Project Title:
Restoring a Natural Flow Regime in the Clinton River Watershed: Analysis of Hydrologic Models and Physical Habitat to Support Riverine Habitat Simulation Models, Exploration of Management Options and Neutral Convening of Watershed Stakeholders

Principal Investigator:
Colleen Masterson
Education Coordinator
Great Lakes Water Studies Institute
Northwestern Michigan College

Telephone: 231-995-1722
Fax: 231-995-1794

1701 East Front Street
Traverse City, MI 49686

e-mail: cmasterson@nmc.edu

Co-Investigators:
Dennis McCauley, Great Lakes Environmental Center (GLEC), Traverse City, MI
Richard L. Voigt, Jr., P.E., Voigt Consultants, LLC, St. Paul, MN
Pre-proposal Summary

Problem/Issue Statement: Interrupted flows and varying water levels in the Clinton River watershed have resulted in the degradation of critical aquatic habitats in downstream channels. An integrated assessment would provide the necessary information to consider the restoration of a more natural flow regime, and would allow independent scientific input to drive decision-making and management actions.

Background: The Upper Clinton and Clinton Main Subwatersheds of the Clinton River Watershed contain 21 separate impoundment lakes, most of which have a court-authorized level set independently of the other lakes in the system. This has led to suddenly varying water levels in the Clinton River as water is retained or released to maintain levels behind control structures. These abrupt changes in water level impact fish and wildlife habitats and the species that rely upon them, as well as recreational opportunities. Restoring a more natural flow regime could help ameliorate the negative impacts generated by large and sudden fluctuations. Affected communities include: City of Rochester, City of Rochester Hills, City of Auburn Hills, City of Pontiac, City of Sylvan Lake, City of Keego Harbor, City of Orchard Lake Village, Charter Township of Waterford, Charter Township of West Bloomfield, City of Lake Angelus, Charter Township of Independence, City of the Village of Clarkston, and Charter Township of Springfield.

Objectives:
1. Convene policy makers, scientists, concerned citizens and other stakeholders.
2. Review existing hydrologic flow models to determine if they are suitable for use in this study, and determine if sufficient data exists to support a Riverine Habitat Simulation Model (RHABSM).
3. Determine what discharge(s) would provide acceptable river water quality, fisheries and wildlife, habitat and recreation conditions. Minimum flow recommendations will likely vary from reach to reach, being a function of channel cross-section and slope.
4. Determine alternative management and policy scenarios based on minimum flow recommendations and social considerations in the watershed.
5. Facilitate collaborative decision-making process based on study recommendations.

Solution Space: Alternative management and policy scenarios will be outlined that support minimum flows in the Clinton River Watershed to protect fish, wildlife habitats and recreation uses. Neutral convening, public outreach and education will help interested stakeholders assess the benefits and drawbacks of each scenario. A decision-making model for resolving similar issues in other Michigan watersheds will result.

DRAFT IA Question: What are the causes, consequences and correctives of interrupted water flows in the Clinton River Watershed?

Agency Contact: Shawn Keenan, City of Auburn Hills, 248-364-6926, skeenan@auburnhills.org. See attached letter of support.
Project Approach

The Upper Clinton and Clinton Main Sub-watersheds of the Clinton River Watershed contain 21 separate impoundment lakes, most of which have a court-authorized level set independently of the other lakes in the system (Figure 1). This has led to suddenly varying water levels in the Clinton River as water is retained or released to maintain levels behind control structures. These abrupt changes in water level impact fish and wildlife habitats and the species that rely upon them, as well as recreational opportunities. Interrupted flows and varying water levels and flows in the Clinton River watershed have resulted in the degradation of critical aquatic habitats in downstream channels of the Clinton River Watershed.

Figure 1. Study Area of Clinton River Watershed

Neutral Convening and Collaborative Approach: This study will allow decision-makers, scientists, concerned citizens and other stakeholders to work together to evaluate alternative management and policy scenarios that support minimum flows in the Clinton River Watershed to protect fish, wildlife habitats and recreation uses. The study will document the status and trends of the flow regime in the Clinton River Watershed and describe the environmental, social and economic causes and consequences of the trends. It will also review similar situations in other communities. This background information will help stakeholders to better understand the issue and effectively evaluate alternative policy and management options. Quarterly meetings of the stakeholder group and web-based communication strategies will keep stakeholders engaged throughout the study. This study will determine alternative management and policy scenarios based on minimum flow recommendations and social considerations in the watershed, but will also facilitate a collaborative decision-making process based on study recommendations.
Technical Approach: This study will identify model needs and existing data that may support the development of a Riverine Habitat Simulation Model (RHABSM). RHABSM is similar to Incremental Flow Instream Models (IFIM) and Physical Habitat Simulation Models (PHABSM) that have been used historically to model and evaluate the effect of varying stream discharges on aquatic life, habitat and recreational uses. Steps may include:

1. Conduct site visit to review and evaluate watershed characteristics, water control structures, water sources and stream channels.
2. Review regulations and court-authorized water levels for individual lakes; determine principal issues; outline and explore alternative policy scenarios; and outline the causes, consequences and correctives of interrupted water flows in the Clinton River Watershed.
3. Determine what discharge(s) would provide acceptable river water quality, fisheries and wildlife, habitat and recreation conditions. Minimum flows to support these attributes will likely vary from reach to reach as flow is a function of channel cross-section and slope.
4. Initial review has indicated that FEMA has Flood Insurance Studies in place for all except possibly the uppermost reaches of the Clinton River. Tetra Tech has recently completed (2008) an HSPF (Hydraulic Simulation Program – FORTRAN) modeling effort of the entire Clinton River Watershed. The study would review the existing models of any of the reaches in question to determine if they are directly suitable for use in this study, usable with modification, or not usable for this study. This study will likely focus on two reaches of the river, one in the headwaters region (lakes) and a second downstream of the lakes.
5. As part of the HSPF modeling effort of the entire Clinton River Watershed, it was necessary to simulate in-stream continuous flow. This was accomplished through connecting flow and cross-sectional information from HEC-2 and HEC-RAS studies that have been conducted within the watershed. Along with developing the model data sets (land cover, weather data, point source loadings, etc.), hydrologic, hydraulic and water quality calibrations and validations were performed. The calibrated model may be used to evaluate policy alternative scenarios.
6. HEC-RAS, a one dimensional model developed by the US Army Corps of Engineers, and RMA-2, a two-dimensional model, will be evaluated to determine which model will provide a more accurate estimate of flow patterns and potential usefulness in the Riverine Habitat Simulation Model (RHABSM).
7. The primary emphasis of the modeling will be accurate recreation of low flow channels which are often not well represented in HEC-2 or HEC-RAS models that were designed for use as flood models. Therefore it will be necessary to evaluate historical field surveys to determine the physical characteristics of the low flow channels. If these data are not available, this study will outline the data gaps.
8. Based on information known at this time it is not possible to determine if natural drops occur in the Clinton River which would impact the modeling. If they do occur, the model could be partitioned into separate modeling segments upstream and downstream of the drop without significantly impacting modeling accuracy.
Project Timeline:

<table>
<thead>
<tr>
<th>Task/Activity</th>
<th>Project Quarter</th>
<th>Responsible Team Member</th>
</tr>
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<tbody>
<tr>
<td>Initial site assessment and kick off meeting(s)</td>
<td>2nd Quarter 2009</td>
<td>GLWSI, Masterson GLEC, McCauley Rich Voigt</td>
</tr>
<tr>
<td>Outline potential policy scenarios</td>
<td>2nd Quarter 2009</td>
<td>GLWSI, Masterson GLEC, McCauley</td>
</tr>
<tr>
<td>Outline necessary data needs for RHABSM study</td>
<td>3rd Quarter 2009</td>
<td>GLEC, McCauley Rich Voigt</td>
</tr>
<tr>
<td>Review of models and field surveys</td>
<td>3rd Quarter 2009</td>
<td>GLEC, McCauley Rich Voigt</td>
</tr>
<tr>
<td>Review HSPF, HEC-2 and HEC-RAS studies</td>
<td>4th Quarter 2009</td>
<td>Rich Voigt</td>
</tr>
<tr>
<td>Review water sources; review of lakes/reservoirs</td>
<td>2nd Quarter 2009</td>
<td>GLEC, McCauley Rich Voigt</td>
</tr>
<tr>
<td>RHABSM analysis and Proof of Concept Study</td>
<td>4th Quarter 2009</td>
<td>GLEC, McCauley Rich Voigt</td>
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<tr>
<td>Facilitate quarterly stakeholder meetings</td>
<td>Throughout</td>
<td>GLWSI, Masterson GLEC, McCauley</td>
</tr>
<tr>
<td>Create alternative management and policy scenarios and project recommendations</td>
<td>4th Quarter 2009</td>
<td>GLWSI, Masterson GLEC, McCauley Rich Voigt</td>
</tr>
<tr>
<td>Prepare Final Report, develop public involvement strategies, and present to stakeholder group</td>
<td>1st Quarter 2010</td>
<td>GLWSI, Masterson GLEC, McCauley Rich Voigt</td>
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**Project Team and Collaborators:** All of the key project team members listed below have agreed to participate in the project and as such have commitments from their respective organizations. Additional staff from each organization may be engaged to support the study.

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution/ Company</th>
<th>Team Member/ Collaborator</th>
<th>Agreed/ Need to Contact</th>
<th>Role and Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colleen Masterson</td>
<td>Great Lakes Water Studies Institute, Northwestern Michigan College</td>
<td>Team Member</td>
<td>Agreed</td>
<td>Principal Investigator; meeting facilitation, watershed policy and regulation, project and budget oversight</td>
</tr>
<tr>
<td>Dennis McCauley</td>
<td>Great Lakes Environmental Center, Inc.</td>
<td>Team Member</td>
<td>Agreed</td>
<td>Principal Research Scientist; water resource expertise, habitat evaluation, data</td>
</tr>
</tbody>
</table>
The Great Lakes Water Studies Institute (GLWSI) at Northwestern Michigan College has a mission of inspiring lifelong stewardship of freshwater through education, partnership and convening. GLWSI has been a neutral convener for the exploration of a variety of water-related issues, such as the Boardman River Dams Project, and has facilitated meaningful conversations and collaborative solutions. The Great Lakes Environmental Center (GLEC) is a national leader in applied environmental sciences, research, development and compliance assistance. For over 20 years, GLEC has delivered services and solutions to government and commercial clients throughout North America. Voigt Consultants and Tetra Tech lend extensive expertise in hydrologic modeling and analysis. The combined strengths of the project team will result in a study with outstanding leadership, reliability and integrity.

Data and Data Sets:
- Clinton River Watershed Information Management System
- FEMA Flood Studies
- HSPF, HEC-2 and HEC-RAS studies
- MDEQ and other agency sponsored biological studies
- NPDES Flow Data

Tetra Tech has recently completed (2008) an HSPF (Hydraulic Simulation Program – FORTRAN) modeling effort of the entire Clinton River Watershed. As part of this exercise it was necessary to simulate in-stream continuous flow. This was accomplished through connecting flow and cross-sectional information from HEC-2 and HEC-RAZ studies that has been conducted with in the watershed. Along with developing the model data sets (land cover, weather data, point source loadings, etc.), hydrologic, hydraulic and water quality calibrations and validations were performed. The calibrated model may be used to evaluate policy alternative scenarios.

Estimated Budget:
Total Amount Requested: $120,000
Total non-Federal Match: $  60,000

Curriculum Vitae of Project Team Members
COLLEEN MASTERSON  
Great Lakes Water Studies Institute, Northwestern Michigan College

EDUCATION

B.S. Biological Sciences and Great Lakes Studies Co-Op, University of Windsor 1996  
M.S. Environmental Geosciences, Michigan State University, 2001  
B.Ed. Intermediate-Senior Biology and Chemistry, University of Western Ontario, 2006

BACKGROUND

Colleen began her career as a researcher, and has been involved in research in all five of the Great Lakes and the Caribbean. By combining her love of science and education, she has made significant contributions to formal and informal science education in the state of Michigan. In her current position as the Education Coordinator of Northwestern Michigan College’s Great Lakes Water Studies Institute, she is responsible for all education initiatives of the institute. She teaches at the college level, provides professional development programs for educators and water resource professionals, and works to bring water-related groups together for collaboration and partnership. Neutral convening and facilitation of water-related discussions is part of the mission of GLWSI, and convening around educational goals and watershed management is a priority.

EXPERIENCE

July 2006- Present  
Education Coordinator  
Great Lakes Water Studies Institute, Northwestern Michigan College  
Traverse City, Michigan  
♦ Responsible for designing, implementing and evaluating all education programs of the Great Lakes Water Studies Institute  
♦ Teach watershed science and environmental science courses  
♦ Teach professional development programs for teachers and other professionals  
♦ Facilitate neutral convening for water-related natural resource groups

Mar 2001- Aug 2005  
Education Director  
Inland Seas Education Association, Suttons Bay, Michigan  
♦ Taught Great Lakes science education programs to students of all ages aboard traditional schooners and in a shoreside education centre  
♦ Designed, implemented and evaluated all of the organization’s education programs for K-12 students, youth groups, teachers, environmental professionals and the public  
♦ Recruited, trained and supervised over 200 volunteers  
♦ Was responsible for science data analysis, grant proposals and reports, training manuals, promotional literature, public presentations and budget management
June 2000- Feb 2001  **Environmental Scientist**  
Environmental Monitoring and Reporting Branch, Ministry of the Environment and the Ontario Clean Water Agency, Toronto, Ontario  
- Investigated the cause of taste and odour problems in drinking water drawn from Lake Ontario through partnerships with local water treatment facilities

Jan 1999- May 2000  **Graduate Teaching Assistant**  
Chemistry Department, Michigan State University, East Lansing, MI  
- Planned and taught undergraduate General Chemistry laboratories

Sept-Dec 1998  **Graduate Teaching Assistant**  
Geology Department, Michigan State University, East Lansing, MI  
- Planned and taught undergraduate Geology tutorials and laboratories

Sept-Dec 1997  **Graduate Teaching Assistant**  
Department of Marine Sciences, State University of New York at Stony Brook, Stony Brook, NY  
- Planned and taught Oceanography and Estuarine Science tutorials and laboratories

Jan-Sept 1996  **Larval Ecology Project Aid**  
Marine Science Research Center, State University of New York at Stony Brook, New York and the Bellairs Research Institute, Barbados, West Indies  
- Studied fish reproduction in tropical and temperate waters by participating in ship and scuba-based field work, and completing related laboratory research

May-Sept 1995  **Undergraduate Researcher**  
Department of Biological Science, University of Windsor, Windsor, ON  
- Completed independent research project on the recruitment of larval coral reef fish in the Virgin Islands. Results published in national scientific journal

May-Dec 1994  **Field Technician and Data Analysis Support**  
Environmental Monitoring and Reporting Branch, Ministry of the Environment, Toronto, Ontario  
- Conducted environmental contaminant sampling in the Great Lakes and associated rivers, and analyzed contaminant data

Summer 1992 & 1993  **Fish and Wildlife Technician**  
Ontario Ministry of Natural Resources, Chatham, Ontario  
- Studied abundance of freshwater fish populations and completed habitat assessment and rehabilitation projects in the Detroit and St. Clair Rivers
Dennis J. McCauley
Great Lakes Environmental Center

Education
B.S., Biology, University of Wisconsin-Superior, 1979
M.E.-P.D., Fishery Biology, University of Wisconsin-LaCrosse, 1983

Qualifications
Mr. McCauley has extensive experience (> 25 years) in managing, planning, and conducting in-situ field and laboratory studies that: monitor habitat and water quality trends in lakes, rivers, and streams; assess the impact of water and sediment quality on various freshwater organisms; assess the effect of power generation projects on aquatic life; assess the abundance of adult and larval fishes in various habitats; assess the impact of effluents, single chemicals, and storm water on receiving waters; characterize and identify effluent toxicity; assess the effect of low level contaminant burden on fish ova fertilization, development, and survival; and assess the relationship between bioconcentration and bioaccumulation using single chemical, whole sediment, and complex effluent toxicity assays. His experience as a project manager and principal investigator has ranged from participation in interlaboratory validation of specific test protocols to large complex field studies that assess the fishery and water and sediment quality on various life stages of fish and aquatic invertebrates. Mr. McCauley has also coordinated regulatory whole effluent toxicity testing, toxicity identification/reduction evaluation (TI/RE) studies, and communicated with industrial groups and specific permittees for state wastewater NPDES permits and has coordinated large complex field evaluations that involved stream flow modeling, fish entrainment, fish escapement, fish diversion, shoreline erosion, habitat evaluations and water quality assessment. He also interacts with state and federal agencies on the behalf of clients to design and negotiate realistic study plans and interpret study results.

Relevant Experience

**EPA/HECD Work Assignments.** At Great Lakes Environmental Center (GLEC), Mr. McCauley is the Deputy Program Manager for the current EPA/HECD contract and has been a Work Assignment Leader for several Work Assignments under that contract with EPA. Specifically, he was the Work Assignment Leader and principal investigator for Work Assignments that addressed 1) National Wadeable Streams Assessment, 2) National Lakes Assessment, 3) Chronic sequelae in water born pathogens, 4) Saltwater Dissolved Oxygen Criteria, 5) Fish embryo-larval studies with Dieldrin, 6) Toxicity of selenium salts (Se+6 and Se+4) to fish and invertebrates, 7) Toxicity of Ammonia to *Hyalella azteca* at six test temperatures, 8) Tributyl Tin water quality criteria, 9) Toxicity testing to evaluate EqP in sediments, 10) Peer Review Report on Arsenic in fish, 11) Quality Assurance Project Plan for the Use of Secondary Data in EPA Work Assignments, and 12) Literature Review and biological Evaluation of the Effect of Contaminants on Endangered Species. Mr. McCauley was
also a Work Assignment Leader for an EPA-SASD, Office of Science and Technology Work Assignment entitled: Expert Review of Comments on Formulae-based Aquatic Life Criteria for Metals.

**Michigan Department of Environmental Quality (MDEQ) Work Assignments.** At Great Lakes Environmental Center, Mr. McCauley is also the Program Manager for the MDEQ contract: Strategic Monitoring of Michigan’s Surface Waters and has been a Work Assignment Leader for numerous Work Assignments under that contract with MDEQ. Specifically, he was the Work Assignment Leader and principal investigator for Work Assignments that addressed: 1) Determining the Effectiveness of Shoreline Erosion controls in the Pine River, Michigan, 2) CREP Literature Review and Annual Water Quality Monitoring Report, 3) Water Quality Trend Monitoring on Saginaw Bay (Lake Huron) and Grand Traverse Bay (Lake Michigan), 4) Water Quality Trend Monitoring in Michigan’s Great Lakes Connecting Channels, and 5) Caged Fish Bioconcentration Studies.

**Environmental Research and Water Quality Assessments.** AT GLEC, Mr. McCauley collaborates with professional and technical staff to plan and conduct field and laboratory studies that assess the impact of complex effluents, sediments, storm water, and single chemicals on aquatic biota, water and sediment quality and assess the effectiveness of created wetlands for wastewater treatment. He manages, coordinates, and oversees laboratory and field activities as well as participates as a principal investigator and/or technical advisor in multiple field and laboratory studies that address toxicity identification/reduction evaluations (TI/RE), integrated sediment quality assessments, fish biouptake studies, NEPA/ESA environmental assessments and ecological risk assessments (ERA) of impacted areas. He also coordinates off-site laboratory studies and bioconcentration studies. Mr. McCauley has also managed and successfully completed several studies in the Great Lakes that: inventoried critical shoreline habitats, assessed water quality, and forage fish abundance, and assessed the impact of storm water on water quality using bacteriological techniques.

**Environmental Assessment and Study of Electric Generation Projects.** Mr. McCauley manages studies that support Federal Energy Regulatory Commission (FERC) Exhibit E preparations, license applications, and CWA 316(b) studies. He manages impoundment studies that assess forage fish abundance, spawning success, and the seasonal distribution of fish as a result of water level fluctuations. Coordinate and conduct tailrace netting studies that assess fish entrainment, turbine mortality, fish escapement and net efficiency at hydroelectric dams. Mr. McCauley also designs and manages fish impingement and entrainment characterization studies. Design and perform fish protection studies that assess behavioral and mechanical fish diversion and exclusion, and mitigation techniques to minimize fish losses due to entrainment and impingement. In addition, Mr. McCauley is responsible for studies that assess aquatic habitat, water quality, shoreline erosion, flow modeling, fisheries, and fishery enhancement above and below the impoundments and for the hydrographic mapping of the reservoirs.
Mr. Voigt has over 20 years of experience in water resources engineering, concentrated in the areas of hydrology and applied hydraulics. His experience includes complex hydrologic and hydraulic analysis and modeling, design of storm water facilities, flood assessment studies, discharge measurement, water quality improvements, dam, spillway and outlet structure design, Dam Break analyses, river engineering, and design of stream bank protection systems. Prior to becoming a private consultant full time in 1999, Rick worked at St. Anthony Falls Laboratory, University of Minnesota for 17 years, the last seven years as the Associate Director of Applied Research. During his tenure at the laboratory he was responsible for the applied research program and conducted nearly 50 projects involving a wide variety of hydraulic structures and often complicated hydrologic regimes. Clients include local state and Federal Government agencies, private developers, engineering consultants and legal firms. Much of his consulting involves providing guidance on projects involving complex hydrologic or hydraulic issues that are beyond standard engineering practice. A sampling of his experience includes:

**Project Experience**

- Used a preliminary FEMA HEC-RAS model modified with field surveyed supplemental cross sections to determine the cause for frequent high water levels that are observed in Yellow Lake near Danbury, Wisconsin. The analysis involved a 7-mile reach of river from the outlet of Yellow Lake downstream to a dam and hydroelectric facility. Lakeshore property owners speculated that the dam operators were keeping the water level higher at the dam. However records indicated that was not the case and a field data acquisition program was established in 2003. The field data showed that the lake could be high and the lower end of the river reach (still upstream of the dam) could have low water level at the same time, on a seasonal basis. Problems were noted during the period of maximum vegetation growth in the river. The HEC-RAS model initially developed to evaluate infrequent flooding events was modified to address the seasonal cause and effect relationship between the lake having high water and the river reach downstream having low water. Modifications included additional field cross-sections and seasonal changes to the channel roughness characteristics to match the water surface profile established from a series of water surface staff gauges placed on the river for the study.

- Performed Two-Dimensional modeling of Pool 3 of the Mississippi River using RMA-2 to evaluate the impacts of potential habitat improvements. Possible habitat changes included changes to flows in secondary channels, the construction of riffle-pool structures to improve aquatic habitat. Constructing wing dams was another option as was the construction of dikes or habitat islands to improve conditions. The model involved an 18 mile reach of the Mississippi River from Lock and Dam 2 to Lock and Dam 3.
• Project manager for the Mississippi River ROPE (Reservoir Operating Plan Evaluation) Study Field Data Collection. Data collection program was undertaken to ascertain substrate and vegetation characteristics at approximately 80 locations for each of ten reaches of river in Northern Minnesota. The field evaluation included obtaining a discharge measurement at one cross-section at each reach along with point velocities at other reaches.

• Howard Creek, West Virginia. Combined site investigation with a physical model study to determine the best method for naturalizing and stabilizing the stream reach while not impacting flood levels in the downtown area.

• Assessed the potential impacts and effectiveness of a proposed flood control dam in Lake County, South Dakota. The assessment led to an alternative solution being developed.

• Assisted with stormwater management planning and design for the Cities of Rochester and Northfield. Work included surface water management planning, conceptual design, water quality, and final design of flood storage.

• Experimental Study of Non-Plastic Filler Materials: Ludington Pumped Storage Plant, Michigan. Study was undertaken to develop suitable material and placement methods to fill trenches in the reservoir liner that were not successfully filled by conventional grouting techniques. Three rock flour sized materials were evaluated; silica, dolomite and hematite. Three phases of study were undertaken; first phase was to determine the driest slurry that was still able to be pumped for each material. The second phase further evaluated those slurries for placement and particle segregation potential. The third phase involved the placement of the optimum slurry mix for each material into large fabricated channels similar to those known to exist in the reservoir. Placement was done 15 ft below the water surface using the same divers and equipment that had previously placed conventional grout in the reservoir.

• Hydraulic Model Study of the Market Avenue Retention Basin (MARB) Grand Rapids, Michigan. The study evaluated the hydraulic characteristics of Basin Two and tested the effectiveness of various baffle wall arrangements on residence time in the basin. Maximization of residence time was needed to improve sediment removal and disinfection.

• Port Crosby Redevelopment, South St. Paul, MN. Performed field investigation to determine areas of shoreline that need bank protection. Developed preliminary slope protection design concept that incorporated riprap and natural vegetation.
April 3, 2008

Ms. Jennifer Read, Ph.D.
Assistant Director & Research Coordinator
Michigan Sea Grant
Samuel T. Dana Building
440 Church Street, Suite 4044
Ann Arbor, MI 48109-1041

Re: Management Contact for the Michigan Sea Grant’s Integrated Assessment Project
Related to the Natural Flow Regime in the Clinton River Watershed

Dear Ms. Read:

The City of Auburn Hills is pleased to express our ability and willingness to work within the process as the management contact for the project titled Natural Flow Regime in the Clinton River Watershed. The project would address the causes, consequences and correctives of interrupted flows in the Upper Clinton River Subwatershed and the Main Clinton River Subwatershed that impacts fish and wildlife habitat and recreational uses in the Clinton River Watershed.

The City has designated one member of its staff, Shawn Keenan, Water Resources Coordinator, to act as the management contact for the integrated assessment project team, if the topic is selected for funding. The City is willing to work with the process over the two-year project period, beginning in summer 2009.

Sincerely,

[Signature]

Peter E. Auger
City Manager