

10" Wastewater Pipeline Rehabilitation

South Texas



AT A GLANCE

A 110 LF deteriorated stormwater pipe needed replacing underneath a busy highway. Rather than excavation, Fuquay repaired and lined the pipe leading to a time-saving and non-disruptive solution.

CHALLENGE

A Public Works department in southern Texas needed to replace 110 LF of cast iron pipe running underneath a heavily traveled highway. The 10" wastewater pipe was located inside a steel casing and had suffered extreme deterioration from prolonged exposure to hydrogen sulfide gas. Some sections of pipe were missing entirely, and voids riddled the aged horizontal asset. In this situation, the traditional dig-and-replace method was ruled out as a viable option due to the impact on the traveling public. Additionally, other trenchless methods could not be considered because the voids in the pipe would require point repairs to be done on the existing host pipe.

SOLUTION

Fuquay was able to meticulously clean and televise the pipe in preparation for the lining process. During preparation, areas of severe corrosion were noted to avoid the threat of having equipment get damaged or lost down the large cavities of missing pipe directly under the highway. This is important because the retrieval process would have required a mass excavation effort—counterintuitive to the trenchless rehabilitation method. Fuquay crews successfully pulled the Alphaliner product into place and introduced air to the liner for expansion into the failing host pipe. With less than 8% elongation, the Alphaliner product was a perfect solution for this project. The liner was successfully cured in place without expanding into the pipe voids and mitigating the threat of a thinning liner that would lack structural integrity. Within 48 hours of Fuquay crews arriving on-site, the pipe was rehabilitated and returned to service without any trenches or a single lane closure.

KEY BENEFITS



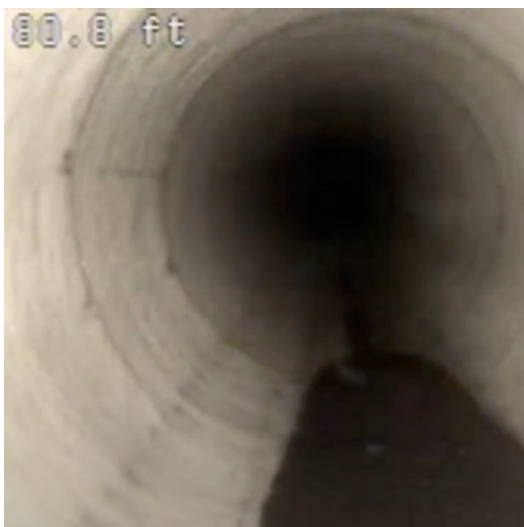
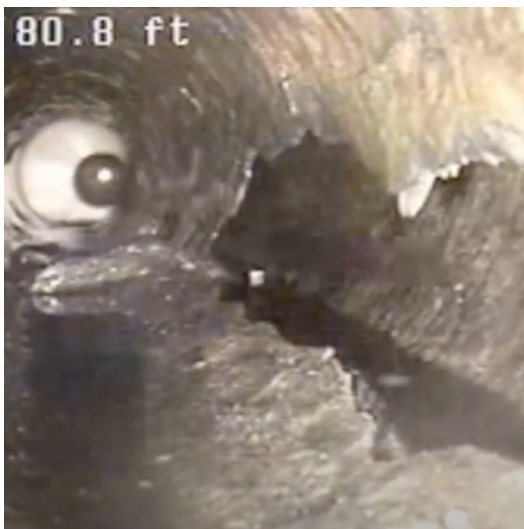
**Quick
Completion Time**



**No Traffic
Disruption**



**Avoided Point
Repair**



Elliptical Stormwater Pipe Rehabilitation

Central Texas



AT A GLANCE

A 150 LF partially-collapsed stormwater pipe needed replacing. Rather than excavation, Fuquay repaired and lined the elliptical pipe leading to a less messy, time-saving, and minimally-disruptive solution.

CHALLENGE

City officials in central Texas needed to replace 150 LF of corrugated metal stormwater pipe that had multiple failures and a collapsed section underneath the property of a homeowner on a busy, city street. The 58" x 36" elliptical-shaped pipe was located underneath multiple constituent properties in a densely populated neighborhood, creating a situation where access to the pipe was extremely limited. To dig and replace the pipe would be a messy, time-consuming, and costly task for city maintenance crews and a great inconvenience to the property owners. Further, the elliptical shape of the space reduced the amount of viable trenchless methods to repair the pipe. The rehabilitation process would require a custom-shaped liner engineered to withstand the load in the absence of an existing host pipe.

SOLUTION

Fuquay crews were able to clean and remove debris from the stormwater pipe via man-entry and cut out the failed sections of the pipe. The crews were also able to clean and stabilize the collapsed section of pipe well enough to pull the Alphaliner into place without damage to the liner or equipment. Additionally, they were able to navigate the accessibility issues to get air introduced for inflation. After the curing process, minimal annular space remained between the existing pipe and the new fiberglass liner which dispelled any potential capacity issues. The concrete sections surrounding the pipe were repaired to ensure a smooth transition of flow into and out of the stormwater pipe. Within 48 hours of arrival on-site, Fuquay crews had rehabilitated the pipe and demobilized without disturbing a single property owner.

KEY BENEFITS



Limited
Access



Minimal
Disruption



Innovative
Solution



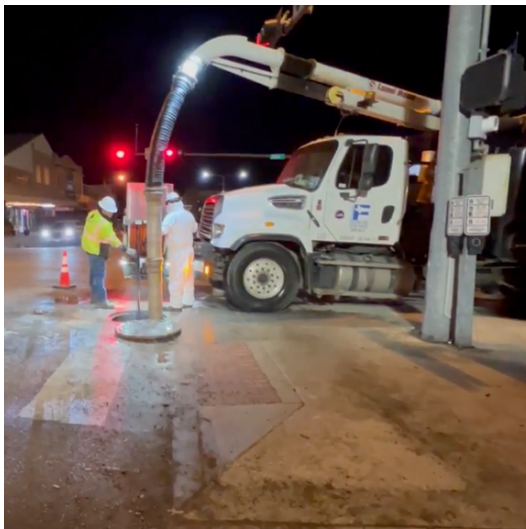
TxDOT Stormwater Box Culvert Rehabilitation

Hamilton, Texas



AT A GLANCE

A severely deteriorated box culvert on a busy Texas intersection needed replacing. Rather than excavation, Fuquay cleaned and relined the box culvert leading to a time-saving and minimally-disruptive solution.



CHALLENGE

In late December of 2022, TxDOT needed to replace the existing stormwater box culvert that was full of debris, failing, and near collapse. The structure was located underneath Hamilton's central downtown intersection of TX-36 and U.S. 281, with heavy, in-town traffic.

Due to the location of the culvert and the inability to detour traffic through the surrounding neighborhood streets, traditional open-cut replacement methods were not an option. Hamilton needed a solution that allowed commerce to continue by allowing heavy, frequent tractor-trailer traffic through the congested intersection without the high cost and long interruptions that are standard with traditional open-cut or dig-out approaches.

SOLUTION

Fuquay cleaned and relined the box culvert in less than 36 hours and kept traffic lanes open to the traveling public for the entirety of the project.

The box culvert was lined with a resin-impregnated fiberglass liner, which was then cured with UV light. Grout was then injected into the remaining annular space between the new pipe and the existing substrate.

The project was completed rapidly, with crews working overnight on December 5 and 6, 2022. The use of Reline America's UV-GRP Alphaliner 1800 is an excellent choice for this application. Installation is efficient, and the glass-reinforced liner allows installation in less-than-perfect circular or ovoid applications. The liner does not require host pipe integrity, meaning heavily deteriorated pipes such as this culvert are ideal candidates.

KEY BENEFITS



**Quick
Completion Time**



**Low Traffic
Impact**



**Trenchless
Rehabilitation**