

City of Rochester Hills

**SWOT ANALYSIS
FOR THE SEWER AND WATER FUND**

STRENGTHS
WEAKNESSES
OPPORTUNITIES
THREATS

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WATER AND SEWER FUND

STRENGTHS

1. As of 12/31/2005, the fund had assets in excess of \$128 Million Dollars.
2. The sewer and water system is relatively young (90% of the system has been installed in the past 30 years).
3. The life expectancy of the system is 50 to 100 years depending on the type of materials used and the construction technique.
4. Rochester Hills has a low percentage of add on operational cost when compared to other DWSD communities. Rochester Hills ranks 22nd out of 114 Communities when comparing the percentage added to the DWSD charge that users pay.
5. The rate of water line failures is minimal. 10 water main repairs in 2005.
6. Rochester Hills has high construction standards for sewer and water extensions including:
 - i. Experienced construction inspectors.
 - ii. Thorough construction documentation.
 - iii. Certified water distribution technicians.
7. High Water Quality with regular inspection and testing.

WATER AND SEWER FUND

WEAKNESSES

1. Maintenance activities could be improved.
 - Strengthen the valve maintenance program.
 - Compile a GIS survey of residential, commercial and mainline water valves.
 - Develop a Leak Detection Program
 - Develop a Water Audit Program
2. An asset management program is needed to properly manage the maintenance and replacement schedules for the system.
3. Dependency on the Detroit Sewer and Water System rate structure. The DWSD system is aged and deteriorating faster than repairs and replacements are being made. The DWSD water distribution and wastewater collection system is in need of massive replacement or rehabilitation funds. The needed funds will be collected from users of the system. Methods for reducing the cost of wastewater treatment are limited.
4. Inadequate facilities for equipment and personnel. The building was designed for 15 employees; the current number of personnel using the facility is near 40. Millions of dollars of equipment are exposed to the elements, reducing the life expectancy and increasing operational inefficiencies and difficulties.

WATER AND SEWER FUND

OPPORTUNITIES

1. **Stabilize future rate increases.** An examination of other nearby communities indicates that those experiencing large rate increases were older communities that had not set aside monies for replacement of water and sewer lines. The cost of replacement was included in either revenue or debt financing which greatly increased the amount needed on an annual basis for operations and reconstruction. Hence, large rate increases were necessary. Rochester Hills is in a position now whereby a 20-year window exists before large replacement dollars are needed. By setting aside small amounts now, future rate increases can be minimized to the cost of operations, which will generally go up at a rate similar to inflation.
2. **Replacement fund.** There is adequate time to continue the process of securing future replacement funds by capturing connection fees that users pay to connect to the system. Another option is to collect donations from large developments for the right to connect to the system and small annual fees to users for future replacement funds.
3. **Reduce operating expenses with bulk purchase of water utilizing water storage.** A recent study by ARCADIS-Consultant to the City of Rochester Hills, indicated that \$ 1.18 million could be saved annually by purchasing water at reduced rates during low flow periods of the day, storing the water in reservoirs, and pumping out of the reservoirs during high flow periods. The estimated cost for construction of reservoirs, pumping stations and engineering services was placed at \$8.0 million. The cost saving under optimal conditions equaled \$1.18 million per year, at current rates.

SEWER AND WATER FUND

THREATS

1. Massive future rate increases. An example of an unsatisfactory replacement program is the Local Road Fund. The Local Road Fund is in need of \$52 million to raise the condition of all the roads to fair. This equates to roughly 3 mills per home for ten years. If the Sewer and Water system is allowed to deteriorate without establishing a replacement fund, large resources will be needed in a short period of time to ensure the safety and reliability of the system. Unlike roads where drivers can take different routes or drive around potholes, a leak in the system can flood homes, damage roadways and interrupt services needed to maintain the health, safety and welfare of the community.
2. Multiple system failures. The Rochester Hills water system was constructed in a short period of time when compared to the development of many large cities in Michigan. Because the system was installed in a short time frame, the need for replacement funds will fall into a pattern similar to its construction time line. This indicates that large reconstruction projects will need to be programmed in a short period of time. If that fails to happen, the frequency of system failures will increase exponentially leading to service interruption and damage to private property.
3. Vulnerability to Terrorism. A recent Vulnerability study indicated the need for ongoing assessments and emergency preparedness programs. Of critical importance is the design and security of above and below ground infrastructure. The current response model is based on a three concepts: DETER, DETECT AND RESPOND. This model proposes that buildings and access sites be hardened with new technologies intended to minimize access by those wishing to disrupt system operations-DETER. Secondly, detection systems are needed to identify security failures in a timely and accurate manner-DETECT. Finally, the ability of emergency response needs to be planned and exercised to ensure protection-RESPOND. Vulnerability Assessments will be needed on a regular basis to protect the system from acts of terrorism.

Conclusion

There are new and proposed regulations that require infrastructure and asset managers to be proactive with the maintenance and replacement of the City's infrastructure. The CMOM (Capacity Assurance, Management, Operation, Maintenance) regulation will mandate the City to demonstrate that we are proactive and adequately maintain the wastewater collection system. The City needs software tools to demonstrate that we are properly maintaining the wastewater collection system's capacity, protecting the system's integrity, and taking preventive measures to reduce future problems. The City's GIS currently helps us with inventory and maintenance but does not go far enough.

Operating a safe and reliable system as well as cost effective asset management is dependent on proactive maintenance, inventories mapping, and cost tracking. Use of an asset management system will better manage risks and defense from claims associated with the operation of a system.

The City needs an asset management program that will track infrastructure repairs and their costs, identify heavy maintenance prone areas, optimize spending, predict future failures, schedule maintenance, and assist in determining the timing for cost effective replacement or rehabilitation.