WASTEWATER SYSTEM REHABILITATION

Sewer system rehabilitation is intended to reduce the flow of extraneous storm water into wastewater collection facilities. In order to determine the economic feasibility of sewer system rehabilitation, infiltration/inflow studies are conducted to quantify and locate sources of infiltration and inflow.

The principals of our firm have played a key role in the development of methodology for conducting such studies, recommending rehabilitation programs, and developing plans and specifications for such programs. The following is a brief description of the nature of the studies and rehabilitation projects undertaken in several of our client cities.

SPRINGDALE, ARKANSAS

In 1984, a Sewer System Evaluation Survey (SSES) was performed by our firm for the city of Springdale. In 1985 an additional study focused on the Clear Creek Drainage Basin. The purpose of these studies was to mitigate overflows and bypasses within the Springdale Wastewater Collection System and, specifically, the Clear Creek Basin. Subsequently, the city implemented rehabilitation and reconstruction programs for much of the Clear Creek Basin using these studies as a guide.

Improvements, including two new lift stations, new force mains, and a one million-gallon storage basin were completed in 1987. The design of these facilities was based on the assumption that approximately 50 percent of the infiltration and inflow could be reduced by rehabilitation. Further, the design was based on a storm event of 1¾ inches. Since construction of these facilities and institution of the rehabilitation program, the occurrence of overflows in this basin has been reduced from an average of approximately 35 overflows per year for the four years prior to the rehabilitation and reconstruction of the facilities to two overflows in 1988 and one overflow in 1989.

BENTONVILLE, ARKANSAS

Sanitary sewer system rehabilitation was completed in 1983 on cost-effective inflow leak sources for the entire city.

McGoodwin Williams & Yates was involved in the city's continuing rehabilitation program. Services have included the development of specifications and assistance in procuring long-term flow monitors. Information was retrieved and analyzed to provide information upon which to base future cost-effective rehabilitation recommendations. MWY also developed specifications and assisted the city in procuring a television and grouting unit for sewer system rehabilitation.

Based upon flow monitoring data obtained, design and construction of new sewer facilities to mitigate overflows and bypasses, as well as to provide service to new areas, were completed. Aerated equalization basins were included as part of the project. These efforts were component parts of a project financed under the Revolving Loan Fund program administered by the Arkansas Department of Pollution Control and Ecology.

ROGERS, ARKANSAS

MWY developed a wastewater overflow mitigation plan which included the construction of interceptor sewers, flow diversion, pumping and flow equalization facilities. Assistance was provided in the procurement and installation of long-term flow monitoring equipment and in the acquisition of critical flow data within the wastewater collection system. Data was analyzed and used in recommending cost-effective rehabilitation, replacement or new construction to mitigate overflows and bypasses.

FAYETTEVILLE, ARKANSAS

MWY completed a detailed study of that portion of the sewer system which lies within the White River drainage basin. The purpose of the study was to perform detailed evaluation of infiltration and inflow problems and make recommendations for extensive rehabilitation of the sewer system. The study included approximately 20 flow monitoring locations using equipment supplied and maintained by ADS Services, Inc., of Huntsville, Alabama.

Southeast Environmental Services, Inc., of Murfreesboro, Tennessee, provided field services for tasks such as manhole inspection, smoke testing, cleaning, and televising of the sewer system. Some 500,000 linear feet of the system were evaluated. The project was set up in such a way as to correspond with the best meteorological events required for the different phases of testing. Upon completion, the city entered into an agreement with MWY to provide engineering services in connection with a portion of the recommended rehabilitation work. This work was completed in 1993.

Project coordination, data analysis, and evaluation for the sewer system study were performed by MWY. Our firm has, in subsequent phases of the project (by use of state-of-the-art software), developed a model of the wastewater system in the White River watershed. This model will be used to evaluate alternative methods of dealing with flows at various levels of rehabilitation in order to determine the most cost-effective combination of sewer system rehabilitation and increased line capacities.

HARRISON, ARKANSAS

In April 1990, detailed flow monitoring began using state of the art monitoring equipment furnished by ADS Services, Inc., of Huntsville, Alabama. The detailed flow monitoring consisted of 10 monitoring stations designed to collect data from the entire wastewater system. This monitoring identified several mini-systems which were receiving substantial amounts of inflow. MWY has made recommendations concerning a long-term sewer system evaluation and rehabilitation program to be instituted by the city.

SPECIALIZED AREA OF STUDY

Our firm is proud of the expertise we have developed in this specialized area of study. We believe our experience, as well as our ability to coordinate and analyze the data obtained through the use of specialized sub-consultants, allows logical evaluation of the various methods of dealing with any extraneous flows entering a wastewater system.

For your convenience in review, we have also included more detailed information in the following three tables:

- Wastewater Collection System Infiltration and Inflows (I/I) Studies
- Sewer System Evaluation Surveys
- Sanitary Sewer System Rehabilitation Projects

WASTEWATER COLLECTION SYSTEM INFILTRATION/INFLOW (I/I) STUDIES

CITY	PROJECT	LENGTH (Feet)	RECOMMENDATIONS
Fayetteville	I/I	951,000	Phased Rehabilitation and Demonstration Project
Fayetteville White River Watershed	I/I	500,000	SSES/Rehabilitation
Springdale	I/I	742,000	Phased Rehabilitation
Green Forest	I/I	98,600	SSES and Large-Scale Rehab Not Recommended
Marshall	I/I	56,000	Rehab Work Recommended
Berryville	I/I	122,000	SSES and Large-Scale Rehab Not Recommended
Harrison	I/I	335,000	SSES and Large-Scale Rehab Not Recommended
Harrison	I/I	335,000	Flow Monitoring Recommended
Bentonville	I/I	274,000	SSES Recommended
Jonesboro	I/I	607,000	Rehab Recommended (City has begun phased sewer system evaluation and rehabilitation.)
Jonesboro West	I/I	508,000	SSES and Large-Scale Rehab Not Recommended
Lincoln	I/I	69,000	Limited SSES followed by Sewer System Rehab to Eliminate Inflow Only
Rogers	I/I	520,000	Limited SSES followed by Sewer System Rehab to Eliminate Inflow Only
Prairie Grove	I/I	70,000	SSES and Large-Scale Rehab Not Recommended

SEWER SYSTEM EVALUATION SURVEYS

CITY	PROJECT	LENGTH (Feet)	RECOMMENDATIONS
Fayetteville	SSES	951,000	Phased Rehabilitation and Demonstration Project
Fayetteville	White River Watershed System Study	500,000	Rehabilitation Recommended
Springdale	SSES	742,000	Phased Rehabilitation
Marshall	SSES	56,000	Rehab Work Pending
Jonesboro	SSES	607,000	Above Ground Physical Survey
Harrison	Partial SSES	334,000	Above Ground Physical Survey
Farmington	SSES	92,000	Phased Rehabilitation