Asset Management is the coordination of Environmental Services resources (human, financial, technical) throughout the asset lifecycle to maximize asset value while meeting Customer Levels of Service.

ASSET MANAGEMENT SYSTEM
The MCES Asset Management System is based on international standards (ISO 55000, ISO 31000) and industry best practices in asset management and asset reliability.

Asset Lifecycle
- Identify Need
- Design for Reliability
- Construct
- Operate & Maintain
- Commission O&M Ready
- Dispose, Renew, Reuse

Strategic
- Asset Management System
- AM Capability Forward Planning

Operational
- Asset Lifecycle Management

Tactical
- Asset Portfolio Management

WORLD CLASS ASSET MANAGEMENT
Environmental Services is partnered with other regional and state organizations in promoting Asset Management and Reliability best practices through local branches of the Institute of Asset Management (IAM) and the Association of Asset Management Professionals.
MCES capital infrastructure includes wastewater treatment plants, lift stations, meters, and interceptor lines.
MCES regulates and monitors industrial discharges to the sewer system to ensure compliance with local and federal regulations.

• MCES serves 109 communities, 2.6 million people, and approximately 900 regulated industrial dischargers in the seven-county metro area.

• MCES’s work protects Metropolitan Council and community wastewater collection and treatment facilities, process efficiency, operating personnel, and the environment.
CLEAR WATER DOWN THE DRAIN: Small Leaks Make a Big Impact

A MILLION SOURCES ADD UP

Up to 80% of Inflow and Infiltration (I/I) is from sources on private property.

- Roughly 1 Million properties connect to the regional system through over 7,500 miles of service laterals, and many are over 50 years old.
- Service laterals account for over half of the wastewater piping in the region, but are not part of most public utility inspection and repair programs.
- One sump pump can discharge 7,200 gallons per day - equivalent to 40 homes of typical water use – when connected to the wastewater system.

STOPPING I/I AT THE SOURCE

- Protects public and environmental health by preventing sewage overflows to basements and waterways.
- Allows our economy to grow and prosper without the cost of building larger infrastructure.
- Saves money by reducing the amount of water that needs to be transported and treated.

EVERYONE PLAYS A ROLE

- Check for proper discharge outside the home for sump pumps, foundation drains, and rain leaders.
- Have a plumber inspect the service lateral for root intrusion, cracks, and other defects.
- Get the repairs done. Some cities offer financial assistance for property owners.
The MCES Interceptor System collects wastewater from 109 communities in the seven county metro and transports to one of eight treatment plants.

Our Metering and Alarm system is the 24/7 information and control center of the Interceptor/Collection System.

Interceptor Services ensures that MCES’s collection system is well maintained and operated. Services include:
- 24/7 SCADA Monitoring
- Lift Station Maintenance
- Flow Meter Maintenance
- Pipe Cleaning
- CCTV Inspection
- Utility Locating
- GIS System Support
- Pipe Cleaning
- Data Analysis

INFRASTRUCTURE

610 MILES OF PIPE

213 METERS

62 LIFT STATIONS

19 RAIN GAUGES
Metropolitan Council Environmental Services (MCES) proposes to continue sustainable incineration at its Metropolitan Wastewater Treatment Plant (Metro Plant) by constructing a fourth incinerator and renewing the existing three incinerators.

**PROGRAM OVERVIEW**

The program includes improvements to the existing system, construction of a fourth incinerator, following with renewal of existing incineration facilities.

**PROGRAM NEED**

The Metro Plant needs additional solids processing capacity to:

- **Preserve Existing Wastewater Treatment Plant Infrastructure**
  - Planned renewal projects will require extended downtime of the existing incinerators.

- **Serve Regional Population Growth**
  - 500,000 new residents in the Twin Cities Metro Plant service area by 2050.

**PROJECT BENEFITS**

- **COST EFFECTIVE**
- **ENERGY RECOVERY**
- **LOW IMPACT**
- **LOW GREENHOUSE GASES**
- **EXCEPTIONAL AIR QUALITY**
- **SYSTEM RELIABILITY**

**PROGRAM COST AND SCHEDULE**

- **2019**
  - IMPROVEMENTS PROJECT: $20 million

- **2021**
  - FOURTH INCINERATOR: $150 million

- **2024**
  - RENEWAL PROJECT: $30 million

- **2027**
2019 REGIONAL WASTEWATER CHARGE (RWC)

$227,440,997
+3.5% from 2018

2019 Revenue Sources

$300M

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal Wastewater Charges (MWC)</td>
<td>77%</td>
</tr>
<tr>
<td>Sewer Availability Charge</td>
<td>15%</td>
</tr>
<tr>
<td>Industrial Waste Charges</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
</tr>
</tbody>
</table>

2019 Uses By Category

$300M

- Debt Service: 46%
- Salaries & Benefits: 22%
- Consulting & Contractual: 7%
- Materials, Supplies & Chemicals: 6%
- Interdivisional Services: 5%
- Rent & Utilities: 5%
- PWGGO: 4%
- Other: 4%

How is your community’s MWC determined?

3 PRIMARY FACTORS IMPACT A COMMUNITY’S MWC:

- Regional Flow Volume
- Community Flow Volume
- Regional MWC budget

FLOW & CHARGES OVER TIME EXAMPLE

**2018 RWC**

- CITY A: $219.7M
- CITY B: $227.4M

**2018 REGIONAL FLOW**

- 90,748 MG

**2019 RWC**

- CITY A: $227.4M
- CITY B: $227.4M

**2019 REGIONAL FLOW**

- 90,000 MG

% CHANGE IN MWC BUDGET

- **2018 RWC**
  - CITY A: +3.5%
  - CITY B: +3.5%

- **2019 RWC**
  - CITY A: +3.5%
  - CITY B: +3.5%

% CHANGE REGIONAL FLOW

- **2018 REGIONAL FLOW**
  - CITY A: -0.8%
  - CITY B: -0.8%

- **2019 REGIONAL FLOW**
  - CITY A: +3.5%
  - CITY B: +3.5%

*2019 Regional Flow is estimated to be approximately 90,000 MG.*
MCES WASTEWATER TREATMENT PLANT PROJECTS

**METRO LIQUIDS**
- **Preserve Assets**
  - Renew secondary treatment and electrical distribution systems.
- **Aeration tanks at the Metro Plant**
- **$150M**
- **2020 - 2021**

**METRO SOLIDS**
- **Preserve Assets**
  - Improve and renew existing incinerator system.
- **Meet Capacity Needs**
  - Construct a fourth incinerator.
- **Existing incinerators at the Metro Plant**
- **$200M**
- **2019 - 2027**

**METRO REUSE**
- **Lead by Example**
  - Install wastewater reuse technology to provide additional treatment and reduce groundwater withdrawal.
- **Proposed ultraviolet disinfection for reuse system**
- **$10M**
- **2019 - 2021**

**SOUTHEAST METRO WRF**
- **Lead by Example**
  - Construct proposed 2 million gallon per day water reclamation facility (WRF) to serve industry and offset groundwater use.
- **Proposed site at decommissioned Rosemount WWTP**
- **$27M**
- **2019 - 2021**

**EMPIRE SOLIDS**
- **Meet Capacity Needs**
  - Modify biosolids storage pad to support solar drying program.
- **Lead by Example**
  - Install high strength waste receiving and combined heat and power engine to convert digester gas into electricity.
- **Alternative biosolids pad management strategy**
- **$22M**
- **2019 - 2021**

**SENECA SOLIDS**
- **Preserve Assets**
  - Renew solids processing facilities to extend service life.
- **Lead by Example**
  - Reduce energy use by installing aeration improvements, LED lighting, and replacing thickening centrifuges with gravity belt thickeners.
- **Replacing thickening centrifuges with gravity belt thickeners**
- **$19M**
- **2018 - 2020**

---

*Facility cost to be paid by industry or other users. Possible regional cost share being considered by Council.*
HOW IS SAC DETERMINED?

SAC Determinations should be easier, faster, and more straightforward under the new gross-square-foot process.

WHAT ABOUT OUTDOOR SEATING?

With proposed changes to the SAC criteria, restaurants will receive twice the amount of “free” outdoor capacity. The new determination process will increase the “free” outdoor seating limit from 296 square feet to 593 square feet. “Free” is the result of rounding and may not apply if other capacity is demanded.

NO-CHANGE-OF-USE REMODEL

Businesses that remodel without changing their use or size will face no additional SAC charges (with record of SAC paid, or proof of prior same use). Business renovations should be easier to manage, with fewer “surprise” charges.
SEWER AVAILABILITY CHARGE (SAC)

HOW DO I SUBMIT FOR A SAC DETERMINATION?

1. Go to local government for permit/license.
2. Visit metrocouncil.org/SACforms to get SAC application and other forms.
3. Complete application materials and submit to SACprogram@metc.state.mn.us.
4. Metropolitan Council or local government calculates the amount of SAC owed. Local government may add local fees to the SAC.
5. Pay any SAC owed to local government.
6. Local government will issue permit/license, report SAC determination and pay SAC to Metropolitan Council.
## MCES STEPS

1. **STUDIES**
2. **DEMONSTRATION PROJECT**
3. **IN-PLANT REUSE**
4. **CONTRACTED RECLAIMED WATER SERVICE**

## MCES DRIVERS

- **Alleviate future interceptor capacity constraints**
- **Conserve & supplement groundwater & surface water**
- **Help meet receiving water waste load allocations**

## REUSE AT MCES WASTEWATER PLANTS

### CURRENTLY IN USE

**Incineration**
- 6 mgd for Metro WWTP air quality scrubbers
- 2 mgd for Seneca after cooler

Yard hydrants, tank cleaning, service water in some WWTPs

### UNDER DESIGN

**Metro WWTP**
- Shift tank flushing/cleanup and seal water use from city water &/or service water (groundwater) to plant effluent
- 1,150 gpm average reduction

## EAST BETHEL WATER RECLAMATION PLANT

**Wastewater source**
- Wastewater from homes, businesses, and industries in East Bethel

**Treatment Processes**
- Operation began July 2014
- Phosphorous and nitrogen removal
- Membrane bioreactors
- UV and chlorine disinfection
- Design capacity: 0.41 mgd

**Potential Future Use**

- Reclaimed Water Amount: 0.025 mgd average daily flow (current flow)
- Subsurface Infiltration
- Rapid infiltration basins
- Irrigation

**Underground Aquifers**
- Surficial Sand Aquifer
- Aquitard
- Mazomanie Aquifer

## TECHNICAL AND SUB-REGIONAL STUDIES

Studies are often in response to issues, question, or requests for collaboration from MCES’ member communities:

- Recycling Treated Municipal Wastewater for Industrial Use (LCMR-funding)
- Metro Regionwide Survey of Potential Reclaimed Water Users
- SE Metro Wastewater Reuse Scenario Development
- NE Metro Wastewater Reuse Scenario Development
- Wastewater Treatment Plant Effluent and Underdrain Monitoring Report, 2015-2016
- Eagan Water Reuse Feasibility Report
- Impact of infiltrating reclaimed water on surface water and groundwater in the Southeast Metro
MCES STEPS

1. STUDIES
2. DEMONSTRATION PROJECT
3. IN-PLANT REUSE
4. CONTRACTED RECLAIMED WATER SERVICE

POLICY REVIEW FOCUS

Do wastewater reuse projects have a regional benefit?

If so, should the region, through MCES’ municipal wastewater charge, contribute a regional cost share?

How should MCES partner with local communities or water utilities for wastewater reuse projects?

POLICY REVIEW PROCESS

<table>
<thead>
<tr>
<th>ACTION</th>
<th>TIMEFRAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Council authorized Wastewater Reuse Policy Task Force</td>
<td>3/22</td>
</tr>
<tr>
<td>Task Force meetings</td>
<td>April - November</td>
</tr>
<tr>
<td>Committee of the Whole Meeting</td>
<td>1/17</td>
</tr>
<tr>
<td>Council authorizes public hearing</td>
<td>2/14</td>
</tr>
<tr>
<td>Public workshops on policy alternatives</td>
<td>2/27, 3/1</td>
</tr>
<tr>
<td>Public hearing on policy options</td>
<td>3/13</td>
</tr>
<tr>
<td>Public comment period closes</td>
<td>3/23</td>
</tr>
<tr>
<td>Environment Committee hears summary of public comments on policy alternatives</td>
<td>4/10</td>
</tr>
<tr>
<td>Committee of the Whole considers public comment summary on policy alternatives</td>
<td>4/18</td>
</tr>
<tr>
<td>Environment Committee considers and recommends policy language to Council</td>
<td>4/24</td>
</tr>
<tr>
<td>Council acts on adoption of policy amendment</td>
<td>5/8</td>
</tr>
</tbody>
</table>

ALTERNATIVE POLICY AMENDMENTS CONSIDERED

Alternative 1: No Regional Cost Share

Alternative 2: Includes Regional Cost Share based on Regional Environmental and Economic Benefits

Alternative 3: Includes Regional Cost Share based on Regional Wastewater and System Benefit Only

RECOMMENDED POLICY

Environmental Committee staff recommended a wastewater reuse pilot program with a regional cost share based on wastewater system benefits (Alternative 3).

Cumulative cost share capped at 0.75% of total annual municipal wastewater charge.

This recommendation reflects:
- Listening to task force and public comments
- Council’s 2040 Thrive MSP guiding principals
2017 Metropolitan Council Environmental Services
Surface Water Monitoring Sites

- Conventional River Sites
- Automonitoring River Sites
- Stream Monitoring Stations
- Lake Monitoring Sites (MCES and CAMP)
- MCES Wastewater Treatment Plants
- City and Township Boundaries
- Metro County Boundaries
- Lakes and Major Rivers
- Streams
Provide leadership and information to empower Council and local actions that ensure clean, healthy and sustainable water resources for the region.

**Assessment & Technical Assistance**

**Water Quality Trends**

- Median Total Phosphorus, 2006-2015 (mg/L)
- 7-County Metro
- River Enters WWTP
- River Enters MWWB
- River Enters State

**Load Contributions**

- Metro Area Total Phosphorus Load Contributions
- Non-Metro Point & Non-Market
- Non-Metro Non-Point & Non-Market
- Metro Non-Point Source
- Metro Point Source

**SUMMARY:**

Eutrophication/Nutrient Impairment

- Stream Study Results
- Metropolitan Council Environmental Services (MCES)
- The Council and partner organizations collected the data. Then the Council analyzed it and used computer modeling to determine whether water quality is improving or declining.

**What makes water quality good or not so good?**

- Concentration should not be there (pollutants) and by what should be.

**Sediment**

- Measured as "Total Suspended Solids" (TSS).

**Nutrients**

- Too much phosphorus and nitrogen can cause severe algae growth, reduce oxygen in the water, burden aquatic life, and add to the Gulf of Mexico dead zone. Measured as "Total Phosphorus" (TP) and "nitrate" (NO₃⁻).

**Chloride**

- A component of salt. High concentrations of salt can harm aquatic life.

**Sediment**

- Too much can reduce light for plant growth, increase water temperature for cold-water creatures, and harm other wildlife. Highly sensitive to pollution. Numbers and variety a good indicator of overall stream health.

**Water Quality Has Improved Over the Past Three Decades in the Majority of 21 Metro Area Streams Studied by Metropolitan Council Environmental Services (MCES).**

**Flow (cfs) Total Nitrogen (mg/L) Nitrate**

- Rum River
- Missississippi, Minnesota, and St. Croix. All together, the streams drain half the geographic area of the seven-county Twin Cities metropolitan area.

**Are the streams improving?**

- The streams with improved water quality showed reduced concentrations of sediment, phosphorus, and nitrate. Concentration is the amount of sediment, phosphorus, and nitrate. "Concentration" is the amount of sediment, phosphorus, and nitrate.

**Metro Area River Nitrate Load Contributions**

- A (N=32)
- B (N=24)
- C (N=55)
- D (N=34)
- E (N=13)

**Legend and Site Order**

- Size of circle relative to concentration
- River Monitoring Sites
- Lock and Grey Cloud St. Paul
- Water Resources Assessment/Water Monitoring
DEMAND FOR WATER HAS GROWN
OUR BIGGEST SOURCES HAVE NOT

Growing population increases water use

- Population: 30%
- 2015: 350 Million Gallons per Day
- 2040: +100 Million Gallons per Day

Water supply challenges
- Groundwater shortages in areas anticipating growth.
- Drought, extreme weather, or contamination

Current Average Water Use:
- 125 gallons/person/day
- 76% Public water systems
- 8% Crop irrigation
- 8% Other
- 5% Industrial
- 3% Private

Regional Goal
- 90 gallons/person/day

Our region could grow by almost 800,000 people without increasing today’s water use.

We do not have to choose between wise water use and economic growth

We can have both. There are practical ways we can be more efficient to meet future demand.

The role of the Metropolitan Council in water supply planning is to collaboratively:
- Develop a regional plan
- Maintain a database of technical information
- Assist communities in developing their local water supply plans
- Identify approaches for emerging issues