

DWSD Rates



A New Regional Paradigm **Working Together to Manage Water Rates**

The purpose of this document is to help you understand why your water rates have been increasing and what you and your community can do to slow the increase. The primary cause of these rate increases can be found in declining water usage by households and businesses. As everyone in this region knows, we have been in a recession since 2002. During much of this period, water rates have increased. Unfortunately, as our economy has fallen into what many call a "One State Depression," more rate hikes will be needed to sustain viable and financially responsible utilities and local community water departments. A new paradigm of collaboration, peak hour demand management, and responsibility (CPR) will be needed to navigate through this storm. We must continue to work together to manage water rates and breath new life into a region that depends on a reliable water infrastructure to grow and become stronger.

In these tough economic times, urban water utilities are struggling to balance two opposing forces – affordability and revenue generation. Utilities in older cities like Chicago, Detroit, and New York need revenue to maintain aging systems, but the longer the recession continues, the more difficult it is for water customers to shoulder rate increases. This is the “affordability” challenge that confronts utilities and community water departments. According to a recent study published by the American Water Works Association, *even though there are likely to be a number of areas where utilities can cut costs or strategize to make service more affordable, there will be difficult decisions regarding staffing, rates, and long-term goals.*

If you live in Metropolitan Detroit, most likely you are one of the over 4 million people who get your water from a combination of providers including the City of Detroit and your local community. The City of Detroit through its Water and Sewerage Department (DWSD) pumps treated water from the Great Lakes to your community, and then your local water professionals deliver it to your home, apartment, business, school, hospital, etc.

A TRACK RECORD OF KEEPING RATE INCREASES IN CHECK

Since 2006, the Consumer Price Index (CPI) increased annually at 4.2%. During the same period, DWSD water rates for suburban customers increased annually by an average of 6%. DWSD’s increases were mainly driven by capital improvements of nearly \$500 million in upgrading aged and undersized water pump stations and piping. Many costly upgrades, (which were in the DWSD master plan for years) were either mandated by evolving water treatment requirements and regulations or were needed to rehabilitate the aging elements of the system to maintain current levels of service.

DWSD and your local community have worked hard to keep rate increases at or near the rate of inflation. For example, DWSD’s operations and maintenance costs are at the same level as they were in 2002. This stability has been achieved despite significant increases in energy and chemical costs. Major cost reductions have been achieved through overtime reduction, staff attrition, hiring freezes, reducing internal vehicles, and many efficiency improvements in water treatment and production.

DWSD has made critical electrical improvements to the water treatment plants and booster station systems, including installation of variable frequency drives (VFD) to reduce energy consumption. VFD systems increase efficiency by adjusting the speed of the electrical motors by modulating the frequency of the supply voltage to meet pumping demands.

DWSD’s Water Treatment and Distribution System



The five DWSD water treatment plants (WTPs) distribute water through 3,400 miles of water transmission pipes using 22 pumping stations and 17 storage reservoirs, all designed to deliver adequate pressure to customers all year: from freezing winter mornings to sweltering summer days. The local community water systems receive water from DWSD’s transmission mains and then send it to their customers’ doorsteps through distribution systems individually operated and maintained by individual water departments. These distribution systems range in size and complexity, based upon population, industry, and fire suppression demands. As in the DWSD transmission system, these local systems often provide meter pits, pumping stations and storage reservoirs, in addition to hundreds of miles of pipe required to deliver the water from the DWSD connections to individual users.

Exhibit 1: Drivers of DWSD's 2009 Rate Increase of 8.9%

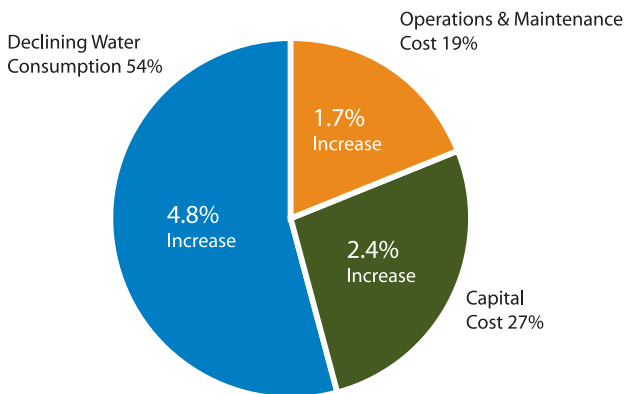


Exhibit 2: Water Sales Decline (2005-2009)



Source: The Foster Group, SEMCOG

THE DAM BROKE IN 2009

Despite a long term cost control strategy at both DWSD and local community levels, negative economic and demographic factors are making it more and more difficult to rein in costs. In 2009, DWSD had to raise its rates an average of 8.9% for its suburban community customers. These communities then passed much if not all of this increase to their customers—households, businesses, schools, etc. Exhibit 1 shows that over half of DWSD's rate increase was driven by declining demand for water, while capital costs and Operations and Maintenance costs also contributed to a lower extent.

The decline in water sales is correlated with our region's population and employment losses. Over the last five years, water sales have declined more than 15%, and Exhibit 2 shows the associated declines in population and employment in our region.

The fact that water rates increase when sales go down may seem backwards. However, about 80% of the costs of running a major utility are fixed. These costs include debt repayment, which comprises 50% of DWSD's overall expenses, and facility costs. Fixed costs are difficult to reduce without sacrificing the mission of providing safe, potable water. For example, DWSD can't decide to inadequately treat its water, to shut down a water plant three days a week, to close off water mains or to refuse to pay principal and interest on its debts. This large proportion of fixed costs means that DWSD has to raise its rates 4% for every 5% reduction in water sales.

Similar to DWSD, local communities are facing the same fixed cost pressure because they have distribution systems that must be maintained and debts that have to be repaid. They too have had to raise rates to compensate for declining revenues. Often times, these rate increases can show up as fee increases for services like disconnection charges, after hour calls, hydrant relocations, etc.

2010 AND BEYOND: MORE PRESSURES ON WATER RATES EXPECTED

Increasingly, utilities find themselves between a rock and a hard place. Their aging systems need more revenue for pipe and plant rehabilitation, but they can't fund these sustainability projects without raising rates in hard economic times. The impact of declining water sales on revenue was already discussed.

To make matters worse, water utility experts expect Operations and Maintenance costs to rise faster than inflation over the next decade. This only magnifies the challenge to supply potable water at a reasonable cost.

Rising energy costs impacts utilities. In 2008, water utilities across the nation were shocked at the rising cost of water treatment chemicals due to the high cost of oil. As oil soared to \$147 a barrel, the cost of chemical production, transportation, storage drums, and containers also soared. Price increases ranged from 200% to 430% for fluoride and 30% to 50% for chlorine. Of course, oil prices have fallen in 2009, but most "Oil Patch" experts believe prices will start rising again when China and India restart their fast growing economies and increase their oil consumption.

As DWSD continues to borrow money to maintain its aging infrastructure, it will likely face tougher capital markets. In the last six months, interest rates on 10-Year Treasury bills have increased almost 50%, from 2.3% to 3.6%. Economists believe that US Treasury rates will increase even more as our country floats additional debt to fund current and projected deficits.

Even successful programs for infrastructure funding such as the Clean Water State Revolving Fund (SRF) and Drinking Water Revolving Fund (DWRP) may feel the financial stresses. These programs, regularly used by DWSD and local communities, rely heavily on low interest rates, currently under 3%. Inevitably, the capacity of these programs to maintain lower rates will be challenged. Further, the ability for utilities to take on even lower interest rate loans is not clear.

Despite expected increases in energy costs and capital costs as cited above, the biggest factor in rate increases will occur because too many Metro Detroiters are using less water, namely turning off their sprinklers! Landscape irrigation is a significant part of the summer season water usage. During hot and dry summer periods, water usage is much greater than for periods of cooler and wet weather. Current weather patterns have been toward cooler weather, more precipitation days and more rainfall. These conditions in combination with the economic downturn have lowered summer outdoor water usage.

Wall Street Crisis Impacted Bond Market



Prior to 2008, DWSD carried \$500 million in variable interest rate debt (bonds) for water projects. Variable rates reduced the interest rate by 0.5%, and DWSD saved approximately \$40 million. But like everyone else, DWSD is not immune from the Wall Street crisis. In February 2008, DWSD's bond insurance company was downgraded during the Bear Stearns meltdown. This caused the bond's interest rates to spike overnight from 4.8% to 9.2%. DWSD promptly renegotiated the debt to a fixed rate of 6.2%. However, interest rate costs will still increase \$5.5 million per year. This increase is reflected in the capital costs factor in Exhibit 1.

POWERFUL MACROECONOMIC HEADWINDS ARE AGAINST US

The bottom line is that utility costs are increasing while the customer's ability to pay is decreasing. The future will only bring more of the same unless a significant economic recovery occurs in our state. There are several macroeconomic causes that neither DWSD nor your local community can solve alone: declining population, employment, and regional purchasing power.

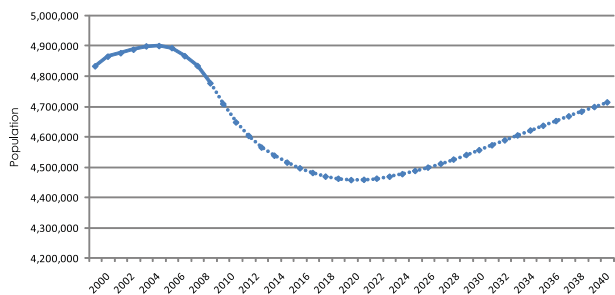
Exhibit 3: Typical Residential Water Usage		
Use	Gallons Per Capita	Percentage of Total Daily Use
Toilets	18.5	27 %
Clothes Washers	15.0	21 %
Showers	11.6	17 %
Faucets	10.9	16 %
Leaks	9.5	14 %
Other Domestic Uses	1.6	2 %
Baths	1.2	2 %
Dishwashers	1.0	1 %
Total	69.3	100 %

1 Population Decline Will Continue in the Region

Population drives water consumption and as population declines in a region, less water will be consumed. According to the American Water Works Association, the average American uses 69.3 gallons a day in water. The usage is displayed in Exhibit 3.

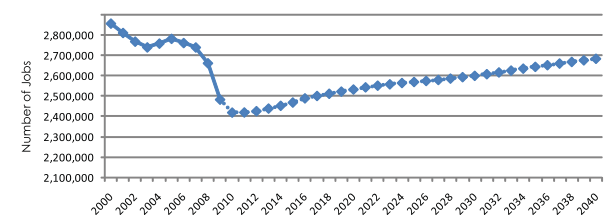
According to the Southeastern Michigan Council of Governments (SEMCOG), population levels will continue to decline over the next 10 years as the economy shifts away from auto manufacturing. The forecast in Exhibit 4 shows almost 300,000 less people in the region in 2020. 300,000 fewer people translates into an annual decrease in water consumption of 20.8 million gallons a day (300,000 people times 69.3 gallons per day) or almost 6.5 billion gallons yearly. As DWSD currently pumps about 200 billion gallons a year, this decline could cause a 3.2% decrease in overall water consumption.

Exhibit 4: 2000-2040 Population Forecast, Southeastern Michigan



Source: SEMCOG

Exhibit 5: 2000-2040 Employment Forecast, Southeast Michigan



Source: SEMCOG

2 Total Employment Will Continue to Decline in the Region

Total employment affects the amount of people that can live sustainably as well as their tendencies to use water. Exhibit 5, SEMCOG's latest employment forecast, shows additional decline in the number of jobs. It projects that Michigan won't get back to the employment levels of the year 2000 until several decades from now, implying that water consumption is in the midst of a long term decline (and a lengthy recovery).

3

Regional Buying Power is Declining

While auto manufacturing is in decline, the greater region is experiencing growth in other employment sectors as displayed in Exhibit 6. However, these additional jobs typically yield less income than the jobs that are being lost (Exhibit 7). This implies that the ability to pay (not just water and sewer bills, but all forms of consumption) is declining.



Southeast Michigan is almost 700% more reliant on the auto industry than the rest of the United States, making the region particularly sensitive to such large fluctuations in the auto sector.

Exhibit 6: Top 10 Growing Industries in Michigan 2002-2007

Industries	Growth in Jobs	% MI Change	% US Change	MI 2007 Average Wage
Temporary help services	14,231	18.0%	17.1%	\$25,283
Full-service restaurants	12,206	10.0%	13.9%	\$13,427
General medical and surgical hospitals	10,131	5.8%	8.1%	\$45,558
Offices of physicians, except mental health	9,725	17.1%	11.4%	\$70,223
Elementary and secondary schools	7,685	41.1%	17.8%	\$25,235
Home health care services	6,524	29.3%	35.4%	\$28,269
Limited-service restaurants	5,547	5.1%	12.2%	\$11,153
General freight trucking, long-distance TL	4,533	57.8%	7.0%	\$40,033
Professional employer organizations	3,770	7.0%	-13.0%	\$34,378
Other individual and family services	3,465	40.4%	21.3%	\$26,199

Source: Bureau of Labor Statistics (Don Grimes)

Exhibit 7: Growing and Declining Industries in Michigan, 2002-2007

	Number of Industries	Employment					MI 2007 Average Wage
		2002	2007	Job Growth/ Decline	% MI Change	% US Change	
Growing	419	1,493,461	1,698,384	204,923	13.70%	12.20%	\$36,000
Declining	641	2,224,534	1,820,614	-403,920	-18.20%	0.60%	\$50,000

Source: Bureau of Labor Statistics (Don Grimes)



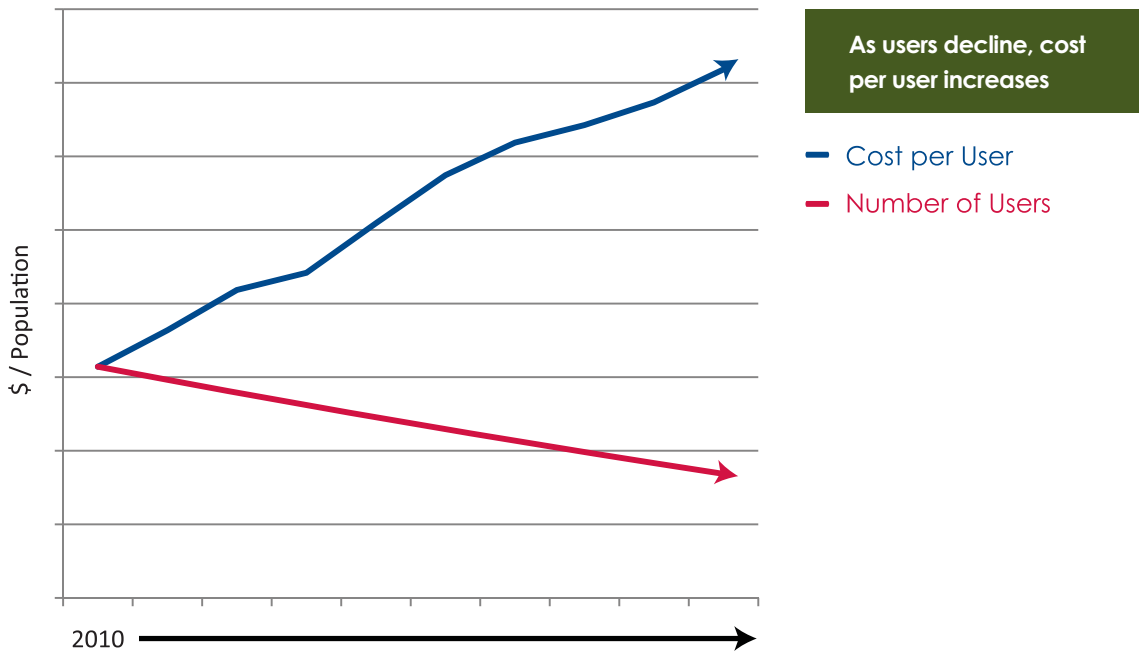
THE GAP BETWEEN UTILITY REVENUES AND COSTS WILL BE SIGNIFICANT

According to the experts, the Southeast Michigan region is facing a long period of declining economic activity and rising costs. But it doesn't take an expert to convince most of us that times are tough. All of us know people who have lost their jobs or their homes.

Growing population, increasing employment, and sustained buying power are the pillars of water rate stability and for projecting utility rates into the future. As even the most optimistic forecasts show decline in all three of these pillars, even the best cost reduction strategies will not be sufficient. Exhibit 8 shows the yawning gap that we confront as population and economy decline.

DWSD is already experiencing the impact of population loss on operations. For example, on the hotter days of previous summers, DWSD would typically pump over a billion gallons to water lawns, fill swimming pools, and provide thirsty citizens with more than enough water to keep cool. In 2007, DWSD pumped over one billion gallons each day for a period of forty days; in 2008, there was only one day over a billion gallons. Although in 2009 the cool, wet summer reduced the need for sprinkling, DWSD did not pump even 900 million gallons on a single day.

Exhibit 8: User Cost of Service



Source: Project Innovations, Inc.

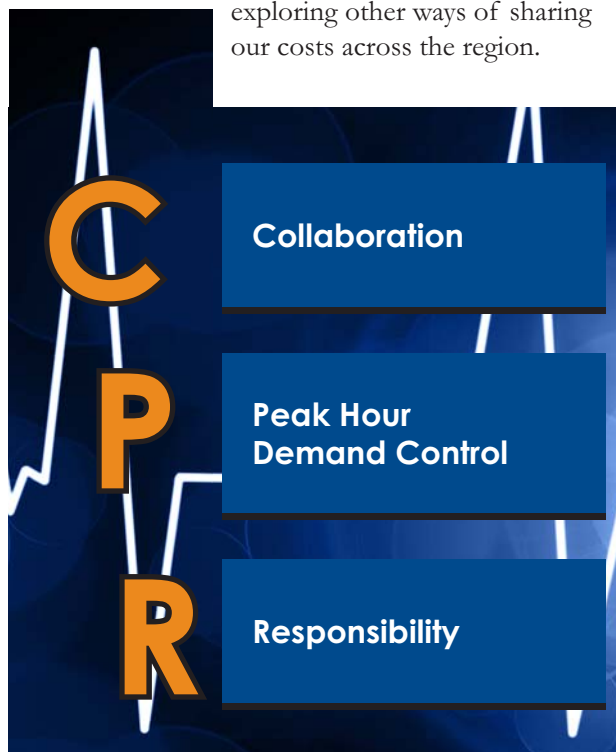
A NEW REGIONAL PARADIGM HAS EMERGED

The availability of water is the lifeblood of a strong economic recovery. Just as weakened hearts sometimes need help pumping blood, our water system situation now requires CPR: **C**ollaboration, **P**eak Hour Demand Control, and **R**esponsibility.

Collaboration

Our new economic, social, and political environment is changing the landscape for DWSD and its suburban customers. Containment of increasing costs requires a new paradigm of cooperation between DWSD and local communities. This new paradigm begins with the recognition that the success of our individual water systems depends upon the success of the entire regional system. This regional water system benefits all of us: Detroit, surrounding counties, suburban communities, Flint, individual water users, etc. The new paradigm includes an assumption that “what’s good” for an Oakland County community should be “what’s good” for a Wayne or Monroe County community. This new paradigm says we can create opportunities for collaboration in regional and local projects, as well as new technologies in energy savings, metering, and communication. This new paradigm moves us to help each other find individual cost savings for our local communities, share resources, expand mutual aid agreements, in addition to

exploring other ways of sharing our costs across the region.



Peak Hour Demand Control

Most people don’t know that the majority of rates charged by DWSD to their communities are driven by water usage at peak hours and peak days. Like most utilities, DWSD charges more for its water when it is used during peak periods of usage. Traditionally, these periods have been before people go to work and when they come home. Coincidentally, these periods are primary sprinkling times. By changing peak period sprinkling water usage to non-peak periods, customers can still irrigate their landscapes and reduce their water charges.

A similar concept is applied in managing traffic flow. Does it make more sense to add lanes to an interstate to moderate a morning rush hour or to adjust start times of major businesses to smooth out the traffic flow? Asking people to water their lawns during non-peak periods, like midnight to 5:00 a.m., helps DWSD reduce its capital investment costs and its energy costs. Local communities are supporting this strategy by taking measures to reduce peak demands:

- Installing water storage reservoirs
- Implementing water demand management education programs among its residents
- Instituting outreach programs with industrial and commercial users to change their watering patterns
- Implementing policies for controlling irrigation in public areas (parks, roadway median strips, etc.)

You can help your community reduce peak costs by watering your yard or topping off your pool between midnight and 5:00 a.m. As you may have read in the newspapers, many communities have passed new ordinances that restrict sprinkling to the “off peak” hours. Examples from the City of Novi and the City of Troy are shown on the following page.

In an effort to control costs relating to water usage, the Troy City Council has recently approved a recommended ordinance to restrict the run time of underground irrigation systems, such as sprinkler systems. Effective June 5, 2008, underground irrigation systems must run only between the hours of 11:00 p.m. and 5:00 a.m. daily. This change of timing will decrease the amount of peak hour water use and can translate into an approximate \$500,000 annual savings for water users in the City of Troy.

"The primary focus of this change is to reduce peak usage," said Richard Shepler, Water and Sewer Superintendent for the City. "The lower our peak usage, the lower our water rates."

~ City of Troy



Responsibility

From the leadership of DWSD to the residents in the far reaches of the DWSD system and everyone in between, we have a responsibility to provide, promote, and preserve a sustainable water supply infrastructure. In addition to collaboration, this new paradigm requires us all to be responsible for our own water decisions that impact the system, the adjacent communities, and our neighbors. This will require tough choices specifically related to rate increases. Hard work is needed to reduce costs at all levels in the water transmission and distribution network and to encourage responsible use of the system. But hard work may only reduce the severity of rate increases. We have to incorporate rate increases into our future financial plans. Ten-year planning windows based on growth have become invalidated. We are all in a similar position. It is time we take responsibility and work together to mitigate rate increases to the maximum extent practical.

We appreciate the excellent cooperation our citizens have given us in the past in adhering to the Alternate Day Lawn Watering program. As part of the City's ongoing efforts to reduce our water usage during peak hours, City Council has approved an amendment to the Lawn Watering Ordinance, which will help to lower the water rate we pay to the Detroit Water and Sewerage Department (our water provider). The Ordinance now requires, in addition to alternate day watering, that automatic, programmable underground sprinkler systems only operate during non-peak hours of 11:00 p.m. and 5:00 a.m. We ask for your support by programming your sprinkler system to operate between the hours of 11:00 p.m. and 5:00 a.m. on an alternate day basis.

~ City of Novi



This document is published as a collaborative effort of DWSD and its wholesale water customers:



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THE TECHNICAL ADVISORY COMMITTEE: OUR CPR FOUNDATION

DWSD initiated a partnership in 2003 with its suburban community water customers, in conjunction with the development of a Fifty-Year Comprehensive Water Master Plan. This partnership became known as the Technical Advisory Committee (TAC) and has proven highly effective in decreasing conflict and building momentum toward a progressive regional relationship that balances individual and system interests. The TAC has created several collaborative work groups, including the Analytical Work Group, the Best Practices Work Group, the Contracts Work Group, the Public Education Work Group, the Emergency Preparedness Work Group, the Master Plan Visioning Work Group, and the Rates Work Group.

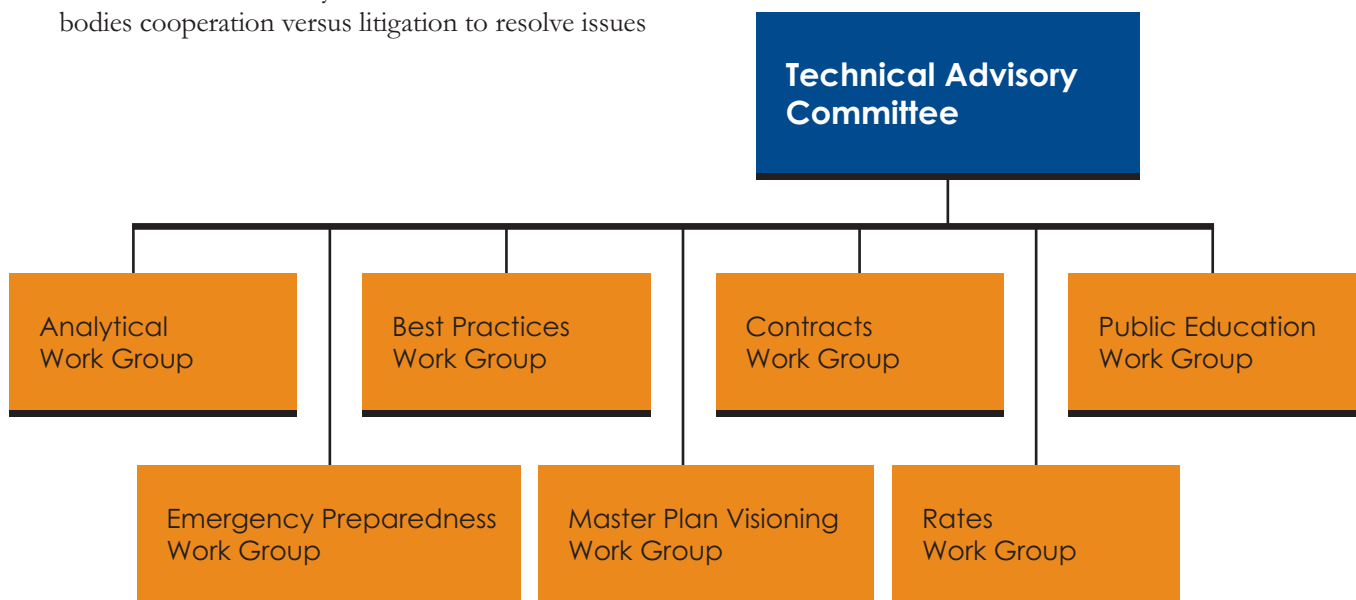
DWSD has taken the TAC initiative seriously by involving staff in work group decision-making and problem-solving processes. The customer communities have responded favorably to the improvements in communication between DWSD managers and utility managers, administrators and elected officials.

Customer participation in the partnership continues to increase; especially as DWSD and its customers negotiate new water model contracts. The model contract—a template for revolutionary collaborative agreements between DWSD and its wholesale customers—was approved by the TAC in 2008 by a 40-0 vote. It's a mutually drafted document that embodies cooperation versus litigation to resolve issues

and has been a model process for regional cooperation. Fifty-four communities, including Bloomfield Township, Canton Township, Ferndale, Northville Township, the Southeastern Oakland County Water Authority (SOCWA), Washington Township, and the Ypsilanti Community Utilities (YCUA) have signed new contracts with Detroit.

The model contract serves as a blueprint for current and future capital improvement program investment in the regional water system. It also reduces rate volatility from year to year, and contains rate disclosure language that was agreeable to all parties.

Controlling costs is a key concept of the model contract. What DWSD customers need is a way to forecast future rates in a predictable fashion, rather than getting surprised with big increases. Not surprisingly, customers were eager to get into long-range planning with DWSD—planning which offered a way to plug in communities' future investment needs. The TAC's goal is to have 65 contracts completed and signed by the end of 2010. This will promote system stability and security and pave the way for a collaborative update of the Water Master Plan.



GLOSSARY

Alum: Chemical used as a coagulant in water treatment to bind together very fine suspended particles into larger particles that are removed through settling and filtration.

American Water Works Association: A professional organization comprised of 60,000 water professionals committed to protecting public health and water resources for generations to come. AWWA is the authoritative resource on safe water and leading source of water information for public water utilities.

Chlorine: Chemical used as a disinfectant in the water treatment process.

Clean Water State Revolving Fund [CWSRF]: Established by the 1987 Clean Water Act amendments, CWSRF is a self-perpetuating loan assistance authority for water quality improvement projects that replaced the Construction Grants Program. In Michigan, this program currently provides low 2.5% interest loan financing to qualified local municipalities with the construction of needed water pollution control facilities.

Consumer Price Index [CPI]: A measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. The CPI is the most widely used measure of inflation.

CPR: An acronym of the three critical aspects of a new paradigm to manage water rates in the region: Collaboration, Peak hour demand control, and Responsibility.

Drinking Water Revolving Fund [DWRF]: Similar in structure to the CWSRF, 1996 amendments to the Safe Drinking Water Act (SDWA) established the Drinking Water State Revolving Fund to provide funds for drinking water systems to finance infrastructure improvements. Emphasis is placed on funds to small and disadvantaged communities and to programs that encourage pollution prevention. In Michigan, the DWRF program is designed to assist water suppliers in satisfying the requirements of the SDWA by offering low interest loans of 2.5% to eligible water suppliers.

Fifty-Year Water Master Plan: DWSD developed a large-scale master plan to assess the department's infrastructure needs over the next 50 years. The master plan was last updated in 2004 and is available on www.dwsd.org.

Fixed Costs: Costs associated with running a major utility that remain constant regardless of production levels. Fixed cost items include debt repayment, equipment maintenance and personnel related costs. They can represent up to 90% of utility's cost expenditures.

Fluoride: Chemical added to water treatment process to reduce tooth decay.

Level of Service: The pressure that must be delivered to meet demand on a peak day of water usage for each wholesale customer constitutes the level of service DWSD must provide its water customers.

MCF: 1,000 cubic feet of water that is equal to approximately 7,500 gallons of water. MCF is used to measure water sales on a wholesale level.

Model Contract: A template, approved by the TAC, for a 30-year wholesale water service contract between DWSD and a wholesale customer. Designed to reduce rate volatility and control costs, the contract includes DWSD's commitment to a range of system pressures and the wholesale customer's commitment to maximum flows.

Operations and Maintenance Costs: The costs associated with operating and maintaining the water plants and the distribution system.

Demand Management: A strategy to limit the volume of water consumption during a utility's peak demand periods. Successful demand management strategies optimize a utility's ability to deliver reliable service during peak periods, defer investments in new infrastructure, and result in lower costs to the system—which are passed on to demand management communities through lower water rates and reduce a community's wholesale water bill. Techniques include water storage, ordinances to limit lawn sprinkling during non-peak hours, educating retail customers and businesses to change their watering patterns, and eliminating water loss.

Technical Advisory Committee [TAC]: The Technical Advisory Committee was created in 2003 as a partnership between DWSD and its customers to address water related issues that affect a large population of the customer base. The TAC is supported by six work groups that address wholesale customer and DWSD areas of concern, develop best practices and promote sharing of information and collaborative decision-making.

TAC Rates Work Group: A cross functional team of DWSD and customers who work collaboratively to identify and resolve rate issues.

Variable Interest Rate Debt: Interest rate on debt sold to finance infrastructure improvements that fluctuates based on current market conditions. Variable rate debt has been used by government agencies to lower the cost of borrowing.

