Detroit International River Crossing

Noise Study Technical Report - Addendum

November 2008

This Addendum supports the noise analysis in the Detroit River International Crossing FEIS. It focuses on the Preferred Alternative. The Preferred Alternative is most like Alternative #1 along the north side of I-75, where noise walls were found to be reasonable and feasible for some alternatives in the DEIS. However, the Preferred Alternative differs from Alternative #1 in that it has an exit ramp southbound to Springwells Street. Traffic numbers change as well as the roadway geometry, due to the change in access. For this reason, new noise runs were made that followed the refined engineering performed for the Preferred Alternative.

An important difference with respect to the analysis for the Preferred Alternative and analysis for the Practical Alternatives is that the Preferred Alternative has the noise walls shifted closer to I-75. This means they overshadow I-75 better and provide better noise control. The noise walls will be constructed on top of retaining walls. The purpose of the shift of the noise walls was to provide greater spacing between the noise walls and the southbound service drive for safety.

The following pages show the modeling results from the Traffic Noise Model, version 2.5 for each of the three walls found to be reasonable and feasible for the Preferred Alternative, as listed below.

<table>
<thead>
<tr>
<th>Location/Designation</th>
<th>Length (Feet)</th>
<th>Cost</th>
<th>Benefiting Receivers</th>
<th>Cost per Ben. Rec.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred Alternative</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Green to Rademacher Wall 1</td>
<td>1,820</td>
<td>$919,410</td>
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<td>$22,425</td>
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<tr>
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<td>1,488</td>
<td>$758,580</td>
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<td>East of Campbell to Clark Wall 3</td>
<td>2,234</td>
<td>$1,148,270</td>
<td>36</td>
<td>$31,896</td>
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<td>Total</td>
<td>5,542</td>
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<td>$26,917</td>
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</table>

For each wall the barrier description is followed by the sound level results for the relevant receivers related to that wall. Note that Walls 1 and 3 consists of several wall sections highlighted in yellow. The sections must be totaled to get the total length and cost of these walls. On the sound levels tables, the yellow highlights show those receivers that qualify as “benefitting” as they would experience a noise level decrease of five decibels or more. The tables for each wall are followed by a graphic showing the roads, receivers and walls. Road names have been added to the base TNM2.5 graphics output. Property lot lines have also been pulled into the TNM2.5 to provide reference points.
## RESULTS: BARRIER DESCRIPTIONS

**The Corradino Group**

**T Stone**

**6 November 2008**

**TNM 2.5**

### RESULTS: BARRIER DESCRIPTIONS

**PROJECT/CONTRACT:** 3600  
**RUN:** Preferred Alternative: Wall 1  
**BARRIER DESIGN:** INPUT HEIGHTS

<table>
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<tr>
<th>Barriers</th>
<th>Type</th>
<th>Min</th>
<th>Avg</th>
<th>Max</th>
<th>Length</th>
<th>If Wall Area</th>
<th>If Berm Volume</th>
<th>Top Width</th>
<th>Run:Rise</th>
<th>Cost</th>
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</tbody>
</table>

Total Cost: **2998412**
### RESULTS: SOUND LEVELS

The Corradino Group
T Stone

**PROJECT/CONTRACT:** 3600
**RUN:** Preferred Alternative: Wall 1
**BARRIER DESIGN:**
**ATMOSPHERICS:** 68 deg F, 50% RH

**Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.**

<table>
<thead>
<tr>
<th>Receiver Name</th>
<th>#DUs</th>
<th>Existing L_Aeq1h</th>
<th>No Barrier</th>
<th>L_Aeq1h Calculated</th>
<th>Increase over existing Crit'n</th>
<th>Type</th>
<th>Impact</th>
<th>With Barrier</th>
<th>L_Aeq1h Calculated</th>
<th>Noise Reduction</th>
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### RESULTS: BARRIER DESCRIPTIONS

**The Corradino Group**

**T Stone**

**6 November 2008**

**TNM 2.5**

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**PROJECT/CONTRACT:** 3600

**RUN:** Preferred Alternative: **Wall 2**

**BARRIER DESIGN:** INPUT HEIGHTS

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<th>Barriers</th>
<th>Type</th>
<th>Heights along Barrier</th>
<th>Length</th>
<th>If Wall Area</th>
<th>If Berm Volume</th>
<th>Top Width</th>
<th>Run:Rise</th>
<th>Cost</th>
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<td>ft</td>
<td>ft</td>
<td>sq ft</td>
<td>cu yd</td>
<td>ft</td>
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<td>Median Barrier 6</td>
<td>W</td>
<td>3.61</td>
<td>3.61</td>
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<td>5516</td>
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<td>Median Barrier 5</td>
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**Total Cost:** 758584
### RESULTS: SOUND LEVELS

**The Corradoino Group**
T Stone

**RESULTS: SOUND LEVELS**
**PROJECT/CONTRACT:** 3600
**RUN:** Preferred Alternative: Wall 2
**BARRIER DESIGN:** INPUT HEIGHTS
**ATMOSPHERICS:** 68 deg F, 50% RH

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Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
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**Dwelling Units**

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All Selected | 94 | 0.4 | 3.5 | 6.5 |
All Impacted  | 55 | 0.4 | 3.8 | 6.5 |
All that meet NR Goal | 28 | 5.0 | 5.7 | 6.5 |
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Total Cost: 3224334
### RESULTS: SOUND LEVELS

**Detroit River International Crossing Study Final Environmental Impact Statement**

**T Stone**

**RESULTS: SOUND LEVELS**

**PROJECT/CONTRACT:** 3600

**RUN:** Preferred Alternative: **Wall 3**

**BARRIER DESIGN:** INPUT HEIGHTS

**ATMOSPHERICS:** 68 deg F, 50% RH

**Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.**

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<th>Type Impact</th>
<th>With Barrier Calculated L(\text{Aeq}1)h</th>
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<td>10</td>
<td>Snd Lvl</td>
</tr>
<tr>
<td>Receiver 178 J to C</td>
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<td>67.5</td>
<td>66</td>
<td>67.5</td>
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<td>Snd Lvl</td>
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### Dwelling Units

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<tr>
<th># DUs</th>
<th>Noise Reduction</th>
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<tr>
<td></td>
<td>Min</td>
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<tr>
<td></td>
<td>dB</td>
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<tr>
<td>All Selected</td>
<td>57</td>
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<tr>
<td>All Impacted</td>
<td>38</td>
</tr>
<tr>
<td>All that meet NR Goal</td>
<td>36</td>
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