Warren Wastewater Treatment Facility - CLIMATE VULNERABILITY SUMMARY

Warren WWTF is located at 427 Water Street in Warren. It treats an average of 1.8 million gallons of wastewater per day in, serving most of the densely populated portions of Warren. The plant also accepts approximately 400,000 gallons per year of septage from in-town systems only. Additional information is on the back of this summary.

TOP 4 HAZARD MODELING RESULTS

Inundation of the entire WWTF during a 100-year storm with a stillwater depth of 7+ feet and flooding beyond Water Street will prevent vehicular access to the surrounding area.

North PS, Wood Street PS, Asylum PS, Patterson Ave PS, and Locust Terrace PS would be inundated during a 100-year storm.

5 feet at the shoreward structures.

100-year shoreline is predicted to be more than 300 feet inland of Water Street unless active protection measures are implemented.

PLANNED CLIMATE CHANGE ADAPTATION MEASURES

The WWTF is undergoing design of a major upgrade that is incorporating several climate change resiliency measures as a result of this assessment.
## FACILITY SUMMARY

<table>
<thead>
<tr>
<th><strong>Owner</strong></th>
<th>Town of Warren</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operator</strong></td>
<td>Suez</td>
</tr>
<tr>
<td><strong>Facility Address</strong></td>
<td>427 Water Street, Warren, RI 02885</td>
</tr>
<tr>
<td><strong>Contact Name</strong></td>
<td>David Komiega, Superintendent</td>
</tr>
<tr>
<td><strong>Phone</strong></td>
<td>401.245.8326</td>
</tr>
</tbody>
</table>

### Design Flow Capacity
- **2.01 MGD**

### Average Daily Flow
- **1.8 MGD**

### Receiving Water
- Warren River

### Extreme Weather Related SSO Events 2010 - 2014
- 2 out of 10 events or 20%

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## ADAPTIVE STRATEGIES (SEE REPORT FOR COMPLETE LIST)

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>Hardening</th>
<th>Relocating</th>
<th>Readily Repairable/Replaceable</th>
<th>Mitigation Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Settling Tanks</td>
<td></td>
<td>B</td>
<td></td>
<td>Allow primary settling tanks to flood. Locate collector drives above flood elevation.¹ Replace sludge pumps with submersibles. Store replacement drive components on site. Pumps may be temporarily augmented.²</td>
</tr>
<tr>
<td>Electrical Switchgear and Motor Control Centers</td>
<td></td>
<td>C</td>
<td></td>
<td>Relocate above flood elevation.¹</td>
</tr>
<tr>
<td>Disinfection System (Chlorine Contact Tanks)</td>
<td></td>
<td>B</td>
<td></td>
<td>Locate mixer drive above flood elevation or install submersible mixer.¹</td>
</tr>
<tr>
<td>Operations Building</td>
<td></td>
<td>B</td>
<td>B</td>
<td>Allow pumps in station basement to flood. Electrical switchgear, MCCs and SCADA equipment above flood elevation.¹</td>
</tr>
</tbody>
</table>

¹ Adaptive measures planned for implementation in the near term as part of the proposed WWTF Upgrades project.
² Adaptive measures that the Town of Warren may consider implementing at a future time.

| A = < $50,000 | B = $50,000 to $250,000 | C = $250,000 - $1,000,000 | D = > $1,000,000 |

The most flood prone pump stations have dry-pit submersible pumps or entryways that are either flood proof or elevated.

Planned redevelopment of an old manufacturing facility would increase flows to the WWTF on the order of 0.1 MGD, close to capacity.