

Appendix 4.7-2
CVBMP Traffic Noise Levels, April 2008



Kimley-Horn
and Associates, Inc.

April 30, 2008

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■
Suite 301
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Re: Chula Vista Bayfront Programmatic Traffic Volumes
Roadway Noise Analysis

Dear Ms. Nishihira:

At your request, Kimley-Horn and Associates, Inc. (KHA) has performed a programmatic level vehicular traffic noise impact assessment for the Chula Vista Bayfront project Sweetwater Park and No Land Trade Alternative. The following presents the findings.

Environmental Noise Background

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and that interferes with or disrupts normal activities. The human environment is characterized by a certain consistent noise level which varies by location and is termed ambient noise. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, perceived importance of the noise and its appropriateness in the setting, time of day and type of activity during which the noise occurs, and sensitivity of the individual.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air, and are sensed by the human ear. Sound is generally characterized by several variables, including frequency and intensity. Frequency describes the sound's pitch and is measured in cycles per second, or hertz (Hz), whereas intensity describes the sound's loudness and is measured in decibels (dB). Decibels are measured using a logarithmic scale. A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Sound levels above about 120 dB begin to be felt inside the human ear as discomfort and eventually as pain at still higher levels. The minimum change in the sound level of individual events that an average human ear can detect is about 3 dB. The average person perceives a change in sound level of about 10 dB as a doubling (or halving) of the sound's loudness; this relation holds true for sounds of any loudness. Sound levels of typical noise sources and environments are provided in Table 1.



Because of the logarithmic nature of the decibel unit, sound levels cannot be added or subtracted directly and are somewhat cumbersome to handle mathematically. A simple rule is useful, however, in dealing with sound levels. If a sound's intensity is doubled, the sound level increases by 3 dB, regardless of the initial sound level. Thus, for example, $60 \text{ dB} + 60 \text{ dB} = 63 \text{ dB}$, and $80 \text{ dB} + 80 \text{ dB} = 83 \text{ dB}$.

The normal human ear can detect sounds that range in frequency from about 20 Hz to 20,000 Hz. However, all sounds in this wide range of frequencies are not heard equally well by the human ear, which is most sensitive to frequencies in the range of 1,000 Hz to 4,000 Hz. This frequency dependence can be taken into account by applying a correction to each frequency range to approximate the human ear's sensitivity within each range. This is called A-weighting and is commonly used in measurements of community environmental noise. The A-weighted sound pressure level (abbreviated as dBA) is the sound level with the "A-weighting" frequency correction. In practice, the level of a noise source is conveniently measured using a sound level meter that includes a filter corresponding to the dBA curve.

Because community noise fluctuates over time, a single measure called the Equivalent Sound Level (Leq) is often used to describe the time-varying character of community noise. The Leq is the energy-averaged A-weighted sound level during a measured time interval. It is equal to the level of continuous steady sound containing the same total acoustical energy over the averaging time period as the actual time-varying sound.

Another sound measure known as the Community Noise Equivalent Level (CNEL) is an adjusted average A-weighted sound level for a 24-hour day. It is calculated by adding a 5-dB adjustment to sound levels during evening hours (7:00 p.m. to 10:00 p.m.) and a 10-dB adjustment to sound levels during nighttime hours (10:00 p.m. to 7:00 a.m.). These adjustments compensate for the increased sensitivity to noise during the typically quieter evening and nighttime hours. The CNEL is used by the State of California and the City of Chula Vista (City) to evaluate land-use compatibility with regard to noise.

Applicable Standards

City of Chula Vista General Plan

The City of Chula Vista requires new projects to meet exterior noise level standards as established in the Exterior Land Use / Noise Compatibility Guidelines of the City's General Plan (Table 1). This table displays a traffic noise goal of 65 dBA CNEL or less at outdoor use areas of residential development. The City applies this goal at common areas included in open space calculations only; mitigation is not required for common exterior use areas not included in these calculations. However, it is a City policy (City of Chula Vista 2007) that "ground-floor private outdoor use areas, such as patios, are subject to the 65 CNEL standard regardless of their exclusion from open-space calculations."



Table 1. Exterior Land Use / Noise Compatibility Guidelines

Land Use	Annual CNEL in Decibels					
	50	55	60	65	70	75
Residential						
Schools, Libraries, Daycare Facilities, Convalescent Homes, Outdoor Use Areas, and Other Similar Uses Considered Noise Sensitive						
Neighborhood Parks, Playgrounds						
Community Parks, Athletic Fields						
Offices and Professional						
Places of Worship (excluding outdoor use areas)						
Golf Courses						
Retail and Wholesale Commercial, Restaurants, Movie Theaters						
Industrial, Manufacturing						

Wildlife Habitat

Section 7.5.2 of the Chula Vista Subarea Plan, Priority 1, Section 4(d): Noise states:

Uses in or adjacent to the [Sweetwater Marsh National Wildlife Refuge] Preserve should be designed to minimize noise impacts. Berms or walls should be constructed adjacent to commercial areas and any other use that may introduce noises that could impact or interfere with wildlife utilization of the Preserve. Excessively noisy uses or activities adjacent to breeding areas, including temporary grading activities, must incorporate noise reduction measures or be curtailed during the breeding season of sensitive bird species, consistent with Table 3-5 of the MSCP Subregional Plan.

Where noise associated with clearing, grading or grubbing will negatively impact an occupied nest for the least Bell’s vireo during the breeding season (March 15 to September 15), noise levels should not exceed 60 LEQ. However, on a case-by-case basis, if warranted, a more restrictive standard may be used. If an occupied least Bell’s vireo nest is identified in a pre-construction survey, noise reduction techniques, such as temporary noise walls or berms, shall be incorporated into the construction plans to reduce noise levels below 60 LEQ.

Where noise associated with clearing, grubbing or grading will negatively impact an occupied nest for raptors between January 15 and July 31 or the coastal California gnatcatcher between February 15 and August 15 (during the breeding season), clearing, grubbing or grading activities will be modified if necessary, to prevent noise from



negatively impacting the breeding success of the pair. If an occupied raptor or coastal California gnatcatcher nest is identified in a pre-construction survey, noise reduction techniques shall be incorporated into the construction plans.

Outside the bird breeding season(s) no restrictions shall be placed on temporary construction noise.

Analysis

Future traffic noise levels at land uses adjacent to project roadways were estimated using the Federal Highway Administration (FHWA) Traffic Noise Model (TNM) version 2.5. The Phase IV baseline plus Project traffic volumes, with the Sweetwater Park and No Land Trade alternatives, were used in the traffic noise analysis (Chula Vista Bayfront Master Plan (CVBMP) Traffic Impact Analysis, KHA 2008). The model considered estimated average vehicle speed, peak-hour traffic volume, and vehicle mix. The model assumed a default ground type of “hard soil.”

The peak-hour traffic volume was assumed to be 10% of the ADT for the local roadways. The TIA indicated peak-hour traffic volumes for I-5. The speed limits on the roadway segments were obtained from the SANDAG Transportation Forecast Information Center. The vehicle mix for the surface streets was estimated. The vehicle mix for I-5 was obtained from Caltrans’ Traffic and Vehicle Data Systems Unit 2005 Truck Traffic.

Land uses along the roadway segments include manufacturing, office, retail, marina, and park. Marina land use is not considered noise sensitive. Existing land uses only were evaluated; any future projects in the influence area that would involve a land use designation change would be expected to evaluate compatibility and compliance with regard to noise as part of that project.

Noise levels were estimated at a distance of 50 feet from the centerline of each roadway segment, and the distances to the 60, 65, 70, and 75 dBA CNEL noise contours were estimated. The actual sound level at any receptor location is dependent upon such factors as the source-to-receptor distance and the presence of intervening structures, barriers, and topography. Table 2 shows existing traffic noise levels along Project area roadways. Tables 3 and 4 show future Sweetwater Park alternative and future No Land Trade alternative traffic noise levels along Project roadways, respectively.



Table 2. Existing Off-Site Traffic Noise Levels

Roadway Segment	ADT	Medium Trucks	Heavy Trucks	Speed Limit (mph)	CNEL at 50' from Centerline (dBA)	Approximate Distance (ft) to CNEL Noise Contour			
						60	65	70	75
E Street									
I-5 Ramps to Woodlawn Ave	26,799	1%	1%	35	69	270	115	40	-
Woodlawn Ave to Broadway	26,558	1%	1%	35	69	265	115	40	-
Broadway to 3rd Ave	18,406	1%	1%	35	67	205	85	25	-
F Street									
Marina Pkwy to Bay Blvd	3,600	1%	0%	35	60	45	-	-	--
Bay Blvd to Broadway	4,344	1%	0%	35	60	50	-	-	-
Broadway to 4th Ave	10,303	1%	0%	35	64	115	40	-	-
4th Ave to 3rd Ave	9,797	1%	0%	30	62	80	25	-	-
H Street									
Bay Blvd to I-5 Ramps	15,841	2%	1%	35	67	190	75	25	-
I-5 Ramps to Broadway	28,750	1%	1%	35	69	280	120	40	-
Broadway to 3rd Ave	27,423	1%	1%	35	69	270	115	40	-
J Street									
Marina Pkwy to Bay Blvd	8,617	1%	0%	35	63	105	35	25	-
Bay Blvd to I-5 Ramps	17,199	1%	1%	35	67	195	75	25	-
I-5 Ramps to Broadway	17,199	1%	1%	35	67	195	75	25	-
L Street									
Bay Blvd to Industrial Way	15,100	2%	1%	35	67	185	70	30	-
Industrial Way to Broadway	20,399	2%	1%	35	68	230	95	30	-
Marina Parkway									
G St to Sandpiper Way	896	1%	0%	35	53	-	-	-	-
Sandpiper Way to J St	896	1%	0%	35	53	-	-	-	-
Bay Boulevard									
E St to F St	11,196	1%	1%	35	65	140	50	-	-
F St to H St	2,291	1%	1%	35	58	30	-	-	-
H St to J St	2,489	1%	1%	35	58	35	-	-	-
J St to L St	2,962	1%	1%	35	59	40	-	-	-
L St to I-5 Ramps	3,303	1%	1%	35	60	45	-	-	-
South of I-5 Ramps	3,303	1%	1%	35	60	45	-	-	-



Roadway Segment	ADT	Medium Trucks	Heavy Trucks	Speed Limit (mph)	CNEL at 50' from Centerline (dBA)	Approximate Distance (ft) to CNEL Noise Contour			
						60	65	70	75
Broadway									
C St to E St	26,007	1%	1%	35	69	260	110	40	-
E St to H St	25,664	1%	1%	35	69	260	110	35	-
H St to K St	29,228	1%	1%	35	69	285	120	40	-
K St to L St	26,599	1%	1%	35	69	265	110	40	-
South of L St	27,053	1%	1%	35	69	270	115	40	-

Notes:

Existing ADT from TIA (KHA 2008).

Speed limits obtained from SANDAG's Transportation Forecast Information Center.



Table 3. Future Traffic Noise Levels (Sweetwater Park Alternative)

Roadway Segment	ADT	Medium Trucks	Heavy Trucks	Speed Limit (mph)	CNEL at 50' from Centerline (dBA)	Approximate Distance (ft) to CNEL Noise Contour			
						60	65	70	75
E Street									
H St to Gaylord Driveway	5,819	1%	0%	35	62	70	-	-	-
Gaylord Driveway to F St	9,089	1%	0%	35	64	110	35	-	-
F St to Bay Blvd	16,279	1%	0%	35	66	185	65	-	-
Bay Blvd to I-5 Ramps	26,289	1%	1%	35	69	285	115	40	-
I-5 Ramps to Woodlawn Ave	33,608	1%	1%	35	70	335	145	50	-
Woodlawn Ave to Broadway	32,472	1%	1%	35	70	325	140	45	-
Broadway to 3rd Ave	23,063	1%	1%	35	68	260	100	35	-
F Street									
Marina Pkwy to Bay Blvd	3,600	1%	0%	35	60	45	-	-	-
Bay Blvd to Broadway	8,325	1%	0%	35	63	100	35	-	-
Broadway to 4th Ave	12,275	1%	0%	35	65	145	50	-	-
4th Ave to 3rd Ave	12,997	1%	0%	30	63	105	35	-	-
H Street									
West of Marina Pkwy	12,520	1%	0%	25	61	65	-	-	-
Marina Pkwy to Street A	15,961	2%	1%	35	67	210	75	25	-
Street A to I-5 Ramps	34,588	2%	1%	35	70	355	155	50	-
I-5 Ramps to Broadway	49,203	1%	1%	35	72	425	200	70	-
Broadway to 3rd Ave	32,063	1%	1%	35	70	325	140	45	-
J Street									
Marina Pkwy to Street A	25,039	1%	0%	35	68	250	95	30	-
Street A to Bay Blvd	36,657	1%	0%	35	70	320	140	45	-
Bay Blvd to I-5 Ramps	38,913	1%	1%	35	70	365	165	55	-
I-5 Ramps to Broadway	23,131	1%	1%	35	68	255	100	35	-
L Street									
Bay Blvd to Industrial Way	20,402	2%	1%	35	68	245	95	30	-
Industrial Way to Broadway	24,531	2%	1%	35	69	280	115	35	-
Marina Parkway									
H St to Street C	10,856	1%	0%	35	64	130	45	-	-
Street C to J St	14,050	1%	0%	35	65	165	55	-	-
Bay Boulevard									



Roadway Segment	ADT	Medium Trucks	Heavy Trucks	Speed Limit (mph)	CNEL at 50' from Centerline (dBA)	Approximate Distance (ft) to CNEL Noise Contour			
						60	65	70	75
E St to F St	12,676	1%	1%	35	66	170	55	-	-
F St to H St	7,116	1%	1%	35	63	100	35	-	-
H St to J St	7,787	1%	1%	35	64	110	35	-	-
J St to L St	12,173	1%	1%	35	65	165	55	-	-
L St to I-5 Ramps	6,347	1%	1%	35	63	90	30	-	-
South of I-5 Ramps	6,087	1%	1%	35	62	85	30	-	-
Broadway									
C St to E St	27,020	1%	1%	35	69	290	120	40	-
E St to H St	27,585	1%	1%	35	69	295	120	40	-
H St to K St	32,076	1%	1%	35	70	325	140	45	-
K St to L St	27,266	1%	1%	35	69	290	120	40	-
South of L St	28,456	1%	1%	35	69	295	125	40	-
Street A									
H St to Street C	11,388	1%	1%	35	65	155	50	-	-
Street C to J St	17,741	1%	1%	35	67	220	80	25	-
J St to Street B	4,091	1%	1%	35	61	55	-	-	-
Street B									
Street A to Bay Blvd	1,876	2%	1%	35	58	30	-	-	-
Street C									
Marina Pkwy to Street A	2,482	1%	0%	35	58	30	-	-	-

Notes:

Future Phase IV baseline with Project ADT from TIA (KHA 2008).
Speed limits obtained from SANDAG's Transportation Forecast Information Center.



Table 4. Future Traffic Noise Levels (No Land Trade Alternative)

Roadway Segment	ADT	Medium Trucks	Heavy Trucks	Speed Limit (mph)	CNEL at 50' from Centerline (dBA)	Approximate Distance (ft) to CNEL Noise Contour			
						60	65	70	75
E Street									
H St to Gaylord Driveway	9,084	1%	0%	35	64	110	35	-	-
Gaylord Driveway to F St	11,108	1%	0%	35	64	135	45	-	-
F St to Bay Blvd	32,146	1%	0%	35	69	295	125	40	-
Bay Blvd to I-5 Ramps	39,791	1%	1%	35	71	375	170	55	-
I-5 Ramps to Woodlawn Ave	41,106	1%	1%	35	71	380	175	60	-
Woodlawn Ave to Broadway	40,006	1%	1%	35	71	375	170	55	-
Broadway to 3rd Ave	29,487	1%	1%	35	69	305	130	40	-
F Street									
E St to Bay Blvd	10,602	1%	0%	35	64	130	40	-	-
Bay Blvd to Broadway	12,891	1%	0%	35	65	155	50	-	-
Broadway to 4th Ave	12,824	1%	0%	35	65	155	50	-	-
4th Ave to 3rd Ave	13,399	1%	0%	30	63	105	35	-	-
H Street									
West of Marina Pkwy	16,332	1%	0%	25	62	80	25	-	-
Marina Pkwy to Street A	11,496	2%	1%	35	65	165	55	-	-
Street A to I-5 Ramps	34,507	2%	1%	35	70	355	155	50	-
I-5 Ramps to Broadway	46,283	1%	1%	35	71	410	190	65	-
Broadway to 3rd Ave	32,187	1%	1%	35	70	325	140	45	-
J Street									
Marina Pkwy to Street A	20,183	1%	0%	35	67	215	80	25	-
Street A to Bay Blvd	31,447	1%	0%	35	69	290	120	35	-
Bay Blvd to I-5 Ramps	35,330	1%	1%	35	70	345	150	50	-
I-5 Ramps to Broadway	22,619	1%	1%	35	68	255	100	35	-
L Street									
Bay Blvd to Industrial Way	19,898	2%	1%	35	68	245	95	30	-
Industrial Way to Broadway	24,054	2%	1%	35	69	280	110	35	-
Marina Parkway									
H St to Street C	9,872	1%	0%	35	64	120	40	-	-
Street C to J St	9,113	1%	0%	35	64	110	35	-	-
Bay Boulevard									



Roadway Segment	ADT	Medium Trucks	Heavy Trucks	Speed Limit (mph)	CNEL at 50' from Centerline (dBA)	Approximate Distance (ft) to CNEL Noise Contour			
						60	65	70	75
E St to F St	16,880	1%	1%	35	67	210	75	25	-
F St to H St	8,828	1%	1%	35	64	120	40	-	-
H St to J St	7,410	1%	1%	35	63	105	35	-	-
J St to L St	9,942	1%	1%	35	65	135	45	-	-
L St to I-5 Ramps	6,196	1%	1%	35	62	85	30	-	-
South of I-5 Ramps	5,856	1%	1%	35	62	85	25	-	-
Broadway									
C St to E St	28,419	1%	1%	35	69	295	125	40	-
E St to H St	28,627	1%	1%	35	69	300	125	40	-
H St to K St	31,936	1%	1%	35	70	325	140	45	-
K St to L St	27,209	1%	1%	35	69	290	120	40	-
South of L St	28,279	1%	1%	35	69	295	125	40	-
Street A									
H St to Street C	9,494	1%	1%	35	64	130	45	-	-
Street C to J St	15,707	1%	1%	35	67	200	70	25	-
J St to Street B	5,157	1%	1%	35	62	75	25	-	-
Street B									
Street A to Bay Blvd	2,112	2%	1%	35	58	30	-	-	-
Street C									
Marina Pkwy to Street A	3,620	1%	0%	35	60	45	-	-	-

Notes:

Future Phase IV with Project ADT from TIA addendum (KHA 2008).
Speed limits obtained from SANDAG's Transportation Forecast Information Center.

Sweetwater Park Alternative

Table 5 shows a comparison of the existing and future Sweetwater Park Alternative noise levels at 50 feet from the centerlines of Project roadways. The delta is the future noise level minus the existing noise level. In cases where existing roadways would be removed in the future, the closest future cross street was used for comparison; the existing roadway name is shown in parentheses. In cases where the future roadway does not currently exist, quantification of a delta is not applicable and was noted as N/A. Segments that would experience a delta of 3 dBA CNEL or more are shown in bold.



**Table 5. Comparison of Existing and Future (Sweetwater Park Alternative)
Off-Site Traffic Noise Levels**

Roadway	Segment	Existing CNEL at 50'	Future CNEL at 50'	Delta
E Street	H St to Gaylord Driveway	-	62	N/A
	Gaylord Driveway to F St	-	64	N/A
	F St to Bay Blvd	-	66	N/A
	Bay Blvd to I-5 Ramps	-	69	N/A
	I-5 Ramps to Woodlawn Ave	69	70	+1
	Woodlawn Ave to Broadway	69	70	+1
	Broadway to 3rd Ave	67	68	+1
F Street	E St (Marina Pkwy) to Bay Blvd	60	60	0
	Bay Blvd to Broadway	60	63	+3
	Broadway to 4th Ave	64	65	+1
	4th Ave to 3rd Ave	62	63	+1
H Street	West of Marina Pkwy	-	61	N/A
	Marina Pkwy to Street A	-	67	N/A
	Street A (Bay Blvd) to I-5 Ramps	67	70	+3
	I-5 Ramps to Broadway	69	72	+3
	Broadway to 3rd Ave	69	70	+1
J Street	Marina Pkwy to Street A	63	68	+5
	Street A to Bay Blvd	63	70	+7
	Bay Blvd to I-5 Ramps	67	70	+3
	I-5 Ramps to Broadway	67	68	+1
L Street	Bay Blvd to Industrial Way	67	68	+1
	Industrial Way to Broadway	68	69	+1
Marina Parkway	H St (G St) to Street C (Sandpiper Way)	53	64	+11
	Street C (Sandpiper Way) to J St	53	65	+12
Bay Boulevard	E St to F St	65	66	+1
	F St to H St	58	63	+5
	Street C (H St) to J St	58	64	+6
	J St to L St	59	65	+6
	L St to I-5 Ramps	60	63	+3
	South of I-5 Ramps	60	62	+2
Broadway	C St to E St	69	69	0
	E St to H St	69	69	0
	H St to K St	69	70	+1



Roadway	Segment	Existing CNEL at 50'	Future CNEL at 50'	Delta
	K St to L St	69	69	0
	South of L St	69	69	0
Street A	H St to Street C	-	65	N/A
	Street C to J St	-	67	N/A
	J St to Street B	-	61	N/A
Street B	Street A to Bay Blvd	-	58	N/A
Street C	Marina Pkwy to Street A	-	58	N/A

The segment of E Street between Gaylord Driveway and F Street would experience a future peak hour noise level of 64 dBA Leq at 50 feet. The closest point of the F&G Street Marsh habitat to the roadway is approximately 90 feet from the centerline of E Street. The highest noise level at the habitat would be approximately 62 dBA Leq. This noise level exceeds the wildlife noise threshold of 60 dBA Leq during breeding season at habitat in the F&G Street Marsh. Mitigation in the form of a 3-foot-high barrier along the east right-of-way of E Street for the extent of the habitat, as shown on Figure 1, would reduce the noise level to below 60 dBA Leq.

The segment of J Street between Marina Parkway and Street A would experience a future peak hour noise level of 68 dBA Leq at 50 feet. The segment of Street A between J Street and Street B would experience a future noise level of 61 dBA Leq at 50 feet. The closest point of the J Street Marsh habitat to the roadways is approximately 200 feet from the centerline of J Street and 200 feet from the centerline of Street A, as shown on Figure 2. The park between J Street and the J Street Marsh is approximately 2 feet above the grade of J Street and 12 feet above the grade of the J Street Marsh. The difference in elevation would provide approximately 6 dBA of noise reduction from traffic noise on J Street. With the shielding effect of the intervening topography, the highest noise level at the habitat would be approximately 59 dBA Leq. This noise level does not exceed the wildlife noise threshold of 60 dBA Leq during the breeding season at habitat in the J Street Marsh.

The segment of Marina Parkway between Street C and J Street would experience an increase of approximately 12 dBA CNEL. The Pacifica development site, a Bayfront project, is adjacent to Marina Parkway between Street C and J Street. This impact is being analyzed and mitigated by a cumulative assessment of traffic noise for that component of the project. Therefore, the noise level increase along this segment is considered to be not significant.

There are no noise sensitive land uses adjacent to the remainder of the roadway segments that would experience an increase of 3 dBA CNEL or more. Therefore, the noise level increases along these segments are considered to be not significant.



No Land Trade Alternative

Table 6 shows a comparison of the existing and future No Land Trade Alternative noise levels at 50 feet from the centerlines of Project roadways. The delta is the future noise level minus the existing noise level. In cases where existing roadways would be removed in the future, the closest future cross street was used for comparison; the existing roadway name is shown in parentheses. In cases where the future roadway does not currently exist, quantification of a delta is not applicable and was noted as N/A. Segments that would experience a delta of 3 dBA or more are shown in bold.

Table 6. Comparison of Existing and Future (No Land Trade Alternative) Off-Site Traffic Noise Levels

Roadway	Segment	Existing CNEL at 50'	Future CNEL at 50'	Delta
E Street	H St to Gaylord Driveway	-	64	N/A
	Gaylord Driveway to F St	-	64	N/A
	F St to Bay Blvd	-	69	N/A
	Bay Blvd to I-5 Ramps	-	71	N/A
	I-5 Ramps to Woodlawn Ave	69	71	+2
	Woodlawn Ave to Broadway	69	71	+2
	Broadway to 3rd Ave	67	69	+2
F Street	E St (Marina Pkwy) to Bay Blvd	60	64	+4
	Bay Blvd to Broadway	60	65	+5
	Broadway to 4th Ave	64	65	+1
	4th Ave to 3rd Ave	62	63	+1
H Street	West of Marina Pkwy	-	62	N/A
	Marina Pkwy to Street A	-	65	N/A
	Street A (Bay Blvd) to I-5 Ramps	67	70	+3
	I-5 Ramps to Broadway	69	71	+2
	Broadway to 3rd Ave	69	70	+1
J Street	Marina Pkwy to Street A	63	67	+4
	Street A to Bay Blvd	63	69	+6
	Bay Blvd to I-5 Ramps	67	70	+3
	I-5 Ramps to Broadway	67	68	+1
L Street	Bay Blvd to Industrial Way	67	68	+1
	Industrial Way to Broadway	68	69	+1
Marina Parkway	H St (G St) to Street C (Sandpiper Way)	53	64	+11
	Street C (Sandpiper Way) to J St	53	64	+11



Roadway	Segment	Existing CNEL at 50'	Future CNEL at 50'	Delta
Bay Boulevard	E St to F St	65	67	+2
	F St to H St	58	64	+6
	Street C (H St) to J St	58	63	+5
	J St to L St	59	65	+6
	L St to I-5 Ramps	60	62	+2
	South of I-5 Ramps	60	62	+2
Broadway	C St to E St	69	69	0
	E St to H St	69	69	0
	H St to K St	69	70	+1
	K St to L St	69	69	0
	South of L St	69	69	0
Street A	H St to Street C	-	64	N/A
	Street C to J St	-	67	N/A
	J St to Street B	-	62	N/A
Street B	Street A to Bay Blvd	-	58	N/A
Street C	Marina Pkwy to Street A	-	60	N/A

The segment of E Street between Gaylord Driveway and F Street would experience a future peak hour noise level of 64 dBA Leq at 50 feet. The closest point of the habitat to the roadway is approximately 90 feet from the centerline of E Street. The highest noise level at the habitat would be approximately 62 dBA Leq. This noise level exceeds the wildlife noise threshold of 60 dBA during breeding season at habitat in the F&G Street Marsh. Mitigation in the form of a 3-foot-high barrier along the east right-of-way of E Street for the extent of the habitat, as shown on Figure 1, would reduce the noise level to below 60 dBA Leq.

The segment of J Street between Marina Parkway and Street A would experience a future noise level of 68 dBA Leq at 50 feet. The segment of Street A between J Street and Street B would experience a future noise level of 62 dBA Leq at 50 feet. The closest point of the J Street Marsh habitat to the roadways is approximately 200 feet from the centerline of J Street and 200 feet from the centerline of Street A, as shown on Figure 2. The park between J Street and the J Street Marsh is approximately 2 feet above the grade of J Street and 12 feet above the grade of the J Street Marsh. The difference in elevation would provide approximately 6 dBA of noise reduction from traffic noise on J Street. With the shielding effect of the intervening topography, the highest noise level at the habitat would be approximately 59 dBA Leq. This noise level does not exceed the wildlife noise threshold of 60 dBA Leq during the breeding season at habitat in the J Street Marsh.



The segment of Marina Parkway between Street C and J Street would experience an increase of approximately 11 dBA. The Pacifica development site, a Bayfront project, is adjacent to Marina Parkway between Street C and J Street. This impact is being analyzed and mitigated by a cumulative assessment of traffic noise for that component of the project. Therefore, the noise level increase along this segment is considered to be not significant.

There are no noise sensitive land uses adjacent to the remainder of the roadway segments that would experience an increase of 3 dBA CNEL or more. Therefore, the noise level increases along these segments are considered to be not significant.

Conclusion

The noise level at the F&G Street Marsh habitat would exceed 60 dBA Leq without mitigation. Mitigation in the form of a 3-foot-high barrier along the east right-of-way of E Street for the extent of the habitat, as shown on Figure 1, would reduce the noise level to below 60 dBA Leq. The noise level at the J Street Marsh would not exceed 60 dBA Leq. No other significant impacts would occur.

Sincerely,

KIMLEY-HORN AND ASSOCIATES, INC.



Jeff Fuller, INCE, REHS
Senior Project Manager

References

Kimley-Horn and Associates, Inc. (KHA). 2008. Chula Vista Bayfront Master Plan. Traffic Impact Analysis. February.

Attachments

Figure 1. Noise Barrier at F&G Street Marsh

Figure 2. J Street Marsh

Roadway Noise Calculations for Habitat Barrier

Bayfront Phase IV Traffic Noise Levels



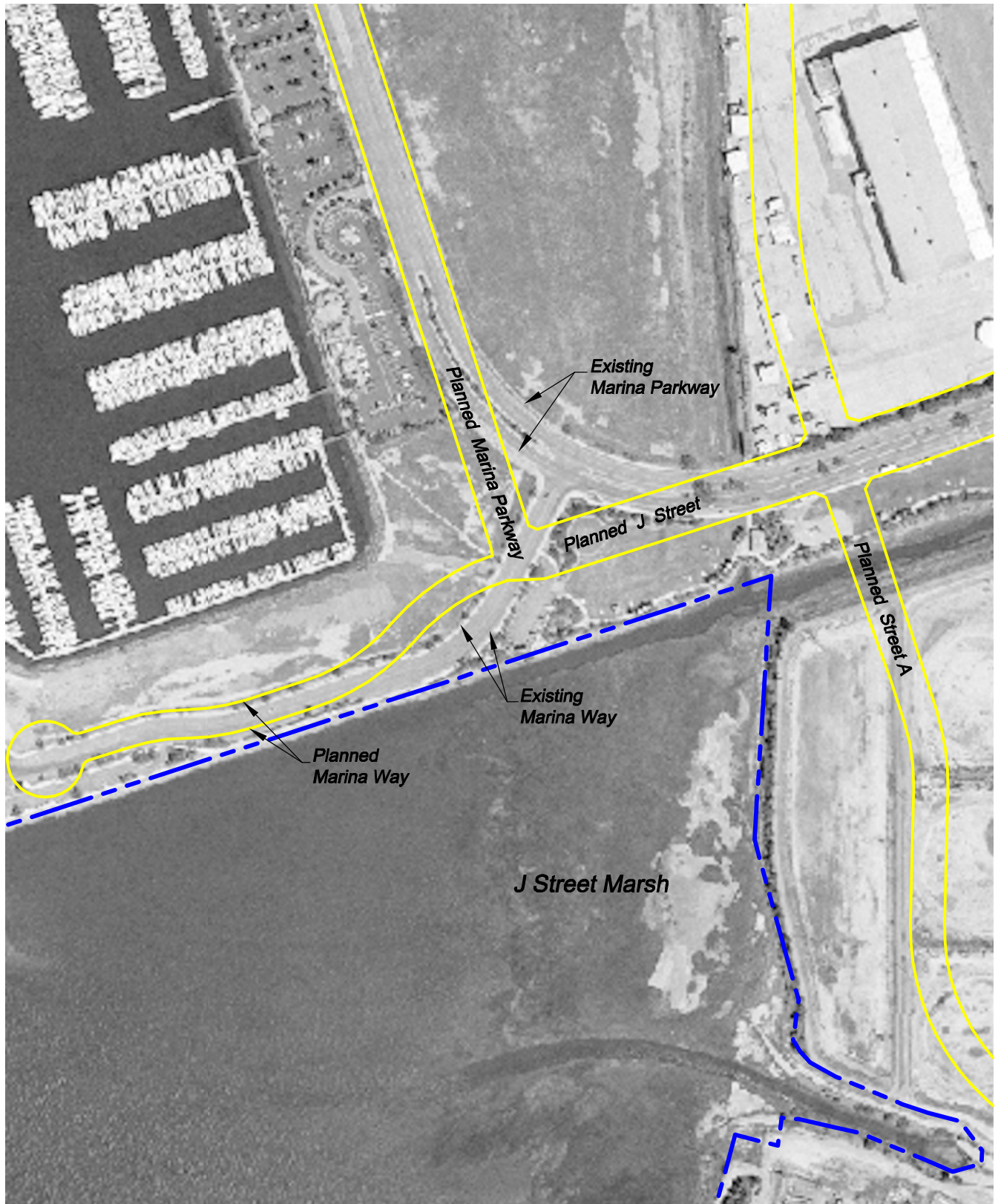
Scale: 1"=300'



K:\NOISE\095668001\drawings\x-Bayfront-Noise Barrier F&G.dwg 3-21-08-9:05 AM

Figure 1

Bayfront Phase IV Traffic Noise Levels



K:\NOISE\095668001\drawings\X-Bayfront_J ST Marsh.dwg 4-29-08-3:02 PM



Scale: 1"=300'

Figure 2

J Street Marsh

INPUT: ROADWAYS

Bayfront Phase 4

Kimley-Horn and Associates, Inc.				30 April 2008							
Steve Fiedler				TNM 2.5							
INPUT: ROADWAYS				Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA							
PROJECT/CONTRACT:		Bayfront Phase 4									
RUN:		Phase 4 F&G Street Marsh									
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control		Segment		
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
E Street	12.0	point1	1	-1,000.0	0.0	0.00				Average	
		point2	2	1,000.0	0.0	0.00					

INPUT: TRAFFIC FOR LAeq1h Volumes

Bayfront Phase 4

Kimley-Horn and Associates, Inc.		30 April 2008											
Steve Fiedler		TNM 2.5											
INPUT: TRAFFIC FOR LAeq1h Volumes													
PROJECT/CONTRACT:		Bayfront Phase 4											
RUN:		Phase 4 F&G Street Marsh											
Roadway	Points												
Name	Name	No.	Segment										
			Autos		MTrucks		HTrucks		Buses		Motorcycles		
			V	S	V	S	V	S	V	S	V	S	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
E Street	point1	1	1100	35	11	35	0	0	0	0	0	0	0
	point2	2											

INPUT: RECEIVERS

Bayfront Phase 4

Kimley-Horn and Associates, Inc.							30 April 2008					
Steve Fiedler							TNM 2.5					
INPUT: RECEIVERS												
PROJECT/CONTRACT:		Bayfront Phase 4										
RUN:		Phase 4 F&G Street Marsh										
Receiver												
Name	No.	#DUs	Coordinates (ground)			Height above Ground	Input Sound Levels and Criteria				Active in Calc.	
			X	Y	Z		Existing LAeq1h	Impact Criteria LAeq1h	Sub'l	NR Goal		
			ft	ft	ft	ft	dBA	dBA	dB	dB		
50	1	1	0.0	-50.0	0.00	4.92	0.00	66	10.0	8.0	Y	
90	2	1	0.0	90.0	0.00	4.92	0.00	66	10.0	8.0	Y	

INPUT: BARRIERS

Bayfront Phase 4

Kimley-Horn and Associates, Inc.										30 April 2008									
Steve Fiedler										TNM 2.5									
INPUT: BARRIERS																			
PROJECT/CONTRACT:		Bayfront Phase 4																	
RUN:		Phase 4 F&G Street Marsh																	
Barrier										Points									
Name	Type	Height		If Wall		If Berm			Add'tnl \$ per Unit Length	Name	No.	Coordinates (bottom)			Height at Point	Segment			Important Reflec- tions?
		Min	Max	\$ per Unit Area	\$ per Unit Vol.	Top Width	Run:Rise	X				Y	Z	Seg Ht		Perturbs #Up #Dn	On Struct?		
		ft	ft	\$/sq ft	\$/cu yd	ft	ft:ft	\$/ft				ft	ft	ft	ft	ft			
Barrier1	W	0.00	99.99	0.00				0.00	point1	1	-1,000.0	50.0	0.00	6.00	1.00	0	5		
									point2	2	1,000.0	50.0	0.00	6.00					

RESULTS: SOUND LEVELS

Bayfront Phase 4

Kimley-Horn and Associates, Inc.													30 April 2008	
Steve Fiedler													TNM 2.5	
													Calculated with TNM 2.5	
RESULTS: SOUND LEVELS														
PROJECT/CONTRACT:			Bayfront Phase 4											
RUN:			Phase 4 F&G Street Marsh											
BARRIER DESIGN:			INPUT HEIGHTS						Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.					
ATMOSPHERICS:			68 deg F, 50% RH											
Receiver														
Name		No.	#DUs	Existing LAeq1h	No Barrier LAeq1h			Increase over existing		Type	With Barrier			
					Calculated	Crit'n	Calculated	Crit'n	Impact	Calculated LAeq1h	Noise Reduction			
								Sub'l Inc			Calculated	Goal	Calculated minus Goal	
				dB	dB	dB	dB	dB		dB	dB	dB	dB	
50		1	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0	
90		2	1	0.0	61.2	66	61.2	10	----	53.9	7.3	8	-0.7	
Dwelling Units			# DUs	Noise Reduction										
				Min	Avg	Max								
				dB	dB	dB								
All Selected			2	0.0	3.6	7.3								
All Impacted			0	0.0	0.0	0.0								
All that meet NR Goal			0	0.0	0.0	0.0								