



View of the Mill River. Source: <https://storymaps.arcgis.com/stories/b8bc70e9d8614238ac520583ae9483c4>

COMMUNITY BENEFITS

- ◆ Enhances flood control infrastructure, safeguarding the municipality and low-lying Environmental Justice (EJ) communities from the escalating impacts of climate change-induced storms.
- ◆ Improves the ecological function of the Mill River by removing sediment and restoring habitats, leading to cleaner air and water, thereby supporting residents' well-being.
- ◆ Provides protection and resilience to low-lying EJ communities against storm events and Connecticut River flooding.
- ◆ Preserves commercial and residential properties, safeguarding local businesses and property values, and maintaining a stable and prosperous local economy during extreme weather events.
- ◆ Protects the City's Wastewater Treatment Facility (WWTF) adjacent to the pumping station from flooding.
- ◆ Prevents potential inundation depths of over 23 feet and damage to over 2,600 buildings and properties valued at \$1.8 billion.
- ◆ Increases community awareness of how climate change affects critical utility and flood control infrastructure and its impact on vulnerable populations.

ECOLOGICAL BENEFITS

- ◆ **Improving Ecological Function:** The project's focus on restoring the natural flow and function of the Mill River ecosystem contributes to the protection and management of ecological systems. By enhancing the river's capacity to absorb and manage floodwaters, the project increases natural hazard resilience and provides additional benefits such as improved water quality and habitat conservation.
- ◆ **Promoting Biodiversity:** Dredging the Mill River and removing contaminants create opportunities to enhance biodiversity and ecosystem health. By restoring natural habitats and supporting diverse plant and animal species, the project contributes to the overall resilience of the ecosystem and its ability to adapt to changing environmental conditions.

SUMMARY

In summary, the project protects and restores ecological systems to safeguard public health and increase natural hazard resilience. Through the restoration of the Mill River ecosystem and its associated benefits, the project contributes to building climate resilience in the community.

The flood resiliency upgrades to the station have undergone a well thought out process that includes up to date climate scenarios. This approach can be used by neighboring communities with identical flood infrastructure such as West Springfield and Chicopee. Both communities are interested in the work Northampton has done to provide resiliency to this aging yet critical infrastructure and could use this work as a model.



Northampton MVP Action Grant Critical Infrastructure Flood Resiliency



PROJECT OVERVIEW

The Northampton Critical Infrastructure Resiliency Project aims to upgrade the Hockanum Pumping Station in accordance with up-to-date climate change data and dredge the Historic Mill River to bolster critical infrastructure resilience and safeguard low-lying Environmental Justice communities. The pump station is still utilizing original equipment that has surpassed its reliable service life. The upgrades will ensure reliability and enhance overall resiliency. The Historic Mill River provides stormwater storage upstream, and the dredging work will restore the maximum capacity that previously existed.

OBJECTIVES

1. Dredge the Historic Mill River to restore flood storage capacity and remediate contaminants.
2. Upgrades to the Hockanum Pumping Station to withstand current projected flows and rain events using up-to-date climate change data.



Proposed dredging staging area



Project area site map

HOCKANUM PUMPING STATION IMPROVEMENTS

This Project prioritizes addressing design for various mechanical, structural, and HVAC improvements as identified in our August 2019 Facility Evaluation Report. A list of improvements are as follows:

- Replace Dry Pit Centrifugal Jockey Pump and Gate Valves
- Replace Electrical Sluice Gate Actuators
- Replace Electrical 48-Inch Discharge Gate Valve Actuators
- HVAC Upgrades
- Building Exterior Repairs
- Building Interior Repairs
- Counterfort Flood Wall Repairs
- Intake Structure Repairs



Flooding control area to be dredged

HISTORIC MILL RIVER DREDGING

The City identified concerns with reduced capacity of stormwater flows in the Old Mill River channel between Pleasant Street (Route 5) and the Hockanum Flood Pump Station located within the WWTP property. The City had previously studied the feasibility of dredging this section of the Old Mill River, including taking soil samples representative of the material that would need disposal. Dredging the stream will help to reduce the frequent flooding and contaminants loading within the stream.

HISTORY AND PROJECT NEED

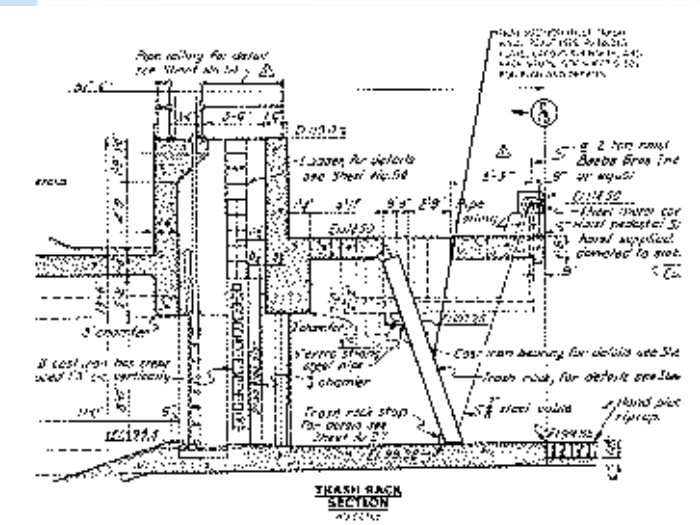
The City of Northampton owns and operates the Hockanum Flood Control Pumping Station. It was constructed in 1940 alongside the levee by the United States Army Corps of Engineers (USACE) after two major floods in the 1930s caused widespread damage. The Mill River was diverted from its previous flowpath in 1940, leaving a relic channel through the Downtown Northampton area. The Historic Mill River experiences frequent flooding, leading to sediment accumulation and contamination that eventually makes its way to the Connecticut River. Currently, the Mill River requires dredging to handle more frequent high-intensity storm events that could overwhelm the City's stormwater system, leading to localized flooding.

The pumping station, with a capacity of 300 cubic feet per second (or 200 million gallons per day), works in conjunction with the Historic Mill River, which runs between Pleasant Street (Route 5) and the City's Wastewater Treatment Facility at 33 Hockanum Road, pictured in the map above. Both the pumping station and the Mill River are vital components of the City's flood control system. During periods of high Connecticut River water levels, the pumping station operates to lower the Old Mill River's water elevation, preventing flooding in low-lying areas of Northampton, including commercial hubs and communities that are recognized by the state of Massachusetts as Environmental Justice populations. The mapped Environmental Justice areas are included to the left.

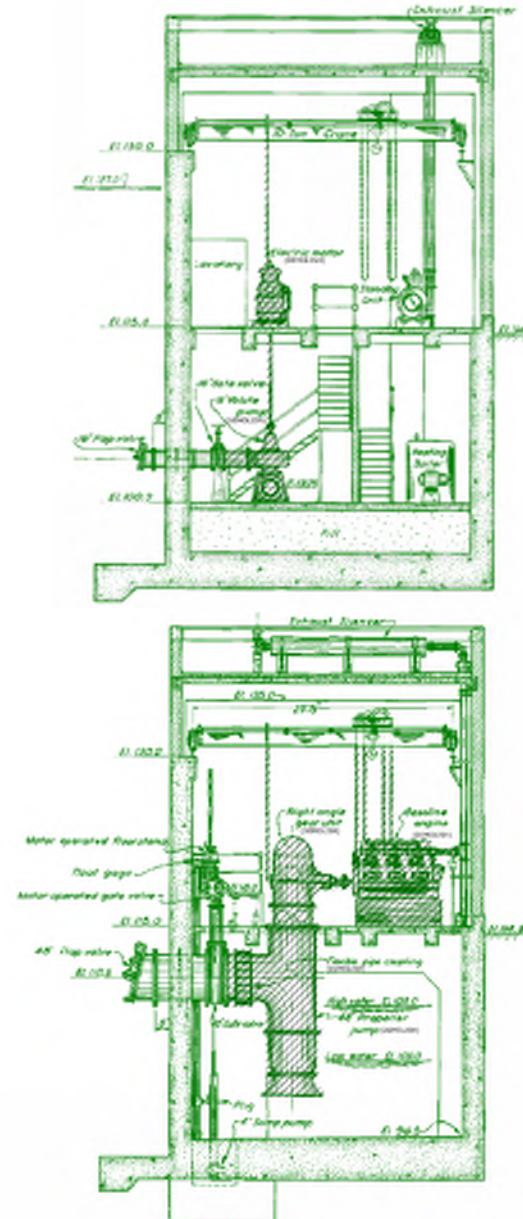
The existing pumping station was designed to withstand 1% flood flows in the 1940s, which is not adequate for the increased storm intensity and frequency predicted by climate change. The calculated drainage area to the pumping station and design flow needs to be increased, requiring an imminent upgrade. Additionally, much of the pumping station equipment is original to the station and has surpassed its useful life.



Strong Avenue in Historic Downtown Northampton during the CT River Valley Flood of 1936. Source: HistoricNorthampton.org



Design plans showing proposed improvements to the Hockanum Pumping Station



Mechanical pump house improvements design



Design for proposed Mill River Dredging