Cleaning Up Connecticut

A massive new wastewater tunnel will greatly reduce sewer overflows from reaching Hartford's waterways and Long Island Sound

Groundbreaking

The Metropolitan District (MDC) is building a monumental new sewage overflow system that will help keep the water clean in and around Hartford, Connecticut.

The South Hartford Conveyance and Storage Tunnel (SHCST) represents the largest construction contract ever awarded by MDC.

"The project will eliminate sanitary sewer overflows in West Hartford and greatly diminish combined sewer overflows in the city," says Andrew Perham, Construction Manager for MDC.

Crews broke ground on the SHCST in late 2016. The tunnel is scheduled to be fully operational by 2023. The SHCST will run for four miles beneath West Hartford and Hartford, terminating at the Hartford Water Pollution Control Facility at Brainard Road.

THE NEED FOR STORAGE AND CONVEYANCE

The construction of the tunnel, shafts and related facilities will bring MDC into compliance with the goals established by the federal Clean Water Act. The current phase of the project, constructing the shafts and mainline tunnel, is being constructed under a contract worth $279.4 million.

"It is being built to comply with a consent order issued by the State of Connecticut Department of Energy and Environmental Protection, and a consent decree from the U.S. Environmental Protection Agency (EPA)," Perham says.

In coordination with several other capital investment projects, the tunnel represents the most substantial singular piece of MDC's $2 billion Clean Water Project. But even alone, the project will drastically reduce the amount of wastewater flowing into the Hartford region's waterways.

"It will be reducing the sewage overflows to the South Branch of the Park River from about 50 per year to about one per year, and completely eliminate overflows to Wethersfield Cove, as per the enforcement action," Perham says. "It's going to significantly clean up the Park River, the Connecticut River and, ultimately, Long Island Sound."

According to Perham, the SHCST has been designed to meet the specific needs of the Hartford region.

"It's been engineered to regulate the number of overflows based on frequency and the volume of rain that we get here," he says.

To meet the project's goals, the tunnel will be able to hold enormous amounts of wastewater.

"The tunnel itself will have a capacity of a little over 40 million gallons," Perham says. "We are building a pump station that will be able to pump and treat that volume of water within a day or two."

Throughout the design and construction processes, MDC has worked closely with local community members to inform them about the ongoing process of the tunnel's construction.

"We have an aggressive outreach program to notify residents of when construction's happening," Perham says. "We are very responsive to any types of inquiries or complaints about construction. We're very proactive—as well as reactive—if we have to be."

OVERCOMING HURDLES

The process of building such a massive infrastructure project has been challenging for MDC since day one.

"We had to acquire property throughout the tunnel alignment in the city, so there were permitting challenges, real estate challenges and legal challenges," Perham says.

The tunnel will be 18 feet in diameter and will lie at a depth of roughly 200 feet below ground.

"We wanted to make sure that we were consistently in bedrock material to ensure consistent tunneling and reduce the risk of settling," Perham says.

The nature of the coastal region's bedrock means that MDC will have to bore at an extreme depth. Herrenknecht AG is responsible for supplying the project's tunnel boring machine (TBM).

Avoiding unmarked utility lines and other subterranean surprises has been another major challenge for the MDC team.

"Because it is an underground project, there is an inherent risk of encountering unmarked utilities at shallower depths," Perham says.

MDC is also planning carefully for work on a section of the tunnel that may pose further obstacles to the construction's progress.

"There is an area of the tunnel alignment that has some faulting and some rock of suspect quality," Perham says. "That could introduce ground water infiltration and present grouting challenges during tunneling."

MDC's construction team, according to Perham, is ready to meet those and any other challenges that they may face as they prepare for the tunneling stage.

"We feel that we have a good design and we have a good idea of the flow of water at that depth," he says.

A discovery of more contaminated soil than was anticipated at the launch shaft site also proved to be a setback for the tunnel contractor, a joint venture of Illinois-based Kenny Construction and Obayashi Corporation, a Japanese firm. This forced the team to come up with a creative plan to comply with the State's stringent environmental standards.

"Connecticut is a challenging state for managing regulated soil—it's very strict," says Perham. "We found some contaminants at the launch shaft site that were not expected at the concentrations and locations in which they were found, but we are moving through that now."

The leadership at MDC is proud to greatly improve the water quality of the Hartford region's major waterways.

"This is a unique project in the state of Connecticut," Perham says. "We believe it's going to be very successful."

KENNY TUNNEL DIVISION

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The Metropolitan District Commission

CONSTRUCTION MANAGER
Andrew Perham

LOCATION
Hartford, Connecticut