

When Does Manhole Rehabilitation Or Replacement Make Sense?



Every state and municipality – nationwide – must deal with the issues of an aging and deteriorating infrastructure. Deciding between manhole rehabilitation or its replacement tops the list of priorities.

The U.S. EPA estimates that there are about 20 million sewer and stormwater manholes in this country. Of these, it is estimated that more than 80% are in some state of disrepair or need immediate rehabilitation or replacement.

Many of these manholes are 50 to 100 years old and made of brick, concrete and other masonry materials. These structures are subjected decades of erosion, settling, invasive roots, extreme weather cycles and microbial-induced corrosion that, ultimately results in the need for rehabilitation or replacement.

These collapsed, blocked, or deteriorating manholes are not only a health and safety issue. The high replacement costs of these sewer lines and water systems places an added burden on a municipality's budget.

Fortunately, advancements in [trenchless technologies](#) have made manhole rehabilitation the go-to, cost-effective solution for most contractors, engineers, and municipalities.

What Is Manhole Rehabilitation?

Manhole rehabilitation involves the structural repair and restoration of the compromised sewer line versus the replacement of that line. Whether it's a minor leak or a major structural failure, the actual replacement of a manhole can be more time consuming and costly.

Replacement of a sewer line is a solution when considering an upgrade to a wastewater system or capacity requirements due to increased population or developments. Otherwise, the replacement is typically more expensive and disruptive to the community because it involves intensive traffic control, excavation holes, and possibly landscape and environmental damage.

A Solution That Restores And Protects

The corrosive and abrasive environment of municipal and industrial manholes and pump stations present a formidable challenge to an aging wastewater infrastructure.

The structural rehabilitation and restoration of a manhole ideally involves the application of a protective coatings that are used to help provide a permanent seal against corrosion, infiltration, and exfiltration.

These coatings, expertly applied, utilize a specialized high-strength, often proprietary blend of mortars, resins and additives to protect the concrete and brick from further deterioration while improving structural integrity and providing better durability and longevity than replacement or less-proven restoration methods.

Coating applications that restore and protect include:

Cementitious Linings

Cementitious lining products are sprayed (usually with one pass) or applied by trowel. Anti-microbial additives are used because they can offer a wide range of protection against damaging pH and high levels of hydrogen sulfide. For maximum results, these unique, high-strength formulations are blended specifically on site.

Epoxy, Urethane And Polyurea Spray Linings

Sprayed over cementitious products in repaired manholes, a topcoat that can be sprayed or troweled helps to create a chemical resistant epoxy barrier to provide additional protection against harsh elements within a sewer.

Corrosion-resistant coatings are also ideal for sealing the connection between the manhole's frame and the chimney. This is a major source of infiltration/inflow and a common problem due to freeze/thaw cycles and heavy traffic that constantly puts stress on the manhole frame and chimney connection and thereby causing the seal to break.

Ultimately, protective coatings provide a long-term, economical solution, and replacement costs are eliminated.

Chemical Grout Injection

This technique is primarily used in situations where structural cracks have formed allowing groundwater to seep into an otherwise sound manhole/chimney. Grouting fills any voids and helps to create a seal that is watertight.

When Does Manhole Rehabilitation v. Replacement Makes Good Sense?

The benefits of utilizing manhole rehabilitation processes versus replacement, include:

- The problems of infiltration/exfiltration are solved, sewer lines are impermeable.
- The processes used are safer and service interruptions are minimized, even eliminated.
- It's a more cost-effective and faster solution than manhole replacement.
- It's minimally invasive, generally less disruptive.
- Any need or expense for excavation is eliminated.
- The deterioration rate of the structure is halted, while the service life is extended.

Bottom line: The restoration and rehabilitation options that are available to restore aging and deteriorating manholes prove to be a cost-effective solution that also helps to extend the service life of the sewer line. It's a win-win.

In the increasingly competitive field of manhole rehabilitation, how do you find a contractor that is qualified to handle the scope of your manhole project?

Start by looking for a company that specializes in manhole rehabilitation and related restoration processes. You'll want highly skilled professionals that are well trained on manhole restoration methods and product application. You might also check to see if the materials used are eco-friendly, solvent free.

Since your requirements will likely involve several manholes, make sure that the preferred contractor has the capabilities and experience to complete the scope of the job and can complete it on time. Make sure, too, to ask for references.