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Environmental Services

OVERVIEW

Metropolitan Council Environmental Services (MCES) is a division of the Metropolitan Council, the Twin Cities regional governmental agency. The Metropolitan Council Chair and the 16 other Council Members are appointed by the Minnesota Governor and serve at the Governor’s pleasure.

Guided by the Metropolitan Council’s long-range plan, *Thrive MSP 2040*, and the *MCES Water Resources Policy Plan*, MCES:

- Collects and treats approximately 250 million gallons of wastewater a day.
- Continues to achieve outstanding compliance with federal and state clean water discharge standards.
- Ensures sufficient sewer capacity to serve planned development.
- Establishes user fees that pay 100% of wastewater operations and debt service costs, which are below national averages.
- Makes capital investments to support growth, maintain infrastructure and improve water quality.
- Operates and maintains approximately 600 miles of regional sanitary sewers that collect flows from more than 5,000 miles of sewers owned by 108 communities in the seven-county Twin Cities region.
- Runs eight regional wastewater treatment plants: Blue Lake, Eagles Point, East Bethel, Empire, Hastings, Metropolitan, Seneca, and St. Croix Valley.
- Works collaboratively with state and federal agencies, local and county government, watershed management organizations, interest groups and the public to protect the region’s rich water resources as the region continues to grow.
- Works with approximately 800 industrial permit holders to substantially reduce the amount of pollution entering the wastewater collection system.
MCES MISSION

Provide wastewater services and integrated planning to ensure sustainable water quality and water supply for the region.

MCES VISION

Be a valued leader and partner in water sustainability.

MCES VALUES

- **Excellence**: Pursued within MCES by encouraging innovation, continuous improvement, and striving for outstanding performance.

- **Inclusiveness**: Embraced in all its dimensions, recognizing that everyone has something to contribute toward the organization’s success.

- **Integrity**: Demonstrated by meeting high ethical standards, building trust, and being transparent to stakeholders.

- **Respect**: Fostered by listening and encouraging understanding and honesty in how we treat each other.

- **Commitment**: Demonstrated by furthering the mission, meeting customer needs, and being an engaged and accountable workforce.
MCES’s strategic planning efforts continued in 2016, and strategic goals were integrated into the agency’s performance measures.

MCES’s Strategic Outcomes are:

1. Sustainable Communities
2. Sustainable Services
3. Sustainable Infrastructure

The 2016 performance achievements that follow in this performance report are grouped into these three outcomes.
SUSTAINABLE COMMUNITIES

MCES seeks to improve customer service, lead by example in environmental sustainability, and partner with customers and stakeholders to achieve regional goals.

Wastewater Treatment

MCES collects and treats approximately 250 million gallons of wastewater daily from more than 2.6 million residents and businesses. The cleaned water is discharged to our rivers (Minnesota, St. Croix and Mississippi) or used to recharge groundwater.

MCES wastewater treatment plants continued to perform at an outstanding level in complying with clean water discharge permits. System-wide, all air emissions permits were passed; there were two treatment plant non-compliance events, which were resolved.

Six treatment plants earned a Platinum Award from the National Association of Clean Water Agencies (NACWA) for five or more consecutive years of perfect NPDES permit compliance through 2015 and awarded in 2016: Hastings (25 years), St. Croix Valley (24 years), Seneca (15 years), Blue Lake (10 years), Eagles Point (10 years), and Empire (8 years).

Customer Service

MCES reaches out to new customers and works to maintain good relations with current customers.

Budget meetings for MCES customer communities and industrial permit holders were held in late May and early June, 2016. The meetings included information on proposed 2017 budget and rates, and provided an opportunity for customer input and questions.

An additional finance forum was held with elected officials and managers of customer cities to provide an overview of MCES financial structure and budget process. The forum was attended by mayors, city council members and administrators. Feedback from the forum provided insight from MCES customers on how they could be better served from a financial perspective.
Energy Reduction, Recovery and Conservation

From 2008 to 2015, MCES reduced its energy purchases by $4 million per year through implemented energy conservation and onsite energy generation, such as electricity from steam and methane gas from digesters.

MCES set a new energy goal to reduce electrical purchases by 10% between 2016 and 2020. MCES is on track to meeting this benchmark. Achieving the goal will result in avoiding an additional $1 million in electrical costs.

Also in 2016, energy projects were completed that will save $250,000 per year in electrical costs (3.9 Gwh of energy saved). MCES entered into several community solar garden agreements. In the first year of operation (2016), participation in these solar gardens will save the Council about $50,000, and over the span of the agreement (25 years) will save a net present value of almost $8 million.

All of these savings resulted in lower wastewater rates for city and industrial customers, and significant environmental benefits.

**Ongoing energy projects include:**

- MCES’s 1.25 megawatt solar facility at its Blue Lake Plant in Shakopee provides up to 10% of the plant’s energy needs.
- The Eagles Point Plant in Cottage Grove uses treatment plant effluent for some of its processes, resulting in an 80% reduction in the use of groundwater. This saves more than 4 million gallons of groundwater annually.
- The Metro Plant in Saint Paul plans to eliminate use of Prairie du Chien groundwater (1 billion gallons annually) by 2020.

Seeking Solutions to Water Supply Issues

Through partnerships with local communities and government agencies, the Council’s water supply studies and projects seek to ensure that regional water supplies can support current and future generations.

These projects will support community efforts to protect and manage water supplies and prevent further degradation of water sources in the metropolitan area. The Council’s water supply efforts will help identify high-priority areas for protecting groundwater, will identify feasible options to address emerging water supply issues, and will support communities’ efforts to preserve groundwater recharge areas.
Water Resources Management

The Council’s Water Resources Policy Plan integrates water resources management and protection with planning for the region’s growth. The policy plan, which was updated in 2014-2015, contains guidelines for developing and maintaining service systems that support development and for which the Council has some statutory responsibility, including wastewater service, surface water management, and regional water supply.

Among the initiatives being implemented under the Water Resources Policy Plan are the following:

1. The Integrated Water Planning Team met monthly to discuss meetings, projects, and plan reviews that span MCES departments. Collaborated with the City of Eagan to evaluate potential reuse of treated wastewater and tank underdrainage water. The latter appears technically feasible.

2. Developed potential wastewater reuse scenarios for the southeast and northeast metro and estimated costs based on those scenarios. Presented the potential scenarios and estimated costs to communities in those parts of the region.

3. Updated the region’s Master Water Supply Plan in collaboration with local stakeholders, agencies and input from the Metropolitan Area Water Supply Advisory Committee (MAWSAC) and the Community Technical Work Group. The final plan was adopted by the Metropolitan Council in 2015, and plan implementation continued in 2016.

4. Expanded on a 2015 evaluation of water rates in the metropolitan area, including a more in-depth analysis of water use and water rate structures, water conservation programs, and the development of a water rate look-up tool.

5. Continued collaboration with the University of Minnesota to explore opportunities for water conservation by businesses in the seven-county metro area, as well as increasing the efficiency of water use in Twin Cities home landscapes by conducting site assessments, research and demonstration projects focusing on smart irrigation practices.

6. Continued collaboration with southeast and northeast subregions and Washington County Water Coalition to investigate the feasibility of potential water supply alternatives available for communities. Created a new subregional work group in 2016 in the western metro including cities of Minnetonka, Edina, Eden Prairie, Chanhassen, Chaska, Shakopee, Mound, Victoria, and St. Louis Park.

7. Worked with three subregional work groups in the northeast, southeast and northwest metro to evaluate the opportunities for enhanced groundwater recharge and stormwater capture and reuse.

8. Collaborated with stakeholders to develop a water efficiency (conservation) grant program. Grants were awarded to 19 communities, totaling $558,000. Council grants will provide 75% of the program cost; each municipality provides the remaining 25%. An estimated annual water savings of nearly 86 million gallons per year will be realized through the implementation of these grants.

9. Continued collaboration with the U.S. Geological Survey and local stakeholders to study groundwater and surface water interaction in the northeast Twin Cities metro area.

10. Coordinated activities of the MAWSAC and a new technical advisory committee created by the
2015 Legislature. This new technical committee provides input to MAWSAC and MCES on technical, financial, and operational issues related to regional water supply planning from the perspective of water supply providers. The two groups met seven times throughout 2016, resulting in the development and endorsement of a MAWSAC report on water supply planning activities to be released in February 2017. The report will be sent to the Metropolitan Council, the Legislative Water Commission and the chairs and ranking minority members of the House of Representatives and Senate committees and divisions with jurisdiction over environment and natural resources.

11. Collaborated with Minnesota Department of Natural Resources (DNR) to provide three training workshops for local water suppliers to support the update of their local water supply plans.

12. Collaborated with Minnesota DNR and planning staff to streamline the local water supply plan review process and provide technical assistance to communities as they complete those plans.

13. Collaborated with planning staff to hold a conference that included sessions on water supply and surface water planning as well as poster sessions on wastewater issues to aid communities in the update of their comprehensive plans, in particular, the local water supply plan and the local surface water plans. Also held tutorials and webinars on topics to aid in the comprehensive plan process.

14. Through stakeholder input on providing better value, began to integrate and reevaluate MCES water quality monitoring and assessment functions to put data to work for improved water quality. Deployed new Environmental Information Management System (EIMS), which is the public access to the Council’s lakes, rivers, stream, and precipitation data and data reports.
15. Awarded targeted stormwater grants in the amount of:

a. $200,000 to Chanhassen High School Stormwater Capture and Reuse (Riley Purgatory Bluff Creek Watershed District). Project will install a treatment system to use stormwater (1.9 million gallons per year) from an existing treatment pond to irrigate up to 51% of playing fields and green space at a high school.

b. $99,287 to Eden Prairie Fire Station No. 2 Water Harvesting and Reuse (Riley Purgatory Bluff Creek Watershed District). Project will retrofit a city fire station to collect and treat rainwater (41,000 gallons per year) for irrigation, truck washing, and fire truck tanker filling.

c. $200,000 to City of Hugo Waters Edge Stormwater Reuse Project (Rice Creek Watershed District). Project will connect an existing irrigation system at a 378-unit townhome community to a stormwater pond to decrease groundwater demand.

d. $100,000 to Minneapolis Northside Neighborhood Engagement & Opportunities (Bassett Creek Watershed Management Commission). Project is to employ disadvantaged youth and adults to construct rain gardens in the Harrison neighborhood of North Minneapolis.

e. $100,000 to Minneapolis Westminster Church Stormwater Management and Reuse (Mississippi Watershed Management Organization). Project is to help fund a rainwater reuse system on urban property fronting Nicollet Mall in downtown Minneapolis.

f. $200,000 to Saint Paul Snelling Ave. Midway Soccer Redevelopment (Capitol Region Watershed District). The request is for green infrastructure elements that go beyond stormwater management requirements on a brownfield redevelopment site.

g. $41,136 to Greenfield Central Park Pond Project to Pioneer-Sarah WMC. Project is to construct stormwater pond and swale to treat runoff from a city park that drains to a farm field and then to a creek and eventually Lake Sarah. The Metropolitan Council has designated Lake Sarah as a priority lake for its high regional recreational value.

h. $9,000 to Lilydale Stormwater Improvement Project to Lower Mississippi River WMO. Project is to buy and install a SAFL baffle in a storm sewer manhole to remove sediment, along with installation of an educational sign. This is part of a larger project to repave Highway 13. Stormwater from the intersection of Highway 13 and Lexington Avenue in Lilydale discharges to the Mississippi River near its confluence with the Minnesota River.

i. $100,000 to Small Space Stormwater Retrofits for the Rum and Mississippi Rivers to Lower Rum River WMO. Project is to install retrofit stormwater treatment practices such as filtration, iron enhanced media, curb cut rain gardens, bio swales, and/or others in the cities of Anoka and Ramsey. Targeting of projects is based on 2015-2016 study that examined portions of the cities of Anoka and Ramsey that drain directly to rivers and have little to no stormwater treatment.
SUSTAINABLE SERVICES

MCES seeks to manage and reward performance linked to its mission, vision, values, strategies and goals; recruit, develop and retain a high-performance workforce that has full opportunity for engagement; and utilize technology and best practices to improve efficiency and effectiveness.

Employees in the Workplace

The MCES workforce, 683 full-time equivalents (FTEs), meets the needs of a high-tech and capital-intensive industry that operates 24 hours a day, 7 days a week, 365 days a year. Employees work at multiple wastewater collection and treatment facilities throughout the Twin Cities metro area. Positions include engineers, environmental scientists, machinists, electricians, pipefitters, painters, plant operators, technicians, interceptor service workers and administrative support personnel.

MCES Workforce Plan

More than 20% of MCES employees are currently eligible or will be eligible for retirement within the next five years. Building on previous plans, the 2016-2020 Workforce Plan was created to help address the challenges of succession planning and recruiting diverse candidates.

The Workforce Planning Team (HR and MCES) continued its work in 2016 by implementing the 2016-2020 Workforce Plan, which focuses on seven workforce initiatives; each initiative has its own subteam. Five of the seven teams commenced in 2016, and their work is described on the next page.
The seven workforce subteams are:

1. Performance Management Tools/Leadership Development—ensure performance management tools and resources are in place for all employees. The team's recommendations were approved and will be implemented in 2017.

2. Behavioral Expectations—support and enhance a positive work culture that builds respect, and a secure and civil work environment. The team's recommendations were implemented and will continue.
   - Team completed its work and all recommendations were approved by the executive team.

3. Recognize/Celebrate Employees—establish/enhance programs that recognize and celebrate employees. This team developed a new program for MCES that will be implemented in 2017.

4. Build Diversity/Networking & Collaboration—build diversity in MCES that more accurately reflects the region's population. This team worked closely with the MCES Equity Change team to accomplish the following:
   - Reinforced practices to recruit a more diverse staff.
   - Hired an intern and equity-funded employee to help with the program by researching grants, creating hiring metrics, and representing the division at job fairs and area high schools.
   - Designated Outreach Champions and Equity Ambassadors to assist with various outreach and equity events.

5. Mentoring—increase employee engagement, retention, and professional growth using mentoring. (On hold in 2016; will be implemented in 2017.)

6. Onboarding—welcome and integrate new employees into the workplace through inclusive and informational onboarding programs. Team supported the overarching Council onboarding team by assisting in the creation of new employee checklists, helping pilot the new checklists, and providing feedback.

7. Defining Career Opportunities/Networking & Collaboration—create a work culture that allows for career opportunities to increase retention. (On hold in 2016; will commence in 2017.)

MCES hired 15 interns and 3 urban scholars who worked on projects from across the division, toured ES locations, conducted information interviews and presented what they learned about the range of career opportunities in MCES.

Additionally, MCES continued its commitment to worksite wellness through incentive programs such as the pilot program Trade Time for Fitness.
Safety

As a result of the safety measures in 2016:
• Accidents were reduced 26% (17 in 2016 versus 23 in 2015)
• Lost time accidents slightly improved 13% (8 in 2016 versus 9 in 2015)
• Lost and restricted days improved 26% (433 in 2016 versus 587 in 2015)

Additionally, the Safety Excellence Team was created to continue safety improvements in 2016. The team has 23 representatives including 11 safety committee members, 7 executive team members and 5 safety staff. The team’s purpose is to increase communication, partnership and understanding between the Safety Excellence Team and MCES Executive Team as it relates to driving organizational safety to a level of excellence to include no recordable injuries.

The team split into three subteams to identify and develop Leading Edge Indicators (LEI). LEI precede or indicate a future event used to drive and measure activities carried out to prevent and control injury. LEI are proactive, and illustrate what employees are regularly doing to prevent injuries. LEI focus on future safety performance and continuous improvement.

The three subteams are:
1. Site Safety
2. Job Hazard Analysis (JHA)
3. Safety Metrics

Monthly or more frequently, LEI were made possible by increased safety awareness during 2016 that included:
• 12 Safety Committee meetings
• 12 site safety audits
• Regular safety training including annual and triennial lockout/tagout; arc flash; online safety training; personal protective equipment; industrial ergonomics; hazard communication; incident investigation; scaffold safety; ladder safety; fall protection; driver safety; flammable liquid safety; machine guarding; chemical safety; hand safety; office ergonomics
• 3 root-cause accident analyses
• More than 50 job hazard analyses
• 86 near miss reports (versus 61 in 2015—an increase indicates improvement; more close calls being reported can be addressed before an accident happens)
• 12 personal protection equipment inspections/monthly discussion on observations of safe or unsafe behavior
• Safety work permits, which occur everywhere within the division and include hot work permits and energy control log permits, for example.
• 103 incident investigations
• Regulatory compliance, and followed OSHA rules and regulations and MCES Best Safety Practices
• Acted on employee safety improvement suggestions such as fire resistant fall protection harness when cutting or welding in a confined space or area when fall protection is needed

Additionally, 11 division-wide safety committees identified site-specific goals. The Safety Excellence Team monitors the committees’ progress and assists as needed. Safety goals were consistently made throughout MCES including no reportable injuries, zero lost time injuries and no accidents in 2017.
SUSTAINABLE INFRASTRUCTURE

MCES seeks to improve asset management practices to increase value to its customers, preserve sound financial practices for wastewater services and secure funding for its other water services, and utilize infrastructure efficiently by addressing system inputs at the source.

Asset Management

MCES is improving asset management practices to sustain customer levels of service and reduce lifecycle costs. Improvements in 2016 included completion of a criticality analysis for the Metropolitan Wastewater Treatment Plant’s Solids Business Unit, initiation of a criticality analysis for the plant’s Liquids Business Unit, and development of a capital program for the plant’s Solids Management Building.

Preserving and Building Infrastructure

MCES is preserving and building infrastructure to meet the wastewater collection and treatment needs for the region using asset management principles. Approximately $128 million was spent on capital improvements in 2016.

Growth-related projects in 2016 included:

- Substantial completion of sewer capacity improvements in Golden Valley and St. Louis Park, and substantial completion of a wastewater lift station to serve portions of Woodbury and Lake Elmo.
- Construction also began on a lift station to serve Chaska and Carver, and on an interceptor extension to serve Rogers (completion anticipated in 2017).

Asset preservation projects in 2016 included:

- Developed a 10-year capital program for preserving assets in each business unit and the overall wastewater system, recognizing financial constraints.
- Continued rehabilitation and asset renewal at the Metropolitan Wastewater Treatment Plants including major renovations of the solids processing facilities.
- Completed preliminary design for the Empire Wastewater Treatment Plant Solids Improvement Project, which includes combined heat and power generation systems (completion of design and initiation of construction anticipated in 2017).
- Completed design for the Seneca Wastewater Treatment Plant Solids Improvement Project, which will replace wastewater solids thickening centrifuges with gravity belt thickeners and will improve the plant’s tunnel lighting (initiation of construction anticipated in 2017).
Finance

MCES provides wastewater collection and treatment services at wholesale rates to 108 municipalities in the seven-county area. In turn, those municipalities bill the households and businesses within their boundaries for the wastewater treatment services received. The average household annual rate was $274 in 2016. This $274 retail sewer rate compares favorably to an average rate of $415 reported by 24 similarly sized wastewater treatment “peer” agencies in the U.S., according to the most recent survey (2014) by the National Association of Clean Water Agencies (NACWA).

Additionally, wastewater service charges (approx. $23/month) are lower than most other metro-area utility charges, such as gas, electric and high-speed Internet.

Budget

MCES staff completed 2016 operations and routine maintenance activities within the Annual Operating Budget limits.
Inflow and Infiltration (I/I) Reduction Program

An I/I task force was appointed in 2016 to develop recommendations that support the efforts of regional communities to mitigate I/I in the metropolitan area. The task force included Metropolitan Council Member Sandy Rummel, staff from Metro Cities, and representatives from 19 communities with public works, wastewater utility, finance, or city manager experience.

The task force reviewed information that demonstrates that the region is making positive progress in I/I mitigation. Success of the I/I program can be measured in reduced base flow from less infiltration and reduced peak flow from less inflow. Since the inception of the I/I program, total volume of wastewater treated by the regional system has decreased while precipitation has increased and growth in the region has continued.

The figure below shows the yearly wastewater flow calculated by MCES for the regional Municipal Wastewater Charges (MWC) and the yearly rainfall data recorded by the National Oceanic and Atmospheric Administration (NOAA) for Hennepin County for monitoring years 2005 through 2016.

The total amount of wastewater flow was reduced from 95 billion gallons per year (BGY) in 2005 to 86 BGY in 2015. The trend line for regional flows indicates an average annual reduction of 615 million gallons of wastewater per year (MGY). Over the same period, annual rainfall and regional population increased. This flow reduction can be attributed to I/I mitigation and water conservation.
The task force recommended that MCES:

1. Continue the regional planning policy of balancing regional standards with the needs of local communities to tailor programs to their individual circumstances.

2. Develop a robust public outreach program that would include proper maintenance of wastewater collection systems, ownership of sanitary sewer service laterals, and impacts of excessive I/I during wet weather events.

3. Support efforts to secure funding for public and private I/I mitigation projects, including State Bond and Clean Water Legacy Funds. Consider the provision of financial assistance through regional sources, such as a portion of the wastewater fee, to provide assistance to communities for private property I/I mitigation.

4. Develop a model ordinance for a private-property service-lateral inspection program in conjunction with the League of Minnesota Cities, Metro Cities, and local communities.

5. Develop best practices for a private-property service-lateral inspection program in conjunction with the League of Minnesota Cities, Metro Cities, and local communities.

6. Investigate the ability to develop master contracts held by MCES that could be used by communities for private property I/I inspections and service lateral repairs.

7. Design and implement a private property I/I mitigation demonstration project that would provide additional opportunity for measurement of impact on wastewater base and peak flows.

8. Review the peak-hour factors used to develop I/I goals at the time that the 2050 Water Resources Policy Plan is prepared.

MCES staff began and will continue to develop a plan to implement the Task Force recommendations.

Industrial Pretreatment Incentive Program

MCES is working to recover process capacity for wastewater treatment at the Metro, Blue Lake, and Empire Plants by reducing high-strength waste loads from existing industrial customers. Through the Industrial Pretreatment Incentive Program (IPIP) instituted in 2015, MCES is encouraging high-strength industrial dischargers to reduce their chemical oxygen demand (COD) and total suspended solids (TSS) by installing pretreatment equipment at their facilities.

Five industries applied to the program and MCES Industrial Waste/Pollution Prevention staff and finance staff will work with them to initiate the projects.
The Metropolitan Council is the regional planning organization for the seven-county Twin Cities area. The Council operates the regional bus and rail system, collects and treats wastewater, coordinates regional water resources, plans and helps fund regional parks, and administers federal funds that provide housing opportunities for low- and moderate-income individuals and families. The 17-member Council board is appointed by and serves at the pleasure of the governor.

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