11 Community Utilities

Goals

- Southfield should provide and maintain a high quality, cost effective, energy and resource efficient public water supply, public wastewater service, storm water management and household refuse and recyclables collections for the community; and serve as a warden for the installation of telecommunication facilities and power transmission lines.

Introduction

Water. Water is provided to the city of Southfield by the Detroit Water and Sewerage Department (DWSD) via the Southeast Oakland County Water Authority's (SOCWA) pumping and distribution system. SOCWA's governing body is a Board of Trustees consisting of one representative from each member community.

The SOCWA water system has two primary connections to the DWSD water system. These are near the intersections of 12 Mile Road and Inkster Road, and 14 Mile Road and Lahser Road.

There is a third connection to DWSD near the intersection of Greenfield Road and 8 Mile Road. Because this connection does not have as much available hydraulic grade elevation, this flow is pumped into the SOCWA system through SOCWA owned and operated pumps. These pumps are only used during periods of high demand in the summer when the two primary connections cannot be utilized any more due to their high flow limits.

The SOCWA system has five ground storage reservoirs with a total capacity of 29.5 million gallons. Water is pumped by seven pump stations out of storage and into higher terrain. It has three elevated water storage tanks with a total of 3 million gallons. SOCWA delivers water through approximately 54 miles of water main with diameters ranging from 16 to 48 inches leading to 48 metered connections to its 11 member communities.

Between July 1995 and February 2006, the City purchased an average of 13.26 million gallons per day from SOCWA. During this period the amount of water purchased and billed to individual Southfield customers trended downward. The difference between the amount of water purchased from SOCWA and the amount Southfield bills to its customers represents water loss. The average water loss in the City's water distribution system has been decreasing. The average water loss dropped from 9.1 percent in 1999 to 6.7 percent in 2007. This is less than the typical 10 to 12 percent average water loss for a community of Southfield's size.

Southfield's water usage breaks down approximately as follows:

Figure 11-1: Water Customer Class

Customer Class	Usage
Residential	68%
Commercial	32%
Total	100%

The 2007 Water Master Plan Update projected that average water consumption in the City would not change significantly over the next 20 years.

The City's water system has two pressure districts. The high-pressure district is located in the northwest corner of the City in the area generally bounded by 11 Mile Road, Telegraph Road, and the City's limits. This district is created through two connections to SOCWA high-pressure mains. These connections are SO-10 and SO-11. City system demands from the SO-11 connection flow through a Pressure Reducing Valve (PRV). Another PRV exists in the City system along Inkster Road near the intersection of Inkster Road and 11 Mile Road. This PRV allows connection between the high-pressure district and the remainder of the City's water distribution system.

The City's distribution system contains no storage tanks or booster stations.

The most recent Fire Protection Classification Improvement Statements for the City were prepared by the Insurance Services Office (ISO) in 2002. The City's Fire Protection Classification is rated as 3, which is considered to be a good fire protection rating for a city of Southfield's size.

Sanitary and Combined Sewers. There are approximately 217 miles of sanitary and 40 miles of combined sewers in the City. New sanitary sewer lines are being installed in many areas, allowing more properties to connect to the sanitary sewer system.

The City contracts with the Oakland County Drain Commissioners Office for sewage disposal via the DWSD sewage system.

Storm Water. The City's 1999 Storm Water Permit Application and 2001 Storm Water Management Master Plan contains detailed information on the City's storm sewers.

There are six drainage districts in Southfield as follows:

Drainage District	Drains to:
Twelve Towns	Ultimately to the Clinton River
8 Mile	Rouge River
Evans Branch	Rouge River
Main Rouge	Main branch of the Rouge River
Pebble Creek	Rouge River
Rummell Drain	Rouge River

The City covers approximately 26.2 square miles (16,768 acres) with 21.7 square miles within the Rouge River Watershed and 4.5 square miles within the Clinton River Watershed.

There are approximately 34 Oakland County drains within the City.

The majority of the City's sewer system consists of separate sanitary and storm sewers. However, some areas of the City are in the Twelve Towns Drainage District which is a combined sanitary and storm water system.

There are approximately 6,000 storm and combined system catch basins that the City is responsible for, 4,000 catch basins on private property that are privately maintained and 2,000 on federal, state and county road rights-of-ways in Southfield. Of the City's 6,000 catch basins, it cleans approximately 3,000 each year.

The Main Branch of the Rouge River and its tributaries and the Clinton River are the receiving waters for Southfield's 26 square miles of surface drainage. In Southfield there are 40 miles of natural watercourses including nine miles of the Main Branch of the Rouge River and over 31 miles of Rouge River tributaries.

Fiscal Year 2006/07 Water and Sewer Expenses. Recommended water and sewer fund expenditures in the fiscal year 2006/07 budget totaled approximately $35 million. This included approximately $3.4 million in capital projects. Water and sewer expenditures are approximately 26 percent of all City expenditures.

Recommendations

Water. The 2007 Water Master Plan Update recommended the following capital improvements to the City's water infrastructure. Details of these proposed improvements are included in Appendix F of that report.

- Phase I Improvements (Cost estimate $2,750,000).
- Phased development of a high-pressure district in the Northeast section of the City.
- Implementation of pilot pipe rehabilitation practices.
- Preparation of a Michigan Department of Environmental Quality Drinking Water Revolving Fund Project Plan for the remainder of the City based on the pilot rehabilitation program.
- Phase II Improvements: Replace and/or rehabilitate various old, small diameter, cast iron water mains with a history of water main breaks.

The report also recommended the following operational improvements:

- Develop a valve maintenance program, including knowing the operational condition and location of valves. This is especially needed in sections 11 through 13 of the City to enable the successful implementation of the recommended high pressure district. The City should conduct a field reconnaissance to locate and identify valve conditions in these sections. The City should use Global Positioning Systems (GPS) for these valves and incorporate their locations into the existing Geographic Information Systems (GIS) database.
- Explore the use of trench less technologies to rehabilitate water mains in priority districts.

- Record and manage data about pipe size, soil conditions, material and other pertinent information for use in future decision-making processes.
- Develop a computerized maintenance management program.
- Establish data viewing terminals or acquire SCADA (supervisory control and data acquisition systems) data from SOCWA on a regular interval. By documenting flow rate and pressure variations, the City will improve the flow management of the water distribution system.
- Because the SO-11 connection meters approximately one-half of all the water used in the City, this connection as well as the water mains connected to it, should be regularly investigated and maintained.

Storm Water. The City's 2001 Storm Water Management Master Plan recommended that each of the City's 6,000 catch basins be inspected and cleaned at least once a year and each connecting storm sewer line should be cleaned at least every five years.

The City's annual Rouge River Clean Up Day project should be supplemented by additional clean-up efforts at other times of the year to allow for a wider pool of volunteers. The City should also develop an "adopt a section" program for the Rouge River. Businesses, churches and other groups would then maintain and enhance their section either through the June event or at other times of the year. The City should consider more bank stabilization projects using contractors, seasonal college labor, court probation workers and volunteer groups.

The City should review the feasibility of establishing a viable, dedicated funding source for its storm water management program, such as a storm water utility.