



Title: Authorization to Release RFP for 2D Model Pilot Build

Resolution number: 21-065

Prepared by: Name: Kailey Cermak
Phone: 952-641-4501
kcermak@minnehahacreek.org

Reviewed by: Name/Title: Brian Beck/Research and Monitoring Program Manager

Recommended action: Authorize the release of a request for proposals (RFP) for consultant services for developing the 2D pilot model

Schedule: 10/8/21: RFP release
11/4/21: Proposal submissions due
11/15/21-11/19/21: Consultant interviews
12/2/21: Recommendation and selection of consultant

Budget considerations: Fund name and code: 5-5001-4340
Fund budget: \$312,500.00
Expenditures to date: \$4,540.45
Requested amount of funding: \$242,100.00

Past Board action: Res #: 21-051 Title: Authorization to execute memorandum of understanding (MOU) with the City of Edina
Res #: 21-024 Title: Authorization to submit proposal to LCCMR for development of a 2D watershed model

Background:

In 2003, the Minnehaha Creek Watershed District (District) built a watershed-wide XP-SWMM hydrology and hydraulic (H&H) model designed to characterize the total volume and pollutant runoff from the landscape and understand the impact of runoff on receiving lakes and streams. Over the years, the District has used the XP-SWMM H&H model to estimate watershed pollutant loading, conduct creek flood forecasting, support floodplain management, and aid permitting assessments.

Between 2014 and 2019, the District experienced the wettest seven years on record. In response, policymakers, partner agency staff, and District staff began asking questions that were not easily answered using MCWD's existing XP-SWMM model. District staff, academics, and consultants identified the low-resolution nature of the model as the factor limiting its ability to characterize how water moves through the system. This makes it challenging to understand and predict the impacts of climate change on a localized scale and evaluate adaptation strategies or specific projects.

Over the past 20 years, major advancements in computing power make operating a detailed large-scale 2D model possible. MCWD can take advantage of these technological advances to build a model that not only quantifies volume but represents how water moves across our landscape via runoff, storm pipes, wetlands, best management practices, and surficial groundwater. However, maintaining a model of such complexity hinges on the idea that a repeatable

automated workflow can be developed to process and integrate stormsewer datasets from the 29 municipalities within the District.

District staff and the Board of Managers determined that pursuing a pilot 2D model build would mitigate the risk associated with a large-scale model build. The pilot model project has been designed to meet three objectives:

- Develop automated workflows for transforming geospatial datasets into model input formats that enable the District to scale the process watershed-wide.
- Understand benefits and drawbacks associated with the development and usability of the two selected software.
- Identify which of the two selected modeling software is best suited to scale watershed-wide.

Summary:

At the October 7, 2021 Board of Managers meeting, staff will present on the major elements of the 2D pilot model build and outline how the project deliverables will inform the implementation of the watershed-wide model. These project elements include:

1. **Development of Evaluation Framework:** A framework will be developed to track the strengths and weaknesses of each modeling software. The framework will help staff understand which software is best suited to meet District needs and characterize potential pain points and risk factors associated with building each model at a watershed-wide scale.
2. **Development of Geospatial Data Workflow:** Developing an approach that utilizes automated processes to convert stormwater infrastructure geodatabases into H&H model formats will be critically important for the success of the watershed-wide 2D H&H model build. Other geospatial datasets such as land use, soils, and topography will also benefit from process development, but should be easier to scale since they are well documented, less complex, and use a consistent format.
3. **Model Build:** Two software (InfoWorks ICM and ICPR4) will be used to develop working models in two distinct geographies (City of Edina and Turbid-Lundsten Corridor). The build portion of the project will serve to test the effectiveness of the automated data processing approaches. It will also be an opportunity to use surface and groundwater data collected by MCWD and the City of Edina (City) to calibrate and validate to identify which model best represents each pilot modeling area.
4. **Scenario Analysis:** A subset of scenarios has been selected to represent a range of future uses. Understanding the ease and functionality of changing model inputs and conducting the model runs is more important for the pilot process than the output itself. Staff want to understand how well each model can run standard event-based flood scenarios, continuous time series forecasting, incorporate land-use changes, and updated stormwater infrastructure.
5. **Model Reporting:** A final report will be written to summarize the outcomes of each project element. The report will articulate the strengths and weaknesses of each software and forecast the challenges in scaling them watershed-wide. The report will be utilized by staff to inform the watershed-wide model software selection and guide effective implementation.

The draft request for proposals (RFP) is intended to attract a consultant firm with a strong track record in coding and complex 2D H&H modeling. The RFP is comprised of four main sections:

- Background and Project Overview: Includes context for the project and an overview of each project element.
- Scope of Services: An overview of required tasks and deliverables.
- Instructions to Proposers: An overview of submittal requirements, timeline, and evaluation and selection criteria.

- Disclosures: Documentation of the District's rights and proposer's liabilities in the preparation of responses to the RFP.

Following the presentation at the October 7, 2021 Board of Managers meeting, staff will answer questions regarding the RFP process and strategy. It is staff's recommendation that the Board of Managers approve resolution 21-065, authorizing release of the RFP for consulting services for the 2D pilot model build.

Supporting documents (list attachments):

Draft RFP



RESOLUTION

Resolution number: 21-065

Title: Authorization to Release RFP for 2D Pilot Model Build

- WHEREAS, In 2003, the District built a watershed-wide XP-SWMM model to quantify runoff volume and pollutant loading and characterize impacts to receiving waterbodies;
- WHEREAS, Between 2014 and 2019, the District experienced the wettest seven years on record;
- WHEREAS, shifting precipitation patterns are stressing our natural and built environments, impacting pollutant loading, stream channel erosion, wetland functions, surface and surficial groundwater interactions, habitat, and homes, businesses and public infrastructure;
- WHEREAS, District staff’s ability to manage water resources is limited by the scale or granularity of their hydrologic and hydraulic (H&H) models due to limitations of industry standard one dimensional (1D) H&H models;
- WHEREAS, Technological advancements now make maintaining and running a large-scale high-resolution model possible;
- WHEREAS, Maintaining a high-resolution model requires automated workflows for processing stormsewer data from each municipality within the District;
- WHEREAS, A 2D pilot model build was pursued to mitigate risk for the watershed-wide build;
- WHEREAS, the District seeks to develop a pilot model in order to answer outstanding technical questions related to building a 2D H&H model for the entire District, which include developing automated workflows for geospatial model inputs, understanding benefits and drawbacks of tested software, and identifying which software is best suited to scale watershed-wide;
- WHEREAS, The pilot model build has five key elements which include developing an evaluation framework, developing a geospatial workflow, the model build, and scenario analysis;
- WHEREAS, the RFP for the 2D pilot model build is designed to attract consultant teams with strong coding and modeling skills;

NOW, THEREFORE, BE IT RESOLVED that the Minnehaha Creek Watershed District Board of Managers authorizes the release of the request for proposals for the 2D pilot model build, and allows for the administrator to make non-substantive edits to the document and schedule based on advice of MCWD legal counsel.

Resolution Number 21-065 was moved by Manager _____, seconded by Manager _____. Motion to adopt the resolution ___ ayes, ___ nays, ___ abstentions. Date: 10/7/2021

Secretary Date: _____

**REQUEST FOR PROPOSALS****Consulting Services for the 2D Pilot Model Build**

PART 1: BACKGROUND AND PROJECT OVERVIEW**General**

The Minnehaha Creek Watershed District (MCWD or District) is seeking a qualified consultant team to develop a scalable process for building a two-dimensional model. The project objectives are to establish an automated workflow for processing model inputs, understand the benefits and drawbacks of the two tested software suites, and ultimately help inform which software is best suited for the watershed-wide build.

The District's current modeling tools don't provide the required granularity and features to answer pressing climate change questions. Decision makers in the watershed need to better understand how water is making its way through the system and where the problems are occurring. Furthermore, tools are needed to evaluate climate adaptation strategies and individual project impact. The District is pursuing a 2D pilot model build to mitigate risk associated with large-scale modeling tools and inform how to effectively scale.

The District has identified and selected InfoWorks ICM and ICPR4 as the most suitable modeling software to meet the District's needs. Both software will be used to build models in two different geographies in the watershed. Major project tasks include developing an evaluation approach, developing an automated geospatial workflow for processing model input files, building current condition models, and running a subset of scenarios to evaluate functionality and output. All developed work products through the pilot build will be subsequently used to inform future model software selection and guide the implementation of the watershed-wide 2D model build.

Organization Background

The Minnehaha Creek Watershed District is a local unit of government responsible for managing and protecting water resources within the 178 square miles that drain into Lake Minnetonka, the Minneapolis Chain of Lakes, Minnehaha Creek and ultimately the Mississippi River. The watershed boundary includes all or part of 27 cities and two townships (municipalities). The District is focused on implementing high impact capital projects that improve water quality, manage water quantity, and support ecological integrity. The first element of project implementation is understanding the water resource issues, drivers, and strategies. The District utilizes data collection, studies, and modeling tools to support management decisions, ensuring actions are grounded in sound science.

Project Background

In 2003, the District built a watershed-wide XP-SWMM hydrologic and hydraulic (H&H) model that was considered state of the art at the time. It was designed to characterize the total volume and pollutant runoff from the landscape and understand the impact of runoff on receiving lakes and streams. Over the years, the District has used the XP-SWMM H&H model to estimate watershed pollutant loading, conduct creek flood forecasting, support floodplain management, and aid permitting assessments.

Between 2014 and 2019, the Minnehaha Creek Watershed experienced the wettest seven years on record. In response, policymakers, partner agencies, and District staff have been asking questions that demonstrate the limits of MCWD's XP-SWMM. District staff, academics, and consultants identified the model is not granular enough to characterize how water moves through the system. This lack of understanding makes it challenging to understand and predict the impacts of climate change on a localized scale and evaluate adaptation strategies or specific projects. This limitation stems from the model being one-dimensional, low resolution, and nearly impossible to keep updated, which are common limitations for a model of its time.

Over the past 20 years, major advancements in computing power now make operating a detailed large-scaled 2D model possible. MCWD can take advantage of these technological advances to build a model that not only quantifies volume but represents how water moves across our landscape via runoff, storm pipes, wetlands, best management practices, and surficial groundwater. However, maintaining a model of such complexity hinges on the idea that a repeatable automated workflow can be developed to process and integrate the stormsewer datasets of the 29 municipalities within the District.

MCWD staff worked with internal workgroups, consultants, and external partners to identify the H&H modeling software that are best suited to meet the District's goals. District staff ultimately decided that the two H&H modeling software packages that meet the most criteria are InfoWorks ICM and ICPR4.

Project Description

The pilot model build has three objectives:

1. Develop automated workflows for transforming geospatial datasets into model input formats that enable the District to scale the process watershed wide.
2. Understand benefits and drawbacks associated with the development and usability of the two selected software.
3. Identify which of the two selected modeling software is best suited to scale watershed-wide.

InfoWorks ICM and ICPR4 will be evaluated throughout the pilot model build. Each software will be used to build working models in two distinct geographies. One area is fully developed with complex stormwater infrastructure and the other is dominated by rural and agricultural landuse (see exhibit 1). These geographies were selected to ensure that the automated geospatial workflows developed during the project are representative of landscape features encountered throughout the watershed.

The pilot model build is comprised of five key elements to achieve the project's objectives. These project elements include:

- Development of an Evaluation Framework
- Development of a Geospatial Data Workflow
- Model Build
- Scenario Analysis
- Model Reporting

Development of Evaluation Framework

A framework will be developed to track the strengths and weaknesses of each modeling software. The framework will help staff understand which software is best suited to meet District needs and characterize potential pain points and risk factors associated with building each model at a watershed-wide scale.

Development of Geospatial Data Workflow

Develop a geospatial data workflow that can be scaled for the watershed-wide H&H model build. The District contains all or part of 29 municipalities and two counties that maintain separate stormwater infrastructure databases with unique schemas. Developing an approach that utilizes automated processes to convert stormwater infrastructure geodatabases into H&H model formats will be critically important for the success of the watershed-wide 2D H&H model build. Other geospatial datasets such as land use, soils, and topography will also benefit from process development, but should be easier to scale since they are well documented, less complex, and use a consistent format.

Model Build

InfoWorks ICM and ICPR4 will each be used to build working models in the two pilot geographies. The build portion of the project will test the effectiveness of the automated data processing approaches. It will also be an opportunity to use surface water and groundwater data collected by the District and the City for calibration and validation to identify which model best represents each pilot modeling area.

Scenario Analysis

A subset of scenarios has been selected to represent a range of future uses. Understanding the ease and functionality of changing model inputs and conducting the model runs is more important for the pilot process than the output itself. Staff want to understand how well each model can run standard event-based flood scenarios, conduct continuous time-series forecasts, incorporate land-use changes, and update stormwater infrastructure.

Model Reporting

A final report will summarize the outcomes of the geospatial data processing approaches, model build, and scenario analysis. The report will articulate the strengths and weaknesses of each software, utilizing the evaluation framework established in Task 1. The report should also forecast the pain points and risk associated with scaling each modeling software. District staff will utilize the final report to inform the watershed-wide model software selection and guide effective implementation.

Project Areas

The project areas in this request for proposals (RFP) process include 655 acres within the City of Edina (City) and 787 acres within the Turbid-Lundsten corridor, which is shown in Exhibit 1.

Project Team

Kailey Cermak (Primary Contact)
Hydrologist, MCWD
kcermak@minnehahacreek.org
952-641-4501

Brian Beck (Secondary Contact)
Research & Monitoring Program Manager, MCWD
bbeck@minnehahacreek.org
952-471-8306

DRAFT

PART 2: SCOPE OF SERVICES

The consultant will work closely with the District to complete tasks 1-7 within a projected budget of \$242,100.

The scope of services for this work may include, but will not be limited to, the tasks described as follows:

Task 1: Develop Model Evaluation Approach

Task 1a. Draft evaluation framework

The CONSULTANT will develop a draft evaluation framework to track the strengths and weaknesses of each modeling software. The evaluation framework should include qualitative and quantitative metrics that characterize each software throughout the project. The framework should be structured around the following three project elements:

- Data Discovery and Data Processing
- Model Build
- Scenario Analysis

Task 1b. Draft approach memorandum

The CONSULTANT will draft a technical memorandum that explains how metrics included in the evaluation framework support the District's modeling needs, provides an overview of the evaluation framework, and outlines how the framework will be applied throughout the project.

Task 1c. Finalize framework and approach

The CONSULTANT will work with District staff to incorporate edits and feedback before providing a final evaluation framework and approach to be utilized by the CONSULTANT for the remainder of the project. Changes made to the framework or approach must be approved by District staff.

Task 1 Deliverables:

- Evaluation framework
- Technical memorandum explaining evaluation approach and use of evaluation framework

Task 2: Data Discovery and Data Processing

Task 2a. Define data input needs for each 2D model, review existing data, and identify data gaps

The CONSULTANT will characterize what spatial data are needed to build H&H models in two separate modeling engines. The CONSULTANT will document the file format and data specifications for light detecting and ranging (LiDAR) elevation data, stormwater infrastructure, land use, soils, geology, and any other datasets required for each model.

The CONSULTANT will review existing data from the District and City within each of the two model areas to compare against the model requirements (Exhibit 2). The CONSULTANT will also identify data gaps and recommend additional data collection needed to support model development.

Task 2b. Develop stormsewer infrastructure conversion scripts

The CONSULTANT will develop an automated process that converts the City of Edina's stormsewer infrastructure data from its current schema into a format that each H&H model (ICPR4 and InfoWorks ICM) can natively read. The data conversion process developed by the CONSULTANT can utilize any tools within the H&H modeling software or utilize open-source coding languages such as R or Python.

The CONSULTANT will document the scripting methods, process, software, programming language, and other pertinent information needed to recreate the automated geospatial data processing for InfoWorks ICM and ICPR4.

Task 2c. Develop processing scripts for soil, land use, LiDAR, and other data required for ICPR4 and InfoWorks ICM

The CONSULTANT will develop an automated workflow for processing all other data required for InfoWorks ICM and ICPR4. Required data typically includes soils, land use, LiDAR, stream channel cross sections, and bridge cross sections. The CONSULTANT will process these data into a modeling format based on ICPR4 and InfoWorks ICM model requirements outlined in Task 2a.

Task 2d. Develop documentation on data structure and processing for model inputs

The CONSULTANT will create technical memorandums that document 1) available data, model data requirements, and data gaps and 2) automated data processing methods and description of any required manual entry. The technical memorandum should also include workflow diagrams that show data processing steps for each software.

Task 2 Deliverables:

- Technical memorandum describing the data needs of InfoWorks ICM and ICPR4
 - o List of data gaps based on modeling input needs and data supplied by the District and City
- Technical memorandum describing automated scripting process for City stormwater infrastructure network conversion to model format
- Workflow diagrams representing data processing steps
- All required scripts developed by the CONSULTANT for creating model input files
- Model input files created by automated data processing methods
- Completed evaluation of Task 2 components based on the evaluation framework from Task 1

Task 3: Build Existing Condition Models in Pilot Areas

Task 3a. Develop H&H model based on model input files created in tasks 2b and 2c

The CONSULTANT will create an InfoWorks ICM and an ICPR4 H&H model within each of the two modeling areas (Exhibit 1). The CONSULTANT will use the input files created in Task 2 to build the models based on model documentation and industry best practices.

Task 3b. Identify automated geospatial scripting process issues and solutions

The CONSULTANT will conduct preliminary assessments of the models built in Task 3a to characterize any issues or errors with the input files created with the automated data processing scripts.

The CONSULTANT will document issues encountered in preliminary model runs for InfoWorks ICM and ICPR4. The CONSULTANT will identify the source of each issue and how the scripting process will be updated to successfully create model input files. The consultant will also identify potential issues with applying the scripting processes to other municipalities during the watershed-wide model build.

Task 3c. Calibrate H&H models using data sources provided by the District and City

The District and City have continuous data for Minnehaha Creek and will be installing groundwater wells within the modeling area (Exhibit 2). These data will be provided to the CONSULTANT. The CONSULTANT will document what parameters they use for calibration of the InfoWorks ICM and ICPR4 model to describe the accuracy of the models through a validation model run process.

Task 3 Deliverables:

- A working ICPR4 model for areas outlined in Exhibit 2
- A working InfoWorks ICM model for areas outlined in Exhibit 2
- Technical memorandum including the following:
 - o calibration approach and results
 - o issues encountered during model builds
 - o anticipated issues when building in other municipalities and possible solutions
- Completed evaluation of Task 3 components based on the evaluation framework from Task 1

Task 4: Model Scenario Analysis

The CONSULTANT will conduct four model scenarios in both InfoWorks ICM and ICPR4. The goal of the scenario runs is to characterize the level of effort required for changing model inputs and to evaluate each software's outputs. Evaluation will be based on the framework established in Task 1. The required scenarios are listed below.

- o Continuous model run for 2014 flood of record year within the City of Edina model area
- o Model runs for 10-, 25-, 100-, and 500-year, 24hr design events using NOAA Atlas 14 storm depths within the City of Edina model area
- o Create pre-development and future development model scenarios within the Turbid-Lundsten corridor area
- o Run continuous or event-based scenario in the City of Edina area assuming commercial redeveloped under MCWD's current volume and rate control rules to evaluate the impact of infiltration practices on runoff, groundwater, and water quality

Task 4 Deliverables:

- Technical memorandum summarizing scenario outputs
- Completed evaluation of Task 4 components based on the evaluation framework from Task 1

Task 5: Model Reporting

The CONSULTANT will prepare a draft watershed modeling report for the District and City to review. The goal of the report is to summarize the process and capabilities of each software

build to inform which model best meets the District's and municipal partner needs. The report should include:

- Introduction and background
- A description of the existing geospatial data format prior to any data processing
- Detailed overview of how geospatial data were processed and formatted
- Limitations and issues that arose during the model development process
- Recommendations for geospatial data processing for future model builds in other areas within Minnehaha Creek Watershed District
- Assessment of accuracy of each model based on calibration and validation results
- Interpretation of modeling scenario output
- Assessment of expansion to trans-municipal scale and scalability considerations, including model integration across municipal boundaries, and reconciling differing levels of data, data formats and structures
- Review of range of model outputs that may be desired by municipalities and the ability to provide such outputs
- Comparison of ICPR4 and InfoWorks ICM ability to meet the needs of the District based on the evaluation framework established in Task 1

Task 5 Deliverables:

- Final Draft of watershed modeling report

Task 6: Project Coordination

Task 6a: Project Meetings

The CONSULTANT will host up to seven (7) remote or in-person progress update meetings with the District and City. The CONSULTANT will be expected to develop meeting minutes and summaries for the progress report meetings.

Task 6b: Coordination with the City of Edina

The work described in this proposal will require email coordination with staff representatives and engineers of the City of Edina. The CONSULTANT will include the Project Manager on all correspondence. Specifically, but not exclusively, there will be specific engagement in the following areas:

- Identifying and characterizing the City's data and data characteristics
- Examining the goals and requirements to integrate a trans-municipal model across municipal boundaries, and across differing data systems and structures
- Assessing how to accommodate differing modeling product preferences among municipalities
- Formulating protocols to update the model with city and other changing data

In addition, the City will be afforded review of work product and draft deliverables.

Task 6 Deliverables:

- Up to seven (7) in-person or remote meetings
- Minutes and summaries for progress update meetings

Task 7: Model Training

District staff will make a recommendation to the Board of Managers on which modeling software should be utilized for the watershed-wide build. Following approval, the CONSULTANT will host an in-person or remote multi-day model training event to instruct District staff how to build the 2D H&H model selected by the Board. The Turbid-Lundsten corridor model area will be used for the training event since the CONSULTANT will already have a strong understanding of the model inputs and the geography is less complex. The training will include:

- 2D H&H model fundamental concept overview
- Overview of how to process original geospatial datasets into model input files
- Building model using processed model inputs
- Model calibration
- Model scenario run
 - One event-based model run and one continuous model run

DRAFT

PART 3: INSTRUCTION TO PROPOSERS

Submittal Requirements

Responses to the RFP should be submitted to Kailey Cermak no later than 4:00 pm on Thursday, November 4, 2021. The District requests that all responses be submitted digitally.

Please visit the RFP webpage to view updates: [insert website](#)

No page limit is required, however respondents will be evaluated on clarity and conciseness. Each proposal should include the following items:

- Cover Letter – Please provide a primary point of contact through the transmission of a cover letter.
- Project understanding – Describe your understanding of the scope of work, the approach to be taken, and your vision for the project. Identify any additional information the District will need to supply or obtain to enhance your understanding of the project and successfully complete the work, and/or any issues you might anticipate in performing the work.
- Approach and methodology – Provide a detailed description of your approach to the scope of work, including how you will coordinate with District and City. Include a description of all anticipated tasks and deliverables, and any supplemental tasks not described in the RFP. The description should specifically address how to approach developing an automated process for converting City stormwater infrastructure data into a format that can be seamlessly incorporated into each 2D model. Identify the greatest open questions and risk points based on the proposer's project understanding; are there functional deviations from the outlined scope of work that would better accomplish the District's objectives? The proposal should include a spreadsheet showing tasks, project team members, and associated hours. The proposal should also include a schedule of milestones identified in this RFP and by the proposer, and a cost proposal. Include major assumptions impacting cost and time allocation with associated rates.
- Qualifications and experience – Provide an overview of the firm(s) and project team members and qualifications. Include descriptions of projects undertaken by the firm(s) and team members similar in nature to the one being proposed. Speak to the team's ability to deliver the project on time and on budget.
- References – Provide three recent references for your proposed firm or team, including names, addresses, and phone numbers, along with a description of the project and your role. And a description of the project, your role, etc.
- District Resources – note a list of resources, expectations, or requirements which the consultant expects from the District in order to complete the project as proposed.
- Subcontracting – if the consultant intends to use any subcontracting, identify and describe the subcontractor, describe the intended scope and role of the subcontractor, identify the team members proposed from the firm, and provide the qualifications and experience information requested above for those team members.

Request for Proposal Timeline

A review committee led by the project manager, MCWD Hydrologist Kailey Cermak, along with other select District staff and City of Edina staff will evaluate proposals and recommend a consultant to the MCWD Board of Managers.

The anticipated timeline for the proposal review process, which is subject to change, is as follows:

- **RFP issue date:** Friday October 8, 2021
- **Submit RFP questions:** Monday October 18, 2021 at 4:00 pm (answered will be reviewed at informational meeting)
- **RFP Informational Meeting:** Thursday October 21, 2021 at 1:00. (anticipated via Microsoft Teams, RSVP required to receive log-in information)
- **Deadline for receipt of proposals:** Thursday November 4, 2021
- **Expected dates for consultant interviews:** November 15 to November 19, 2021 (in-person or Microsoft Teams based on consultant preference)
- **Expected date for consultant selection:** December 2, 2021 (District Board of Managers meeting)

Proposer's Budget for the Project

The requested services under this RFP will be funded through District levied funds. Services will be compensated on an hourly basis with a specified not-to-exceed for each of the identified seven tasks. The Contract Maximum, to be set after determination of the scope of work, is the cap for contractual services including both professional fees and expenses.

Addenda/Clarifications

Any changes to this RFP will be made by the District through a written addendum. No verbal modification will be binding.

Contract Award

Issuance of this RFP and receipt of proposals do not commit the MCWD to the awarding of a contract. The MCWD reserves the right to postpone opening for its own convenience, to accept or reject any or all proposals received in response to this RFP, to negotiate with other than the selected consultant should negotiations with the selected consultant be terminated, to negotiate with more than one consultant simultaneously, or to cancel all or part of this RFP.

Joint Offers

Where two or more proposers desire to submit a single proposal in response to this RFP, they should do so on a prime-subconsultant basis rather than as a joint venture. The MCWD intends to contract with a single firm and not with multiple firms doing business as a joint venture.

Proposal Evaluation Procedure

Methodology

- *Project Understanding:* Does the proposal make it clear that the consultant fully understands the scope, goals, and technical requirements of the project?
- *Completeness and Specificity:* How fully does the proposal explain what the consultant will do to develop the required deliverables?
- *Identification of Needs:* Does the proposal carefully consider what resources will be required to timely complete the tasks, including staff time, additional technical information, etc.?
- *Innovation:* Does the approach incorporate modern or cutting-edge techniques and analysis consistent with a technically sound product, where appropriate and requested in the RFP?

Experience

- *Company Experience:* What other projects has the consultant performed that have developed, used and demonstrated the expertise and capacity required for the proposed work (evaluated via the proposer's submittal materials)?
- *Staff Experience:* What qualifications and work experience do the proposed staff members or sub-consultants bring to the project?
- *Area Knowledge:* Does the company or any of the project team have specific knowledge about the project area that would aid in the study?

Cost

- *Fee structure:* The proposal must clearly outline the fees and costs to complete all aspects of this project. Include hourly rates for each project team member along with hours for each task and subtask. The final fee structure and contract price are subject to negotiation.

Contractual Agreement

Enclosed with this RFP is the form of contract that Consultant and MCWD will execute. The MCWD may agree to non-substantive document revisions, but Consultant's proposal should be based on the contract form. The proposal should identify any terms of the form of contract that are unacceptable. The MCWD will negotiate a term where it can preserve the substantive intent of the term, but reserves the right to reject a proposal conditioned on a material alteration of the contract form. The proposal also should indicate any data or methods of proposer that would be used in performing the work, and that proposer considers to be instruments of service that should be excepted from the intellectual property terms of the contract form. Payments will be based on hourly rates on certification of completion of identified tasks. The payment schedule can be negotiated and finalized through the contract after selection of a Consultant by MCWD.

Contact

Any questions and RSVPs to the informational meeting should be directed to Kailey Cermak at 952-641-4501 or kcermak@minnehahacreek.org.

PART 4: DISCLOSURES

Non-Binding

The District reserves the right to accept or reject any or all responses, in part or in whole, and to waive any minor informalities, as deemed in the District's best interests. In determining the most advantageous proposal, the District reserves the right to consider matters such as, but not limited to, consistency with the District's watershed management plan goals and the City's comprehensive land use plan, and the quality and completeness of the consultant's completed projects similar to the proposed project.

This RFP does not obligate the respondent to enter into a contract with the District, nor does it obligate the District to enter into a relationship with any entity that responds, or limit the District's right to enter into a contract with any entity that does not respond, to this RFP. The District also reserves the right, in its sole discretion, to cancel this RFP at any time for any reason.

Each respondent is solely responsible for all costs that it incurs to respond to this RFP and, if selected, to engage in the process including, but not limited to, costs associated with preparing a response or participating in any interviews, presentations or negotiations related to this RFP.

Right to Modify, Suspend, and Waive

The District reserves the right to:

- Modify and/or suspend any or all elements of this RFP;
- Request additional information or clarification from any or all respondents
- Allow one or more respondents to correct errors or omissions or otherwise alter or supplement a proposal;
- Waive any unintentional defects as to form or content of the RFP or any response submitted.

Any substantial change in a requirement of the RFP will be disseminated in writing to all parties that have given written notice to the District of an interest in preparing a response.

Disclosure and Disclaimer

This RFP is for informational purposes only. Any action taken by the District in response to proposals made pursuant to this RFP, or in making any selection or failing or refusing to make any selection, is without liability or obligation on the part of the District or any of its officers, employees or advisors. This RFP is being provided by the District without any warranty or representation, expressed or implied, as to its content, accuracy or completeness. Any reliance on the information contained in this RFP, or on any communications with District officials, employees or advisors, is at the consultant's own risk. Prospective consultants must rely exclusively on their own investigations, interpretations and analysis in connection with this matter. This RFP is made subject to correction of errors, omissions, or withdrawal without notice.

The District will handle proposals and related submittals in accordance with the Minnesota Data Practices Act, Minnesota Statutes §13.591, subdivision 3(b).

Exhibits

- Exhibit 1: Model Areas
- Exhibit 2: Data Availability
- Exhibit 3: Contract Template




DRAFT

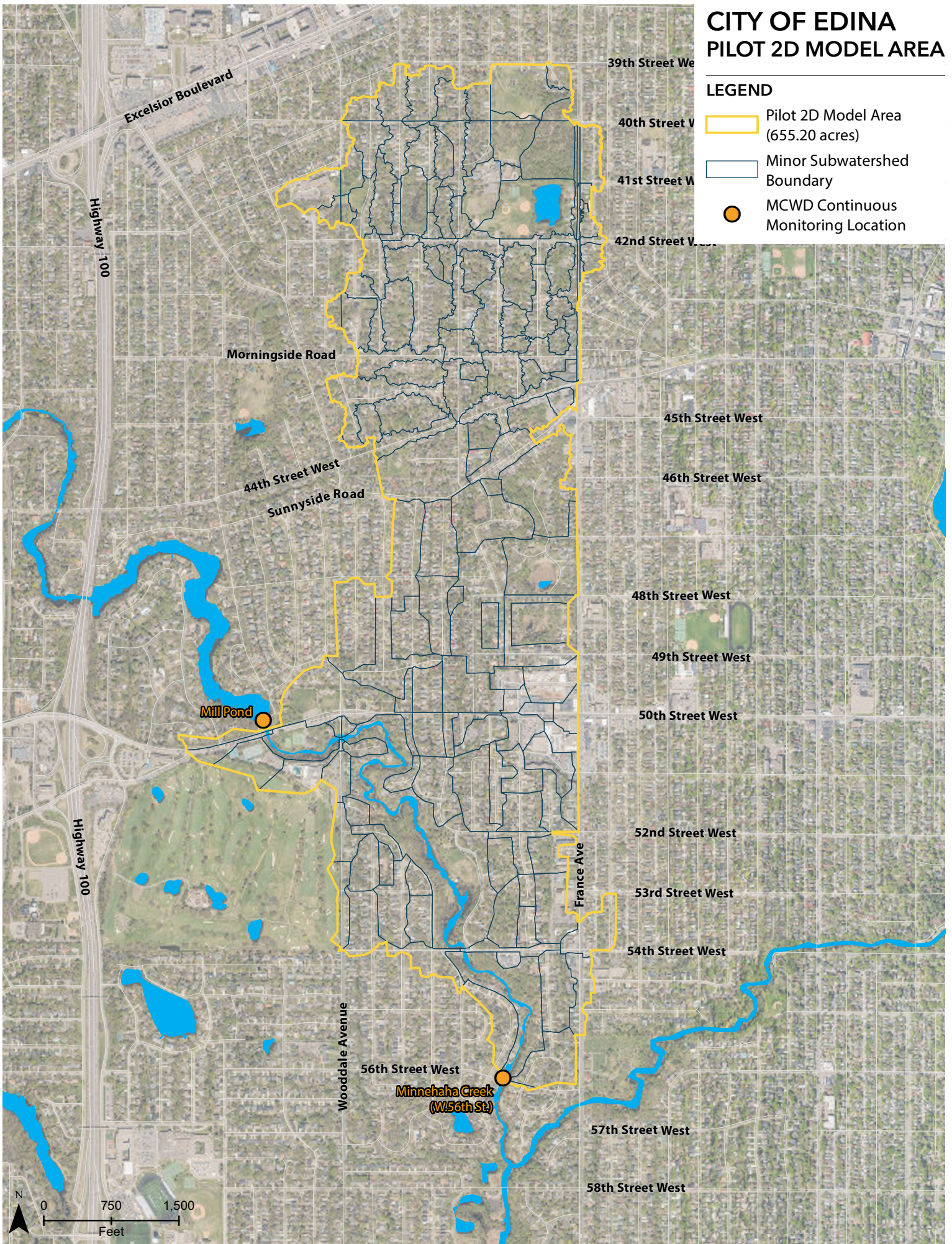
Exhibit 1: Model Areas

DRAFT

CITY OF EDINA PILOT 2D MODEL AREA




LEGEND

-  Pilot 2D Model Area (655.20 acres)
-  Minor Subwatershed Boundary
-  MCWD Continuous Monitoring Location



TURBID-LUNDSTEN PILOT 2D MODEL AREA

LEGEND

-  Pilot 2D Model Area (786.74 acres)
-  Minor Subwatershed Boundary
-  MCWD Continuous Monitoring Location

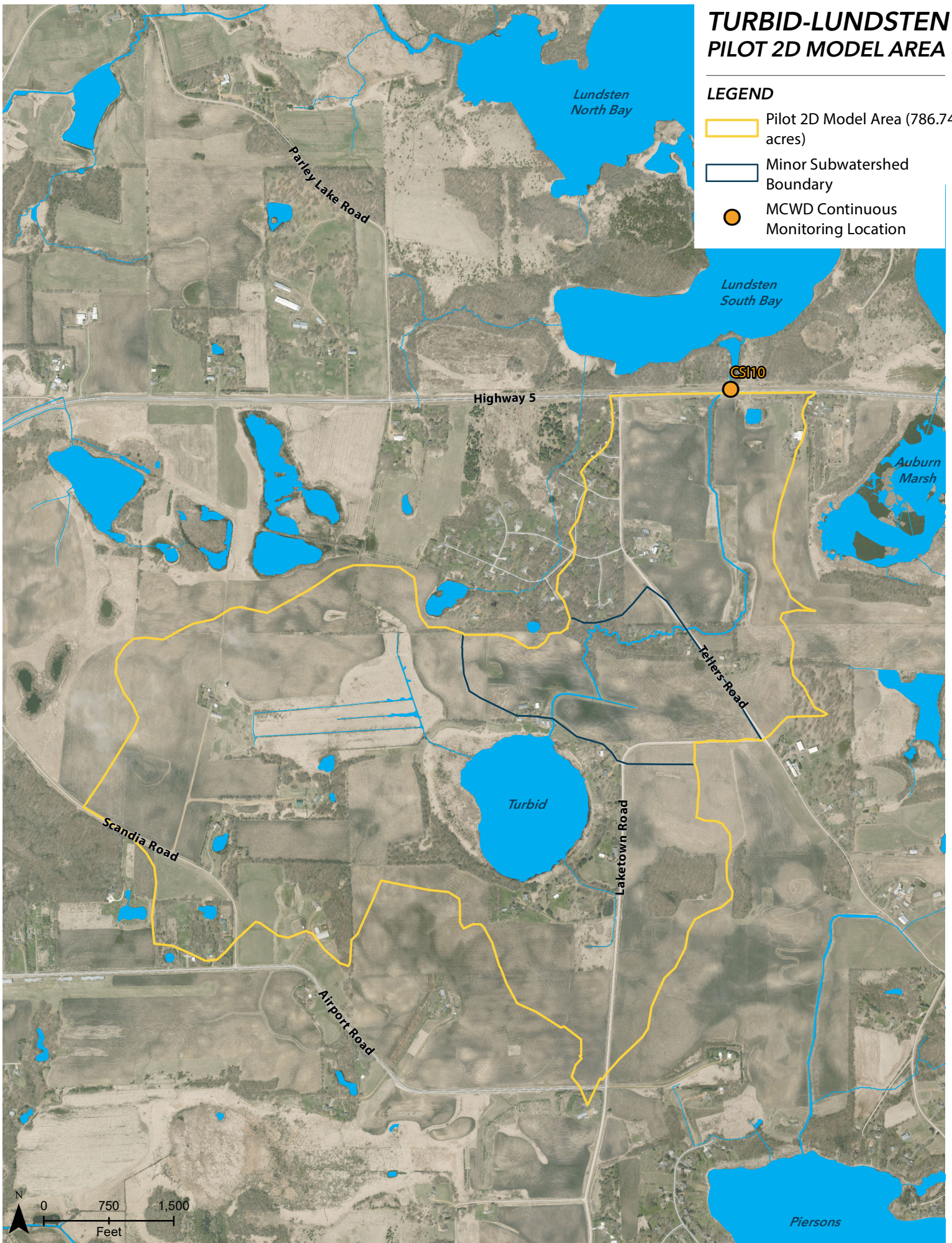


Exhibit 2: Data Availability

DRAFT

City of Edina Stormwater Stormwater Infrastructure Geodatabase

LiDAR elevation tiles and metadata for both pilot model areas

2016 Metropolitan Council Generalized Land Use

NRCS soils hydrologic group within model areas

Groundwater monitoring data

Minnehaha Creek continuous water level and flow data (Exhibit 1)

Turbid Lundsten Corridor outlet elevation and flow data (Exhibit 1)

Turbid-Lundsten Corridor 2040 future landuse coverage from the City of Victoria

Continuous pond elevation for Weber Pond and Lynn/Kipling inundation area

Minnehaha Creek Watershed District minor subwatershed delineations

Hennepin County and Carver County Minnesota Geologic Atlas surficial geology

Lake bathymetry

Historic weather data in one hour increments at four locations (Saint Bonifacius, Hopkins, Edina, and MSP Airport)

Exhibit 3: Contract Template

DRAFT

**AGREEMENT BETWEEN
MINNEHAHA CREEK WATERSHED DISTRICT and
[CONSULTANT]**

[Project Title]

This agreement is entered into by the Minnehaha Creek Watershed District, a public body with powers set forth at Minnesota Statutes chapters 103B and 103D (MCWD), and [CONSULTANT], a Minnesota corporation (CONSULTANT). In consideration of the terms and conditions set forth herein and the mutual exchange of consideration, the sufficiency of which hereby is acknowledged, MCWD and CONSULTANT agree as follows:

1. Scope of Work

CONSULTANT will perform the work described in the [DATE] Scope of Services attached as Exhibit A (the Services). Exhibit A is incorporated into this agreement and its terms and schedules are binding on CONSULTANT as a term hereof. MCWD, at its discretion, in writing may at any time suspend work or amend the Services to delete any task or portion thereof. Authorized work by CONSULTANT on a task deleted or modified by MCWD will be compensated in accordance with paragraphs 5 and 6. Time is of the essence in the performance of the Services.

2. Independent Contractor

CONSULTANT is an independent contractor under this agreement. CONSULTANT will select the means, method and manner of performing the Services. Nothing herein contained is intended or is to be construed to constitute CONSULTANT as the agent, representative or employee of MCWD in any manner. Personnel performing the Services on behalf of CONSULTANT or a subcontractor will not be considered employees of MCWD and will not be entitled to any compensation, rights or benefits of any kind from MCWD.

3. Subcontract and Assignment

CONSULTANT will not assign, subcontract or transfer any obligation or interest in this agreement or any of the Services without the written consent of MCWD and pursuant to any conditions included in that consent. MCWD consent to any subcontracting does not relieve CONSULTANT of its responsibility to perform the Services or any part thereof, nor in any respect its duty of care, insurance obligations, or duty to hold harmless, defend and indemnify under this agreement. MCWD approves [insert] as a subcontractor.

4. Duty of Care; Indemnification

CONSULTANT will perform the Services with due care and in accordance with national standards of professional care. CONSULTANT will defend MCWD, its officers, board members, employees and agents from any and all actions, costs, damages and liabilities of any nature arising from; and hold each such party harmless, and indemnify it, to the extent due to: (a) CONSULTANT's negligent or otherwise wrongful act or omission, or breach of a specific contractual duty; or (b) a subcontractor's negligent or otherwise wrongful act or omission, or breach of a specific contractual duty owed by CONSULTANT to MCWD. For any claim subject to this paragraph by an employee of CONSULTANT or a subcontractor, the indemnification obligation is not limited by a

limitation on the amount or type of damages, compensation or benefits payable by or for CONSULTANT or a subcontractor under workers' compensation acts, disability acts or other employee benefit acts.

5. Compensation

MCWD will compensate CONSULTANT for the Services on an hourly basis and reimburse for direct costs in accordance with Exhibit A. Invoices will be submitted monthly for work performed during the preceding month. Payment for undisputed work will be due within 30 days of receipt of invoice. Direct costs not specified in Exhibit A will not be reimbursed except with prior written approval of the MCWD administrator. Subcontractor fees and subcontractor direct costs, as incurred by CONSULTANT, will be reimbursed by MCWD at the rate specified in MCWD's written approval of the subcontract.

The total payment for each task will not exceed the amount specified for that task in Exhibit A. The total payment for the Services will not exceed \$[insert]. Total payment in each respect means all sums to be paid whatsoever, including but not limited to fees and reimbursement of direct costs and subcontract costs, whether specified in this agreement or subsequently authorized by the administrator.

CONSULTANT will maintain all records pertaining to fees or costs incurred in connection with the Services for six years from the date of completion of the Services. CONSULTANT agrees that any authorized MCWD representative or the state auditor may have access to and the right to examine, audit and copy any such records during normal business hours.

6. Termination; Continuation of Obligations

This agreement is effective when fully executed by the parties and will remain in force until [DATE] unless earlier terminated as set forth herein.

MCWD may terminate this agreement at its convenience, by a written termination notice stating specifically what prior authorized or additional tasks or services it requires CONSULTANT to complete. CONSULTANT will receive full compensation for all authorized work performed, except that CONSULTANT will not be compensated for any part performance of a specified task or service if termination is due to CONSULTANT's breach of this agreement.

Insurance obligations; duty of care; obligations to defend, indemnify and hold harmless; obligations to cooperate in assignment of intellectual property rights; and document-retention requirements will survive the completion of the Services and the term of this agreement.

7. No Waiver

The failure of either party to insist on the strict performance by the other party of any provision or obligation under this agreement, or to exercise any option, remedy or right herein, will not waive or relinquish such party's rights in the future to insist on strict performance of any provision, condition or obligation, all of which will remain in full force and affect. The waiver of either party on one or more occasion of any provision or obligation of this agreement will not be construed as a waiver of any subsequent breach of the same provision or obligation, and the consent or

approval by either party to or of any act by the other requiring consent or approval will not render unnecessary such party's consent or approval to any subsequent similar act by the other.

Notwithstanding any other term of this agreement, MCWD waives no immunity in tort. This agreement creates no right in and waives no immunity, defense or liability limit with respect to any third party.

8. Insurance

At all times during the term of this Agreement, CONSULTANT will have and keep in force the following insurance coverages:

- A. General: \$1.5 million, each occurrence and aggregate, covering CONSULTANT's work on an occurrence basis and, if any subcontractor is proposed to be used, including contractual liability.
- B. Professional liability: \$1.5 million each claim and aggregate. Any deductible will be CONSULTANT's sole responsibility and may not exceed \$50,000. Coverage may be on a claims-made basis, in which case CONSULTANT must maintain the policy for, or obtain extended reporting period coverage extending, at least three (3) years from completion of the Services.
- C. Automobile liability: \$1.5 million combined single limit each occurrence coverage for bodily injury and property damage covering all vehicles on an occurrence basis.
- D. Workers' compensation: in accordance with legal requirements applicable to CONSULTANT.

CONSULTANT will not commence work until it has filed with MCWD a certificate of insurance clearly evidencing the required coverages and naming MCWD as an additional insured for general liability, along with a copy of the additional insured endorsement establishing coverage for CONSULTANT's work and completed operations as primary coverage on a noncontributory basis. The certificate will name MCWD as a holder and will state that MCWD will receive written notice before cancellation, nonrenewal or a change in the limit of any described policy under the same terms as CONSULTANT.

9. Compliance With Laws

CONSULTANT will comply with the laws and requirements of all federal, state, local and other governmental units in connection with performing the Services and will procure all licenses, permits and other rights necessary to perform the Services.

In performing the Services, CONSULTANT will ensure that no person is excluded from full employment rights or participation in or the benefits of any program, service or activity on the ground of race, color, creed, religion, age, sex, disability, marital status, sexual orientation, public assistance status or national origin; and no person who is protected by applicable federal or state laws, rules or regulations against discrimination otherwise will be subjected to discrimination.

10. Data and Information

All data and information obtained or generated by CONSULTANT in performing the Services, including documents in hard and electronic copy, software, and all other forms in which the data and information are contained, documented or memorialized, are the property of MCWD. CONSULTANT hereby assigns and transfers to MCWD all right, title and interest in: (a) its copyright, if any, in the materials; any registrations and copyright applications relating to the materials; and any copyright renewals and extensions; (b) all works based on, derived from or incorporating the materials; and (c) all income, royalties, damages, claims and payments now or hereafter due or payable with respect thereto, and all causes of action in law or equity for past, present or future infringement based on the copyrights. CONSULTANT agrees to execute all papers and to perform such other proper acts as MCWD may deem necessary to secure for MCWD or its assignee the rights herein assigned.

The following are designated as CONSULTANT's instruments of service and are not subject to the terms of the preceding paragraph: [insert].

MCWD may immediately inspect, copy or take possession of any materials other than instruments of service on written request to CONSULTANT. On termination of the agreement, CONSULTANT may maintain a copy of some or all of such materials except for those designated by MCWD as confidential or non-public under applicable law, a copy of which may be maintained by CONSULTANT only pursuant to written agreement with MCWD specifying terms.

11. Data Practices; Confidentiality

If CONSULTANT receives a request for data pursuant to the Data Practices Act, Minnesota Statutes chapter 13 (DPA), that may encompass data (as that term is defined in the DPA) CONSULTANT possesses or has created as a result of this agreement, it will inform MCWD immediately and transmit a copy of the request. If the request is addressed to MCWD, CONSULTANT will not provide any information or documents, but will direct the inquiry to MCWD. If the request is addressed to CONSULTANT, CONSULTANT will be responsible to determine whether it is legally required to respond to the request and otherwise what its legal obligations are, but will notify and consult with MCWD and its legal counsel before replying. Nothing in the preceding sentence supersedes CONSULTANT's obligations under this agreement with respect to protection of MCWD data, property rights in data or confidentiality. Nothing in this section constitutes a determination that CONSULTANT is performing a governmental function within the meaning of Minnesota Statutes section 13.05, subdivision 11, or otherwise expands the applicability of the DPA beyond its scope under governing law.

CONSULTANT agrees that it will not disclose and will hold in confidence any and all materials owned or possessed by MCWD and determined by the MCWD to be protected from public disclosure, and so denominated by MCWD. CONSULTANT will not use any such materials for any purpose other than performance of the Services without MCWD written consent. This restriction does not apply to materials already possessed by CONSULTANT or that CONSULTANT received on a non-confidential basis from MCWD or another party. Consistent with the terms of this section 11 regarding use and protection of confidential and proprietary information, CONSULTANT retains a nonexclusive license to use the materials and may publish or use the materials in its professional activities. Any CONSULTANT duty of care under this agreement does not extend to any party

other than MCWD or to any use of the materials by MCWD other than for the purpose(s) for which CONSULTANT is compensated under this agreement.

12. MCWD Property

All property furnished to or for the use of CONSULTANT or a subcontractor by MCWD and not fully used in the performance of the Services, including but not limited to equipment, supplies, materials and data, both hard copy and electronic, will remain the property of MCWD and returned to MCWD at the conclusion of the performance of the Services, or sooner if requested by MCWD. CONSULTANT further agrees that any proprietary materials are the exclusive property of MCWD and will assert no right, title or interest in the materials. CONSULTANT will not disseminate, transfer or dispose of any proprietary materials to any other person or entity unless specifically authorized in writing by MCWD.

Any property including but not limited to materials supplied to CONSULTANT by MCWD or deriving from MCWD is supplied to and accepted by CONSULTANT as without representation or warranty including but not limited to a warranty of fitness, merchantability, accuracy or completeness. However, CONSULTANT's duty of professional care under paragraph 4, above, does not extend to materials provided to CONSULTANT by MCWD or any portion of the Services that is inaccurate or incomplete as the result of CONSULTANT's reasonable reliance on those materials.

13. Notices

Any written communication required under this agreement to be provided in writing will be directed to the other party as follows:

To MCWD:

Research and Monitoring Program Manager
Minnehaha Creek Watershed District
15320 Minnetonka Boulevard
Minnetonka, MN 55345

To CONSULTANT:

[Authorized Representative
Organization
Address]

Either of the above individuals may in writing designate another individual to receive communications under this agreement.

14. Choice of Law; Venue

This agreement will be construed under and governed by the laws of the State of Minnesota. Venue for any action will lie in Hennepin County.

15. Whole Agreement

The entire agreement between the two parties is contained herein and this agreement supersedes all oral agreements and negotiations relating to the subject matter hereof. Any modification of this agreement is valid only when reduced to writing as an amendment to the agreement and signed by the parties hereto. MCWD may amend this agreement only by action of the Board of Managers acting as a body.

IN WITNESS WHEREOF, intending to be legally bound, the parties hereto execute and deliver this agreement.

CONSULTANT

By _____
Its _____

Date: _____

Approved as to Form and Execution

MCWD Attorney

MINNEHAHA CREEK WATERSHED DISTRICT

By _____
Its _____

Date: _____

Exhibit A
Scope of Services

TEMPLATE