Noise Monitoring Program

Port Community Liaison Committee – Delta (PCLC)

Delta Community Office

March 17th, 2015
Noise Monitoring Program – Overview

1. Program Goals
2. Monitoring Locations - Delta
3. Noise Sentinel System
4. Noise Metrics
5. Integration with Port Operations
Noise Monitoring – Goals

- Noise is an important issue for the Port
  - Community complaint driven (current approach)
  - Part of Port’s sustainability objectives

- Improve understand of noise environment
  - Confirm or exclude noise sources
  - Long term trending of port related noise
  - Establish a body of knowledge to inform decision makers
Roberts Bank Delta – Locations

Disclaimer: Levels indicated at noise terminals may not directly relate to community or individual impacts as noise levels shown maybe mitigated or enhanced by environmental factors such as distance, physical structures, and weather.
Noise Sentinel – Hardware

- Equipment supplied by Brüel & Kjær
  - Integrated monitoring terminal
  - Weather station option
  - Secure wireless data transmission
- Managed 24 x 7
- Real-time web access
- On-demand enquiry and reported for PMV operational staff
Noise Sentinel – Public Portal


http://portmetrovancouver.pmv.noisesentinel.com/
Sound – Propagation

**SOURCE**
- **Characteristics**
  - Continuous
  - Intermittent
  - Impulsive
  - Tonality
  - Low Frequency

**PROPAGATION**
- **Influenced by**
  - Distance
  - Atmospheric Conditions
  - Obstacles/Barriers
  - Reflection/Absorption

**RECEIVER**
- **Perception**
  - Human Response
  - Relative to Other Sounds
  - Changes Over Time
Environmental Noise

- Relates to ambient sound levels beyond the comfort levels caused by traffic, construction, industrial, and some recreational activities.

Sound Level (typically reported as $L_{eqA}$)

- A measure of sound pressure that is frequency-weighted (representing human response) and time-averaged (combining short term measurements to get longer term averages) for the purposes of reporting in the units of decibels (dB).

Long Term Measurement

- Most relevant to port related activities.
Sound – Long Term Metrics

- Track number of noise events
- Community Noise Equivalent Level (CNEL)
  - Annual time averaging
  - Adjustments accounting for sound characteristics

<table>
<thead>
<tr>
<th>Characteristic Factor</th>
<th>Adjustment</th>
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</thead>
<tbody>
<tr>
<td>Evening (7 pm – 10 pm)</td>
<td>+ 5 dB</td>
</tr>
<tr>
<td>Nighttime (10 pm – 7 am)</td>
<td>+ 10 dB</td>
</tr>
<tr>
<td>Weekend, daytime (7 am – 7 pm)</td>
<td>+ 5 dB</td>
</tr>
<tr>
<td>Regular impulsive</td>
<td>+ 5 dB</td>
</tr>
<tr>
<td>Highly impulsive</td>
<td>+ 12 dB</td>
</tr>
<tr>
<td>Tonal quality</td>
<td>+ 5 dB</td>
</tr>
<tr>
<td>Low frequency</td>
<td>Calculated dB</td>
</tr>
</tbody>
</table>

Port Operations

Continued Port Growth and Increased Activity Anticipated

Community Impacts

Operational Requirements

- Strategy (in development phase)
  - Project and environmental review
  - Lead pilot projects
  - Collaboration with stakeholders
Questions

Environmental Programs

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