Oct 7, 2019
City Council Meeting
Agenda

1. Project History
2. Design Options
3. Design Elements
4. Project Impacts
5. Project Schedule
Project History

Flooding Issues
- History of street flooding on 81st Ave
- Impacts to homes on Garfield Street

Local Surface Water Management Plan (LSWMP)
- Analyzed known flooding areas
- Conceptual Design

Rice Creek Watershed District (RCWD) Funding
- $267,146
Design Options

Increase flood storage
- Surface storage (Increase pond size)
  - Limited space – 0.9 acres need of additional space (area larger than City Hall parking lot)
- Underground storage
  - No feasible options

Increase outlet capacity
- Increase existing outlet pipe
  - Not feasible
- Add outlet pipe
Garfield Pond

1. 81st Ave Storm Sewer
2. Garfield Pond Grading & Dredging
3. Infiltration Bench
4. New Pond Outlet Pipe
5. Existing Pond Outlet
6. Spring Lake Outlet
#1: 81st Ave Storm Sewer

- Separate 81st Avenue runoff from Mobile Home Park runoff
- Treat 81st Avenue runoff before it flows into Garfield Pond
  - SAFL Baffle - sediments
  - SKUNK – floatables/trash

Image: Upstream Technologies
#2: Pond Dredging and Grading

Dredging
● Remove accumulated sediment
● Increase the water quality treatment capacity

Grading
● Maximum flood storage
#3: Infiltration Bench

Additional water quality treatment

- Total Suspended Solids
- Total Phosphorus
#4/5: Pond Outlets

- Existing outlet
  - 18-inch concrete pipe to remain in place
- New outlet to Lake
  - Concrete pipe
#6: Spring Lake Outlet

- Existing 12-inch pipe
- 16-ft of pipe to be realigned
- Clear area around outlet
## Project Impacts

How much are flood levels in Garfield Pond affected?

<table>
<thead>
<tr>
<th>Rainfall (in)</th>
<th>Probability of Occurrence Each Year (%)</th>
<th>Change in High Water Level from Existing Conditions (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>2.8</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>3.5</td>
<td>20</td>
<td>-0.2</td>
</tr>
<tr>
<td>4.2</td>
<td>10</td>
<td>-0.6</td>
</tr>
<tr>
<td>5.3</td>
<td>4</td>
<td>-1.4</td>
</tr>
<tr>
<td>6.3</td>
<td>2</td>
<td>-1.7</td>
</tr>
<tr>
<td>7.4</td>
<td>1</td>
<td>-1.4</td>
</tr>
</tbody>
</table>
## Project Impacts

How much runoff will go to the Lake?

<table>
<thead>
<tr>
<th>Rainfall (inches)</th>
<th>Probability of Occurrence Each Year (%)</th>
<th>Percent of Runoff Flowing through Existing Outlet (%)</th>
<th>Percent of Runoff to Lake (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
<td>100</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>2.8</td>
<td>50</td>
<td>~100</td>
<td>~0</td>
</tr>
<tr>
<td>3.5</td>
<td>20</td>
<td>94</td>
<td>6</td>
</tr>
<tr>
<td>4.2</td>
<td>10</td>
<td>81</td>
<td>19</td>
</tr>
<tr>
<td>5.3</td>
<td>4</td>
<td>65</td>
<td>35</td>
</tr>
<tr>
<td>6.3</td>
<td>2</td>
<td>55</td>
<td>45</td>
</tr>
<tr>
<td>7.4</td>
<td>1</td>
<td>48</td>
<td>52</td>
</tr>
</tbody>
</table>
What about water quality?

<table>
<thead>
<tr>
<th>Water Quality Component</th>
<th>Treats Sediments</th>
<th>Treats Phosphorus</th>
<th>Treats Floatables</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFL Baffle</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SKUNK</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Pond Dredging</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Infiltration Bench</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Total Removal Efficiencies</td>
<td>84%</td>
<td>63%</td>
<td>~95% (81st Ave)</td>
</tr>
</tbody>
</table>
Project Schedule

Council Approval: October 7, 2019
Open Bids: November 12, 2019
Council Award Bids: November 18, 2019
Begin Construction: November 25, 2019

Construction updates will be provided on the City website. Contact information will be provided.
Thank You