



LOWER MINNESOTA RIVER WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, December 15, 2021

Agenda Item

Item 8. F. – Watershed Management Plan

Prepared By

Linda Loomis, Administrator

Summary

The LMRWD adopted its Watershed Management Plan (the Plan) in October Of 2018. After adoption of the Plan, the District drafted rules to implement the plan. Rules were adopted in February 2020. Municipalities with property within the jurisdiction of the LMRWD were given until May 2020 to bring their official controls into conformance with the LMRWD rules. The LMRWD extended the date for conformance to September of 2020 upon the request of several municipalities.

The Board Managers of the LMRWD determined municipalities were the appropriate body to permit projects within the LMRWD and developed a Municipal Permit within its rules. Municipal Permits were granted to a municipality once official controls of the municipality conformed to the LMRW rules. In the meantime, the LMRWD reviewed all projects and issued individual project permits. The LMRWD retains permit authority for those municipalities (Eden Prairie and Chaska) that have chosen not to apply for a Municipal Permit (or within the floodplain in the cities of Bloomington, Carver and Shakopee) and for projects that fall within unincorporated areas of the District, Metropolitan Airport Commission properties, and MnDOT rights-of-way.

As the LMRWD has reviewed projects it became apparent that revisions to the rules were necessary. LMRWD staff has been working to revise rules. A schedule of the rules revisions is contained in the attached *2022 Projects and Program Workplan* dated December 10, 2021, prepared by Young Environmental Consulting Group, LLC.

Additionally, projects contained in Table 4-1: Lower Minnesota River Watershed District - Implementation Program Budget for 2018 -2027 of the Plan have either been completed or are underway. Staff recommends that Table 4-1 be updated and amended. Updates to the work plans of the Implementation projects are addressed in the *2022 Projects and Programs Workplan*. Here is a link to [Section 4](#) of the Plan, which includes Table 4-1.

Attachments

Lower Minnesota River Watershed District—2022 Projects and Programs Workplan

Recommended Action

No action recommended – for information only

Technical Memorandum

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| To: | Linda Loomis, Administrator Lower Minnesota River Watershed District |
| From: | Della Schall Young, CPESC, PMP Owner/Principal Scientist |
| Date: | December 10, 2021 |
| Re: | Lower Minnesota River Watershed District—2022 Projects and Programs Workplan |

Below and attached are workplans for projects and programs planned for the 2022 calendar year. Some of the projects presented were planned for either 2020 or 2021 but were postponed to 2022.

1. Watershed Management Plan Amendment

Since the completion of the Watershed Management Plan (Plan) in 2018, the District has authorized and overseen the completion of most of its capital improvement projects (CIPs). In 2022, Chapter 4 (“Implementation Program”) of the Plan will be updated to incorporate additional CIPs and studies identified in the supporting studies. The District’s 2020 approved budget allocated \$50,000 to complete the rules, of which \$28,000 remains for this effort.

2. Rules Amendment

Starting in 2021, Linda Loomis, administrator for the Lower Minnesota Watershed District (LMRWD and District), Katy Thompson, Kaci Fisher, and Della Young, Young Environmental Consulting Group (Young Environmental), along with John Kolb Rinke Noonan, have been working on the proposed administrative revision to the District’s rules. The revisions have gone through one round of internal staff comments, with one meeting remaining before February 2022 between Katy and John to finalize the proposed revisions. Once the revisions have been finalized, the redlined version will be shared with the LMRWD managers for consideration before their approved version is shared with the technical advisory committee and the

Minnesota Board of Soil and Water Resources. The approved budget allocated \$10,000 of the 2021 to this effort.

3. Municipal (LGU) and Individual Projects Permit Programs

Municipal LGU permits: During 2021, the cities of Bloomington, Carver, Eagan, Mendota Heights, and Shakopee received permits to administer specified applicable rules within their respective boundaries. The focus in 2022 will be to permit the cities of Burnsville, Chanhassen, and Savage. The cities of Chaska and Eden Prairie have asked the District to continue to administer permits within their boundaries.

Individual project permits: As of Monday, November 22, 2021, the District had processed 133 rules review requests. Below is a list of how the requests broke down (see also the attached illustration, Figure X). Because five cities have received their municipal LGU permits from the District, we expect the rule review requests to decrease:

- 25 permits issued
- 8 open permit applications (three active, five conditionally approved)
- 42 pre-permit inquiries (meeting requests, information reviews, etc.)
- 14 reviews that were unattached to permit applications
- 4 grant application reviews
- 4 EAW/EIS reviews, three of which became permit applications
- 1 city municipal conditional use permit review
- 10 Minnesota Department of Natural Resources MPARS reviews, six of which became permit applications
- 12 Wetland Conservation Act (WCA) reviews; four WCA reviews became permit applications
- 3 reviews initiated and then cancelled by the applicant(s)

4. Education and Outreach (E&O) Program

The 2022 workplan includes continuing management of the citizen advisory committee, social media activities, signage design and placement, school engagement efforts, and partnerships for community outreach and engagement activities. The plan also includes assisting with the District's website and enhancing the cost-share program information and developing a training program. The approved budget allocated \$75,000 of the 2022 budget to this effort.

The E&O program's 2021 summary and 2022 workplan are attached as separate documents.

5. CIPs are listed below, and workplans are attached:

- a. Area 3 Stabilization Project – Attached is the revised workplan to support the development and completion of the comprehensive study, secure bonding funding funds from the legislature and other applicable grants.
- b. Assumption Creek Hydrology Study—The approved budget allocated \$10,000 of the 2019 budget to this effort. Although expected to be completed in 2021, this project was postponed to 2022.
- c. Calcareous Fens:
 - i. Groundwater Recharge Value Engineering Workshop—The approved workplan allocated \$7,500 of the 2021 budget to this effort. The workshop was held this past summer, and the final recommendations are underway.
 - ii. Gun Club Lake Stormwater Intrusion Project—The approved workplan allocated \$23,750 of the approved 2021 budget to this effort. Although expected to be completed in 2021, this project was postponed to 2022.
 - iii. Seminary Fen Management Plan—The approved workplan allocated \$53,000 from the approved 2021 budget to this effort. The vegetation survey or relevés was completed between March and November 2021. The comprehensive management plan began in November 2021 and is expected to be completed in 2022.
- d. Dredge Management Site – The workplan for this project is not attached. For 2022, tasks outline (such as the culvert analysis and upgrade and road improvements) in the grant agreement with the State of Minnesota will be completed.
- e. East Chaska Creek Project—The workplan for this project is not attached. It is 98 percent complete pending release of the retainage in 2022.
- f. Gully Inventory and Condition Assessment—The approved workplan allocated \$74,900 of the approved 2021 budget to this effort. Work began in 2021 and included the fieldwork and presentation by the interns; the documentation is expected to be completed in 2022.
- g. Minnesota River Corridor Management Plan—The approved 2020 and 2021 budgets allocated \$75,000 and \$25,00, respectively, to this effort. Work began in March 2021, and the stakeholder engagement, outreach, and documentation are expected to be completed in June 2022.

- h. Minnesota River Floodplain Study—The approved 2019 budget allocated \$30,000 to this effort. Although expected to be completed in 2021, this project was postponed to 2022.
- i. Spring Creek Hydrology and Hydraulics Project—The approved workplan allocated \$26,200 of the \$75,000 budget in 2020 to this effort. Work began in October 2021, and the documentation is expected to be completed in February 2022.
- j. Trout Waters Projects:
 - i. Sustainable Lakes Management Plan (SLMP)—The approved budget allocated \$50,000 in 2022. Draft SLMPs were completed in 2020, and the District has been waiting for feedback from the communities to finalize them. We expect to receive comments no later than March 2022 when we will finalize the SLMPs. Once finalized, the remaining budget will be spent on implementing board-approved management strategies. Updated workplan is not attached.
 - ii. Trout Streams Management Plan—The approved workplan allocated \$49,500 of the 2020 budget to this effort. The preliminary draft of the management plan was completed in December 2020. Review by staff is underway. Once staff reviews have been completed, the document will be sent to partners for comments before the draft final document is presented to the board for consideration.

LOWER MINNESOTA RIVER WATERSHED DISTRICT

Area 3 Minnesota Riverbank Stability Project: Design

WORKPLAN—March 2, 2021 (Revised May 14, 2021, and December 10, 2021)

The Lower Minnesota River Watershed District (LMRWD) has been studying and collaborating with the City of Eden Prairie (City) to monitor the erosion occurring along the north bank of the Minnesota River since 2011. In 2020 it was estimated that the continued erosion of the riverbank and subsequent failure of the bluff slope above it have caused approximately 100,000 tons of soil and sediment to enter the river at a rate of 5,000 tons per year. The continued erosion of the riverbank is contributing to the increased turbidity and excess nutrients within the lower Minnesota River.

After 10 years of collecting monitoring data, the District is ready to move forward with a design to stabilize the riverbank and prevent future erosion of the bluff toe and further contributions to the excess sediment and nutrient loadings to the river.

Summary

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| <i>Outcome:</i> | <u>Conceptual rendering of bluff and riverbank stabilizations</u> , 60 and 90 percent construction plans, specifications, and engineer's estimate |
| <i>Project stakeholders:</i> | City of Eden Prairie, Hennepin County |
| <i>Timeline for completion of project:</i> | March 2021– <u>June 2022</u> |
| <i>Total project budget¹:</i> | \$201,105–\$206,705 <u>\$260,711–\$266,311</u> |

Objective 1. Project Management: Underway

This objective consists of managing the project scope, submittals, schedule, and budget and providing periodic communications from Inter-Fluve to the LMRWD staff via email and phone and from staff to the Board. Project coordination meetings to maintain communication with stakeholders will be necessary. The following meetings are planned:

~~*Task 1-1: Kickoff meeting:* LMRWD staff and Inter-Fluve will meet virtually to discuss the project scope and schedule.~~

~~*Task 1-2: Stakeholders' kickoff meeting:* LMRWD staff will lead a kickoff meeting with identified stakeholders.~~

Task 1-3: Design review meetings: Inter-Fluve will present the project design and provide an update at the end of the 60 percent and 90 percent tasks to LMRWD staff and project partners before the comment period for each task begins.

¹ Where referenced, the LMRWD staff consists of the District's administrator and technical consultants' budget.

Task 1-4: Board updates: LMRWD staff will provide update memos to the Board summarizing the alternatives workshop and again following the 60- and 90-percent design review meetings and will provide project schedule updates as necessary.

Timeline for completion: ~~March–September 2021~~ March 2021–April 2022

Deliverables: Invoices, meeting agendas and summaries, Board update memos

Estimated budget: \$24,100–\$25,000 (LMRWD: \$9,296–\$10,196; Inter-Fluve: \$14,804)

Objective 2. Alternatives Review and Validation: Done

Task 2-1: Alternatives review and analysis: ~~Inter-Fluve will review the data provided, identify gaps, and supplement or update the data and analysis to confirm the failure drivers of the slope and risks to the site. It will conduct a limited drone survey and construction survey (including bathymetry and detailed land survey) to support the development of the designs and develop a hydraulic analysis that includes ice analysis, boat wake, and geotechnical considerations. Inter-Fluve will summarize its findings in a technical memorandum with the criteria used, alternatives reviewed, and final recommendation.~~

Task 2-2: Alternatives workshop: ~~Inter-Fluve will present the findings of its alternative analysis and discuss the results with LMRWD staff, City, and county stakeholders at a workshop and provide a meeting summary to attendees. LMRWD staff will review the design recommendation memo, attend the alternatives workshop, and provide feedback on the work completed to date.~~

Task 2-3: Individual agency meetings: ~~LMRWD staff will coordinate with individual agencies to provide them with project updates and coordination of any necessary reviews.~~

Timeline for completion: ~~March–May 2021~~

Deliverables: ~~Alternatives review memo, workshop meeting agenda and summary, agency meeting agendas and summaries~~

Estimated budget: ~~\$77,505–\$78,405 (LMRWD: \$10,341–\$11,241; Inter-Fluve: \$67,164)~~

Objective 3. 60 Percent Design: On hold pending completion of Objective 6.

Task 3-1: 60 percent design development: Inter-Fluve will develop 60 percent design plans based on the recommended design stakeholders select at the Objective 2 alternatives workshop. It will update the hydraulic analysis to reflect the proposed design, develop a preliminary plan set, and facilitate a design review meeting with LMRWD.

Task 3-2: 60 percent design package review: Interfluve will provide LMRWD staff with the 60 percent design package including construction plans, the design memorandum, and the permitting matrix. LMRWD staff will review the package and complete the comment resolution log for the selected consultant. LMRWD will return comments to Interfluve within two weeks.

Timeline for completion: ~~May–July 2021~~

Deliverables: 60 percent design package, design review meeting agenda and summary, completed comment log

Estimated budget: \$43,700–\$45,100 (LMRWD: \$13,289–\$14,689; Inter-Fluve: \$30,411) To be determined (TBD)

Objective 4. Permitting

Task 4-1: Pre-permit meetings: Using the 60 percent plans, LMRWD staff will independently confirm the permit matrix by coordinating with the identified agencies to present the project and confirm specific permit requirements and timelines. Permits will likely be needed from the MnDNR, USACE, LMRWD, City of Eden Prairie, US Coast Guard, MPCA, Environmental Quality Board, Minnesota State Historic Preservation Office, and other agencies.

Task 4-2: Specialty permitting: LMRWD Staff will complete a Phase 1 analysis for historic and cultural resources and threatened and endangered species. LMRWD will use this information for the joint permit application. Additional work may be necessary, depending on the results of the Phase 1 analysis, but it has not been included in this workplan.

Task 4-3: Permit applications: LMRWD staff will draft permit applications based on the 60 percent plans Inter-Fluve provided and apply for applicable permits including an LMRWD permit, the joint permit application for the MnDNR and USACE, and public waters permit. Agency review comments will be compiled and provided to the selected consultant in Task 6.

Timeline for completion: ~~July 2021–September 2021~~ January–August 2022

Deliverables: Permit applications, Phase 1 analysis and summary

Estimated budget: \$17,900–\$19,700 (LMRWD: \$17,900–\$19,700; Inter-Fluve: \$0)

Objective 5. 90 Percent Design Review: On hold pending completion of Objective 6.

Task 5-1: 90 percent design development: Inter-Fluve will develop 90 percent design plans based on the comments provided at the end of Tasks 4-3 and 5-3. The plan set will be updated to incorporate these comments, develop an engineer's estimate and final permit matrix, and provide draft specifications for review.

Task 5-2: 90 percent design package review: LMRWD staff will review the 90 percent design package including revisions to construction plans, the design memorandum, and the permitting matrix. LMRWD staff will conduct a complete review of the draft technical specifications and preliminary engineer's estimate and will finish the comment resolution log for the selected consultant.

Timeline for completion: ~~June 2021–July 2021~~ TBD

Deliverables: Board update memo

Estimated budget: \$37,900–\$38,500 (LMRWD: \$6,305–\$6,905; Inter-Fluve: \$31,595) TBD

Objective 6. Bluff Concept Design and Rendering

Task 6-1: Preliminary slope concept analyses: Barr will perform preliminary engineering analyses on a cross-section through the bluff to evaluate three general concepts to stabilize the slope and control seepage: 1) leaving the bluff as is, 2) grading the bluff back to a gentler slope, and 3) implementing a geotechnical-structural solution. The results of the slope concept analyses will be summarized in a technical memo.

Task 6-2: Conceptual design and renderings: Inter-Fluve will develop a conceptual design for the removal of the City's stormwater pond and adjacent riverbank protection structures and recommendations for appropriate treatment of the pond bank segment. The results of the stormwater pond removal analyses will be summarized in a technical memo. An artist will combine the slope recommendations from Task 6-1 with Inter-Fluve's recommendations for the riverbank stabilization and develop three renderings: 1) a plan view that includes Area 3, the City stormwater pond, and the upper bluff; 2) an oblique view of the City stormwater pond area; and 3) an oblique view of the Area 3 bluff. The nontechnical graphics produced will be suitable for the public, legislators, and potential funding agencies. Additionally, Inter-Fluve and Barr will develop an Engineer's Opinion of Probable Construction Cost for the proposed work. LMRWD staff will conduct a complete review of the draft technical memorandums, costs, and renderings and will provide the Board with updates.

Timeline for completion: December 2021–March 2022

Deliverables: Board update memos including technical memos, conceptual renderings of recommended slope, and riverbank stabilization

Estimated budget: \$59,606 (LMRWD: \$8,100; Inter-Fluve: \$29,501; Barr: \$22,005)

LOWER MINNESOTA RIVER WATERSHED DISTRICT

Assumption Creek Hydrology Assessment

WORK PLAN—~~August 10, 2020~~ (Revised December 10, 2021)

Summary

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| <i>Outcome:</i> | Assumption Creek Hydrology Assessment, to be used as a supplemental report for the Trout Streams Gaps Analysis and Seminary Fen Management Plans. Building off the 2019 <i>Trout Streams Geomorphology Study</i> and the 2020 <i>Fens Suitability Gaps Analysis</i> , this assessment will focus on the hydrogeology of the system and the contributing stormwater inflows. |
| <i>Project partners:</i> | Minnesota Department of Natural Resources (MNDNR), US Army Corps of Engineers (USACE), Carver County, and City of Chaska |
| <i>Timeline for completion of project:</i> | September–December 2020 September 2021–June 2022 |
| <i>Total project budget:</i> | \$27,200–\$30,000 |

Objective 1. Project Management

Task 1-1: Project plan development and project management. Finalize the workplan; assign project tasks; determine whether additional resources are needed; set dates for deliverables; generate and maintain project schedule and Gantt chart.

Deliverables: invoices and project updates

Estimated budget: \$2,500–\$3,000

Objective 2. Data Collection and Review - Done

Task 2-1: Gather the available information. Collect background resource information from previous District efforts, including the *Strategic Resources Evaluation Plan*, *Geomorphic and Habitat Assessments of Trout Streams in the Lower Minnesota River Watershed District*, and *LMRWD Fen Sustainability Plan* as well as from public resources, including the City of Chaska, Minnesota Department of Natural Resources, and US Army Corps of Engineers. Together, with the current Trout Streams Strategic Management Plan project, develop a standardized e-mail for LMRWD to send to project partners notifying them about the project and advising that they may be contacted by Young Environmental staff.

Task 2-2: Desktop analysis. From the information collected in Task 2–1, perform a historic aerial photo analysis of the Assumption Creek watershed and develop a comprehensive list of past land uses and activities that may have altered the surface water and groundwater hydrology near Assumption Creek. Review soils data to identify areas of potential groundwater recharge in the watershed and review land-use changes from the historic aerial photo analysis. A simple hydrology model may also be developed to determine the potential surface water runoff contribution to the creek and downstream Seminary Fen.

Timeline for completion: ~~September 2020~~ March 2022

Deliverables: Standardized e-mail to project partners, desktop analysis, project partner meeting agendas, and summaries.

Estimated budget: \$5,400–\$5,800

Objective 3. Field Work

Task 3-1: Complete gaps analysis for Assumption Creek. Evaluate the data collected in Objective 2 for any gaps that would be necessary to restore the hydrology and groundwater connection for Assumption Creek. Review the data for evidence of channel instability, including the presence of mid-channel bars in the east reach. Additionally, this task will include coordination with Barr to reevaluate the 2019 recommendations and others to aid in closing these gaps.

Task 3-2: Collect field data. Visit the locations south of Flying Cloud Drive on Assumption Creek that were inaccessible during the 2019 field work because of flooding on the Minnesota River and perform geomorphology and habitat assessments following the same methodology and procedures used in 2019. The 2019 report completed by Barr Engineering included recommendations for additional field work: 1) Collect additional flow measurements upstream and downstream of Seminary Fen to quantify baseflow conditions; and 2) If site conditions allow, assess the portion of Assumption Creek downstream of Flying Cloud Drive with the same methodology and procedures used in 2019.

Timeline for completion: ~~September–October 2020~~ March 2022–August 2022

Deliverables: gaps analysis and field data collection

Estimated budget: \$6,900–\$7,600

Objective 4. Documentation

Task 4-1: Generate draft outline. Generate a draft annotated outline that documents the findings and recommendations of Objectives 2 and 3 and that outlines opportunities that may exist to restore the groundwater hydrology.

Task 4-2: Develop the draft report. Build on the annotated outline and develop the draft report documenting the methods, assumptions, procedures, results, and recommendations. Submit the draft report to the District and project partners for consideration and written feedback.

Task 4-3: Present approach and preliminary recommendations. Present the approach and preliminary recommendations to the project partners and the District's managers.

Task 4-4: Finalize the report. Finalize the draft report and incorporate project partners', district administrators', and managers' written feedback.

Timeline for completion: ~~October–December 2020~~ September 2021 – June 2022

Deliverables: annotated outline, draft report, preliminary plan presentation, and final report

Estimated budget: \$12,400–\$13,600

LOWER MINNESOTA RIVER WATERSHED DISTRICT

Calcareous Fens

WORK PLAN—August 3, 2020 (Revised December 10, 2021)

During 2019–2020, the District completed a comprehensive review of the calcareous fens within its jurisdiction, and the review is documented in the 2020 Fen Sustainability Gaps Analysis for Carver, Dakota, and Scott Counties Minnesota report (Report). The fens are Gun Club Lake North and South Fens, Nicols Meadow Fen and Black Dog Fen in Dakota County, Seminary Fen in Carver County, and Savage Fen in Scott County. The report recommends a number of activities necessary to protect and preserve these high value resources. The recommendations for priority action are presented below and are based on partner interest and the available information.

Summary

Outcome: various reports and analysis
Project partners: Minnesota Department of Natural Resources (DNR), US Fish and Wildlife Service (USFWS), stakeholder organizations, other partner agencies
Timeline for completion of project: ~~October 2020–December 2021~~ March 2021–August 2022
Total project budget: \$87,000–\$109,250

Objective 1. Groundwater Recharge Value Engineering Workshop (Workshop is Done, Recommendations Underway)

Task 1-1: Value Engineering Workshop. Over the past few years, the District has considered numerous methods of understanding the sustainability of calcareous fens within its jurisdiction, including modeling and predicting the effects of permitted pumping and climate on the system as well as monitoring and tracking both dynamic and static water levels of the fens. Through a facilitated two- to three-hour workshop, we will bring groundwater professionals together to review the available information on the fens and the District’s goals to develop the best approach for understanding fen groundwater management sustainability.

Timeline for completion: two months
Deliverables: invitational e-mail, agenda, review package, and instructions and outcomes summary
Estimated objective 1 budget: \$5,000–\$7,500

Objective 2. Gun Club Fen Stormwater Intrusion Study (January – June 2022)

Task 2-1: Stormwater Intrusion Study. During spring 2020, the DNR approached the District about investigating a scar that has formed within the Gun Club North Fen (see the attached map). This study will investigate the sources of the stormwater channeled toward the fen and will generate concept plans to mitigate the flow upstream and/or diffuse it when it enters the fen to correct the scar.

Timeline for completion: three months
Deliverables: draft and final feasibility study
Estimated objective 2 budget: \$17,000–23,750

Objective 3: Seminary Fen Management Plan - Underway

Task 3-1. Complete the Fen Management Plan. Over the past ten years or so, the DNR, Metropolitan Council, and other stakeholders have convened a workgroup focused on protecting the Seminary Fen. The appears to have stalled, but the *Fen Sustainability Gaps Analysis* completed by the District should be used to reignite the workgroup to complete the management plan. The work would consist of facilitating workgroup discussions focused on reviewing the outcomes of the *Fen Sustainability Gaps Analysis*, the pending *Trout Streams Study*, and participating in the value engineering workshop to develop a comprehensive management plan for the fen.

Timeline for completion: twelve months

Deliverables: agendas, meeting summaries, and the draft and final management plan

Estimated budget: \$45,000–\$53,000

*Task 3-2. Complete Vegetation Study (Relevé) – **Completed November 2021.*** ~~The DNR has identified five locations within the Seminary Fen relevé plots to be completed. For these relevés, as with the ones being completed on Gun Club Lake and the Nicols Meadow fens, the DNR recommends that the studies are completed with two separate field visits—one in June or early July and the other in August or early September. The dual survey ensures all species are visible and identifiable during one of the two visits.~~

Timeline for completion: five months

Deliverables: floristic quality assessment and summary observations

Estimated budget: \$20,000–\$25,000

LOWER MINNESOTA RIVER WATERSHED DISTRICT

GULLY 2: SOUTH SIDE OF THE MINNESOTA RIVER DESKTOP ASSESSMENT AND FIELD INVENTORY AND CONDITION ASSESSMENT

WORK PLAN—July 31, 2020 (Revised December 10, 2021)

Using the Minnesota River as a focal point, this project will examine issues facing the river's complex natural system, which is a shared resource and a place where varied interests and other systems converge. This work will build upon the 2020 Gully Inventory and Condition Assessment report by identifying potential gullies that were not inspected or assessed in the original 2007 Gully Inventory. Using GIS software and supplemental fieldwork, this work will identify potential gullies that are contributing to the flow and sediment accumulation of the Minnesota River from the cities of Burnsville, Eagan, Savage, and Shakopee as well as develop recommendations for future field work to assess the condition of these gullies.

Summary

Outcome: Identify and make recommendations for future field work and condition assessments of gullies located in the cities of Burnsville, Eagan, Savage, and Shakopee within the Lower Minnesota River Watershed District.

Timeline for completion: January 2021—~~September 2021~~ June 2022

Project partners: Minnesota Department of Natural Resources (MnDNR), US Fish and Wildlife Service (USFWS), Trout Unlimited, City of Burnsville, City of Eagan, City of Savage, City of Shakopee, Dakota County, and Scott County

Audience (For whom this plan is intended): Cities and counties within the Lower Minnesota River Watershed District (LMRWD) and resource and land use professionals

Total project budget: \$67,600–\$74,900

Objective 1. Project Management

Task 1-1: Project plan development and project management. Finalize the workplan, assign project tasks, determine if additional resources are needed, set dates for deliverables, and generate and maintain project schedule/Gantt chart.

Timeline for completion: 5–12 months

Estimated budget: \$3,300–\$4,000

Objective 2. Desktop Analysis - Done

Task 2-1: Review background information. ~~As part of the 2020 Gully Inventory and Assessment Project, the Young Environmental staff collected information from public resources for all cities within the District. Information was extracted for only the sites visited as part of the 2007 Inventory, and the south side of the District was not reviewed as part of that scope. The compiled information will be reviewed, and municipalities within this study area may be contacted for additional information and to determine areas of concern, proposed projects, and completed projects that may affect future field work and surveys. In addition, this task will include coordination with the USFWS and Minnesota Department of Natural Resources to gain permission to perform survey work on their land.~~

Task 2-2: Gully erosion susceptibility analysis. ~~From the information collected and reviewed in Task 2-1, we will identify and map potential gullies as well as proposed and completed municipal projects that may address gully erosion. Contact partners (identified above) for additional information as needed. Develop a Gully Erosion Susceptibility Analysis and map using geospatial data to estimate which areas within the southern LMRWD~~

watershed may be susceptible to gully erosion. The analysis will include MnDNR LiDAR data, soil types, land use and land cover, and surficial geology.

Task 2-3: Fieldwork prioritization. From the map of potential and unassessed sites developed in Task 2-2, we will identify additional data that may be needed to complete future field work. We will work with project partners as needed, including coordinating meetings with the municipalities to discuss draft findings and incorporating their input into the final technical memorandum recommendations.

Task 2-4: Technical memo. Develop a list of recommendations to guide future field work assessments. The methodology developed for the desktop analysis will be documented and results and recommendations presented in a technical memorandum to be appended to the final 2020 Gully Inventory Report as a supplemental appendix.

Timeline for completion: 4–6 weeks

Estimated budget: \$5,500–\$6,200

Objective 3. Field Work – 90 Percent Complete

Task 3-1: Collect new gully waypoints and field condition assessments. Following the same methodology developed for the 2020 Gully Inventory and Condition Assessment, conduct site visits to each of the identified gullies from objective 2. As before, Young Environmental will use interns to collect photographs, waypoint locations, and notes detailing the condition of each of the gullies using the same field data collection sheets developed as part of the 2020 Gully Inventory and Assessment Project.

Task 3-2: Collect drone survey bids. Following the completion of the 2020 field season, a final list will be compiled of the sites that were inaccessible because of steep slopes or other safety concerns. We will have local drone experts assess the final list and create mapping to determine if a drone survey is feasible. If a drone survey is determined to be feasible, a separate scope of work will be developed to complete it.

Task 3-3: Gully ranking. Based on the gully condition assessment, Young Environmental will rate the identified and assessed gullies in the LMRWD using the same methodology developed in the 2020 Gully Inventory and Assessment report. Criteria to be used will include the potential for sediment loading into the Minnesota River, proximity to HVRA or 303-listed impaired waterbody, and interest by project partners.

Timeline for completion: 8–12 weeks, dependent on weather

Estimated budget: \$52,100–\$57,400

Objective 4. Documentation

Task 4-1: Draft technical memorandum. Develop a technical memorandum that presents the methods, results, and recommendations from the 2020–21 fieldwork and append to the final 2020 Gully Inventory and Condition Assessment report. The draft memorandum will be provided to the district and partners for comment.

Task 4-2: Finalize technical memorandum and append to final 2020 Gully Inventory and Condition Assessment Report. Submit the final technical memorandum and findings to the District and project partners. Append final technical memorandum to the final report for documentation.

Timeline for completion: 4 weeks

Estimated budget: \$6,600–\$7,300

LOWER MINNESOTA RIVER WATERSHED DISTRICT

Minnesota River Corridor (MRC) Plan

WORK PLAN—~~August 3, 2020~~ (Revised December 10, 2021)

Using the Minnesota River as a focal point, this project will examine issues facing the river's complex natural system, a shared resource and a place where varied interests and other systems converge. The results of this project will be a multi-purpose corridor plan that will serve as a guiding document among all the political jurisdiction and agencies. It will seek to create a new foundation for cooperation and strategic financial investments that can provide multiple benefits.

The plan will examine pressures on the river from inside the watershed and expand to consider areas upland of the watershed, considering the river is itself a complex natural system and a shared resource, where varied interests such as recreation and commerce systems converge. The outcome will be the development of a shared vision and effective implementation to identify and focus effort on maximizing public benefits, including: (1) create greater understanding of the Lower Minnesota River Corridor and its landscape, (2) demonstrate a desired future for the river and how change in the surrounding landscape can help attain this future, (3) suggest a structure or framework by which the vision can be implemented, and (4) identify shared community and public values that form the basis of the project.

Potential management strategies will also be identified as part of the process to improve water quality, integrate wildlife habitat and outdoor recreation, and create a framework for a more sustainable economic development within the watershed. The plan will also recognize the role private landownership has in the development of the watershed and will provide landowners with tools and opportunities to become more involved and implement best practices.

Summary

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| <i>Outcome:</i> | Minnesota River Corridor (MRC) Plan |
| <i>Project Partners:</i> | Residents and business owners of LMRWD, Minnesota Board of Water and Soil Resources (BWSR), Minnesota Department of Natural Resources (DNR), US Army Corps of Engineers (USACE), US Coast Guard, US Fish and Wildlife Service (USFWS), Friends of the Mississippi, Minnesota Valley Refuge Friends, stakeholder organizations, other partner agencies |
| <i>Timeline for Completion of Project:</i> | September 2020–June 2021 (March 2021 – December 2022) |
| <i>Total Project Budget:</i> | \$83,800–\$100,000 |

Objective 1. Project Management

Task 1-1: Project plan development and project management. Finalize the workplan; assign project tasks; determine if additional resources are needed; set dates for deliverables; generate and maintain project schedule/gantt chart.

Timeline for Completion: 8 – 10 months

Deliverables: Invoices and project updates

Estimated Objective 1 Budget: \$8,200–\$9,800

Objective 2. Collect and Review Data

Task 2-1: Review and build on past efforts. Gather previous plans and studies from partners' websites, past LMRWD studies and projects, and available online data sources. Review to develop a comprehensive list of resources that exist within or near the District that address water quality, habitat and natural resources, land uses and community plans, recreation opportunities, and infrastructure or other intersecting systems. Done

Task 2-2: Preliminary issue identification and qualitative analysis. Using the information collected in Task 2-1, review the data to identify key issues or concerns, shared values or goals, and projected growth within the watershed. Develop a list of the priority sites or issues as a starting point for public engagement activities. Done

Task 2-3: GIS mapping. Develop watershed mapping to characterize the Lower Minnesota River Corridor by: water quality, habitat and natural resources, land uses and community plans, recreation opportunities, and infrastructure or other intersecting systems. Maps will be developed to document the current conditions across the Corridor, as well as map the needs related to the Corridor Plan goals.

Timeline for Completion: September 2020 (March 2021 – March 2022)

Deliverables: Development of data matrix and identification of key issues within the watershed from previous studies, preliminary mapping of existing watershed conditions

Estimated Objective 2 Budget: \$14,400–\$17,300

Objective 3. Partnering and Public Engagement

Task 3-1: Contact potential project partners and outreach. Reach out to project partners: municipal partners, county partners, DNR, USEFWS, BWSR, landowners (business, agricultural, and residential), recreation and stewardship agencies, and other partner agencies with an introductory email and request for a point of contact for those interested in participating in the MRC and technical advisory group process. These points of contact will be asked to participate in future discussions with the District to help identify major issues. Done

Task 3-2: Focus Groups. Three information gathering sessions will be held with randomly-selected residential, business, and agricultural landowners located within the watershed and with stewardship and recreation organizations. Participants will be asked to provide their insights into how they value the river, changes they have seen in the river over time, regulatory issues, and what they hope the plan would accomplish. These meetings will be held virtually. Another information gathering session will be held with local watershed organizations may also be contacted for advice for proceeding with issues identification and advertising for public workshops, particularly for any public engagement lessons-learned while in the midst of the COVID19 pandemic. Such organizations may include Friends of the Mississippi River and the Vermillion River Watershed District.

Task 3-3: Partner Workshops. Review the proposed process and objectives with partners for their endorsement, solicit feedback, and learn how their expertise and knowledge of the resource can lend itself to the project. Facilitate a virtual open house to characterize the partners' perspective of the watershed and the key issues identified in Objective 2. Three workshops will be held virtually and are generally discussed below:

Workshop 1: A River Worth Protecting

The goal of the first workshop is to introduce attendees to the MRC Plan and identify priorities for water quality, habitat, appropriate recreation, and future growth opportunities. The workshop will be broken into regional sessions, by county.

Workshop 2: Working Together

The second workshop will offer participants the opportunity to review and refine the draft concepts for the full corridor plan.

Workshop 3: Putting the Plan into Action

The third workshop will allow the participants to refine the corridor concepts that comprise the Corridor Plan vision. Input will be sought on how the plan will be coordinated and implemented.

Task 3-4: Open House. The draft Minnesota River Corridor Plan will be released for public review and presented at an open house during the public review and comment period. The session will be unstructured to allow for project team members to answer questions and engage participants in discussion about the draft plan. A summary of the received comments will be provided and incorporated into the final document.

Task 3-5: Surveys. ~~Develop an online survey to be incorporated on the LMRWD website to solicit feedback from residents, businesses, and those with an interest in the LMRWD. This survey will be used to determine what the public believes are the key issues facing the District. Done~~

Task 3-6: Regulation Review. ~~With the adoption of District Rules in February 2020, we propose to incorporate time into the MRC to check in with partners on the permitting process. While the substance of the rules is not new, the regulatory process is and there may be room for improvement to facilitate the implementation of the rules and permits, as well as reduce costs for the District. Part of this task will include a review of the LMRWD processes to other metro watershed districts and state level water regulation. Done~~

Task 3-7: Issue Identification and Qualitative Analysis Update. From the feedback and issues identified in this public outreach activities we will update the preliminary issue identification and qualitative analysis.

Timeline for Completion: ~~September 2020–June 2021~~ September 2021–June 2022

Deliverables: Agendas, facilitation, and summaries for all meetings, workshops and open houses specified above

Estimated Objective 3 Budget: \$18,400–\$25,800

Objective 4. Corridor Plan

Task 4-1: Generate draft outline. Generate draft annotated outline for the MRC Plan, with the following goals cited from the LMRWD's 2018 Watershed Management Plan:

- G1. Create greater understanding of the Lower Minnesota River Corridor and its landscape,
- G2. Demonstrate desired future for the river and how change in the surrounding landscape can help attain this future
- G3. Suggest a structure or framework by which the vision can be implemented
- G4. Identify shared community and public values that form the basis of the project.

Task 4-2: MRC Infographic.

Task 4-2: Draft the Lower Minnesota River Corridor Plan. Utilize information gathered from local resources, partners, previous LMRWD projects, goals, and objectives/strategies to draft the plan. Circulate draft among project partners for written feedback and allow for a two-week review period.

Task 4-3: Draft Plan for Public Comment and Review. Incorporate the project partner feedback, finalize the draft plan and make available for a 30-day public comment period.

Task 4-4: Final Plan. Incorporating comments received during the public comment period, the final report will be updated, finalized and presented to the Board for acceptance.

Timeline for Completion: ~~December 2020–June 2021~~ September 2021–June 2022

Deliverables: Draft report for internal review, public draft report for public comment, and final report

Estimated Objective 4 Budget: \$42,800–\$47,100

LOWER MINNESOTA RIVER WATERSHED DISTRICT

Lower Minnesota River Floodplain Development Procedures and Model Action Plan

WORK PLAN—August 9, 2020 (Revised December 10, 2021)

Summary

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|---------------------------------|---|
| <i>Outcome:</i> | Floodplain Regulation Procedures and Model Action Plan |
| <i>Project partners:</i> | Minnesota Department of Natural Resources (MNDNR), US Army Corps of Engineers (USACE), Dakota County, Carver County, Scott County, Hennepin County, and the fourteen LMRWD Partner Cities |
| <i>Timeline for completion:</i> | August through December 2020 January– June 2022 |
| <i>Total project budget:</i> | \$27,000–\$30,000 |

Objective 1. Project Management

Task 1-1: Project plan development and project management. Finalize the work plan, assign project tasks, determine whether additional resources are needed, set dates for deliverables, generate and maintain project schedule/Gantt chart.

Deliverables: Invoices, project updates

Estimated budget: \$2,500–\$3,000

Objective 2. Data Collection and Review

Task 2-1: Gather available information. Collect background resource information from previous District permits as well as from public resources, including existing modeling data from the MnDNR, Letter of Map Changes from FEMA, and direct requests LMRWD partner cities listed above. Develop standardized email for LMRWD to send to project partners notifying them about the project and advising that they may be contacted by Young Environmental staff.

Task 2-2: Desktop analysis. From the information collected in Task 2-1, develop a comprehensive list of items needed to regulate floodplain development effectively and fairly within the District. This task will also develop a comprehensive list of available stormwater and floodplain models in the District, including date last updated and software platform used.

Timeline for completion: ~~August through October 2020~~ Three months

Deliverables: Standardized email to project partners, draft floodplain development procedures criteria, available models

Estimated budget: \$5,500–\$6,000

Objective 3. Project Partner Coordination

Task 3-1: Solicit input from project partners. Reach out to all project partners to solicit input on floodplain development regulation, current floodplain permitting procedures, available floodplain models, and interest in cooperatively working with the District to develop a regional floodplain model. This task will begin following LMRWD notification to project partners in Objective 2.

Task 3-2: Assess project partner input. We will assess project partner responses from Task 3-1 to refine the floodplain development procedures developed in Objective 2 and look for opportunities to develop a regional LMRWD floodplain model. This task will outline opportunities and constraints related to developing a regional LMRWD model, including modeling platforms, data needs, and recommendations.

Timeline for completion: ~~September through October 2020~~ Two months

Deliverables: Project partner meeting agendas and summaries, refinements to floodplain development procedures criteria, available model outline

Estimated budget: \$6,200–\$7,000

Objective 4. Documentation

Task 4-1: Generate draft outline. Generate a draft annotated outline that documents the findings and recommendations of Objectives 2 and 3 and build the foundation for a LMRWD Model Action Plan.

Task 4-2: Develop the draft report. Build on the annotated outline; develop the draft LMRWD Model Action Plan documenting methods, assumptions, procedures, results, and recommendations. Submit draft report to the District and project partners for consideration and written feedback.

Task 4-3: Finalize the report. Finalize LMRWD Model Action Plan, incorporating project partners', district administrator's, and managers' written feedback.

Timeline for completion: ~~October through December 2020~~ Three months

Deliverables: Annotated outline, draft plan, preliminary plan presentation, final plan

Estimated budget: \$12,800–\$14,000

LOWER MINNESOTA RIVER WATERSHED DISTRICT

Spring Creek Hydrology and Hydraulics Study

WORK PLAN – August 3, 2020 (Revised December 10, 2021)

Summary

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| <i>Outcome:</i> | Spring Creek hydrology and hydraulics study to validate the proposed 2019 stabilization designs for 112 5 th Street West and 404 Broadway Street in Carver, MN. |
| <i>Project Partners:</i> | Minnesota Department of Natural Resources (MNDNR), U.S. Army Corps of Engineers (USACE), Carver County, and City of Carver |
| <i>Timeline for Completion of Project:</i> | September through December 2020 (August 2021 – March 2022) |
| <i>Total Project Budget:</i> | \$20,900–\$26,200 |

Objective 1. Project Management

Task 1-1: Project plan development and project management. Finalize the workplan; assign project tasks; determine whether additional resources are needed; set dates for deliverables; generate and maintain project schedule/Gantt chart.

Timeline for Completion: September 2020

Deliverables: Invoices and project updates

Estimated Budget: \$2,500–\$3,000

Objective 2. Data Collection and Review - Done

Task 2-1: Gather available information. ~~Collect available background resource information and modeling data from public resources including the City of Carver, the Minnesota Department of Natural Resources, and the U.S. Army Corps of Engineers. Hydrology information from the USGS StreamStats website also will be reviewed to determine if it is appropriate for this project in lieu of developing a separate hydrology model. Any available soils data also will be collected to evaluate the potential for scour and sediment transport. The data collected and used will be summarized in a technical memorandum in Objective 5.~~

Timeline for Completion: September 2020

Estimated Budget: \$2,600–\$2,900

Objective 3. Hydrology Model - Done

Task 3-1: Develop a hydrology dataset for the hydraulic modeling. ~~Evaluate the StreamStats data collected in Objective 2 and determine if it is appropriate to use these flows for the hydraulic modeling. If the error associated with the StreamStats data is determined to be too high or uncharacteristic of the flows occurring in Spring Creek, then develop a preliminary HEC HMS model to determine design flows for the Spring Creek watershed. Flows to be determined include bankfull (approximately 1– to 2-year event), 10-year, 50-year, 100-year, and 500-year flood events, consistent with FEMA requirements for floodplain submittals.~~

Task 3-2: Evaluate changes in hydrology and watershed. ~~The 2019 Spring Creek Assessment Summary conducted by Barr included recommendations to evaluate changes in hydrology from the larger Spring Creek watershed to determine what the area may experience in the future and aid in the design of stabilization measures. Using the LMRWD “Climate Assessment” memorandum developed as part of the 2020 LMRWD “Fens~~

~~Sustainability Gaps Analysis,” we also will estimate future hydrologic conditions as influenced by climate change and future land use changes in the City of Carver.~~

~~Timeline for Completion: September through October 2020~~

~~Deliverable: Design flows for existing conditions as well as predicted conditions~~

~~Estimated Budget: \$2,300–\$5,400~~

Objective 4. Hydraulic Model -Done

~~Task 4-1: Develop preliminary model: Using HEC-RAS, we will develop a 1D model of the lower Spring Creek existing conditions, from the confluence with the Minnesota River to approximately 6th Street West in the City of Carver, consistent with current FEMA floodplain standards. Using the design flows developed in Objective 3, the existing conditions and future hydrologic conditions will be evaluated and water surface elevations, velocities, and stream power within the channel will be determined. Preliminary results will be presented in tabular and graphical form for review.~~

~~Task 4-2: Quality control and review: Barr Engineering will provide a review of the hydrology and hydraulic models and results developed in Tasks 3 and 4 to ensure compatibility with regional and federal floodplain standards and to confirm that best engineering practices have been applied. Barr Engineering will provide Young Environmental with a summary of specific comments that should be addressed in Task 4-3.~~

~~Task 4-3: Finalize models: Based on the comments received by Barr Engineering in Task 4-2, Young Environmental will update the hydrologic and hydraulic models and revise the result tables and figures.~~

~~Task 4-4: Evaluate 2019 proposed designs: The 2019 Barr report included the Carver SWCD conceptual plans for two residences along Spring Creek (112 5th Street West and 404 Broadway Street). Those proposed designs will be reevaluated based on the updated channel flows and velocities determined in Task 4-3. Recommendations will be made to improve the resilience of the proposed stabilization measures for long term success.~~

~~Timeline for Completion: October through November 2020~~

~~Deliverables: HEC-RAS modeling, results, and maps; design recommendations~~

~~Estimated Budget: \$5,700–\$6,300~~

Objective 5. Documentation – 50 Percent Complete

~~Task 5-1: Develop a draft technical memorandum: Develop a draft technical memorandum that will document the data collected, methods and software used, and results from the hydrologic and hydraulic models. Based on the results from the hydraulic modeling, the proposed stabilization designs will be evaluated, and any proposed revisions will be presented. The draft memo will be submitted to the District and city partners for consideration and written feedback.~~

~~Task 5-2: Finalize the Report: Finalize draft report and incorporate project partners, district administrator, and managers’ written feedback.~~

~~Timeline for Completion: November–December 2020 November 2021 – February 2022~~

~~Deliverables: Draft and final memo and results~~

~~Estimated Budget: \$7,800–\$8,600~~

LOWER MINNESOTA RIVER WATERSHED DISTRICT
Trout Streams Gaps Analysis and Long-Term Strategic Management Plan

WORK PLAN—May 15, 2020 (Revised December 10, 2021)

Summary

Outcome: Trout Streams Gaps Analysis and Long-Term Strategic Management Plan:

Project Partners: Minnesota Department of Natural Resources (MNDNR), US Fish and Wildlife Service (USFWS), Trout Unlimited, City of Burnsville, City of Eagan, City of Bloomington, City of Savage, City of Shakopee, City of Chaska, City of Chanhassen, Dakota County, Carver County, Scott County, Hennepin County, and the public.

Timeline for Completion of Project: June 2020–December 2021

Total Project Budget: \$42,000–\$49,500

Objective 1. Project Management

Task 1-1: Project plan development and project management. Finalize the workplan; assign project tasks; determine whether additional resources are needed; set dates for deliverables; generate and maintain project schedule/Gantt chart.

Deliverables: Invoices and project updates

Estimated Budget: \$2,500–\$3,000

Objective 2. Data Collection and Review - Done

Task 2-1: Gather available information. Collect available information on all of the viable trout streams within the Lower Minnesota River Watershed District (LMRWD or District) from public resources, including LiDAR data and cold water resources management plans from the MNDNR, historical aerial photos, and information generated and produced from the 2019 *Geomorphic and Habitat Assessments of Trout Streams in the Lower Minnesota River Watershed District*. Develop standardized email for LMRWD to send to project partners notifying them about the project and advising that they may be contacted by Young Environmental staff.

Task 2-2: Desktop analysis. From the information collected in Task 2-1, develop a comprehensive list of items needed to effectively manage trout streams as well as areas of needed research. Generate a sustainable trout habitat criteria list based on the comprehensive list, detailing the ideal habitat characteristics necessary for a healthy and sustainable trout stream. This task will also develop a trout stream strategic plan framework based on the MNDNR's 2004–2015 Strategic Plan for Coldwater Resources Management in Southeast Minnesota for long-range planning, management, and operation of these cold water resources.

Timeline for Completion: June–July 2020

Deliverables: Standardized email to project partners, sustainable trout habitat criteria list, and cold water resource strategic plan framework

Estimated Budget: \$7,000–\$9,000

Objective 3. Gaps Analysis -Done

Task 3-1: Complete gaps analysis for each viable trout stream. Using the sustainable trout habitat criteria list generated in Task 2-2, evaluate each viable trout stream data and knowledge for gaps. This task assumes some work with project partners, as needed.

~~Timeline for Completion: July–August 2020~~

~~Deliverable: Gaps analysis~~

~~Estimated Budget: \$4,000–\$5,000~~

Objective 4. Long-term Strategic Management Plan – 80 Percent Complete

Task 4-1: Complete the long-term strategic management plan. Using the cold-water resources strategic plan framework developed in Objective 2 and outcomes of Objective 3, develop a ten-year strategic plan for each viable trout stream within the District. These adaptive plans will define the individual and specific management actions required to achieve the goals in the cold-water resources strategic plan and draft annual operational plans.

~~Timeline for Completion: August–September 2020~~ August 2020 – June 2022

Deliverables: High-level themes, goals, strategies, and operational plans

Estimated Budget: \$6,500–\$7,500

Objective 5. Partner Engagement – 90 Percent Complete

Task 5-1: Solicit input from project partners. Host two workshops with project partners to solicit input. The first workshop will be held following the completion of the gaps analysis in Objective 3, and we will ask the participants to review and comment on the cold water resources strategic plan framework generated in Objective 2 and the outcome of Objective 3. The second workshop will be held following the completion of the long-term strategic planning in Objective 4.

~~Timeline for Completion: July and September 2020~~ July 2020 – June 2022

Deliverables: Workshop agendas and summaries for two workshops

Estimated Budget: \$4,500–\$5,500

Objective 6. Documentation – 75 Percent Complete

~~*Task 6-1: Generate Draft Outline:* Generate a draft annotated outline that documents the assumptions, methodology, and results of Objectives 2–5.~~

~~*Task 6-2: Develop the Draft Report:* Build on the annotated outline, develop the draft report documenting methods, assumptions, procedures, results, and recommendations.~~

~~*Task 6-3: Present Approach and Preliminary Plan:* Present approach and preliminary findings to the project partners and the district’s managers.~~

~~*Task 6-4: Finalize the Report:* Finalize draft report, incorporating project partners, district administrator, and managers written feedback.~~

~~Timeline for Completion: June–October 2020~~ June 2020 – June 2022

Deliverables: Annotated outline, draft report, preliminary plan presentation, and final report

Estimated Budget: \$17,500–\$19,500