Agenda

- Project Site
- Existing Conditions
- Project Objective
- H&H Modeling
- Existing Conditions Results
- Proposed Project
- Expected Results
Interior Flooding Issues

- Problem: Lack of floodplain storage and undersized culvert causing interior flooding in neighborhood
- For example, an inland event in March 2014 created significant flooding from a recorded 4.7-inch storm; approximately a 10-year return period

Flooding on Sea Spray Avenue (March 30, 2014)
Keys to Reducing Flooding

1. Restore Floodplain
   - Improve ability to store and convey floodwaters

2. Increase Capacity of Culvert Under Beach
   - Double Capacity of Existing 36” Pipe
   - Reduce Shoaling of Pipe

3. Tidal Controls for Coastal Events
   - Reduce potential for storm surge to flood neighborhood
Existing Conditions Model

Existing Conditions Maximum Water Surface
Existing Conditions Model Results

1-year Flood

Approximate Depth of Flooding
- 5.4 feet
- 0 feet

2-year Flood

Approximate Depth of Flooding
- 5.4 feet
- 0 feet
Existing Conditions Model Results

10-year Flood

Approximate Depth of Flooding
- 5.4 feet
- 0 feet
Major modeling conclusions are:

- The 36-inch culvert causes backwater under all the modeled storm event scenarios.
- Floodwaters overtop the culvert and flow as overland flow over the surface to the beach under the 10- and 100-year flood events.
- The backwater from the culvert begins to influence the water surface elevations near Maple Avenue.
- Flooding north of Maple Avenue is not influenced by the culvert, so will require addition of floodplain storage to reduce water surface levels.
Proposed Project

1. Restore Floodplain
   - Improve ability to store and convey floodwaters

2. Increase Capacity of Culvert Under Beach

3. Install Weir Boards to Reduce Tidal Flooding
Floodplain Restoration

1. Two-Stage Channel Design
2. Meandering Stream through created Floodplain
3. Removal of 5,500 CY of previously placed fill
4. Bioengineered Stabilization – Root wads and plantings
Two-Stage Channel Design

Floodplain Top Width (Maximum)

Bench Width (Minimum)

Channel Top Width

Channel Depth

Depth (ft)

Width (ft)

TYPICAL PROPOSED CHANNEL CROSS-SECTION
AT STRAIGHT CHANNEL REACH

NOTE: THE STREAM BANK TREATMENTS DEPICTED IN THE CROSS-SECTION ARE PROVIDED FOR ILLUSTRATIVE PURPOSES. THEY ARE NOT INTENDED TO BE APPLIED TO THE FULL LENGTH OF THE PROPOSED STREAM CHANNEL.
1. Twin 36” Culverts
2. Junction Box for Weir Boards
3. Open Channel with groins and revetment
Weir Board Junction Box

PLAN VIEW

FRONT VIEW

SIDE VIEW
Expected Results

1-year Flood Event

2-year Flood Event

EXISTING

PROPOSED

EXISTING

PROPOSED
Expected Results

10-year Flood Event

100-year Flood Event

- PROPOSED
- EXISTING

10-year Flood Event:

- PROPOSED
- EXISTING

100-year Flood Event:

- PROPOSED
- EXISTING

Approximate limit of the 100-year flood (existing conditions)

Approximate limit of the 100-year flood (proposed conditions)
Expected Results

10-year Flood

- **Existing Water Surface**
- **Proposed Water Surface**
- **Ground Surface**
- **Location of Maple Ave**

**Legend**

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Main Channel Distance (ft)

Elevation (ft)
Construction Photos

- Junction Box construction
• Groin

• Bilco Doors
- **Upstream Headwall**

- **View Looking downstream**
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