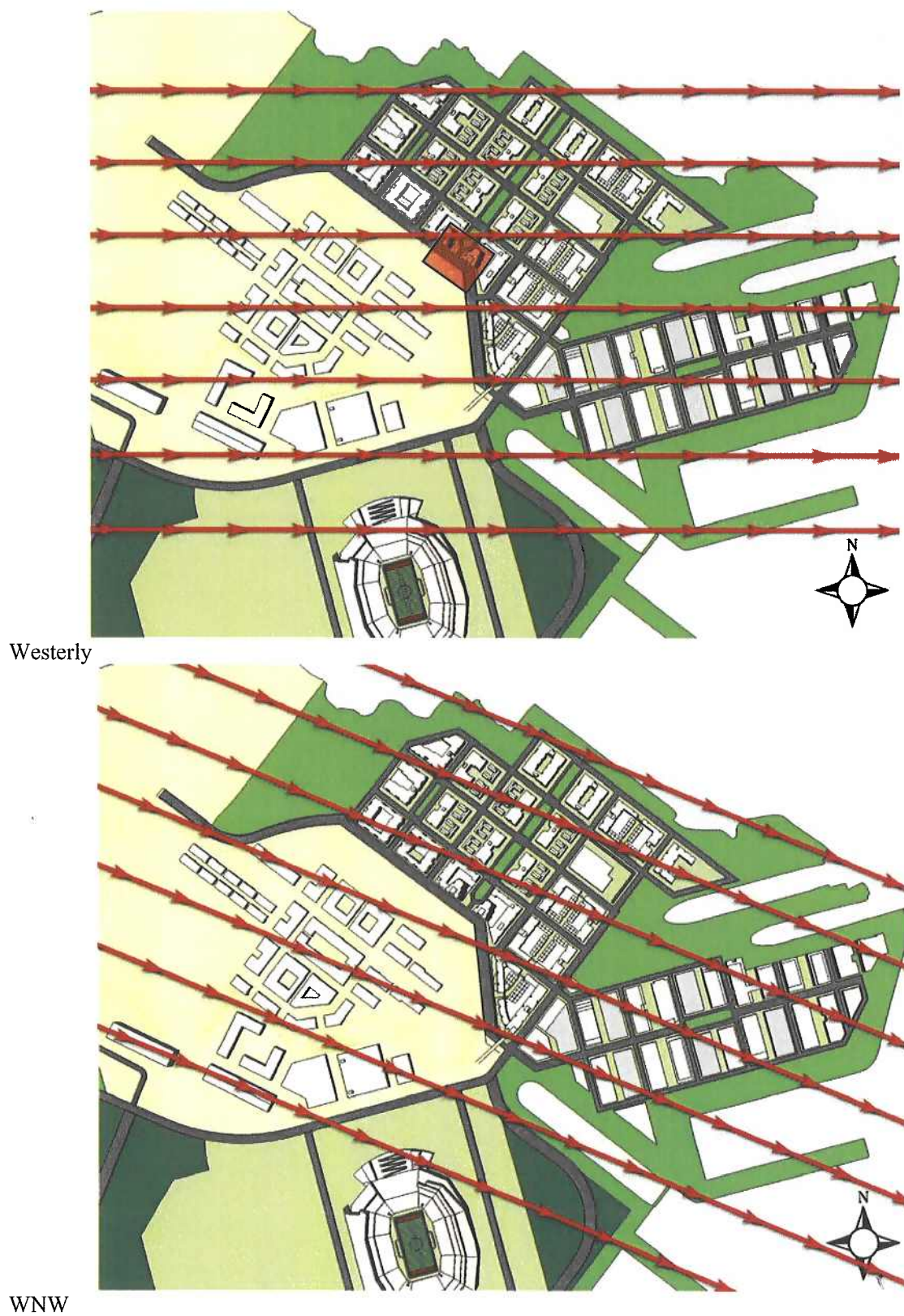


Figure 11b. Plan view of Hunters Point comparing street alignment with dominant wind directions.

TABLES

TABLE 2
SUMMARY OF LAWSON CRITERIA

Comfort (maximum of mean or gust-equivalent-mean (GEM ¹) wind speed exceeded 5% of the time)		
< 4 m/s	< 9 mph	Pedestrian Sitting (considered to be of long duration)
4 - 6 m/s	9 - 13 mph	Pedestrian Standing (or sitting for a short time or exposure)
6 - 8 m/s	13 - 18 mph	Pedestrian Walking
8 - 10 m/s	18- 22 mph	Business Walking (objective walking from A to B or for cycling)
> 10 m/s	> 22 mph	Uncomfortable
Distress (for safety assessment)		
15 m/s	34 mph	not to be exceeded more than two times per year (or one time per season)

Note:

¹. The gust-equivalent-mean (GEM) is the peak gust wind speed divided by 1.85.

TABLE 2
SUMMARY OF WIND EFFECTS ON PEOPLE

Description	Beaufort Number	Mean Speed (mph)	Mean Speed (m/s)	Effects
Calm, light air	0, 1	0–3	0–2	Calm, no noticeable wind.
Light breeze	2	4–7	2–3	Wind felt on face.
Gentle breeze	3	8–12	3–5	Wind extends light flag. Hair is disturbed. Clothing flaps
Moderate breeze	4	13–18	5–8	Raises dust, dry soil, and loose paper. Hair disarranged.
Fresh breeze	5	19–24	8–11	Force of wind felt on body. Drifting snow becomes airborne. Limit of agreeable wind on land.
Strong breeze	6	25–31	11–14	Umbrellas used with difficulty. Hair blown straight. Difficult to walk steadily. Wind noise on ears unpleasant. Windborne snow above head height (blizzard).
Near gale	7	32–38	14–17	Inconvenience felt when walking.
Gale	8	39–46	17–21	Generally impedes progress. Great difficulty with balance in gusts.
Strong gale	9	47–54	21–24	People blown over by gusts.

Note: Table from Penwarden and Wise [1975].

**Appendix H1 PBS&J Air Quality Model
Input/Output, July 2009**

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Bayview CP Variant 1.urb924

Project Name: Bayview Waterfront CP Variant 1

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	449.11	69.91	43.36	0.00	0.16	0.16	88,301.51

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	241.34	217.11	2,372.22	6.42	1,143.23	215.11	639,585.25

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	690.45	287.02	2,415.58	6.42	1,143.39	215.27	727,886.76

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	5.34	69.79	34.09	0.00	0.13	0.13	88,284.66
Hearth - No Summer Emissions							
Landscape	0.74	0.12	9.27	0.00	0.03	0.03	16.85
Consumer Products	384.05						
Architectural Coatings	58.98						
TOTALS (lbs/day, unmitigated)	449.11	69.91	43.36	0.00	0.16	0.16	88,301.51

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	151.23	125.36	1,394.32	3.73	661.83	124.62	371,698.27
Racquetball/health	3.93	4.00	42.71	0.12	21.01	3.95	11,694.44
Hotel	4.99	4.37	46.62	0.13	22.94	4.31	12,766.23
Regnl shop. center	63.66	65.77	699.47	1.92	344.96	64.84	191,878.61
Strip mall	12.53	12.95	137.69	0.38	67.91	12.76	37,771.38
Office park	5.00	4.66	51.41	0.14	24.58	4.63	13,776.32
TOTALS (lbs/day, unmitigated)	241.34	217.11	2,372.22	6.42	1,143.23	215.11	639,585.25

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	206.58	5.76	dwelling units	7,850.00	45,216.00	386,583.26
Racquetball/health		32.93	1000 sq ft	50.00	1,646.50	12,278.77
Hotel		8.17	rooms	220.00	1,797.40	13,404.11
Regnl shop. center		42.94	1000 sq ft	635.00	27,266.90	201,584.18
Strip mall		42.94	1000 sq ft	125.00	5,367.50	39,681.93

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Office park		11.42	1000 sq ft	150.00	1,713.00	14,358.37
					83,007.30	667,890.62

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.2	0.0	100.0	0.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
Hotel				5.0	2.5	92.5
Regnl shop. center				2.0	1.0	97.0
Strip mall				2.0	1.0	97.0
Office park				48.0	24.0	28.0

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Bayview CP Variant 1.urb924

Project Name: Bayview Waterfront CP Variant 1

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	450.91	113.20	52.56	0.28	3.64	3.60	143,696.42

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	243.97	312.71	2,478.29	5.46	1,143.23	215.11	550,544.24

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	694.88	425.91	2,530.85	5.74	1,146.87	218.71	694,240.66

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	5.34	69.79	34.09	0.00	0.13	0.13	88,284.66
Hearth	2.54	43.41	18.47	0.28	3.51	3.47	55,411.76
Landscaping - No Winter Emissions							
Consumer Products	384.05						
Architectural Coatings	58.98						
TOTALS (lbs/day, unmitigated)	450.91	113.20	52.56	0.28	3.64	3.60	143,696.42

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	140.94	180.69	1,444.82	3.18	661.83	124.62	320,160.25
Racquetball/health	4.50	5.76	45.11	0.10	21.01	3.95	10,057.48
Hotel	4.91	6.29	49.25	0.11	22.94	4.31	10,979.23
Regnl shop. center	73.89	94.62	740.29	1.63	344.96	64.84	165,004.06
Strip mall	14.54	18.63	145.73	0.32	67.91	12.76	32,481.11
Office park	5.19	6.72	53.09	0.12	24.58	4.63	11,862.11
TOTALS (lbs/day, unmitigated)	243.97	312.71	2,478.29	5.46	1,143.23	215.11	550,544.24

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 40 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	206.58	5.76	dwelling units	7,850.00	45,216.00	386,583.26
Racquetball/health		32.93	1000 sq ft	50.00	1,646.50	12,278.77
Hotel		8.17	rooms	220.00	1,797.40	13,404.11
Regnl shop. center		42.94	1000 sq ft	635.00	27,266.90	201,584.18
Strip mall		42.94	1000 sq ft	125.00	5,367.50	39,681.93

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Office park		11.42	1000 sq ft	150.00	1,713.00	14,358.37
					83,007.30	667,890.62

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.2	0.0	100.0	0.0

Travel Conditions

Residential					Commercial	
Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer	
10.8	7.3	7.5	9.5	7.4		7.4

Urban Trip Length (miles)

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
Hotel				5.0	2.5	92.5
Regnl shop. center				2.0	1.0	97.0
Strip mall				2.0	1.0	97.0
Office park				48.0	24.0	28.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Bayview CP Variant 2.urb924

Project Name: Bayview Waterfront CP Variant 2

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	373.21	59.73	39.03	0.00	0.14	0.14	75,304.25

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	215.33	195.55	2,132.43	5.78	1,029.41	193.68	575,662.62

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	588.54	255.28	2,171.46	5.78	1,029.55	193.82	650,966.87

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	4.55	59.61	29.76	0.00	0.11	0.11	75,287.40
Hearth - No Summer Emissions							
Landscape	0.74	0.12	9.27	0.00	0.03	0.03	16.85
Consumer Products	318.00						
Architectural Coatings	49.92						
TOTALS (lbs/day, unmitigated)	373.21	59.73	39.03	0.00	0.14	0.14	75,304.25

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	125.22	103.80	1,154.53	3.09	548.01	103.19	307,775.64
Racquetball/health	3.93	4.00	42.71	0.12	21.01	3.95	11,694.44
Hotel	4.99	4.37	46.62	0.13	22.94	4.31	12,766.23
Regnl shop. center	63.66	65.77	699.47	1.92	344.96	64.84	191,878.61
Strip mall	12.53	12.95	137.69	0.38	67.91	12.76	37,771.38
Office park	5.00	4.66	51.41	0.14	24.58	4.63	13,776.32
TOTALS (lbs/day, unmitigated)	215.33	195.55	2,132.43	5.78	1,029.41	193.68	575,662.62

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	171.05	5.76	dwelling units	6,500.00	37,440.00	320,100.79
Racquetball/health		32.93	1000 sq ft	50.00	1,646.50	12,278.77
Hotel		8.17	rooms	220.00	1,797.40	13,404.11
Regnl shop. center		42.94	1000 sq ft	635.00	27,266.90	201,584.18
Strip mall		42.94	1000 sq ft	125.00	5,367.50	39,681.93

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Office park	11.42	1000 sq ft	150.00	1,713.00	14,358.37	
				75,231.30	601,408.15	

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.2	0.0	100.0	0.0

Travel Conditions

Residential					Commercial	
Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer	
10.8	7.3	7.5	9.5	7.4		7.4

Urban Trip Length (miles)

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
Hotel				5.0	2.5	92.5
Regnl shop. center				2.0	1.0	97.0
Strip mall				2.0	1.0	97.0
Office park				48.0	24.0	28.0

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Bayview CP Variant 2.urb924

Project Name: Bayview Waterfront CP Variant 2

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	374.57	95.55	45.05	0.23	3.02	2.99	121,169.75

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	219.73	281.63	2,229.82	4.91	1,029.41	193.68	495,484.83

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	594.30	377.18	2,274.87	5.14	1,032.43	196.67	616,654.58

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	4.55	59.61	29.76	0.00	0.11	0.11	75,287.40
Hearth	2.10	35.94	15.29	0.23	2.91	2.88	45,882.35
Landscaping - No Winter Emissions							
Consumer Products	318.00						
Architectural Coatings	49.92						
TOTALS (lbs/day, unmitigated)	374.57	95.55	45.05	0.23	3.02	2.99	121,169.75

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	116.70	149.61	1,196.35	2.63	548.01	103.19	265,100.84
Racquetball/health	4.50	5.76	45.11	0.10	21.01	3.95	10,057.48
Hotel	4.91	6.29	49.25	0.11	22.94	4.31	10,979.23
Regnl shop. center	73.89	94.62	740.29	1.63	344.96	64.84	165,004.06
Strip mall	14.54	18.63	145.73	0.32	67.91	12.76	32,481.11
Office park	5.19	6.72	53.09	0.12	24.58	4.63	11,862.11
TOTALS (lbs/day, unmitigated)	219.73	281.63	2,229.82	4.91	1,029.41	193.68	495,484.83

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 40 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	171.05	5.76	dwelling units	6,500.00	37,440.00	320,100.79
Racquetball/health		32.93	1000 sq ft	50.00	1,646.50	12,278.77
Hotel		8.17	rooms	220.00	1,797.40	13,404.11
Regnl shop. center		42.94	1000 sq ft	635.00	27,266.90	201,584.18
Strip mall		42.94	1000 sq ft	125.00	5,367.50	39,681.93

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Office park		11.42	1000 sq ft	150.00	1,713.00	14,358.37
					75,231.30	601,408.15

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.2	0.0	100.0	0.0

Travel Conditions

Residential					Commercial	
Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer	
10.8	7.3	7.5	9.5	7.4		7.4

Urban Trip Length (miles)

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
Hotel				5.0	2.5	92.5
Regnl shop. center				2.0	1.0	97.0
Strip mall				2.0	1.0	97.0
Office park				48.0	24.0	28.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Bayview HPS Phase 4.urb924

Project Name: Bayview Waterfront HPS End Phase 4

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	166.47	38.42	30.11	0.00	0.09	0.09	47,554.38

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	150.78	136.93	1,508.00	4.07	722.00	135.89	404,548.94

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	317.25	175.35	1,538.11	4.07	722.09	135.98	452,103.32

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	2.88	38.34	23.93	0.00	0.07	0.07	47,543.14
Hearth - No Summer Emissions							
Landscape	0.49	0.08	6.18	0.00	0.02	0.02	11.24
Consumer Products	129.65						
Architectural Coatings	33.45						
TOTALS (lbs/day, unmitigated)	166.47	38.42	30.11	0.00	0.09	0.09	47,554.38

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	51.05	42.32	470.69	1.26	223.42	42.07	125,477.76
Racquetball/health	3.93	4.00	42.71	0.12	21.01	3.95	11,694.44
Strip mall	12.53	12.95	137.69	0.38	67.91	12.76	37,771.38
Office park	83.27	77.66	856.91	2.31	409.66	77.11	229,605.36
TOTALS (lbs/day, unmitigated)	150.78	136.93	1,508.00	4.07	722.00	135.89	404,548.94

Operational Settings:

Does not include correction for passby trips

7/8/2009 10:04:08 AM

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	69.74	5.76	dwelling units	2,650.00	15,264.00	130,502.63
Racquetball/health		32.93	1000 sq ft	50.00	1,646.50	12,278.77
Strip mall		42.94	1000 sq ft	125.00	5,367.50	39,681.93
Office park		11.42	1000 sq ft	2,500.00	28,550.00	239,306.10
					50,828.00	421,769.43

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0

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Vehicle Fleet Mix						
Vehicle Type	Percent Type	Non-Catalyst			Catalyst	Diesel
School Bus	0.1	0.0			0.0	100.0
Motor Home	0.2	0.0			100.0	0.0
<u>Travel Conditions</u>						
Urban Trip Length (miles)	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
	10.8	7.3	7.5	9.5	7.4	7.4
	16.8	7.1	7.9	14.7	6.6	6.6
	35.0	35.0	35.0	35.0	35.0	35.0
Rural Trip Length (miles)						
Trip speeds (mph)						
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0
Office park				48.0	24.0	28.0

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Bayview HPS Phase 4.urb924

Project Name: Bayview Waterfront HPS End Phase 4

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	541.23	70.64	1,399.02	4.05	217.14	209.01	91,861.49

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	153.06	197.31	1,563.49	3.45	722.00	135.89	348,320.01

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	694.29	267.95	2,962.51	7.50	939.14	344.90	440,181.50

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	2.88	38.34	23.93	0.00	0.07	0.07	47,543.14
Hearth	375.25	32.30	1,375.09	4.05	217.07	208.94	44,318.35
Landscaping - No Winter Emissions							
Consumer Products	129.65						
Architectural Coatings	33.45						
TOTALS (lbs/day, unmitigated)	541.23	70.64	1,399.02	4.05	217.14	209.01	91,861.49

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Apartments mid rise	47.58	61.00	487.74	1.07	223.42	42.07	108,079.57
Racquetball/health	4.50	5.76	45.11	0.10	21.01	3.95	10,057.48
Strip mall	14.54	18.63	145.73	0.32	67.91	12.76	32,481.11
Office park	86.44	111.92	884.91	1.96	409.66	77.11	197,701.85
TOTALS (lbs/day, unmitigated)	153.06	197.31	1,563.49	3.45	722.00	135.89	348,320.01

Operational Settings:

Does not include correction for passby trips

7/8/2009 10:04:41 AM

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 40 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	69.74	5.76	dwelling units	2,650.00	15,264.00	130,502.63
Racquetball/health		32.93	1000 sq ft	50.00	1,646.50	12,278.77
Strip mall		42.94	1000 sq ft	125.00	5,367.50	39,681.93
Office park		11.42	1000 sq ft	2,500.00	28,550.00	239,306.10
					50,828.00	421,769.43

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0

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Vehicle Type	Vehicle Fleet Mix						Catalyst	Diesel
	Percent Type	Non-Catalyst				Commercial		
School Bus	0.1					0.0	0.0	100.0
Motor Home	0.2					0.0	100.0	0.0
	<u>Travel Conditions</u>							
	Residential							
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer		
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4		
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6		
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0		
% of Trips - Residential	32.9	18.0	49.1					
% of Trips - Commercial (by land use)								
Racquetball/health				5.0	2.5	92.5		
Strip mall				2.0	1.0	97.0		
Office park				48.0	24.0	28.0		

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Bayview HPS Variant 1.urb924

Project Name: Bayview Waterfront HPS Variant 1

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	182.32	55.09	44.11	0.00	0.12	0.12	67,554.38

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	234.05	214.59	2,364.91	6.37	1,131.65	213.00	634,154.31

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	416.37	269.68	2,409.02	6.37	1,131.77	213.12	701,708.69

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
Natural Gas	4.09	55.01	37.93	0.00	0.10	0.10	67,543.14
Hearth - No Summer Emissions							
Landscape	0.49	0.08	6.18	0.00	0.02	0.02	11.24
Consumer Products	129.65						
Architectural Coatings	48.09						
TOTALS (lbs/day, unmitigated)	182.32	55.09	44.11	0.00	0.12	0.12	67,554.38

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO ₂	PM ₁₀	PM ₂₅	CO ₂
Apartments mid rise	51.05	42.32	470.69	1.26	223.42	42.07	125,477.76
Racquetball/health	3.93	4.00	42.71	0.12	21.01	3.95	11,694.44
Strip mall	12.53	12.95	137.69	0.38	67.91	12.76	37,771.38
Office park	166.54	155.32	1,713.82	4.61	819.31	154.22	459,210.73
TOTALS (lbs/day, unmitigated)	234.05	214.59	2,364.91	6.37	1,131.65	213.00	634,154.31

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Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	69.74	5.76	dwelling units	2,650.00	15,264.00	130,502.63
Racquetball/health		32.93	1000 sq ft	50.00	1,646.50	12,278.77
Strip mall		42.94	1000 sq ft	125.00	5,367.50	39,681.93
Office park		11.42	1000 sq ft	5,000.00	57,100.00	478,612.20
					79,378.00	661,075.53

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.2	0.0	100.0	0.0

Travel Conditions

	Residential				Commercial	
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Racquetball/health	5.0	2.5	92.5
Strip mall	2.0	1.0	97.0
Office park	48.0	24.0	28.0

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Bayview HPS Variant 1.urb924

Project Name: Bayview Waterfront HPS Variant 1

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	182.69	69.66	44.17	0.09	1.28	1.27	86,249.02

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	239.50	309.24	2,448.39	5.41	1,131.65	213.00	546,021.86

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	422.19	378.90	2,492.56	5.50	1,132.93	214.27	632,270.88

7/14/2009 2:31:26 PM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
Natural Gas	4.09	55.01	37.93	0.00	0.10	0.10	67,543.14
Hearth	0.86	14.65	6.24	0.09	1.18	1.17	18,705.88
Landscaping - No Winter Emissions							
Consumer Products	129.65						
Architectural Coatings	48.09						
TOTALS (lbs/day, unmitigated)	182.69	69.66	44.17	0.09	1.28	1.27	86,249.02

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO ₂	PM ₁₀	PM ₂₅	CO ₂
Apartments mid rise	47.58	61.00	487.74	1.07	223.42	42.07	108,079.57
Racquetball/health	4.50	5.76	45.11	0.10	21.01	3.95	10,057.48
Strip mall	14.54	18.63	145.73	0.32	67.91	12.76	32,481.11
Office park	172.88	223.85	1,769.81	3.92	819.31	154.22	395,403.70
TOTALS (lbs/day, unmitigated)	239.50	309.24	2,448.39	5.41	1,131.65	213.00	546,021.86

7/14/2009 2:31:26 PM

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 40 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	69.74	5.76	dwelling units	2,650.00	15,264.00	130,502.63
Racquetball/health		32.93	1000 sq ft	50.00	1,646.50	12,278.77
Strip mall		42.94	1000 sq ft	125.00	5,367.50	39,681.93
Office park		11.42	1000 sq ft	5,000.00	57,100.00	478,612.20
					79,378.00	661,075.53

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.2	0.0	100.0	0.0

Travel Conditions

	Residential				Commercial	
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Racquetball/health	5.0	2.5	92.5
Strip mall	2.0	1.0	97.0
Office park	48.0	24.0	28.0

7/20/2009 11:36:32 AM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Bayview HPS Variant 2.urb924

Project Name: Bayview Waterfront HPS Variant 2

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	242.36	48.60	34.44	0.00	0.11	0.11	60,551.64

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	176.79	158.49	1,747.79	4.71	835.82	157.32	468,471.57

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	419.15	207.09	1,782.23	4.71	835.93	157.43	529,023.21

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
Natural Gas	3.66	48.52	28.26	0.00	0.09	0.09	60,540.40
Hearth - No Summer Emissions							
Landscape	0.49	0.08	6.18	0.00	0.02	0.02	11.24
Consumer Products	195.69						
Architectural Coatings	42.52						
TOTALS (lbs/day, unmitigated)	242.36	48.60	34.44	0.00	0.11	0.11	60,551.64

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO ₂	PM ₁₀	PM ₂₅	CO ₂
Apartments mid rise	77.06	63.88	710.48	1.90	337.24	63.50	189,400.39
Racquetball/health	3.93	4.00	42.71	0.12	21.01	3.95	11,694.44
Strip mall	12.53	12.95	137.69	0.38	67.91	12.76	37,771.38
Office park	83.27	77.66	856.91	2.31	409.66	77.11	229,605.36
TOTALS (lbs/day, unmitigated)	176.79	158.49	1,747.79	4.71	835.82	157.32	468,471.57

7/20/2009 11:36:32 AM

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	105.26	5.76	dwelling units	4,000.00	23,040.00	196,985.10
Racquetball/health		32.93	1000 sq ft	50.00	1,646.50	12,278.77
Strip mall		42.94	1000 sq ft	125.00	5,367.50	39,681.93
Office park		11.42	1000 sq ft	2,500.00	28,550.00	239,306.10
					58,604.00	488,251.90

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.2	0.0	100.0	0.0

Travel Conditions

	Residential				Commercial	
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Racquetball/health	5.0	2.5	92.5
Strip mall	2.0	1.0	97.0
Office park	48.0	24.0	28.0

7/20/2009 11:37:11 AM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Bayview HPS Variant 2.urb924

Project Name: Bayview Waterfront HPS Variant 2

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	243.16	70.64	37.67	0.14	1.88	1.86	88,775.69

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	177.30	228.38	1,811.96	4.00	835.82	157.32	403,379.42

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	420.46	299.02	1,849.63	4.14	837.70	159.18	492,155.11

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
Natural Gas	3.66	48.52	28.26	0.00	0.09	0.09	60,540.40
Hearth	1.29	22.12	9.41	0.14	1.79	1.77	28,235.29
Landscaping - No Winter Emissions							
Consumer Products	195.69						
Architectural Coatings	42.52						
TOTALS (lbs/day, unmitigated)	243.16	70.64	37.67	0.14	1.88	1.86	88,775.69

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO ₂	PM ₁₀	PM ₂₅	CO ₂
Apartments mid rise	71.82	92.07	736.21	1.62	337.24	63.50	163,138.98
Racquetball/health	4.50	5.76	45.11	0.10	21.01	3.95	10,057.48
Strip mall	14.54	18.63	145.73	0.32	67.91	12.76	32,481.11
Office park	86.44	111.92	884.91	1.96	409.66	77.11	197,701.85
TOTALS (lbs/day, unmitigated)	177.30	228.38	1,811.96	4.00	835.82	157.32	403,379.42

7/20/2009 11:37:11 AM

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 40 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	105.26	5.76	dwelling units	4,000.00	23,040.00	196,985.10
Racquetball/health		32.93	1000 sq ft	50.00	1,646.50	12,278.77
Strip mall		42.94	1000 sq ft	125.00	5,367.50	39,681.93
Office park		11.42	1000 sq ft	2,500.00	28,550.00	239,306.10
					58,604.00	488,251.90

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.2	0.0	100.0	0.0

Travel Conditions

	Residential				Commercial	
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0
Office park				48.0	24.0	28.0

7/20/2009 10:31:26 AM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Bayview IB Variant 1.urb924

Project Name: Bayview Waterfront IB Variant 1

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	79.38	19.48	17.08	0.00	0.06	0.06	24,026.65

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	79.39	72.56	798.27	2.15	382.53	72.00	214,295.75

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	158.77	92.04	815.35	2.15	382.59	72.06	238,322.40

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	1.45	19.42	12.44	0.00	0.04	0.04	24,018.22
Hearth - No Summer Emissions							
Landscape	0.37	0.06	4.64	0.00	0.02	0.02	8.43
Consumer Products	60.66						
Architectural Coatings	16.90						
TOTALS (lbs/day, unmitigated)	79.38	19.48	17.08	0.00	0.06	0.06	24,026.65

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	23.89	19.80	220.25	0.59	104.54	19.69	58,714.12
Strip mall	10.03	10.36	110.15	0.30	54.32	10.21	30,217.10
Office park	45.47	42.40	467.87	1.26	223.67	42.10	125,364.53
TOTALS (lbs/day, unmitigated)	79.39	72.56	798.27	2.15	382.53	72.00	214,295.75

Operational Settings:

7/20/2009 10:31:26 AM

Does not include correction for passby trips
 Does not include double counting adjustment for internal trips
 Analysis Year: 2030 Temperature (F): 85 Season: Summer
 Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	32.63	5.76	dwelling units	1,240.00	7,142.40	61,065.38
Strip mall		42.94	1000 sq ft	100.00	4,294.00	31,745.54
Office park		11.42	1000 sq ft	1,365.00	15,588.30	130,661.13
					27,024.70	223,472.05

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0

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Vehicle Fleet Mix						
Vehicle Type	Percent Type	Non-Catalyst		Catalyst		Diesel
School Bus	0.1	0.0		0.0		100.0
Motor Home	0.2	0.0		100.0		0.0
Travel Conditions						
Residential						
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Strip mall				2.0	1.0	97.0
Office park				48.0	24.0	28.0

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Bayview IB Variant 1.urb924

Project Name: Bayview Waterfront IB Variant 1

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	79.41	26.28	15.36	0.04	0.59	0.59	32,771.16

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	81.10	104.55	827.97	1.83	382.53	72.00	184,503.18

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	160.51	130.83	843.33	1.87	383.12	72.59	217,274.34

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
Natural Gas	1.45	19.42	12.44	0.00	0.04	0.04	24,018.22
Hearth	0.40	6.86	2.92	0.04	0.55	0.55	8,752.94
Landscaping - No Winter Emissions							
Consumer Products	60.66						
Architectural Coatings	16.90						
TOTALS (lbs/day, unmitigated)	79.41	26.28	15.36	0.04	0.59	0.59	32,771.16

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO ₂	PM ₁₀	PM ₂₅	CO ₂
Apartments mid rise	22.26	28.54	228.23	0.50	104.54	19.69	50,573.08
Strip mall	11.64	14.90	116.58	0.26	54.32	10.21	25,984.89
Office park	47.20	61.11	483.16	1.07	223.67	42.10	107,945.21
TOTALS (lbs/day, unmitigated)	81.10	104.55	827.97	1.83	382.53	72.00	184,503.18

Operational Settings:

7/20/2009 10:32:05 AM

Does not include correction for passby trips
 Does not include double counting adjustment for internal trips
 Analysis Year: 2030 Temperature (F): 40 Season: Winter
 Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	32.63	5.76	dwelling units	1,240.00	7,142.40	61,065.38
Strip mall		42.94	1000 sq ft	100.00	4,294.00	31,745.54
Office park		11.42	1000 sq ft	1,365.00	15,588.30	130,661.13
					27,024.70	223,472.05

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0

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Vehicle Fleet Mix							
Vehicle Type	Percent Type		Non-Catalyst		Catalyst		Diesel
School Bus	0.1		0.0		0.0		100.0
Motor Home	0.2		0.0		100.0		0.0
Travel Conditions							
	Residential			Commercial			
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer	
	10.8	7.3	7.5	9.5	7.4	7.4	
	16.8	7.1	7.9	14.7	6.6	6.6	
	35.0	35.0	35.0	35.0	35.0	35.0	
% of Trips - Residential	32.9	18.0	49.1				
% of Trips - Commercial (by land use)							
Strip mall				2.0	1.0		97.0
Office park				48.0	24.0		28.0

Combined Summer Emissions Reports (Pounds/Day)

File Name:

Project Name: Bayview Proposed Project BAU

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	572.16	561.60	6,132.71	16.90	3,018.22	567.37	1,682,188.03

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	572.16	561.60	6,132.71	16.90	3,018.22	567.37	1,682,188.03

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Office park	572.16	561.60	6,132.71	16.90	3,018.22	567.37	1,682,188.03
TOTALS (lbs/day, unmitigated)	572.16	561.60	6,132.71	16.90	3,018.22	567.37	1,682,188.03

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 85 Season: Summer

Erfac: Version : Erfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Office park		11.42	1000 sq ft	14,169.00	161,809.98	1,763,728.73
					161,809.98	1,763,728.73

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.2	0.0	100.0	0.0

Travel Conditions

	Residential				Commercial	
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.9	10.9	10.9	10.9	10.9	10.9
Rural Trip Length (miles)	10.9	10.9	10.9	10.9	10.9	10.9
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Office park	48.0	24.0	28.0
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Combined Winter Emissions Reports (Pounds/Day)

File Name:

Project Name: Bayview Proposed Project BAU

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	613.65	810.35	6,237.35	14.36	3,018.22	567.37	1,447,053.43

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	613.65	810.35	6,237.35	14.36	3,018.22	567.37	1,447,053.43

7/15/2009 1:40:35 PM

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Office park	613.65	810.35	6,237.35	14.36	3,018.22	567.37	1,447,053.43
TOTALS (lbs/day, unmitigated)	613.65	810.35	6,237.35	14.36	3,018.22	567.37	1,447,053.43

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 40 Season: Winter

Erfac: Version : Erfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Office park		11.42	1000 sq ft	14,169.00	161,809.98	1,763,728.73
					161,809.98	1,763,728.73

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.2	0.0	100.0	0.0

Travel Conditions

	Residential				Commercial	
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.9	10.9	10.9	10.9	10.9	10.9
Rural Trip Length (miles)	10.9	10.9	10.9	10.9	10.9	10.9
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Office park	48.0	24.0	28.0
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Combined Summer Emissions Reports (Pounds/Day)

File Name:

Project Name: Bayview Proposed Project Internal Trips

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	27.84	12.45	165.34	0.27	41.50	8.14	27,374.29

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	27.84	12.45	165.34	0.27	41.50	8.14	27,374.29

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Office park	27.84	12.45	165.34	0.27	41.50	8.14	27,374.29
TOTALS (lbs/day, unmitigated)	27.84	12.45	165.34	0.27	41.50	8.14	27,374.29

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Office park		11.42	1000 sq ft	2,100.00	23,982.00	23,982.00
					23,982.00	23,982.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.2	0.0	100.0	0.0

Travel Conditions

	Residential				Commercial	
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	1.0	1.0	1.0	1.0	1.0	1.0
Rural Trip Length (miles)	1.0	1.0	1.0	1.0	1.0	1.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Office park	48.0	24.0	28.0
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Combined Winter Emissions Reports (Pounds/Day)

File Name:

Project Name: Bayview Proposed Project Internal Trips

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	22.79	17.54	212.33	0.24	41.50	8.14	24,177.08

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	22.79	17.54	212.33	0.24	41.50	8.14	24,177.08

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Office park	22.79	17.54	212.33	0.24	41.50	8.14	24,177.08
TOTALS (lbs/day, unmitigated)	22.79	17.54	212.33	0.24	41.50	8.14	24,177.08

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 40 Season: Winter

Erfac: Version : Erfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Office park		11.42	1000 sq ft	2,100.00	23,982.00	23,982.00
					23,982.00	23,982.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0

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Vehicle Type	<u>Vehicle Fleet Mix</u>				Catalyst	Diesel
	Percent Type	Non-Catalyst				
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0			17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0			0.0	100.0
Other Bus	0.1	0.0			0.0	100.0
Urban Bus	0.3	0.0			0.0	100.0
Motorcycle	3.5	34.3			65.7	0.0
School Bus	0.1	0.0			0.0	100.0
Motor Home	0.2	0.0			100.0	0.0
<u>Travel Conditions</u>						
Urban Trip Length (miles)	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
	1.0	1.0	1.0	1.0	1.0	1.0
	1.0	1.0	1.0	1.0	1.0	1.0
	35.0	35.0	35.0	35.0	35.0	35.0
Trip speeds (mph)	32.9	18.0	49.1			
% of Trips - Residential						
% of Trips - Commercial (by land use)						
Office park				48.0	24.0	28.0

7/15/2009 2:48:56 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Baview CP Phase 4.urb924

Project Name: Bayview Waterfront CP End Phase 4

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	449.11	69.91	43.36	0.00	0.16	0.16	88,301.51

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	241.34	217.11	2,372.22	6.42	1,143.23	215.11	639,585.25

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	690.45	287.02	2,415.58	6.42	1,143.39	215.27	727,886.76

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	5.34	69.79	34.09	0.00	0.13	0.13	88,284.66
Hearth - No Summer Emissions							
Landscape	0.74	0.12	9.27	0.00	0.03	0.03	16.85
Consumer Products	384.05						
Architectural Coatings	58.98						
TOTALS (lbs/day, unmitigated)	449.11	69.91	43.36	0.00	0.16	0.16	88,301.51

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

7/15/2009 2:48:57 PM

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	151.23	125.36	1,394.32	3.73	661.83	124.62	371,698.27
Racquetball/health	3.93	4.00	42.71	0.12	21.01	3.95	11,694.44
Hotel	4.99	4.37	46.62	0.13	22.94	4.31	12,766.23
Regnl shop. center	63.66	65.77	699.47	1.92	344.96	64.84	191,878.61
Strip mall	12.53	12.95	137.69	0.38	67.91	12.76	37,771.38
Office park	5.00	4.66	51.41	0.14	24.58	4.63	13,776.32
TOTALS (lbs/day, unmitigated)	241.34	217.11	2,372.22	6.42	1,143.23	215.11	639,585.25

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	206.58	5.76	dwelling units	7,850.00	45,216.00	386,583.26
Racquetball/health		32.93	1000 sq ft	50.00	1,646.50	12,278.77
Hotel		8.17	rooms	220.00	1,797.40	13,404.11
Regnl shop. center		42.94	1000 sq ft	635.00	27,266.90	201,584.18
Strip mall		42.94	1000 sq ft	125.00	5,367.50	39,681.93

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Office park		11.42	1000 sq ft	150.00	1,713.00	14,358.37
					83,007.30	667,890.62

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.2	0.0	100.0	0.0

Travel Conditions

Residential					Commercial	
Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer	
10.8	7.3	7.5	9.5	7.4		7.4

Urban Trip Length (miles)

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
Hotel				5.0	2.5	92.5
Regnl shop. center				2.0	1.0	97.0
Strip mall				2.0	1.0	97.0
Office park				48.0	24.0	28.0

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Baview CP Phase 4.urb924

Project Name: Bayview Waterfront CP End Phase 4

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	450.91	113.20	52.56	0.28	3.64	3.60	143,696.42

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	243.97	312.71	2,478.29	5.46	1,143.23	215.11	550,544.24

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	694.88	425.91	2,530.85	5.74	1,146.87	218.71	694,240.66

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	5.34	69.79	34.09	0.00	0.13	0.13	88,284.66
Hearth	2.54	43.41	18.47	0.28	3.51	3.47	55,411.76
Landscaping - No Winter Emissions							
Consumer Products	384.05						
Architectural Coatings	58.98						
TOTALS (lbs/day, unmitigated)	450.91	113.20	52.56	0.28	3.64	3.60	143,696.42

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	140.94	180.69	1,444.82	3.18	661.83	124.62	320,160.25
Racquetball/health	4.50	5.76	45.11	0.10	21.01	3.95	10,057.48
Hotel	4.91	6.29	49.25	0.11	22.94	4.31	10,979.23
Regnl shop. center	73.89	94.62	740.29	1.63	344.96	64.84	165,004.06
Strip mall	14.54	18.63	145.73	0.32	67.91	12.76	32,481.11
Office park	5.19	6.72	53.09	0.12	24.58	4.63	11,862.11
TOTALS (lbs/day, unmitigated)	243.97	312.71	2,478.29	5.46	1,143.23	215.11	550,544.24

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 40 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	206.58	5.76	dwelling units	7,850.00	45,216.00	386,583.26
Racquetball/health		32.93	1000 sq ft	50.00	1,646.50	12,278.77
Hotel		8.17	rooms	220.00	1,797.40	13,404.11
Regnl shop. center		42.94	1000 sq ft	635.00	27,266.90	201,584.18
Strip mall		42.94	1000 sq ft	125.00	5,367.50	39,681.93

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Office park		11.42	1000 sq ft	150.00	1,713.00	14,358.37
					83,007.30	667,890.62

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.2	0.0	100.0	0.0

Travel Conditions

Residential					Commercial	
Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer	
10.8	7.3	7.5	9.5	7.4		7.4

Urban Trip Length (miles)

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
Hotel				5.0	2.5	92.5
Regnl shop. center				2.0	1.0	97.0
Strip mall				2.0	1.0	97.0
Office park				48.0	24.0	28.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Bayview IB Phase 4.urb924

Project Name: Bayview Waterfront IB End Phase 4

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	79.38	19.48	17.08	0.00	0.06	0.06	24,026.65

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	79.39	72.56	798.27	2.15	382.53	72.00	214,295.75

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	158.77	92.04	815.35	2.15	382.59	72.06	238,322.40

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	1.45	19.42	12.44	0.00	0.04	0.04	24,018.22
Hearth - No Summer Emissions							
Landscape	0.37	0.06	4.64	0.00	0.02	0.02	8.43
Consumer Products	60.66						
Architectural Coatings	16.90						
TOTALS (lbs/day, unmitigated)	79.38	19.48	17.08	0.00	0.06	0.06	24,026.65

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	23.89	19.80	220.25	0.59	104.54	19.69	58,714.12
Strip mall	10.03	10.36	110.15	0.30	54.32	10.21	30,217.10
Office park	45.47	42.40	467.87	1.26	223.67	42.10	125,364.53
TOTALS (lbs/day, unmitigated)	79.39	72.56	798.27	2.15	382.53	72.00	214,295.75

Operational Settings:

7/15/2009 4:01:12 PM

Does not include correction for passby trips
 Does not include double counting adjustment for internal trips
 Analysis Year: 2030 Temperature (F): 85 Season: Summer
 Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	32.63	5.76	dwelling units	1,240.00	7,142.40	61,065.38
Strip mall		42.94	1000 sq ft	100.00	4,294.00	31,745.54
Office park		11.42	1000 sq ft	1,365.00	15,588.30	130,661.13
					27,024.70	223,472.05

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0

7/15/2009 4:01:12 PM

Vehicle Type	Vehicle Fleet Mix						Diesel
	Percent Type		Non-Catalyst		Catalyst		
School Bus	0.1		0.0			0.0	100.0
Motor Home	0.2		0.0			100.0	0.0
<u>Travel Conditions</u>							
Urban Trip Length (miles)	Residential			Commercial			
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer	
	10.8	7.3	7.5	9.5	7.4	7.4	
	16.8	7.1	7.9	14.7	6.6	6.6	
	35.0	35.0	35.0	35.0	35.0	35.0	
Rural Trip Length (miles)							
Trip speeds (mph)							
% of Trips - Residential	32.9	18.0	49.1				
% of Trips - Commercial (by land use)							
Strip mall				2.0	1.0		97.0
Office park				48.0	24.0		28.0

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\21478\Application Data\Urbemis\Version9a\Projects\Bayview IB Phase 4.urb924

Project Name: Bayview Waterfront IB End Phase 4

Project Location: San Francisco County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	79.41	26.28	15.36	0.04	0.59	0.59	32,771.16

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	81.10	104.55	827.97	1.83	382.53	72.00	184,503.18

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	160.51	130.83	843.33	1.87	383.12	72.59	217,274.34

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	1.45	19.42	12.44	0.00	0.04	0.04	24,018.22
Hearth	0.40	6.86	2.92	0.04	0.55	0.55	8,752.94
Landscaping - No Winter Emissions							
Consumer Products	60.66						
Architectural Coatings	16.90						
TOTALS (lbs/day, unmitigated)	79.41	26.28	15.36	0.04	0.59	0.59	32,771.16

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	22.26	28.54	228.23	0.50	104.54	19.69	50,573.08
Strip mall	11.64	14.90	116.58	0.26	54.32	10.21	25,984.89
Office park	47.20	61.11	483.16	1.07	223.67	42.10	107,945.21
TOTALS (lbs/day, unmitigated)	81.10	104.55	827.97	1.83	382.53	72.00	184,503.18

Operational Settings:

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Does not include correction for passby trips
 Does not include double counting adjustment for internal trips
 Analysis Year: 2030 Temperature (F): 40 Season: Winter
 Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	32.63	5.76	dwelling units	1,240.00	7,142.40	61,065.38
Strip mall		42.94	1000 sq ft	100.00	4,294.00	31,745.54
Office park		11.42	1000 sq ft	1,365.00	15,588.30	130,661.13
					27,024.70	223,472.05

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.0	0.0	100.0	0.0
Light Truck < 3750 lbs	10.9	0.0	100.0	0.0
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	4.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.5	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.7	0.0	17.6	82.4
Heavy-Heavy Truck 33,001-60,000 lbs	0.1	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.3	0.0	0.0	100.0
Motorcycle	3.5	34.3	65.7	0.0

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Vehicle Type	Vehicle Fleet Mix						
	Percent Type		Non-Catalyst				Catalyst
School Bus	0.1		0.0			0.0	100.0
Motor Home	0.2		0.0			100.0	0.0
<u>Travel Conditions</u>							
Urban Trip Length (miles)	Residential			Commercial			
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer	
	10.8	7.3	7.5	9.5	7.4	7.4	
	16.8	7.1	7.9	14.7	6.6	6.6	
	35.0	35.0	35.0	35.0	35.0	35.0	
Rural Trip Length (miles)							
Trip speeds (mph)							
% of Trips - Residential	32.9	18.0	49.1				
% of Trips - Commercial (by land use)							
Strip mall				2.0	1.0		97.0
Office park				48.0	24.0		28.0

Candlestick Point-Hunters Point Shipyard Project
Proposed Project Trip Generation Summary

		Person Trips				Vehicle Trips		
		Net New	auto	transit	bicycle	internal	total	Total
Hunters Point Shipyard								Work
residential		2650units	13,668	3,403	528	7,037	24,637	8,543
retail		125ksf	8,529	1,622	314	4,185	14,650	5,331
R&D		2500ksf	12,475	3,186	484	6,456	22,602	7,797
park		238acres	494	110	19	249	870	308
stadium/artists		--	638	163	25	330	1,155	399
community services		50ksf	696	173	27	358	1,254	435
		subtotal	36,499	8,657	1,397	18,615	65,168	22,812
		mode split %	56%	13%	2%	29%	Internal	External
		mode split of external trips %	78%	19%	3%	5,817	<VMT	247,213
Candlestick								
residential		7594units	39,443	9,821	1,524	19,807	70,595	24,652
retail		760ksf	44,603	8,482	1,642	21,343	76,070	27,877
hotel		220rooms	1,478	304	55	716	2,554	924
office/arena		150ksf	2,031	519	79	1,025	3,654	1,270
park		147acres	203	45	8	100	355	127
community services		50ksf	716	159	27	352	1,254	448
		subtotal	88,475	19,330	3,334	43,344	154,483	55,297
		mode split %	57%	13%	2%	28%	Internal	External
		mode split of external trips %	80%	17%	3%	13,545	<VMT	599,254
India Basin								
residential								
retail								
office								
		subtotal	0	0	0	0	0	0
		mode split %				Internal	External	0
		mode split of external trips %				0	<VMT	0
Total CP_HPS								
residential								33,195
retail								33,208
office								0
R&D								7,797
hotel								924
office/arena								1,270
stadium/artists								399
park								435
community services								883
		TOTAL CP_HPS	124,974	27,987	4,731	61,959	219,651	78,109
		mode split %	57%	13%	2%	28%	Internal	External
		mode split of external trips only%	79%	18%	3%	19,362	<VMT	846,468

Example External Modal Split
95,500% 4% 0.50%
Auto Med. Truck-H. Truck MC Transit (person trips)
8158 228 114 43 3,403

mode split (HP to CP, CP to HP, etc treated as external) goal is 50% non-auto (walk/bike)

From F&P

Vehicle Trip Production (Residential)			
% HBW	% HBO	% NHB	
0.32	0.47	0.21	

* 2030 MTC Model

Vehicle Trip Attraction (Non Residential)

% HBW	% HBO	% NHB
0.26	0.48	0.27

Vehicle Trips

	All	HBW	HBO	NHB
Residential	33,195	10,622	15,601	6,971
Retail	33,208	8,472	15,827	8,909
Other NonRes	11,707	2,987	5,579	3,141
Total	78,109	22,081	37,007	19,021

Vehicle Trip Length

HBW	HBO	NHB
14.9	9.1	9.5

Vehicle Miles Traveled

	All	HBW	HBO	NHB
Residential	366,469	158,272	141,973	66,223
Retail	354,891	126,233	144,021	84,637
Other NonRes	125,108	44,500	50,771	29,836
Total	846,468	329,005	336,766	180,697

Average Vehicle Trip Length

10.84

Candlestick Point-Hunters Point Shipyard Project
Proposed Project Variant 1 Trip Generation Summary

	Person Trips				Vehicle Trips		
	Net New	auto	transit	bicycle	internal	total	Non Work
Hunters Point Shipyard							
residential	2650units	14,904	3,711	576	5,446	24,637	6,241
retail	125ksf	9,300	1,769	342	3,238	14,650	5,580
R&D	5000ksf	24,015	6,134	932	8,820	39,901	9,606
park	238acres	538	119	20	192	870	269
stadium/artists	30ksf	299	76	12	110	496	119
community services	50ksf	696	173	27	358	1,254	348
subtotal		49,751	11,982	1,909	18,165	81,808	
mode split %		61%	15%	2%	22%	Internal	
mode split of external trips %		78%	19%	3%	5,677 <VMT	31,095 External	
						336,625 <VMT	
Candlestick							
residential	7594units	39,443	9,821	1,524	19,807	70,595	16,517
retail	760ksf	44,603	8,482	1,642	21,343	76,070	26,762
hotel	220rooms	1,478	304	55	716	2,554	813
office/arena	150ksf	2,031	519	79	1,025	3,654	813
park	147acres	203	45	8	100	355	101
community services	50ksf	716	159	27	352	1,254	358
subtotal		88,475	19,330	3,334	43,344	154,483	
mode split %		57%	13%	2%	28%	Internal	
mode split of external trips %		80%	17%	3%	13,545 <VMT	55,297 External	
						598,633 <VMT	
India Basin							
residential							
retail							
office							
subtotal		0	0	0	0	0	
mode split %					Internal	0	
mode split of external trips %					0 <VMT	0 <VMT	
Total CP_HPS							
residential						33,967	
retail						33,690	
office						0	
R&D						15,009	
hotel						924	
office/arena						1,270	
stadium/artists						187	
park						463	
community services						883	
subtotal		138,227	31,313	5,243	61,509	236,291	
mode split %		58%	13%	2%	26%	Internal	
mode split of external trips only%		79%	18%	3%	19,221 <VMT	86,392 External	
						935,258 <VMT	

Example External Modal Split
95:500% 4% 0.50%
Auto 8896 Med. Truck 248 124 47 3,711
Transit (person trips)

From F&P

Vehicle Trip Production (Residential)			
% HBW	% HBO	% NHB	
0.32	0.47	0.21	
* 2030 MTC Model			

Vehicle Trip Attraction (Non Residential)

% HBW	% HBO	% NHB
0.26	0.48	0.27

Vehicle Trips

	All	HBW	HBO	NHB
Residential	33,967	10,869	15,965	7,133
Retail	33,690	8,595	16,056	9,038
Other NonRes	18,735	4,780	8,929	5,026
Total	86,392	24,244	40,950	21,198

Vehicle Trip Length

HBW	HBO	NHB
14.9	9.1	9.5

Vehicle Miles Traveled

	All	HBW	HBO	NHB
Residential	374,997	161,955	145,277	67,764
Retail	360,043	128,066	146,112	85,865
Other NonRes	200,219	71,217	81,253	47,749
Total	935,258	361,237	372,642	201,379

Average Vehicle Trip Length 10.83

Candlestick Point-Hunters Point Shipyard Project
Proposed Project Variant 2 Trip Generation Summary

Net New		Person Trips			Vehicle Trips		
		auto	transit	bicycle	internal	total	Non Work
Hunters Point Shipyard							
residential	4000units	19,065	4,747	736	12,636	37,184	7,983
retail	125ksf	7,882	1,499	290	4,978	14,650	4,729
R&D	2500ksf	11,529	2,945	448	7,680	22,602	4,612
park	238acres	456	101	17	296	870	228
stadium/artists	30ksf	253	65	10	169	496	101
community services	50ksf	696	173	27	358	1,254	348
	subtotal	39,881	9,530	1,528	26,117	77,056	
	mode split %	52%	12%	2%	34%	Internal	
	mode split of external trips %	78%	19%	3%	8,162 <VMT	270,106 <VMT	
Candlestick							
residential	6244units	34,488	8,587	1,332	13,638	58,045	14,442
retail	760ksf	47,432	9,020	1,746	17,873	76,070	28,459
hotel	220rooms	1,572	323	59	600	2,554	864
office/arena	150ksf	2,160	552	84	859	3,654	864
park	147acres	216	48	8	83	355	108
community services	50ksf	716	159	27	352	1,254	358
	subtotal	86,583	18,689	3,256	33,404	141,933	
	mode split %	61%	13%	2%	24%	Internal	
	mode split of external trips %	80%	17%	3%	10,439 <VMT	586,413 <VMT	
India Basin							
residential							
retail							
office							
	subtotal	0	0	0	0	0	
	mode split %				Internal	0	
	mode split of external trips %				0 <VMT	0 <VMT	
Total CP_HPS							
residential						33,470	
retail						34,571	
office						0	
R&D						7,206	
hotel						982	
office/arena						1,350	
stadium/artists						158	
park						420	
community services						883	
	Total CP_HPS	126,464	28,219	4,784	59,521	218,989	
	mode split %	58%	13%	2%	27%	Internal	
	mode split of external trips only%	79%	18%	3%	18,600 <VMT	856,519 <VMT	

Example External Modal Split

95.500%	4%	0.50%
Auto	Med. Truck	MC
11379	318	159
		60
		4,747

From F&P

Vehicle Trip Production (Residential)			
% HBW	% HBO	% NHB	
0.32	0.47	0.21	
* 2030 MTC Model			

Vehicle Trip Attraction (Non Residential)

% HBW	% HBO	% NHB
0.26	0.48	0.27

Vehicle Trips

	All	HBW	HBO	NHB
Residential	33,470	10,710	15,731	7,029
Retail	34,571	8,820	16,476	9,275
Other NonRes	10,999	2,806	5,242	2,951
Total	79,040	22,336	37,449	19,254

Vehicle Trip Length

HBW	HBO	NHB
14.9	9.1	9.5

Vehicle Miles Traveled

	All	HBW	HBO	NHB
Residential	369,512	159,586	143,152	66,773
Retail	369,464	131,417	149,935	88,112
Other NonRes	117,543	41,809	47,701	28,032
Total	856,519	332,812	340,789	182,918

Average Vehicle Trip Length

10.84

Table X.X-XI Operational Criteria Pollutant Emissions - Proposed Project (Year 2030)						
Scenario/Emission Source	ROG (lbs/day)	NOx (lbs/day)	CO (lbs/day)	PM ₁₀ (lbs/day)	PM _{2.5} (lbs/day)	
Hunters Point Shipyard						
Area*	166	38	30	1	1	
Motor Vehicles (External Unadjusted)	151	137	1,563	722	136	
Motor Vehicles (External)	88	80	916	423	80	External Project VMT 247,213
Subtotal	255	119	947	424	81	URBEMIS VMT 421,769
Candlestick Point						
Area*	449	70	53	4	4	
Motor Vehicles (External Unadjusted)	241	217	2,478	1,143	215	
Motor Vehicles (External)	217	195	2,224	1,026	193	External Project VMT 599,254
Subtotal	666	265	2,276	1,029	197	URBEMIS VMT 667,891
India Basin Shoreline						
Area*	0	0	0	0	0	
Motor Vehicles (External Unadjusted)	0	0	0	0	0	
Motor Vehicles (External)	0	0	0	0	0	External Project VMT 0
Subtotal	0	0	0	0	0	URBEMIS VMT 223,472
All Development Sites (Proposed Project)						
Area*	616	108	83	5	5	
Motor Vehicles (External)	305	275	3,140	1,449	273	
Motor Vehicles (Internal)	24	11	184	36	7	
All Sources (Proposed Project)	945	394	3,406	1,490	285	
Project Comparison to Business as Usual	86%	67%	63%	58%	50%	
Project Reduction from Business as Usual	-14%	-33%	-37%	-42%	-50%	
BAAQMD Significance Threshold	54	54	None	82	54	
Project Exceeds BAAQMD Threshold?	Yes	Yes	----	Yes	Yes	
All Development Sites (Business as Usual)						
Area*	616	108	83	5	5	
Motor Vehicles	485	476	5,292	2,561	567	
All Sources (Business as Usual)	1,101	585	5,375	2,566	572	
BAU Comparison to Proposed Project	117%	148%	158%	172%	201%	
Source: PBS&J, 2009. Based on URBEMIS 2007 Version 9.2.4.						
* Area emissions are from sources located on the project site, such as natural gas combustion for heating/cooling, maintenance equipment, consumer product use, etc.						
Daily emissions of ROG and NOx were calculated under Summer conditions when ambient ozone concentrations are highest. Daily emissions of CO, PM10 and PM2.5 were calculated under winter conditions when associated ambient concentrations are highest.						

URBEMIS VMT 421,769	External Project VMT 247,213				
URBEMIS VMT 667,891	External Project VMT 599,254	HPS + CP VMT 846,468	HPS + CP VMT 19,362	External Internal Total 865,830	
URBEMIS VMT 223,472	0	IB VMT 130,559	IB VMT 4,616	External Internal Total 135,175	
		Total VMT 977,026	Total VMT 23,978	External Internal Total 1,001,005	
	161,810	BAU ADT	HPS + CP + IS		
	137,282	BAU ADT	HPS + CP		
	84.8%	Ratio			

Table A Eight-Hour CO Levels At CPHPS Intersections

[illegible][illegible]

Table A One-Hour CO Levels At CPHPS Intersections

[illegible][illegible]

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: Bayview Third_Gilman Project
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
 BRG= WORST CASE VD= .0 CM/S
 CLAS= 6 (F) VS= .0 CM/S
 MIXH= 1000. M AMB= .0 PPM
 SIGTH= 10. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)	*		EF	H	W
	*	X1 Y1 X2 Y2	*	TYPE	(G/MI)	(M)	(M)
A. Gillman E	*	0 0 300 0	*	AG	2710	1.8	16.8
B. Gillman W	*	0 0 -300 0	*	AG	2610	1.8	16.8
C. Third N	*	0 0 300 0	*	AG	3280	1.8	27.6
D. Third S	*	0 0 -300 0	*	AG	2740	1.8	27.6

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M)
	*	X Y Z
1. Recpt 1	*	14 8 .5
2. Recpt 2	*	-14 8 .5
3. Recpt 3	*	-14 -8 .5
4. Recpt 4	*	14 -8 .5

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG	*	PRED	*	CONC/LINK	
	*	(DEG)	*	CONC	*	(PPM)	
	*		*	(PPM)	*		
	*		*		*	A B C D	
1. Recpt 1	*	262.	*	.7	*	.1 .3 .2 .0	
2. Recpt 2	*	98.	*	.7	*	.3 .1 .2 .0	
3. Recpt 3	*	8.	*	.6	*	.0 .2 .4 .0	
4. Recpt 4	*	352.	*	.6	*	.2 .0 .4 .0	

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: Bayview Third_Gilman No Project
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
 BRG= WORST CASE VD= .0 CM/S
 CLAS= 6 (F) VS= .0 CM/S
 MIXH= 1000. M AMB= .0 PPM
 SIGTH= 10. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
	*	X1 Y1 X2 Y2	*					
A. Gillman E	*	0 0 300 0	*	AG	910	1.8	.0	16.8
B. Gillman W	*	0 0 -300 0	*	AG	1220	1.8	.0	16.8
C. Third N	*	0 0 300 0	*	AG	2710	1.8	.0	27.6
D. Third S	*	0 0 -300 0	*	AG	2500	1.8	.0	27.6

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M)
	*	X Y Z
1. Recpt 1	*	14 8 .5
2. Recpt 2	*	-14 8 .5
3. Recpt 3	*	-14 -8 .5
4. Recpt 4	*	14 -8 .5

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM)	A	B	C	D
1. Recpt 1	*	188.	*	.4	*	.0	.0	.0	.3	
2. Recpt 2	*	172.	*	.4	*	.0	.1	.0	.3	
3. Recpt 3	*	8.	*	.4	*	.0	.1	.3	.0	
4. Recpt 4	*	352.	*	.4	*	.0	.0	.3	.0	

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Bayview Third_Gilman Exist
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 6 (F) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
	*	X1 Y1 X2 Y2	*					
A. Gillman E	*	0 0 300 0	*	AG	431	5.3	.0	16.8
B. Gillman W	*	0 0 -300 0	*	AG	507	5.3	.0	16.8
C. Third N	*	0 0 300 0	*	AG	1202	5.3	.0	27.6
D. Third S	*	0 0 -300 0	*	AG	1044	5.3	.0	27.6

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M)
	*	X Y Z
1. Recpt 1	*	14 8 .5
2. Recpt 2	*	-14 8 .5
3. Recpt 3	*	-14 -8 .5
4. Recpt 4	*	14 -8 .5

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM)	A	B	C	D
1. Recpt 1	*	188.	*	.5	*	.1	.0	.0	.4	
2. Recpt 2	*	172.	*	.6	*	.0	.1	.0	.4	
3. Recpt 3	*	8.	*	.6	*	.0	.1	.4	.0	
4. Recpt 4	*	352.	*	.6	*	.1	.0	.4	.0	

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: Bayview Griffin_Palou Project
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
 BRG= WORST CASE VD= .0 CM/S
 CLAS= 6 (F) VS= .0 CM/S
 MIXH= 1000. M AMB= .0 PPM
 SIGTH= 10. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
	*	X1 Y1 X2 Y2	*					
A. Palou E	*	0 0 300 0	*	AG	1470	1.5	.0	13.2
B. Palou W	*	0 0 -300 0	*	AG	1080	1.5	.0	13.2
C. Griffin N	*	0 0 300 0	*	AG	620	1.5	.0	13.2
D. Griffin S	*	0 0 -300 0	*	AG	1010	1.5	.0	13.2

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M)
	*	X Y Z
1. Recpt 1	*	7 7 .5
2. Recpt 2	*	-7 7 .5
3. Recpt 3	*	-7 -7 .5
4. Recpt 4	*	7 -7 .5

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM)	A	B	C	D
1. Recpt 1	*	187.	*	.3	*	.1	.0	.0	.1	
2. Recpt 2	*	97.	*	.3	*	.2	.0	.0	.0	
3. Recpt 3	*	83.	*	.3	*	.2	.0	.0	.0	
4. Recpt 4	*	278.	*	.3	*	.0	.1	.0	.0	

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: Bayview Griffin_Palou No Project
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
 BRG= WORST CASE VD= .0 CM/S
 CLAS= 6 (F) VS= .0 CM/S
 MIXH= 1000. M AMB= .0 PPM
 SIGTH= 10. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
	*	X1 Y1 X2 Y2	*					
A. Palou E	*	0 0 300 0	*	AG	1060	1.5	.0	13.2
B. Palou W	*	0 0 -300 0	*	AG	910	1.5	.0	13.2
C. Griffin N	*	0 0 300 0	*	AG	620	1.5	.0	13.2
D. Griffin S	*	0 0 -300 0	*	AG	770	1.5	.0	13.2

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M)
	*	X Y Z
1. Recpt 1	*	7 7 .5
2. Recpt 2	*	-7 7 .5
3. Recpt 3	*	-7 -7 .5
4. Recpt 4	*	7 -7 .5

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM)	A	B	C	D
1. Recpt 1	*	187.	*	.2	*	.0	.0	.0	.1	
2. Recpt 2	*	97.	*	.2	*	.1	.0	.0	.0	
3. Recpt 3	*	83.	*	.2	*	.1	.0	.0	.0	
4. Recpt 4	*	277.	*	.2	*	.0	.1	.0	.0	

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: Bayview Griffin_Palou Exist
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
 BRG= WORST CASE VD= .0 CM/S
 CLAS= 6 (F) VS= .0 CM/S
 MIXH= 1000. M AMB= .0 PPM
 SIGTH= 10. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
	*	X1 Y1 X2 Y2	*					
A. Palou E	*	0 0 300 0	*	AG	133	4.6	.0	13.2
B. Palou W	*	0 0 -300 0	*	AG	190	4.6	.0	13.2
C. Griffin N	*	0 0 300 0	*	AG	305	4.6	.0	13.2
D. Griffin S	*	0 0 -300 0	*	AG	270	4.6	.0	13.2

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M)
	*	X Y Z
1. Recpt 1	*	7 7 .5
2. Recpt 2	*	-7 7 .5
3. Recpt 3	*	-7 -7 .5
4. Recpt 4	*	7 -7 .5

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM)	A	B	C	D
1. Recpt 1	*	187.	*	.2	*	.0	.0	.0	.1	
2. Recpt 2	*	173.	*	.2	*	.0	.0	.0	.1	
3. Recpt 3	*	7.	*	.2	*	.0	.0	.1	.0	
4. Recpt 4	*	353.	*	.2	*	.0	.0	.1	.0	

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: Bayview Evans_Jennings Project
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
 BRG= WORST CASE VD= .0 CM/S
 CLAS= 6 (F) VS= .0 CM/S
 MIXH= 1000. M AMB= .0 PPM
 SIGTH= 10. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
	*	X1 Y1 X2 Y2	*					
A. Jennings E	*	0 0 300 0	*	AG	3070	1.5	.0	13.2
B. Jennings W	*	0 0 -300 0	*	AG	2750	1.5	.0	13.2
C. Evans N	*	0 0 300 0	*	AG	1280	1.5	.0	20.4
D. Evans S	*	0 0 -300 0	*	AG	800	1.5	.0	20.4

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M)
	*	X Y Z
1. Recpt 1	*	10 7 .5
2. Recpt 2	*	-10 7 .5
3. Recpt 3	*	-10 -7 .5
4. Recpt 4	*	10 -7 .5

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM)	A	B	C	D
1. Recpt 1	*	262.	*	.5	*	.1	.3	.0	.0	
2. Recpt 2	*	98.	*	.5	*	.3	.1	.0	.0	
3. Recpt 3	*	82.	*	.5	*	.3	.1	.0	.0	
4. Recpt 4	*	278.	*	.5	*	.1	.3	.0	.0	

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: Bayview Evans_Jennings No Project
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
 BRG= WORST CASE VD= .0 CM/S
 CLAS= 6 (F) VS= .0 CM/S
 MIXH= 1000. M AMB= .0 PPM
 SIGTH= 10. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
	*	X1 Y1 X2 Y2	*					
A. Jennings E	*	0 0 300 0	*	AG	3150	1.5	.0	13.2
B. Jennings W	*	0 0 -300 0	*	AG	2820	1.5	.0	13.2
C. Evans N	*	0 0 300 0	*	AG	1290	1.5	.0	20.4
D. Evans S	*	0 0 -300 0	*	AG	800	1.5	.0	20.4

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M)
	*	X Y Z
1. Recpt 1	*	10 7 .5
2. Recpt 2	*	-10 7 .5
3. Recpt 3	*	-10 -7 .5
4. Recpt 4	*	10 -7 .5

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM)	A	B	C	D
1. Recpt 1	*	262.	*	.5	*	.1	.3	.0	.0	
2. Recpt 2	*	98.	*	.5	*	.3	.1	.0	.0	
3. Recpt 3	*	82.	*	.5	*	.3	.1	.0	.0	
4. Recpt 4	*	278.	*	.5	*	.1	.3	.0	.0	

□□

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Bayview Evans_Jennings Exist
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 6 (F) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
	*	X1 Y1 X2 Y2	*					
A. Jennings E	*	0 0 300 0	*	AG	670	4.1	.0	13.2
B. Jennings W	*	0 0 -300 0	*	AG	776	4.1	.0	13.2
C. Evans N	*	0 0 0 300	*	AG	165	4.1	.0	20.4
D. Evans S	*	0 0 0 -300	*	AG	149	4.1	.0	20.4

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M)
	*	X Y Z
1. Recpt 1	*	10 7 .5
2. Recpt 2	*	-10 7 .5
3. Recpt 3	*	-10 -7 .5
4. Recpt 4	*	10 -7 .5

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM)	A	B	C	D
1. Recpt 1	*	263.	* .4	*	.0	.3	.0	.0	.0
2. Recpt 2	*	263.	* .4	*	.0	.4	.0	.0	.0
3. Recpt 3	*	277.	* .4	*	.0	.4	.0	.0	.0
4. Recpt 4	*	277.	* .4	*	.0	.3	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: Bayview Waker_Gilman Project
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
 BRG= WORST CASE VD= .0 CM/S
 CLAS= 6 (F) VS= .0 CM/S
 MIXH= 1000. M AMB= .0 PPM
 SIGTH= 10. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
	*	X1 Y1 X2 Y2	*					
A. Gilman E	*	0 0 300 0	*	AG	410	1.5	.0	13.2
B. Gilman W	*	0 0 -300 0	*	AG	2370	1.5	.0	13.2
C. Carroll N	*	0 0 300 0	*	AG	2140	1.5	.0	13.2
D. Carroll S	*	0 0 -300 0	*	AG	2700	1.5	.0	13.2

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M)
	*	X Y Z
1. Recpt 1	*	7 7 .5
2. Recpt 2	*	-7 7 .5
3. Recpt 3	*	-7 -7 .5
4. Recpt 4	*	7 -7 .5

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM)	A	B	C	D
1. Recpt 1	*	263.	*	.5	*	.0	.3	.2	.0	
2. Recpt 2	*	172.	*	.6	*	.0	.2	.0	.3	
3. Recpt 3	*	8.	*	.5	*	.0	.2	.3	.0	
4. Recpt 4	*	277.	*	.5	*	.0	.3	.0	.2	

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: Bayview Walker_Gilman No Project
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
 BRG= WORST CASE VD= .0 CM/S
 CLAS= 6 (F) VS= .0 CM/S
 MIXH= 1000. M AMB= .0 PPM
 SIGTH= 10. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
	*	X1 Y1 X2 Y2	*					
A. Gilman E	*	0 0 300 0	*	AG	160	1.3	.0	13.2
B. Gilman W	*	0 0 -300 0	*	AG	580	1.3	.0	13.2
C. Carroll N	*	0 0 300 0	*	AG	870	1.3	.0	13.2
D. Carroll S	*	0 0 -300 0	*	AG	990	1.3	.0	13.2

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M)
	*	X Y Z
1. Recpt 1	*	7 7 .5
2. Recpt 2	*	-7 7 .5
3. Recpt 3	*	-7 -7 .5
4. Recpt 4	*	7 -7 .5

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM)	A	B	C	D
1. Recpt 1	*	187.	*	.1	*	.0	.0	.0	.1	
2. Recpt 2	*	173.	*	.2	*	.0	.0	.0	.1	
3. Recpt 3	*	7.	*	.2	*	.0	.0	.1	.0	
4. Recpt 4	*	277.	*	.1	*	.0	.0	.0	.0	

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: Bayview Walker_Gilman Exist
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
 BRG= WORST CASE VD= .0 CM/S
 CLAS= 6 (F) VS= .0 CM/S
 MIXH= 1000. M AMB= .0 PPM
 SIGTH= 10. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
	*	X1 Y1 X2 Y2	*					
A. Gilman E	*	0 0 300 0	*	AG	141	4.1	.0	13.2
B. Gilman W	*	0 0 -300 0	*	AG	69	4.1	.0	13.2
C. Carroll N	*	0 0 300 0	*	AG	98	4.1	.0	13.2
D. Carroll S	*	0 0 -300 0	*	AG	1	4.1	.0	13.2

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M)
	*	X Y Z
1. Recpt 1	*	7 7 .5
2. Recpt 2	*	-7 7 .5
3. Recpt 3	*	-7 -7 .5
4. Recpt 4	*	7 -7 .5

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM)	A	B	C	D
1. Recpt 1	*	97.	*	.0	*	.0	.0	.0	.0	.0
2. Recpt 2	*	96.	*	.0	*	.0	.0	.0	.0	.0
3. Recpt 3	*	84.	*	.0	*	.0	.0	.0	.0	.0
4. Recpt 4	*	354.	*	.0	*	.0	.0	.0	.0	.0

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**Appendix H2 MACTEC Construction Workers
and Equipment Resources,
October 1, 2009**

Draft: Bayview Waterfront Project - Construction Workers and Equipment for 2017 Stadium delivery by Construction Phase (Revision 7, 10-01-09)
Prepared by MACTEC for EIR analysis

	Yearly Average Duration (months)	Daily Construction Workers		Daily Construction Truck Trips ¹			Construction Equipment ³	Construction Equipment ³	Construction Equipment ³
Construction Phase		Max. Number of workers	Avg. Number of workers	Max. Number of truck trips	Avg. Number of truck trips	Number of on site equipment	Full Time	1/2 Time	1/4 Time
Hunters Point Shipyard									
2010 Site Preparation									
Abatement (HP-01, 03, 04)	6	15	12	16	8	6	(3) Man Lifts, (1) Loader, (1) Rough Terrain Fork Lift	(1) Water Truck	
Demolition (HP-01, 03, 04)	5	25	20	24	16	10	(2) Man Lifts, (2) Excavators, (1) Off Road Dump Truck, (3) Loaders, (1) Dozer, (2) Water Trucks, (1) Crane		
2011 Site Preparation									
Demolition (HP-01, 03, 04)	5	25	20	24	16	10	(2) Man Lifts, (2) Excavators, (1) Off Road Dump Truck, (3) Loaders, (1) Dozer, (2) Water Trucks, (1) Crane		
Grading & Infrastructure (HP-01, 03, 04)	8	38	30	160	128	15	(3) Excavators, (2) Loaders, (1) Bobcat, (2) Compactors, (1) Water Truck, (1) Scraper, (3) Off Road Dump Trucks, (1) Dozer		(1) Barge
2012 Site Preparation									
Abatement (HP-07, 10, 06)	7	30	24	32	8	12	(8) Man Lifts, (2) Loader, (1) Rough Terrain Fork Lift	(2) Water Truck	
Demolition (HP-07, 10, 06)	6	50	40	48	16	20	(4) Man Lifts, (4) Excavators, (2) Off Road Dump Truck, (2) Loaders, (2) Dozer, (4) Water Trucks, (2) Crane		
Grading & Infrastructure (HP-01, 02, 03 and 04)	7	68	54	240	216	27	(4) Excavators, (2) Loaders, (2) Bobcat, (2) Compactors, (2) Water Truck, (2) Off Road Dump Truck, (1) Dozer		(2) Grader, (2) Asphalt Layer, (2) Soil stabilizer, (2) Roller, (2) Dozers, (1) Barge
2013 Site Preparation									
Demolition (HP-07, 10, 06)	7	50	40	48	32	20	(2) Man Lifts, (4) Excavators, (2) Off Road Dump Truck, (2) Loaders, (2) Dozer, (4) Water Trucks, (2) Crane		
Grading & Infrastructure (HP-03, 06, 07 and 10)	8	90	72	408	352	36	(8) Excavators, (4) Loaders, (2) Bobcat, (4) Compactors, (3) Water Truck, (8) Off Road Dump Truck, (2) Scrapers, (2) Dozers		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers, (2) Barge
2013 Building Construction									
Foundation Piles/Structure/Rough In (HP-01)	6	20	16	16	8	8	(1) Excavators, (1) Loaders, (1) Water Trucks, (1) Crane, (1) Man Lift		
Interior and Exterior Finishes (HP-01)	7	10	8	16	8	4	(1) Loader, (1) Man Lift, (1) Sweeper, (1) Rough Terrain Fork Lift		
2014 Site Preparation									
Abatement (HP-08)	7	15	12	16	8	6	(3) Man Lifts, (1) Loader, (1) Rough Terrain Fork Lift	(1) Water Truck	
Grading & Infrastructure (HP-04, 05, 06, 7 and 10)	8	145	116	424	360	58	(9) Excavators, (5) Loaders, (5) Compactors, (4) Bobcats, (4) Water Trucks, (8) Off Road Dump Trucks, (1) Scraper, (3) Dozers		(4) Grader, (4) Asphalt Layer, (4) Soil stabilizer, (4) Roller, (4) Dozers, (1) Barge
2014 Building Construction									
Foundation Piles/Structure/Rough In (HP-03)	4	13	10	16	8	5	(1) Excavators, (1) Loaders, (1) Water Trucks, (1) Crane, (1) Man Lift		
Interior and Exterior Finishes (HP-01)	4	10	8	16	8	4	(1) Loader, (1) Man Lift, (1) Sweeper, (1) Rough Terrain Fork Lift		
2015 - Site Preparation									
Abatement (HP-11)	1	13	10	16	8	5	(2) Man Lifts, (1) Loader, (1) Rough Terrain Fork Lift	(2) Man Lifts, (1) Loader, (1) Rough Terrain Fork Lift	(1) Water Truck
Demolition (HP-08)	6	25	20	24	16	10	(2) Man Lifts, (2) Excavators, (1) Off Road Dump Truck, (3) Loaders, (1) Dozer, (2) Water Trucks, (1) Crane		
Grading & Infrastructure (HP-07, and 08)	10	63	50	176	152	25	(3) Excavators, (2) Loaders, (2) Bobcat, (2) Compactors, (2) Water Truck, (2) Off Road Dump Truck, (1) Dozer		(2) Grader, (2) Asphalt Layer, (2) Soil Stabilizer, (2) Roller, (2) Dozers, (1) Barge
2015 - Building Construction									
Foundation Piles/Structure/Rough In (HP-04 and 06)	7	60	48	32	16	24	(3) Excavators, (4) Loaders, (3) Water Trucks, (3) Cranes, (3) Man Lift		
Interior and Exterior Finishes (HP-03)	10	10	8	16	8	4	(1) Loader, (1) Man Lift, (1) Sweeper, (1) Rough Terrain Fork Lift		
2016 - Site Preparation									
Demolition (HP-11)	1	20	16	16	8	8	(2) Man Lifts, (1) Excavators, (1) Off Road Dump Truck, (3) Loaders, (1) Dozer, (1) Water Trucks	(1) Crane	
Grading & Infrastructure (HP- 08, 09 and 10)	8	85	68	256	224	34	(2) Excavators, (3) Loaders, (3) Bobcat, (3) Compactors, (2) Water Truck, (3) Off Road Dump Truck, (1) Pile Driver		(3) Grader, (3) Asphalt Layer, (3) Soil stabilizer, (3) Roller, (3) Dozers,
2016-Building Construction									
Foundation Piles/Structure/Rough In (HP-07)	10	33	26	32	16	13	(2) Excavators, (2) Loaders, (2) Water Trucks, (2) Cranes, (2) Man Lift		
Interior and Exterior Finishes HP-04, 06 and 07)	9	60	48	64	32	24	(5) Loader, (8) Man Lift, (3) Sweeper, (7) Rough Terrain Fork Lift, (1) Crane		
2017-Site Preparation									
Grading & Infrastructure (HP-11)	9	33	26	240	224	13	(1) Excavators, (1) Loaders, (1) Bobcat, (1) Compactors, (1) Water Truck, (2) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
2017-Building Construction									
Foundation Piles/Structure/Rough In (HP-07, 10 and 11)	4	68	54	64	32	27	(4) Excavators, (4) Loaders, (4) Water Trucks, (3) Cranes, (4) Man Lift		
Interior and Exterior Finishes (HP-07 and 08)	6	30	24	48	24	12	(3) Loader, (3) Man Lift, (3) Sweeper, (3) Rough Terrain Fork Lift		
2018- Building Construction									
Interior and Exterior Finishes (HP-10 and 11)	8	38	30	32	16	15	(4) Man Lift, (2) Sweeper, (2) Rough Terrain Fork Lift, (1) Loader	(1) Loader, (1) Off Road Dump Truck	(4) Onsite Field Trucks
Yosemite Slough Bridge / Access Road 2015									
	9	78	62	32	24	31	(1) Excavators, (2) Loaders, (2) Off Road Dump Truck, (1) Dozer, (4) Barges, (4) Cranes, (1) Drill Rig, (1) Water Truck	(2) Excavators, (1) Loaders, (1) Bobcat, (1) Compactors, (1) Water Truck, (1) Off Road Dump Truck, (1) Pile Driver	(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers, (2) Pump Trucks
Yosemite Slough Bridge / Access Road 2016									
	9	78	62	32	24	31	(1) Excavators, (2) Loaders, (2) Off Road Dump Truck, (1) Dozer, (4) Barges, (4) Cranes, (1) Drill Rig, (1) Water Truck	(2) Excavators, (1) Loaders, (1) Bobcat, (1) Compactors, (1) Water Truck, (1) Off Road Dump Truck, (1) Pile Driver	(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers, (2) Pump Trucks
Off-Site Roadway Improvements 2013									
Palou	8	30	24	16	8	12	(2) Excavators, (1) Loaders, (1) Bobcat, (1) Compactors, (1) Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
Off-Site Roadway Improvements 2014									
Palou	6	30	24	16	8	12	(2) Excavators, (1) Loaders, (1) Bobcat, (1) Compactors, (1) Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
Off-Site Roadway Improvements 2015									
Innes	10	30	24	16	8	12	(2) Excavators, (1) Loaders, (1) Bobcat, (1) Compactors, (1) Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
Off-Site Roadway Improvements 2016									
Innes	6	30	24	16	8	12	(2) Excavators, (1) Loaders, (1) Bobcat, (1) Compactors, (1) Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
Field Management 2010									
	12	20	16	8	4	8	(4) Onsite Field Trucks, Backup Equipment (see note 2), (1) Loaders, (1) Head Trucks, (1) Water Trucks, (1) Man Lift		
Field Management 2011									
	12	20	16	8	4	8	(4) Onsite Field Trucks, Backup Equipment (see note 2), (1) Loaders, (1) Head Trucks, (1) Water Trucks, (1) Man Lift		
Field Management 2012									
	12	20	16	8	4	8	(4) Onsite Field Trucks, Backup Equipment (see note 2), (1) Loaders, (1) Head Trucks, (1) Water Trucks, (1) Man Lift		
Field Management 2013									
	12	25	20	8	4	10	(8) Onsite Field Trucks, Backup Equipment (see note 2), (1) Loaders, (1) Head Trucks, (1) Water Trucks, (1) Man Lift		
Field Management 2014									
	12	25	20	8	4	10	(8) Onsite Field Trucks, Backup Equipment (see note 2), (1) Loaders, (1) Head Trucks, (1) Water Trucks, (1) Man Lift		
Field Management 2015									
	12	25	20	8	4	10	(8) Onsite Field Trucks, Backup Equipment (see note 2), (1) Loaders, (1) Head Trucks, (1) Water Trucks, (1) Man Lift		
Field Management 2016									
	12	25	20	8	4	10	(8) Onsite Field Trucks, Backup Equipment (see note 2), (1) Loaders, (1) Head Trucks, (1) Water Trucks, (1) Man Lift		
Field Management 2017									
	12	20	16	8	4	8	(4) Onsite Field Trucks, Backup Equipment (see note 2), (1) Loaders, (1) Head Trucks, (1) Water Trucks, (1) Man Lift		

	Yearly Average Duration (months)	Daily Construction Workers		Daily Construction Truck Trips ¹			Construction Equipment ³	Construction Equipment ³	Construction Equipment ³
Construction Phase		Max. Number of workers	Avg. Number of workers	Max. Number of truck trips	Avg. Number of truck trips	Number of on site equipment	Full Time	1/2 Time	1/4 Time
Candlestick Point									
Site Preparation 2011									
Grading & Infrastructure (CP-01 and 02)	5	20	16	144	120	8	(1)Excavators, (1)Loaders, (1)Compactors, (1)Water Truck, (1) Sweeper, (2) Off Road Dump Trucks, (1) Dozer		
2012 Site Preparation									
Grading & Infrastructure (CP-01)	3	30	24	16	8	12	(2)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
2012 Building Construction									
Structure/Rough In (CP-01)	3	18	14	16	8	7	(7)Excavators, (15)Loaders, (17)Water Trucks, (1)Crane, (1) Man Lift	(1) Cement Truck, (1) Pump Truck	
2013 Site Preparation									
Abatement (CP-03)	2	13	10	16	8	5	(2) Man Lifts, (1)Loader, (1) Rough Terrain Fork Lift	(1) Water Truck	
Grading & Infrastructure (CP-02)	2	30	24	16	8	12	(2)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
2013 Building Construction									
Structure/Rough In (CP-02)	2	18	14	16	8	7	(1)Excavators, (1)Loaders, (1)Water Trucks, (1)Crane, (1) Man Lift		(1) Cement Truck, (1) Pump Truck
Interior and Exterior Finishes (CP-01)	8	10	8	16	8	4	(1)Loader, (2) Man Lift, (1) Sweeper, (1) Rough Terrain Fork Lift		
2014 Site Preparation									
Abatement (CP-04)	2	13	10	16	8	5	(2) Man Lifts, (1)Loader, (1) Rough Terrain Fork Lift	(1) Water Truck	
Demolition (CP-03)	2	20	16	24	16	8	(2) Man Lifts, (1)Excavators, (1) Off Road Dump Truck, (1)Loaders, (1)Dozer, (1)Water Trucks, (1) Crane		
Grading & Infrastructure (CP-03)	3	30	24	16	8	12	(2)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
2014 Building Construction									
Interior and Exterior Finishes (CP-02)	5	10	8	16	8	4	(1)Loader, (1) Man Lift, (1) Sweeper, (1) Rough Terrain Fork Lift		
2015 Site Preparation									
Abatement (CP-05)	2	13	10	16	8	5	(2) Man Lifts, (1)Loader, (1) Rough Terrain Fork Lift	(1) Water Truck	
Demolition (CP-04)	2	20	16	24	16	8	(2) Man Lifts, (1)Excavators, (1) Off Road Dump Truck, (1)Loaders, (1)Dozer, (1)Water Trucks, (1) Crane		
Grading & Infrastructure (CP-04)	5	33	26	16	8	13	(2)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (1) Off Road Dump Truck	(1) Sweeper	(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
2015 Building Construction									
Structure/Rough In (CP-03)	3	18	14	16	8	7	(7)Excavators, (15)Loaders, (17)Water Trucks, (1)Crane, (1) Man Lift	(1) Cement Truck, (1) Pump Truck	
2016 Site Preparation									
Abatement (CP-06)	2	13	10	16	8	5	(2) Man Lifts, (1)Loader, (1) Rough Terrain Fork Lift	(1) Water Truck	
Demolition (CP-05 and 06)	2	40	32	48	32	16	(4) Man Lifts, (2)Excavators, (2) Off Road Dump Truck, (2)Loaders, (2)Dozer, (2)Crane, (2)Water Trucks		
Grading & Infrastructure (CP-05)	5	33	26	16	8	13	(2)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (2) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
2016 Building Construction									
Foundation Piles/Structure/Rough In (CP-04)	5	18	14	16	8	7	(7)Excavators, (15)Loaders, (17)Water Trucks, (1)Crane, (1) Man Lift	(1) Cement Truck, (1) Pump Truck	
Interior and Exterior Finishes (CP-03)	8	10	8	16	8	4	(1)Loader, (1) Man Lift, (1) Sweeper, (1) Rough Terrain Fork Lift		
2017 Site Preparation									
Abatement (CP-07)	3	13	10	3	24	5	(2) Man Lifts, (1)Loader, (1) Rough Terrain Fork Lift	(1) Water Truck	
Demolition (CP-07)	11	40	32	48	40	16	(4) Man Lifts, (2)Excavators, (2) Off Road Dump Truck, (2)Loaders, (2)Dozer, (2)Water Trucks, (2) Crane		
Grading & Infrastructure (CP-06)	5	33	26	16	8	13	(2)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (2) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
Grading & Infrastructure (CP-07)	10	33	26	16	8	13	(2)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (2) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
2017 Building Construction									
Foundation Piles/Structure/Rough In (CP-05)	4	18	14	16	8	7	(7)Excavators, (15)Loaders, (17)Water Trucks, (1)Crane, (1) Man Lift	(1) Cement Truck, (1) Pump Truck	
Interior and Exterior Finishes (CP-04)	10	10	8	16	8	4	(1)Loader, (2) Man Lift, (1) Sweeper, (1) Rough Terrain Fork Lift		
2018 Site Preparation									
Grading & Infrastructure (CP-07)	10	60	48	16	8	24	(4)Excavators, (2)Loaders, (2)Bobcat, (2)Compactors, (2)Water Truck, (2) Off Road Dump Truck		(2) Grader, (2) Asphalt Layer, (2) Soil stabilizer, (2) Roller, (2) Dozers
2018 Building Construction									
Structure/Rough In (CP-06)	3	18	14	16	8	7	(7)Excavators, (15)Loaders, (17)Water Trucks, (1)Crane, (1) Man Lift	(1) Cement Truck, (1) Pump Truck	
Interior and Exterior Finishes (CP-05)	8	10	8	16	8	4	(1)Loader, (1) Man Lift, (1) Sweeper, (1) Rough Terrain Fork Lift		
2019 Site Preparation									
Demolition (CP-08)	1	15	12	24	16	6	(1) Man Lifts, (1)Excavators, (1) Off Road Dump Truck, (1)Loaders, (1)Dozer, (1)Water Trucks		
Grading & Infrastructure (CP-08)	8	30	24	24	16	12	(2)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
2019 Building Construction									
Foundation Piles/Structure/Rough In (CP-07)	10	20	16	16	8	8	(1)Excavators, (15)Loaders, (17)Water Trucks, (1)Crane, (1) Man Lift	(1) Cement Truck, (1) Pump Truck	(1) Pile Driver
Interior and Exterior Finishes (CP-06)	8	10	8	16	8	4	(1)Loader, (1) Man Lift, (1) Sweeper, (1) Rough Terrain Fork Lift		
Interior and Exterior Finishes (CP-07)	9	20	16	16	8	8	(2)Loader, (2) Man Lift, (2) Sweeper, (2) Rough Terrain Fork Lift		
2020 Site Preparation									
Demolition (CP-09)	1	20	16	24	16	8	(2) Man Lifts, (1)Excavators, (1) Off Road Dump Truck, (1)Loaders, (1)Dozer, (1)Water Trucks, (1) Crane		
Grading & Infrastructure (CP-09)	4	30	24	16	8	12	(2)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
2020 Building Construction									
Foundation Piles/Structure/Rough In (CP-07 and 08)	9	40	32	32	16	16	(2)Excavators, (2)Loaders, (2)Water Trucks, (2)Crane, (2) Man Lift	(2) Cement Truck, (2) Pump Truck	(2) Pile Driver
Interior and Exterior Finishes (CP-07 and 08)	9	30	24	32	16	12	(3)Loader, (3) Man Lift, (3) Sweeper, (3) Rough Terrain Fork Lift		
2021 Site Preparation									
Demolition (CP-10)	1	20	16	24	16	8	(2) Man Lifts, (1)Excavators, (1) Off Road Dump Truck, (1)Loaders, (1)Dozer, (1)Water Trucks, (1) Crane		
Grading & Infrastructure (CP-10)	10	30	24	16	8	12	(2)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
2021 Building Construction									
Foundation Piles/Structure/Rough In (CP-09)	3	20	16	16	8	8	(1)Excavators, (15)Loaders, (17)Water Trucks, (1)Crane, (1) Man Lift	(1) Cement Truck, (1) Pump Truck	(1) Pile Driver
Interior and Exterior Finishes (CP-08)	8	10	8	16	8	4	(1)Loader, (1) Man Lift, (1) Sweeper, (1) Rough Terrain Fork Lift		
2022 Site Preparation									
Demolition (CP-11)	1	15	12	24	16	6	(1) Man Lifts, (1)Excavators, (1) Off Road Dump Truck, (1)Loaders, (1)Dozer, (1)Water Trucks		
Grading & Infrastructure (CP-11)	6	30	24	16	8	12	(2)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
2022 Building Construction									
Foundation Piles/Structure/Rough In (CP-10)	8	20	16	16	8	8	(1)Excavators, (15)Loaders, (17)Water Trucks, (1)Crane, (1) Man Lift	(1) Cement Truck, (1) Pump Truck	(1) Pile Driver
Interior and Exterior Finishes (CP-09)	7	10	8	16	8	4	(1)Loader, (1) Man Lift, (1) Sweeper, (1) Rough Terrain Fork Lift		
2023 Site Preparation									
Demolition (CP-12)	1	15	12	24	16	6	(1) Man Lifts, (1)Excavators, (1) Off Road Dump Truck, (1)Loaders, (1)Dozer, (1)Water Trucks		
Grading & Infrastructure (CP-12)	10	30	24	16	8	12	(2)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers

Construction Phase	Yearly Average Duration (months)	Daily Construction Workers		Daily Construction Truck Trips ¹			Construction Equipment ³	Construction Equipment ³	Construction Equipment ³
		Max. Number of workers	Avg. Number of workers	Max. Number of truck trips	Avg. Number of truck trips	Number of on site equipment	Full Time	1/2 Time	1/4 Time
2023 Building Construction									
Foundation Piles/Structure/Rough In (CP-11)	5	20	16	16	8	8	(1)Excavators, (1)Loaders, (1)Water Trucks, (1)Cranes, (1)Man Lift	(1) Cement Truck, (1) Pump Truck	(1) Pile Driver
Interior and Exterior Finishes (CP-10)	9	20	16	16	8	8	(2)Loader, (2) Man Lift, (2) Sweeper, (2) Rough Terrain Fork Lift		
2024 Site Preparation									
Demolition (CP-13)	2	20	16	24	16	8	(2) Man Lifts, (1)Excavators, (1) Off Road Dump Truck, (1)Loaders, (1)Dozer, (1)Water Trucks, (1)Crane		
Grading & Infrastructure (CP-13)	8	63	50	16	8	25	(3)Excavators, (2)Loaders, (2)Bobcat, (2)Compactors, (2)Water Truck, (4) Off Road Dump Truck		(2) Grader, (2) Asphalt Layer, (2) Soil stabilizer, (2) Roller, (2) Dozers
2024 Building Construction									
Foundation Piles/Structure/Rough In (CP-12)	8	13	10	16	8	5	(1)Excavators, (1)Loaders, (1)Water Trucks, (1)Cranes, (1)Man Lift	(1) Cement Truck, (1) Pump Truck	(1) Pile Driver
Interior and Exterior Finishes (CP-11)	10	10	8	16	8	4	(1)Loader, (1) Man Lift, (1) Sweeper, (1) Rough Terrain Fork Lift		
2025 Building Construction									
Foundation Piles/Structure/Rough In (CP-13)	10	38	30	16	8	15	(2)Excavators, (2)Loaders, (2)Water Trucks, (2)Crane, (2) Man Lift	(2) Cement Truck, (2) Pump Truck	(1) Pile Driver
Interior and Exterior Finishes (CP-12)	7	20	16	16	8	8	(2)Loader, (2) Man Lift, (2) Sweeper, (2) Rough Terrain Fork Lift		
2026 Building Construction									
Interior and Exterior Finishes (CP-13)	10	20	16	16	8	8	(2)Loader, (2) Man Lift, (2) Sweeper, (2) Rough Terrain Fork Lift		
Off-Site Roadway Improvements 2013									
Gilman (Southeast), Carroll	9	30	24	16	8	12	(2)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
Off-Site Roadway Improvements 2015									
Gilman(Northwest), Thomas, Griffith	10	30	24	16	8	12	(2)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
Off-Site Roadway Improvements 2016									
Harney	10	30	24	16	8	12	(2)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
Off-Site Roadway Improvements 2020									
Ingonson	6	28	22	16	8	11	(1)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
Off-Site Roadway Improvements 2021									
Jameslow	6	28	22	16	8	11	(1)Excavators, (1)Loaders, (1)Bobcat, (1)Compactors, (1)Water Truck, (1) Off Road Dump Truck		(1) Grader, (1) Asphalt Layer, (1) Soil stabilizer, (1) Roller, (1) Dozers
Field Management 2011									
	12	20	16	8	4	8	(4)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		
Field Management 2012									
	12	20	16	8	4	8	(4)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		
Field Management 2013									
	12	20	16	8	4	8	(4)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		
Field Management 2014									
	12	25	20	8	4	10	(5)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		
Field Management 2015									
	12	25	20	8	4	10	(5)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		
Field Management 2016									
	12	25	20	8	4	10	(5)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		
Field Management 2017									
	12	25	20	8	4	10	(5)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		
Field Management 2018									
	12	25	20	8	4	10	(5)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		
Field Management 2019									
	12	25	20	8	4	10	(5)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		
Field Management 2020									
	12	25	20	8	4	10	(5)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		
Field Management 2021									
	12	25	20	8	4	10	(5)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		
Field Management 2022									
	12	25	20	8	4	10	(5)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		
Field Management 2023									
	12	25	20	8	4	10	(5)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		
Field Management 2024									
	12	20	16	8	4	8	(4)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		
Field Management 2025									
	12	20	16	8	4	8	(4)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		
Field Management 2026									
	12	20	16	8	4	8	(4)Onsite Field Trucks, Backup Equipment (see note 2), (1)Loaders, (1)Haul Trucks, (1)Water Trucks, (1) Man Lift		

SOURCE: MACTEC

Notes:

1. Number of truck trips making deliveries, and number of truck trips required for materials removal, see assumptions for trip details.
2. Back up equipment is kept onsite to minimize downtime if a piece of equipment breaks down and needs replacement. Typically this equipment will not be used on a day to day basis.
3. It should be assumed that all Man Lifts referenced in the "Construction Equipment" columns will be propane or electric powered.
4. Hunters Point and Candlestick Point will each utilize a new dedicated crushing plant located near the Bay. The crushing plants will be comprised of 1 loader, 1 hammer, 1 screener, 1 crusher and an adjacent batch plant. Each crushing plant will operate ½ time.

(2) = Number of pieces of specified equipment.

Changed since latest version of the table

Assumptions

Max. number of round trips to be performed by 1 haul truck is 4 which = 8 total trips

Each truck will be able to carry 20 tons of material

Personal vehicle trips to and from the construction site were not included in the truck trip calculations and are estimated to be 1 trip for every 2 workers as incentives will be offered for use of mass transit and car/van pooling.

Import fill will be brought onto the site through two primary modes: Trucks (60%) and Barge (40%).

Quantities do not account for concurrent remediation work occurring at Hunters Point Shipyard.

Draft: Bayview Waterfront Project - Construction Workers and Equipment for Shoreline Improvements by Construction Phase (Revision 2, 10-15-09)
Prepared by MACTEC for EIR analysis

Construction Phase	Yearly Average Duration (months)	Daily Construction Workers		Daily Construction Truck Trips ¹		Yearly Barge Trips	Number of equipment on site	Construction Equipment ^{2,3} Full Time	Construction Equipment ² 1/2 Time	Construction Equipment ² 1/4 Time
		Max. Number of workers	Avg. Number of workers	Max. Number of truck trips	Avg. Number of truck trips					
Hunters Point Shipyard										
2013 Shoreline										
Demolition and Improvements (HP-03)	9	14	12	0	0	0	5	(1) Floating Platform, (1) Bocat		
2014 Shoreline										
Demolition and Improvements (HP-03 and 04)	9	14	12	0	0	6	8	(2) Floating Platform, (1) Bocat		(1) Barge, (1) Crane
2015 Shoreline										
Demolition and Improvements (HP-04 and 07)	10	38	33	4	2	35	9	(3) Floating Platform, (2) Crane, (1) Excavator (2) Bocat	(1) Barge	
2016 Shoreline										
Demolition and Improvements (HP-07)	10	24	21	4	2	35	8	(2) Floating Platform, (2) Crane, (1) Excavator, (1) Bocat, (1) Pilot Driver	(1) Barge	
2017 Shoreline										
Demolition and Improvements (HP-07 and 08)	10	40	35	4	2	70	14	(4) Floating Platform, (4) Crane, (2) Excavator, (2) Bocat	(2) Barge	
2018 Shoreline										
Demolition and Improvements (HP-07 and 08)	10	40	35	4	2	60	14	(4) Floating Platform, (4) Crane, (2) Excavator, (2) Bocat	(2) Barge	
2019 Shoreline										
Demolition and Improvements (HP-08)	10	16	14	4	2	30	7	(2) Floating Platform, (2) Crane, (1) Excavator, (1) Bocat	(1) Barge	
2022 Shoreline										
Demolition and Improvements (HP-11)	10	16	14	4	2	30	5	(2) Crane, (1) Excavator, (1) Bocat	(1) Barge	
2023 Shoreline										
Demolition and Improvements (HP-11)	10	16	14	4	2	30	5	(2) Crane, (1) Excavator, (1) Bocat	(1) Barge	
Candlestick Point										
2014 Shoreline										
Improvements (CP-03)	2	7	5	0	0	2	3	(1) Excavator		(1) Crane, (1) Barge
2019 Shoreline										
Improvements (CP-08)	2	7	5	0	0	2	3	(1) Excavator		(1) Crane, (1) Barge
2020 Shoreline										
Improvements (CP-09)	2	7	5	0	0	2	3	(1) Excavator		(1) Crane, (1) Barge
2022 Shoreline										
Improvements (CP-11)	3	7	5	0	0	4	3	(1) Excavator		(1) Crane, (1) Barge
2023 Shoreline										
Improvements (CP-12)	5	7	5	0	0	3	3	(1) Excavator		(1) Crane, (1) Barge
2024 Shoreline										
Improvements (CP-14)	5	7	5	0	0	4	3	(1) Excavator	(1) Crane, (1) Barge	

SOURCE: MACTEC

Notes:
1. Number of truck trips making deliveries, and number of truck trips required for materials removal, see assumptions for trip details.
2. The construction equipment in this table identifies what will be required in addition to the equipment already onsite performing infrastructure work.
3. It should be assumed that all Floating Platforms referenced in the "Construction Equipment" columns will be propane or electric powered.

(2) = Number of pieces of specified equipment.

Assumptions

Each truck will be able to carry 15 cy of material.
Each barge will be able to carry 2500 tons of material.
Hunters Point Shipyard import fill will be brought on site by barge (100%).
Candlestick Point import fill will be brought on site by barge (50%), and sourced on site (50%).
Quantities do not account for work performed by Navy.