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

### Source of Traffic Volumes
- Iteris, 2018

### Analysis Scenario
- Existing

### Model Notes
- 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.

### Data Table

<table>
<thead>
<tr>
<th>Roadway Segment</th>
<th>Ground Type</th>
<th>Distance from Roadway to Receiver (feet)</th>
<th>Speed (mph)</th>
<th>Peak Hour Volume</th>
<th>Peak Hour Noise Level (Leq(h) dBA)</th>
<th>CNEL Noise Level (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long Beach Blvd &amp; 3rd Street</td>
<td>Hard</td>
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<td>35</td>
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<td>2875</td>
<td>69.6</td>
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<td>Roadway Segment</td>
<td>Ground Type</td>
<td>Distance from Roadway to Receiver (feet)</td>
<td>Speed (mph)</td>
<td>Peak Hour Volume</td>
<td>Peak Hour Noise Level (Leq(h) dBA)</td>
<td>CNEL Noise Level (dBA)</td>
</tr>
<tr>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Roadway Segment</th>
<th>Ground Type</th>
<th>Distance from Roadway to Receiver (feet)</th>
<th>Speed (mph)</th>
<th>Peak Hour Volume</th>
<th>Peak Hour Noise Level (Leq(h) dBA)</th>
<th>CNEL Noise Level (dBA)</th>
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</thead>
<tbody>
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**Model Notes:**
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.
**Model Notes:**
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Accuracy of the calculation is within ±0.1 dB when comparing to TNM results.
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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 Caltrans TeNS 2013.