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**Title:** Sewer Pipeline and Manhole Rehabilitation Projects: Keys to Success

**Theme:** Trenchless Design and Construction

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**Abstract:** Trenchless rehabilitation for gravity-flow sewer pipelines and manholes is the most widely specified form of sewer collection system rehabilitation. However, each project is unique and necessitates review of conditions and application of effective design practices to address rehabilitation needs. A few examples of conditions that require specific design attention include: offset joints or broken pipe segments; pipelines with high flows requiring bypass pumping; significant infiltration and/or inflow (I&I) contributions requiring pre-lining or point repairs; and work in heavily trafficked areas.

Planning and design for trenchless rehabilitation projects may utilize a variety of resources and analytical tools, including: aerial photographs and enhanced geographic information system (GIS) mapping for the sewer system and project vicinity; closed circuit television (CCTV) inspection to identify system defects; pre-rehabilitation assessment using NASSCO's PACP and MACP rating systems; and post-rehabilitation inspection and testing. These resources and tools aid in preparing comprehensive contract documents; however, each project also affects the public in some way. To minimize public impacts, each project should also consider public notification and outreach; stakeholder coordination; scheduling of work during hours accepted by the local sewer agency; and permitting with various stakeholders.

This paper presents GHD's evaluations for specific aspects of project design and construction challenges from projects completed over the last five years. Lessons learned and effective practices from each project are discussed in the context of providing owners with the best overall value for their near and long-term budget, as well as minimizing the potential for a sanitary sewer overflow (SSO).