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CLEAN WATER

Hartford's Massive

South Hartford Conveyance and Storage Tunnel launch shaft construction.



PHOTO: THE METROPOLITAN DISTRICT

South Hartford Conveyance and Storage Tunnel Groundbreaking Ceremony from October 20, 2016.



PHOTO: THE METROPOLITAN DISTRICT

At the start of the project in 2008, there were close to 1 billion gallons of combined sewer and sanitary sewer overflows into the water bodies each year. “Through the projects that we’ve either completed to date or currently have under way, we’ve reduced that by about 33 percent,”

Laliberte says.

By Autumn Cafiero Giusti

Clean water is a necessity for any community, but it’s taken on critical importance in the Hartford metropolitan area.

When storm water overwhelms the area’s sewer system, it causes sewage to overflow to local waterways and the Connecticut River and can also back up into neighborhoods and basements. As little as a quarter inch of rain can overwhelm the system.

Correcting this problem has become such a high priority that the Metropolitan District Commission that serves the Hartford area is in the midst of the more than \$2 billion Clean Water Project, a quarter-century undertaking to make the infrastructure improvements needed to correct these overflows and allow clean water to flow to the area’s rivers and streams.

The project has been under way for about a decade, and now, work is in progress on

the critical task of increasing the capacity of two of the treatment plants in the system, and the construction of the South Hartford Conveyance and Storage Tunnel that would convey wastewater to the treatment plants.

“This is a key element of the Clean Water Project, with the goal of minimizing sewer overflows within the MDC towns, and improving the quality of waterways including the Connecticut River and ultimately the Long Island Sound,” says Nick Salemi, communications administrator for the MDC.

The MDC’s sewer system serves approximately 400,000 people in eight towns. There are four water pollution control facilities, and 1,200 miles of sewers dating back to the 1850s.

The Clean Water Project has various construction projects under design and in progress within the district’s member

FOR ALL Water Project



Wet Weather expansion construction at the Hartford Water Pollution Control Facility.

PHOTO: THE METROPOLITAN DISTRICT

towns. Work varies from small, cured-in-place sewer lining projects to large-scale treatment plant improvements.

To date, the MDC has spent or committed nearly \$1.4 billion on Clean Water Project improvements. The MDC completed approximately \$230 million in sewer separation work.

Tunnel takes shape

The most recent project to get under way involves the construction of the South Hartford Conveyance and Storage Tunnel system. The \$500 million project broke ground in fall 2016 and is slated to be completed and in operation by 2024.

The MDC awarded a \$279 million contract to the joint venture of Kenny/Obayashi to construct the tunnel itself. Other smaller projects with separate contracts will follow.

Wet weather has been a major concern pushing forward the tunnel project. The Hartford Tunnel is a four-mile long, deep-rock tunnel with a 41.5-million-gallon capacity. The tunnel is designed to temporarily store excess combined wastewater and storm water when it rains, which will then carry the flow to the plant for treatment.

"This will help the plant from being overwhelmed every time there's a rainstorm," Salemi says.

The 18-foot-diameter tunnel will be built about 200 feet below ground, which means most people won't even be aware of any disruption, Salemi says.

The next major piece of the tunnel project will involve the arrival of a tunnel-boring machine this fall. When the process starts, the machine will bore into the ground for almost four miles. It will likely take two

CLEAN WATER PROJECT Piece by Piece

The over \$200 billion Clean Water Project is a multi-phase undertaking that will take a quarter-century to complete. It consists of five components:

- **Treatment Plant Improvements:** The Hartford Water Pollution Control Facility is undergoing significant capacity upgrades to be able to handle more flows and to treat them to a higher standard.
- **Sewer Separation:** These projects allow sewage and storm water to each have their own dedicated pipe, helping prevent overflows.
- **Inflow and Infiltration:** There are several pilot projects to address the issue of inflow and infiltration of storm water in MDC member towns.
- **Interceptor Pipes:** Large "interceptor pipes" must be installed to increase capacity and convey the flow to the treatment plant.
- **Storage Tunnels:** These tunnels are designed to temporarily hold wastewater during rain events, and then pump the water to the treatment plant after flows subside.

Source: Clean Water Project

to three years for the machine to make that distance.

Also ongoing are major upgrades to increase capacity at the Hartford Water Pollution Control Facility and the satellite Rocky Hill treatment facility. Before the Clean Water Project started, the peak wet weather capacity of the Hartford treatment plant was 110 million gallons of water per day. Upon completion of the improvements, the capacity will increase to 200 million gallons per day.

The plant upgrades are expected to cost more than \$500 million.

"These projects have created a lot of employment opportunities for various companies and employees that are all dedicated toward the ultimate goal of improving the environment through the implementation of these projects," says Joseph L. Laliberte, P.E., B.C.E.E., associate with the firm CDM Smith, the program manager consultant for the Hartford Metropolitan District Commission. Laliberte is program manager for the Connecticut Clean Water Project.

Overflow improvements

The Clean Water Project was MDC's response to a consent order from the Connecticut Department of Energy and Environmental Protection to address combined sewer overflows, and a consent decree from the Environmental Protection Agency to address sanitary sewer overflows.

At the start of the project in 2008, there were close to 1 billion gallons of combined sewer and sanitary sewer overflows into the water bodies each year. "Through the projects that we've either completed to date or currently have under way, we've reduced that by about 33 percent," Laliberte says.

Completion of the South Hartford Tunnel project in January 2024 is expected to reduce the overflow volume by 44 percent.

The ultimate goal of the Clean Water Project is to reduce discharge levels by 100 percent during a typical year. "We're doing pretty well along the way to achieving that goal," Laliberte says.

Workers on the Clean Water Project have had to account for factors such as the city's

age, which can pose challenges to a project of this size. "Hartford is an old city. Things under the ground might not be marked, so you've got to be able to adapt," Salemi says.

Communication with all of the different groups and people associated with the project has also been key. That includes contractors, subcontractors, engineers,

neighborhood groups, the MDC, the state DEEP and other environmental stakeholders.

"Being successful at a project like this means we have to have good collaboration and good teams, and to have good partners along the way," Salemi says.

The Clean Water Project is slated for completion in 2029.



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