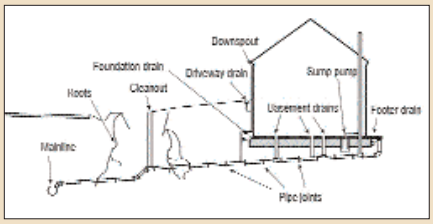
Trenchless Technology Center Newsletter

September 2005

TTC Completes Sewer Laterals Project for WERF

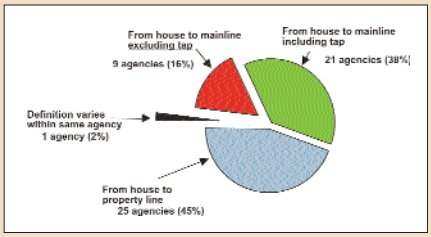
TTC, in collaboration with its project team partners, Black & Veatch and Wade & Assoc., has completed its study of the Cost-Effective Rehabilitation of Private Sewer Laterals for the Water Environment Research Foundation (WERF). The report, which at the time of writing this newsletter is undergoing final review by the WERF project advisory committee, is expected to be available from WERF during the fall. The project manager and principal author for the report is TTC research engineer Jadranka Simicevic. Over the past two years, she and the rest of the project team have been in contact with hundreds of different cities, product manufacturers and suppliers, contractors, consultants and government officials to collect the techniques that are available for use in inspection, assessment and rehabilitation of private sewer laterals and to review how to best overcome the obstacles in developing a sewer lateral rehabilitation program. The draft final report contains more than 400 pages, with approximately 170 tables and 350 figures.



Using the report, it is hoped that those who formulate policy recommendations (directors of public works agencies, city engineers, general managers, planners, financial managers, etc.) would be able to present, with appropriate justification, to politicians and the general public a sound course of action of how to manage problems with sewer laterals in their community. The report includes several subsections on different aspects of sewer laterals, including:

Survey

A total of 58 agencies filled in a web-based questionnaire with 55 responses from the United States and three from other countries. The information collected through the questionnaire process illustrates the diversity of administrative and physical arrangements for private sewer laterals - often even within local regions. The accompanying figure shows differences in the extent of private ownership of the sewer lateral.



Locating, Inspection and Condition Assessment

A variety of methods for locating, inspecting and collecting data on the performance of sewer laterals are described and examples given of how particular agencies have used the available methods and collected data to make condition assessments for sewer laterals.

Quantification of I/I from Sewer Laterals

The report describes methods that agencies can use to estimate the I/I in particular basins within their sewer collection system and how they can evaluate the effectiveness of completed lateral rehabilitation. Data collection for I/I analysis can be of different scopes (from smoke testing to long-term flow monitoring) and the analysis of collected data can vary from simple (empirical calculations of I/I, basic comparison of total measured flows on representative days) to elaborate (hydrologic/hydraulic simulation modeling of FM data).

Inflow Removal and Rehabilitation Methods

The widespread strong interest in I/I reduction and the resulting growing interest in sewer lateral programs has spurred the development and introduction of a variety of techniques for safe inflow source removal and lateral rehabilitation and replacement. While problems may occur with the any of the rehabilitation and replacement techniques presented, all of the methods can be applied successfully under the right conditions. Most municipalities report good overall success rates with their chosen technique(s). In most communities, the removal of inflow sources is an important first step.

Financing Issues

A public program designed to fix I/I and other problems in sewer laterals must either find the means to encourage or force private property owners to pay for the necessary improvements, or decide how to use public funds, public financing or public assistance to make the program happen. A range of possible approaches to such public agency financial support and encouragement of lateral repair programs has been identified in this report, along with brief descriptions of specific programs adopted by various agencies across the country.

Legal and Liability Issues

Testing and repair of private lateral sewers involves not only issues concerning access to private property, but also potential liability for personal injury or property damage resulting from performance of such work on private property, and restrictions on the use of public funds for private property improvements. These and other key legal and liability issues involved in working with the private portion of sewer laterals are explored in this report, with examples provided of the legal opinions and administrative arrangements adopted in some cities across North America.

Decision-Making

When looking at the cost-effectiveness of lateral rehabilitation, it is important to see it in a broad context. Avoidance of major capital expenditures for treatment plant or conveyance system upgrades, compliance with court mandates, and removal of development restrictions based on sewer capacity can all have a major impact on decision-making in addition to the direct cost reductions and improvements in system operation. The report reviews the decision-making and program development approaches in a variety of municipalities.

Principal investigator for the project was TTC director Ray Sterling. Other report co-authors together with Simicevic and Sterling were Richard Nelson and Ahmad Habibian from Black & Veatch, Alan Johnson from Wade & Associates, and Roger Tarbutton, assistant county counselor for Johnson County Wastewater District, Kansas. Thanks also go to the team's own project advisory committee comprising Erez Allouche, Dan Hegwald, George Riek, Jim Scott, Gunars Sreibers, and Mark Wade; and the WERF Project Advisory Committee comprising Tyler Richards, John Chorlog, John Sullivan, Richard Thomasson, Rick Baxter and Charles Vanderlyn; plus a special thanks to WERF project manager, Jennifer Simmons.

The results of the laterals study also will be presented during a workshop at this fall's WEFTEC conference in Washington D.C. The workshop is "W111 WERF: Collection Systems - Effective Practices and Innovations." The focus of this workshop is to discuss collection system-related work funded by WERF, U.S. EPA and others. In addition to the WERF laterals project, several other topics will be highlighted, including new tools such as the Asset Management Program Learning Environment (AMPLE), SCRAPS (Sewer Cataloging, Retrieval, and Prioritization System) and EPA's Sanitary Sewer Overflow Toolbox, plus current state-of-the-art investigation technologies for both gravity and force mains and combined sewer overflow (CSO) reduction using decentralized stormwater controls. Additional information on the workshop, WEFTEC and WERF can be found at www.werf.org and www.weftec.org.

TT Selected to Prepare a Sewer Laterals Training Module for NASTT

The NASTT Education Committee has selected the TTC proposal to prepare a training module on sewer lateral rehabilitation. The new NASTT module will join existing NASTT modules completed or in preparation by other groups on the topics of CIPP rehabilitation and pipe bursting. The module is planned to be completed in time for review at the NASTT No-Dig conference in Nashville, Tenn., at the end of March 2006. The modules are prepared so that consistent, non-commercial presentations can be made by various qualified presenters at NASTT workshops or events. The module will be developed for an eight-hour workshop with an introductory one-hour module that can also be used as a stand-alone presentation and the materials developed will include an instructor's manual and a course handout including supplemental and reference material. The project team includes Peter Larsen from Hazen and Sawyer and Jadranka Simicevic and Ray Sterling will lead the effort on behalf of TTC.

TT Welcomes New IAB Members

The TTC is pleased to welcome George Cowan, assistant commissioner of the design, infrastructure division, New York City Department of Design and Construction, and Keith Hanks, assistant division engineer of the City of Los Angeles Bureau of Engineering, Wastewater Conveyance Engineering Division, as new municipal members on the TTC Industry Advisory Board. Their experience and knowledge of the needs of the user community for trenchless technology will be invaluable in guiding the research and education efforts of the center.

TTC is also pleased to welcome back Tom Iseley to the IAB. Iseley has recently become president and chief operating officer at Sekisui SPR Americas LLC. Sekisui has developed the SPR rehabilitation method for non-circular pipes using a rigid PVC profile, which is spirally wound into an existing pipeline. Iseley was the founding director of TTC and has continued to support the TTC throughout his career.

The three new members will join all the existing members (see sidebar) in October for the main IAB meeting of the year held at the Louisiana Tech campus in Ruston.

Trenchless Technology Center *Newsletter*

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