



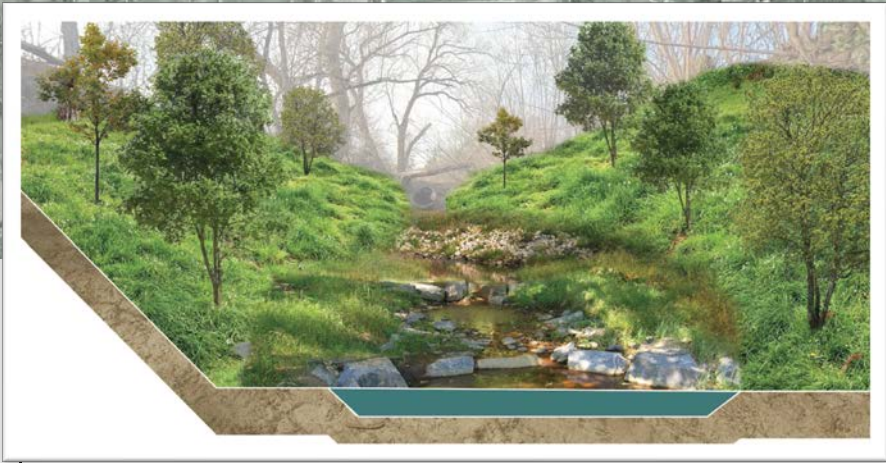
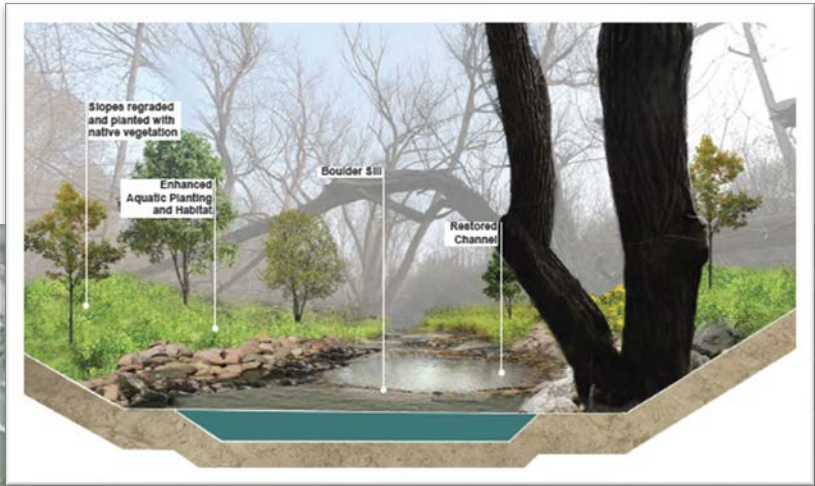
# Creating a Resilient and Sustainable Valley Creek Corridor

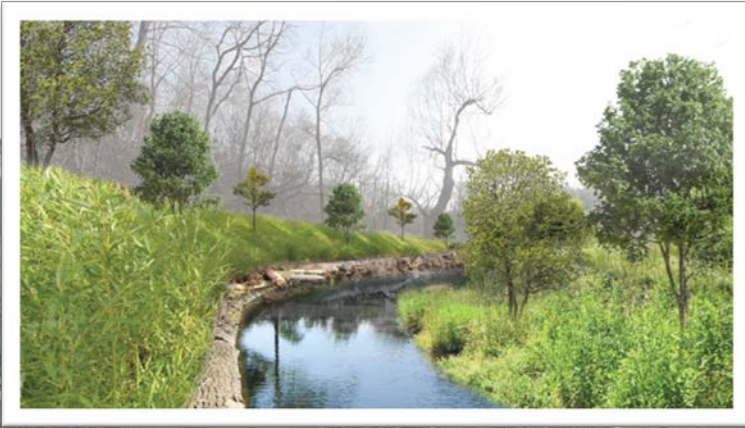


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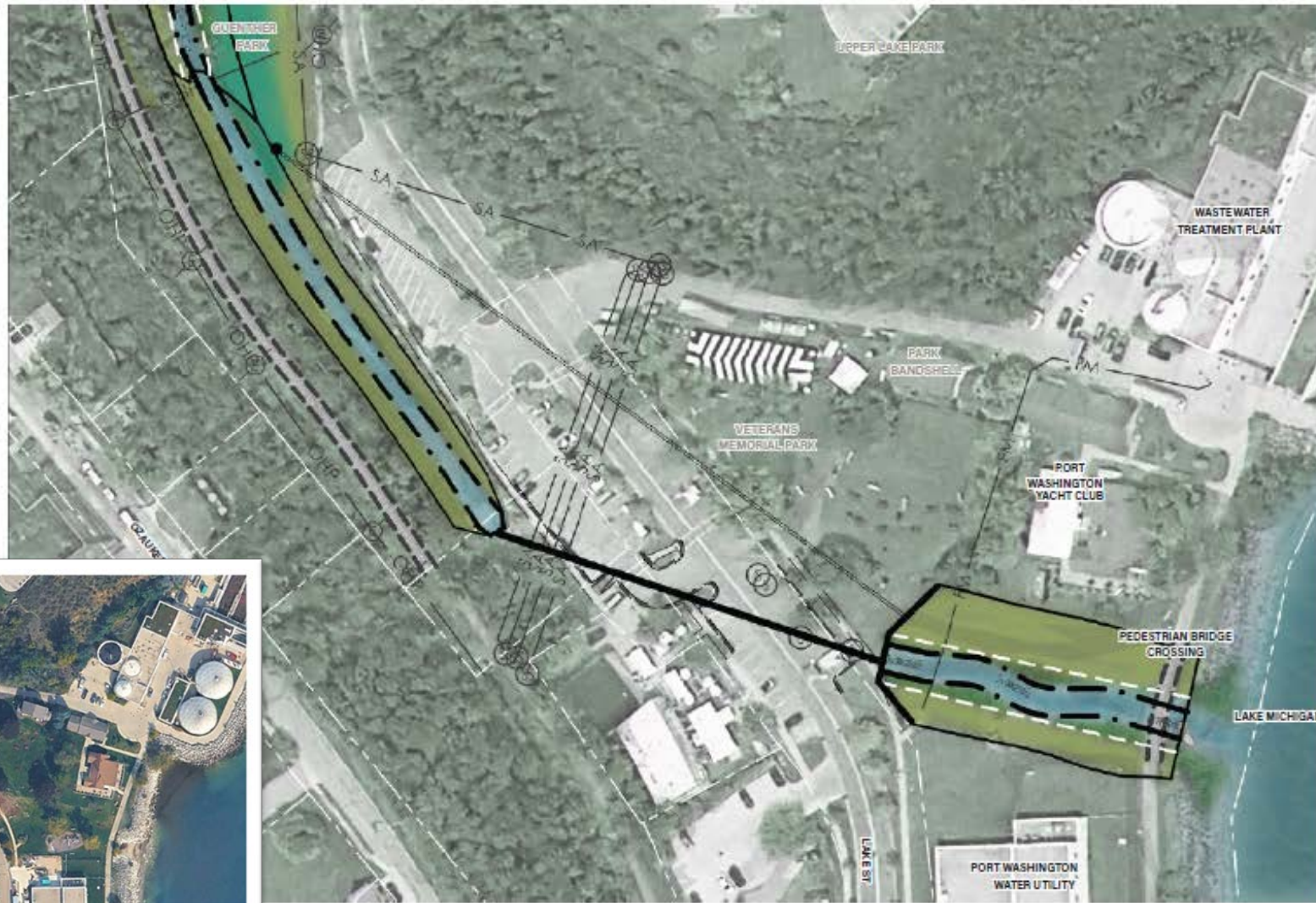




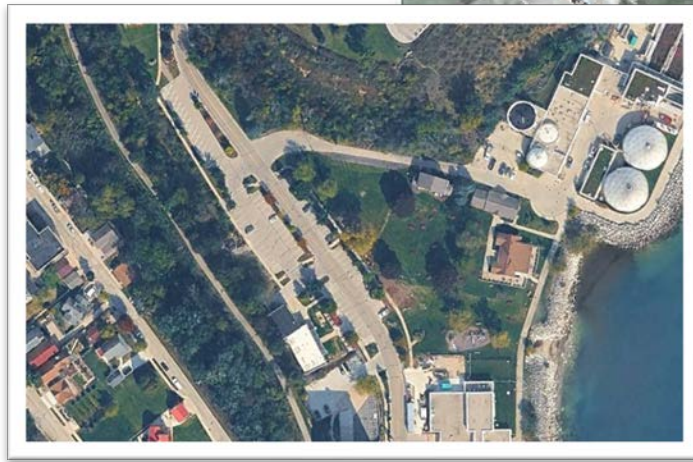
# Partial Daylighting (30% Design)

PROPOSED PLAN

- VALLEY CREEK
- RIPARIAN PLANTING AREA
- UPLAND PLANTING AREA



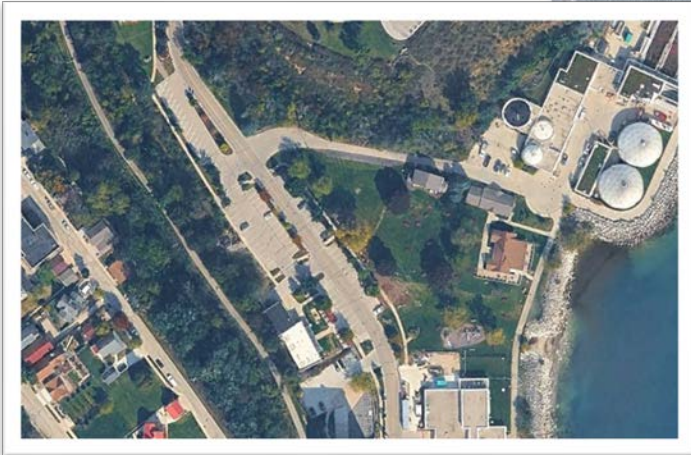
Existing Conditions





# Full Daylighting (60% Design)

## Existing Conditions





	<b>No Daylighting, Full Culvert Replacement</b>	<b>Partial Daylighting (30% Design)</b>	<b>Full Daylighting (60% Design)</b>
<b>Flood Risk &amp; Stormwater Treatment</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
	<ul style="list-style-type: none"><li>- Constricting flow will sustain water surface elevation</li><li>- Increased chance for debris dam, which will redirect flow toward adjacent parking and water treatment plant</li><li>- No additional infiltration or stormwater treatment</li></ul>	<ul style="list-style-type: none"><li>- Constricting flow</li><li>- Debris dams still pose a risk</li><li>- Increased stormwater infiltration due to native vegetation in naturalized floodplain</li></ul>	<ul style="list-style-type: none"><li>- Modeling shows there will be a decrease of appx 3 ft in 100-yr water surface elevations.</li><li>- Wider floodplain area allows for debris passage and flow can discharge to Lake Michigan more quickly during storms</li><li>- Approximately 16,000 SF less impervious surface</li><li>- More stormwater infiltration due to native vegetation in naturalized floodplain</li></ul>
<b>Recreational Value</b>	<b>No Change</b>	<b>Improvement</b>	<b>Improvement x2</b>
	<ul style="list-style-type: none"><li>- Existing storm overflow swale to remain with limited use</li><li>- Existing parking and traffic routes sustained</li><li>- Playground still needs to be relocated due to position in floodplain</li></ul>	<ul style="list-style-type: none"><li>- Existing parking and traffic routes sustained</li><li>- Increased public access to stream corridor</li></ul>	<ul style="list-style-type: none"><li>- Parking reconfigured</li><li>- Increased public access to stream corridor <u>east and west</u> of Lake St</li><li>- Relaxed streambanks offer safe access for wildlife viewing, relaxing, fishing</li></ul>



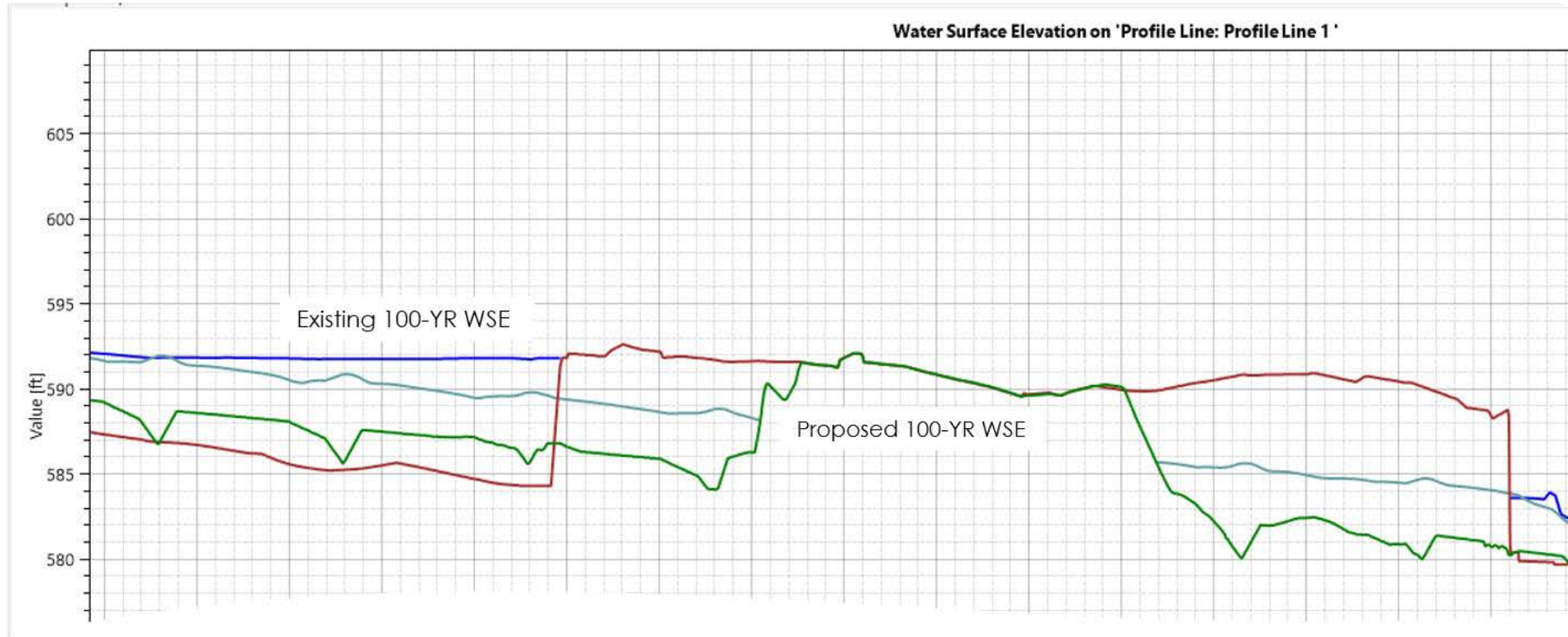
	<b>No Daylighting, Full Culvert Replacement</b>	<b>Partial Daylighting (30% Design)</b>	<b>Full Daylighting (60% Design)</b>
<b>Ecological Value</b>	<b>Poor Habitat Value</b>	<b>Moderate Habitat Value</b>	<b>High Habitat Value</b>
	<ul style="list-style-type: none"> <li>- Culvert can allow fish passage, but low flows are a barrier</li> <li>- Ecosystems cannot thrive in the dark</li> </ul>	<ul style="list-style-type: none"> <li>- Fish passage possible via daylighted section, limited productivity offered by enclosed box culvert</li> </ul>	<ul style="list-style-type: none"> <li>- Fish passage allowable even during low flow</li> <li>- Salmon, suckers, northern pike may use expanded floodplain/wetland areas to spawn</li> <li>- Full ecosystem services for healthy stream ecosystem</li> </ul>
<b>Cost</b>	<b>\$\$\$</b>	<b>\$\$</b>	<b>\$</b>
	<ul style="list-style-type: none"> <li>- We have not estimated costs for the full culvert replacement</li> </ul>	<ul style="list-style-type: none"> <li>- Structural costs are 1.75X full daylighting option</li> </ul>	<ul style="list-style-type: none"> <li>- Structural costs estimated around \$800K (subject to change w/ future design iterations)</li> </ul>
<b>Long-term Maintenance Costs</b>	High	Medium	Low



## Why can't we replace the existing culvert with a larger one?

- The purpose of this project is flood management and ecosystem restoration. Funding sources are not supportive of a full culvert replacement due to increased flood risk (compared to other options) and barriers to fish passage.
- Risks to infrastructure would remain. Constricting flow will raise water surface elevation and can cause debris dams during flood events, forcing water to take alternate routes to the lake via adjacent parking and water treatment plant. An open channel will control the path of the flood.

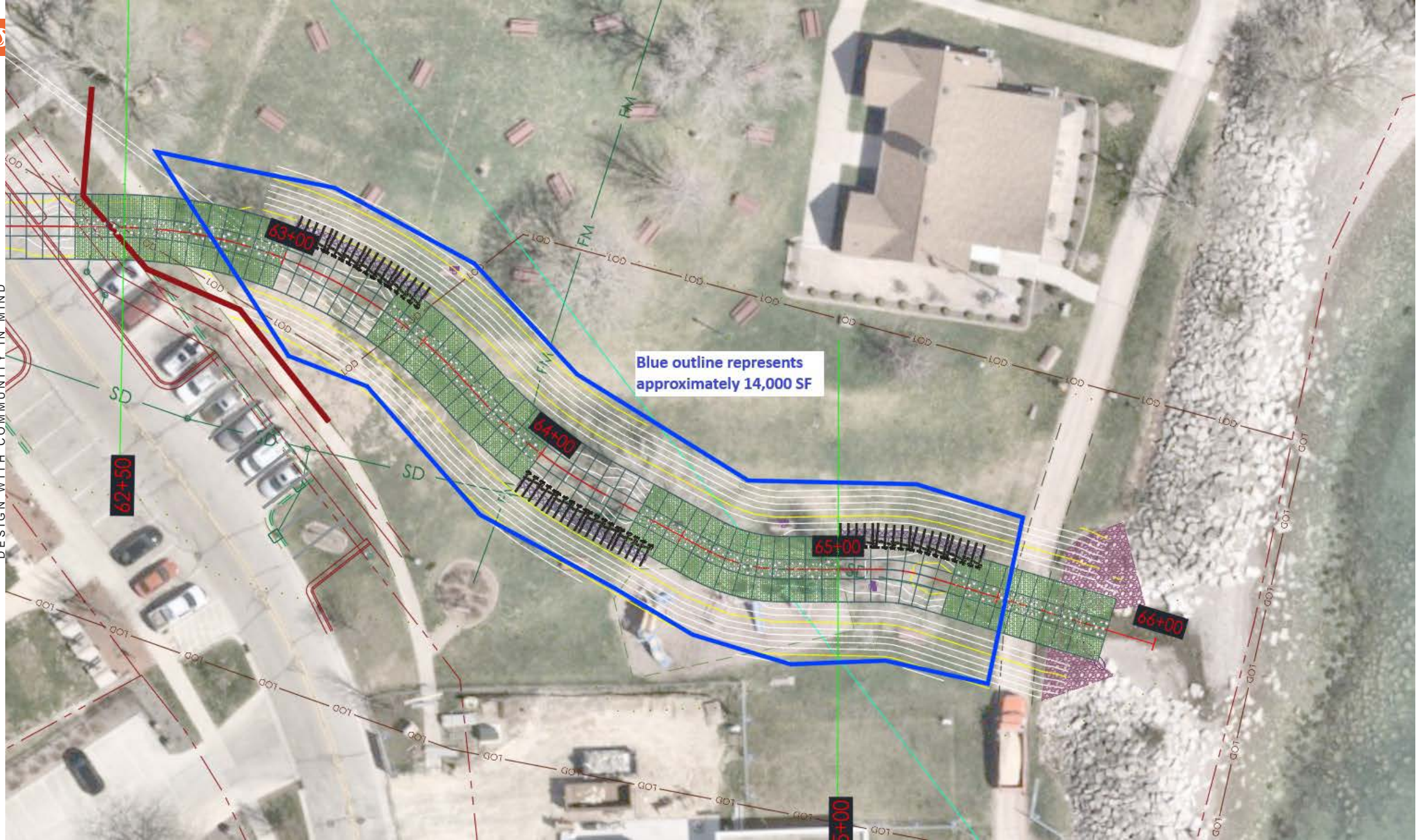




## Preliminary Water Surface Elevation(WSE) Comparison at the Lake Street Culvert

- Existing WSE upstream of Lake Street culvert: 592'
- Proposed WSE\* upstream of Lake Street culvert: 589'

\* Proposed hydraulic model results are preliminary and will likely change with further design iterations and model refinement.



Blue outline represents approximately 14,000 SF