
Appendix D

Noise Appendix



100 East Ocean Blvd

Environmental Impact Report

Technical Appendix for Noise

- Construction On-site Equipment Noise
- Construction Roadway Noise
- Construction Vibration Noise
- Operational Roadway Noise
- Operational On-site Equipment Noise

Project: 100 E. Ocean Boulevard

Construction Noise Impact on Sensitive Receptors

Parameters

Construction Hours:	8 Daytime hours (7 am to 7 pm) 0 Evening hours (7 pm to 10 pm) 8 Nighttime hours (10 pm to 7 am)	Mat Foundation Only
Leq to L10 factor	3	

Construction Phase Equipment Type	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	R1					R2					
				Distance (ft)	Lmax	Leq	L10	Estimated Noise Shielding, dBA	Distance (ft)	Lmax	Leq	L10	Estimated Noise Shielding, dBA	
Demolition					73	68					61	56		
Crusher, Jaw	1	84	10%	200	67	57	60	5	450	55	45	48	10	
Dozer	1	82	40%	200	65	61	64	5	450	53	49	52	10	
Concrete Saw	1	90	20%	200	73	66	69	5	450	61	54	57	10	
Tractor/Loader/Backhoe	1	80	25%	200	63	57	60	5	450	51	45	48	10	
Grading/Excavation					68	67				56	55			
Drill Rig Truck	1	79	20%	200	62	55	58	5	450	50	43	46	10	
Cranes	1	81	40%	200	64	60	63	5	450	52	48	51	10	
Excavator	1	81	40%	200	64	60	63	5	450	52	48	51	10	
Dozer	2	82	40%	200	68	64	67	5	450	56	52	55	10	
Welders	1	74	40%	200	57	53	56	5	450	45	41	44	10	
Mat Foundation					70	69				58	57			
Cement and Mortar Mixers	4	79	40%	200	68	64	67	5	450	56	52	55	10	
Pumps	4	81	50%	200	70	67	70	5	450	58	55	58	10	
Welders	1	74	40%	200	57	53	56	5	450	45	41	44	10	
Construction					67	67				55	55			
Aerial Lift	2	75	20%	200	61	54	57	5	450	49	42	45	10	
Cranes	1	81	40%	200	64	60	63	5	450	52	48	51	10	
Forklift	1	75	10%	200	58	48	51	5	450	46	36	39	10	
Pumps	2	81	50%	200	67	64	67	5	450	55	52	55	10	
Tractor/Loader/Backhoe	1	80	25%	200	63	57	60	5	450	51	45	48	10	
Air Compressor	1	78	50%	200	61	58	61	5	450	49	46	49	10	
Welders	2	74	40%	200	60	56	59	5	450	48	44	47	10	
Paving					63	59				51	47			
Paver	1	77	50%	200	60	57	60	5	450	48	45	48	10	
Roller	1	80	20%	200	63	56	59	5	450	51	44	47	10	
Architectural Coating					61	58				49	46			
Air Compressor	1	78	50%	200	61	58	61	5	450	49	46	49	10	

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Roadway Traffic Noise Calculations

Project: 100 E. Ocean Boulevard - Construction Truck Noise

Construction Only							
Roadway/Segment	Speed MPH	Leq			CNEL		
		ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Ocean Avenue, West of Pacific	35	68.9	66.3	64.6	66.4	63.8	62.1

Construction Truck Noise (dBA)
 Ambient Noise Levels (dBA)
 Combined Noise Level (dBA)

68.9
 68.5
 71.7

100 E. Ocean Blvd
Construction Vibration Calculations

Attenuation Calculations (PPV)

n (1.1 to 1.5)		1.1				
Distance (ft) -->		200	100	50	50	100
Reference PPV						
Equipment	(in/s) @ 25 ft	North	South	East	West	
Large bulldozer	0.089	0.009	0.019	0.042	0.042	
Caisson drilling	0.089	0.009	0.019	0.042	0.042	
Loaded trucks	0.076	0.008	0.017	0.035	0.035	
Jackhammer	0.035	0.004	0.008	0.016	0.016	
Small bulldozer	0.003	0.000	0.001	0.001	0.001	
Truck	0.006					0.0013
VdB = 20*log (ppv / 1e6) - 12						
Max VdB		67	74	80	80	50

Roadway Traffic Noise Calculations

Project: 100 E. Ocean Boulevard

Operational Noise Levels

Existing										
Roadway/Segment	Speed MPH	Traffic Volumes			Leq			CNEL		
		AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Ocean Avenue, West of Pacific	40			38200	73.3	70.8	69.3	74.5	72.0	70.5
Ocean Blvd Between Pine Ave and Long Beach Blvd	40			37900	73.2	70.8	69.2	74.4	72.0	70.4
Pine Avenue, between Ocean Boulevard and Seaside Way	35			7300	65.2	62.6	60.9	66.4	63.8	62.1
W Seaside Way, west of Pine Avenue	35			4010	62.6	60.0	58.3	63.8	61.2	59.5
E Seaside Way, east of Pine Avenue	35			4140	62.8	60.1	58.5	64.0	61.3	59.7
Future No Project (2022)										
Roadway/Segment	Speed MPH	Traffic Volumes			Leq			CNEL		
		AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Ocean Avenue, West of Pacific	40			45800	74.1	71.6	70.1	75.3	72.8	71.3
Ocean Blvd Between Pine Ave and Long Beach Blvd	40			45500	74.0	71.6	70.0	75.2	72.8	71.2
Pine Avenue, between Ocean Boulevard and Seaside Way	35			7600	65.4	62.7	61.1	66.6	63.9	62.3
W Seaside Way, west of Pine Avenue	35			4210	62.8	60.2	58.5	64.0	61.4	59.7
E Seaside Way, east of Pine Avenue	35			4340	63.0	60.3	58.7	64.2	61.5	59.9
Future With Project (2022)										
Roadway/Segment	Speed MPH	Traffic Volumes			Leq			CNEL		
		AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Ocean Avenue, West of Pacific	40			48400	74.3	71.9	70.3	75.5	73.1	71.5
Ocean Blvd Between Pine Ave and Long Beach Blvd	40			48500	74.3	71.9	70.3	75.5	73.1	71.5
Pine Avenue, between Ocean Boulevard and Seaside Way	35			11400	67.2	64.5	62.9	68.4	65.7	64.1
W Seaside Way, west of Pine Avenue	35			6740	64.9	62.2	60.6	66.1	63.4	61.8
E Seaside Way, east of Pine Avenue	35			4340	63.0	60.3	58.7	64.2	61.5	59.9

Summary	CNEL			
	25 ft. from ROW		At ROW	
	Project Increment	Cumulative Increment	Project Increment	Cumulative Increment
Roadway/Segment				
Ocean Avenue, West of Pacific	0.3	1.1	0.2	1.0
Ocean Blvd Between Pine Ave and Long Beach Blvd	0.3	1.1	0.3	1.1
Pine Avenue, between Ocean Boulevard and Seaside Way	1.8	1.9	1.8	2.0
W Seaside Way, west of Pine Avenue	2.0	2.2	2.1	2.3
E Seaside Way, east of Pine Avenue	0.0	0.2	0.0	0.2

Vehicle Type	% of ADT			Sub total
	Day	Even	Night	
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%

100 E. Ocean

Composite Noise Calculations

		Reference Levels (dBA)													
		Reference Distance (ft) -->	50	50	50	3	15	Levels at Receptor (dBA)							
Receptor	Ambient (dBA)	Distance to Receptor (ft)	Mechanical	Compactor	Trash Truck	Speaking	Amplified Sound	Mechanical	Compactor	Trash Truck	Speaking	Amplified Sound	Amplified Sound + People	Trash Truck + Compactor	Onsite Noise Sources
R1	65.4	450	60	71	66	94	90	30.9	36.9	31.9	50.5	60.5	60.9	38.1	60.9
R2	70.6	200	60	71	66	94	90	38.0	44.0	39.0	57.5	67.5	67.9	45.2	67.9