Warwick Wastewater Treatment Facility - CLIMATE VULNERABILITY SUMMARY

Warwick WWTF is located at 125 Arthur W. Devine Blvd. in Warwick. It treats an average of 4.5 million gallons of wastewater per day, serving approximately 60,200 customers in Warwick. Additional information is on the back of this summary.

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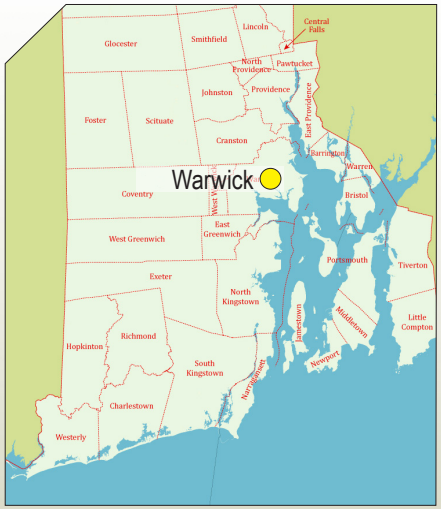


Inland Flood Hazard

Inland Flood Hazard

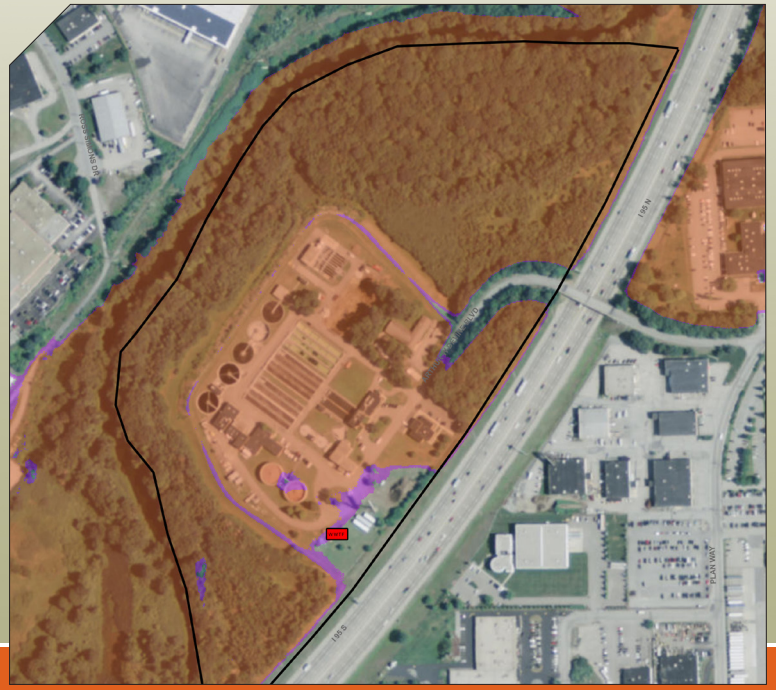
Coastal Flood Hazard

TOP 3 HAZARD MODELING RESULTS

Inundation of the entire WWTF site at the 100-year plus 2' event (without planned raised levee)

Inundation of East Natick PS 1, East Natick PS 2, and Knight Street PS at the 100-year flood level plus 2' event.

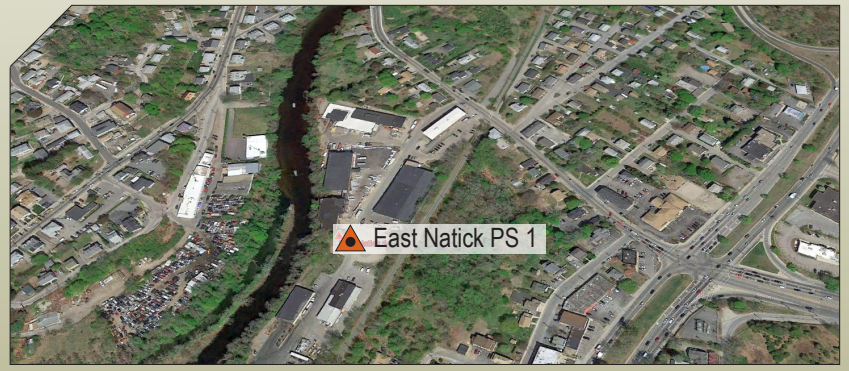
Inundation of most of the WWTF site at the 100-year event plus 5' of SLR (without planned raised levee)



Legend

- Treatment Plant
- Pump Station
- Approx. Parcel Boundary
- 100-Year Flood Level plus 2 ft
- 100-Year Flood Level plus 3 ft

Note: Condition shown is prior to raising levee height.



PLANNED AND COMPLETED CLIMATE CHANGE ADAPTATION MEASURES

The Warwick Sewer Authority undertook a project to raise the 2,300-foot long levee surrounding the WWTF, which was originally installed in the mid-1980's. The levee was raised by five and a half feet in 2017. The URI Pawtuxet River modeling team demonstrated that the levee will protect the WWTF from inundation caused by a 500-year flood event. Several flood hardening projects have also recently been implemented or are planned for some of the flood-prone pump stations.

WARWICK, RI - CLIMATE VULNERABILITY SUMMARY

FACILITY SUMMARY

Owner	City of Warwick
Operator	Warwick Sewer Authority
Facility Address	125 Arthur W. Devine Blvd., Warwick, RI 02886
Contact Name	Scott Goodinson, Superintendent
Phone	401.739.4949
Design Flow Capacity	7.7 MGD
Average Daily Flow	4.5 MGD
Receiving Water	Pawtuxet River
Extreme Weather Related SSO Events 2010 - 2014	2 out of 19 events or 11%

The WWTF has an effluent pumping system that operates approximately four to six weeks per year.

The facility maintains an abundance of back-up pumping and power generation equipment.

The Knight Street PS is unusual in that it can function continuously when completely submerged by rising levels of the Pawtuxet River, and remains accessible through a roof hatch.

Several of the newer pump stations were intentionally designed to be above the current 100-year flood elevation standards and the new Bellows Street pump station was recently constructed and elevated to protect it from the 500-year flood.

ADAPTIVE STRATEGIES (SEE REPORT FOR COMPLETE LIST)

SYSTEM	Hardening	Relocating	Redundancy	Mitigation Strategy
Disinfection System (Chlorine Contact Tanks)		D	B	Maintain back-up temporary chemical storage and pumping system. Pump influent to Cranston WWTF.[1]
Effluent Pump Station	C	D		Replace effluent pumps with submersibles and relocate drive systems to high ground. Pump influent to Cranston WWTF.[1]
Generator	B	D		Elevate back-up electrical systems above berm elevation. Pump influent to Cranston WWTF.[1]
Knight Street PS		C		Relocate pump station inland.
East Natick 1 PS	A			Protect facility entrances with flood barriers and relocate building penetrations for louvers.

1. Redirecting influent flow to the Cranston WWTF would address multiple systems under one project. This long term plan should be considered in conjunction with West Warwick.

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