Welcome to the

Blue Lake Wastewater Treatment Plant Improvements Project Public Hearing



You are muted and your video is disabled upon entry.



Please utilize the QA (lower right corner of the screen) to type in comments or questions throughout the session. Questions will be answered after the presentation during the Q & A session. Questions can also be submitted by calling 319.238.3413 or emailing comment@bluelakewwtp.com



If you experience any technical difficulties, please call or text 319.238.3413 or email comment@bluelakewwtp.com.

The meeting will begin at 6 p.m.

Blue Lake Wastewater Treatment Plant Improvements Facility Plan Public Hearing

Tim O'Donnell, Senior Information Coordinator Peter Lindstrom, Metropolitan Council Member, Chair of the Environment Committee Jason Peterson, Principal Engineer, Project Manager Rene Heflin, Manager, Wastewater Plant Engineering

Public Hearing 3/15/2021



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Meet the presenters of the Blue Lake Wastewater Treatment Plant Improvements Project Public Hearing









Tim O'Donnell

Peter Lindstrom

Jason Peterson

Rene Heflin

Public Hearing Purpose

- Summarize the proposed wastewater treatment plant improvements project and explain alternative approaches that we evaluated
- Answer your questions
- Receive your comments for the public record

Comment Period

The comment period is now open through March 25 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 Tim O'Donnell at Metropolitan Council Environmental Services, 390 Robert St. N., Saint Paul, MN 55101-1805
- Email comments to: public.info@metc.state.mn.us
- Record comments: 651.602.1500 (Metropolitan Council Public Comment Line)
- Send Teletype (TTY) comments to 651.291.0904

Public Notices & Schedule



Submit Plan to Minnesota Pollution Control Agency (MPCA) with application for Clean Water Revolving Fund Project Priority List

Service Area and Facilities Wastewater Treatment Plant Locations





WHO WE SERVE

7- county Twin Cities Metro Area110 communities3,000 square miles2,700,000+ people

OUR FACILITIES

9 wastewater treatment plants
640 miles of interceptors
61 lift stations (pumping stations)
250 million gallons per day (average)

What is a Facility Plan?

BLUE LAKE WASTEWATER TREATMENT PLANT IMPROVEMENTS 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



How does the Blue Lake Plant treat wastewater?

Blue Lake is the second largest MCES plant and is the third largest plant in Minnesota. Located on the Minnesota River, the Blue Lake Plant began treating wastewater in 1971 and currently treats an average of 27.5 million gallons of wastewater per day.

IT SERVES 300,000 PEOPLE IN 29 COMMUNITIES, AND HAS 131 MILES OF INTERCEPTORS.



Blue Lake Plant Wastewater Treatment Process





Blue Lake Wastewater Treatment Plant Improvements

The purpose of the Blue Lake Facility Plan is to outline plant upgrades needed to serve anticipated growth in the southwest metropolitan area through 2050 and meet new water quality standards for phosphorus.

Location – City of Shakopee, west of US-169 on Hwy 101



- Maintain reliability
- Preserve assets
- Improve operational flexibility, efficiency and safety
- Protect environment, health, safety and welfare of customers
- Partner with customers on construction where possible





Project Need







Additional wastewater treatment is needed to meet future environmental regulations. The plant needs to expand to serve population growth in the service area.

Existing facilities that are near end of service life need to be renewed.

The MPCA established River Eutrophication Standard TMDL for the Minnesota River which will require the Blue Lake Plant to meet a 0.3 mg/l total effluent (phosphorous). The Blue Lake Service area is expected to increase by approximately 170,000 residents by 2050. Final Stabilization Facility (FSF) is over 20 years old and needs renewal.

New Phosphorus Limits

Total Phosphorus 12 Month Rolling Kilogram Sum



DMR Report Year/DMR Report Month/DMR Reported Result Sign

| EFFECTIVE PERIOD | ТҮРЕ | UNIT | EXISTING LIMITS | PROPOSED LIMITS |
|------------------|--------------------------|-------|-----------------|-----------------|
| Jan-Dec | 12 Month Moving Total | kg/yr | 58,024 | 17,407 |
| Jun-Sept | Calendar monthly Average | kg/d | N/A | 100.1 |
| Jan-Dec | 12 Month Moving Average | mg/L | 1.0 | 1.0 mg/L |

Projected Growth in the Service Area



Blue Lake Plant Service Area

 Blue Lake WWTP

> Potential Locations for Future Scott County Plant

Long Term Service Areas Current Potential Blue Lake

Currently Served Areas Blue Lake /////



County Boundaries

City and Township Boundaries

6

Lakes and Rivers



Condition Assessment

- Solids Assessment
 - Completed in 2018
- Liquids and Support Assessment
 - Completed in 2020
- Results
 - Near Term Needs
 - \circ RTO
 - o Conveyor
 - Dryer Renewal
 - New dryer train installed and commissioned
 - o Existing dryer train rehabilitated.



Key Scope and Implementation Plan

Phase I – Improvement required within the next 10 years to meet customer level of service objectives (\$159M)

Phase II – Improvements that can be deferred for 10-15 years (\$140M)

Phase III – Remaining improvements identified w/in the 30-yr planning period that can be deferred 15+ years (\$114M)

- Capacity Expansion
- Asset Preservation
- Quality Improvements



Phase I

Improvements required w/in the next 10 years to meet customer level of service objectives (\$159M)

- Grit collection system retrofit and renewal
- Primary treatment improvements
- Aeration tank improvements
- Addition of 2 secondary clarifiers
- Effluent process improvements
- Addition of 4th Digester
- Renewal of Final Stabilization Facilities –
- Plant process control system renewal
- Improvement and expansion of liquid waste receiving (LWR)
- Site building architectural renewal





Biological Nutrient Removal – Alternatives

| EFFECTIVE PERIOD | ALT. 0 CURRENT | ALT. 1 STEP FEED | ALT. 2 MODIFIED JHB | ALT. 3 SIDE STREAM | ALT. 4 ALT 3 PLUS CARBON | ALT. 5 ALT 2 PLUS EQ |
|-----------------------------|-------------------|------------------------|---------------------------|--------------------------|--------------------------------|----------------------------|
| Total Capital Cost | \$81,816,000 | \$52,416,000 | \$54,912,000 | \$69,984,000 | \$85,572,000 | \$47,712,000 |
| 2025 Comparative Annual O&M | \$230,000 | \$187,000 | \$49,000 | \$307,000 | \$346,000 | \$77,000 |
| Net Present Value | \$89,000,000 | \$58,000,000 | \$56,000,000 | \$79,000,000 | \$96,000,000 | \$50,000,000 |

- Alternative 2 is recommended
 - Second most inexpensive option
 - Provides for more flexibility in the process
 - Provides for less chemical usage
 - Provides for smaller tertiary filters in Phase 2



Digester Gas Alternatives

| ALTERNATIVE | CAPITAL COST | ANNUAL O&M COST | PRESENT WORTH OF ANNUAL O&M | PRESENT WORTH |
|----------------------------|-----------------|--------------------|-----------------------------------|------------------|
| Flare All Gas | \$0 | \$468,00 | \$6,690,000 | \$6,960,000 |
| Current Use (34% Flare) | \$744,000 | \$264,000 | \$2,950,000 | \$3,694,000 |
| 100% Digester Gas in Dryer | \$744,000 | \$76,000 | \$1,140,000 | \$1,884,000 |
| CHP Current Rate | \$5,777,000 | (\$267,000) | (\$3,980,000) | \$1,886,000 |
| CHP Future Rate | \$5,777,000 | (\$227,000) | (\$3,380,000) | \$2,486,000 |
| RNG | \$9,629,000 | (\$674,000) | (\$10,202,000) | (\$390,000) |



- 100% Digester Gas in Dryer is Recommended
 - Lowers greenhouse gas (GHG) emissions
 - Second lowest cost
 - Not impact by economic or political changes

Drying Alternatives

| COST ITEM | ALT. 1 DIGESTION WITH DRYING | ALT. 2 HYDROLYSIS |
|---------------------------------------|---------------------------------|----------------------|
| Capital Costs | \$0 | \$15,104,000 |
| Net Present Value (NPV) of Annual O&M | \$10,755,000 | \$22,772,000 |
| Total | \$10,755,000 | \$37,876,000 |

- Digestion with Drying is Recommended
 - Maintains Class A EQ Biosolids
 - Utilizes current structures
 - Substantially less expensive



Phase II

Improvements that can be deferred for 10-15 years (\$140M)

96% cost

- New primary treatment complex -
- Addition of tertiary filtration to achieve effluent phosphorus of 0.3 mg/L
- Renewal of digester gas utilization equipment and new chemical addition facilities
- Addition of 1 gravity belt thickener (GBT)
- Rehabilitation of plant effluent structure





Tertiary Filter Alternative

| ITEM | ALT. 1 CONVENTIONAL | ALT. 2 CLOTH MEDIA | ALT. 3 BACKWASH | |
|---|------------------------|-----------------------|--------------------|--|
| Total Capital Cost | \$83,000,000 | \$70,000,000 | \$71,000,000 | |
| 2025 Comparative Annual operating costs | \$ 1,410,000 | \$ 1,460,000 | \$ 1,510,000 | |
| Terminal Value | (\$6,800,000) | (\$2,300,000) | (\$4,500,000) | |
| Net Present Value | \$120,000,000 | \$112,000,000 | \$113,000,000 | |

- Conventional Filters are Recommended
 - All options are similar in price
 - Handles storm events
 - Handles high solids events
 - Least prone to plugging

DEEP-BED GRANULAR FILTER



Phosphorus Management Alternatives

| ITEM | ALT. 1 CONVENTIONAL | ALT. 2 CLOTH MEDIA | ALT. 3 BACKWASH | ALT. 4 BACKWASH |
|---------------------------------------|------------------------|-----------------------|--------------------|--------------------|
| Capital Costs | \$0 | \$222,000 | \$6,849,000 | \$5,183,000 |
| Net Present Value (NPV) of Annual O&M | \$22,883,000 | \$19,852,000 | \$13,041,000 | \$15,177,000 |
| Total | \$22,883,000 | \$20,074,000 | \$19,890,000 | \$20,360,000 |
| Payback Period to Current Status Quo | N/A | <1 year | 6 years | 5.5 years |

- Magnesium Hydroxide is Recommended
 - Minimal capital costs
 - Could utilize existing pellet marketing



Phase III Remaining improvements identified w/in the 30-yr planning period that can be deferred 15+ years (\$114M)

- Grit removal system replacement
- Primary sludge pump replacement
- Addition of 1 aeration tank and aeration blower -
- Installation of zero-head loss channel to tertiary filtration 92% cost
- Expansion of effluent pumping and disinfection
- Digester complex renewal
- Thickening and dewatering equipment renewal (incl. addition of 1 dewatering centrifuge) ——
- Replacement of chemical handling equipment
- Process control system renewal





Implementation Schedule



Northern Star Industrial Pretreatment Incentive Program (IPIP)

- Northern Star potato processing in Chanhassen is the largest organic load to the Blue Lake Plant.
- The reduction in loading to the interceptor system will make the current interceptor odor control more effective.
- For planning, the assumption is that there will be no decrease in loading from Northern Star but there is flexibility in the plan to push construction of certain elements into the future phases.
 - Secondary Clarifiers
 - Additional Aeration Tank



Environmental Sustainability & Sustainable Services



Environmental Sustainability



- Environmental Sustainability
 - Energy Conservation and Renewable Energy
 - Phosphorus Recovery

- Sustainable Services
 - Odor Management
 - Skilled Job Opportunities

Environmental Sustainability

- Energy Conservation
 - Replace aeration diffusers
 - Trim blower
- Renewable Energy
 - 100 days of flared gas re-directed to the dryer reduces greenhouse gas (GHG) emissions by 2,330 tons per year as carbon dioxide (CO₂)
 - Continue heat recovery
- Phosphorus Recovery
 - Continue production Class A Exceptional Quality (EQ)
 - Increased phosphorus removal requirements, returns more phosphorus to the environment in a form that can be beneficially reused



Sustainable Services/Odor Management

- Odor control in the plant
 - Gravity Thickeners
 - Thickening and Dewatering
 - Screenings Building
- Odor control in the interceptors
 - Bioxide at L-71
 - Baffle Piloting



Per- and Poly-fluoroalkyl Substances (PFAS)

- PFAS:
 - a group of numerous man-made chemical compounds
 - a nationwide emerging contaminant of concern linked to increased human health risks, including reduced immune system response, thyroid disease and cancer



Blue Lake Wastewater Treatment Plant - Discharge

- Existing Blue Lake NPDES permit (since 2012) requires monitoring of 4 PFAS compounds in Blue Lake WWTP discharge to MN River
 - Perfluorobutanoic acid (PFBA)
 - Perfluorohexane sulfonate (PFHxS)
 - Perfluorooctanoic acid (PFOA)
 - Perfluorooctane sulfonate (PFOS)
- MPCA recently set water quality criteria for PFOS for Pool 2
 - 0.37 nanograms PFOS per gram (ng/g) of fish tissue
 - 0.05 nanograms PFOS per liter (ng/L) in surface water
- MPCA currently evaluating need for PFOS water quality standards (WQS) in Class 2 Waters



Project Recap



Environmental Sustainability



Sustainable Services



Additional wastewater treatment is needed to meet future environmental regulations.



The plant needs to expand to serve population growth in the service area.



Existing facilities that are near end of service life need to be renewed.

Secondary treatment improvements & tertiary filtration will achieve effluent phosphorus of 0.3 mg/L

The plant will be expanded from 35 to 44 million gallons per day, on an average daily flow basis

Final stabilization facilities, the process control system, site buildings, liquid waste receiving, primary clarifiers, digester gas utilization equipment, the effluent structure, and others will be renewed.

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 \$412.8 million in loans*:
 - 1. \$15.64 = increase to the annual sewer billing per household (average \$188 per year).
 - \$207.31 = 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.



3/25/2021

Deadline for comments on Draft Facility Plan

Metropolitan Council adoption of Facility Plan

4/28/2021

4/13/2021

Metropolitan Council Environment Committee Plan Review Submit Plan to Minnesota Pollution Control Agency (MPCA) with application for Clean Water Revolving Fund Project Priority List

5/1/2021

How to offer public hearing comments

Computer, Smartphone and Tablet Users:



Use the QA box to type in questions and comments

Use the raise hand function to be unmuted and speak aloud Email your question or comment to comment@bluelakewwtp.com

Phone Users:



Comment Period

- Submit comments no later than March 25, 2021
- Submit comments to Tim O'Donnell, MCES Senior Information Coordinator, via:
 - E-mail: public.info@metc.state.mn.us
 - Postal mail: Tim O'Donnell,

Metropolitan Council Environmental Services, 390 Robert St. N., St. Paul, MN 55101-1805

- Record comments: 651.602.1500
 (Metropolitan Council Public Comment Line)
- Send TTY comments: to 651.291.0904

Draft Facility Plan – Report Available for Review

- Shakopee City Hall, 485 Gorman St., Shakopee
- Shakopee Library, 235 Lewis St. S., Shakopee
- Metropolitan Council Website: MetroCouncil.org/SewerConstruction/BlueLakeWWTP

Stay Informed

Share questions and comments

- Email: comment@bluelakewwtp.com
- & Call the Public Comment Line: 651.602.1500
- MetroCouncil.org/SewerConstruction/BlueLakeWWTP



Thank you for participating in our public hearing

