

How Culvert Rehabilitation Is The Most Cost-Effective Solution For Municipalities

July 22, 2019

When culverts have structural damage or deterioration, engineers are often faced with the difficult decision of delaying repairs or committing to the major cost of complete culvert replacement. The combination of budgetary constraints and the disruption of road closures during culvert replacements often force engineers to leave culverts in disrepair until the problem can no longer be ignored.

Fortunately, OBIC's spray applied lining system offers an alternative solution that enables engineers to repair severely damaged culverts rather than replace them. With OBIC, the life of the existing culvert can be extended by approximately 50 years. The spray applied lining also causes minimal disruption to traffic and is more affordable than replacing the structure.

Challenge

Williams County, located in rural northwest Ohio, was recently in need of a solution to repair a metal culvert with severe corrosion issues. The structure was a great candidate for rehabilitation. Although the culvert showed signs of severe deterioration, the flow channels and other areas had not yet reached 8% deflection. At that point, the culvert would have been determined to be failing and beyond repair.

Fortunately, the county engineers recognized that rehabilitation would be a more cost-effective solution. They reached out to a local OBIC certified installer and made the decision to proceed with repairing the structure.

Working with the Williams County Engineer, OBIC installers inspected the culvert and developed a plan to overcome the challenges presented by the severely damaged structure. First, the crew would need to stop the water flow through the culvert. Then, they would need to develop a plan to field pave the bottom of the culvert due to the severe condition of the metal. This would have to be completed before they could spray a liner that would protect the metal and extend the life of the structure.

Process

Step one: Stop the flow of water

Crews began by redirecting the water that was flowing through the culvert. This was done by building a coffer dam using sandbags. Installers were then able to employ a bypass pumping system that would pump the water through the work area without stopping the normal flow. This allowed crews to complete the work on the structure without causing downtime or backups of the system.

Step Two: Pressure wash and clean debris

The bottom of the metal culvert had rusted away, creating a buildup of debris and roots. Before any rehabilitation could proceed, the OBIC installers needed to ensure that the entire structure was cleaned of dirt and debris. Once this was complete, the metal sides of the culvert were sandblasted to prepare the surface for the OBIC protective lining.

Step Three: Field paving

The next step for the OBIC installers was to field pave the bottom of the culvert with 3-4 inches of concrete. This concrete could not be poured flat, as that would take away from the volume of the culvert. Instead, installers needed the concrete bottom to match the contour of the culvert. During this phase, crews hung hoses and equipment from the sides of the culvert so they were out of the way and work could be completed efficiently.

Step Four: Quality Check

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OBIC 1200C is a high flexural modulus semi-structural monolithic coating for culvert and pipeline rehabilitation. Made to withstand extreme temperatures and heavy traffic, OBIC 1200C has excellent impact resistance and abrasion protection. Ideal for culvert repair, this spray applied lining system is formulated specifically for the rehabilitation of storm water, waste water, steel and concrete pipe repairs.

Life Expectancy

After the OBIC lining system was installed and cured, the culvert was carefully inspected for defects. Although the true test of the rehabilitation's effectiveness can only be proven by its performance, OBIC products are designed to extend the life of the culvert for approximately 50 years with no maintenance required. In addition to the extended life expectancy of the culvert, OBIC products also ensure greater structural integrity. As an added bonus, the entire project was completed with minimal impact to traffic flows.

To learn more about how OBIC products can rehabilitate your water or wastewater systems, [contact our team online](#) or call us at 866-636-4854.

