

EXECUTIVE SUMMARY

PROJECT FACTS

Location: Hatfield Township, Montgomery County

Overview: Hatfield Township Municipal Authority (HTMA) is proposing to build a floodwall and a retaining security fence to protect the operations of its Wastewater Treatment Plant (WWTP) during severe weather events, which have caused damage in the past.

Project Cost: \$1,567,000

FEMA FMA

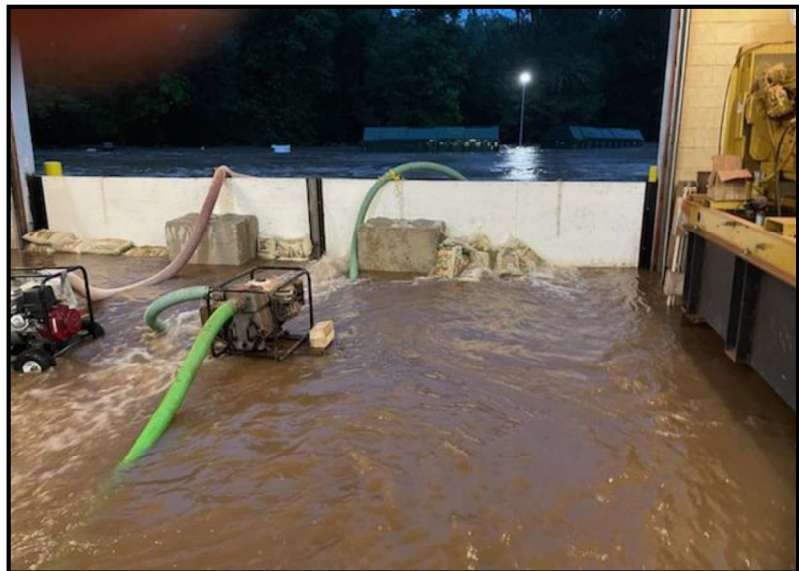
Request: \$1,175,250

PROJECT BACKGROUND

HTMA operates a comprehensive inter-municipal sewer collection and treatment system that services residents and businesses throughout Hatfield Township (Township), Hatfield Borough, Montgomery Township, and Franconia Township in Montgomery County, as well as Hilltown Township in Bucks County.

Existing Conditions

The sludge dewatering and incineration building and the pump house at HTMA's WWTP are located along Neshaminy Creek in the Township. While flooding at the WWTP facility has been recurring over the past forty years, severe hurricanes in 2020 (Isaias) and 2021 (Ida) caused the most damage of any storm. In previous floods, the use of sandbags, lumber, and several large pumps were not enough to abate all flooding. There still were a few inches of standing water throughout the



building. Minimal damage occurred, but the plant processes had to be shut down to avoid damage to the machinery, electrocution of employees, and for overall safety concerns.

During Hurricane Isaias in 2020, pictured above, the water significantly breached the sludge dewatering and incineration building with two feet of water, damaging many motors, chemical treatment additives, vehicles, and other equipment inside and outside the building. After this storm, HTMA bought taller lumber for flood protection; however, this also failed during the next storm. ***When Hurricane Ida struck in 2021, the makeshift wall was nearly breached, where three feet of water would have entered the building if HTMA employees had not been present.*** Maintenance crews were able to move concrete blocks, pallets of equipment, and other items to help the wooden boards remain stable — preventing the

HATFIELD TOWNSHIP MUNICIPAL AUTHORITY

HTMA WWTP FLOODWALL CONSTRUCTION

water from entering the building. ***Had the maintenance employees not been on-site, all the equipment that was replaced in 2020 would have been destroyed.***

The pump house serves as an important building for HTMA, as it helps the plant manage instances of high flow within the system. If this building went underwater, millions of gallons of raw sewage would spill out into the environment, causing an environmental catastrophe on top of the damaging caused by the flood.

During these storms, two adjacent chain link security fences were destroyed, and the outside of the buildings were damaged. Additionally, the flooding sometimes prevents HTMA from accessing critical high-flow handling equipment inside the building without a boat, which can be extremely unsafe for personnel.

FLOOD MITIGATION PROJECT

HTMA is proposing to construct a 400-foot-long and more than 5-foot-tall concrete wall behind the sludge dewatering and incineration building and pump house. The flood wall will accommodate increased water levels from the creek when flooding occurs. Additionally, the current security fencing will be replaced by a new flood-resistant retaining security wall, with fencing on top of it. This will prevent future damage to the building and provide security for HTMA operations.

FEMA FLOOD MITIGATION ASSISTANCE (FMA) PROJECT REQUEST

The total project is estimated to cost \$1,567,000. To minimize the financial burden to its ratepayers, HTMA is seeking funding assistance in the amount of \$1,175,250 from the FEMA FMA grant program to be used toward advancing this project. HTMA is prepared to provide the matching funds to ensure the project's completion.

HATFIELD TOWNSHIP MUNICIPAL AUTHORITY

WWTP ELECTRICAL SYSTEMS UPGRADE

EXECUTIVE SUMMARY

PROJECT FACTS

Location: Hatfield Township, Montgomery County

Overview: The project involves the replacement of the existing medium-voltage electrical distribution system and two existing low-voltage motor control centers, and the installation of a new medium-voltage Diesel Rotary Uninterruptible Power Supply (DRUPS).

Project Cost: \$15,665,000

FEMA BRIC Request: \$11,748,750

PROJECT BACKGROUND

HTMA operates a comprehensive inter-municipal sewer collection and treatment system that services residents and businesses throughout Hatfield Township (Township), Hatfield Borough, Montgomery Township, and Franconia Township in Montgomery County, as well as Hilltown Township in Bucks County.

Existing Conditions

The medium-voltage switchgear, transformers, and underground cables that supply power HTMA's wastewater treatment plant (WWTP) are approximately 40 years old and quickly approaching the end of their service lives. ***Without replacement, the WWTP could face service interruptions and potential plant shutdowns if the electrical equipment were to fail. This would result in the plant not being able to process wastewater and the incinerator releasing toxic materials.*** HTMA must upgrade its existing medium-voltage electrical distribution system by purchasing various types of transformers and switchgears, two low-voltage motor control centers, and purchase and install a new medium voltage DRUPS system for installation at the WWTP (Project). Keeping the plant operational is not only vital to HTMA's customers, but the environment as well.

Currently, when the plant switches between electrical suppliers, or the electricity goes off, plant workers must manually turn on the generators. This down time results in toxic chemicals being released from the incinerator building. HTMA plans to install a DRUPS system to its facility. The DRUPS system can provide continuous, uninterrupted power to the plant to avoid undesirable equipment malfunctions resulting from power interruptions. If the electrical equipment were to fail, the plant would have to be shut down or operate at a reduced capacity, which would be detrimental to the health and safety of the citizens and the environment within the service area.

ELECTRICAL SYSTEMS UPGRADE

The proposed Project will facilitate the purchase and installation of two metal-enclosed load interrupter switchgears, three pad-mounted transformers, three substation transformers, an entire DRUPS system, two motor control centers, cables, and conduits. HTMA plans to ultimately power the WWTP using renewable energy and have backup energy storage batteries on site. ***To make the transition to provide electricity from a renewable energy source, the current transformers and switchgear must be upgraded and the DRUPS system installed.*** Without the upgrade to the electrical system, HTMA cannot implement any of the proposed reliability, resiliency, and renewable energy improvements.

HATFIELD TOWNSHIP MUNICIPAL AUTHORITY

WWTP ELECTRICAL SYSTEMS UPGRADE

FEMA BUILDING RESILIENT INFRASTRUCTURE IN COMMUNITIES (BRIC) REQUEST

The Project is estimated to cost \$15,665,000. To minimize the financial burden to its ratepayers, HTMA is seeking funding assistance in the amount of \$11,748,750 from the FEMA BRIC grant program to be used toward advancing the Project. HTMA is prepared to provide the matching funds to ensure the Project's completion.

HTMA Flooding at the WWTP During Hurricane Isaias 2020

Hatfield Township Municipal Authority

Raw Sewage Pump House,
maintenance is attempting to
secure the building.



Fuel tanks flooded and
vehicle lost.



Rolloff containers for
incinerator ash.



Pump House



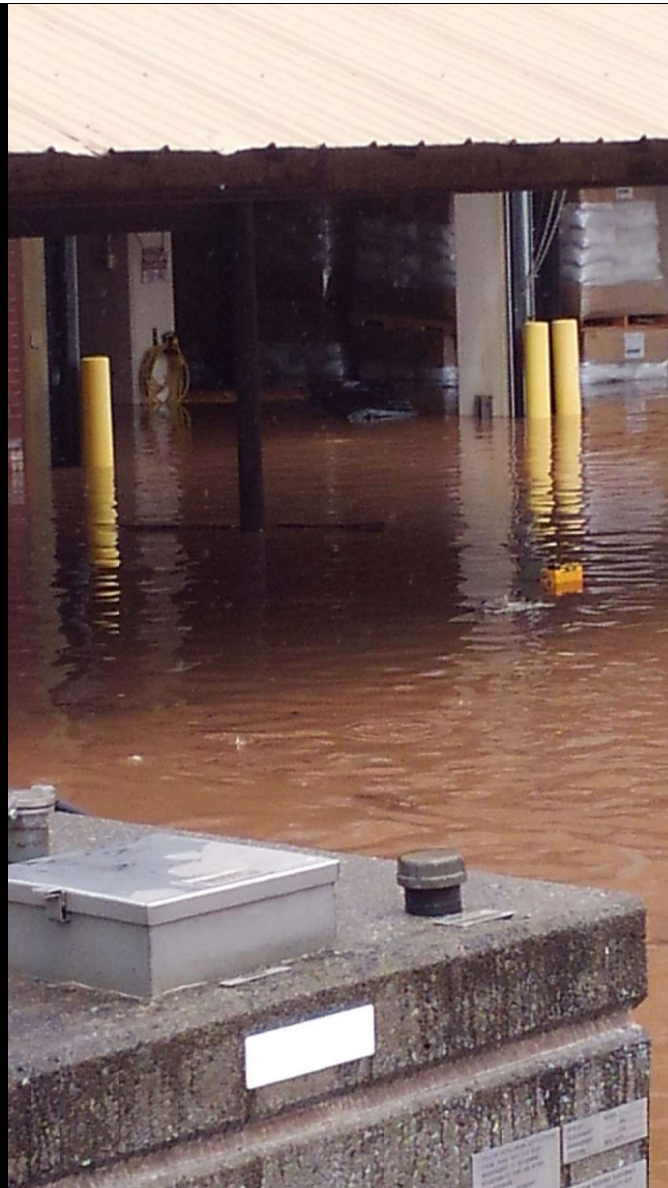
Construction debris in 20-yard rolloff container that is almost consumed.



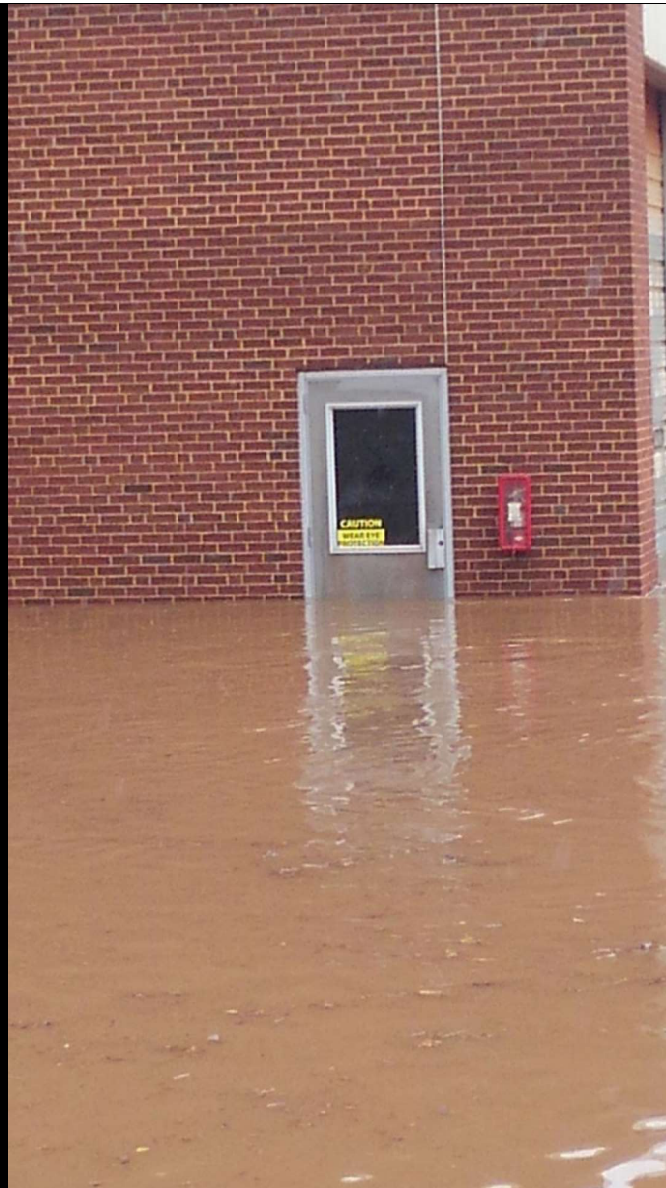
Doorway to Incinerator Building.



Inside view of garage after temporary barriers were destroyed.



Walk door to Incinerator Building.



Maintenance Building



Another view of the rolloffs
for ash



Flooded 100 hp motors



Flooded garage where
equipment is stored.



Chemical storage tanks flooded, and containment structure flooded.



Security fence destroyed.



2020-08-04 12:00:04
Maintenance Cam1



Maintenance Building after
flooding has receded.

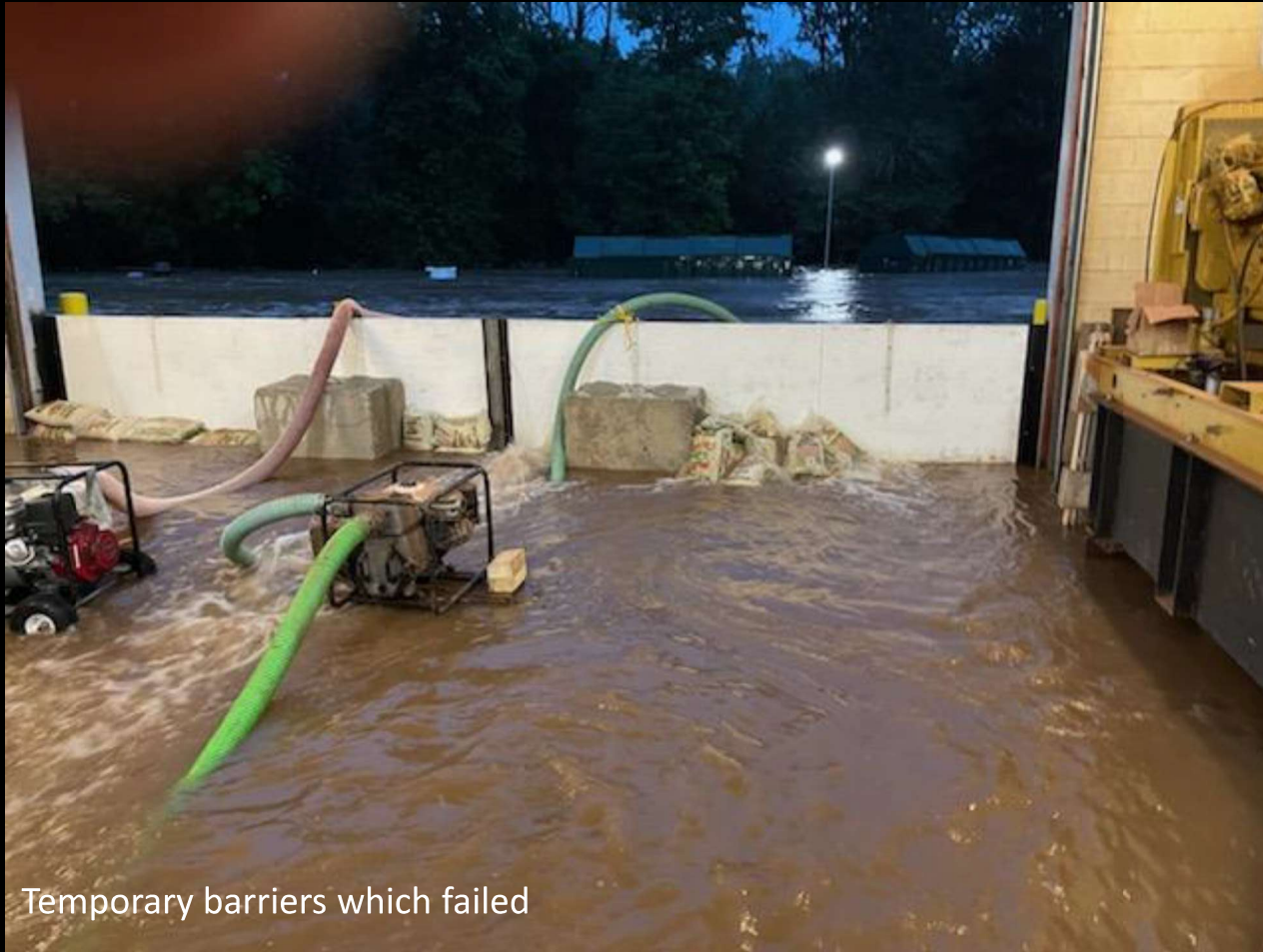
HTMA Flooding at the WWTP During Hurricane Ida 2021

Hatfield Township Municipal Authority

2021-09-01 19:16:07
Control Rear 1



Roof top view of flooding



Temporary barriers which failed



View from second floor looking down to flooding on the first floor.

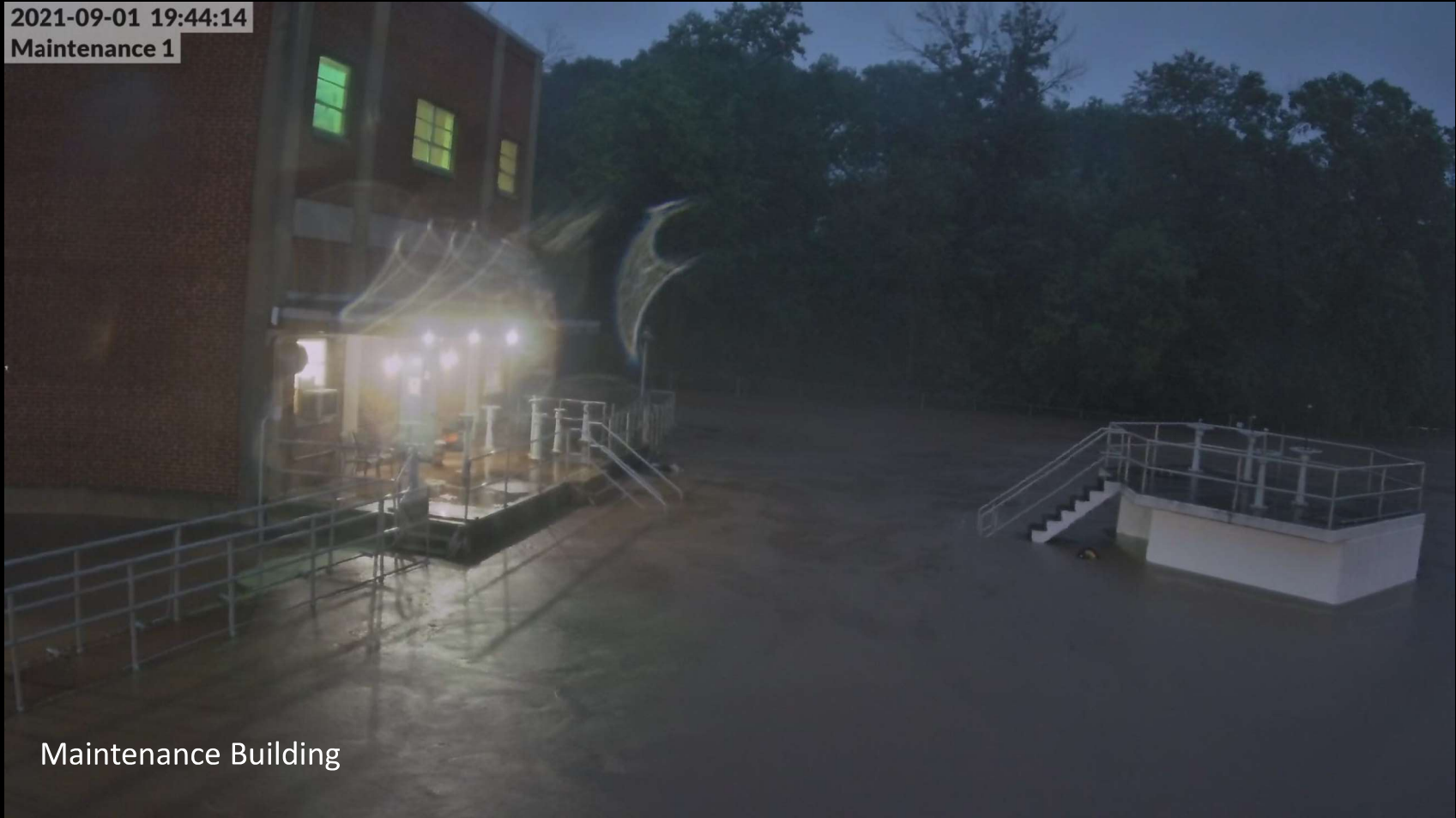
Security fencing destroyed
for a second time.



Security fencing destroyed
for a second time.



2021-09-01 19:44:14
Maintenance 1



Maintenance Building

Hatfield Township Municipal Authority

HTMA WWTP Electrical Systems Upgrade Project

1965 Motor Control Center





1972 Motor Control Center



1972 Switchgear and Outdated G&W Auto Transfer Switch

1972 Switchgear for 4160V



Junction Box circa 1972



Junction Box circa 1972



1 of 2 – 33,000 KVA Fuse Box



2 of 2 – 33,000 KVA Fuse Box



1 of 2 – 33,000/4,160 Transformers



2 of 2 – 33,000/4,160 Transformers



1 of 3 – 4,160/480 Transformers





2 of 3 – 4,160/480 Transformers

3 of 3 – 4,160/480 Transformers



1 of 3 Generators



2 of 3 Generators



3 of 3 Generators



WARNING
THIS UNIT
STARTS
AUTOMATICALLY
REFER TO THE SERVICE MANUAL FOR
OPERATING INSTRUCTIONS