

CONDITION ASSESSMENT OF WASTEWATER COLLECTION SYSTEMS



IMPACT STATEMENT

This project will assist wastewater utilities with the condition assessment of their deteriorating wastewater collections systems, and will support the U.S. Environmental Protection Agency's (EPA) Program Offices with addressing proposed capacity, management, operation and maintenance requirements to the National Pollutant Discharge Elimination System permits for the reduction of sanitary sewer flow (SSO) pollution.

BACKGROUND:

The Nation's sanitary sewer infrastructure is aging and deteriorating, with some sewers dating back over 100 years. Nationwide, there are more than 19,500 sanitary sewer collection systems serving an estimated 150 million people. The American Society of Civil Engineers Infrastructure Report Card gave wastewater infrastructure a D- grade for both their 2005 and 2009 reports. Nationally, approximately 40,000 SSO events, 50,000 sewer breaks, and 500,000 stoppages occur yearly and about 75% of the nation's piping systems are functioning at 50% capacity or less. To assist municipalities in assessing the conditions of their deteriorating wastewater collections systems, EPA initiated research to review and evaluate existing and emerging inspection and assessment technologies, and select and prepare them for control-condition testing and field demonstration.

DESCRIPTION:

The National Risk Management Research Laboratory, of EPA's Office of Research and Development, has funded this research project in support of its Aging Water Infrastructure (AWI) Research Program. The tasks of this project include: (1) identification and characterization of the state of the condition assessment technology; (2) preparation of protocols and site selection criteria and selection of innovative technologies for controlled-condition testing and field demonstration.; (3) identification and evaluation of innovative CCTV technologies currently used by more advanced wastewater utilities for transfer to utilities at large; and (4) research and evaluation of performance and cost of innovative and advanced assessment technologies, including wireless and remote sensing approaches developed in other industries according to their applicability for assessing the conditions of collection sewers.

EPA GOAL: Goal #2 - *Clean & Safe Water*; Objective 2.1.1- *Water Safe to Drink*

ORD MULTI YEAR PLAN: Water Quality (WQ), Long Term Goal - WQ-3 *Source Control*

RESEARCH PARTNERS:

Contractors: The Cadmus Group (subcontractors: The Louis Berger Group, Inc.; ADS Technologies, Inc.; and Red Zone)

EXPECTED OUTCOMES AND IMPACTS:

It is expected that this project will result in improved prioritization of critical infrastructure to inspect, monitor, and assess the performance of rehabilitation activities; and increased Agency effectiveness by establishing an adaptation research framework. The expected outcomes and impacts of this project also include reduced infrastructure failures and their adverse public health, safety, environmental, and economic effects by improved condition assessment technologies.

OUTPUTS:

Current and expected project outputs include:

- State of Technology Review Report: *Condition Assessment of Wastewater Collection Systems*: (EPA/600/R-09/049)
- Summary of technology forum discussions and findings
- Information transfer document on internal camera inspection technologies
- Information transfer document on advanced integrity monitoring technologies
- Quality assurance project plan for conducting field demonstrations and data analysis
- Report on field demonstration of technologies
- Final state-of-the-technology report
- Conference proceedings

RESOURCES:

Aging Water Infrastructure Research Program: <http://www.epa.gov/awi/>

EPA (2009). *Condition Assessment of Wastewater Collection Systems - State of Technology Review Report* (EPA/600/R-09/049) <http://www.epa.gov/nrmrl/pubs/600r09049/600r09049.pdf>

Urban Watershed Management Research: <http://www.epa.gov/ednrmrl/>

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Water Quality



Aging Water Infrastructure