

# Strategic Implementation Plan for St. Clair River and Lake St. Clair



**US Army Corps  
of Engineers** ®

Detroit District

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## Introduction

As you will see in the ensuing pages, the Strategic Implementation Plan (SIP) is a document that is required by law, to identify and plan the implementation of projects that address the recommendations featured in the Detroit District's June 2004 *St. Clair River and Lake St. Clair Comprehensive Management Plan (MP)*.

It is important to understand that the SIP is considered a “bridge” document (a plan for a plan), and not a “decision document”, as it contains no true Recommendation section, or other key decision-document components. However, the basic framework followed a Corps' reconnaissance report format and evolved from there. Also, it is designed to be a **living, 5-year plan** that can add and drop projects as implementation progresses and conditions evolve. The partnership plans on revisiting the entire document annually to reassess priorities and overall plan implementation.

The SIP is being employed as a tool to help the Partnership (which includes the Corps and EPA) identify and develop specific projects, and to prioritize them based on both subjective and objective metrics. The ranking system is relatively simplistic, but considers such metrics as “acres of habitat restored” or “opened to spawning, rearing and forage” and “linear feet of shoreline”, depending on the scope of the project. Recreational benefits were considered, but given a lower priority based on administration policies. Those involved in the project ranking process are fisheries experts, environmental engineers, watershed association professionals, regional planners, environmental consultants and ecologists.

Prior to the development of the SIP, USACE-HQ provided Implementation Guidance (IG) to the Detroit District. As part of the IG, a statement is made that the District is to “evaluate a range of alternative courses of action”. The guidance appears to direct the Detroit District to pursue projects under the diverse goals and priorities contained within the MP to include: a) habitat restoration; b) stormwater management through retrofits; c) identify and reduce sources of bacteria; d) explore use of technology in protecting and restoring Lake St. Clair; and e) (develop conditions that would) enhance the use of the St. Clair Watershed.

In consideration of the separate Canadian Management Plan, the Partnership further refined the primary concerns to include: 1) phragmites control; 2) habitat protection; 3) establishing a real-time (water quality) monitoring system; 4) integrating (water flow) modeling with monitoring; 5) eliminating illicit discharges from Lake St. Clair; and 6) development of a Lake St. Clair Watershed Information Management System. This appeared to satisfy the continuation of a “holistic watershed approach” to address the water resource problems impacting the St. Clair River and Lake.

During an IG discussion teleconference in October 2009 between USACE-HQ, Lakes and Rivers Division (LRD) Planning leadership and Detroit District Planning leadership, USACE-HQ and LRD directed that the SIP address and consider only “Section 206-like projects” and projects that fit under a “Technical Assistance” heading (i.e. Section 22 –

PAS and Section 401-Great Lakes Remedial Action Plan). As translated, this reduced the development of the “alternative courses of action” range to primarily consider ecosystem/habitat restoration (ER) projects (some with public use enhancement). This also initially stymied the multifaceted approach that was envisioned. As such, the Partnership followed suit and pursued the development and of, and solicitation for, ecosystem restoration (ER)-focused projects. The PAS-like work could primarily encompass stormwater management planning and the use of technology for Partnership-desired water quality monitoring and related systems. For this initial iteration of the SIP, the Partnership concluded that the document should focus on the ER projects, and explore other avenues once ER projects are underway.

After SIP approval, the Partnership will focus their efforts on developing projects through the Section 206, Great Lakes Fishery and Ecosystem Restoration (GLFER), Section 401 (GL-RAP) or EPA’s Great Lakes Restoration Initiative (GLRI) programs. The partnership will focus on developing projects of the greatest priority (as ranked by the Partnership) that fit under existing Corps authorities. This Partnership-developed prioritized list is in Appendix C-3; the priority number is in the far left-hand column. However, the ability (or lack thereof) of the non-Federal sponsor to fund each project will likely determine the eventual order of implementation of each prioritized project. Also, as of now, no project listed in this document is considered prerequisite to any other project.

It should also be understood that this SIP document allows for no shortcuts to the Corps planning process. Each project identified for implementation through this SIP must begin with a site-specific Letter of Request from a willing-and-capable non-Federal sponsor, have developed a site-specific Reconnaissance study (including the determination of Federal Interest), require a Letter of Intent, PMP and FCSA, and have developed complete feasibility/NEPA documentation. Implementation will also proceed through the normal Corps processes.

Since the planning now encompasses primarily ER projects, the strategy in the “Strategic Plan” is somewhat simple – to identify and implement the projects that provide the greatest net ecosystem restoration benefits to the St. Clair River and Lake region. The Partnership agreed that initially, ER projects would be implemented first (“tier 1”), while potentially more complicated technical assistance (Section 22 (PAS)) studies would be developed and introduced as a second tier. As touched on above, these “tier 2” projects would potentially include development of a Lake St. Clair Watershed Information Management System, and a program to develop flow modeling. Adding these “tier 2” projects would result in addressing a wider range of MP goals and priorities.

A few of the top 17 prioritized projects listed in Appendix C-3 would be considered “low-hanging fruit” which would be relatively straight-forward, low to moderately-priced projects to implement (assuming the cost-estimates are somewhat accurate). However the issue of sponsorship affordability again resurfaces.

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# **Strategic Implementation Plan for St. Clair River and Lake St. Clair**

## **1. Strategic Implementation Plan (SIP) Purpose**

Section 426 of the Water Resource Development Act (WRDA) of 1999 authorized the U.S. Army Corps of Engineers (Corps) to develop a comprehensive management plan for the St. Clair River and Lake St. Clair. The legislation directed the Corps to coordinate efforts with federal, state and local governments and Canadian federal and provincial authorities and to develop a comprehensive management plan. The authority follows, as stated:

“(a) PLAN.—The Secretary, in coordination with State and local governments and appropriate Federal and provincial authorities of Canada, shall develop a comprehensive management plan for the St. Clair River and Lake St. Clair.

(b) ELEMENTS.—The plan shall include the following elements:

(1) Identification of the causes and sources of environmental degradation.

(2) Continuous monitoring of organic, biological, metallic, and chemical contamination levels.

(3) Timely dissemination of information of contamination levels to public authorities, other interested parties, and the public.

(c) REPORT.—Not later than 1 year after the date of enactment of this Act, the Secretary shall submit to Congress a report that includes the plan developed under subsection (a) and recommendations for potential restoration measures.

(d) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section \$400,000.”

In response to this authority, the development of a comprehensive management plan was initiated in FY01. The resultant *St. Clair River and Lake St. Clair Comprehensive Management Plan (MP)*, dated June 2004, was developed in collaboration with U.S. Federal, state, and local agencies, with input from Canadian Federal, provincial, and local agencies, as well as other stakeholders in the Lake St. Clair-St. Clair River watershed. The plan was developed through a four-part, binational structure, including a Project Management Team, an Advisory Committee, Technical Workgroups, and a Canadian Writing Team. Additional binational coordination occurred via the framework established under the April 17, 1998 *Four Agency Letter of Commitment for the Areas of Concern* shared by the U.S. and Canada. It is an agreement among the U.S. and Canadian Federal, state, and provincial governments that outlined roles and responsibilities relative to restoring the beneficial uses in shared Areas of Concern, including Detroit, St. Clair and St. Marys rivers. This was later supplemented by an agreement to include Lake St. Clair in the framework.

The authority, however, did not provide the means to begin implementing the recommendations identified in the MP that would protect and restore the St. Clair River and Lake.

WRDA 2007 provides the additional authorization and, along with supplemental Implementation Guidance from CECW-PM, to establish and lead a partnership of Federal, State and local entities (Partnership) to produce this *St. Clair River and Lake St. Clair Strategic Implementation Plan* (SIP). The SIP identifies the process in which identified restoration initiatives are organized, prioritized and to be implemented under the auspices of the original MP. The SIP also contains the prioritized initiative list along with cost estimates, project sponsors and potential project partners.

However, it should be stressed that this SIP document is for general implementation planning purposes only and provides no shortcuts to the Corps project implementation process associated with individual site projects, as required under the Continuing Authorities Program Sections 206 or 1135, or the mandated process that accompanies a General Investigation. Each project identified for implementation through this SIP must begin with a site-specific Letter of Request from a willing-and-capable non-Federal sponsor, undergo the reconnaissance study phase (including the determination of Federal Interest), continue with a Letter of Intent, Project Management Plan and Feasibility Cost-Share Agreement, and follow the complete feasibility/National Environmental Protection Act documentation process. Implementation (design and construction) will also proceed through normal Corps processes.

The SIP will be provided to Congress and state and Federal agencies to convey the Partnership's sense of priority in implementing the priorities outlined in the MP. Congressional supporters and Federal agency staff intend to use the SIP as the official document of implementation priorities for the Lake St. Clair Watershed.

The Partnership's Federal, state and local members will work together to implement the SIP. The Partnership will use the SIP in discussions with state and Federal agencies to identify projects that align well with state and Federal interests. Sponsors with projects that are determined to be of local interest only and not likely to receive state or Federal assistance will receive the assistance of the Partnership in modifying the project to make it more consistent with state and federal interests, or assist in identifying interested local partners for the project.

Development of the SIP is a requirement of law in order to become eligible for additional appropriations for protecting and restoring the Lake St. Clair watershed. Section 3089 of WRDA 2007 authorized \$20 million in Federal funding to be appropriated for projects that are consistent with the MP.

The SIP is intended to ensure a coordinated implementation process through a variety of mechanisms, including future WRDAs, GLRI (Great Lakes Restoration Initiative), other Federal and state programs, and local initiatives.

## **2. Strategic Implementation Plan (SIP) Authorization**

Sec. 426, WRDA 1999, (P.L. 106-53), was amended by Sec. 3089, WRDA 2007, (P.L. 110-114). Subsection (c), (d) and (e) read as follows:

“(c) IMPLEMENTATION OF ST. CLAIR RIVER AND LAKE ST. CLAIR MANAGEMENT PLAN.—

“(1) IN GENERAL.—The Secretary shall—

“(A) develop a St. Clair River and Lake St. Clair strategic implementation plan in accordance with the management plan;

“(B) provide technical, planning, and engineering assistance to non-Federal interests for developing and implementing activities consistent with the management plan;

“(C) plan, design, and implement projects consistent with the management plan; and

“(D) provide, in coordination with the Administrator of the Environmental Protection Agency, financial and technical assistance, including grants, to the State of Michigan (including political subdivisions of the State) and interested nonprofit entities for the Federal share of the cost of planning, design, and implementation of projects to restore, conserve, manage, and sustain the St. Clair River, Lake St. Clair, and associated watersheds.

“(2) SPECIFIC MEASURES.—Financial and technical assistance provided under subparagraphs (B) and (C) of paragraph (1) may be used in support of non-Federal activities consistent with the management plan.

“(d) SUPPLEMENTS TO MANAGEMENT PLAN AND STRATEGIC IMPLEMENTATION PLAN.—In consultation with the Partnership and after providing an opportunity for public review and comment, the Secretary shall develop information to supplement—

“(1) the management plan; and

“(2) the strategic implementation plan developed under subsection (c)(1)(A).

“(e) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section \$20,000,000”.

### 3. Location and Congressional District

Located between lakes Huron and Erie, Lake St. Clair is the smallest lake in the Great Lakes system. While it is not one of the five Great Lakes, it is a vital binational resource that provides a wide array of benefits to millions of U.S. and Canadian residents. The lake is heavily used for fishing, boating, swimming, hunting, drinking water and other purposes. It is among the most biologically diverse ecosystems in North America and provides critical habitat for fish and migrating waterfowl, particularly in the St. Clair River delta, the largest coastal delta in the Great Lakes.



The St. Clair River and Lake St. Clair lie in the districts of Carl Levin (D-MI), Debbie Stabenow (D-MI), Candice Miller (R-MI-10), Sander Levin (D-MI-12), and Hansen Clark (D-MI-13).

In Ontario, Canada, Members of Provincial Parliament ridings (districts) that border Lake St. Clair are Bruce Crozier (LIB) – Essex, and Pat Hoy (LIB) – Chatham-Kent.

#### **4. History & Overview of Problem**

The St. Clair River-Lake St. Clair system is a binational resource that provides drinking water to over 4.5 million nearby residents and recreation for millions. The River and Lake support a federal connecting channel for deep draft navigation. This water resource is vital to thousands of industrial facilities and businesses and homeowners in southeastern Michigan and southwest Ontario.

For nearly a century, human uses of the system have altered the natural processes and impaired the quality of the waters and beneficial uses due to bacterial contamination, algae and aquatic plant growth, invasive species, degradation and loss of habitat and wetlands, PCB and mercury contamination of sediments, contaminant spills, and tainted fish. Nonpoint source pollution, sewer overflows and leaking septic systems have caused beach closures. Shoreline modifications and agricultural activities have altered natural habitat and reduced wetland acreage. Industrial discharges have contributed toxic pollutants to the lake and its sediments. In addition, aquatic nuisance species, such as the Zebra Mussel, have substantially changed the lake's ecosystem.

In response to these problems, Congress enacted Section 426 of WRDA 1999, which authorized the Corps to develop a comprehensive Management Plan (MP) for Lake St. Clair and the St. Clair River. The Corps and the then-established binational Partnership of U.S. and Canadian Federal agencies, Walpole Island First Nation, local governments and watershed stakeholder groups completed the Corps-led MP in 2001.

After extensive research and consultation with agencies and the public, the Corps released the final MP in 2004. While the MP also reflects the Canadian watershed perspective on Lake St. Clair, the document and its recommendations are primarily directed at the U.S. side of the watershed. The plan includes 110 recommendations related to the system's restoration and protection. The recommendations have been prioritized into six key areas, and priority projects have been developed. The primary concerns include 1) Phragmites control; 2) habitat protection; 3) establishing a real-time monitoring system; 4) integrating modeling with monitoring; 5) eliminating illicit discharges from Lake St. Clair; and 6) development of a Lake St. Clair Watershed Information Management System. Implementation has already begun on the local level in several areas.

Initial funding for implementing the MP recommendations has already been provided, through the development of this SIP. The development of this comprehensive SIP and consistent funding will provide a means to maintain the

current momentum and multi-level interest in implementing management activities to restore the river and lake.

Environment Canada (EC) is also in the process of developing a Canadian Implementation Plan for the parallel *Lake St. Clair Canadian Watershed Plan* that complements the Corps MP. The Canadian Watershed Plan summarizes environmental conditions in Canada's portion of the Lake St. Clair watershed, describes environmental programs, and identifies key management issues. Local coordination in Canada is being led by the Canadian Lake St. Clair Watershed Coordination Council, which conducted an extensive consultation process to develop recommendations and an implementation strategy. The recommendations focus on nine key areas: 1) Land Use including nonpoint source pollution and stormwater management; 2) Commercial Navigation and Recreational Boating; 3) Sources and Loads; 4) Human Health; 5) Habitat Biodiversity; 6) Fishing and Hunting; 7) Monitoring; 8) Scientific Studies and Data Management; and 9) Governance. The Canadian Implementation Plan will be referenced by the Partnership during the development of the SIP.

## **5. Development of the SIP**

The June 2004 MP proposes a general suite of recommendations for restoring, protecting and managing the U.S. portion of the Lake St. Clair watershed. Not all identified and ranked projects can be immediately implemented, however, and many will require further refinement among relevant agencies and interested parties. Additionally, the projects may not merit equal attention.

The Corps and the Partnership have developed this Strategic Implementation Plan (SIP) -- consistent with the Water Resources Development Act of 2007 - to efficiently protect and restore the St. Clair River and Lake St. Clair. The SIP development process began with the Partnership's ranking of candidate projects (from stakeholders, consultants, communities, educational institutions and the Federal Government) that were best qualified from the initial list for Great Lakes Restoration Initiative (GLRI) or other short-term funding opportunities and those eligible for implementation under existing Corps authorities. Once those applications are in place, the spectrum of remaining projects will be ranked for implementation by the full Partnership (local, state and Federal Government entities) strategically using other Federal and other governmental authorities to implement these projects.

The SIP was developed by the full Partnership which provided input and assistance where needed, and the SIP Development Team – a subset of the Partnership which prepared the document. The SIP Development Team consists of the following agencies: The Detroit District of the Corps, U.S. Environmental Protection Agency (USEPA), Michigan Department of Environmental Quality, Southeast Michigan Council of Governments (SEMCOG), Macomb County Public Works Office, St. Clair County Health Department, and the Oakland County Water Resources Office.

The SIP is designed to be an iterative (living, 5-year window) document that identifies those projects that implement recommendations of the MP addressing impairments to the watersheds, in particular in Chapter 4 - Habitat and Biodiversity, as well as other recommendations that deliver significant ecosystem benefits. Other MP priorities considered in the SIP include actions to address stormwater management, bacteria reduction, the increased application of technology in the protection of the lake and river, and increased recreational opportunities in the watersheds.

The “vision” for the SIP is:

*To collaboratively develop a guiding document that will, through a diverse, motivated and capable Partnership, focus efforts toward the protection, restoration and enjoyment of the Lake St. Clair basin’s water resources, in accordance to the Management Plan’s goals and priorities.*

The SIP evaluates an array of projects that were submitted by the Lake St. Clair stakeholders, describes the criteria used to evaluate the projects, identifies specific projects that may be implemented by the Corps using its authorities, as well as projects that may be implemented through other local, state and federal authorities. The SIP also initially prioritizes the projects consistent with the goals of the MP, in an integrated approach guided by Corps watershed planning principles and guidelines. Input from, and collaboration among the Partnership members was, and continues to be, vital throughout development of this SIP.

Since the planning encompasses primarily ecosystem restoration (ER) projects, the strategy in the “Strategic Plan” is somewhat simple – to identify and implement the projects that provide the greatest net ecosystem restoration benefits to the St. Clair River and Lake region. The Partnership agreed that initially, ER projects would be implemented first (“tier 1”), while potentially more complicated technical assistance (Section 22 (PAS)) studies would be developed and introduced as a second tier. These “tier 2” projects would potentially include development of a Lake St. Clair Watershed Information Management System, and another program to develop flow modeling. Adding these “tier 2” projects would result in addressing a wider range of MP goals and priorities.

The SIP includes an estimated cost of each ranked ecosystem restoration project selected for implementation eligibility, describes quantitative outcomes and ancillary benefits and identifies lead and (if applicable) assisting partners of each project. The cost of each project is developed by the submitting entity, based on costs of other local drainage district development projects. The Partnership did not have the ability or resources to verify each submitted costs during the SIP development process, nor did the District have the resources to create individual assessments of cost effectiveness.

The Partnership did consider the relative estimated cost to the amount of benefit each project provided and those that appeared to provide much more benefit for lower cost were considered more favorable than similar projects that were

estimated as being much more costly to implement, or did not provide as much relative restoration. The projects that the Partnership expects will provide the greatest net restoration benefit to the River and Lake, at the best relative cost, were prioritized and are presented in Appendix C-3. In contrast, several original project submissions were dropped from further consideration because of the perceived lack of benefit versus cost.

However, an initial estimate of cost effectiveness will be developed in each reconnaissance phase while a Cost Effectiveness & Incremental Cost Analysis (CE/ICA) will be developed in the feasibility phase of each project to determine relative environmental outputs per unit of cost.

The next step was to make the SIP projects “operational” by identifying potential funding sources. This process consisted of a categorization of the projects according to funding opportunities for which they qualify. In some cases, existing initiatives and programs provided a platform for refining and implementing selected projects. As part of this process, agencies must assess their authority, capabilities, and available resources in relation to each (or portions) of the projects. The U.S. Federal agencies involved in the development of the MP have agreed to adopt the SIP as well as those elements of the MP most relevant to their mission and work within available agency resources and programs to achieve the vision of a healthy St. Clair River and Lake St. Clair. In addition, the Corps has responded to requests for assistance that fall within its authorities and mission areas.

There are proposed projects that potentially have no single lead agency to coordinate the implementation because funding is administered by several agencies, through different programs within the agencies, and with no agency having jurisdiction over the others relative to funding decisions. Assessing the appropriate path for implementation is a function of the SIP Development Team.

During the ranking process, each of the ecosystem restoration eligible projects was also identified either as a single focused restoration or multifaceted (addresses more than one issue.) Based on these two categories the Partnership is now developing a strategic timing schedule to guide implementation of each project. Project implementation order and schedule will be heavily influenced by which sponsors have available funding and are capable of cost-sharing. Higher-ranked projects will have Federal priority, but the implementation will be more dictated by local ability to partner projects. The development and maintenance of a master schedule will continue to assist in resource planning (budgetary, manpower, equipment and critical path) on both the local and Federal levels.

#### **5a. SIP Cost Sharing**

All cost-sharing for developing the SIP (per paragraph 3b. of the Implementation Guidance) is 75% Federal, 25% non-Federal. The non-Federal sponsor for this SIP is the SEMCOG, which represents the Detroit-area city, village and township governments in regional affairs. SEMCOG facilitates the Partnership.

The SIP non-Federal cost-share may be provided in cash and/or Work-in-Kind (W-i-K) equaling 25% of the SIP development costs. The eligible value of Work-in-Kind (W-i-K) contributions is subject to the conditions and limitations contained in the SIP cost sharing agreement.

### **5b. SIP-Specific Tasks**

The overarching reasons for creating the SIP are as follows:

1. *To evaluate and identify a list of priority initiatives for implementing the MP based on Partnership and public input, Corps Planning Guidance, available Corps funding and other federal authorities, to create a five-year schedule to strategically execute the initiatives to be implemented, and to plan for resources;*
2. *To describe criteria used to evaluate alternative approaches;*
3. *To create estimates of costs, durations and draft scopes for each of the initiatives selected for initial implementation;*
4. *To support implementation of the MP recommendations by identifying those projects that can be implemented through Corps ecosystem restoration authorities and expediting their implementation through the submittal of the SIP to Corps-HQ and Assistant Secretary of the Army for Civil Works for approval.*

Specifically, the tasks to develop the SIP included the following:

#### **Task 1 – Establish the Lake St. Clair Partnership**

This task involved significant coordination by the Corps and SEMCOG with partnership agencies and organizations. A formal Partnership Agreement is the deliverable product for this task, which is attached to this document as Appendix A.

#### **Task 2 – Conduct Open Partnership and Meetings**

This task involved conducting public meeting(s) during the development of the SIP in order to get participation and input from Partnership and other interested parties regarding implementation of the MP. This task was ongoing concurrently and was directly in support of the development of the draft SIP.

#### **Task 3 – Evaluate and Prioritize Candidate Projects for Implementation**

A set of criteria and procedures were used for evaluating the MP recommendations to identify projects to include in the SIP. The evaluating criteria and procedures were developed and approved by the Partnership. The complete evaluation process, including criteria is included later in this document.

#### **Task 4 – Estimates of Costs, Benefits and Outcomes**

Prioritized projects were further analyzed to develop estimates of study or implementation costs versus the benefits and outcomes of each action/project. This task also identifies which Partners could potentially participate in the implementation of the project, based on funding and emerging initiatives such as the Great Lakes Restoration Initiative. Finally, the Partnership developed a

prioritized implementation matrix based on the amount of qualitative benefit of each in relation to the other candidate projects. This matrix will assist in identifying funding resources needed for each project and how much of the cost-share may need to be supplied through cash or W-i-K contributions.

**Task 5 – Finalize Draft SIP and Submit for Corp’s Agency Technical Review**

The Detroit District and Partnership conducted final review and comment before submitting the SIP for a required Corps Agency Technical Review (ATR). This is mandated by Corps policy as cited in Engineering Circular 1165-2-209, paragraph 15.b, which specifically states that "All decision and implementation (including this Implementation Plan) documents are required to undergo ATR".

**Task 6 – Address ATR Comments on the SIP and distribute to Corps HQ and the Partnership**

The Partnership and Detroit District will address ATR comments to the reviewer’s satisfaction, then the final SIP will be forwarded to Corps Headquarters for concurrence and submission to the Assistant Secretary of the Army for Civil Works (ASA(CW)) for their approval. Once finalized, the Detroit District will distribute the approved SIP for adoption and use.

**6. Lake St. Clair/St. Clair River Protection and Restoration Partnership**

The Lake St. Clair/St. Clair River Protection and Restoration Partnership was appointed by USEPA to serve as the U.S. Lake St. Clair Coordinating Council in 2005. The Partnership is responsible for implementing the Management Plan. The Partnership is composed of representatives of local, state and federal agencies, non-governmental agencies, associations, and universities.

As described in WRDA 2007, the priority for the Corps (as mandated by law) has been to "...establish and lead a partnership..."; i.e. the U.S. Lake St. Clair Watershed Partnership (including, but not limited to) the SEMCOG, the USEPA, The U.S. Geological Service (USGS), the National Oceanic and Atmospheric Administration (NOAA), the State of Michigan and local governments, to develop a SIP to map out the implementation of the 110 recommendations ("implementations"). Goals to be achieved during the establishment of the Partnership have included soliciting local commitment, developing sustainable funding options and establishing a formal process for collaboration.

The Lake St. Clair/St. Clair River Protection and Restoration Partnership was established by Partnership Agreement in May 2011 to serve as the "Partnership" for developing and implementing the SIP, as required in Section 3089 of WRDA 2007. The Partnership, including the Corps, USEPA, and the SEMCOG, coordinated the development of this SIP. The full Partnership, facilitated through the SEMCOG, consists of the following agencies, entities and organizations:

Macomb County Board of Commissioners  
Macomb County Planning and Economic Development  
Macomb County Public Works Office

Macomb County Health Department  
City of Mount Clemens  
Ray Township  
Chesterfield Township  
City of St. Clair Shores  
Clinton River Watershed Council  
Clinton River Public Advisory Council  
Huron Clinton Metropolitan Authority  
St. Clair County Health Department  
St. Clair County Metropolitan Planning Commission  
St. Clair County Drain Office  
St. Clair County Parks and Recreation Commission  
St. Clair County Community Foundation  
Clay Township  
Ira Township  
Cottrellville Township  
Harsen's Island St. Clair Flats Association  
City of Marysville  
St. Clair River Binational Public Advisory Council  
Domtar Industries  
Oakland County Water Resources Office  
Rochester Hills  
Six Rivers Regional Land Conservancy  
Oakland University  
Eastern Michigan University  
SEMCOG  
Michigan Department of Environmental Quality  
Michigan Department Natural Resources  
Michigan Sea Grant  
U.S. Army Corps of Engineers (Corps)  
U.S. Environmental Protection Agency  
U.S. Geological Survey Great Lakes Science Center  
U.S. Geological Survey - Michigan Water Science Center

#### **6a. Partnership Agreement**

The document formally establishing the Lake St. Clair/St. Clair River Protection and Restoration Partnership (the Partnership) is a *Partnership Agreement*, which was signed by numerous governments and organizations after the formal SIP cost-share agreement was signed by the SEMCOG and the Detroit District (executed May 24, 2011) The Partnership Agreement is found in Appendix A.

Although the Partnership Agreement is non-legally-binding, it establishes a good-faith commitment of the non-Federal and Federal Partners to work collaboratively toward the common goal of restoring and protecting the St. Clair River and Lake St. Clair.

#### **6b. Role and Responsibilities of the Partnership**

The Partnership conducted public and stakeholder meetings within the watershed; to present information targeted at key audiences; to educate them about the MP and SIP, and what can be done at the local level to protect and restore the lake through development of the SIP. These meetings were also used to solicit input and information from stakeholders regarding prioritization and/or scope of future implementation activities.

The first task of the Partnership in developing the SIP was to establish standards, criteria and methods for assessing and evaluating projects. The Partnership developed five priority categories from the MP that assisted in evaluating the projects for placement in the SIP. The following five priority areas were determined to provide the greatest level of benefit in protecting and restoring the Lake St. Clair resource:

- Conserve and restore habitat,
- Stormwater management (through retrofits) to reduce pollutants,
- Identify and reduce sources of bacteria,
- Use of technology in protecting and restoring Lake St. Clair, and
- Enhance public use of Lake St. Clair Watershed.

The SIP was developed to be an living (iterative) five year list of implementation priorities and plans that are critical to delivering significant benefits in the restoration of the St. Clair River and Lake St. Clair Watersheds. The SIP evaluates a range of alternative courses of action, describes the criteria used to evaluate the alternative approaches, and identifies specific projects or actions that may be implemented by the Partnership and Corps by using its authorities, or by the GLRI (Great Lakes Restoration Initiative) program, or other Federal and state programs. The SIP also prioritizes the projects or actions consistent with the goals of the MP, in an integrated approach guided by Corps watershed planning principles and the Partnership.

The SIP also includes an estimated cost, outcomes and duration of each prioritized project selected for implementation, describes implementation plans for each high-ranking priority project and identifies lead and assisting partners. Input from, and collaboration among the Partnership members was vital in developing the SIP.

This SIP can only be effective if all three levels of government are fully engaged as Partners. The priority projects are diverse and may require funding from multiple State and Federal and local sources to implement in total. Regarding funding availability, there is no single agency to coordinate the piecemeal implementation because the funding is administered by several agencies and different programs within the agencies, with no agency having jurisdiction over the other relative to funding decisions. Successful implementation of the priorities will require a coordinated effort among relevant agencies.

The Partnership then established the project submittal process. Lake St. Clair Watershed stakeholders submitted projects to the SEMCOG electronically over the SEMCOG's website.

Specific implementations were assessed and separated into specific or grouped projects under the categories as discussed above, depending on the scope and magnitude of each. Implementations (projects) that could be grouped to benefit from "economics of scale" were also identified. Lead and support agencies, as they step forward as supporters of each of the implementations, are listed as potential non-Federal sponsors, and scopes developed to determine needed resources. If applicable, additional information is linked with each of the implementations as listed below:

- Real Estate Requirements
- Environmental Requirements
- Phases of Implementation / Acquisition Plans
- Operations and Maintenance Requirements

The Partnership, led by the Development Team, has been responsible for the conduct of open stakeholder meetings within the watershed; to present information targeted at key audiences; to educate them about the MP and SIP, and what can be done at the local level to protect and restore the lake through development and execution of the SIP. These meetings also solicited input and information from the stakeholders regarding prioritization and/or scope of future implementation activities.

A key component in implementing management strategies for the St. Clair River and Lake St. Clair is improving water quality. The institutional framework for managing water quality is complex. Managing and protecting the River and Lake is a shared endeavor among Federal, state and local agencies. The Federal structure of the U.S. political system divides authority for government functions between Federal and state governments. Environmental and resource management responsibilities – whether they involve regulation, enforcement, inspections, cleanup, monitoring, or public assistance – are mandated by governments in various ways, such as Federal, state and local statutes and executive orders. These mandates are, in turn, implemented at multiple levels by a variety of government agencies. In some cases, authority for administering Federal environmental laws is delegated to state agencies.

## **7. Relationship of SIP to Great Lakes Regional Plans**

The SIP contains the priority projects for protecting, restoring and enhancing the Lake St. Clair Watershed that are consistent not only with the *St. Clair River and Lake St. Clair Comprehensive Management Plan* (the MP) – but also relate to one or more of the other regional plans such as the Great Lakes Restoration Action Plan, Lake Erie Lakewide Management Plan (LaMP), St. Clair River Remedial Action Plan, Clinton River Remedial Action Plan, and subwatershed plans established pursuant to the Phase II Stormwater Permit.

The SIP was developed under the auspices of the Corps and the USEPA under the authority of Section 426 of the Water Resources Development Act of 1999, as amended. Section 3089 of WRDA 2007 authorized \$20 million to be appropriated for projects that are consistent with the MP. In addition to the WRDA authorization, the USEPA administers the GLRI – a significant restoration initiative focused on restoring the Great Lakes ecosystem. Sixteen Federal agencies, such as the Corps, U.S. Fish and Wildlife Service, NOAA, U.S. Geological Survey, U.S. Forest Service, Natural Resources Conservation Service (of USDA), and U.S. Park Service, receive GLRI funds from the USEPA to capitalize their internal programs.

Other Federal agencies also receive a significant amount of resources from Congress through funding provisions in other laws enacted to protect our nation's natural resources.

In addition to Federal opportunities, the Michigan Departments of Natural Resources (DNR) and Environmental Quality (DEQ) offer a number of funding opportunities for both planning and implementation purposes. The DNR offers, among others, two programs for developing the recreational resources of the state. First, the Michigan Natural Resources Trust Fund (MNRT) provides funding for land acquisition and recreational development. Second, the DNR administers the U.S. Park Service's Land and Water Conservation fund (LWCF) for developing recreational opportunities in Michigan.

The DEQ offers, among others, three programs for protecting water quality, coastal assets and natural resources of the State of Michigan. First, DEQ administers the Section 319 Nonpoint Source funding program of the Clean Water Act, providing funding for nonpoint source planning and implementation projects. Second, Michigan Coastal Zone Management Program provides funding for planning and implementation of projects to protect and develop coastal assets as well as natural resources. Third, the Michigan State Revolving Fund program provides limited grants and low interest loans for installation of low impact development and green infrastructure projects as well as repairing and upgrading local municipal wastewater collection and treatment systems.

## **8. Listing Projects in the SIP**

The SIP is a document that is authorized to be developed under Section 3089 of the Water Resources Development Act of 2007 as a first step in implementing the Management Plan. The document contains a five-year list of implementation projects that conveys the Partnership's sense of priority in implementing the *St. Clair River and Lake St. Clair Comprehensive Management Plan*. The SIP will be provided to Congress and other state, Federal and local stakeholders to assist them in determining funding priorities.

## **Project Categorization Using the Appendices**

Projects listed in the SIP appendices were first evaluated for project readiness, feasibility, and sustainability. Projects that meet these criteria are listed in one of three categories in the SIP:

- Projects Consistent with Management Plan Priorities,
- Projects Consistent with Plan Priorities and Eligible Under Corps Ecosystem Restoration Authorities, and
- Other Lake St. Clair/St. Clair River Projects.

There are four appendices included in the back of this SIP (C-1 to C4):

C-1 “Alphabetical listing of all project titles in the SIP” – This is a compilation of all of the projects submitted by regional stakeholders during the project solicitation period that occurred during the spring and summer of 2011. The project number is to an internal referencing system set up by the partnership.

C-2 “Projects that are Consistent with the Management Plan Priorities” – This is a alphabetical compilation of projects from C-1 that include all ecosystem restoration projects regardless of whether they qualify for Corps Ecosystem Restoration Authorities consistent with the Corps’ implementation guidance. This list provides more project information, including which MP Priorities that project addresses, but is not prioritized by the Partnership.

Funding for projects listed under this category will also be sought through other funding mechanisms, such as the Great Lakes Restoration Initiative, as well as grants and other assistance through agencies, including NOAA, the U.S. Department of Agriculture, US Fish and Wildlife Service, U.S. Forest Service, Michigan Department of Natural Resources and Michigan Department of Environmental Quality.

C-3 “Eligible Projects in Ranking Order for Corps Ecosystem Restoration Assistance” – This is the Partnership’s prioritization and ranking of projects that primarily fit Corps authorities compiled from Appendix C-2.

Projects listed here are eligible for implementation under the Corps Ecosystem Restoration Authorities – primarily Section 206 Aquatic Ecosystem Restoration and Section 506 Great Lakes Fishery and Ecosystem Restoration.

C-4 “Other St. Clair River and Lake St. Clair Projects” – These two projects have been identified as those external to Corps authorities, that will need to be implemented by others (Macomb County, MI, and EPA).

Projects that do not clearly pertain to the Corps mission are listed in alphabetical order under this appendix along with pertinent information about the projects that will assist funding agencies in the selection process. The Corps could participate in these projects, but they would likely be led or directed by others. Funding for these projects will be sought through mechanisms such as the USEPA or another Federal state or local agency.

## 9. **Submission of Projects**

A solicitation package was distributed to Lake St. Clair stakeholders (local governments, counties, subwatershed groups, Public Advisory Councils, Watershed Councils, land conservancies, associations and regional, state and Federal agencies) on June 15, 2011 with instructions for submitting projects, criteria for assessing and ranking projects, how the projects will be listed in the SIP and the project solicitation period.

Projects were accepted from June 15, 2011 through August 26, 2011. All projects were submitted to the Partnership via an on-line submission form on the SEMCOG's Website.

Seventy-one (71) projects were submitted to the Partnership by Lake St. Clair stakeholders during the 2.5 month submittal period. A complete listing of all projects received is found in Appendix C.

## 10. **Evaluating Projects to be Included in the SIP**

Evaluation of the projects was performed through a collaborative effort by the Partnership, which includes the SIP Development Team.

The Development Team is using the SIP as a tool to help the Partnership (which includes the Corps and EPA) identify and develop specific projects, and to prioritize them based on both subjective and objective metrics. The ranking system (as outlined later in this section) is relatively simplistic, but also considered such metrics from the project descriptions as "acres of habitat restored" or "opened to spawning, rearing and forage" and "linear feet of shoreline restored". Recreational benefits were considered, but given a lower priority based on administration policies. Those involved in the project ranking process are fisheries experts, environmental engineers, watershed association professionals, regional planners, environmental consultants and ecologists.

Projects initially submitted for inclusion in the SIP were assessed up to three times during the preliminary evaluation process. The process included: 1) An initial screening of all projects for eligibility for inclusion into the SIP document (restoration/protection oriented); 2) An evaluation of how well the projects meet the MP priorities, and 3) a screening and priority ranking for those projects that are candidates for Corps authorities for Ecosystem Restoration, Planning Assistance to States, GLFER or other standing authorities.

In order to be listed in the SIP, a specific project must receive a "Yes" for all criteria listed below. For example, if five of the six criteria under the three categories receive "Yes", but one criterion receives a "No", the project failed to be included in the list of priority projects in the SIP.

### ***Readiness***

- The project can be initiated in the next 12 months?

### ***Feasibility***

- The project scope is clear and understandable?
- Project partners needed for implementation have been identified and committed?
- The project real estate is in control of project partners, or could be reasonably obtained?
- Project benefit versus cost appears favorable?

### ***Sustainability***

- Project outcomes can be reasonably achieved and sustained?

### **Review for Consistency with MP Priorities**

Project submissions were based on the MP priorities, which are as follows:

- Conserve and restore habitat,
- Stormwater management through retrofits,
- Identify and reduce sources of bacteria,
- Use of technology in protecting and restoring Lake St. Clair, and
- Enhance public use of Lake St. Clair Watershed.

The next step was to make the projects “operational” by identifying specific outcomes and benefits for each project in regard to the MP recommendations, the appropriate implementers, costs, funding sources, schedules, and work tasks. The full matrix of the *Projects Consistent With The Management Plan Priorities* including the candidate projects that have been proposed by, and to, the Partnership to-date, can be found in Appendix B.

### ***Determining Eligibility for Corps Assistance***

The initial assessment, listing and ranking was performed by the SIP Development Team, consisting of members from Corps, the USEPA, MDEQ and the SEMCOG, as well as the full Partnership. In order to be a high-priority project considered for Corps assistance in the SIP, the project must be in the Federal Interest, be in a Corps mission area or eligible for another Corps authority, and have a potential willing and able non-Federal sponsor. Those projects meeting these requirements will be ranked as a higher priority by the SIP Development Team and the Partnership.

### ***Initial Assessment to be Considered for Corps Assistance***

*A) Meets Corps criteria of Federal Interest for ecosystem restoration (or other standing Corps authority).*

The Corps ecosystem restoration missions are authorized under Section 206 of WRDA 1996 *Aquatic Ecosystem Restoration* and Section 506 of WRDA 1996 - *Great Lakes Fishery and Ecosystem Restoration (GLFER)*. There are other existing ecosystem restoration and protection authorities available, but the authorities listed here are the most commonly-used standing authorities in the Great Lakes region.

Section 206 is an authority under the Continuing Authorities Program, which allows the Corps to plan, design and build projects to restore aquatic ecosystems for fish and shoreline riparian plants and wildlife. The objective is to restore degraded ecosystem structure, function, and dynamic processes to a less degraded, more natural condition. This will involve consideration of the ecosystem's natural integrity, productivity, stability and biological diversity.

In situations where a more natural condition cannot be achieved, projects that improve the existing condition would be considered. Modifications to improve the habitat, such as increasing the dissolved oxygen levels in the stream, would provide conditions more conducive for sustaining a fishery. Projects must be in the public interest and cost effective and are limited to \$10 million in Federal cost. The initial \$100,000 in feasibility cost is at full Federal expense, where all costs above this amount are shared at varying amounts (depending on the authority used) between the Corps and Sponsor. Implementation costs are shared at 65% Federal and 35% non-Federal.

Section 506 (GLFER) authorizes the Corps to cooperate with other Federal, state, and local agencies and the Great Lakes Fishery Commission to plan, implement, and evaluate projects supporting the restoration of the fishery, ecosystem, and beneficial uses of the Great Lakes. GLFER requires 35 percent of the total project costs be provided by the non-Federal sponsor for planning, design and implementation. There is a \$10M Federal per-project funding limit.

Projects conducted under this program have included wild rice restoration, marsh and pond restoration, estuary ecosystem and wetland restoration, fish passage and dam removal, river restoration, and nesting bird island restoration.

Section 22 (Planning Assistance to States – PAS) of WRDA 1974, as amended, provides authority for the Corps to assist the States, local governments, and other non-Federal entities in the preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources. PAS is NOT an implementation authority that can be used to design and construct projects, but to help non-Federal sponsors to study and plan their own implementation. Individual studies, of which there may be more than one per State or Tribe per year, generally cost \$25,000 to \$75,000. These studies are cost shared on a 50 percent Federal-50 percent non-Federal basis.

Section 22 can encompass many types of studies dealing with water resources issues beyond ecosystem restoration, which may have an impact on the overall protection of the River and Lake. Types of studies conducted in recent years under the program include the following:

- Water Supply and Demand
- Water Quality
- Environmental Conservation/Restoration
- Wetlands Evaluation
- Dam Safety/Failure
- Flood Damage Reduction
- Flood Plain Management
- Coastal Zone Management/Protection
- Harbor/Port

Section 401(a) (GL Remedial Action Plans) of the Water Resources Development Act of 1990, as amended, is to provide technical support to states and local organizations in the development and implementation of Remedial Action Plans (RAPs) at Great Lakes Areas of Concern (AOCs). A RAP is developed in three stages: Stage I identifies and assesses use impairments and the sources of the stresses from all media in the AOC; Stage II identifies proposed remedial actions and their method of implementation; and Stage III documents evidence that uses have been restored. It is important to note that, in practice, these stages often overlap, and that the RAPs often become iterative documents, representing the current state of knowledge, planning and remedial activity in the AOC.

This is not a grant program and a cost-sharing agreement is required. Partners may include state or local governmental agencies or non-profit organizations. Support is provided by Corps districts and their contractors. Support is cost-shared 35 percent non-federal/ 65 percent federal. The non-federal share may come from state and local agencies, non-profit groups or private sources. In addition, the non-federal share may include in-kind services in lieu of cash.

*B) Ability to provide 50 percent Non-Federal cost share for feasibility study and 35 percent cost share for design and construction.*

### **Ranking Criteria**

Those projects that met the criteria for Ecosystem Restoration and whose sponsors provide the required local match were evaluated by the Partnership according to the three criteria below. Each project was evaluated and scored for prioritization purposes – based on a 100 point maximum score – in relationship to the other candidate projects.

- **Level of benefit to Lake St. Clair/St. Clair River (60 points maximum)**  
Extent of project benefit with specific measurable outcomes (e.g., acres of wetland restored, linear feet of shoreline restored, tons of pollutant loadings removed).
- **The Project supports additional aspects of the MP (20 points maximum)**

The project addresses additional recommendations in the plan beyond ecosystem restoration (e.g. pollutant removal, public health, public education/outreach, etc.)

- **Ranking by Partnership (20 points maximum)**

The average ranking by the Partnership based on qualitative level of benefit, including amount of Partnership support, proximity to impairment areas, continuity for migratory/spawning activity, resource scarcity in the region, etc.

## 11. Project Implementation Priorities

Seventy one (71) projects are included in the SIP. The projects were assessed several times and ranked (if required). The projects are listed in Appendix C.

- Appendix C-1 Alphabetical listing of *All Project Titles* in the SIP.
- Appendix C-2 Alphabetical listing of *Projects that are Consistent with the Management Plan Priorities* that are both Corps and non-Corps, with the following information for each project: watershed/Area of Concern (AOC) location, stated outcomes, plan priorities addressed, additional aspects of plan addressed by project, and estimated cost.
- Appendix C-3 Listing of *Eligible Projects in Ranking Order for Corps Ecosystem Restoration Assistance* that fit existing Corps authorities. The following information is presented for each project: watershed/AOC located, stated outcomes, plan priorities addressed, additional aspects of plan addressed by project, and estimated cost.
- Appendix C-4 Alphabetical listing of *Other Lake St. Clair and St. Clair River Projects* with the following information for each project: Watershed/AOC located, *stated outcomes and estimated costs*.

Non-Federal sponsors can use these appendices (especially C-3) for several sources of information, such as:

- How highly does their project of interest rank, in order of priority, by the Partnership;
- How much the estimated cost is for a particular project, in order to plan future resources;
- The relative benefit of the project of interest compared with others being proposed;
- Whether the project fits under a Corps/Federal authority or if the project should be pursued at the local level;
- How their project contributes to the overall goals of the LSC MP;
- How their project relates to/compliments others being proposed.

When a sponsor comes forward to request Corps assistance, the Corps

representative will thoroughly explain the study and implementation phases to the non-Federal sponsor and guide them through the process.

## **12. Implementation Strategy**

The Partnership will work with project sponsors in developing a realistic implementation strategy. This includes a series of meetings with state and Federal agencies to develop interest and support in the projects.

The Partnership will use the SIP in discussions with state and Federal agencies such as the USEPA, Corps, NOAA, U.S. Fish and Wildlife Service, U.S. Department of Agriculture, U.S. Forest Service, National Fish and Wildlife Foundation, Michigan Department of Natural Resources and Michigan Department of Environmental Quality. The purpose of these discussions will be to identify projects that align well with state and Federal interests and those that will likely be implemented by local partners or stakeholders. The Partnership will assist sponsors of local interest projects in either modifying their projects to align better with state and Federal interests or identifying potential partners for the projects. In addition, the Partnership will provide assistance to sponsors of priority projects in developing project descriptions and scope of services.

## **13. Project Initiation and Budget**

Following submittal of the SIP for Corps headquarters review and the Secretary's approval, project staff will begin evaluating priority projects in preparation for funding discussions with the various state and federal agencies identified in section 11 above. Staff will review the funding objectives of the major federal and state funding programs in preparation for this initial evaluation. The cost-share will be based on the authority used for each project, as required cost shares can vary by authority.

As soon as the SIP is approved, the Corps will begin initial evaluation of ranked candidate projects for ecosystem restoration funding. Initial work includes determining if Federal interest in the project exists and what authority the project would be executed under, which determines what the cost-share between non-Federal sponsor and Corps would be.

## **14. Development of Preliminary Strategy and Assumptions**

In developing the implementation strategy for the projects contained in the SIP, project staff will work with federal and state agency staff in identifying a list of projects that are consistent with state and federal interests and those which are of special interest to the agencies. The meetings will be used for dialogue between agencies and project sponsors. Agency staff will provide input to the sponsors on what they are looking for in a successful application. Based on discussions with state and federal agency staff a series of options with assumptions and pros and cons as well as a preferred option will be developed for the project sponsors.

The Corps evaluation of candidate projects will describe the normal assumptions used for the implementation of projects under its Ecosystem Restoration

Authorities and related guidance. The summary should highlight any anticipated deviations from the normal project initiation requirements.

**15. Project Initiation Milestones**

Sponsors and partners will develop project descriptions and scope of services for the SIP projects. Preliminary budgets can be included and milestones developed at this point. The Partnership will provide assistance to sponsors of priority projects that need help in developing the project scope. At this point, sponsors will have a Corps project authority identified under which to request initiation of a project or a funding opportunity from a granting agency or program.

The Corps evaluation of candidate projects for ecosystem restoration funding which are ready to move forward with an identified non-federal sponsor will also include an estimated schedule for a project's implementation from feasibility study through planning, design and construction.

**16. Updating the SIP**

The SIP is a 5-year iterative document which will be reviewed minimally, on an annual basis or more frequently, depending on evolving conditions and level of implementation activity creating the need to add or remove projects. The Partnership plans on meeting quarterly to discuss progress and problems, and to determine any adjustments that must be made in regard to project solicitation or execution. The Partnership will also discuss new or potentially-beneficial projects and any projects that should be dropped from the list due to diminished relevance or any other reason.

## STATEMENT OF CERTIFICATION

Strategic Implementation Plan for the St. Clair River and Lake St Clair

This is to certify that the undersigned have reviewed and concur in the scope, structure, and cost estimate presented in the Strategic Implementation Plan for the St. Clair River and Lake St Clair.

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Terry Long  
Chief, Plan Formulation Branch

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Jim Galloway  
Chief, Planning Office

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Harry Salisbury, P.E.  
Chief, Programs and Project  
Management Office

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Scott Thieme P.E.  
Deputy District Engineer  
for Project Management

## **Appendix A** ***Executed Partnership Agreement***

### **PARTNERSHIP AGREEMENT FOR THE LAKE ST. CLAIR/ST. CLAIR RIVER PROTECTION AND RESTORATION PARTNERSHIP**

#### **PURPOSE:**

The purpose of this partnering agreement is to establish the Partnership identified in Section 3089 of the Water Resources Development Act of 2007 (P.L. 110-114); the U.S. Army Corps of Engineers “shall establish and lead a partnership of appropriate Federal agencies (including the Environmental Protection Agency) and the State of Michigan (including political subdivisions of the State),

- A) to promote cooperation among the Federal, State and local governments, and other involved parties in the management of the St. Clair River and Lake St. Clair watersheds, and
- B) to develop and implement projects consistent with the management plan.”

Developing these collaborative working relationships will enable the leveraging of resources for the restoration and protection of the St. Clair River and Lake St. Clair. These leveraged resources will be used to enhance the Partnership’s ability to secure funding, including funds allowed by law through the Water Resources Development Act of 2007, the Great Lakes Restoration Initiative and other sources of assistance.

#### **MISSION:**

The mission of the Partnership is to realize a healthy St Clair River and Lake St. Clair watershed by protecting, restoring and enhancing the natural resources of the system through cooperative management among governments, associations, business, educational institutions and individuals residing in the watersheds.

#### **PARTNERSHIP:**

The Lake St. Clair/St. Clair River Protection and Restoration Partnership is a collaboration consisting of representatives of local, county, regional, state and federal agencies, non-governmental organizations, associations, and academic institutions.

#### **PRIORITY AREAS:**

The Partners intend to implement the recommendations of the Management Plan that address such issue areas as: Environmental Health of the Watershed, Habitat and Biodiversity, Human Health, Land Use, Fisheries, Recreational Boating and Commercial Navigation, and Monitoring. Initial implementation activities will focus on five priority planning areas of the Management Plan. Once formed, the Partnership will review the priority planning areas on an annual basis. Based on consensus, the priority areas will be revised and updated as needed. The priority planning areas are:

- *Conserve and restore habitat:* Improving the quality of the St. Clair River, Lake St. Clair and their watersheds will require the presence of quality natural habitat for fish and wildlife. This will result in expanding habitat quantity and diversity, which has been reduced by urbanization and development. Further, protecting natural habitat creates opportunities for enhanced eco-tourism, educational and recreational activities that also generate employment opportunities as part of the new Blue Economy.
- *Stormwater management through modifications:* Runoff from Southeast Michigan's existing impervious surfaces and agricultural sources contribute large pollutant loading of nutrients to Southeast Michigan's waterways including the St. Clair watersheds.
- *Identify and reduce sources of bacteria:* Bacteria from the intestines of humans or animals (such as *E coli*) are a recognized public health concern that often result in beach closings or the issuance of a TMDL (Total Maximum Daily Load) for a water body (i.e. lake, river, creek, drain, etc.). A TMDL for *E coli* brings increased federal or state regulation resulting in further local regulatory programming and expenses that will be borne by the communities that use the water body.
- *Use of technology in protecting and restoring the St. Clair River and Lake St. Clair:* Technology such as monitoring, modeling and observing systems provides a significant amount of information that can improve decision-making in the protection and restoration of the St. Clair River and Lake St. Clair.
- *Enhance public use of the St. Clair Watershed:* New recreation and ecotourism opportunities that generate interest of the local residents and tourists from afar in the St. Clair River and Lake St. Clair and its watershed will be part of this changing economic pattern. This shift to a blue economy will be characterized by increased access to the St. Clair River, Lake St. Clair and its tributaries for recreational opportunities. A public that has access to, and uses the resource, will engage in its protection.

## **BENEFITS TO THE PARTNERS**

The Partners agree that the following represents benefits to the members and the resource:

1. Scarce fiscal resources are focused on projects with greatest value added on protecting and restoring the St. Clair watersheds;
2. The probability of securing funding and successful project implementation are enhanced;
3. There is a culture of collaboration and inclusiveness on what is best for the watershed;
4. Partners play a role in determining plan and project priorities;
5. The Partnership serves as a one-stop-shop for identifying and managing priorities of the Management Plan;
6. The Partnership will provide input to funders and Congressional delegates on implementation funding capabilities;
7. Assist in meeting goals of the Great Lakes Water Quality Agreement, including water safe for drinking and swimming, while providing abundant fish and wildlife safe for consumption.

## **INTENT OF SIGNATORY PARTIES**

By signing this Agreement parties voluntarily intend to participate in the partnership process and work to implement the Management Plan's priorities and stated outcomes of the Strategic Implementation Plan through the following activities:

- Participating in planning and implementation activities,

- Assisting in developing and implementing the Strategic Implementation Plan,
- Providing technical expertise when appropriate,
- Promoting the Partnership to others within the community or organization, and
- Supporting projects that benefit the St. Clair River and Lake St. Clair watersheds.

**NON-BINDING DOCUMENT**

It is understood and agreed by the undersigned that nothing in this Partnership Agreement obligates any signatory to: expend resources either now or in the future, enter into any contract, assistance agreement, interagency agreement, or to incur other financial obligations. This Agreement does not limit, or in any way restrict, the statutory or contractual obligations of the signatories in carrying out their private and/or public responsibilities.

**THE PARTNERING AGREEMENT**

Progress in achieving the intent and purpose of the Partnering Agreement will be reviewed annually. Further, the Partnership Agreement will be reviewed and updated every five years to ensure it reflects current members and priorities of the Partnership. Any party may terminate their participation in the Agreement through written notice to the Partnership.

Name/Title *Jim M. S. J.* Date : June 22, 2011  
 Representing: Township of Clay

Name/Title *Myra Brown* Date: June 29, 2011  
 Representing: St. Clair County Environmental Health Division

Name/Title *Walter D. Vesberg* Date: July 1, 2011  
 Representing: Macomb County Board of Commissioners

Name/Title *David C. Williams* Date: July 7, 2011  
 Representing: Huron Clinton Metropolitan Authority

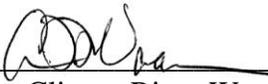
Name/Title *Charles H. Miller* Date: July 11, 2011  
 Representing: Harsen's Island/St. Clair Flats Association

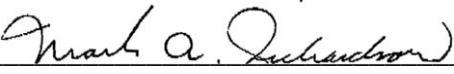
Name/Title *J. M.* Date: July 11, 2011  
 Representing: Oakland County Water Resources Commissioner

Name/Title *Lady Marie* Date: July 11, 2011  
 Representing: St. Clair County Community Foundation

Name/Title *Patty Troy* Date: July 12, 2011  
 Representing: St. Clair River Binational Public Advisory Council

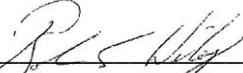
Name/Title *Alfonso V. Marroco* Date: July 19, 2011  
 Representing: Macomb County Public Work Commissioner

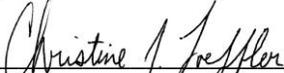
Name/Title  Date: July 19, 2011  
Representing: Clinton River Watershed Council

Name/Title  Date: July 19, 2011  
Representing: Clinton River Public Advisory Council

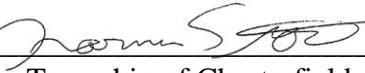
Name/Title  Date: July 20, 2011  
Representing: Six Rivers Regional Land Conservancy

Name/Title  Date: July 20, 2011  
Representing: Eastern Michigan University

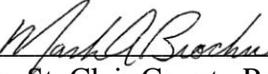
Name/Title  Date: July 20, 2011  
Representing: St. Clair County Drain Commissioner

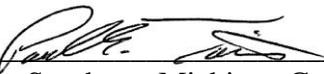
Name/Title  Date: August 8, 2011  
Representing: Domtar, Inc.

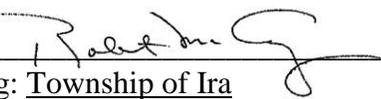
Name/Title  Date: August 10, 2011  
Representing: Township of Ray

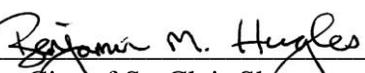
Name/Title  Date: August 11, 2011  
Representing: Township of Chesterfield

Name/Title  Date: August 12, 2011  
Representing: City of Rochester Hills

Name/Title  Date: August 12, 2011  
Representing: St. Clair County Parks and Recreation Commission

Name/Title  Date: August 15, 2011  
Representing: Southeast Michigan Council of Governments

Name/Title  Date: August 16, 2011  
Representing: Township of Ira

Name/Title  Date: August 17, 2011  
Representing: City of St. Clair Shores

Name/Title  Date: August 19, 2011  
Representing: City of Mount Clemens

Name/Title  Date: August 24, 2011  
Representing: USGS Great Lakes Science Center

Name/Title Elizabeth Hay-Chrislewski Date: August 25, 2011  
Representing: Michigan Department of Natural Resources

Name/Title Christina A. Kelly Date: August 15, 2011  
Representing: Michigan Department of Environmental Quality

Name/Title Michael C. Lewis Date: September 1, 2011  
Representing: U.S. Army Corps of Engineers – Detroit District

Name/Title S. David Newton Date: September 2, 2011  
Representing: Oakland University

Name/Title Ann P. Suter Date: July 19, 2011  
Representing: Macomb County Department of Planning and Economic Development

Name/Title Thomas H. Raymond Date: July 18, 2011  
Representing: Cottrellville Township

Name/Title Walter R. Lund Date: September 9, 2011  
Representing: USGS Michigan Water Science Center

Name/Title Marken M. Murphy Date: September 14, 2011  
Representing: St. Clair County Metropolitan Planning Commission

Name/Title [Signature] Date: September 27, 2011  
Representing: Michigan Sea Grant

Name/Title [Signature] Date: October 11, 2011  
Representing: City of Marysville

## **Appendix B**

### ***Management Plan Priorities***

Projects submitted will be categorized based on their consistency with MP priorities. The MP priorities with rationale and project examples follow:

#### ***Conserve and Restore Habitat***

*Rationale:* Improving the quality of the St. Clair River, Lake St. Clair and their watersheds will require the presence of quality natural habitat for fish and wildlife. Protecting and restoring natural habitat enhances biodiversity and population stability while enhancing eco-tourism and recreational activities that generate economic opportunities as part of the new Blue Economy. Further, the benefits of reduced pollutant loadings will be marginalized if there are insufficient buffer zones and greenspace that also supports wildlife. The reduced land values and reverted properties are providing for additional conservation opportunities.

*Example Projects:* These projects will focus on protecting and restoring high impact habitat sites for restoring fish and wildlife diversity and quantities in area streams and rivers, dam removal and stream restoration, and restoration of wetlands. These restoration efforts will also provide improved recreational and eco-tourism opportunities.

Examples of these projects include:

- Invasive species (Phragmites) removal from Metro Beach MetroPark
- Harrison Township 155-acre wooded wetland remnant
- Partridge Creek Commons – Remnant Oak Opening restoration
- River Voss Fish and Wildlife Habitat Restoration Project
- Meldrum Drain Fish and Wildlife Habitat Restoration and Conservation Project

#### **Stormwater Management through Retrofits**

*Rationale:* Runoff from Southeast Michigan's existing impervious surfaces exceeds 1 trillion gallons annually – delivering 3 million pounds of phosphorus and 500 million pounds of sediment to the region's waterways. The volume and water quality impacts include:

- Reduced water quality,
- Less groundwater recharge,
- Loss of fisheries and habitat,
- Increased flooding and property damage, and
- Decreased recreational opportunities.

Much of the storm water management activity is focused on reducing runoff from future development. But, future development will likely be limited due to current and anticipated economic conditions. Thus, the most benefit in reducing pollutant impacts from runoff would be realized from retrofitting existing land uses with green infrastructure. At this point there is little financial support from existing federal or state programs for green infrastructure retrofits.

Nutrients from rural sources such as runoff from farm fields contribute large pollutant loadings to Southeast Michigan's waterways including the Lake St. Clair watershed. Within Lake St. Clair, nutrients have been identified as a problem in the Clinton River subwatersheds, the Salt River, Marsac Creek, Swan Creek, Beaubien Creek and Swartout Creek of Anchor Bay. The county drains and natural waterways of Anchor Bay often originate in rural townships where farm fields contribute significant nutrient loadings.

*Example projects:*

- Green infrastructure and low impact development projects
- Green infrastructure in road right-of-ways
- Native vegetation buffer projects in rural subwatersheds

**Identify and Reduce Sources of Bacteria**

*Rationale:* Bacteria from the intestines of humans or animals (such as *E coli*) are a recognized public health concern that often results in beach closings or the issuance of a TMDL (Total Maximum Daily Load) for a water body (i.e. lake, river, creek, drain, etc.). Bacterial loadings in water bodies can seriously impact human health, and can also lead to beach closings. Beach closings can then lead to missed opportunities for public recreational use and public awareness of the natural resource value of the Lake, along with potential lost revenue for area businesses.

A TMDL for *E coli* brings increased federal or state regulation resulting in further local regulatory programming and expenses that will be borne by the communities that use the water body. Water bodies in the Lake St. Clair Watershed with TMDLs for pathogens include the Clinton River and its tributaries, Crapau Creek, Vanderverne Drain, Salt River, Memorial Beach, MetroBeach, St. Clair River, Marsac Creek, and Swartout Creek. There is a public expectation that beach closings and TMDLs will be reduced and the public's use of the Lake St. Clair resource improved.

Monitoring would be an eligible item under this plan priority but only for individual project assessment of effectiveness, not for broad based identification of environmental trends.

*Example projects:*

- IDEP projects
- On site disposal system remediation projects
- Wildlife control projects
- Collaborate with conservation districts in rural watersheds to make improvements to confined feed operations, etc.

## **Use of Technology in Protecting and Restoring Lake St. Clair**

*Rationale:* Advancing technology, used in monitoring systems and model development, aids in the collection, development and dissemination of near real-time, high-resolution data and information that can improve decision-making for the protection and restoration of the St. Clair River and Lake St. Clair. Some of this technology is now being used in the watershed.

Monitoring that can detect the presence of chemical or spill in the water and provide concentration information that could assist in tracing the chemical back to its origin, is an important technology for protecting public health. A significant amount of environmental monitoring occurs each year in Southeast Michigan's waterways, including the Clinton, Lake St. Clair and the St. Clair Rivers by county health departments, drain and public works offices. However, the system should be expanded, combined and improved.

Existing technology could support modeling that generates a graphic representation of a water body with an accurate simulation of water current flow and direction based on observed wind speed and direction. Such a model could project the path of a contaminant plume and/or trace the plume back to its source, and would have significant water quality and public health benefits.

Accurate observing systems that measure flow speed and direction, wind speed and direction, precipitation, water temperature, Ph, salinity and turbidity – provide the data necessary to model an aquatic scenario and support numerous planning and engineering endeavors.

### *Example projects:*

- Contaminant assessment,
- Source water protection,
- Post project assessment,
- Comprehensive (trend identification),
- Projecting beach closings due to pathogen bacteria,
- Emerging chemicals (pharmaceuticals, fire retardants, pesticides, chlorinated paraffins),
- Identification of aquatic sites for habitat protection and restoration,
- Boating safety,
- Commercial navigation, and
- Integrating HECWFS (Huron to Erie Connecting Waterways Forecasting System) with real-time monitoring.

## **Enhance Public Use of Lake St. Clair Watershed**

*Rationale:* Southeast Michigan is currently undergoing the largest restructuring of its economy since the great depression. Business, local government, and other stakeholders are collaborating to position the region to take advantage of the Blue Economy. The Blue Economy will utilize the water resources and coastal assets of the

region for economic opportunities to generate new commercial and employment opportunities.

New recreation and eco-tourism opportunities in Lake St. Clair and its watershed that attract residents and tourists from near and afar will be part of this changing economic pattern. This shift to a Blue Economy will be characterized by easier and more access to Lake St. Clair and its tributaries for recreational opportunities. A public that has access to, and uses the resource, will more likely engage in its protection. Conservation of high value habitat areas is also beneficial as both local and regional eco-tourism assets. These protected conservation areas have other economic benefits including:

- stabilizing property values as the Lake and its watershed becomes more of an eco-tourism draw, and
- Serves as sites to facilitate ecosystem education and outreach, creating support for further involvement and avocation.

*Example projects or actions:*

- Water-based recreation and ecotourism opportunities in Lake St. Clair and its tributaries
- Establishment of blueway corridors
- Purchase land for public access.

## **Appendix C-1**

### ***Alphabetical listing of all project titles in the SIP.***

The following is an alphabetical listing of all projects from Lake St. Clair Database (71 projects) submitted during the project solicitation period in the spring and summer of 2011. The corresponding identification number is an internal database ID number and not a ranking.

- #137 Addison Dryden Drain Wetland Preservation, Bank Stabilization and Habitat Restoration
- #165 Anchor Bay Watershed Fish & Wildlife Habitat Restoration Plan and Implementation
- #194 Black Creek Marsh Land Acquisition
- #230 Black River Riverbank Stabilization and Habitat Restoration
- #139 Brandon Oxford Drain Wetland Protection and Habitat Restoration
- #140 Brown Drain Sediment Removal, Bank Stabilization and Habitat Restoration
- #158 Building Collaborations to Manage Phragmites around Lake St. Clair
- #179 Cairns Field Stormwater Retrofit/CSO Control
- #180 City of Mount Clemens Lake St. Clair Shoreline Habitat Restoration
- #193 Clinton River AOC Watershed Remediation Through Grow Zones
- #187 Clinton River Fish Habitat Restoration Project
- #226 Clinton River Green Corridor Habitat Restoration
- #160 Clinton River Restoration at Sylvan Lake Outlet
- #146 Clinton River and Lake St. Clair Green Infrastructure Assessment, Design and Implementation
- #70 Contaminated Source ID and Assessment in Clinton River AOC
- #231 Cottrellville Township St. Clair River Shoreline Restoration
- #93 Determining and Implementing Stable Channel Design Criteria
- #78 Eliminating E. Coli Sources Impacting Beach Closures
- #135 Enhancements to the Huron Erie Corridor Waterways Forecast System (HECWFS) for Expanding Decision-Support Applications
- #144 Expanded Illicit Discharge Elimination Program (IDEP) Southeast Oakland County Communities
- #168 Ferry Drain Sediment Removal, Bank Stabilization and Habitat Restoration
- #126 Galloway Creek Fish Passage Restoration Project
- #185 Habitat Restoration through Large Woody Debris Removal- Phase 1
- #143 Hamilton Relief Drain Sediment Removals, Bank Stabilization and Habitat Restoration
- #169 Harrington Drain Habitat Restoration
- #149 Harsens Island Blue-way (waterways) Phragmites Management & Control
- #133 Harsens Island Conservation & Recreation Area
- #59 Illicit Discharge Elimination Program (IDEP)
- #166 Implementing Green Streets in the Lake St. Clair Watershed
- #215 Inwood Road / Stony Creek Storm Water Improvements
- #167 Lake Level Control Structures Flow Monitoring Clinton River
- #189 Lake St. Clair Phragmites Management Partnership
- #147 Low Flow Improvements Study -- Clinton River Main Subwatershed
- #148 Mainland Drain Project Wetland Creation and Stream Restoration
- #210 Metro Beach Marsh Restoration Phase 3
- #202 Metro Beach Parking Lot Reconstruction Phase 2
- #178 Mount Clemens Ice Rink Stormwater Retrofit/CSO Control
- #91 North Branch Clinton River Wetland Restoration & Protection
- #219 North Branch Flood Plain Restoration

- #120 Oakland University Stormwater Retrofit Project
- #229 Off-line Wetland Treatment System for Pelton Creek Drain
- #154 Otter Drain Sediment Removal, Bank Stabilization and Habitat Restoration
- #186 Paint Creek Fish Passage Restoration Project
- #177 Partridge Creek Commons Habitat Restoration
- #234 Phase I -- Upper St. Clair River Habitat Restoration
- #192 Phragmites control through biofuel production
- #235 Professional Training in Aquatic Habitat Restoration Techniques
- #162 Red Run Drain Contaminated Sediment Removal
- #159 Red Run Drain Sediment Removal
- #161 Red Run Drain Stream Bank Stabilization
- #141 Restoration & Improvements to Harsen's Island Conservation Area
- #236 Restoration of Chesterfield Island Park
- #96 Restoration of Fish Spawning Habitat in the St. Clair River
- #232 Restoration of the Marine City Drain
- #79 Restoring Fish Passage in the Red Run Headwaters
- #107 Road Salt Impact on Clinton River AOC
- #157 Roseville Clinton Harrison Relief Drain Water Quality and Habitat Improvement Project
- #65 Safeguarding Our Drinking Water Real Time Monitoring
- #163 Sinking Bridge Drain Wetland Enhancement
- #55 St. Clair River Shoreline Restoration Phase 2
- #207 St. Clair Shores Floating Vegetation Remedial Implementation
- #206 St. Clair Shores Floating Vegetation Study/Design
- #60 Sterling Heights Household Hazardous Waste Outreach
- #94 Sterling Relief Drain Habitat Restoration
- #217 Stony Creek Floodplain Habitat Restoration/ Invasive Species Removal
- #164 Update of Oakland County Design Standards for Storm Water
- #233 Updating Lake Huron Direct and St. Clair River Direct Watersheds Management Plans
- #145 Village of Leonard Sewage Disposal Alternative Evaluation
- #220 Water Quality Assessment of the North Branch of the Clinton River, Wolcott Mill MetroPark
- #218 Wolcott Mill dam removal and shoreline stabilization
- #199 Yates Roadside Park fish habitat restoration and angler access

**Appendix C-2**  
***Projects that are Consistent with the Management Plan Priorities***

This appendix is a compilation of all projects from Appendix C-1, which were submitted during the project solicitation period in the spring and summer of 2011. The corresponding identification number is an internal database ID number and not a ranking. This list provides more project information, including which MP Priorities that project addresses, but is not prioritized by the Partnership.

Projects that are consistent with the Management Plan priorities are listed in alphabetical order along with pertinent information that will assist those interested in collaboration and implementation. These projects include all ecosystem restoration projects regardless of whether they qualify for Corps Ecosystem Restoration Authorities consistent with the Corps' implementation guidance. Funding for projects listed here will be also be sought through other funding mechanisms, such as the Great Lakes Restoration Initiative, as well as grants and other assistance through agencies, including, NOAA, U.S. Department of Agriculture, US Fish and Wildlife Service, U.S. Forest Service, Michigan Department of Natural Resources and Michigan Department of Environmental Quality.

**Appendix C-2**

**Projects that are Consistent with the Management Plan Priorities**

| Projects                                                                                                                                                                                                                                                        | Watershed                  | Quantitative Outcomes                                                                                                                                                                                                                 | Plan Priorities Addressed by Project |                                  |                            |                                                |                                        | Other aspects of Management Plan Addressed by Project | Estimated Cost |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------|----------------------------|------------------------------------------------|----------------------------------------|-------------------------------------------------------|----------------|
|                                                                                                                                                                                                                                                                 |                            |                                                                                                                                                                                                                                       | Conserve and restore habitat         | Stormwater management/ Retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhancing public use of Lake St. Clair |                                                       |                |
| <b>#137 Addison Dryden Drain Wetland Preservation, Bank Stabilization and Habitat Restoration</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <a href="mailto:jwineka@oakgov.com">jwineka@oakgov.com</a>                           | North Branch Clinton River | Protection and enhancement of wetland habitat Invasive Species Control Stream bank protection Land / Easement Acquisition                                                                                                             | √                                    |                                  |                            |                                                |                                        |                                                       | \$500,000      |
| <b>#165 Anchor Bay Watershed Fish &amp; Wildlife Habitat Restoration Plan and Implementation</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour <a href="mailto:lynne.seymour@macombcountymi.gov">lynne.seymour@macombcountymi.gov</a> | Anchor Bay                 | A plan for the restoration of fish and wildlife habitat in approximately 100 miles of Anchor Bay tributaries and as well as implement control on two acres of invasive Phragmites, and restore 3,175 feet of Meldrum Drain's channel. | √                                    | √                                |                            |                                                | √                                      | Public education/outreach, Planning/assessment        | \$750,000      |
| <b>#194 Black Creek Marsh Land Acquisition</b><br>Sponsor: Huron Clinton Metroparks<br>Contact: Paul Muelle <a href="mailto:paul.muelle@metroparks.com">paul.muelle@metroparks.com</a>                                                                          | Clinton River              | 113 acres of wetland protected through public ownership                                                                                                                                                                               | √                                    |                                  |                            |                                                | √                                      |                                                       | \$400,000      |
| <b>#230 Black River Riverbank Stabilization and Habitat Restoration</b><br>Sponsor: Domtar Industries, Inc.<br>Contact: Christine Loeffler <a href="mailto:christine.loeffler@domtar.com">christine.loeffler@domtar.com</a>                                     | Black River/St.Clair River | Restore 2,100 feet of riverbank habitat; control approximately 1 acre of invasive Phragmites; reduce pollutant loadings of sediment.                                                                                                  | √                                    | √                                |                            |                                                |                                        |                                                       | \$900,300      |
| <b>#139 Brandon Oxford Drain Wetland Protection and Habitat Restoration</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <a href="mailto:jwineka@oakgov.com">jwineka@oakgov.com</a>                                                 | Clinton River              | Protection and enhancement of wetland habitat Invasive Species Control stream bank restoration Land / Easement Acquisition                                                                                                            | √                                    | √                                |                            |                                                |                                        |                                                       | \$1,000,000    |
| <b>#140 Brown Drain Sediment Removal, Bank Stabilization and Habitat Restoration</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <a href="mailto:jwineka@oakgov.com">jwineka@oakgov.com</a>                                        | Upper Clinton Watershed    | Reduced stream bank erosion Reduced sediment transport and deposition 2,000 +/- lineal feet of restored stream bank                                                                                                                   | √                                    | √                                |                            |                                                |                                        |                                                       | \$600,000      |
| <b>#158 Building Collaborations to Manage Phragmites around Lake St. Clair</b><br>Sponsor: Southeast Michigan Council of Governments<br>Contact: William Parkus <a href="mailto:parkus@semcog.org">parkus@semcog.org</a>                                        | Clinton River/Anchor Bay   | Development of a long-term strategy for controlling Phragmites around Lake St. Clair                                                                                                                                                  | √                                    |                                  |                            |                                                |                                        | Public education/outreach, Planning/assessment        | \$150,000      |

**Appendix C-2**

***Projects that are Consistent with the Management Plan Priorities***

| Projects                                                                                                                                                                            | Watershed      | Quantitative Outcomes                                                                                                                                                                                                                                                                                                       | Plan Priorities Addressed by Project |                                 |                            |                                                |                                        | Other aspects of Management Plan Addressed by Project | Estimated Cost |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------|----------------------------|------------------------------------------------|----------------------------------------|-------------------------------------------------------|----------------|
|                                                                                                                                                                                     |                |                                                                                                                                                                                                                                                                                                                             | Conserve and restore habitat         | Stormwater management/Retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhancing public use of Lake St. Clair |                                                       |                |
|                                                                                                                                                                                     |                | including institutional arrangements among numerous agencies and organizations. The project also includes management of Phragmites on 90 acres within the Salt River Watershed.                                                                                                                                             |                                      |                                 |                            |                                                |                                        |                                                       |                |
| <b>#179 Cairns Field Stormwater Retrofit/CSO Control</b><br>Sponsor: City of Mount Clemens<br>Contact: Chuck Bellmore <i>cbellmore@cityofmountclemens.com</i>                       | Clinton River  | Remove combined sewer overflows into the Clinton River to reduce the levels of <i>E.coli</i> .                                                                                                                                                                                                                              |                                      | √                               | √                          |                                                |                                        | Pollution prevention                                  | \$110,000      |
| <b>#180 City of Mount Clemens Lake St. Clair Shoreline Habitat Restoration</b><br>Sponsor: City of Mount Clemens<br>Contact: Chuck Bellmore <i>cbellmore@cityofmountclemens.com</i> | Lake St. Clair | Eliminate 450 feet of abandoned fishing pier, restore natural lake currents and reduce sediment accumulation along the shoreline, install two fish habitat structures, remove Phragmites along 415 feet of shoreline and 450 feet of fishing pier, and install native vegetative buffer along 415 feet of shoreline.        | √                                    | √                               |                            |                                                |                                        |                                                       | \$168,000      |
| <b>#193 Clinton River AOC Watershed Remediation Through Grow Zones</b><br>Sponsor: Clinton River Watershed Council<br>Contact: Michele Arquette-Palermo <i>michelle@crwc.org</i>    | Clinton River  | Create 15,000 lineal feet of riparian vegetative zone. Reduce sediment loading and nutrient input.                                                                                                                                                                                                                          | √                                    | √                               |                            |                                                |                                        | Public education/outreach                             | \$168,000      |
| <b>#187 Clinton River Fish Habitat Restoration Project</b><br>Sponsor: City of Rochester Hills<br>Contact: Roger Moore <i>moorer@rochesterhills.org</i>                             | Clinton River  | Restoration of 3,500 feet of Clinton River channel including addition of spawning gravel/cobble riffles, deep scour pools, mainstem holding water, off-channel overwintering pond, cover, vegetated riparian zones, restoration of fish passage to 1,350 feet of a headwater stream, reduction in sediment by 300 tons/year | √                                    |                                 |                            |                                                |                                        | Recreation, and Public education/outreach             | \$1,600,000    |

**Appendix C-2**

***Projects that are Consistent with the Management Plan Priorities***

| Projects                                                                                                                                                                                                                                                               | Watershed     | Quantitative Outcomes                                                                                                                                                                                                                                                                                                                                                                                                          | Plan Priorities Addressed by Project |                                 |                            |                                                |                                        | Other aspects of Management Plan Addressed by Project                | Estimated Cost |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------|----------------------------|------------------------------------------------|----------------------------------------|----------------------------------------------------------------------|----------------|
|                                                                                                                                                                                                                                                                        |               |                                                                                                                                                                                                                                                                                                                                                                                                                                | Conserve and restore habitat         | Stormwater management/Retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhancing public use of Lake St. Clair |                                                                      |                |
| <b>#226 Clinton River Green Corridor Habitat Restoration</b><br>Sponsor: Clinton River Watershed Council<br>Contact: Anne Vaara <a href="mailto:anne@crwc.org">anne@crwc.org</a>                                                                                       | Clinton River | Restore 4,983 linear feet of streambank or over 92 acres of habitat                                                                                                                                                                                                                                                                                                                                                            | √                                    |                                 |                            |                                                | √                                      | Stormwater management, Technology, Public education/outreach         | \$150,000      |
| <b>#160 Clinton River Restoration at Sylvan Lake Outlet</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <a href="mailto:jwineka@oakgov.com">jwineka@oakgov.com</a>                                                                        | Clinton River | Reduced stream bank erosion, reduced sediment transport and deposition, 200 +/- lineal feet of restored streambank and improved public access                                                                                                                                                                                                                                                                                  | √                                    | √                               |                            |                                                | √                                      |                                                                      | \$500,000      |
| <b>#146 Clinton River and Lake St. Clair Green Infrastructure Assessment, Design and Implementation</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour <a href="mailto:lynne.seymour@macombcountymi.gov">lynne.seymour@macombcountymi.gov</a> | Clinton River | Green infrastructure assessment sediment loading reductions, habitat restoration BUI removal in the Clinton River Area of Concern, stormwater runoff volume and pollutant loading reductions, air pollutant reductions, estimates of carbon storage and sequestration, replanting trees in these urban priority areas assists towards restoring the diverse, functional and healthy urban tree canopy cover that once existed. | √                                    | √                               |                            |                                                |                                        | Pollution prevention, Public education/outreach, Planning/assessment | \$1,000,000    |
| <b>#70 Contaminated Source ID and Assessment in Clinton River AOC</b><br>Sponsor: Oakland University<br>Contact: David Newlin <a href="mailto:newlin@oakland.edu">newlin@oakland.edu</a>                                                                               |               | GIS maps of contaminants for the Clinton River watershed at Utica. PCBs, PAHs/semivolatiles, and trace elements quantified in at least 50 sediment/suspended sediment/soil/water samples + limited porewater Equilibrium Partitioning (EqP) analysis. Monitoring of suspended sediments by GC/MS to evaluate any high concentrations of previously unknown chemicals in the Clinton                                            |                                      |                                 |                            | √                                              |                                        | Pollution prevention, Toxics, Habitat restoration                    | \$25,000       |

**Appendix C-2**

***Projects that are Consistent with the Management Plan Priorities***

| Projects                                                                                                                                                                                                                                             | Watershed                                                                 | Quantitative Outcomes                                                                                                                                                                                                                                                                                                            | Plan Priorities Addressed by Project |                                  |                            |                                                |                                        | Other aspects of Management Plan Addressed by Project | Estimated Cost |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------|----------------------------|------------------------------------------------|----------------------------------------|-------------------------------------------------------|----------------|
|                                                                                                                                                                                                                                                      |                                                                           |                                                                                                                                                                                                                                                                                                                                  | Conserve and restore habitat         | Stormwater management/ Retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhancing public use of Lake St. Clair |                                                       |                |
|                                                                                                                                                                                                                                                      |                                                                           | River. TOC, grain size, mineralogy of soils and sediments. Peer reviewed publications.                                                                                                                                                                                                                                           |                                      |                                  |                            |                                                |                                        |                                                       |                |
| <b>#231 Cottrellville Township St. Clair River Shoreline Restoration</b><br>Sponsor: Cottrellville Township<br>Contact: Tom Raymand <a href="mailto:griz54@att.net">griz54@att.net</a>                                                               | St. Clair River                                                           | Restoration of 200 feet of St. Clair River shoreline with soft engineering and natural shallow-water habitat; management of approximately 1 acre of invasive Phragmites; New public access to the St. Clair River for fishing, boating, birdwatching and other recreation.                                                       | √                                    |                                  |                            |                                                | √                                      |                                                       | \$975,000      |
| <b>#93 Determining and Implementing Stable Channel Design Criteria</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour <a href="mailto:lynne.seymour@macombcountymi.gov">lynne.seymour@macombcountymi.gov</a>                | Lake St. Clair, Anchor Bay, Clinton River, Lake St. Clair Direct Drainage | The new criteria will result in many miles of stable open drain improvements throughout the County that will reduce bank erosion, allow for native plant buffers, riparian habitat, spawning habitat, and minimize long-term maintenance resulting in improved water quality in the Clinton River and Lake St. Clair watersheds. | √                                    | √                                |                            | √                                              | √                                      | Public education/outreach, Planning/assessment        | \$125,000      |
| <b>#78 Eliminating E. Coli Sources Impacting Beach Closures</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour <a href="mailto:lynne.seymour@macombcountymi.gov">lynne.seymour@macombcountymi.gov</a>                       | Lake St. Clair, Lake St. Clair Direct Drainage                            | Eliminate approximately 1 million gallons per year of pollution impacting Lake St. Clair, Reduction of beach closures ,Improved perception of Lake St. Clair water quality                                                                                                                                                       | √                                    |                                  | √                          |                                                | √                                      | Stormwater management, Public education/outreach      | \$748,000      |
| <b>#135 Enhancements to the Huron Erie Corridor Waterways Forecast System (HECWFS) for Expanding Decision-Support Applications</b><br>Sponsor: Michigan Sea Grant<br>Contact: Jennifer Read <a href="mailto:jenread@umich.edu">jenread@umich.edu</a> | St. Clair River, Anchor Bay, Lake St. Clair                               | Improved efficiency and effectiveness in decision-making on a variety of management issues.                                                                                                                                                                                                                                      |                                      |                                  |                            | √                                              |                                        |                                                       | \$100,000      |
| <b>#144 Expanded Illicit Discharge Elimination Program (IDEP) Southeast Oakland County Communities</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <a href="mailto:jwineka@oakgov.com">jwineka@oakgov.com</a>           | Clinton River                                                             | Based on similar results in 2008, up to 2,000,000 gallons of raw sewage per year can be expected to be                                                                                                                                                                                                                           |                                      |                                  | √                          |                                                | √                                      | Pollution prevention, Toxics                          | \$800,000      |

**Appendix C-2**

***Projects that are Consistent with the Management Plan Priorities***

| Projects                                                                                                                                                                                                                                                      | Watershed                    | Quantitative Outcomes                                                                                                                                                                                                                                                                                   | Plan Priorities Addressed by Project |                                  |                            |                                                |                                        | Other aspects of Management Plan Addressed by Project        | Estimated Cost |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------|----------------------------|------------------------------------------------|----------------------------------------|--------------------------------------------------------------|----------------|
|                                                                                                                                                                                                                                                               |                              |                                                                                                                                                                                                                                                                                                         | Conserve and restore habitat         | Stormwater management/ Retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhancing public use of Lake St. Clair |                                                              |                |
|                                                                                                                                                                                                                                                               |                              | eliminated from the Clinton River / Lake St. Clair.                                                                                                                                                                                                                                                     |                                      |                                  |                            |                                                |                                        |                                                              |                |
| <b>#168 Ferry Drain Sediment Removal, Bank Stabilization and Habitat Restoration</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <a href="mailto:jwineka@oakgov.com">jwineka@oakgov.com</a>                                      | Clinton River                | Reduced stream bank erosion Reduced sediment transport and deposition 1,200 +/- lineal feet of restored streambank                                                                                                                                                                                      | √                                    | √                                |                            |                                                |                                        |                                                              | \$400,000      |
| <b>#126 Galloway Creek Fish Passage Restoration Project</b><br>Sponsor: Oakland University<br>Contact: Ryan Giorio <a href="mailto:giorio@oakland.edu">giorio@oakland.edu</a>                                                                                 | Clinton River                | 1,000 ft of stream restoration 65 tons/yr of sediment reduction Restore floodplain along 300 ft of tributary                                                                                                                                                                                            | √                                    | √                                |                            |                                                |                                        |                                                              | \$850,000      |
| <b>#185 Habitat Restoration through Large Woody Debris Removal-Phase 1</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour <a href="mailto:lynne.seymour@macombcountymi.gov">lynne.seymour@macombcountymi.gov</a>                     | Clinton River                | Remove an estimated 1,000 tons of LWD from the Clinton River and its tributaries. Train approximately 100 municipal workers and volunteers on the correct LWD management techniques. Restore habitat conditions for approximately 50 miles in the main, middle and north branches of the Clinton River. | √                                    |                                  |                            |                                                | √                                      | Stormwater Management, Recreation, Public education/outreach | \$500,000      |
| <b>#143 Hamilton Relief Drain Sediment Removal, Bank Stabilization and Habitat Restoration</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour <a href="mailto:lynne.seymour@macombcountymi.gov">lynne.seymour@macombcountymi.gov</a> | Clinton River                | 200 +/- feet of streambank restoration and erosion protection Sediment removal (3,000 cu yd +/-)                                                                                                                                                                                                        | √                                    |                                  |                            |                                                | √                                      |                                                              | \$500,000      |
| <b>#169 Harrington Drain Habitat Restoration</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour <a href="mailto:lynne.seymour@macombcountymi.gov">lynne.seymour@macombcountymi.gov</a>                                               | Clinton River                | Improved water quality (reduced turbidity, nutrients), Public education, riparian residents 750 tons/yr sediment reduction, 2.25 tons phosphorus reduction, 50 acres of invasive species management/native plant re-vegetation 6 miles of channel restored                                              | √                                    | √                                |                            |                                                |                                        | Public education/outreach                                    | \$2,850,000    |
| <b>#149 Harsens Island Blue-way (waterways) Phragmites Management &amp; Control</b><br>Sponsor: Clay Township Phragmites Management Advisory Board<br>Contact: Bernard Licata <a href="mailto:licata@comcast.net">licata@comcast.net</a>                      | St. Clair River , Anchor Bay | Dramatically improve over three miles of riparian waterways for recreational opportunities, and for fish                                                                                                                                                                                                | √                                    |                                  |                            |                                                | √                                      | Recreation, Public education/outreach                        | \$500,000      |

**Appendix C-2**

***Projects that are Consistent with the Management Plan Priorities***

| Projects                                                                                                                                                                                                             | Watershed                                     | Quantitative Outcomes                                                                                                                                                                                                                    | Plan Priorities Addressed by Project |                                 |                            |                                                |                                        | Other aspects of Management Plan Addressed by Project       | Estimated Cost |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------|----------------------------|------------------------------------------------|----------------------------------------|-------------------------------------------------------------|----------------|
|                                                                                                                                                                                                                      |                                               |                                                                                                                                                                                                                                          | Conserve and restore habitat         | Stormwater management/Retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhancing public use of Lake St. Clair |                                                             |                |
|                                                                                                                                                                                                                      |                                               | and wildlife habitat.                                                                                                                                                                                                                    |                                      |                                 |                            |                                                |                                        |                                                             |                |
| <b>#133 Harsens Island Conservation &amp; Recreation Area</b><br>Sponsor: Harsens Island Conservation Association Incorporated<br>Contact: Bernard Licata <a href="mailto:licata@comcast.net">licata@comcast.net</a> | St. Clair River, Anchor Bay                   | Acquisition of approximately 440 acres of unique and rare native community. This includes 50 acres of Great Lakes Marsh, 50 acres of wet-prairie, 125 acres of wet-mesic prairie, and 120 acres of wet-mesic flatwoods and oak openings. | √                                    |                                 |                            |                                                | √                                      |                                                             | \$8,000,000    |
| <b>#59 Illicit Discharge Elimination Program (IDEP)</b><br>Sponsor: Macomb County Health Department<br>Contact: Steve Lichota <a href="mailto:steve.lichota@macombcountymi.gov">steve.lichota@macombcountymi.gov</a> | Clinton River, Lake St. Clair Direct Drainage | Improvement in the water quality of surface waters and reductions in beach closures                                                                                                                                                      |                                      |                                 | √                          |                                                |                                        |                                                             | \$800,000      |
| <b>#166 Implementing Green Streets in the Lake St. Clair Watershed</b><br>Sponsor: Southeast Michigan Council of Governments<br>Contact: Amy Mangus <a href="mailto:mangus@semcog.org">mangus@semcog.org</a>         | Lake St. Clair, Anchor Bay, Clinton River     | 1000 acres of stormwater managed from roadways; 17,000 lbs of Total Suspended Solids; 100 lbs Total Phosphorus; 600 lbs Total Nitrogen                                                                                                   |                                      | √                               |                            |                                                |                                        | Bacteria reduction                                          | \$900,000      |
| <b>#215 Inwood Road / Stony Creek Storm Water Improvements</b><br>Sponsor: Huron Clinton Metroparks<br>Contact: Paul Muelle <a href="mailto:paul.muelle@metroparks.com">paul.muelle@metroparks.com</a>               | Clinton River                                 | Improved water quality of the Stony Creek, reduced storm water runoff, reduced sedimentation, improved fish and macro invertebrate habiat                                                                                                | √                                    | √                               |                            |                                                | √                                      | Pollution prevention, Recreation, Public education/outreach | \$220,000      |
| <b>#167 Lake Level Control Structures Flow Monitoring Clinton River</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <a href="mailto:jwineka@oakgov.com">jwineka@oakgov.com</a>          | Clinton River                                 | Reduce peak flow and manage low flow in the Main branch of the Clinton River                                                                                                                                                             | √                                    |                                 |                            |                                                | √                                      | Stormwater management, Habitat restoraiton                  | \$300,000      |
| <b>#189 Lake St. Clair Phragmites Management Partnership</b><br>Sponsor: Clay Township Phragmites Advisory Board<br>Contact: Chris Bilewicz <a href="mailto:cbile@yahoo.com">cbile@yahoo.com</a>                     | St. Clair River and Anchor Bay                | Restoration of 450 acres of wetlands and outreach and assistance to three neighboring communities (collectively, the four communities account for approximately 80 percent of the Phragmites around Lake St. Clair.)                     | √                                    |                                 |                            |                                                |                                        | Public education/outreach                                   | \$850,000      |
| <b>#147 Low Flow Improvements Study – Clinton River Main Subwatershed</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <a href="mailto:jwineka@oakgov.com">jwineka@oakgov.com</a>        | Clinton River Main                            | Improved Clinton River flow management, Improved aquatic habitat                                                                                                                                                                         | √                                    |                                 |                            |                                                | √                                      | Planning/assessment                                         | \$250,000      |

**Appendix C-2**

***Projects that are Consistent with the Management Plan Priorities***

| Projects                                                                                                                                                                                   | Watershed                  | Quantitative Outcomes                                                                                                                                                                                                  | Plan Priorities Addressed by Project |                                 |                            |                                                |                                        | Other aspects of Management Plan Addressed by Project       | Estimated Cost |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------|----------------------------|------------------------------------------------|----------------------------------------|-------------------------------------------------------------|----------------|
|                                                                                                                                                                                            |                            |                                                                                                                                                                                                                        | Conserve and restore habitat         | Stormwater management/Retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhancing public use of Lake St. Clair |                                                             |                |
| <b>#148 Mainland Drain Project Wetland Creation and Stream Restoration</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <i>jwineka@oakgov.com</i>              | Clinton River              | Reduced peak flow<br>Reduced stream bank erosion<br>Reduced sediment transport and deposition<br>500 +/- lineal feet of restored streambank<br>13 +/- acres of new or restored wetland habitat                         | √                                    | √                               |                            |                                                |                                        | Pollution prevention                                        | \$3,000,000    |
| <b>#210 Metro Beach Marsh Restoration Phase 3</b><br>Sponsor: Huron Clinton Metroparks<br>Contact: Paul Muelle <i>paul.muelle@metroparks.com</i>                                           | Clinton River              | 113 acres of wetland restored                                                                                                                                                                                          | √                                    |                                 |                            |                                                | √                                      | Recreation, Public education/outreach                       | \$150,000      |
| <b>#202 Metro Beach Parking Lot Reconstruction Phase 2</b><br>Sponsor: Huron Clinton Metroparks<br>Contact: Paul Muelle <i>paul.muelle@metroparks.com</i>                                  | Clinton River              | Reduction of 8 acres of impervious surface, reducing untreated storm water, improved water quality of the swimming beach (E.coli reduction), increased esthetics, increased vegetative stormwater BMPs                 | √                                    | √                               | √                          |                                                | √                                      | Pollution prevention, Recreation                            | \$3,200,000    |
| <b>#178 Mount Clemens Ice Rink Stormwater Retrofit/CSO Control</b><br>Sponsor: City of Mount Clemens<br>Contact: Chuck Bellmore <i>cbellmore@cityofmountclemens.com</i>                    | Clinton River              | Reduce the number of combined sewer overflows into the Clinton River to reduce the levels of E.coli                                                                                                                    |                                      | √                               | √                          |                                                |                                        | Pollution prevention                                        | \$160,000      |
| <b>#91 North Branch Clinton River Wetland Restoration &amp; Protection</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour <i>lynne.seymour@macombcountymi.gov</i> | North Branch Clinton River | This project will restore/enhance habitat in 40 acres of high priority wetlands along the NBCR. Restoring 40-acres represents 9% of the target wetland restoration in the watershed to achieve the delisting criteria. | √                                    | √                               |                            |                                                | √                                      | Recreation, Public education/outreach                       | \$200,000      |
| <b>#219 North Branch Flood Plain Restoration</b><br>Sponsor: Huron Clinton Metroparks<br>Contact: Paul Muelle <i>paul.muelle@metroparks.com</i>                                            | North Branch Clinton River | Habitat restoration along eight miles of floodplain.                                                                                                                                                                   | √                                    | √                               |                            |                                                | √                                      | Pollution prevention, recreation, public education/outreach | \$100,000      |
| <b>#120 Oakland University Stormwater Retrofit Project</b><br>Sponsor: Oakland University<br>Contact: Ryan Giorio <i>giorio@oakland.edu</i>                                                | Clinton River Main         | The project will daylight 1,040 ft of stream, remove a geothermal pond from the northeast basin area, establish a 0.35 acre northeast basin and a 4.5 acre Northwest pond<br>5 acres of invasive species               | √                                    |                                 |                            |                                                |                                        |                                                             | \$3,750,000    |

**Appendix C-2**

***Projects that are Consistent with the Management Plan Priorities***

| Projects                                                                                                                                                                                                                 | Watershed       | Quantitative Outcomes                                                                                                                                                                                                                     | Plan Priorities Addressed by Project |                                 |                            |                                                |                                        | Other aspects of Management Plan Addressed by Project       | Estimated Cost |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------|----------------------------|------------------------------------------------|----------------------------------------|-------------------------------------------------------------|----------------|
|                                                                                                                                                                                                                          |                 |                                                                                                                                                                                                                                           | Conserve and restore habitat         | Stormwater management/Retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhancing public use of Lake St. Clair |                                                             |                |
|                                                                                                                                                                                                                          |                 | control, 1 acre of riparian native vegetation restored, 280 lb of phosphorus removal per year, channel protection (extended detention) will allow for over 1 mile of Galloway Creek to eventually be restored                             |                                      |                                 |                            |                                                |                                        |                                                             |                |
| <b>#229 Off-line Wetland Treatment System for Pelton Creek Drain</b><br>Sponsor: St. Clair County Drain Office<br>Contact: Bob Wiley <a href="mailto:rwiley@stclaircounty.org">rwiley@stclaircounty.org</a>              | Anchor Bay      | Restoration and creation of 11 acres of riparian wetland habitat to reduce stormwater volumes and filter sediment and nutrients.                                                                                                          | √                                    | √                               |                            |                                                | √                                      | Pollution prevention, Recreation, Public education/outreach | \$700,000      |
| <b>#154 Otter Drain Sediment Removal, Bank Stabilization and Habitat Restoration</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <a href="mailto:jwineka@oakgov.com">jwineka@oakgov.com</a> | Clinton River   | Reduced stream bank erosion Reduced sediment transport and deposition 2000 +/- lineal feet of restored streambank Minor wetland enhancement (5 acres +/-)                                                                                 | √                                    | √                               |                            |                                                |                                        |                                                             | \$600,000      |
| <b>#186 Paint Creek Fish Passage Restoration Project</b><br>Sponsor: City of Rochester<br>Contact: Jaymes Vettrano <a href="mailto:jvettrano@ci.rochester.mi.us">jvettrano@ci.rochester.mi.us</a>                        | Clinton River   | 15 miles of aquatic organism passage (AOP) restored 5,000 linear feet of stream channel restored/enhanced 300 feet of slope failure stabilized 2 fish passage barriers restored                                                           | √                                    |                                 |                            |                                                |                                        |                                                             | \$1,895,000    |
| <b>#177 Partridge Creek Commons Habitat Restoration</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour <a href="mailto:lynne.seymour@macombcountymi.gov">lynne.seymour@macombcountymi.gov</a>   | Clinton River   | 52 acres of habitat restored invasive species removal/native plantings 5,500 lineal feet of multi-staged open channel restoration 5 acres of wetland restored Interpretive signage and trail system for mall visitors and local residents | √                                    | √                               |                            |                                                | √                                      | Recreation, Public education/outreach                       | \$4,975,000    |
| <b>#234 Phase I -- Upper St. Clair River Habitat Restoration</b><br>Sponsor: St. Clair County Community Foundation<br>Contact: Randy Maier <a href="mailto:randy@stclairfoundation.org">randy@stclairfoundation.org</a>  | St. Clair River | Restoration of approximately five acres of land along the St. Clair River, comprising 0.8 of a mile of shoreline as well as shallow and deep water                                                                                        | √                                    | √                               |                            |                                                | √                                      | Pollution prevention, Recreation, Public education/outreach | \$1,720,000    |

**Appendix C-2**

***Projects that are Consistent with the Management Plan Priorities***

| Projects                                                                                                                                                                                              | Watershed                                  | Quantitative Outcomes                                                                                                                                                                                                                                                                                                                            | Plan Priorities Addressed by Project |                                 |                            |                                                |                                        | Other aspects of Management Plan Addressed by Project | Estimated Cost |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------|----------------------------|------------------------------------------------|----------------------------------------|-------------------------------------------------------|----------------|
|                                                                                                                                                                                                       |                                            |                                                                                                                                                                                                                                                                                                                                                  | Conserve and restore habitat         | Stormwater management/Retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhancing public use of Lake St. Clair |                                                       |                |
|                                                                                                                                                                                                       |                                            | fish habitat.                                                                                                                                                                                                                                                                                                                                    |                                      |                                 |                            |                                                |                                        |                                                       |                |
| <b>#192 Phragmites control through biofuel production</b><br>Sponsor: Oakland University<br>Contact: David Newlin <i>newlin@oakland.edu</i>                                                           | Lake St. Clair, Clinton River              | Phragmites removal in select wetland areas of the Clinton River watershed. Feasibility study for scaling-up biofuel production. Peer-review publications. Alternative to Phragmites control via glyphosate or other toxic chemical use.                                                                                                          | √                                    |                                 |                            | √                                              |                                        | Pollution prevention, Toxics                          | \$50,000       |
| <b>#235 Professional Training in Aquatic Habitat Restoration Techniques</b><br>Sponsor: Michigan Sea Grant<br>Contact: Jennifer Read <i>jenread@umich.edu</i>                                         | Lake St. Clair, St. Clair River Watersheds | Develop three training modules, including written and web materials, illustrations and slides about: constructed fish spawning reefs, nearshore and wetland habitat enhancements, and soft shoreline engineering. A new course would train at least 20 professionals, providing 30 hours of direct instruction and continuing education credits. | √                                    |                                 |                            | √                                              |                                        | Planning/assessment                                   | \$150,000      |
| <b>#159 Red Run Drain Sediment Removal</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <i>jwineka@oakgov.com</i>                                                         | Clinton River                              | 5,000 cubic yards of sediment will be removed from the drain, eliminating its eventual transport and deposition in the Clinton River and Lake St. Clair.                                                                                                                                                                                         | √                                    |                                 |                            |                                                |                                        | Pollution prevention                                  | \$350,000      |
| <b>#161 Red Run Drain Stream Bank Stabilization</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <i>jwineka@oakgov.com</i>                                                | Clinton River                              | 3,000 lineal feet of streambank will be restored and prevented from further erosion. This will eliminate significant sediment deposition in the Clinton River and Lake St. Clair                                                                                                                                                                 | √                                    |                                 |                            |                                                |                                        | Stormwater management, Pollution prevention           | \$500,000      |
| <b>#141 Restoration &amp; Improvements to Harsen's Island Conservation Area</b><br>Sponsor: Harsens Island Conservation Association Incorporated<br>Contact: Bernard Licata <i>licata@comcast.net</i> | St. Clair River/Anchor Bay                 | Restoration of 440 acres possessing rare native communities hiking trails and waterways, for use by over four million people in Southeast Michigan.                                                                                                                                                                                              | √                                    |                                 |                            |                                                | √                                      |                                                       | \$1,000,000    |

**Appendix C-2**

***Projects that are Consistent with the Management Plan Priorities***

| Projects                                                                                                                                                                           | Watershed                      | Quantitative Outcomes                                                                                                                                                                                                                                                                                                                            | Plan Priorities Addressed by Project |                                  |                            |                                                |                                        | Other aspects of Management Plan Addressed by Project      | Estimated Cost |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------|----------------------------|------------------------------------------------|----------------------------------------|------------------------------------------------------------|----------------|
|                                                                                                                                                                                    |                                |                                                                                                                                                                                                                                                                                                                                                  | Conserve and restore habitat         | Stormwater management/ Retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhancing public use of Lake St. Clair |                                                            |                |
| <b>#236 Restoration of Chesterfield Island Park</b><br>Sponsor: Macomb County Planning and Economic Development<br>Contact: Gerry Santoro <i>gerard.santoro@macombcountymi.gov</i> | Lake St. Clair Direct Drainage | Restoration of 2.18 acres of urban habitat for aquatic and terrestrial wildlife                                                                                                                                                                                                                                                                  | √                                    |                                  |                            |                                                | √                                      | Public education/outreach                                  | \$150,000      |
| <b>#96 Restoration of Fish Spawning Habitat in the St. Clair River</b><br>Sponsor: Michigan Sea Grant<br>Contact: Jennifer Read <i>jenread@umich.edu</i>                           | St. Clair River                | This project will restore 1.5 acres of fish spawning habitat and remediate the loss of this habitat due to shipping channel construction. The constructed habitat will improve the reproductive success of sturgeon, walleye and lake whitefish                                                                                                  | √                                    |                                  |                            |                                                |                                        |                                                            | 1,400,000      |
| <b>#232 Restoration of the Marine City Drain</b><br>Sponsor: St. Clair County Drain Office<br>Contact: Bob Wiley <i>rwiley@stclaircounty.org</i>                                   | St. Clair River                | Address habitat fragmentation, Remove six miles of barriers to fish passage such as sediment blockages and debris dams, Control invasive species on three miles of stream corridor, Restore six miles fo riparian and in-stream habitat through plantings.                                                                                       | √                                    | √                                |                            |                                                | √                                      | Pollution prevention, Recreation, Public education/outrech | 1,500,000      |
| <b>#79 Restoring Fish Passage in the Red Run Headwaters</b><br>Sponsor: City of Troy<br>Contact: Steve Vandette <i>vandettesj@troymi.gov</i>                                       | Clinton River                  | Over 1,400 feet of stream channel will be restored. The Project will reconnect 1.7 miles of headwater tributaries in low density residential areas to 1.5 miles of the lower Lane Drain. Approximately 0.75 acres of riparian wet meadow will be created. Over 3 acres of riparian native buffer re-vegetation/no mow areas will be established. | √                                    | √                                |                            |                                                |                                        | Public education/outreach                                  | 2,112,000      |
| <b>#107 Road Salt Impact on Clinton River AOC</b><br>Sponsor: Oakland University<br>Contact: David Newlin <i>newlin@oakland.edu</i>                                                | Clinton River                  | Physical, mineralogical and biogeochemical characterization of a salt-laden watershed. Quantification of inorganic element and PCB fluxes in the system. Assessment of the toxicity due to salt                                                                                                                                                  |                                      |                                  |                            | √                                              |                                        | Pollution prevention, Toxics                               | \$55,000       |

**Appendix C-2**

***Projects that are Consistent with the Management Plan Priorities***

| Projects                                                                                                                                                                                                          | Watershed                      | Quantitative Outcomes                                                                                                                                                                                                                                                                                                            | Plan Priorities Addressed by Project |                                 |                            |                                                |                                        | Other aspects of Management Plan Addressed by Project | Estimated Cost |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------|----------------------------|------------------------------------------------|----------------------------------------|-------------------------------------------------------|----------------|
|                                                                                                                                                                                                                   |                                |                                                                                                                                                                                                                                                                                                                                  | Conserve and restore habitat         | Stormwater management/Retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhancing public use of Lake St. Clair |                                                       |                |
|                                                                                                                                                                                                                   |                                | input. Determination of the mechanisms occurring in a salt-laden environment.                                                                                                                                                                                                                                                    |                                      |                                 |                            |                                                |                                        |                                                       |                |
| <b>#157 Roseville Clinton Harrison Relief Drain Water Quality and Habitat Improvement Project</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour <i>lynne.seymour@macombcountymi.gov</i> | Clinton River                  | 500 tons/yr sediment reduction<br>2 tons phosphorus reduction<br>50 acres of invasive species management/native plant re-vegetation<br>2 miles of channel restored.                                                                                                                                                              | √                                    |                                 | √                          |                                                |                                        | Pollution prevention, Public education/outreach       | \$1,680,000    |
| <b>#65 Safeguarding Our Drinking Water Real Time Monitoring</b><br>Sponsor: Macomb County Health Department<br>Contact: Steve Lichota <i>steve.lichota@macombcountymi.gov</i>                                     | St. Clair River/Lake St. Clair | Ongoing Sentinel Program For Safeguarding Region's Drinking Water Supply                                                                                                                                                                                                                                                         |                                      |                                 |                            | √                                              |                                        | Pollution prevention, Planning/assessment             | \$2,500,000    |
| <b>#163 Sinking Bridge Drain Wetland Enhancement</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <i>jwineka@oakgov.com</i>                                                           | Clinton River                  | 170 +/- acres of new or restored wetland habitat<br>Reduction in nutrient inputs (source reduction and/or loadings)<br>Reduction in sediment inputs (source reduction and/or loadings).<br>Reduction in concentrations of soluble reactive phosphorus<br>Potential reduction in the number of incidences of harmful algal blooms | √                                    | √                               |                            |                                                |                                        | Recreation                                            | \$2,000,000    |
| <b>#55 St. Clair River Shoreline Restoration Phase 2</b><br>Sponsor: City of Marysville<br>Contact: G. Jason Hami <i>jhami@cityofmarysvillemi.org</i>                                                             | St. Clair River                | Reconnect 1500 ft of Cuttle Creek to St. Clair River, add woody habitat, create 2 fishing areas with educational signs, raise Cuttle Creek water quality ranking to good                                                                                                                                                         | √                                    |                                 | √                          |                                                | √                                      | Recreation, Public education/outreach                 | \$2,500,000    |
| <b>#207 St. Clair Shores Floating Vegetation Remedial Implementation</b><br>Sponsor: City of St. Clair Shores<br>Contact: Bryan Babcock, PE <i>babcockb@scsmi.net</i>                                             | Lake St. Clair Direct Drainage | Removal/reduction of bacteria harboring material from shoreline<br>Improved shoreline aesthetics<br>Reduced beach closings<br>Improved Lake St. Clair access for residents                                                                                                                                                       |                                      |                                 | √                          |                                                | √                                      | Pollution prevention                                  | \$2,000,000    |
| <b>#206 St. Clair Shores Floating Vegetation Study/Design</b><br>Sponsor: City of St. Clair Shores<br>Contact: Bryan Babcock, PE <i>babcockb@scsmi.net</i>                                                        | Lake St. Clair Direct Drainage | Removal/reduction of bacteria harboring material from shoreline<br>Reduce number of beach closings<br>Improved shoreline                                                                                                                                                                                                         |                                      |                                 | √                          |                                                | √                                      | Pollution prevention, Planning/assessment             | \$200,000      |

**Appendix C-2**

***Projects that are Consistent with the Management Plan Priorities***

| Projects                                                                                                                                                                                                    | Watershed       | Quantitative Outcomes                                                                                                                                                                                                                                                                                                                                                                                                                                                | Plan Priorities Addressed by Project |                                  |                            |                                                |                                        | Other aspects of Management Plan Addressed by Project | Estimated Cost |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------|----------------------------|------------------------------------------------|----------------------------------------|-------------------------------------------------------|----------------|
|                                                                                                                                                                                                             |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Conserve and restore habitat         | Stormwater management/ Retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhancing public use of Lake St. Clair |                                                       |                |
|                                                                                                                                                                                                             |                 | aesthetics Improved Lake St. Clair access for residents                                                                                                                                                                                                                                                                                                                                                                                                              | Clair Watershed                      |                                  |                            |                                                |                                        |                                                       |                |
| <b>#94 Sterling Relief Drain Habitat Restoration</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour <i>lynne.seymour@macombcountymi.gov</i>                                        | Clinton River   | Daylight 2,000 feet of enclosed storm drain, remove a perched outfall directly connected to the Red Run Drain, restore approximately 5 miles of drain connectivity, create 2.5 acres of riparian floodplain habitat, create over 10,000 square feet of spawning habitat. Develop a long-term native vegetation management plan to control invasives and establish native plant buffers, and enhance recreation through pedestrian trailways and river accessibility. | √                                    | √                                |                            |                                                | √                                      | Public education/outreach                             | \$1,500,000    |
| <b>#217 Stony Creek Floodplain Habitat Restoration/ Invasive Species Removal</b><br>Sponsor: Huron Clinton Metroparks<br>Contact: Paul Muelle <i>paul.muelle@metroparks.com</i>                             | Clinton River   | Conserve, restore and protect wildlife habitat within the Stoney Creek Floodplain forest by removal of invasive species                                                                                                                                                                                                                                                                                                                                              | √                                    |                                  |                            |                                                |                                        | Recreation                                            | \$25,000       |
| <b>#164 Update of Oakland County Design Standards for Stormwater</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <i>jwineka@oakgov.com</i>                                     | Clinton River   | Reduction in nutrient inputs (source reduction and/or loadings) Reduction in sediment inputs (source reduction and/or loadings). Reduction in concentrations of soluble reactive phosphorus Potential reduction in the number of incidences of harmful algal blooms                                                                                                                                                                                                  |                                      | √                                |                            |                                                |                                        | Public education/outreach, Planning/assessment        | \$200,000      |
| <b>#233 Updating Lake Huron Direct and St. Clair River Direct Watersheds Management Plans</b><br>Sponsor: St. Clair County Health Department<br>Contact: Kristen O'Reilly <i>koreilly@stclaircounty.org</i> | St. Clair River | Two watershed management plans for improved funding opportunities that meet 319 requirements, and provide descriptions of projects that will reduce E-coli                                                                                                                                                                                                                                                                                                           | √                                    | √                                | √                          |                                                | √                                      | Planning/assessment                                   | \$300,000      |

**Appendix C-2**

***Projects that are Consistent with the Management Plan Priorities***

| Projects                                                                                                                                                                                             | Watershed     | Quantitative Outcomes                                                                                                                                                                                                                                                                                                                               | Plan Priorities Addressed by Project    |                                  |                            |                                                |                                        | Other aspects of Management Plan Addressed by Project                | Estimated Cost |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------------------------|----------------------------|------------------------------------------------|----------------------------------------|----------------------------------------------------------------------|----------------|
|                                                                                                                                                                                                      |               |                                                                                                                                                                                                                                                                                                                                                     | Conserve and restore habitat            | Stormwater management/ Retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhancing public use of Lake St. Clair |                                                                      |                |
|                                                                                                                                                                                                      |               | sources at impaired beaches, restore fish spawning habitat and identify stormwater retrofit opportunities                                                                                                                                                                                                                                           |                                         |                                  |                            |                                                |                                        |                                                                      |                |
| <b>#145 Village of Leonard Sewage Disposal Alternative Evaluation</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <i>jwineka@oakgov.com</i>                             | Clinton River | Reduced bacterial contamination to the Clinton River and Lake St. Clair                                                                                                                                                                                                                                                                             | Identify and reduce sources of bacteria |                                  | √                          |                                                |                                        | Pollution prevention, Planning/assessment                            | \$100,000      |
| <b>#220 Water Quality Assessment of the North Branch of the Clinton River, Wolcott Mill Metropark</b><br>Sponsor: Huron Clinton Metroparks<br>Contact: Paul Muelle <i>paul.muelle@metroparks.com</i> | Clinton River | To assess the impacts of land uses within Wolcott Mill Metropark on water quality of the North Branch of the Clinton River and make land management recommendations for improvements                                                                                                                                                                | Identify and reduce sources of bacteria |                                  | √                          |                                                |                                        | Pollution prevention, Public education/outreach, Planning/assessment | \$40,000       |
| <b>#218 Wolcott Mill dam removal and shoreline stabilization</b><br>Sponsor: Huron Clinton Metroparks<br>Contact: Paul Muelle <i>paul.muelle@metroparks.com</i>                                      | Clinton River | Dam removal, reduced erosion and sedimentation, habitat improvement, recreation improvement                                                                                                                                                                                                                                                         | √                                       | √                                |                            |                                                | √                                      |                                                                      | \$125,000      |
| <b>#199 Yates Roadside Park fish habitat restoration and angler access</b><br>Sponsor: City of Rochester Hills<br>Contact: Roger Moore <i>moorer@rochesterhills.org</i>                              | Clinton River | Restoration of river channel through addition of riffles, scour pools, glides, woody material, undercut banks will benefit trout , including steelhead and non game fish, Re-vegetate banks with erosion control blankets and riparian plantings/seed to reduce sediment loadings by 25 tons/yr to improve habitat for fish and macroinvertebrates. | √                                       |                                  |                            |                                                | √                                      | Public education/outreach                                            | \$250,000      |

**Appendix C-3**  
***Eligible Projects in Ranking Order for Corps Ecosystem  
Restoration Assistance***

This is the Partnership’s prioritization and ranking of the projects listed in appendix C-2. Projects listed here are eligible for funding under the Corps Ecosystem Restoration Authorities – primarily Section 206 Aquatic Ecosystem Restoration and Section 506 Great Lakes Fishery and Ecosystem Restoration. Section 206 projects would be eligible for Corps assistance as identified in the Implementation Guidance for Section 3089 of WRDA 2007. Projects listed under this category will be ranked and listed in priority order. See Appendix C-3.

**Appendix C-3**

***Eligible Projects in Ranking Order for Corps Ecosystem Restoration Assistance***

| Ranking | Projects                                                                                                                                                                                                                                                            | Watershed       | Quantitative Outcomes                                                                                                                                                                                                                                      | Management Plan Priorities Addressed |                                  |                            |                                                |                                      | Other Aspects of Management Plan Addressed by Project                              | Estimated Cost |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------|----------------------------|------------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------|----------------|
|         |                                                                                                                                                                                                                                                                     |                 |                                                                                                                                                                                                                                                            | Conserve and restore habitat         | Stormwater management/ retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhance public use of Lake St. Clair |                                                                                    |                |
| 1       | <b>#234 Phase I -- Upper St. Clair River Habitat Restoration</b><br>Sponsor: St. Clair County Community Foundation<br>Contact: Randy Maier <a href="mailto:randy@stclairfoundation.org">randy@stclairfoundation.org</a>                                             | St. Clair River | Restoration of approximately five acres of land along the St. Clair River, comprising 0.8 of a mile of shoreline as well as shallow and deep water fish habitat.                                                                                           | √                                    | √                                |                            |                                                | √                                    | Stormwater management, Pollution prevention, Recreation, Public education/outreach | \$1,720,000    |
| 2       | <b>#55 St. Clair River Shoreline Restoration Phase 2</b><br>Sponsor: City of Marysville<br>Contact: G. Jason Hami <a href="mailto:jhami@cityofmarysvillemi.org">jhami@cityofmarysvillemi.org</a>                                                                    | St. Clair River | Reconnect 1500 ft of Cuttle Creek to St. Clair River, add woody habitat, create 2 fishing areas with educational signs, raise Cuttle Creek water quality ranking to good                                                                                   | √                                    |                                  | √                          |                                                | √                                    | Bacteria reduction<br>Recreation, Public education/outreach                        | \$2,500,000    |
| 3       | <b>#157 Roseville Clinton Harrison Relief Drain Water Quality and Habitat Improvement Project</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour<br><a href="mailto:lynne.seymour@macombcountymi.gov">lynne.seymour@macombcountymi.gov</a> | Clinton River   | 500 tons/yr sediment reduction 2 tons phosphorus reduction 50 acres of invasive species management/native plant re-vegetation 2 miles of channel restored.                                                                                                 | √                                    |                                  | √                          |                                                |                                      | Stormwater management, Pollution prevention, Public education/outreach             | \$1,680,000    |
| 4       | <b>#232 Restoration of the Marine City Drain</b><br>Sponsor: St. Clair County Drain Office<br>Contact: Bob Wiley <a href="mailto:rwiley@stclaircounty.org">rwiley@stclaircounty.org</a>                                                                             | St. Clair River | Address habitat fragmentation, remove six miles of barriers to fish passage such as sediment blockages and debris dams, Control invasive species on three miles of stream corridor, Restore six miles of riparian and in-stream habitat through plantings. | √                                    | √                                |                            |                                                | √                                    | Stormwater management, Pollution prevention, Recreation, Public education/outreach | 1,500,000      |
| 5       | <b>#229 Off-line Wetland Treatment System for Pelton Creek Drain</b><br>Sponsor: St. Clair County Drain Office<br>Contact: Bob Wiley <a href="mailto:rwiley@stclaircounty.org">rwiley@stclaircounty.org</a>                                                         | Anchor Bay      | Restoration and creation of 11 acres of riparian wetland habitat to reduce stormwater volumes and filter sediment and nutrients.                                                                                                                           | √                                    | √                                |                            |                                                | √                                    | Bacteria reduction, Pollution prevention, Recreation, Public education/outreach    | \$700,000      |
| 6       | <b>#177 Partridge Creek Commons Habitat Restoration</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour<br><a href="mailto:lynne.seymour@macombcountymi.gov">lynne.seymour@macombcountymi.gov</a>                                           | Clinton River   | 52 acres of habitat restored invasive species removal/native plantings 5,500 lineal feet of multi-staged open channel                                                                                                                                      | √                                    | √                                |                            |                                                | √                                    | Stormwater management, Recreation, Public                                          | \$4,975,000    |

Appendix C-3

Eligible Projects in Ranking Order for Corps Ecosystem Restoration Assistance

| Ranking | Projects                                                                                                                                                                                   | Watershed                      | Quantitative Outcomes                                                                                                                                                                                                                                                                                                                                                                                | Management Plan Priorities Addressed |                                  |                            |                                                |                                      | Other Aspects of Management Plan Addressed by Project | Estimated Cost |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------|----------------------------|------------------------------------------------|--------------------------------------|-------------------------------------------------------|----------------|
|         |                                                                                                                                                                                            |                                |                                                                                                                                                                                                                                                                                                                                                                                                      | Conserve and restore habitat         | Stormwater management/ retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhance public use of Lake St. Clair |                                                       |                |
|         |                                                                                                                                                                                            |                                | restoration 5 acres of wetland restored<br>Interpretive signage and trail system for mall visitors and local residents                                                                                                                                                                                                                                                                               |                                      |                                  |                            |                                                |                                      | education/outreach                                    |                |
| 7       | <b>#231 Cottrellville Township St. Clair River Shoreline Restoration</b><br>Sponsor: Cottrellville Township<br>Contact: Tom Raymand <i>griz54@att.net</i>                                  | St. Clair River                | Restoration of 200 feet of St. Clair River shoreline with soft engineering and natural shallow-water habitat; management of approximately 1 acre of invasive Phragmites; New public access to the St. Clair River for fishing, boating, birdwatching and other recreation.                                                                                                                           | √                                    |                                  |                            |                                                | √                                    |                                                       | \$975,000      |
| 8       | <b>#148 Mainland Drain Project Wetland Creation and Stream Restoration</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <i>jwineka@oakgov.com</i>              | Clinton River                  | Reduce peak flow, Reduce stream bank erosion, Reduce sediment transport and deposition, 500 +/- lineal feet of restored streambank 13 +/- acres of new or restored wetland habitat                                                                                                                                                                                                                   | √                                    | √                                |                            |                                                |                                      | Stormwater management, Pollution prevention           | \$3,000,000    |
| 9       | <b>#125 Meldrum Drain Fish and Wildlife Habitat Restoration Project</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour<br><i>lynne.seymour@macombcountymi.gov</i> | Lake St. Clair Direct Drainage | Develop fish and wildlife habitat restoration on 3,175 feet of the lower Meldrum Drain – a tributary to Anchor Bay in the northwest of Lake St. Clair. Natural stream meanders, pools, cover, and substrate enhancements will provide spawning habitat for fish and amphibians. Four acres of invasive species control/native re-vegetation and riparian floodplain restoration will be constructed. | √                                    |                                  |                            |                                                |                                      |                                                       | \$500,000      |
| 10      | <b>#79 Restoring Fish Passage in the Red Run Headwaters</b><br>Sponsor: City of Troy<br>Contact: Steve Vandette <i>vandettesj@troymi.gov</i>                                               | Clinton River                  | Over 1,400 feet of stream channel will be restored. The Project will reconnect 1.7 miles of headwater tributaries in low density residential areas to 1.5                                                                                                                                                                                                                                            | √                                    | √                                |                            |                                                |                                      | Stormwater management, Public education/outreach      | \$2,112,000    |

Appendix C-3

*Eligible Projects in Ranking Order for Corps Ecosystem Restoration Assistance*

| Ranking | Projects                                                                                                                                                                | Watershed     | Quantitative Outcomes                                                                                                                                                                                                                                                                                                                                                                                                                                                | Management Plan Priorities Addressed |                                  |                            |                                                |                                      | Other Aspects of Management Plan Addressed by Project        | Estimated Cost |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------|----------------------------|------------------------------------------------|--------------------------------------|--------------------------------------------------------------|----------------|
|         |                                                                                                                                                                         |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Conserve and restore habitat         | Stormwater management/ retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhance public use of Lake St. Clair |                                                              |                |
|         |                                                                                                                                                                         |               | miles of the lower Lane Drain. Approximately 0.75 acres of riparian wet meadow will be created. Over 3 acres of riparian native buffer re-vegetation/no mow areas will be established.                                                                                                                                                                                                                                                                               |                                      |                                  |                            |                                                |                                      |                                                              |                |
| 11      | <b>#94 Sterling Relief Drain Habitat Restoration</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour<br><i>lynne.seymour@macombcountymi.gov</i> | Clinton River | Daylight 2,000 feet of enclosed storm drain, remove a perched outfall directly connected to the Red Run Drain, restore approximately 5 miles of drain connectivity, create 2.5 acres of riparian floodplain habitat, create over 10,000 square feet of spawning habitat. Develop a long-term native vegetation management plan to control invasives and establish native plant buffers, and enhance recreation through pedestrian trailways and river accessibility. | √                                    | √                                |                            |                                                | √                                    | Stormwater management, Recreation, Public education/outreach | \$1,500,000    |
| 12      | <b>#187 Clinton River Fish Habitat Restoration Project</b><br>Sponsor: City of Rochester Hills<br>Contact: Roger Moore <i>moorer@rochesterhills.org</i>                 | Clinton River | Restoration of 3,500 feet of Clinton River channel including addition of spawning gravel/cobble riffles, deep scour pools, mainstem holding water, off-channel overwintering pond, cover, vegetated riparian zones, restoration of fish passage to 1,350 feet of a headwater stream, reduction in sediment by 300 tons/year                                                                                                                                          | √                                    |                                  |                            |                                                |                                      | Recreation, Public education/outreach                        | \$1,600,000    |
| 13      | <b>#169 Harrington Drain Habitat Restoration</b><br>Sponsor: Macomb County Public Works Office<br>Contact: Lynne Seymour<br><i>lynne.seymour@macombcountymi.gov</i>     | Clinton River | Improved water quality (reduced turbidity, nutrients), Public education, riparian residents 750 tons/yr sediment reduction, 2.25 tons phosphorus reduction,                                                                                                                                                                                                                                                                                                          | √                                    | √                                |                            |                                                |                                      | Stormwater management, Public education/outreach             | \$2,850,000    |

Appendix C-3

Eligible Projects in Ranking Order for Corps Ecosystem Restoration Assistance

| Ranking | Projects                                                                                                                                                 | Watershed          | Quantitative Outcomes                                                                                                                                                                                                                                                                                                         | Management Plan Priorities Addressed |                                  |                            |                                                |                                      | Other Aspects of Management Plan Addressed by Project | Estimated Cost |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------|----------------------------|------------------------------------------------|--------------------------------------|-------------------------------------------------------|----------------|
|         |                                                                                                                                                          |                    |                                                                                                                                                                                                                                                                                                                               | Conserve and restore habitat         | Stormwater management/ retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhance public use of Lake St. Clair |                                                       |                |
|         |                                                                                                                                                          |                    | 50 acres of invasive species management/native plant re-vegetation 6 miles of channel restored                                                                                                                                                                                                                                |                                      |                                  |                            |                                                |                                      |                                                       |                |
| 14      | <b>#96 Restoration of Fish Spawning Habitat in the St. Clair River</b><br>Sponsor: Michigan Sea Grant<br>Contact: Jennifer Read <i>jenread@umich.edu</i> | St. Clair River    | This project will restore 1.5 acres of fish spawning habitat and remediate the loss of this habitat due to shipping channel construction. The constructed habitat will improve the reproductive success of sturgeon, walleye and lake whitefish                                                                               | √                                    |                                  |                            |                                                |                                      |                                                       | \$1,400,000    |
| 15      | <b>#163 Sinking Bridge Drain Wetland Enhancement</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <i>jwineka@oakgov.com</i>  | Clinton River      | 170 +/- acres of new or restored wetland habitat<br>Reduction in nutrient inputs (source reduction and/or loadings) Reduction in sediment inputs (source reduction and/or loadings).<br>Reduction in concentrations of soluble reactive phosphorus<br>Potential reduction in the number of incidences of harmful algal blooms | √                                    | √                                |                            |                                                |                                      | Stormwater management, Recreation                     | \$2,000,000    |
| 16      | <b>#186 Paint Creek Fish Passage Restoration Project</b><br>Sponsor: City of Rochester<br>Contact: Jaymes Vettraino <i>jvettraino@ci.rochester.mi.us</i> | Clinton River      | 15 miles of aquatic organism passage (AOP) restored 5,000 linear feet of stream channel restored/enhanced 300 feet of slope failure stabilized 2 fish passage barriers restored                                                                                                                                               | √                                    |                                  |                            |                                                |                                      |                                                       | \$1,895,000    |
| 17      | <b>#120 Oakland University Stormwater Retrofit Project</b><br>Sponsor: Oakland University<br>Contact: Ryan Giorio <i>giorio@oakland.edu</i>              | Clinton River Main | The project will daylight 1,040 ft of stream, remove a geothermal pond from the northeast basin area, establish a 0.35 acre northeast basin and a 4.5 acre Northwest pond 5 acres of invasive species control, 1 acre of riparian native vegetation restored, 280 lb of phosphorus removal per year, channel                  | √                                    |                                  |                            |                                                |                                      |                                                       | \$3,750,000    |

**Appendix C-3**

***Eligible Projects in Ranking Order for Corps Ecosystem Restoration Assistance***

| Ranking | Projects                                                                                                                                     | Watershed     | Quantitative Outcomes                                                                                              | Management Plan Priorities Addressed |                                  |                            |                                                |                                      | Other Aspects of Management Plan Addressed by Project | Estimated Cost |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------|----------------------------|------------------------------------------------|--------------------------------------|-------------------------------------------------------|----------------|
|         |                                                                                                                                              |               |                                                                                                                    | Conserve and restore habitat         | Stormwater management/ retrofits | Reduce sources of bacteria | Use of technology in protecting Lake St. Clair | Enhance public use of Lake St. Clair |                                                       |                |
|         |                                                                                                                                              |               | protection (extended detention) will allow for over 1 mile of Galloway Creek to eventually be restored             |                                      |                                  |                            |                                                |                                      |                                                       |                |
| 18      | <b>#126 Galloway Creek Fish Passage Restoration Project</b><br>Sponsor: Oakland University<br>Contact: Ryan Giorio <i>giorio@oakland.edu</i> | Clinton River | 1,000 ft of stream restoration<br>65 tons/yr of sediment reduction<br>Restore floodplain along 300 ft of tributary | √                                    | √                                |                            |                                                |                                      |                                                       | \$850,000      |

**Appendix C-4**  
***Other St. Clair River and Lake St. Clair Projects***

Other Lake St. Clair/St. Clair River initiatives: Projects that do not directly pertain to the Corps mission are listed in alphabetical order under this category along with pertinent information about the projects that will assist funding agencies in the selection process. The Corps could participate in these projects, but they would likely be led or directed by others. Funding for these projects will be sought through mechanisms such as the USEPA or another Federal state or local agency

| <b>Appendix C-4</b>                                                                                                                                                          |                  |                                                                                                                                                                       |                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| <b><i>Other St. Clair River and Lake St. Clair Projects</i></b>                                                                                                              |                  |                                                                                                                                                                       |                       |
| <b>Projects</b>                                                                                                                                                              | <b>Watershed</b> | <b>Quantitative Outcomes</b>                                                                                                                                          | <b>Estimated Cost</b> |
| <b>#60 Sterling Heights Household Hazardous Waste Outreach</b><br>Sponsor: Macomb County Health Department<br>Contact: Steve Lichota <i>steve.lichota@macombcountymi.gov</i> | Clinton River    | 10.5 tons of household hazardous waste removed from the solid waste stream per year                                                                                   | \$ 625,000            |
| <b>#162 Red Run Drain Contaminated Sediment Removal</b><br>Sponsor: Oakland County Water Resources Office<br>Contact: Jim Wineka <i>jwineka@oakgov.com</i>                   | Clinton River    | Approximately 16,700 cubic yards of contaminated sediment will be removed from the drain. This will eliminate its deposition in the Clinton River and Lake St. Clair. | \$2,000,000           |