

Appendix C

Noise Analysis



TRAFFIC NOISE ANALYSIS TOOL

Project Name: Broadway Block
Project Number: D150712.00
Analysis Scenario: Existing
Source of Traffic Volumes: Iteris, 2018

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)	CNEL Noise Level (dBA)
			Auto	MT	HT	Auto	MT	HT		
Long Beach Blvd & 3rd Street	Hard	50	35	35	35	2875	59	30	69.6	70.6
Long Beach Blvd & Broadway	Hard	50	35	35	35	2905	60	30	69.6	70.6
Elm Avenue & 3rd Street	Hard	50	35	35	35	1811	37	19	67.6	68.6
Elm Avenue & Broadway	Hard	50	35	35	35	1903	39	20	67.8	68.8

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).

The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.

Accuracy of the calculation is within ± 0.1 dB when comparing to TNM results.

Noise propagation greater than 50 feet is based on the following assumptions:

For hard ground, the propagation rate is 3 dB per doubling the distance.

For soft ground, the propagation rate is 4.5 dB per doubling the distance.

Vehicles are assumed to be on a long straight roadway with cruise speed.

Roadway grade is less than 1.5%.

CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.



TRAFFIC NOISE ANALYSIS TOOL

Project Name: Broadway Block
Project Number: D150712.00
Analysis Scenario: Existing with Project
Source of Traffic Volumes: Iteris, 2018

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)	CNEL Noise Level (dBA)
			Auto	MT	HT	Auto	MT	HT		
Long Beach Blvd & 3rd Street	Hard	50	35	35	35	3018	62	31	69.8	70.8
Long Beach Blvd & Broadway	Hard	50	35	35	35	2954	61	30	69.7	70.7
Elm Avenue & 3rd Street	Hard	50	35	35	35	1884	39	19	67.7	68.7
Elm Avenue & Broadway	Hard	50	35	35	35	2343	48	24	68.7	69.7

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).

The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.

Accuracy of the calculation is within ± 0.1 dB when comparing to TNM results.

Noise propagation greater than 50 feet is based on the following assumptions:

For hard ground, the propagation rate is 3 dB per doubling the distance.

For soft ground, the propagation rate is 4.5 dB per doubling the distance.

Vehicles are assumed to be on a long straight roadway with cruise speed.

Roadway grade is less than 1.5%.

CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.



TRAFFIC NOISE ANALYSIS TOOL

Project Name: Broadway Block
Project Number: D150712.00
Analysis Scenario: Future
Source of Traffic Volumes: Iteris, 2018

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)	CNEL Noise Level (dBA)
			Auto	MT	HT	Auto	MT	HT		
Long Beach Blvd & 3rd Street	Hard	50	35	35	35	3383	70	35	70.3	71.3
Long Beach Blvd & Broadway	Hard	50	35	35	35	3929	81	41	70.9	71.9
Elm Avenue & 3rd Street	Hard	50	35	35	35	2345	48	24	68.7	69.7
Elm Avenue & Broadway	Hard	50	35	35	35	2500	52	26	69.0	70.0

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).

The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.

Accuracy of the calculation is within ± 0.1 dB when comparing to TNM results.

Noise propagation greater than 50 feet is based on the following assumptions:

For hard ground, the propagation rate is 3 dB per doubling the distance.

For soft ground, the propagation rate is 4.5 dB per doubling the distance.

Vehicles are assumed to be on a long straight roadway with cruise speed.

Roadway grade is less than 1.5%.

CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.



TRAFFIC NOISE ANALYSIS TOOL

Project Name: Broadway Block
Project Number: D150712.00
Analysis Scenario: Future with Project
Source of Traffic Volumes: Iteris, 2018

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)	CNEL Noise Level (dBA)
			Auto	MT	HT	Auto	MT	HT		
Long Beach Blvd & 3rd Street	Hard	50	35	35	35	3506	72	36	70.4	71.4
Long Beach Blvd & Broadway	Hard	50	35	35	35	4058	84	42	71.1	72.1
Elm Avenue & 3rd Street	Hard	50	35	35	35	2398	49	25	68.8	69.8
Elm Avenue & Broadway	Hard	50	35	35	35	2573	53	27	69.1	70.1

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).

The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.

Accuracy of the calculation is within ± 0.1 dB when comparing to TNM results.

Noise propagation greater than 50 feet is based on the following assumptions:

For hard ground, the propagation rate is 3 dB per doubling the distance.

For soft ground, the propagation rate is 4.5 dB per doubling the distance.

Vehicles are assumed to be on a long straight roadway with cruise speed.

Roadway grade is less than 1.5%.

CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.