Information Item

2024 Environmental Services Intern Capstone Presentations

August 13, 2024

METROPOLITAN COUNCIL

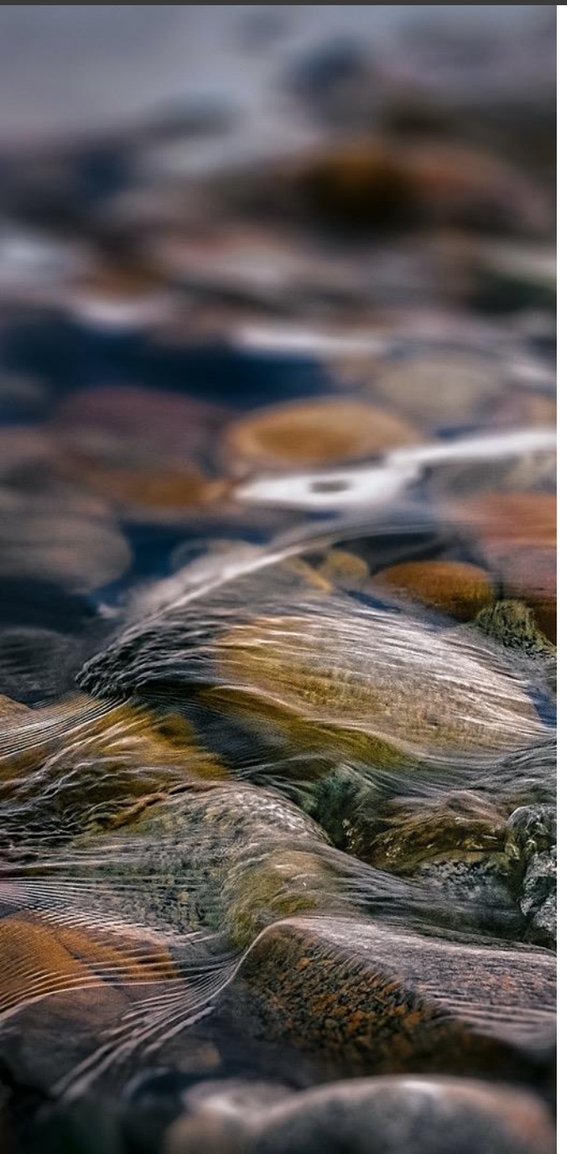
Information Item: Identification and Quantification of Wastewater Microbes at Eagles Point

METROPOLITAN COUNCIL

Environment Committee: August 13, 2024

Alexa Chesley

Introduction



Alexa Chesley

- University of St. Thomas Alumni
- Graduated May 2024
- Majors: Biochemistry and Environmental Science
- Minors: Sustainability and Physics
- Molecular Biology Intern
- Project: Identification and Quantification of Wastewater Microbes at Eagles Point
- I enjoy hiking, kayaking, drawing, and reading

Identification and Quantification of Wastewater Microbes at Eagles Point

Key Highlights

- Microbes used to treat wastewater are usually supplied with lots of oxygen – energy intensive
- Eagles Point Wastewater Treatment Plant is testing if oxygen can be reduced while keeping water quality high – reduced energy costs
- Using quantitative polymerase reaction (qPCR), I determined the type and amount of microbes
- Found significant differences depending on oxygen levels
- Contributed to a project that could lead to high energy-savings for the Met Council
- Introduced a new qPCR method to R&D
- Helped run a dye test to determine flow of treatment tanks
- Gained valuable experience for when I apply to grad school

Alexa Chesley

Molecular Biology Intern, Process Engineer, R&D, and Air Quality
Alexa.Chesley@metc.state.mn.us

METROPOLITAN COUNCIL

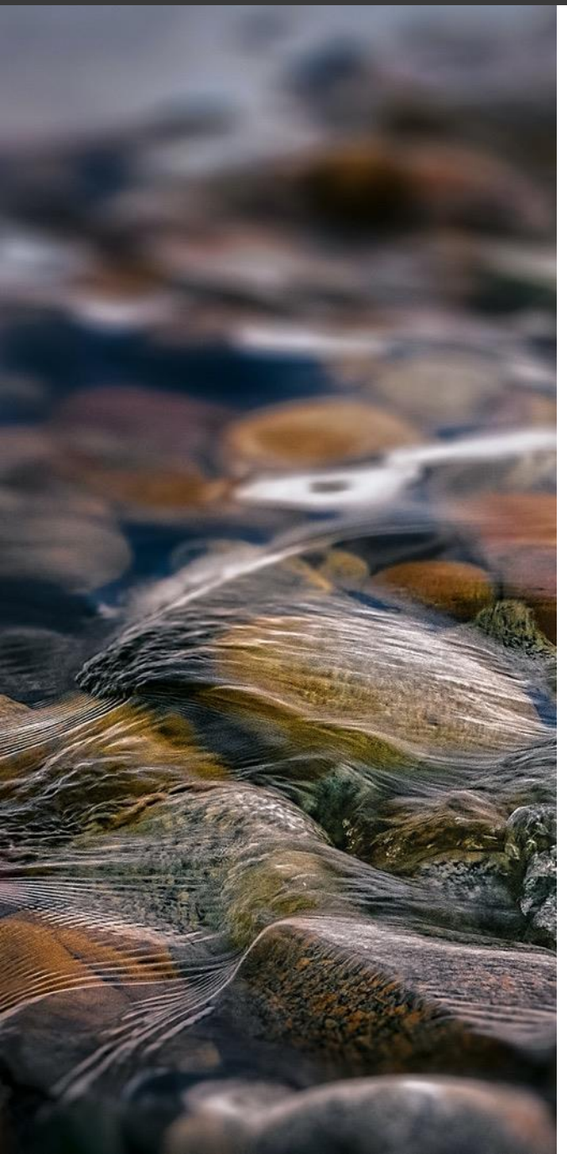
Information Item: East Bethel Nutrient Removal Optimization

METROPOLITAN COUNCIL

Environment Committee: August 13, 2024

Anna Schuller

Introduction



Anna Schuller

- Northwestern University
- Rising Junior
- Major: Environmental Engineering
- Wastewater Process Engineering Intern
- East Bethel Wastewater Treatment Plant Nutrient Removal Optimization

East Bethel Nutrient Removal Optimization

Key Highlights of Project

- East Bethel Wastewater Treatment Plant adds carbon supplement to facilitate nutrient removal
- Supplemental carbon is an additional cost to the facility
- My goal was to develop and evaluate a carbon-pacing strategy
- I also explored other ways to optimize the cost and effectiveness of nutrient removal

Career Impact

- Gained experience working in office, field, and lab settings
- Experienced complete cycle of a project
- Explored opportunities for future career

questions

Anna Schuller

Wastewater Process Engineering Intern, PERDAQ

Operations Support Services

anna.schuller@metc.state.mn.us

METROPOLITAN COUNCIL

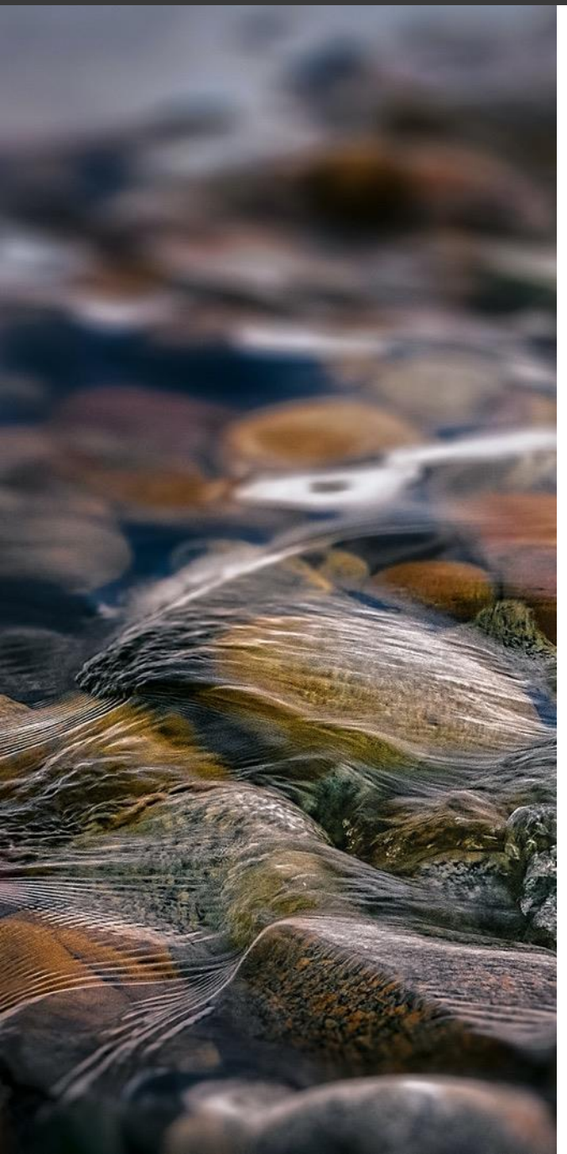
Information Item: Feature Snapping Automation

METROPOLITAN COUNCIL

Environment Committee: August 13, 2024

Benjamin Hawley

Introduction



Benjamin Hawley

- University of Minnesota Duluth
- Graduation Year: 2026
- Major: Biology, Minor: GIS
  - Concentration in Ecology, Evolution and Behavior
- Environmental Services Geographic Information System Intern (ES GIS)
- Automation in GIS
  - Line – Line Snapping
  - Point – Line Snapping

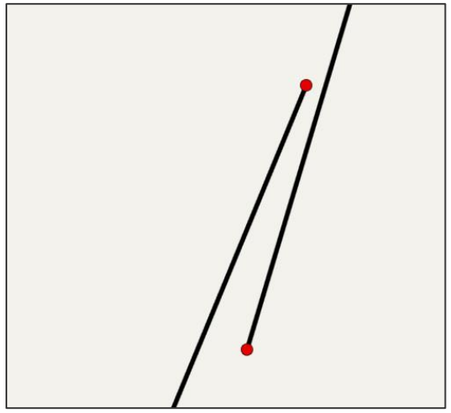
Feature Snapping Automation

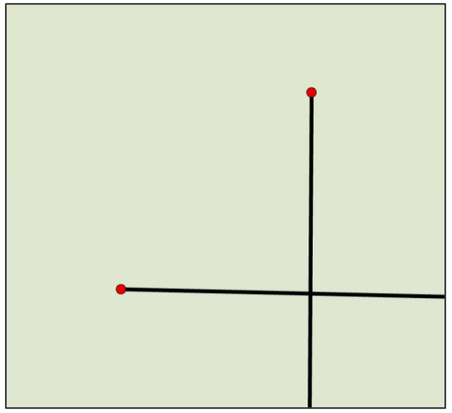
Project Purpose

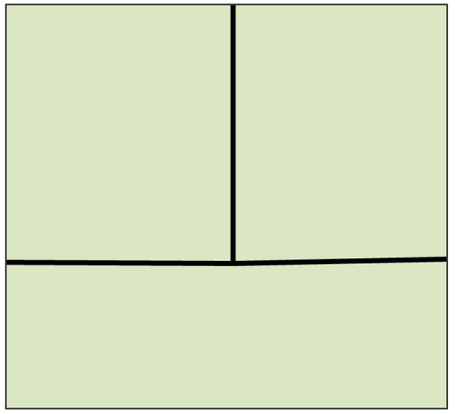
- Identify areas where features aren’t connected
  - Line -> Line
  - Point -> Line
- Find tools to automate process
- Write Python script
- Will allow us to explore further networking projects in the future

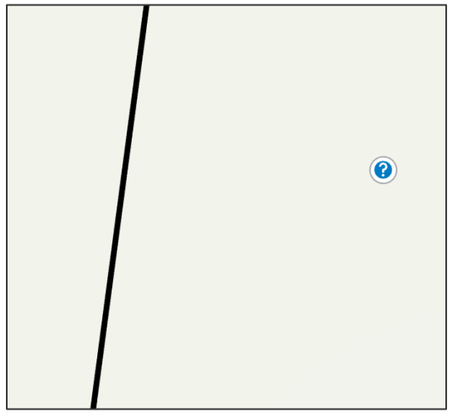
Skills Developed

- ArcGIS Pro Model Builder
- Visual Studio Code
- Python
  - Troubleshooting
- Scripting









questions

Benjamin Hawley

Environmental Services GIS Intern
Interceptor Services
benjamin.hawley@metc.state.mn.us

METROPOLITAN COUNCIL

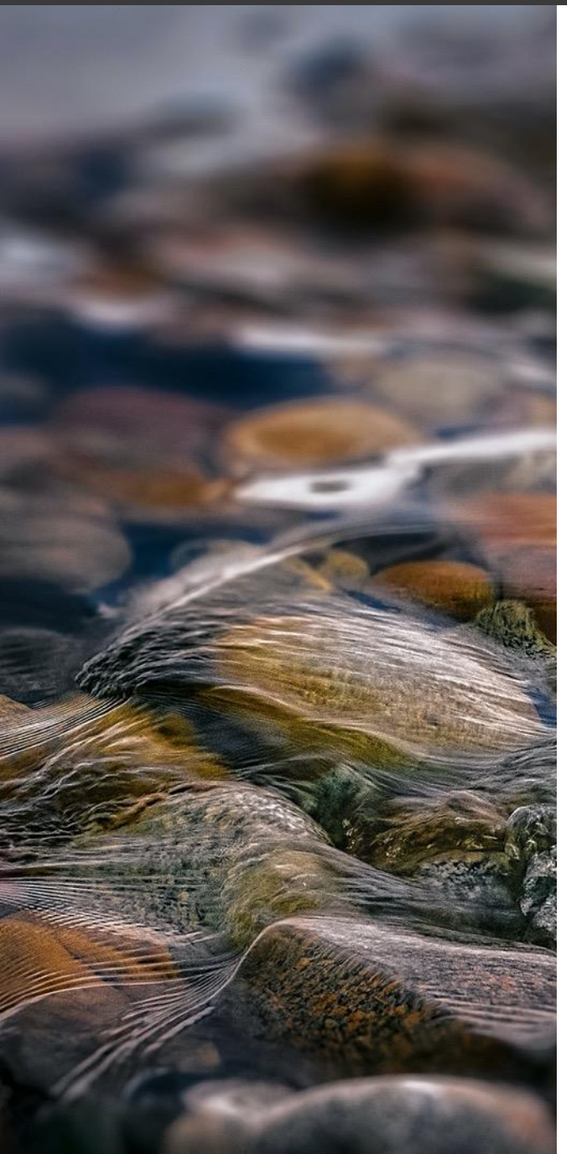
Information Item: Environmental Services Career Ladder Audit

METROPOLITAN COUNCIL

Environment Committee: August 13, 2024

Bryn Huynh

Introduction



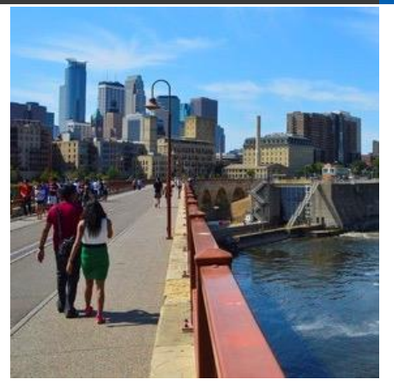
Bryn Huynh

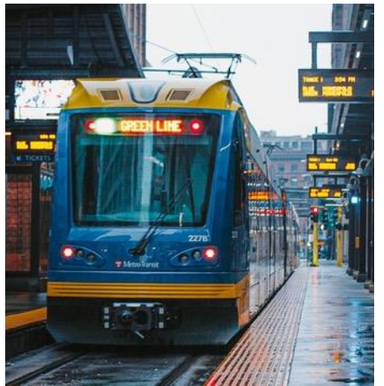
- University of Minnesota – Twin Cities
- Graduated May 2024
- Major: Sociology, Minor: Chinese
- Capstone Project: ES Career Ladder Audit

Restorative Approaches

Key Highlights of Project / Career Impact

- Environmental Services (ES) Career Ladder Audit
  - Reviewed entire list of ES careers
  - Identified existing career ladders and promotion processes
  - Applying equity lens
- Career Impact
  - Relationship Building
  - Cross-Silo Work
  - Project Management





questions

Bryn Huynh

Workforce & Equity Intern, Environmental Services

METROPOLITAN
COUNCIL

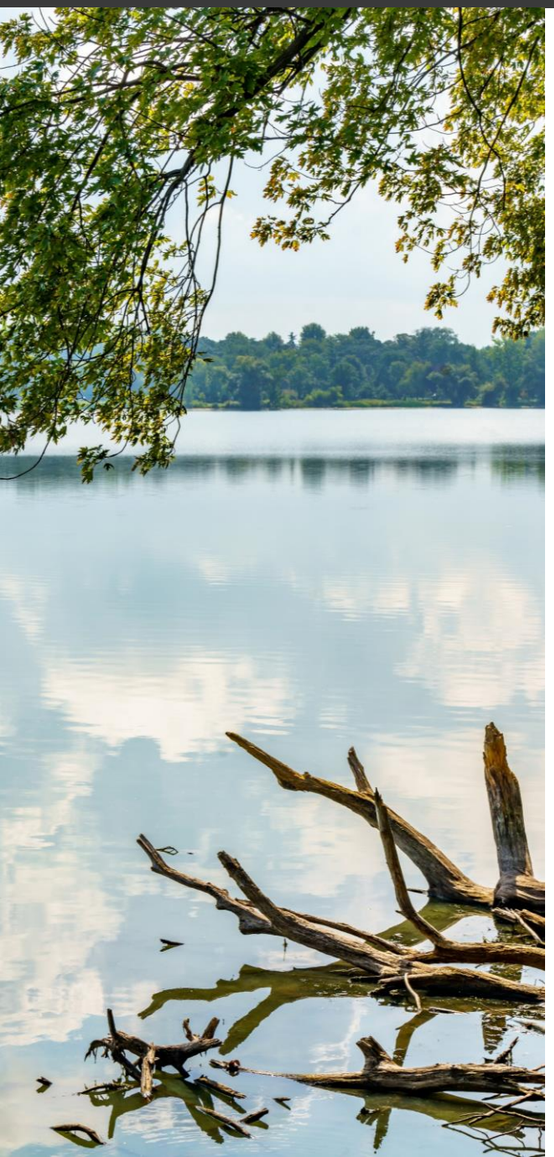
Information Item:
Water Supply Policy and Planning Guidance for Local Plan Updates and Review

METROPOLITAN COUNCIL

Environment Committee: August 13, 2024

Claudia Guillot-Wallace

Introduction



Claudia Guillot-Wallace

- Macalester College, St. Paul MN
- Graduated December 2023
- Major: Environmental Studies
  - Concentration in Biology
  - Minor in Spanish
- Passionate about hydrology, water governance, clean and accessible drinking water.

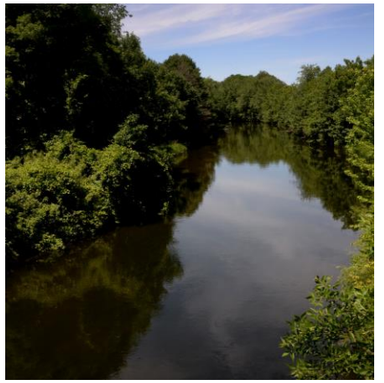
Water Supply Policy and Planning Guidance for Local Plan Updates and Review

Key Highlights of Project / Career Impact

- Focusing on finding examples of local controls to support water efficiency
  - Current examples from each community designation type in each county
  - Model examples from other organizations (ex: GreenStep Cities)

- Learning about the difference between water supply in a technical setting and in a policy/planning setting

- Learning new techniques used for facilitation, strategy mapping, project planning, etc.



Water Supply Policy and Planning Guidance for Local Plan Updates and Review

Implications and future application

- Provide guidance to communities
- Incorporate into technical assistance tools (Local Planning Handbook, PlanIt, etc.)
- A resource to support review of local comprehensive plans

Questions?

Claudia Guillot-Wallace

Water Policy and Planning

W: Claudia.Guillot-Wallace@metc.state.mn.us

P: cguillotwallace@gmail.com

METROPOLITAN COUNCIL

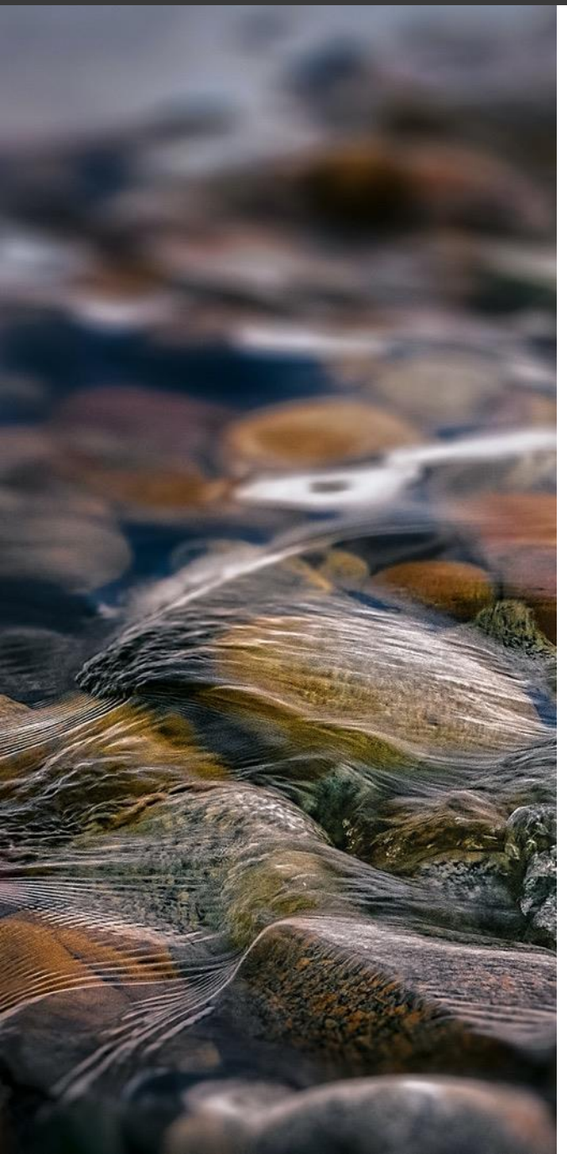
Information Item: Environmental Compliance Form Digitization

METROPOLITAN COUNCIL

Environment Committee: August 13, 2024

Cristian Cano

Introduction



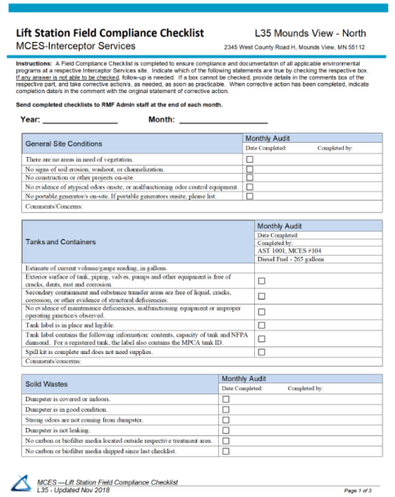
Cristian Cano

- Macalester College
- Graduation Year: 2026
- Major: Environmental Studies
  - Concentration: Urban Sustainability
- Lift Station Environmental Compliance Form Digitization

Lift Station Environmental Compliance form migration

Key Highlights of Project / Career Impact

- Lift Stations and Regional Maintenance Facility collect data on monthly/weekly paper forms
- Data for Minnesota Pollution Control Agency
- Convert monthly and weekly environmental compliance forms to digital forms.
- Create more efficient system for logging, storing, and accessing the data.
- Created easy way to collect data for fieldworkers
- Can integrate with other (Geographic Information Systems) applications for data visualization.
- Created two forms:
  - Monthly audits
  - Weekly hazardous waste audits



Lift Station Field Compliance Checklist L35 Mounds View - North
MCES-Interceptor Services 2345 West County Road H, Mounds View, MN 55112

Instructions: A Field Compliance Checklist is completed to ensure compliance and documentation of all applicable environmental programs at a respective Interceptor Services site. Indicate which of the following statements are true by checking the respective box. If any answer is not able to be checked, follow-up is needed. If a box cannot be checked, provide details in the comments box of the respective part, and take corrective action/s, as needed, as soon as practicable. When corrective action has been completed, indicate completion date/s in the comment with the original statement of corrective action.

Send completed checklists to RMF Admin staff at the end of each month.

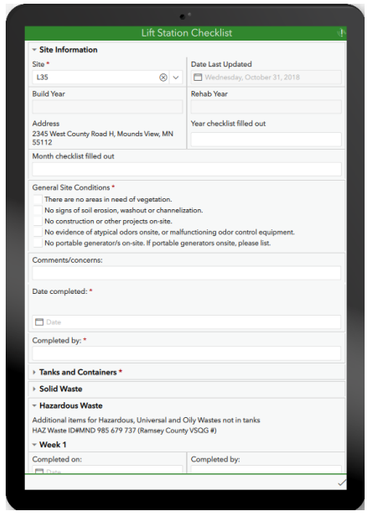
Year: _____ **Month:** _____

General Site Conditions	Monthly Audit Date Completed:	Completed by:
There are no areas in need of vegetation.	☐	
No signs of soil erosion, washout, or channelization.	☐	
No construction or other projects on-site.	☐	
No evidence of atypical odors onsite, or malfunctioning odor control equipment.	☐	
No portable generator/s on-site. If portable generators onsite, please list.	☐	
Comments/Concerns:		

Tanks and Containers	Monthly Audit Date Completed: Completed by: AST 1001, MCES #104 Diesel Fuel - 265 gallons
Estimate of current volume/gauge reading, in gallons.	
Exterior surface of tank, piping, valves, pumps and other equipment is free of cracks, dents, rust and corrosion.	☐
Secondary containment and substance transfer areas are free of liquid, cracks, corrosion, or other evidence of structural deficiencies.	☐
No evidence of maintenance deficiencies, malfunctioning equipment or improper operating practices observed.	☐
Tank label is in place and legible.	☐
Tank label contains the following information: contents, capacity of tank and NFPA diamond. For a registered tank, the label also contains the MPCA tank ID.	☐
Spill kit is complete and does not need supplies.	☐
Comments/concerns:	

Solid Wastes	Monthly Audit Date Completed:	Completed by:
Dumpster is covered or indoors.	☐	
Dumpster is in good condition.	☐	
Strong odors are not coming from dumpster.	☐	
Dumpster is not leaking.	☐	
No carbon or biofilter media located outside respective treatment area.	☐	
No carbon or biofilter media shipped since last checklist.	☐	

MCES —Lift Station Field Compliance Checklist
L35 - Updated Nov 2018 Page 1 of 3



questions

Cristian Cano

Environmental Services Geographic Information Systems (ES-GIS) Intern, Interceptor Services

METROPOLITAN COUNCIL

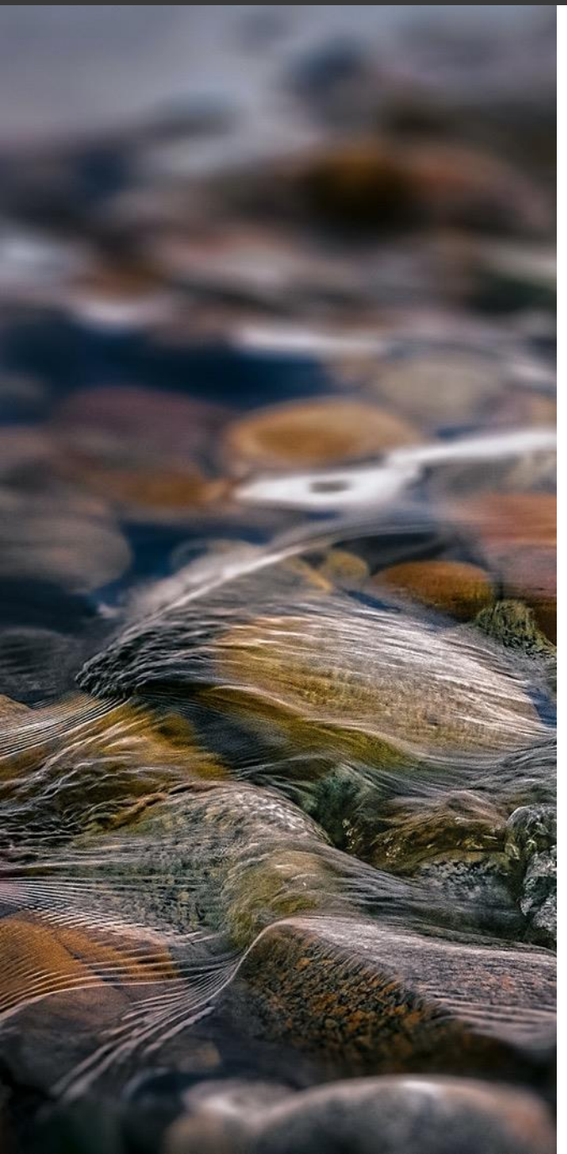
Information Item: Biosolids Script, Vault Depth, and Survey123 Forms

METROPOLITAN COUNCIL

Environment Committee: August 13, 2024

Devin Rhoades

Introduction



Devin R. Rhoades

- Spring 2024, University of Minnesota – Duluth
  - Environment, Sustainability and Geography (ESG)
  - Geographic Information Science (GIS)
- Spring 2026, University of Minnesota
  - Science, Technology, and Environmental Policy (STEP)
- I enjoy learning languages, hiking, reading, traveling, watching movies and music.

Summer Projects

Biosolids Script

- Select by Attribute (SBA)
- Update Cursors
- First piece of code written and used outside of an educational environment

Vault Depth

- Select by Attribute (SBA)
- New field
- Calculation
  - Surface elevation minus invert downstream

Survey123 Forms

- Form creation
- Custom URL
- Power Automate
- Survey123 Connect
- Vehicle Fuel Log

questions

Devin Rhoades

Environmental Services Geographic Information Systems (ES-GIS) Intern, Interceptor Services
Devin.Rhoades@metc.state.mn.us

METROPOLITAN COUNCIL

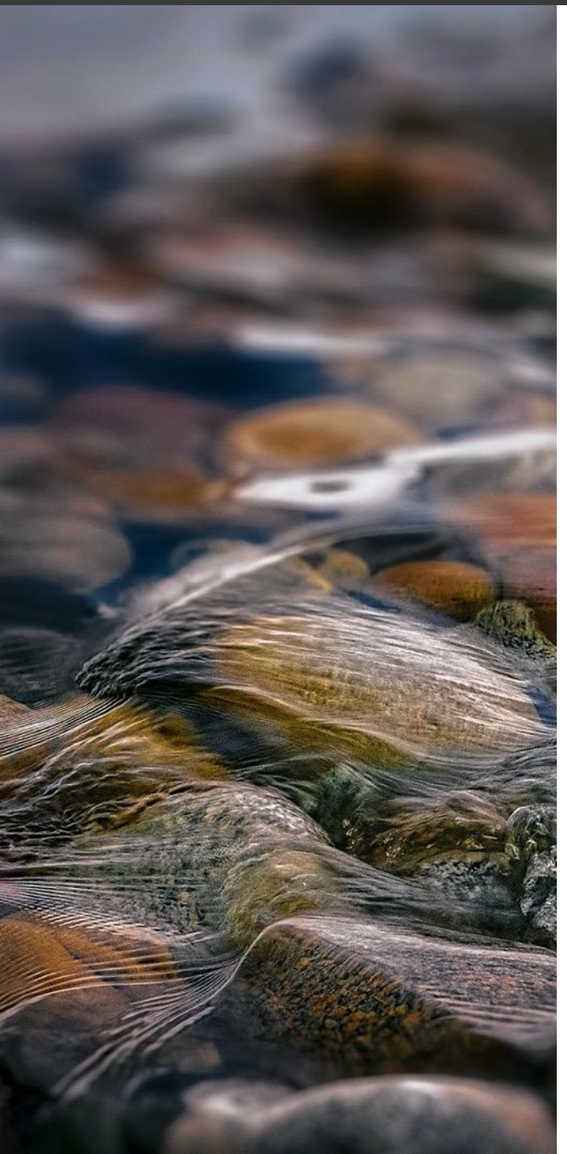
Information Item:
Asset Management Plans

METROPOLITAN COUNCIL

Environment Committee: August 13, 2024

Julia Melcher

Introduction



Julia Melcher

- University of Minnesota
- Graduation: 2027
- Major: Data Science
- Reliability Specialist Intern
- Asset Management Plans

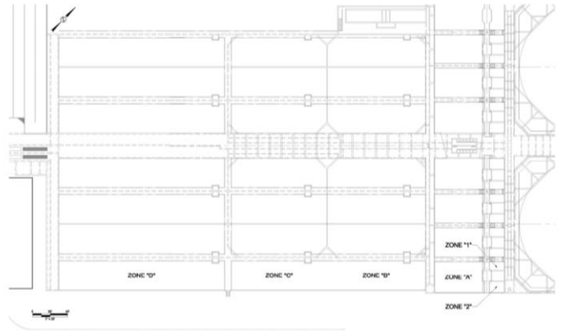
Asset Management Plans

Key Highlights of Project

- Writing Asset Management Plans
  - Criticality
  - Maintenance Costs
  - Replacement Value
- Helps create maintenance and replacement strategies

Career Impact

- Analyze data with Power BI
- Effective Communication Strategies



questions

Julia Melcher

Reliability Specialist Intern, Asset Management

METROPOLITAN
COUNCIL

Information Item: Water Quality and Monitoring Internship

METROPOLITAN COUNCIL

Environment Committee: August 13, 2024

Justine Wulff

Introduction

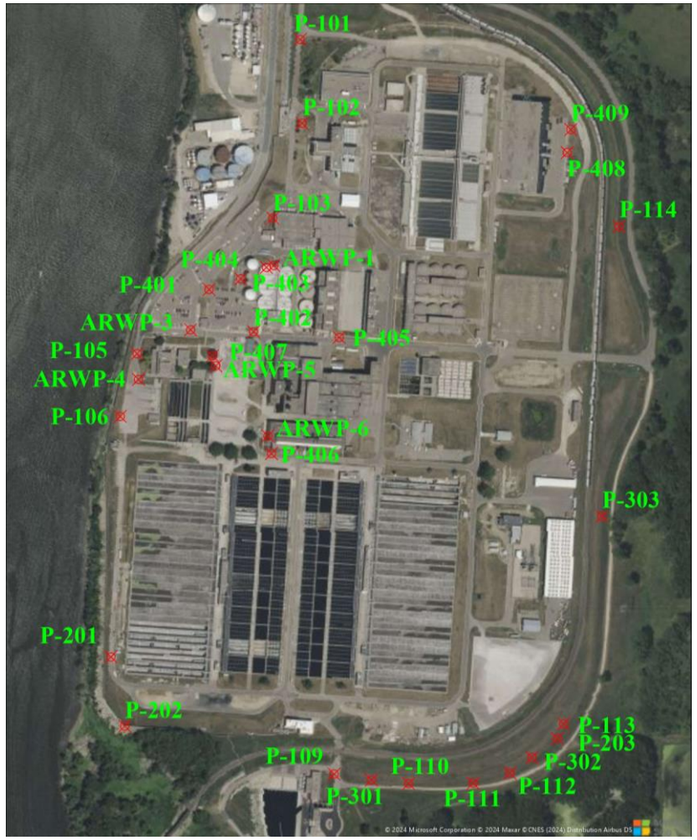
Justine Wulff

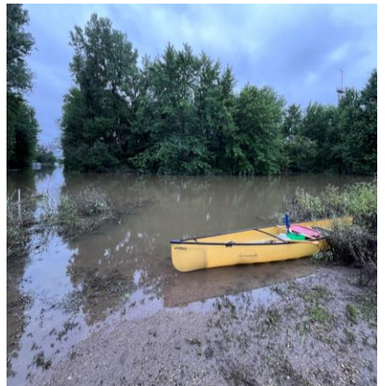
- University of Wisconsin-Madison
- Expected May 2025
- Major: Environmental Engineering, Minor: Environmental Studies and Engineering for Energy Sustainability
- Water Resource Internship

Water Resource Internship

Key highlights from this internship

- Assisted rivers, lakes, and streams monitoring
- Assembled and deployed Hester Dendy
- Checked Empire's auto-sampler for toxicity testing
- Citizen Assisted Monitoring Program processing
- Groundwater well monitoring
- Performed a literature review about the impact of sulfate on wild rice
- Revised the lakes and streams standard operating procedures
- Organized biomonitoring data
- Surveyed field staff for a photo library project





Metropolitan Council

Justine Wulff

Water Resources Intern, Environmental Services

justine.wulff@metc.state.mn.us

METROPOLITAN COUNCIL

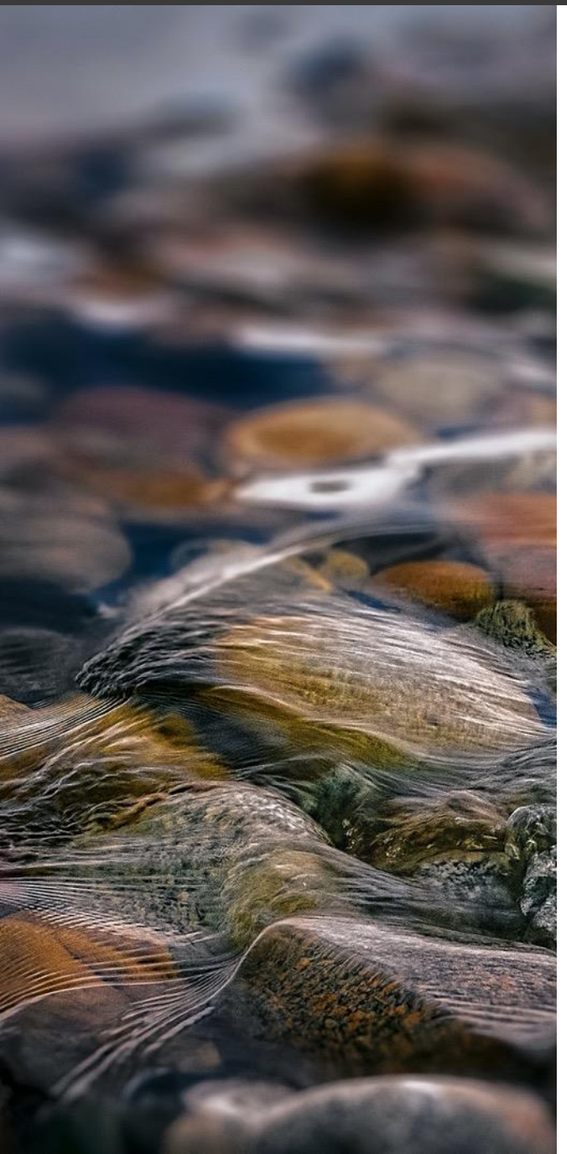
Information Item:
Local Climate Adaptation Progress and Strategies

METROPOLITAN COUNCIL

Environment Committee: August 13, 2024

Mariko Yatsuhashi

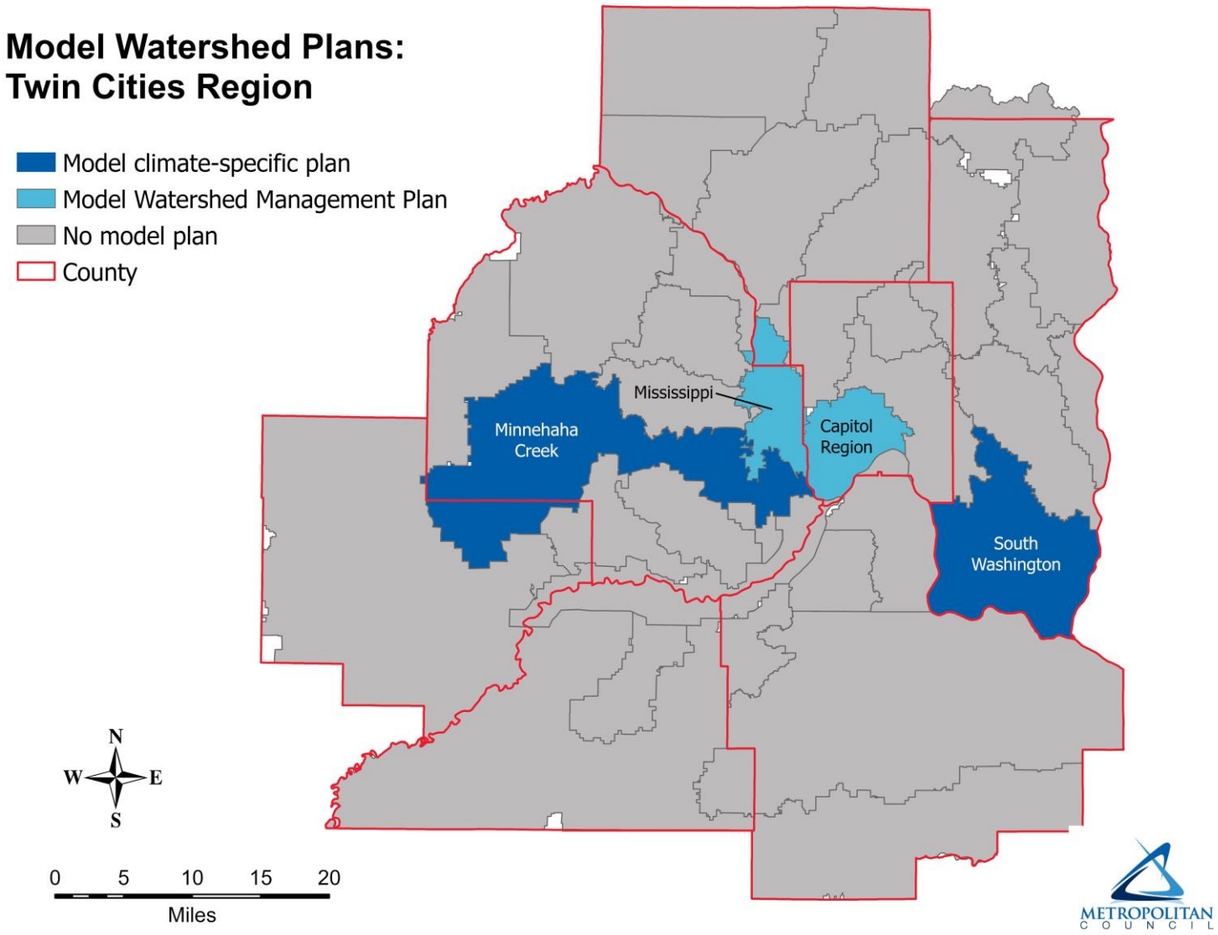
Introduction



Mariko Yatsuhashi

- Macalester College
- Graduated 2024
- Majors: Environmental Studies and Geography
- Minor: Community and Global Health
- Water and Climate Intern, Water Resources Policy and Planning
- Project: Researching climate adaptation as it relates to water resources

Reviewing Local Climate Adaptation Strategies



Overview and Model Plans

- Initial review of Watershed Management Organization (WMO) and county plans
- Pulled strategies from 6 model plans
- Takeaways and next steps

Internship Highlights

- Learning about local climate impacts and solutions
- Research, analysis, time management, and communication skills
- Water Policy Plan
- Networking and field trips

questions

Mariko Yatsuhashi

Climate and Water Intern, Water Policy and Planning
mariko.yatsuhashi@metc.state.mn.us

METROPOLITAN
COUNCIL

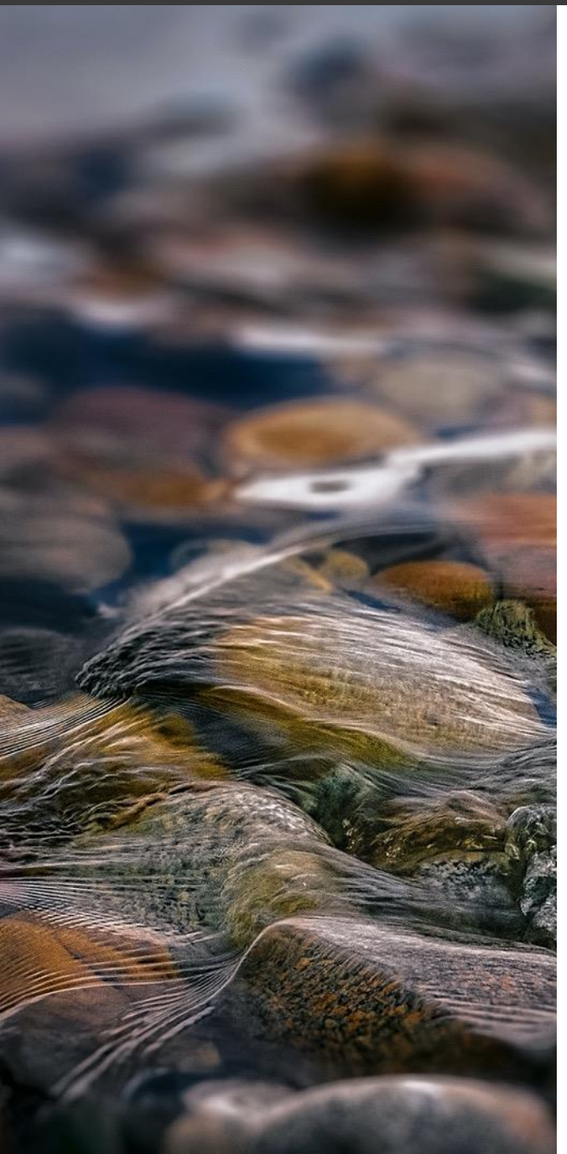
Information Item: Leadership Pathway Program

METROPOLITAN COUNCIL

Environment Committee: August 13, 2024

Nicholas Feist

Introduction



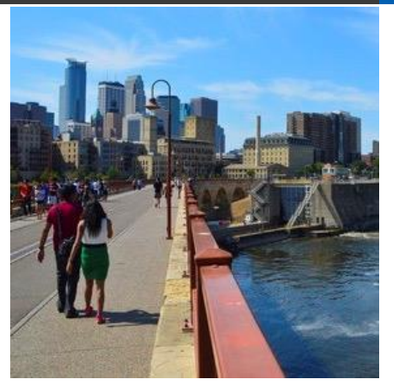
Nicholas Feist

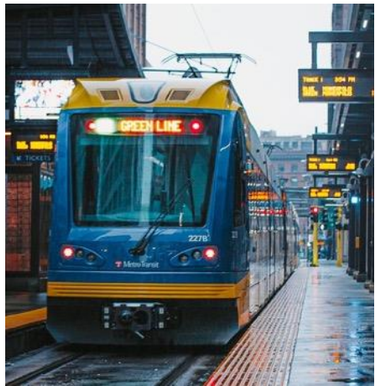
- Metropolitan State University
- Graduated May 2024
- Major: Business Administration, Minor: Project Management
- Workforce and Equity Internship

Leadership Pathway Program

Key Highlights of Project

- Stage: Recommendation
- Provides on-the-job experience
- Metro Transit Leadership Academy
- Workers feel stuck
- Improve morale, productivity
- Belong, Contribute, Grow





questions

Nicholas Feist

Intern: Workforce and Equity

METROPOLITAN COUNCIL

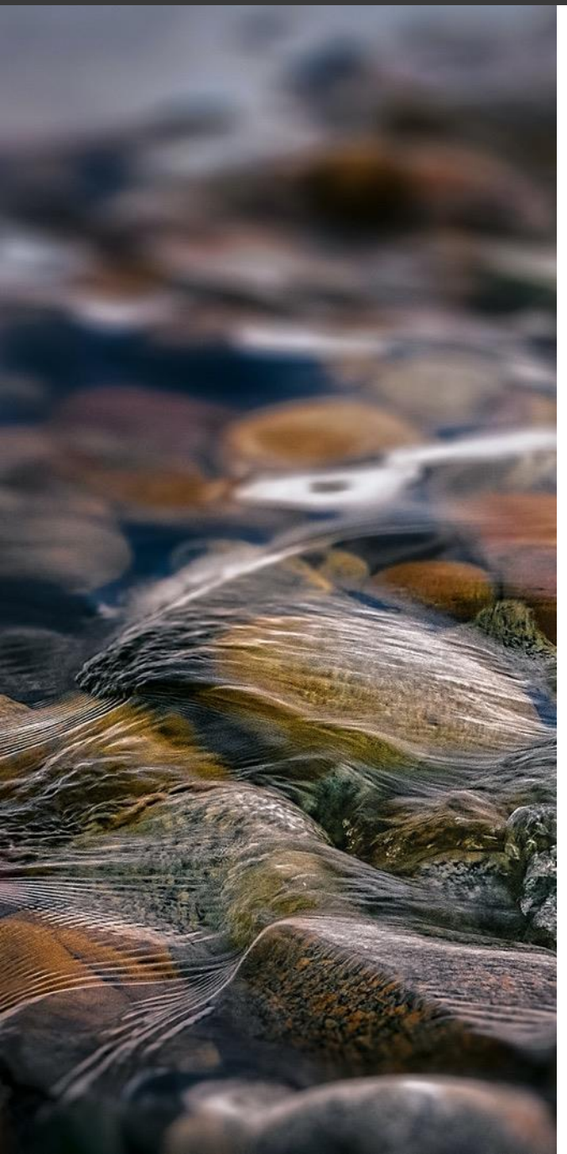
Information Item:
Asset Management Plans

METROPOLITAN COUNCIL

Environment Committee: August 13, 2024

Rachel Kim

Introduction



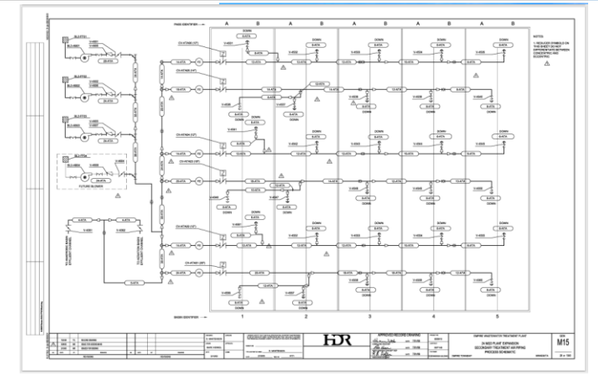
Rachel Kim

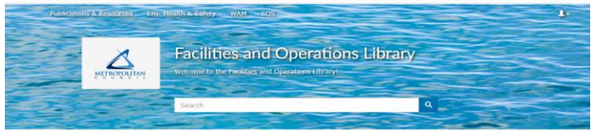
- Carleton College
- Class of 2027
- (Prospective) Major: Statistics, Minor: Mathematics
- Reliability Specialist Intern
- Asset Management Plans

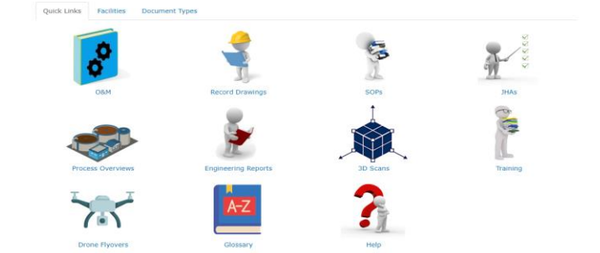
Asset Management Plans

Key Highlights of Project / Career Impact

- Asset lifecycle management
- Ensuring standard level of service
- Financial strategies and assisting budget allocation
- Effective communication
- Introduction to business processes
- Exploring various career paths







questions

Rachel Kim

Reliability Specialist Intern, Asset Management

METROPOLITAN COUNCIL