

Appendix O

Noise Calculation Worksheets



2nd and PCH Project

Noise Calculations Worksheets

Provided by Acoustical Engineering Services

Ambient Noise Measurements

Location: R1 - Marina Pacifica Private Waterfront Community
Date: 1/26/2017

Time	Overload	Leq	Lmax	L10	L90
11:47:33 AM	No	58.7	67	60.9	51.2
11:48:33 AM	No	60.1	65.6	61.7	57.5
11:49:33 AM	No	60.1	62.7	61.3	58.5
11:50:33 AM	No	61.5	66	63.7	59.9
11:51:33 AM	No	59.5	63.1	61.2	57.6
11:52:33 AM	No	59.1	66.8	62.1	54
11:53:33 AM	No	59.7	65	62	57.2
11:54:33 AM	No	57.9	60.7	59.1	56.2
11:55:33 AM	No	59.7	61.7	61.3	55.5
11:56:33 AM	No	61.5	69.3	66	55
11:57:33 AM	No	58.3	61	59.8	57.1
11:58:33 AM	No	57.8	60.7	60.1	52.2
11:59:33 AM	No	57.9	61.7	59.4	55.9
12:00:33 PM	No	59.7	64.8	62.1	56.9
12:01:33 PM	No	56.7	61.2	59.8	53.7

59.4

Time	Overload	Leq	Lmax	L10	L90
10:57:32 PM	No	53.9	56.8	55.6	50.9
10:58:32 PM	No	54.1	61.5	57.4	47.6
10:59:32 PM	No	55	61.2	60	47.6
11:00:32 PM	No	56.2	63.4	60.4	48.4
11:01:32 PM	No	53.3	58.6	56.9	49.3
11:02:32 PM	No	51.8	57.2	53	48
11:03:32 PM	No	55	58.9	58.3	48.5
11:04:32 PM	No	53	56.5	55.7	48.9
11:05:32 PM	No	54.9	59	58.2	48.8
11:06:32 PM	No	54.4	60.8	56.5	49.5
11:07:32 PM	No	52.8	57.3	55	49.6
11:08:32 PM	No	52.5	58.3	55.6	48.6
11:09:32 PM	No	65	75.3	71.1	50.1
11:10:32 PM	No	53.9	58.6	56.5	49.3
11:11:32 PM	No	51.5	54.3	53.4	48.5

56.4

Location: R2 - Marina, West of the Project Site
 Date: 1/26/2017

Time	Overload	Leq	Lmax	L10	L90
12:13:00 PM	No	53.8	59	55.1	52.6
12:14:00 PM	No	54.4	61.1	56.5	52.3
12:15:00 PM	No	54	57.6	56.5	51.7
12:16:00 PM	No	53.5	59.9	54.6	51.2
12:17:00 PM	No	52.9	56.7	54.2	51.5
12:18:00 PM	No	52.6	55.4	53.6	51.5
12:19:00 PM	No	55	61.4	56.9	51.6
12:20:00 PM	No	56.8	67.6	57.8	52.6
12:21:00 PM	No	53.1	56.8	55.1	50.9
12:22:00 PM	No	51.6	53.6	52.7	50.7
12:23:00 PM	No	56.9	60.9	59.2	54.4
12:24:00 PM	No	54.9	57.7	56.8	52.3
12:25:00 PM	No	53.3	56.1	55.1	51.3
12:26:00 PM	No	53.9	55.3	54.7	53.3
12:27:00 PM	No	52.9	58.5	54.7	50.5
		54.2			

Time	Overload	Leq	Lmax	L10	L90
11:20:31 PM	No	51.9	57.1	54.8	48.6
11:21:31 PM	No	53.4	59.3	56.9	49.7
11:22:31 PM	No	50.9	54.8	53.2	48.4
11:23:31 PM	No	47.8	49.6	48.5	47.3
11:24:31 PM	No	49	54.5	53	46.8
11:25:31 PM	No	48	52.7	48.6	47.3
11:26:31 PM	No	51.2	56.2	54.2	47.9
11:27:31 PM	No	52.2	58.4	55.7	47.9
11:28:31 PM	No	48.8	53.8	51.9	46.3
11:29:31 PM	No	46.4	47.8	47.4	45.3
11:30:31 PM	No	46.8	48.9	47.6	46
11:31:31 PM	No	49	53.3	51.7	46.7
11:32:31 PM	No	47.8	50.1	48.9	46.9
11:33:31 PM	No	49.7	52.8	52.2	47.4
11:34:31 PM	No	50.7	55.5	54.5	47.8
		50.0			

Location: R3 - Project Site
 Date: 1/26/2017

Time	Overload	Leq	Lmax	L10	L90
12:36:06 PM	No	61.6	65.7	64.9	55.3
12:37:06 PM	No	62.7	66	65.2	55.7
12:38:06 PM	No	60.2	66.3	64.8	54.9
12:39:06 PM	No	64	72	67	56.5
12:40:06 PM	No	61.9	64.7	64	58.1
12:41:06 PM	No	63.1	66	65.6	56.1
12:42:06 PM	No	61.6	66.8	63.8	55.2
12:43:06 PM	No	61.4	66.6	66	53.7
12:44:06 PM	No	62	66.1	64.7	54.8
12:45:06 PM	No	62.8	69.3	66.5	55.4
12:46:06 PM	No	64	68.4	66.4	60.6
12:47:06 PM	No	61.5	66.2	64.7	55.1
12:48:06 PM	No	61.9	65.6	64.7	56.5
12:49:06 PM	No	72	83	77.8	56.9
12:50:06 PM	No	68	79.3	72.2	59.1

64.7

Time	Overload	Leq	Lmax	L10	L90
11:42:13 PM	No	58.8	65	62.4	53.6
11:43:13 PM	No	55.9	63.6	59.8	49.7
11:44:13 PM	No	58.6	66.6	62.3	51.3
11:45:13 PM	No	58.4	64.5	63	50.9
11:46:13 PM	No	62.3	72.9	65.4	53.2
11:47:13 PM	No	60.3	65.4	62.6	53.1
11:48:13 PM	No	53.9	62	55.9	50.8
11:49:13 PM	No	55.8	61.6	60.5	49.3
11:50:13 PM	No	60	66.8	64.1	52.3
11:51:13 PM	No	59.9	69.6	64.5	51.9
11:52:13 PM	No	60.1	64.4	63.3	52.7
11:53:13 PM	No	60.6	67.5	63.8	53.1
11:54:13 PM	No	54.5	59.5	57.4	51.4
11:55:13 PM	No	54.8	60.8	58.2	50.3
11:56:13 PM	No	58	64.4	60.8	52.2

58.8

Construction Noise Calculations

Project: 2nd and PCH Project

Construction Phase: *Demolition*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	40%	700	0
Excavator	1	81	40%	700	0
Loader	1	79	40%	700	0
Air Compressor	1	78	40%	700	0
Crane	1	81	16%	700	0
Dozer	1	82	40%	700	0
Generator	1	82	40%	700	0

Receptor: *R1*

Results:
1-hour Leq: 65.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 2nd and PCH Project

Construction Phase: *Site Grading/Excavation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Excavator	1	81	40%	700	0
Grader	1	85	40%	700	0
Dozer	1	82	40%	700	0
Scrapers	1	84	40%	700	0
Loader	1	79	40%	700	0
Tractor/Loader/Backhoe	1	78	40%	700	0

Receptor: *R1*

Results:
1-hour Leq: 63.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 2nd and PCH Project

Construction Phase: *Building Construction*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Cement & Motar Mixers	1	80	20%	700	0
Plate Compactor	1	83	20%	700	0
Welder	1	74	40%	700	0
Concrete Pump	1	81	20%	700	0
Crane	1	81	16%	700	0
Air Compressor	1	78	40%	700	0
Aerial Forklift	1	75	20%	700	0
Forklift	1	75	20%	700	0
Tractor/Loader/Backhoe	1	78	40%	700	0

Receptor: *R1*

Results:
1-hour Leq: 59.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 2nd and PCH Project

Construction Phase: Paving/Landscape

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Cement & Mortar Mixers	1	80	50%	700	0
Rubber Tired Loaders	1	79	40%	700	0
Paving Equipment	1	77	50%	700	0
Roller	1	80	20%	700	0
Tractors/Loaders/Backhoes	1	79	40%	700	0
Paver	1	77	50%	700	0
Skid Steer	1	79	50%	700	0

Receptor: *R1*

Results:
1-hour Leq: 60.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 2nd and PCH Project

Construction Phase: *Demolition*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Concrete Saw	1	90	40%	300	0
Excavator	1	81	40%	300	0
Loader	1	79	40%	300	0
Air Compressor	1	78	40%	300	0
Crane	1	81	16%	300	0
Dozer	1	82	40%	300	0
Generator	1	82	40%	300	0

Receptor: **R2**

Results:
1-hour Leq: 72.6

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 2nd and PCH Project

Construction Phase: *Site Grading/Excavation*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Excavator	1	81	40%	300	0
Grader	1	85	40%	300	0
Dozer	1	82	40%	300	0
Scrapers	1	84	40%	300	0
Loader	1	79	40%	300	0
Tractor/Loader/Backhoe	1	78	40%	300	0

Receptor: R2

Results:
1-hour Leq: 70.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 2nd and PCH Project

Construction Phase: *Building Construction*

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Cement & Motar Mixers	1	80	20%	300	0
Plate Compactor	1	83	20%	300	0
Welder	1	74	40%	300	0
Concrete Pump	1	81	20%	300	0
Crane	1	81	16%	300	0
Air Compressor	1	78	40%	300	0
Aerial Forklift	1	75	20%	300	0
Forklift	1	75	20%	300	0
Tractor/Loader/Backhoe	1	78	40%	300	0

Receptor: R2

Results:
1-hour Leq: 67.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: 2nd and PCH Project

Construction Phase: Paving/Landscape

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Cement & Mortar Mixers	1	80	50%	300	0
Rubber Tired Loaders	1	79	40%	300	0
Paving Equipment	1	77	50%	300	0
Roller	1	80	20%	300	0
Tractors/Loaders/Backhoes	1	79	40%	300	0
Paver	1	77	50%	300	0
Skid Steer	1	79	50%	300	0

Receptor: *R2*

Results:
1-hour Leq: 67.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

Operation Noise Calculations

Parking Structure Noise Calculations

Project: 2nd & PCH

Estimated noise levels, Leq (FROM SOUNDPLAN)						Hours of Operations		
						Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
Receptor					Estimated Noise Levels, (Leq)	12	3	9
R1					40.5	40.5	40.5	40.5
R2					43.5	43.5	43.5	43.5

Receptor	Project CNEL	Ambient CNEL	Ambient + Project (CNEL)	Increase (CNEL)	Project Noise, (Leq)	nighttime ambient (Leq)	Significance Threshold
R1	47.2	61.8	62.0	0.1	40.5	56.4	56.4
R2	50.2	55.9	56.9	1.0	43.5	50.0	n/a

2nd & PCH
Assessed contribution level - Speaker

Source	Leq,d dB(A)
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Receiver R1	Leq,d 43.9	dB(A)
Speaker-G1	11.0	
Speaker-G2	10.3	
Speaker-G3	8.8	
Speaker-G4	9.2	
Speaker-G5	25.2	
Speaker-G6	24.6	
Speaker-Plaza2	15.1	
Speaker-Plaza1	8.8	
Speaker-G10	30.9	
Speaker-G11	30.1	
Speaker-G12	30.4	
Speaker-Paseo1	-6.7	
Speaker-L2-2	18.2	
Speaker-L2-3	34.7	
Speaker-L2-1	35.3	
Speaker-L2-4	28.5	
Speaker-Plaza3	18.3	
Speaker-Plaza1	8.0	
Speaker-L2-2	14.8	
Speaker-L2-2	12.8	
Speaker-L2-2	12.1	
Speaker-L2-2	35.4	
Speaker-L2-1	34.1	
Speaker-L2-4	30.3	
Speaker-L2-2	37.2	
Speaker-L2-1	29.9	
Speaker-Paseo2	14.1	

Receiver R2	Leq,d 63.4	dB(A)
Speaker-G1	11.5	
Speaker-G2	11.1	
Speaker-G3	11.7	
Speaker-G4	11.9	
Speaker-G5	37.1	
Speaker-G6	40.2	
Speaker-Plaza2	48.0	
Speaker-Plaza1	38.1	
Speaker-G10	56.6	
Speaker-G11	54.6	
Speaker-G12	49.6	

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2nd & PCH
Assessed contribution level - Speaker

Source	Leq,d dB(A)	
Speaker-Paseo1	44.1	
Speaker-L2-2	43.1	
Speaker-L2-3	44.6	
Speaker-L2-1	48.8	
Speaker-L2-4	51.8	
Speaker-Plaza3	44.0	
Speaker-Plaza1	35.4	
Speaker-L2-2	17.2	
Speaker-L2-2	17.3	
Speaker-L2-2	17.6	
Speaker-L2-2	32.7	
Speaker-L2-1	51.0	
Speaker-L2-4	55.5	
Speaker-L2-2	45.9	
Speaker-L2-1	55.9	
Speaker-Paseo2	47.0	

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2nd & PCH Assessed contribution level - People

Source	Leq,d dB(A)	
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Receiver R1	Leq,d 52.6	dB(A)
People-L2-2	51.8	
People-L2-3	40.4	
People-L2-1	41.1	
People-L2-4	33.5	
People-G10	32.5	
People-G11	30.9	
People-G12	29.7	
People-G6	23.6	
Paseo	16.9	
People-G5	24.5	
People-G1	25.9	
People-G2	21.1	
People-G3	16.3	
People-G4	21.7	
Plaza	30.1	

Receiver R2	Leq,d 65.4	dB(A)
People-L2-2	64.1	
People-L2-3	53.9	
People-L2-1	52.6	
People-L2-4	49.5	
People-G10	47.8	
People-G11	46.9	
People-G12	44.6	
People-G6	25.8	
Paseo	47.6	
People-G5	30.2	
People-G1	18.3	
People-G2	18.1	
People-G3	19.8	
People-G4	20.2	
Plaza	51.9	

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2nd & PCH
Assessed contribution level - Parking

Source	Leq,d dB(A)	
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Receiver R1	Leq,d 40.5	dB(A)
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Parking-North	40.0	
Parking-East	29.0	
Parking South	28.1	

Receiver R2	Leq,d 43.5	dB(A)
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Parking-North	41.1	
Parking-East	35.4	
Parking South	37.7	

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2nd & PCH
Assessed contribution level - Mechanical

9

Source	Leq,d dB(A)	
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Receiver R1	Leq,d 35.1	dB(A)
Mech-W1	22.0	
Mech-W2	23.5	
Mech-W3	20.6	
Mech-W4	20.2	
Mech-W5	19.3	
Mech-W6	18.6	
Mech-W7	17.8	
Mech-W8	17.3	
Mech-E5	16.5	
Mech-S1	16.5	
Mech-E4	17.4	
Mech-E3	18.0	
Mech-E2	19.2	
Mech-E1	19.5	
Mech-E6	17.6	
Mech-N12	20.3	
Mech-N11	20.6	
Mech-N10	20.6	
Mech-N8	21.5	
Mech-N7	22.0	
Mech-N9	21.2	
Mech-N6	22.7	
Mech-N4	22.8	
Mech-N3	22.9	
Mech-N1	23.0	
Mech-N5	22.8	
Mech-N2	22.9	

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**2nd & PCH
Assessed contribution level - Mechanical**

9

Source	Leq,d dB(A)	
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Receiver R2	Leq,d 40.1	dB(A)
Mech-W1	28.0	
Mech-W2	28.5	
Mech-W3	28.6	
Mech-W4	29.1	
Mech-W5	30.0	
Mech-W6	30.6	
Mech-W7	29.5	
Mech-W8	28.8	
Mech-E5	25.3	
Mech-S1	24.0	
Mech-E4	24.3	
Mech-E3	26.3	
Mech-E2	15.6	
Mech-E1	15.6	
Mech-E6	24.3	
Mech-N12	24.9	
Mech-N11	24.0	
Mech-N10	23.6	
Mech-N8	23.6	
Mech-N7	23.3	
Mech-N9	24.6	
Mech-N6	16.4	
Mech-N4	16.8	
Mech-N3	17.3	
Mech-N1	18.8	
Mech-N5	16.6	
Mech-N2	17.8	

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2nd & PCH
Assessed contribution level - Loading & Trash

9

Source	Leq,d dB(A)	
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Receiver R1	Leq,d 47.7	dB(A)
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Loading & Trash - 1	44.1	
Loading & Trash - 2	43.4	
Loading & Trash - 3	40.5	
Loading & Trash - 4	17.3	
Loading & Trash - 5	14.0	

Receiver R2	Leq,d 41.1	dB(A)
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Loading & Trash - 1	34.5	
Loading & Trash - 2	34.7	
Loading & Trash - 3	33.9	
Loading & Trash - 4	31.1	
Loading & Trash - 5	35.3	

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Off-Site Traffic Noise Calculations

Project: PCH and 2nd Project

WEEKDAY

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
10%

EXISTING CONDITIONS

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume PHV	Traffic Volume ADT	Barrier Atten.	Site Adjust., dBA	24-Hour CNEL
Pacific Coast Highway									
- North of Anaheim St.	80	10	50	40	2,266	22,660	0	0	69.0
- Between Anaheim St. and 7th St.	80	10	50	40	3,044	30,440	0	0	70.3
- Between 7th St. and Loynes Dr.	90	10	55	45	2,565	25,650	0	0	70.6
- Between Loynes Dr. and 2nd St.	90	10	55	45	3,261	32,610	0	0	71.7
- Between 2nd St. and Studebaker Rd.	90	10	55	45	3,457	34,570	0	0	71.9
- Between Studebaker Rd. and 1st St.	80	10	50	45	3,596	35,960	0	0	72.5
- South of 1st St.	80	10	50	45	3,408	34,080	0	0	72.2
2nd Street									
- West of Bay Shore Ave.	70	10	45	25	2,517	25,170	0	0	65.1
- Between Bay Shore Ave. and Naples Pl.	70	10	45	35	3,445	34,450	0	0	69.7
- Between Naples Pl. and Marina Dr.	70	10	45	40	3,910	39,100	0	0	71.8
- Between Marina Dr. and PCH	80	10	50	40	3,343	33,430	0	0	70.7
- Between PCH and Studebaker Rd.	90	10	55	40	3,710	37,100	0	0	70.7
- East of Studebaker Rd.	80	10	50	50	2,887	28,870	0	0	72.8
Westminster Avenue									
- West of Seal Beach Blvd.	80	10	50	50	2,770	27,700	0	0	72.6
Marina Drive									
- Between 2nd St. and Studebaker Rd.	60	10	40	35	927	9,270	0	0	64.6
- South of Studebaker Rd.	50	10	35	35	607	6,070	0	0	63.4
Seal Beach Blvd.									
- Between Westminster Ave. and Bolsa Ave.	90	10	55	50	2,230	22,300	0	0	71.3
- Between Bolsa Ave. and PCH	90	10	55	40	1,715	17,150	0	0	67.4
- South of PCH	50	10	35	35	542	5,420	0	0	62.9
Bolsa Avenue									
- Between PCH and Seal Beach Blvd.	40	10	30	25	505	5,050	0	0	60.1
Loynes Dr.									
- Between PCH and Studebaker Rd.	70	10	45	35	1,329	13,290	0	0	65.6

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations

Project: PCH and 2nd Project

WEEKDAY

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
10%

EXISTING + PROJECT CONDITIONS

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume PHV	Traffic Volume ADT	Barrier Atten.	Site Adjust., dBA	24-Hour CNEL
Pacific Coast Highway									
- North of Anaheim St.	80	10	50	40	2,287	22,870	0	0	69.0
- Between Anaheim St. and 7th St.	80	10	50	40	3,080	30,800	0	0	70.3
- Between 7th St. and Loynes Dr.	90	10	55	45	2,713	27,130	0	0	70.9
- Between Loynes Dr. and 2nd St.	90	10	55	45	3,490	34,900	0	0	72.0
- Between 2nd St. and Studebaker Rd.	90	10	55	45	3,623	36,230	0	0	72.1
- Between Studebaker Rd. and Main St.	80	10	50	45	3,705	37,050	0	0	72.6
- South of Main St.	80	10	50	45	3,545	35,450	0	0	72.4
2nd Street									
- West of Bay Shore Ave.	70	10	45	25	2,672	26,720	0	0	65.4
- Between Bay Shore Ave. and Naples Pl.	70	10	45	35	3,613	36,130	0	0	69.9
- Between Naples Pl. and Marina Dr.	70	10	45	40	4,083	40,830	0	0	72.0
- Between Marina Dr. and PCH	80	10	50	40	3,366	33,660	0	0	70.7
- Between PCH and Studebaker Rd.	90	10	55	40	3,896	38,960	0	0	70.9
- East of Studebaker Rd.	80	10	50	50	2,940	29,400	0	0	72.9
Westminster Avenue									
- West of Seal Beach Blvd.	80	10	50	50	2,796	27,960	0	0	72.7
Marina Drive									
- Between 2nd St. and Studebaker Rd.	60	10	40	35	1,051	10,510	0	0	65.1
- West of PCH	50	10	35	35	607	6,070	0	0	63.4
Seal Beach Blvd.									
- Between Westminster Ave. and Bolsa Ave.	90	10	55	50	2,246	22,460	0	0	71.3
- Between Bolsa Ave. and PCH	90	10	55	40	1,715	17,150	0	0	67.4
- South of PCH	50	10	35	35	542	5,420	0	0	62.9
Bolsa Avenue									
- Between PCH and Seal Beach Blvd.	40	10	30	25	521	5,210	0	0	60.2
Loynes Dr.									
- Between PCH and Studebaker Rd.	70	10	45	35	1,329	13,290	0	0	65.6

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations

Project: PCH and 2nd Project

WEEKDAY

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
10%

FUTURE NO PROJECT CONDITIONS

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume PHV	Traffic Volume ADT	Barrier Atten.	Site Adjust., dBA	24-Hour CNEL
Pacific Coast Highway									
- North of Anaheim St.	80	10	50	40	2,365	23,650	0	0	69.2
- Between Anaheim St. and 7th St.	80	10	50	40	3,165	31,650	0	0	70.4
- Between 7th St. and Loynes Dr.	90	10	55	45	2,691	26,910	0	0	70.8
- Between Loynes Dr. and 2nd St.	90	10	55	45	3,411	34,110	0	0	71.9
- Between 2nd St. and Studebaker Rd.	90	10	55	45	3,669	36,690	0	0	72.2
- Between Studebaker Rd. and Main St.	80	10	50	45	3,769	37,690	0	0	72.7
- South of Main St.	80	10	50	45	3,551	35,510	0	0	72.4
2nd Street									
- West of Bay Shore Ave.	70	10	45	25	2,647	26,470	0	0	65.4
- Between Bay Shore Ave. and Naples Pl.	70	10	45	35	3,605	36,050	0	0	69.9
- Between Naples Pl. and Marina Dr.	70	10	45	40	4,085	40,850	0	0	72.0
- Between Marina Dr. and PCH	80	10	50	40	3,485	34,850	0	0	70.8
- Between PCH and Studebaker Rd.	90	10	55	40	3,889	38,890	0	0	70.9
- East of Studebaker Rd.	80	10	50	50	2,995	29,950	0	0	73.0
Westminster Avenue									
- West of Seal Beach Blvd.	80	10	50	50	2,874	28,740	0	0	72.8
Marina Drive									
- Between 2nd St. and Studebaker Rd.	60	10	40	35	963	9,630	0	0	64.8
- West of PCH	50	10	35	35	632	6,320	0	0	63.5
Seal Beach Blvd.									
- Between Westminster Ave. and Bolsa Ave.	90	10	55	50	2,312	23,120	0	0	71.5
- Between Bolsa Ave. and PCH	90	10	55	40	1,779	17,790	0	0	67.5
- South of PCH	50	10	35	35	566	5,660	0	0	63.1
Bolsa Avenue									
- Between PCH and Seal Beach Blvd.	40	10	30	25	527	5,270	0	0	60.2
Loynes Dr.									
- Between PCH and Studebaker Rd.	70	10	45	35	1,392	13,920	0	0	65.8

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations

Project: PCH and 2nd Project

WEEKDAY

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
10%

FUTURE WITH PROJECT CONDITIONS

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site Adjust., dBA	24-Hour CNEL
					PHV	ADT			
Pacific Coast Highway									
- North of Anaheim St.	80	10	50	40	2,386	23,860	0	0	69.2
- Between Anaheim St. and 7th St.	80	10	50	40	3,201	32,010	0	0	70.5
- Between 7th St. and Loynes Dr.	90	10	55	45	2,839	28,390	0	0	71.1
- Between Loynes Dr. and 2nd St.	90	10	55	45	3,640	36,400	0	0	72.1
- Between 2nd St. and Studebaker Rd.	90	10	55	45	3,834	38,340	0	0	72.4
- Between Studebaker Rd. and Main St.	80	10	50	45	3,884	38,840	0	0	72.8
- South of Main St.	80	10	50	45	3,702	37,020	0	0	72.6
2nd Street									
- West of Bay Shore Ave.	70	10	45	25	2,802	28,020	0	0	65.6
- Between Bay Shore Ave. and Naples Pl.	70	10	45	35	3,773	37,730	0	0	70.1
- Between Naples Pl. and Marina Dr.	70	10	45	40	4,258	42,580	0	0	72.2
- Between Marina Dr. and PCH	80	10	50	40	3,509	35,090	0	0	70.9
- Between PCH and Studebaker Rd.	90	10	55	40	4,075	40,750	0	0	71.1
- East of Studebaker Rd.	80	10	50	50	3,048	30,480	0	0	73.1
Westminster Avenue									
- West of Seal Beach Blvd.	80	10	50	50	2,900	29,000	0	0	72.8
Marina Drive									
- Between 2nd St. and Studebaker Rd.	60	10	40	35	1,087	10,870	0	0	65.3
- West of PCH	50	10	35	35	632	6,320	0	0	63.5
Seal Beach Blvd.									
- Between Westminster Ave. and Bolsa Ave.	90	10	55	50	2,328	23,280	0	0	71.5
- Between Bolsa Ave. and PCH	90	10	55	40	1,779	17,790	0	0	67.5
- South of PCH	50	10	35	35	566	5,660	0	0	63.1
Bolsa Avenue									
- Between PCH and Seal Beach Blvd.	40	10	30	25	543	5,430	0	0	60.4
Loynes Dr.									
- Between PCH and Studebaker Rd.	70	10	45	35	1,392	13,920	0	0	65.8

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations

Project: PCH and 2nd Project

WEEKEND

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
10%

EXISTING CONDITIONS

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site Adjust., dBA	Peak Hour, Leq**	24-Hour CNEL
					PHV	ADT				
Pacific Coast Highway										
- Between Loynes Dr. and 2nd St.	90	10	55	45	1,748	17,480	0	0	69.9	68.9
- Between 2nd St. and Studebaker Rd.	90	10	55	45	3,209	32,090	0	0	72.6	71.6
- Between Studebaker Rd. and 1st St.	80	10	50	45	1,542	15,420	0	0	69.8	68.8
2nd Street										
- West of Bay Shore Ave.	70	10	45	25	2,527	25,270	0	0	66.1	65.2
- Between Bay Shore Ave. and Naples Pl.	70	10	45	35	3,073	30,730	0	0	70.2	69.2
- Between Naples Pl. and Marina Dr.	70	10	45	40	3,279	32,790	0	0	72.1	71.1
- Between Marina Dr. and PCH	80	10	50	40	3,305	33,050	0	0	71.6	70.6
- Between PCH and Studebaker Rd.	90	10	55	40	3,176	31,760	0	0	71.0	70.0
- East of Studebaker Rd.	80	10	50	50	1,885	18,850	0	0	72.0	71.0
Marina Drive										
- Between 2nd St. and Studebaker Rd.	60	10	40	35	887	8,870	0	0	65.4	64.4
- South of Studebaker Rd.	50	10	35	35	741	7,410	0	0	65.2	64.2

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations

Project: PCH and 2nd Project

WEEKEND

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
10%

EXISTING + PROJECT CONDITIONS

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site Adjust., dBA	Peak Hour, Leq**	24-Hour CNEL
					PHV	ADT				
Pacific Coast Highway										
- Between Loynes Dr. and 2nd St.	90	10	55	45	1,957	19,570	0	0	70.4	69.4
- Between 2nd St. and Studebaker Rd.	90	10	55	45	3,745	37,450	0	0	73.2	72.3
- Between Studebaker Rd. and 1st St.	80	10	50	45	1,713	17,130	0	0	70.2	69.3
2nd Street										
- West of Bay Shore Ave.	70	10	45	25	2,802	28,020	0	0	66.6	65.6
- Between Bay Shore Ave. and Naples Pl.	70	10	45	35	3,372	33,720	0	0	70.6	69.6
- Between Naples Pl. and Marina Dr.	70	10	45	40	3,596	35,960	0	0	72.5	71.5
- Between Marina Dr. and PCH	80	10	50	40	3,318	33,180	0	0	71.6	70.6
- Between PCH and Studebaker Rd.	90	10	55	40	3,536	35,360	0	0	71.5	70.5
- East of Studebaker Rd.	80	10	50	50	1,987	19,870	0	0	72.2	71.2
Marina Drive										
- Between 2nd St. and Studebaker Rd.	60	10	40	35	1,076	10,760	0	0	66.2	65.2
- South of Studebaker Rd.	50	10	35	35	741	7,410	0	0	65.2	64.2

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations

Project: PCH and 2nd Project

WEEKEND

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
10%

FUTURE NO PROJECT CONDITIONS

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site Adjust., dBA	Peak Hour, Leq**	24-Hour CNEL
					PHV	ADT				
Pacific Coast Highway										
- Between Loynes Dr. and 2nd St.	90	10	55	45	1,832	18,320	0	0	70.1	69.2
- Between 2nd St. and Studebaker Rd.	90	10	55	45	3,436	34,360	0	0	72.9	71.9
- Between Studebaker Rd. and 1st St.	80	10	50	45	1,640	16,400	0	0	70.0	69.1
2nd Street										
- West of Bay Shore Ave.	70	10	45	25	2,706	27,060	0	0	66.4	65.4
- Between Bay Shore Ave. and Naples Pl.	70	10	45	35	3,270	32,700	0	0	70.4	69.5
- Between Naples Pl. and Marina Dr.	70	10	45	40	3,483	34,830	0	0	72.3	71.3
- Between Marina Dr. and PCH	80	10	50	40	3,498	34,980	0	0	71.8	70.9
- Between PCH and Studebaker Rd.	90	10	55	40	3,363	33,630	0	0	71.3	70.3
- East of Studebaker Rd.	80	10	50	50	1,969	19,690	0	0	72.1	71.2
Marina Drive										
- Between 2nd St. and Studebaker Rd.	60	10	40	35	924	9,240	0	0	65.6	64.6
- South of Studebaker Rd.	50	10	35	35	774	7,740	0	0	65.4	64.4

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations

Project: PCH and 2nd Project

WEEKEND

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
10%

FUTURE WITH PROJECT CONDITIONS

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site Adjust., dBA	Peak Hour, Leq**	24-Hour CNEL
					PHV	ADT				
Pacific Coast Highway										
- Between Loynes Dr. and 2nd St.	90	10	55	45	2,040	20,400	0	0	70.6	69.6
- Between 2nd St. and Studebaker Rd.	90	10	55	45	3,972	39,720	0	0	73.5	72.5
- Between Studebaker Rd. and 1st St.	80	10	50	45	1,812	18,120	0	0	70.5	69.5
2nd Street										
- West of Bay Shore Ave.	70	10	45	25	2,981	29,810	0	0	66.8	65.9
- Between Bay Shore Ave. and Naples Pl.	70	10	45	35	3,569	35,690	0	0	70.8	69.8
- Between Naples Pl. and Marina Dr.	70	10	45	40	3,800	38,000	0	0	72.7	71.7
- Between Marina Dr. and PCH	80	10	50	40	3,512	35,120	0	0	71.9	70.9
- Between PCH and Studebaker Rd.	90	10	55	40	3,722	37,220	0	0	71.7	70.7
- East of Studebaker Rd.	80	10	50	50	2,071	20,710	0	0	72.4	71.4
Marina Drive										
- Between 2nd St. and Studebaker Rd.	60	10	40	35	1,113	11,130	0	0	66.4	65.4
- South of Studebaker Rd.	50	10	35	35	774	7,740	0	0	65.4	64.4

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.