

Sewer Tunnel Replacement Project

Phase V - West Ashley Tunnel

Project Overview

Charleston Water System is replacing the network of deep tunnels that carry sewage to the Plum Island Wastewater Treatment Plant. The six-phase project began in 2001 and is now in the fifth phase.

The Need

The original tunnel system was built in the late 1960s to collect wastewater from shallow sewer lines and deliver it to the treatment plant. Over time, the highly corrosive nature of wastewater damaged the carrier pipe inside the tunnel and the tunnel structure itself. This deterioration left the tunnel at risk of failure, which would block flow in the tunnel and cause sanitary sewer overflows—a potentially serious threat to public health and water quality in the Charleston Harbor.

Phase V: The West Ashley Tunnel

To date, three sections of the existing tunnel system have been replaced and a fourth section added. Now, engineering work has begun on the fifth phase, the West Ashley Tunnel, which involves replacing the existing section of tunnel that serves West Ashley, Johns Island, Hollywood, and Ravenel.

The West Ashley Tunnel extends from the Plum Island Wastewater Treatment Plant to Albemarle Road and carries all wastewater from West Ashley, parts of Johns Island, Hollywood, and Ravenel to the treatment plant. The tunnel is structurally unsound and does not have enough capacity, which causes sanitary sewer overflows in the Byrnes Down and South Windermere areas during heavy rain events.



Inside the original sewer tunnel during construction, 1971.



This photo taken by divers inspecting the tunnel shows complete collapse of the tunnel structure. This section of tunnel has been replaced.



Inadequate tunnel capacity causes sewer overflows

This overflow occurred behind a West Ashley shopping center during a heavy rain event.

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West Ashley Sewer Tunnel Project

Criticality

Inadequate capacity in the existing West Ashley Tunnel creates a bottleneck that causes sanitary sewer overflows in the West Ashley area—particularly during heavy rain events.

Existing capacity: 19 million gallons per day (mgd)
Needed capacity: 48 mgd

Estimated Construction Cost

\$42.8 million. This includes construction of a new, 8,200 linear-foot tunnel and a 60-million-gallon/day (mgd) pump station at the treatment plant.

Project Timeline

Engineering is underway; complete project design in 2010.
Bid project and begin construction in early 2011.

