Welcome to the Hastings Wastewater Treatment Plant Facility Plan Public Hearing

You are muted and your video is disabled upon entry.

Please use the chat (between the 'participants' and 'share screen' buttons) to send in comments and questions throughout the public hearing. Comments and questions will be addressed after the presentation during the public comment session.

If you experience any technical difficulties, please call or text 651.302.2908 or email comment@hastingswwtp.com
MCES Hastings Wastewater Treatment Plant Facility Plan Public Hearing

Wendy Wulff, Metropolitan Council Member, Vice Chair of the Environment Committee
Tim O'Donnell, Project Citizen Liaison, Facilitator
Rene Heflin, Manager, Wastewater Plant Engineering
Heidi Hutter, Principal Engineer, Project Manager, Wastewater Treatment Plant
Chad Davison, Principal Engineer, Project Manager, Collection System and Roadway Improvements

Public Hearing
January 5, 2022
Meet the presenters of the
Hastings Wastewater Treatment Plant
Public Hearing

Tim O’Donnell
Wendy Wulff
Rene Heflin
Heidi Hutter
Chad Davison
Public Hearing Purpose

• Summarize the proposed project and explain alternative approaches that we evaluated
• Answer your questions
• Receive your comments for the public record
Comment Period

The comment period is open through January 18 at 5 p.m. In addition to offering comments at the public information meeting and public hearing, you can submit comments in the following ways:

• Mail written comments to Heidi Hutter at Metropolitan Council Environmental Services, 390 Robert St. N., Saint Paul, MN 55101-1805
• Email comments to: comment@hastingswwtp.com
• Record comments: 651.302.2908 (Project Comment Line)
• Send Teletype (TTY) comments to 651.291.0904
Submit Plan to Minnesota Pollution Control Agency (MPCA) with application for Clean Water Revolving Fund Project Priority List
WHO WE SERVE
7-county Twin Cities Metro Area
111 communities
3,000 square miles
2,700,000+ people

OUR FACILITIES
9 wastewater treatment plants
640 miles of interceptors
61 lift stations (pumping stations)
250 million gallons per day (average)
8
30 Consecutive Years of Perfect Permit Compliance

- 1952 Constructed
- 1970 MCES Acquired
- 1985 Last Expansion
- 2020 Condition Assessment
Hastings WWTP Service Area

Long Term Service Area
10M gallons/day long-term planned capacity*
29,000 residents served (in 2040)
*MCES 2040 Water Resources Policy Plan – Post 2040

Existing Service Area
2.3M gallons/day plant capacity
23,000 residents served
What is a Facility Plan?

MCES Facility Plan

This document is a prerequisite for a portion of the financing on MCES projects. The MCES Facility Plan:

• Summarizes the current state of the existing MCES wastewater treatment plant
• Identifies the need for rehabilitating existing facilities or constructing new facilities
• Determines the potential environmental impacts of new facilities
• Recommends a course of action
Hastings Wastewater Treatment Plant Facility Plan

Project Need

- Existing facilities that are near end of service life need to be renewed.
- The plant needs to expand to serve population growth in the service area.
- Additional wastewater treatment is needed to meet future environmental regulations.

Implementation Schedule

- 2020: Planning
- 2022: Design
- 2024: Design/Construction/Commission
- 2028: Decommissioning

$165 Million
Hastings WWTP
Condition Assessment & Renewal Project

Condition Assessment - $26M to Renew through 2040*

- $7M 2025
- $12M 2030
- $7M 2040

*Does not include cost to expand beyond existing 2.3 MGD capacity.
*Does not include administration, engineering, contingency, or inflation.
*Status quo renewal.

Renewal Project Scope
- Plant Outfall
- Aeration Tanks
- Mechanical HVAC
- Security for new plant site

Schedule
- 2020: Design
- 2022: Construction
- 2024: $2.5 Million

$2.5 Million
Projected Growth in the Service Area

Existing Plant Capacity - 2.34 MGD

Sewered Population Projection:
City of Hastings, 277 cap/yr

Method 1: 0.013 mgd/yr, 67 gpd/cap
Method 2: 0.025 mgd/yr, 1.6%/year

Historical Flow Data
Minnesota Nutrient Reduction Strategy

• 45% Reduction in Nitrogen Loads to the Mississippi by 2040
• Load Reductions at Wastewater Treatment Plants will be necessary
• Hastings area is prioritized by the MPCA for future nutrient reduction
• Plant expansion at the current Hastings WWTP would be required
  – Expansion is challenging and limited.
  – Derating capacity is not an option for MCES.
Key Scope & Implementation Plan
$165M Program

Lift Station and Conveyance Systems ($23M)*
Construction 2024 to 2026
• Lift Station on Existing Site ($1M)
• Conveyance System to New Site ($22M)

Wastewater Treatment Plant and Outfall ($139M)*
Design/Build 2024 to 2027
• Wastewater Treatment Plant ($119M)
• Outfall to the Mississippi River ($20M)

Decommission Existing Facilities ($3M)*
2028 to 2029
• Decommission Existing Facility

*Rounded costs. See Facility Plan for further detail.
Planning level costs include 30% contingency, 3% annual escalation cost, 20% Engineering and Administration.
Wastewater Treatment Plant and Outfall ($139M)

- Relocate Oil Line
- Preliminary Treatment
  - Influent Pumping
  - Screening
  - Grit Removal and Processing
- Primary/Secondary Treatment
  - Primary Clarifiers (future)
  - Biological Phosphorus Removal
- UV Disinfection
- Gravity Outfall to the Mississippi River
- Solids Thickening, Storage, and Loadout
- Odor Management Systems
- Facility Support Systems
- Site Access and Security
### Effluent Discharge - Alternatives

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>CAPITAL COSTS ($)</th>
<th>O &amp; M COSTS ($)</th>
<th>SALVAGE VALUE ($)</th>
<th>TOTAL NPV WITH ADJUSTMENT ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 1 – Outfall to Mississippi River (Recommended)</td>
<td>$5,910,000</td>
<td>$6,025,000</td>
<td>$(2,308,000)</td>
<td>$9,927,000</td>
</tr>
<tr>
<td>Alternative 2 – Outfall to Vermillion River</td>
<td>$9,932,000</td>
<td>$8,903,000</td>
<td>$(2,223,000)</td>
<td>$16,611,000</td>
</tr>
<tr>
<td>Alternative 3 – Rapid Infiltration Basin</td>
<td>$14,645,000</td>
<td>$28,937,000</td>
<td>$(4,159,000)</td>
<td>$39,424,000</td>
</tr>
<tr>
<td>Alternative 4 – Deep Injection wells</td>
<td>$31,475,000</td>
<td>$23,496,000</td>
<td>$(7,384,000)</td>
<td>$47,588,000</td>
</tr>
</tbody>
</table>

Alternative 1 is recommended
- Lowest Net Present Value
- Large Assimilative Capacity
- Supports Expanded Flows
- Included in MCES Mississippi Basin Total Phosphorus Permit
## Preliminary Treatment: Influent Pumping Alternatives

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Capital Costs ($)</th>
<th>O &amp; M Costs ($)</th>
<th>Total NPV With Adjustment ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 1 – Wetwell with Submersible Pumps</td>
<td>15,550,000</td>
<td>8,180,000</td>
<td>23,730,000</td>
</tr>
<tr>
<td>Alternative 2 – Wetwell/Drywell (Recommended)</td>
<td>17,125,000</td>
<td>8,320,000</td>
<td>25,440,000</td>
</tr>
</tbody>
</table>

Alternative 2 is recommended
- Highest Net Present Value
- Ease of Maintenance
- Expandability
## Preliminary Treatment: Screenings Alternatives

<table>
<thead>
<tr>
<th>SCREENINGS ALTERNATIVES</th>
<th>CAPITAL COSTS ($)</th>
<th>O &amp; M COSTS ($)</th>
<th>TOTAL NPV WITH ADJUSTMENT ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 1 – Perforated Plate</td>
<td>820,000</td>
<td>1,680,000</td>
<td>2,500,000</td>
</tr>
<tr>
<td>Alternative 2 – Multi-Rake</td>
<td>880,000</td>
<td>1,560,000</td>
<td>2,440,000</td>
</tr>
<tr>
<td>(Recommended)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative 3 – Climber</td>
<td>1,050,000</td>
<td>1,865,000</td>
<td>2,920,000</td>
</tr>
</tbody>
</table>

**Alternative 2 is recommended**

- Lowest Net Present Value
- Ease of Maintenance
- Lowest Operating Cost
## Preliminary Treatment: Grit Removal and Processing Alternatives

<table>
<thead>
<tr>
<th>GRIT REMOVAL ALTERNATIVES</th>
<th>CAPITAL COSTS ($)</th>
<th>O &amp; M COSTS ($)</th>
<th>TOTAL NPV WITH ADJUSTMENT ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 1 – Smith and Loveless Vortex</td>
<td>250,000</td>
<td>442,000</td>
<td>692,000</td>
</tr>
<tr>
<td>Alternative 2 – Hydro International HeadCell</td>
<td>331,000</td>
<td>587,000</td>
<td>917,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>CAPITAL COSTS ($)</th>
<th>O &amp; M COSTS ($)</th>
<th>TOTAL NPV WITH ADJUSTMENT ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 1 – WEMCO Hydrogritter II</td>
<td>453,000</td>
<td>802,000</td>
<td>1,255,000</td>
</tr>
<tr>
<td>Alternative 2 – Hydro International GritCleanse</td>
<td>438,000</td>
<td>776,000</td>
<td>1,215,000</td>
</tr>
<tr>
<td>Alternative 3 – Smith and Loveless Grit Washer</td>
<td>174,000</td>
<td>308,000</td>
<td>482,000</td>
</tr>
</tbody>
</table>

Selection will be based on performance specifications developed during design.
## Primary and Secondary Treatment Alternatives

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>CAPITAL COSTS ($)</th>
<th>O &amp; M COSTS ($)</th>
<th>TOTAL NPV ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 1: Nitrifying Activated Sludge with Chemical Phosphorus Removal</td>
<td>$63,800,000</td>
<td>$540,000</td>
<td>$77,000,000</td>
</tr>
<tr>
<td>Alternative 2: Activated Sludge with Enhanced Biological Phosphorus Removal</td>
<td>$64,400,000</td>
<td>$258,000</td>
<td>$71,000,000</td>
</tr>
<tr>
<td>Alternative 3: Activated Sludge with Enhanced Biological Phosphorus Removal and no Primary Clarifiers (Recommended)</td>
<td>$62,800,000</td>
<td>$160,000</td>
<td>$67,000,000</td>
</tr>
<tr>
<td>Alternative 4: Simultaneous Nitrification/Denitrification</td>
<td>$65,400,000</td>
<td>$247,000</td>
<td>$72,000,000</td>
</tr>
<tr>
<td>Alternative 5: BIOCOS</td>
<td>$62,900,000</td>
<td>$129,000</td>
<td>$66,000,000</td>
</tr>
<tr>
<td>Alternative 6: Mobile Organic Biofilm</td>
<td>$68,000,000</td>
<td>$316,000</td>
<td>$76,000,000</td>
</tr>
</tbody>
</table>

**Alternative 3 is recommended**
- Second Lowest Net Present Value Alternative
- Proven for Phosphorus Removal
- Progression Path for Potential Future Nutrient Reduction

Alternative 5 may be evaluated further in preliminary design if Total Phosphorus removal below 1 mg/L is proven.
## Disinfection Alternatives

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>CAPITAL COSTS ($)</th>
<th>O &amp; M COSTS ($)</th>
<th>TOTAL NPV WITH ADJUSTMENT ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 1 - Sodium Hypochlorite</td>
<td>6,400,000</td>
<td>9,300,000</td>
<td>15,700,000</td>
</tr>
<tr>
<td>Alternative 2 – UV Disinfection (Recommended)</td>
<td>5,200,000</td>
<td>5,700,000</td>
<td>11,000,000</td>
</tr>
</tbody>
</table>

Alternative 2 is recommended
- Lowest Net Present Value
- Reduced Chemical Handling
- Smaller Footprint
- Remote Operation Potential
## Solids Processing Alternatives

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>CAPITAL COSTS ($)</th>
<th>O &amp; M COSTS ($)</th>
<th>TOTAL NPV ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 1: Mesophilic Anaerobic Digestion and Land Application</td>
<td>$15,400,000</td>
<td>$788,000</td>
<td>$35,100,000</td>
</tr>
<tr>
<td>Alternative 2a: Liquid Sludge Hauling, Thickened Primary and Waste Activated Sludge</td>
<td>$4,500,000</td>
<td>$569,300</td>
<td>$18,700,000</td>
</tr>
<tr>
<td>Alternative 2b: Liquid Sludge Hauling, Thickened Waste Activated Sludge Only – No Primary Clarifiers (Recommended)</td>
<td>$5,700,000</td>
<td>$485,700</td>
<td>$17,900,000</td>
</tr>
<tr>
<td>Alternative 3: Dewatered Cake Hauling, Thickened Primary Sludge and Non-thickened Waste Activated Sludge</td>
<td>$14,600,000</td>
<td>$544,300</td>
<td>$28,200,000</td>
</tr>
<tr>
<td>Alternative 4: Dewatered Cake Hauling, Thickened Primary and Waste Activated Sludge</td>
<td>$11,500,000</td>
<td>$566,100</td>
<td>$25,700,000</td>
</tr>
</tbody>
</table>

**Alternative 2b is recommended**
- Lowest Net Present Value
- Simplifies Solids Processing
Discharge Alignment Existing Easements
Treated Water Discharge Alignment
Effluent Pumping Alternatives

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>CAPITAL COSTS ($)</th>
<th>O &amp; M COSTS ($)</th>
<th>TOTAL NPV WITH ADJUSTMENT ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 1</td>
<td>22,300,000</td>
<td>327,000</td>
<td>22,627,000</td>
</tr>
<tr>
<td>Only Influent Pumping (Recommended)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative 2</td>
<td>29,113,000</td>
<td>3,500,000</td>
<td>32,613,000</td>
</tr>
<tr>
<td>Influent and Effluent Pumping</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Alternative 1 is Recommended
- Lowest Net Present Value
- One Pumping Station at the Plant
- Gravity Flow to the Mississippi River
Lift Station and Conveyance Systems ($23M)

- 0.2 mgd lift station located on the existing Hastings WWTP site
- 6-inch diameter forcemain from the lift station to the new gravity trunk sewer
- Gravity trunk sanitary sewer from the forcemain to the new plant
• Reviewed undeveloped properties within 1300 feet of existing WWTP

• 6 properties total reviewed
Lift Station Siting - Major Criteria Reviewed

- Site Characteristics
  - lot size
  - current land use
  - existing encumbrances

- Development Potential
  - future land use designation
  - estimated market value
  - potential market value

- Environmental Considerations
  - prevailing winds
  - flood plain
  - MRCCA
  - historic
  - cultural
  - active MPCA site

- Constructability
  - Geotechnical
  - temp conveyance needs
  - operations of existing plant
  - existing utilities

- Capital Cost
  - pipe routing to lift station
  - land acquisition
Lift Station Siting Comparison

Site 1B | WWTP SE

Pros

• Met Council owned land
• No easements or restrictions
• Would require minimal infrastructure improvements compared to other sites
• Not located within a flood zone
• Lowest capital costs
• Minimal impacts to existing WWTP plant
• Sufficient site access with existing roadway infrastructure

Cons

• Falls within MRCCA, which has regulations around siting and construction (not anticipated to present a significant issue)
• May require screening, setbacks, and site design considerations to buffer from adjacent residential

Site 1B Quick Facts

.50 Acre Site
80ft from nearest residential property
Located on existing WWTP
Siting may allow for future development on surrounding site
Forcemain Alignments

- 2 forcemain alignments reviewed
  - Tyer Street and Bailly Street
  - Tyler Street is the recommended alignment
  - Bailly Street has been recently reconstructed and has complications with the railroad to the east
  - Met Council will repair or replace any City utilities impacted by the forcemain installation
Gravity Alignment
Decommission Existing Facilities ($3M)

- Concept to be used as a starting point for our intergovernmental agreement negotiations.
- South half of property shows removal of structures to bottom of footings.
- North half shows partial removal to 6 feet below ground elevation.
Sustainability & Community Impacts

Environmental Sustainability
- Energy Conservation

Sustainable Services
- Odor Management

Community Impacts
- Hauling
- Archeological and Historical Review
Environmental Sustainability

- B3 SB2030 Guidelines
  - Administration/Maintenance Building
- Energy and Carbon Efficient Approaches
  - High Efficiency Equipment, Lighting, and Building Systems
  - Tier 4 Generator
  - Gravity Flow to Mississippi River
- Sustainable Landscapes and Green Infrastructure Best Management Practices
- On-site Non-Potable Effluent Water Use
Sustainable Services and Community Impacts

Odor Management
- Headworks
- Gravity Thickening
- Sludge Loadout
- Lift Station

Community Impacts
- Hauling Route
  - 4 trucks/day
  - 9-ton minimum roadway design
- Archeological and Historical Review
Total Cost and Rate Impacts

• MCES project funding: Public Facilities Authority (PFA) loans (20-year term)

• Loans for these projects are paid from two funding sources:
  1. Municipal Wastewater Charge (MWC): This is the MCES portion of your sewer bill.
  2. Sewer Availability Charge (SAC): This is a one-time charge for new connections.

• Impact to rates from $165 million in loans*:
  1. $6.25 = increase to the annual sewer billing per household (average $199 per year).
  2. $80 = per new household connection (or equivalent) per year paid from the SAC fund (for 20 years).

*This project is included in MCES capital improvement plan, so loan payments are already built into future increases to MWC and SAC rates. These figures show the relative impact on rates and how the project will be paid for over time.
Next Steps

Deadline for comments on Draft Facility Plan

1/18/2022

Metropolitan Council Environment Committee Plan Review

2/8/2022

Metropolitan Council adoption of Facility Plan

2/23/2022

Submit Plan to Minnesota Pollution Control Agency (MPCA)

3/4/2022
Next Steps – Environmental Assessment Worksheet

Some of the items included in the EAW:

- Natural Heritage Review
- Land Use Compatibility Review
- Environmental Assessment
- Air and Water Resource Review
- Historical Property Survey
- Noise and Transportation Assessment
- Cultural Properties Review and Assessment
Submit your comments

• Submit comments no later than **January 18, 2022**
• Submit comments via:
  
  – **E-mail:** comment@hastingswwtp.com
  
  – **Postal mail:** Heidi M. Hutter, Metropolitan Council Environmental Services, 390 Robert St. N., St. Paul, MN 55101-1805
  
  – **Record comments:** 651.302.2908 (Project Comment Line)
  
  – **Send TTY comments:** to 651.291.0904
Draft Facility Plan – Report Available for Review

• Hastings City Hall, 101 Fourth St. E., Hastings
• Pleasant Hill Library, 1490 S. Frontage Rd., Hastings
• Metropolitan Council Website: MetroCouncil.org/HastingsWWTPProject.com
Stay Informed

Share questions and comments:

✉️ Email: comment@hastingswwtp.com
📞 Call the Project Hotline: (651) 302 - 2908

Learn more about the project:

MetroCouncil.org/HastingsWWTPProject
Thank you for joining us!