Daily High Tides for 2005-2011

- Occurrences above Elevation 4.0 = 11
- Occurrences above Elevation 3.0 = 178

JAN 2005 - APR 2011
What causes the flooding?

- Some flooding is caused by rainfall

- However -

- Most of the flooding is caused by tidal backups through the storm sewers on Strand, King and Union Streets
Project Goals

- Substantially reduce nuisance flooding raising the elevation of storm inlets
  - Minimize impacts to private properties
  - Minimize cost

June 6th, 2012 @ 10:00 am
The existing lowest point is along Strand Street at Elevation 1.45’

Low points along King Street between Elevation 2.6’ and 2.8’
Constraints

- Potomac River water surface elevations
- Elevations of existing building entrances
- Minimum slopes required for drainage
- Road and sidewalk design standards
- ADA compliance
- Cost
Alternative 1 & 2
Summary

- Relocates the low point from Strand Street to King Street
- Raises lowest storm inlet opening from 1.45’ to 2.66’ (Alt.1) or 3.22’ (Alt.2)
- Annual projected flood days will be reduced from 303 to 61 (Alt.1) or 13 (Alt.2)
- Impacts to properties:
  - Mai Thai (remove internal ramp) (Alt.2 only)
  - Stairwell (possibly reconstruct stairs and entrance) (Alt.2 only)
  - Re-Grade Portion of Boat Club Parking Lot
- Cost estimate: $925,000, (Alt.1) or $1,150,000 (Alt.2)
King Street Cross Section
Looking West

Key:
- Blue: Alternative 1
- Yellow: Alternative 2

Centerline Elevations:
- Alternative 2: 3.55 ft.
- Alternative 1: 3.06 ft.
- Existing: 2.82 ft.

Mai Thai Restaurant
Torpedo Factory Building

Existing Ground
King Street Cross Section
Plaza Option 1

Mai Thai Restaurant

Torpedo Factory Building

KING STREET PLAZA

Option 1: 3.15 ft.
Existing: 2.82 ft.
Elev.: 2.67 ft.

Existing Ground

KEY

Option 1
Option 2
Strand Street
Looking South
Strand Street Cross Section
Looking North

Bike and Roll

Strand Street

Alternative 2 = 4.00 ft
Alternative 1 = 3.65 ft
Existing = 2.15 ft
Top Elev = 1.66 ft

Grate Inlet
Existing Ground
Existing Parking Lot

Fence

KEY
- Alternative 1
- Alternative 2
Flooding on the Strand
Wales Alley Cross Section
Alternative 1 & 2
## Summary & Comparison

<table>
<thead>
<tr>
<th>Low Point Elevations (ft)</th>
<th>Existing</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest Throat Opening @ Strand Street</td>
<td>1.45</td>
<td>Eliminated</td>
<td>Eliminated</td>
</tr>
<tr>
<td>Thai Restaurant Entrance</td>
<td>3.47</td>
<td>3.47</td>
<td>3.70</td>
</tr>
<tr>
<td>Stairwell Entrance</td>
<td>3.40</td>
<td>3.40</td>
<td>3.77</td>
</tr>
<tr>
<td>Lowest Throat Opening @ King Street</td>
<td>2.43</td>
<td>2.66</td>
<td>3.27</td>
</tr>
<tr>
<td>Lowest Throat Opening @ Union Street</td>
<td>3.22</td>
<td>3.22</td>
<td>3.22</td>
</tr>
<tr>
<td>Average Flood Days Per Year 2005-2011</td>
<td>303</td>
<td>61</td>
<td>13</td>
</tr>
<tr>
<td>Preliminary Cost Estimate</td>
<td>N/A</td>
<td>$925,000</td>
<td>$1,150,000</td>
</tr>
</tbody>
</table>
## Depth of Flood Events

<table>
<thead>
<tr>
<th>Depth Greater Than</th>
<th>Strand Street (Elev. 1.45)</th>
<th>King Street (Elev. 2.43)</th>
<th>King &amp; Union Street (Elev. 3.22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot;</td>
<td>223</td>
<td>30</td>
<td>7</td>
</tr>
<tr>
<td>1'</td>
<td>100</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>1.5'</td>
<td>30</td>
<td>2</td>
<td>&lt;1</td>
</tr>
<tr>
<td>2.0'</td>
<td>7</td>
<td>&lt;1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>2.5'</td>
<td>2</td>
<td>&lt;1</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

- **With Alternative 1:**
  - Average of less than 1 incident of flooding per year at Strand Street
  - Flood incidents on King Street will be shallower by 3”

- **With Alternative 2:**
  - Average of less than 1 incident of flooding per year at Strand Street and King Street