

**St. Croix River Headwaters Watershed Study
St. Croix River Basin (MN & WI) GI Study
Feasibility Phase**

PROJECT MANAGEMENT PLAN

With Integrated Quality Control Plan

Revised: May 7, 2008

1. Purpose.

a. The purpose of this Project Management Plan (hereafter referred to as the PMP) is to define the scope, planning approach, roles and responsibilities, products, schedule and budget for an integrated study of the St. Croix River Headwaters sub-basin (hereafter "Headwaters"; Fig 1). The objective of the study will be to prepare a plan for watershed and water quality management and resulting aquatic ecosystem protection and restoration. This document will serve as the Project Management Plan attached to the Feasibility Cost Sharing Agreement (FCSA) between the Corps and the non-Federal Sponsor (hereafter Sponsor). This document also establishes quality control expectations and procedures to ensure that the study products meet applicable standards.

b. The PMP defines the planning approach, activities to be accomplished, schedule, and associated costs that the Federal Government, the Sponsor, and other non-federal study partners will be supporting financially. The PMP, therefore, defines a contract between the Corps and the Sponsor, and reflects a "buy in" on the part of all the financial backers, as well as those who will be performing and reviewing the activities involved in the study. The PMP describes the tasks of the feasibility phase through the preparation of the final Watershed Study Report.

c. The PMP is a basis for change. Because planning is an iterative process without a predetermined outcome, more or less time and costs may be required to accomplish reformulation and evaluations of the project objectives. Changes in scope and associated project tasks will occur as the technical picture unfolds. With clear descriptions of the scopes and assumptions outlined in the PMP, deviations are easier to identify. The impact in either time or money is easily assessed and decisions can be made on how to proceed.

d. The PMP is a basis for the review and evaluation of the watershed study report. Since the PMP represents a contract between the Corps and the Sponsor, it will be used as the basis to determine if the study report has been developed in accordance with established procedures and previous agreements. The PMP reflects mutual agreements of the Corps and the Sponsor in the scope, critical assumptions, methodologies, and level of detail for the activities that are to be conducted during the watershed study. Review of the draft study report will be done to insure that the study has been developed consistent with these agreements. The objective is to provide early assurance that the project is developed in a way that can be most useful to the Sponsor, local constituents, and others influenced by the watershed study.

e. The PMP is a study management tool. It includes scopes of work that are used for funds allocation by the project manager. It forms the basis for identifying commitments between the Sponsor and the Federal government and serves as a basis for performance measurement.

2. Applicability. This PMP covers the Corps' feasibility stage of the project. Development of the Watershed Study Report would occur entirely within the feasibility phase.

3. References.

a. St. Croix River Basin Reconnaissance Study, Section 905(b) (WRDA 1986) Analysis, Minnesota and Wisconsin, dated January 2007 and approved March 2007.

b. Feasibility Cost Sharing Agreement, St. Croix Headwaters Watershed Study, (scheduled to be signed by St. Paul District 28-Sept-07).

4. General/Background.

a. The St. Croix Headwaters Subwatershed Study was recommended in the January 2007 St. Croix River Reconnaissance Study 905(b) Report (approved March 8, 2007) and is authorized by a Resolution of the Committee on Transportation and Infrastructure of the U.S. House of Representatives, September 25, 2002. Federal (Corps of Engineers) interest in the St. Croix Headwaters is based on the potential local and systemic benefits of a watershed study.

b. The Wisconsin Department of Natural Resources (DNR) is sponsoring the study. The official Sponsor must sign the Feasibility Cost Sharing Agreement and provide 50% of all study costs through non-federal cash and in-kind contributions. The Corps of Engineers funds the remaining 50% of study costs.

c. The planning objectives are to provide a programmatic overview of water resource conditions in the upper St. Croix River basin headwaters; and to provide a comprehensive watershed study report. The study area will include the entire St. Croix River Basin (SCRB) upstream of the Gordon Dam (Figure 1). This includes nearly 280 square miles, all of which are in Wisconsin. Although the SCRБ above Gordon Dam is generally considered to be of good quality, there is concern that habitat has and will continue to degrade. Since significant watershed protection has been proposed for the SCRБ, it's appropriate that a watershed study should be performed for the headwaters to protect water quality and aquatic habitat in this area, and help ensure that water initially flowing in the SCR is of appropriate quality to meet aquatic habitat objectives at locations further downstream.

d. The study will address a number of aquatic resource issues to facilitate watershed planning in the Headwaters. It's anticipated that primary interests will be environmental in nature. As a part of this effort, the study will investigate opportunities for Federal (Corps) construction projects in support of primary watershed objectives. Early tasks within the watershed study will include development of key goals and objectives for future watershed protection. Preliminary points of interest include documentation and management of surface and ground water quality; identification and restoration of priority aquatic habitat deficiencies within the Headwaters; and invasive species management. There is also a strong interest to unite local interests in the area, including local, county and State government, to form a single watershed alliance to work out future watershed management issues.

e. The study will generally be conducted following the planning format outlined below. Since this study is somewhat different than traditional Corps planning exercises, some deviation may occur. See Attachment B for a more detailed workflow plan.

- 1) Specify problems and opportunities: Conduct further scoping to refine water resource problems and opportunities identified in the Reconnaissance Report and prior planning documentation. Planning objectives will be refined during project scoping, but would likely include aquatic habitat protection and restoration, water quality improvement, fish passage, invasive species management, and other water resource issues. Scoping would be performed to identify other resource issues, including whether Corps construction projects might be warranted in support of primary watershed objectives.
- 2) Inventory: Review existing information to document what is already available. Identify relevant data gaps. Where appropriate, further assess the existing condition of key resources of interest. This could include inventories of aquatic and riparian habitat quality; surface and groundwater interactions; presence of aquatic invasive species; and potentially other key areas. Data can be collected by reviewing existing information, or when necessary, by obtaining new field data. This could include, but not be limited to, data collection on habitat quality, surface and groundwater quantity and quality, and invasive species.
- 3) Forecast: Determine the "future without project condition" for the watershed, or the key watershed resource being assessed.
- 4) Formulate, evaluate and compare a wide range of alternative plans: Propose and assess combinations of measures to meet priority watershed objectives.
- 5) Prepare a Watershed Study Report and appendices.

- f. The study is estimated to cost \$632,940 as detailed in Attachment C.

5. Technical Criteria Statement. This study will be conducted in accordance with Corps of Engineers criteria for Feasibility studies contained in the planning guidance notebook, ER 1105-2-100, and other applicable regulations and guidance. The final product will be a Watershed Study Report that summarizes existing conditions of water resources within the project area; future goals and objectives for water resource management; and methods for meeting these goals and objectives. The Report will also contain more detailed information on priority water resource issues that are of particular concern to local constituents. At this time, it is unknown whether this feasibility study would result in any recommended Federal construction activities. If Federal construction activities are warranted, steps will be taken to address appropriate review and approval by Higher Authorities. In addition, appropriate documentation would then be prepared for National Environmental Policy Act (NEPA) compliance.

6. Quality Control Plan.

a. This document is intended to serve as the PMP with an integrated Quality Control Plan (QCP). Given the level of review required for work efforts under this study, integration of the PMP and QCP is appropriate. The coordination, preparation and vertical team review of this scope of work assists in maintaining quality control.

b. Independent Technical Review (ITR) is the primary method of quality control. ITR review will be ongoing through product development, rather than a cumulative review performed at the end of the investigation. The ITR review will be performed in coordination with the Ecosystem Restoration Planning Center of Expertise. The expertise and technical backgrounds of the ITR team members will qualify them to provide a comprehensive technical review of the product. Ultimately, the ITR should ensure that the end products of the study are valuable and useable for the local Sponsor and constituents.

c. ITR comments and responses will be recorded in the online DRChecks system (www.projnet.org). All comments resulting from the independent technical review will be resolved prior to finalizing the watershed study report.

d. External Peer Review is the process of using external expertise to review and improve Corps plans, projects and programs. Corps EC 1105-2-408, as well as a 30 March 2007 Memorandum from the Director of Civil Works (subject: Peer Review Process), provide guidance on the Peer Review process.

The watershed study outlined here will have flexibility to consider a range of water resource issues. The study will include a thorough scoping of problems and opportunities at its initiation. At this time, the likelihood of future Federal (Corps) construction projects resulting from this study is unknown.

Until Federal construction projects are identified within this feasibility study, no formal external peer review will be planned. If and when Federal construction projects appear likely during study development, a Peer Review plan would be implemented to ensure study integrity. The PMP and cost estimate would be revised at that time to reflect the peer review, with concurrence from Sponsor on PMP revisions. A formal Review Plan will be published for this study.

e. The Sponsor will be responsible for quality control over deliverables provided as in-kind contributions. The Corps will verify that such contributions meet negotiated requirements and standards before granting cost-sharing credit for those contributions.

7. Risk Assessment. The major issue that could lead to delays or increased costs is inadequate funding. Less funding is likely to be available each year than would be necessary for optimal progress on study tasks. Delays in funding (either Federal or non-Federal) will result in inefficiencies in the planning process and overall increased cost.

8. Acquisition Plan. Work required for this study will be accomplished mainly by in-house Corps staff and Sponsor in-kind services. Services also may be obtained through Corps staff associated with the Engineer Research and Development Center (ERDC).

9. Communication Plan. The communication plan addresses internal project delivery team (PDT) and external communications.

a. Internal PDT Communications: PDT distribution lists will be established that include all in-house team members, Sponsors, and other stakeholders. All general project notifications will be delivered using these distribution lists. The project manager will determine which correspondence is appropriate for each audience. E-mail will be the primary mode of communication within the PDT.

b. External communications: Any news releases will be coordinated with St. Paul District Public Affairs. An initial release announcing the start of the study will be made after the cost-sharing agreement is signed. Subsequent releases to announce public meetings will be made as needed. Other releases will be considered as the study develops. Postings on the St. Paul District's website will also be used to communicate to the general public.

c. Public Involvement: Public involvement will be an integral part of the study as we attempt to unite local entities to view the study area as a single watershed. This will likely include one or more scoping meetings for public input. These meetings will be planned, facilitated, publicized and documented by the Sponsor as work-in-kind. Additional public involvement will include hosting additional meetings as appropriate, and preparing news releases, on-line newsletter articles, and/or providing information via the web. The Sponsor will perform the majority of these activities as work-in-kind and coordinate with St. Paul District Public Affairs.

At this time, the need to prepare documentation to fulfill NEPA requirements is unknown. If recommendations for Federal (Corps) construction do result from this study, appropriate NEPA documents will be prepared at that time. The NEPA document would be provided as a part of the watershed study report, or as a stand-alone document. If necessary, the PMP and cost estimate would be revised at that time to reflect the identified construction project, including associated NEPA documents. Any change in the PMP and cost estimate would require concurrence from the Sponsor on PMP revisions.

10. Change Management Plan.

a. All changes to the scope, schedule or budget for this study must be coordinated with the Project Manager. Whenever it becomes apparent that the current budget or schedule is likely to be inadequate, Study Management Team members must notify the Project Manager so appropriate actions can be taken. The PMP is intended to be a living, flexible document, but it also represents a contract between the Corps and the Sponsor; therefore, changes must be coordinated before obligations are incurred by any party. At a minimum, review of the PMP and cost estimate will occur early in the study. Following detailed project scoping and refinement of study tasks, the PMP and cost estimate will be reviewed and formally changed, as appropriate. Additional refinements will likely be necessary as the study proceeds, and this PMP will be updated accordingly.

b. The Project Manager, in consultation with the Study Management Team and Executive Committee, will decide whether proposed changes to the PMP and Cost Estimate are acceptable. The Project Manager will revise the PMP and Cost Estimate as necessary to reflect approved changes. These changes will be forwarded to the project Sponsor for concurrence. This correspondence may occur by formal letter, or through an e-mail exchange documenting concurrence between the Sponsor and the Corps.

11. Project Delivery Team.

a. Executive Committee: The Sponsor and the Government will appoint named senior representatives to an Executive Committee, according to the Feasibility Cost Sharing Agreement (FCSA). The executive committee will include the St. Paul District's Chief, Planning, Programs and Project Management Division and the Basin Team Leader from the Wisconsin DNR. The Executive Committee will function as described in the FCSA.

b. Study Management Team: The Executive Committee will appoint representatives to serve on a Study Management Team. The Study Management Team will keep the Executive Committee informed of the progress of the Study and of significant pending issues and actions, and shall prepare periodic reports on the progress of all work items identified in the PMP. The Study Management Team will include the St. Paul District's project manager and a similar counterpart from the Wisconsin DNR.

c. Sponsor and key study stakeholders are identified below. This list will likely be expanded during project scoping:

Name	Organization	Phone	E-mail
<u>Sponsor's Primary Representatives</u>			
Kathy Bartilson	WisDNR	715-635-4053	Kathy.Bartilson@wisconsin.gov
Pamela Toshner	WisDNR	715-635-4073	Pamela.Toshner@Wisconsin.gov
Carroll Schaal	WisDNR	608-261-6423	Carroll.Schaal@wisconsin.gov
Tim Asplund	WisDNR	608-267-7602	Tim.Asplund@Wisconsin.gov
<u>Key Stakeholders</u>			
Nancy Turyk	UW - Stevens Point	715-346-4155	nturyk@uwsp.edu
Scott Peterson	Friends/St. Croix Headwaters		scott@fotsch.org

d. St. Paul District team members:

Name	Discipline	ORG	Phone	E-mail
Elliott Stefanik	Environmental/Project Management	B6H4300	651-290-5260	elliott.l.stefanik@usace.army.mil
Keith LeClaire	GIS	B6H4300	651-290-5491	keith.r.leclaire@usace.army.mil
Theresa Thury	PM Support	B6H4300	651-290-5309	theresa.j.thury@usace.army.mil
Scott Goodfellow	Hydraulics	B6L1HHC	651-290-5635	scott.m.goodfellow@usace.army.mil
Jim Noren	Water Control	B6L1HWC	651-290-5626	james.b.noren@usace.army.mil
TBD	Contracts	B6P0A00		
Bill James	ERDC – Water Quality	U433D80	715-778-5896	william.f.james@usace.army.mil

12. Customer Involvement/in-kind services. The Sponsor and other stakeholders will be intimately involved in this study. Much of their work would qualify for credit against the non-federal cost-share as in-kind services, as detailed below.

a. The Wisconsin DNR is the primary state agency in charge of water resource management in the project area. Because the DNR is currently managing aquatic resources within the watershed, it is uniquely qualified to perform much of the analyses required in the study. This PMP will not attempt to precisely scope or quantify every task to be completed as in-kind services. Rather, only those tasks that could be done by the Corps will be estimated in detail. Cost estimates for other tasks that are less defined but clearly “add value” will be treated with great flexibility to allow for full collaboration during the study.

b. In-kind services (work-in-kind) are locally provided services and/or supplies that the Sponsor may provide to offset some or all of their cost share for the feasibility study. The use of in-kind services in lieu of cash for feasibility studies is authorized by Section 105 of the Water Resources Development Act of 1986, as amended. Work-in-kind is an option for the Sponsor within certain guidelines, and the value of the actual costs of negotiated in-kind services can reduce the Sponsor's cash requirement. Work-in-kind is allowable when it: 1) provides value added, and/or 2) results in completing necessary work faster, cheaper, or better than the Corps of Engineers could alone or by contract. Work-in-kind must be identified and documented clearly in the PMP before the work is begun. In-kind services must be in accordance with Federal regulations, including OMB Circular A-87.

c. Work-in-kind must be performed by the Sponsor or by another non-federal partner under an approved third-party agreement with the Sponsor. For this study, work-in-kind for the Sponsor will likely be accomplished by the University of Wisconsin – Stevens Point (UWSP). UWSP is a state university in Wisconsin with expertise that would be applicable to tasks identified under the Scope of Work (Section 13). It's possible that other non-federal entities could be identified for work-in-kind contributions. All third-party agreements must be in accordance with the Feasibility Cost Sharing Agreement and be approved by the Corps of Engineers.

d. The process for claiming credit for in-kind services is:

- 1) negotiate the scope of services and associated costs between the Sponsor and the Corps,
- 2) Sponsor performs the work and produces the required product,
- 3) Sponsor documents the actual expenditures made to accomplish the work-in-kind,
- 4) Corps verifies acceptability of the product relative to negotiated requirements,
- 5) Corps credits the local Sponsor with an in-kind service credit.

e. The value of in-kind services is estimated to be \$316,480 from the State of Wisconsin as described in Paragraph 13—Scope of Work and the attached study cost estimate spreadsheets. It's recognized that this contribution is above the 50% cost contribution required under the FCSA. As the study progresses, it is likely that additional tasks may be added. These tasks may be performed by the Corps, which could bring the study to a closer cost balance.

13. Scope of Work. At this point, the majority of tasks and the associated cost estimate should be considered preliminary, but represent the work most likely to be performed at this time. The first task of the study will include activities associated with further refinement of study goals and objectives, and a refinement of study activities. Task A11 specifically includes revision of this PMP and associated cost estimate; though additional revisions also may be needed later in the study.

The scope of work for each preliminary task and discipline is described below and in the attached study cost estimate spreadsheet. While both Corps and the Sponsor may work on the same task, the list below indicates the lead entity, meaning that entity has final responsibility for task completion. The attached cost estimate indicates expected cost contributions by the Corps and DNR on each individual task.

While study goals and objectives will still be refined, the list below includes resource issues that would likely be included within the Watershed Study:

A Setting Study Goals and Objectives:

1. (DNR) Host stakeholder meetings with Wisconsin DNR, county representatives, local NGO groups and the public to identify priority needs within the watershed and what goals and objectives a watershed management plan for the Headwaters should accomplish.
2. (DNR) Collect public input resulting from the meetings and provide written summaries.
3. (Corps) Develop draft goals and objectives for watershed study. This should identify the priority water resource issues that would receive primary study focus.
4. (Corps) Review draft watershed goals and objectives with stakeholders.
5. (Corps) Finalize watershed goals and objectives.
6. (Corps) Develop draft outline for Watershed Study Report.
7. (DNR) Collect and review existing physical, chemical and biological characterizing habitat conditions for surface and groundwater resources in the watershed.

8. (DNR) Identify data gaps and needed work efforts to fill those data gaps.
9. (DNR) Establish known third-party agreements for who will work with DNR on Study tasks. Additional third-party agreements can still be established later in the study.
10. (Corps) Review and revise the PMP and associated cost estimate based on the results on project scoping.

B Institutional Arrangements:

(Corps) Investigate intergovernmental relations and partnering arrangements for implementing project recommendations.

C Nutrient Budget for Subwatershed:

Performed a detailed analysis of watershed surface and groundwater hydrology, and water quality conditions. This will include developing a detailed nutrient budget for priority waters within the upper watershed. This will culminate in estimates of nutrient loading at Gordon Dam, discharging into the St. Croix River. Several tasks identified here may be performed by UWSP through a third-party agreement with the DNR. Tasks include:

1. (DNR-UWSP-Corps) Centralize and review existing water quality and nutrient data for surface and ground waters within the watershed.
2. Collect additional field data to augment existing information and develop a better understanding of surfacewater and groundwater hydrology and watershed water quality. This will include development of a nutrient budget for the watershed. If possible, field efforts should be performed over a 2 year period to minimize potential of capturing nutrient dynamics during an unusually dry or wet period. Data from 2008 will be reviewed to guide data collection in 2009. Tasks include:

- (DNR-UWSP-Corps) Implement temporary stream gauging at select tributaries to estimate flow and nutrient loading.
- (DNR-UWSP) Monitor in-stream flow and precipitation patterns to describe watershed hydrology and flow response to precipitation.
- (DNR-UWSP) Monitor lake elevations, well elevations and surface Digital Elevation Models to delineate surface watershed and groundwatershed.
- (DNR-UWSP-Corps) Collect water quality data for surface waterbodies within subwatershed. Data collection would include Phosphorous (total P, soluble P), Nitrogen (total N, soluble N, nitrate, ammonium), chlorophyll, and total suspended solids. Additional WQ data may also be collected (e.g., dissolved oxygen, temperature, turbidity, Secchi disk, alkalinity, hardness, ion concentrations, etc).
 - Data will be seasonally collected. Tributary and lake samples will generally be collected bi-weekly during “ice free” conditions (e.g., March through November); with one sampling during the winter period (e.g., December through February).
 - Stream sampling will be done to facilitate loading estimates from major tributaries to St. Croix flowage, as well as discharge from St. Croix Flowage. Additional sampling may be performed to better refine loading.
 - Seasonal sampling will be performed downstream of St. Croix Flowage to evaluate how the St. Croix flowage processes nutrients released from the flowage.
 - Lake sampling would include one to two sampling locations from priority lakes. Where appropriate, samples would be collected at 1 to 2 m intervals from near surface to within 0.5 m from the sediment.
- (Corps) Perform sediment analysis of priority lakes to estimate internal lake nutrient loading.
 - Sample core sediments from priority lakes. This effort will be considered pending review of preliminary field data. If internal loading of phosphorous is believed to be significant, then core sampling would be performed. This could include collecting multiple sediment core samples per lake, though the exact number would be determined based on lake sediment characteristics. Samples will be transported to a lab for analysis of nutrient release.
- (DNR-UWSP-Corps) Phosphorus budgetary analysis and modeling of the watershed - these products would address the following;

- Hydrology and water contributions across the watershed. Variations in flow among the subwatersheds and contributions to the St. Croix Flowage;
 - Seasonal constituent loading, discharge and retention for St. Croix Flowage;
 - Seasonal variations in nutrient concentrations and loading from key tributaries and the St. Croix Flowage;
 - BATHTUB or WILMS modeling of mean summer phosphorus, transparency, and chlorophyll response to loading;
 - Lake response to loading decreases or increases. Tributary loadings will be emphasized, but it is possible to assess loading changes from sediment and groundwater fluxes also; and
 - Specific evaluation of predicted changes in constituent discharge from the St. Croix Flowage as a result of changes in nutrient input to the system
3. (Corps) Summarize work performed by DNR, UWSP and Corps into watershed report. To include work on surface and groundwater hydrology, water quality and nutrient loading assessment. Include quantification of existing conditions, discussion of goals and quantitative objectives for future nutrient loading, and how various management actions might help meet these objectives. Also include discussion of economic investment, as appropriate, for various management actions.

D Lakeshore/Riparian Habitat Restoration:

Develop comprehensive plans to improve riparian lakeshore habitat within the upper watershed. Tasks include:

1. (DNR) Coarsely assess lakeshore habitat quality on selected lakes.
 - Prioritize lakes of interest.
 - Review existing information (e.g. digital orthos, previous lakes studies, assessments) to identify critical or disturbed habitat, level of disturbance, and to prioritize sites for field assessment.
2. (DNR) Identify critical habitat on selected lakes.
 - Follow WisDNR critical habitat delineation procedure on priority lakes.
 - Upload maps into ArcView and do desktop corrections as necessary.
3. (DNR) Perform ground-truthing in the field of critical habitat and disturbed areas. Further delineate areas that have critical habitat or are substantially disturbed. Habitat measurements may include: aquatic plants, coarse woody habitat, and spawning substrates
4. (DNR) Identify and meet with landowners of critical/disturbed habitat identification.
 - Overlay critical habitat and restoration maps onto county parcel maps to identify landowners.
 - Meet with prospective landowners to promote habitat restoration and gage potential interest.
 - Respond to public inquiries.
 - If necessary, conduct public meetings/hearing for proposed actions.
5. (DNR) Develop habitat restoration plans for priority locations with interested landowners. This should include recommended actions, and projected costs.
6. (Corps) Incorporate restoration efforts into GIS and map identified critical areas and areas with targeted habitat restoration.
7. (DNR) Summarize lakeshore habitat restoration within the watershed study report. Include criteria used for identification of priority sites, and quantification of existing conditions (including level of disturbance on selected lakes) and future conditions resulting from implemented restoration plans. Also include discussion on economic investment for property owners and acting agency.

E Invasive Species Management:

Develop detailed plans to manage aquatic invasive species within the upper watershed. Tasks include:

1. (DNR) Review existing data on occurrence and abundance of aquatic invasive species in the watershed.
2. (DNR) Collect additional field data to augment existing information on occurrence of invasive species in the upper watershed. This will focus on priority invasive species and priority locations (resources of particular value and/or at high risk for infestation).
 - Assessment for aquatic invasive plants (e.g., Eurasian Watermilfoil and Curlyleaf Pondweed) within 5 priority lakes (lakes to be identified).
 - Assessment for rusty crayfish within 5 priority lakes as well as Eau Claire River and St. Croix River.

- Assessment for zebra mussels within 5 priority lakes.
3. (DNR) Develop site-specific management plans for invasive species for priority waters within the upper watershed. This could initially include 3 lakes.
 4. (DNR) Develop a rapid response plan for how local agencies will react to new infestations of invasive species within the subwatershed.
 5. (DNR) Develop a plan for how local agencies will continue to manage for invasive species and how to work with the public to minimize the potential for future establishment or spread of invasive species.
 6. (DNR) Summarize invasive species management activities within the watershed study report. Include discussion of existing conditions and how implementation of management plans and rapid response plans will help manage invasive species within the upper watershed.
- F Long-term St. Croix Flowage Management:
Develop process that will outline long term management decision making for St. Croix Flowage. Tasks include:
1. (Corps) Organize steering committee to identify long-term goals and objectives for management (both habitat and social use), to include goals and objectives for water quality exiting at Gordon Dam.
 2. (Corps) Host one or more meetings of the steering committee to identify a process for working together on future management issues. Time permitting, engage the steering committee on considering future use scenarios.
- G Comprehensive Fish Passage:
Develop comprehensive plans for fish passage within the upper watershed. Tasks include:
1. (DNR) Identify dams of concern.
 2. (Corps) Talk with dam owners to gauge level of interest.
 3. (Corps) Coarsely identify potential alternatives for fish passage at priority sites.
 4. (Corps) Identify potential economic costs and environmental benefits of fish passage priority sites.
 5. (Corps) Identify implementation strategy. Evaluate potential for Corps construction projects specific to fish passage. Also identify what aspects of fish passage can or should be implemented by other parties.
 6. (Corps) Summarize fish passage strategies within the watershed study report
- H Wetland Conservation and Land-Use Management Planning:
1. (Corps) Review existing information on hydric soils, drainage areas, wetland delineations and National Wetland Inventories to identify and map existing wetland areas 5 acres or larger; or areas that are especially rare or are of especial value and importance.
 2. Review existing landcover/landuse GIS data and compare to recent aerial photography. Perform corrections to GIS landcover/landuse data to better reflect current conditions.
 3. (Corps) Identify areas of drained wetlands.
 4. (Corps) Ground truth wetland areas from task 1 that need verification or more refined delineation.
 5. (Corps) Identify locations with local landowners that may be interested in restoration.
 6. (Corps) Map and describe existing wetland areas, as well as locations for possible restoration, to assist with regulatory permit application in the immediate future.
 7. (Corps) Participate and assist with local efforts for smart-growth planning. Bring knowledge gained from this and other tasks to assist with planning for long-term growth and land-use. Outline long-term landuse guidelines that will meet the long-term water resource management goals identified for the watershed. Identify economic, environmental and social issues that may be associated with such landuse guidelines.
- I Recreational and Social Resource Planning:
1. (DNR) Characterize, assess and provide future guidance on recreational use issues and other priority social issues for the watershed.
- J Independent Technical Review:
1. (Corps) At the end of the preliminary scoping process (Task A above), perform an Independent Technical Review of the study process to date, identified goals and objectives, and projected work products. This task addresses issues identified above in Section 6, Quality Control.

2. (Corps) After completion of the draft watershed study report (Task K below), perform a review of the draft report and associated work products. This task also addresses issues identified above in Section 6, Quality Control.

K Watershed Study Report Preparation:

1. (Corps) Initiate development of draft watershed study report based on the most recent watershed report outline.
2. (DNR) Incorporate planning efforts for subcomponents above into the watershed study report.
3. (DNR) Incorporate existing lake management plans and other documents that overview water resource management in the project area into the draft report..
4. (Corps) Outline existing and new institutional arrangements.
5. (Corps) Coordinate approval of watershed planning process with Corps Ecosystem Planning Center of Expertise.
6. (Corps) Coordinate approval of planning models (as appropriate) with Corps Planning Centers of Expertise.
7. (Corps) Prepare GIS products for report.
8. (Corps) Draft report preparation.
9. (DNR) Review draft report.
10. (Corps) Complete Final report.

L Public Involvement:

1. (DNR) Collect public input resulting from the public meetings and provide written summaries for inclusion in study documents.
2. (Corps) Maintain current project information for the public on the Internet, prepare newsletters, press releases, etc. as deemed appropriate throughout the study.

14. Project Budget. See attached spreadsheets.

15. Milestones, Deliverables and Review Schedule. The general schedule for completing basic tasks is included within the attached cost estimate spreadsheets. A summary schedule is provided below for the overall project. This schedule assumes adequate funding is received over the course of the study.

General Action*	Duration	Start Date	Finish Date
Start Project (Sign FCSEA)	0 days	26-Oct-07	26-Oct-07
Conduct project scoping with local stakeholders	6 months	1-Nov-07	31-May-08
Finalize Project Scope with Identified Tasks and Work Products	1 month	1-May-08	31-May-08
Preliminary Independent Technical Review	1 month	1-Jun-08	30-Jun-08
Collect and Review Existing Information	2 months	1-Mar-08	30-Apr-08
Collect new field data	2 years	1-Jan-08	31-Dec-09
Develop site-specific or resource-specific studies and plans for primary watershed management objectives.	2 years	1-Jan-08	31-Dec-09
Develop Preliminary Watershed Study Report	3 months	2-Jan-10	1-Mar-10
Conduct Final Independent Technical Review	1 month	1-Mar-10	1-Apr-10
Revise Report and Produce Final Watershed Study Report	1 month	1-Apr-10	1-May-10
MVP sign-off of Final Watershed Study Report	1 month	1-May-10	1-Jun-10
Final Watershed Study Report Submitted to MVD	1 month	1-Jun-10	1-Jul-10
MVD sign-off of Final Watershed Study Report	1 month	1-Jul-10	1-Aug-10

*See section 13 and 14 for more complete discussion of actions associated with a given task.

16. Statement of Approval. As of 7 May 2008, this PMP has been coordinated with the Project Delivery Team and has been adjusted based on resolution of comments received and is approved.

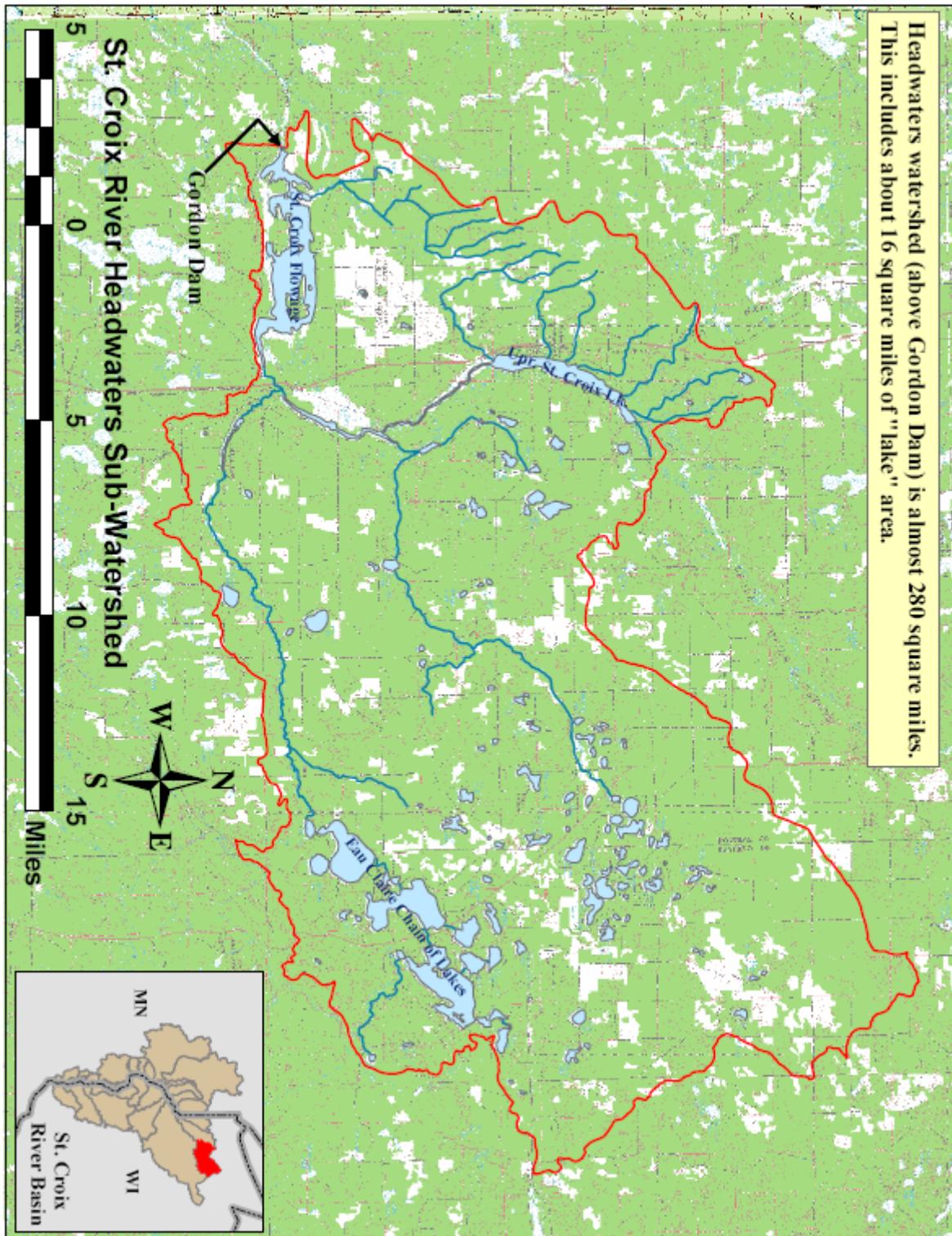
A handwritten signature in black ink, appearing to read "E. L. Stefanik", is written over a horizontal line. The signature is fluid and cursive.

Elliott L. Stefanik
Project Manager

ATTACHMENTS

- A. Workflow plan
- B. Feasibility Study Cost Estimate, 3 pages

Figure 1. St. Croix Headwaters Subwatershed.



ATTACHMENT A WORKFLOW PLAN

The following outline describes the general workflow expected for the study. These planning steps are iterative, so the actual order of task completion will evolve with the study and will depend on funding and staff availability over the life of the study.

1. Define Study Scope: The tasks for this study will include a refinement of the tasks identified below and discussed within the PMP. Definition of the Study Scope will include:

- State problems and opportunities.
- Determine project goals and objectives.
 - Target resource issues of concerns
 - Identify and characterize end work product
 - What it will address
 - What the work product will accomplish
 - How the end product will be implemented or utilized
- Conduct one or more meetings with stakeholders, and the public (as appropriate), to refine the scope of the study, discuss resources of concern, and refine problems and opportunities.
- Determine specific tasks and scope of each study subcomponent. Likely subcomponents include:
 - Nutrient Budget
 - Lakeshore Habitat Restoration
 - Invasive Species Management
 - Comprehensive Fish Passage
 - Long-term St. Croix Flowage Management
 - Wetland Conservation and Land-Use Management Planning
 - Recreational and Social Resource Planning
 - Other topics identified during scoping
 - Watershed Study Report Preparation
 - Watershed Study Report Implementation
- Finalize preliminary study scope, work tasks and end work products.

2. Conduct Preliminary Independent Technical Review

- Provide preliminary study scope, work tasks and end products to Corps Independent Technical Review Team. This process will be coordinated with appropriate Centers of Expertise.

3. Inventory existing conditions

- Gather existing information for relevant issues identified during the definition of project scope.
- Identify data gaps in support of the priority issues identified above.
- Collect additional field data to inventory conditions and facilitate prediction of future conditions.

4. Forecast future conditions in subwatershed under different future use scenarios

- Use of predictive models or other analyses to project future conditions, under different land use or water use scenarios, for priority resources of concern. These could include, but wouldn't necessarily be limited to:
 - Water quality
 - Aquatic Habitat
 - Invasive Species
 - Recreation
 - Others as identified

5. Develop specific management plans for resources of concern, and discuss likely benefits and impacts under future with identified management actions. These could include, but wouldn't necessarily be limited to:

- Lakeshore riparian habitat restoration plan
- Invasive species basin management plan
- Invasive species rapid response plan
- Comprehensive fish passage plan
- Other specific planning efforts identified during scoping.

6. Formulate Long-Term Gordon Flowage Steering Committee

7. Form Long-Term St. Croix Headwaters Basin Alliance

8. Develop an implementation plan for the Watershed Study Report

9. Prepare draft Watershed Study Report

- Write draft report
- Study team review
- Independent Technical Review
- Incorporate comments

10. Conduct Final Independent Technical Review

- Coordinate this process with ITR team and appropriate Centers of Expertise.

11. Finalize Watershed Study Report and sign-off by MVP.

12. Submit draft report to MVD and HQUSACE for policy review

13. Sign-Off of Report by MVD and HQUSACE

ATTACHMENT B
ESTIMATED STUDY COSTS

Study Cost Breakdown

The tasks for completion are listed below, and include the expected contribution in work-in-kind (expressed in dollars) on each task for the Corps and the non-federal sponsor. While both Corps and the sponsor may work on the same task, the list below indicates the lead entity, meaning they are ultimately responsible for task completion. Both the Corps and WisDNR will be involved with Project Management Responsibilities.

Federal Funds Break-Out by Task and Federal FY Quarters Federal Execution of Project Funds.

Task Description	Estimated \$ cost			Study	FY 2007				FY 2008				FY 2009				FY 2010				Total	
	Corps	Sponsor Credit	Total		4 Qtr	1 Qtr	2 Qtr	3 Qtr	4 Qtr	1 Qtr	2 Qtr	3 Qtr	4 Qtr	1 Qtr	2 Qtr	3 Qtr	4 Qtr	1 Qtr	2 Qtr	3 Qtr		4 Qtr
					Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun		Jul-Sep
A Setting Study Goals and Objectives	\$23,460	\$30,978	\$54,438		\$0	\$2,250	\$15,220	\$5,990	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$23,460	
B Institutional Arrangements	\$5,000	\$6,196	\$11,196		\$0	\$0	\$0	\$1,000	\$1,000	\$500	\$1,500	\$500	\$500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,000	
C Nutrient Budget for Subwatershed	\$65,000	\$163,958	\$228,958		\$0	\$0	\$4,000	\$14,000	\$12,000	\$0	\$0	\$10,000	\$10,000	\$15,000	\$0	\$0	\$0	\$0	\$0	\$0	\$65,000	
D Lakeshore Habitat Restoration Planning	\$4,000	\$40,256	\$44,256		\$0	\$0	\$0	\$0	\$0	\$1,000	\$1,000	\$1,000	\$1,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,000	
E Invasive Species Management	\$0	\$19,903	\$19,903		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
F Long-term St. Croix Flowage Mgt.	\$10,000	\$7,744	\$17,744		\$0	\$0	\$0	\$0	\$0	\$2,500	\$4,000	\$1,500	\$1,200	\$800	\$0	\$0	\$0	\$0	\$0	\$0	\$10,000	
G Comprehensive Fish Passage	\$16,500	\$5,266	\$21,766		\$0	\$0	\$0	\$8,250	\$8,250	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$16,500	
I Wetland Conservation and Land-Use Management Planning	\$112,000	\$11,694	\$123,694		\$0	\$0	\$0	\$0	\$18,000	\$30,500	\$25,500	\$25,500	\$12,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$112,000	
J Recreational and Social Resource Planning	\$7,500	\$6,196	\$13,696		\$0	\$0	\$0	\$0	\$0	\$3,500	\$4,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,500	
H Independent Technical Review*	\$8,000	\$2,014	\$10,014		\$0	\$0	\$0	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0	\$5,000	\$0	\$0	\$0	\$0	\$8,000		
K Watershed Study Report Preparation	\$32,500	\$12,982	\$45,482		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,500	\$17,500	\$7,500	\$0	\$0	\$0	\$32,500		
L Public Involvement	\$500	\$9,293	\$9,793		\$0	\$0	\$0	\$0	\$250	\$250	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$500	
Project Management**	\$32,000	\$0	\$32,000		\$0	\$1,050	\$2,650	\$3,250	\$2,950	\$2,950	\$3,250	\$2,850	\$3,300	\$2,600	\$2,750	\$2,400	\$2,000	\$0	\$0	\$0	\$32,000	
Miscellaneous & Contingency	\$0	\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
TOTAL	\$316,460	\$316,480	\$632,940	Federal Quarter Expenditures	\$0	\$3,300	\$21,870	\$35,490	\$42,450	\$41,200	\$39,250	\$41,350	\$28,500	\$25,900	\$25,250	\$9,900	\$2,000	\$0	\$0	\$0	\$316,460	

*ITR Review: The budget for ITR review will be revisited pending the refinement of scope, analyses to be performed, and the potential for federal construction projects.

** Project Management expenditures for the sponsor will be included within the specific tasks above (A thru L)

Sponsor Funds Break-Out by Task and Federal FY Quarters Sponsor Execution of Project Funds.

Task	FY 2007				FY 2008				FY 2009				FY 2010				Total				
	4 Qtr	1 Qtr	2 Qtr	3 Qtr	4 Qtr	1 Qtr	2 Qtr	3 Qtr	4 Qtr	1 Qtr	2 Qtr	3 Qtr	4 Qtr	1 Qtr	2 Qtr	3 Qtr		4 Qtr			
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun		Jul-Sep			
A	\$0	\$4,900	\$8,900	\$11,490	\$5,688	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$30,978
B	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,000	\$3,196	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,196
C	\$0	\$0	\$14,000	\$22,000	\$18,548	\$15,000	\$15,000	\$21,000	\$30,312	\$15,000	\$13,098	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$163,958
D	\$0	\$2,500	\$2,500	\$9,000	\$8,371	\$8,545	\$6,994	\$2,346	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$40,256
E	\$0	\$2,000	\$2,498	\$3,497	\$2,806	\$3,000	\$6,102	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$19,903
F	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,000	\$4,744	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,744
G	\$0	\$0	\$0	\$3,718	\$1,549	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,266
I	\$0	\$0	\$0	\$0	\$4,182	\$4,978	\$2,534	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$11,694
J	\$0	\$0	\$0	\$0	\$0	\$0	\$3,000	\$3,196	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,196
H	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,014	\$0	\$0	\$0	\$0	\$0	\$0	\$2,014
K	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,478	\$7,282	\$3,222	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$12,982
L	\$0	\$750	\$1,348	\$1,000	\$945	\$750	\$750	\$750	\$750	\$750	\$750	\$750	\$750	\$750	\$750	\$750	\$0	\$0	\$0	\$0	\$9,293
Project Management**	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Miscellaneous	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$0	\$10,150	\$29,246	\$50,705	\$42,089	\$32,273	\$34,380	\$30,292	\$35,806	\$21,228	\$26,340	\$3,972	\$0	\$316,480							

** Project Management expenditures for the sponsor will be included within the specific tasks above (A thru L)

Funds Allocation Table For Federal Government and Local Project Sponsor

Non-federal participation (i.e., work-in-kind contribution) will constitute the full amount of the 50% cost-share requirement.

At this time, non-federal cash contributions are not anticipated.

Expenditures by quarter within indicated Federal Fiscal Year for the federal government and the local sponsor.

	FY 2007	FY 2008				FY 2009				FY 2010				Total
	4 Qtr	1 Qtr	2 Qtr	3 Qtr	4 Qtr	1 Qtr	2 Qtr	3 Qtr	4 Qtr	1 Qtr	2 Qtr	3 Qtr	4 Qtr	
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	
St. Paul District	\$0	\$3,300	\$21,870	\$35,490	\$42,450	\$41,200	\$39,250	\$41,350	\$28,500	\$25,900	\$25,250	\$9,900	\$2,000	\$316,460
Non-federal Sponsor	\$0	\$10,150	\$29,246	\$50,705	\$42,089	\$32,273	\$34,380	\$30,292	\$35,806	\$21,228	\$26,340	\$3,972	\$0	\$316,480
Total	\$0	\$13,450	\$51,116	\$86,195	\$84,539	\$73,473	\$73,630	\$71,642	\$64,306	\$47,128	\$51,590	\$13,872	\$2,000	\$632,940
¹ Difference by Quarter	\$0	\$6,850	\$7,376	\$15,215	-\$361	-\$8,927	-\$4,870	-\$11,058	\$7,306	-\$4,672	\$1,090	-\$5,928	-\$2,000	
² Cumulative Difference	\$0	\$6,850	\$14,226	\$29,441	\$29,080	\$20,153	\$15,283	\$4,225	\$11,531	\$6,859	\$7,948	\$2,020	\$20	

1: Difference of expenditures between the federal government and local sponsor (sponsor monthly expenditure - federal monthly expenditure).

2: Cumulative difference of expenditures between the federal government and local sponsor (negative value indicates the sponsor is behind in it's expenditure).