

# Stage 2 Remedial Action Plan Clinton River Area of Concern



Office of the Great Lakes  
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October 1, 2011

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### Acknowledgements

The efforts to restore the Clinton River Area of Concern are the work of many dedicated and caring individuals over more than two decades. The summary information presented here only touches the surface of the good work carried out by those who live in the Clinton River Area of Concern and those who staff the federal and state agencies involved.

Thank you.

# ***Clinton River Area of Concern Stage 2 Remedial Action Plan***

## ***Purpose of the Stage 2 Remedial Action Plan***

A Michigan Department of Environmental Quality (DEQ) Stage 2 Remedial Action Plan (RAP) for each Area of Concern (AOC) is the primary tool for documenting and communicating restoration progress. The AOC-specific Stage 2 RAPs are meant to be brief, user-friendly documents that identify actions needed to restore Beneficial Use Impairments (BUIs) in each AOC. The Stage 2 RAPs are prepared by the DEQ in consultation with the respective AOC Public Advisory Council (PAC) and the U.S. Environmental Protection Agency (USEPA), Great Lakes National Program Office.

Identifying specific actions necessary to remove a BUI is one component of the DEQ's process for tracking AOC restoration, removing BUIs, and ultimately delisting AOCs. These processes and relevant restoration criteria are described in more detail in the DEQ's *Guidance for Delisting Michigan's Great Lakes Areas of Concern (Guidance)* (DEQ, 2008). Comprehensive background information on the AOC is provided in previous RAP documents, which are listed in the Reference section of this publication.

## ***Disclaimer***

The Great Lakes Water Quality Agreement (GLWQA) is a non-regulatory agreement between the U.S. and Canada, and criteria developed under its auspices are non-regulatory in nature. The actions identified in this document as needed to achieve BUI restoration criteria are not subject to enforcement or regulatory actions by virtue of being listed in this document.

The actions identified in this Stage 2 RAP do not constitute a list of pre-approved projects, nor is it a list of projects simply related to BUIs or generally to improve the environment. Actions identified in this document are directly related to removing a BUI and are needed to delist the AOC. However, in many AOCs, further information is needed to determine all actions required to remove a BUI. Thus, the AOC-specific BUI Tracking Matrix is not necessarily comprehensive and will be updated to reflect additional actions that are needed.

## ***Introduction***

In 1987, amendments to the GLWQA were adopted by the federal governments of the U.S. and Canada. Annex 2 of the amendments listed 14 BUIs which are caused by a detrimental change in the chemical, physical, or biological integrity of the Great Lakes system (International Joint Commission, 1987). The Annex directed the two countries to identify AOCs that did not meet the objectives of the GLWQA. The RAPs addressing the BUIs were to be prepared for all 43 AOCs identified, including the Clinton River AOC. The BUIs provided a tool for describing effects of the contamination, and a means for focusing remedial actions.

The 1988 Clinton River RAP identified 8 of the GLWQA's 14 beneficial uses as being impaired (MDNR, 1988). Table 1 is a matrix for tracking the progress of assessments and removal of these BUIs from the Clinton River AOC. These impairments have been primarily caused by historical contamination by conventional pollutants, including high fecal coliform bacteria and nutrients; high total dissolved solids; sediment contaminants, including heavy metals, polychlorinated biphenyls (PCBs), and oils and grease; and impacted biota.

<b>Table 1. Clinton River BUI Removal Matrix.</b>			
<b>Beneficial Use Impairment</b>	<b>Beneficial Use Remains Impaired</b>	<b>Assessment in Progress</b>	<b>BUI Removed</b>
Restrictions on fish and wildlife consumption	<b>x</b>		
Degradation of benthos	<b>x</b>	<b>x</b>	
Restrictions on dredging activities	<b>x</b>	<b>x</b>	
Eutrophication or undesirable algae	<b>x</b>	<b>x</b>	
Beach closings	<b>x</b>	<b>x</b>	
Degradation of aesthetics	<b>x</b>	<b>x</b>	
Degradation of fish and wildlife populations	<b>x</b>	<b>x</b>	
Loss of fish and wildlife habitat	<b>x</b>	<b>x</b>	

The original boundary for the Clinton River AOC, as stated in the 1988 RAP document, was defined as the main branch of the Clinton River and spillway downstream of Red Run. The remainder of the Clinton River watershed was considered the Source Area of Concern (MDNR, 1988). This document also identified numerous point and nonpoint sources of pollution throughout the Clinton River’s mainstream and major tributaries and described the impacts to the mainstream and tributaries upstream of the boundaries to Red Run Drain.

In 1995, the MDEQ, in conjunction with the Clinton River PAC, completed a RAP Update for the Clinton River AOC. The update stated that the original 1988 RAP was largely completed prior to the 1987 Amendments to the GLWQA, and as such, the 1995 RAP Update would serve to revisit the impairments based on the list of BUIs outlined in the 1987 Amendments and evaluate those impairments at the watershed scale. The 1995 RAP Update stated that the boundaries of the Clinton River AOC have been “redefined, and now encompass the entire watershed.” This was due to further evaluation of water quality conditions in the early 1990s, and in light of the BUIs identified in the 1987 Amendments. The 1998 RAP Update reiterated the 1995 determination that the entire watershed was the AOC, but expanded the AOC boundary to include “the nearshore area of Lake St. Clair impacted by the Clinton River and its spillway” (MDEQ, 1998).

The revised Clinton River AOC boundary now includes Oakland and Macomb Counties, with small portions extending into Lapeer and St. Clair Counties, encompassing the entire Clinton River watershed. The boundary includes the Clinton River and its tributaries, as well as the spillway and nearshore area of Lake St. Clair between the mouth of the Clinton River and the spillway (Figure 1.). These are the boundaries that the MDEQ and the public have been working with for the last 10+ years in planning and implementing appropriate remedial measures, and monitoring for restoration success in the AOC.

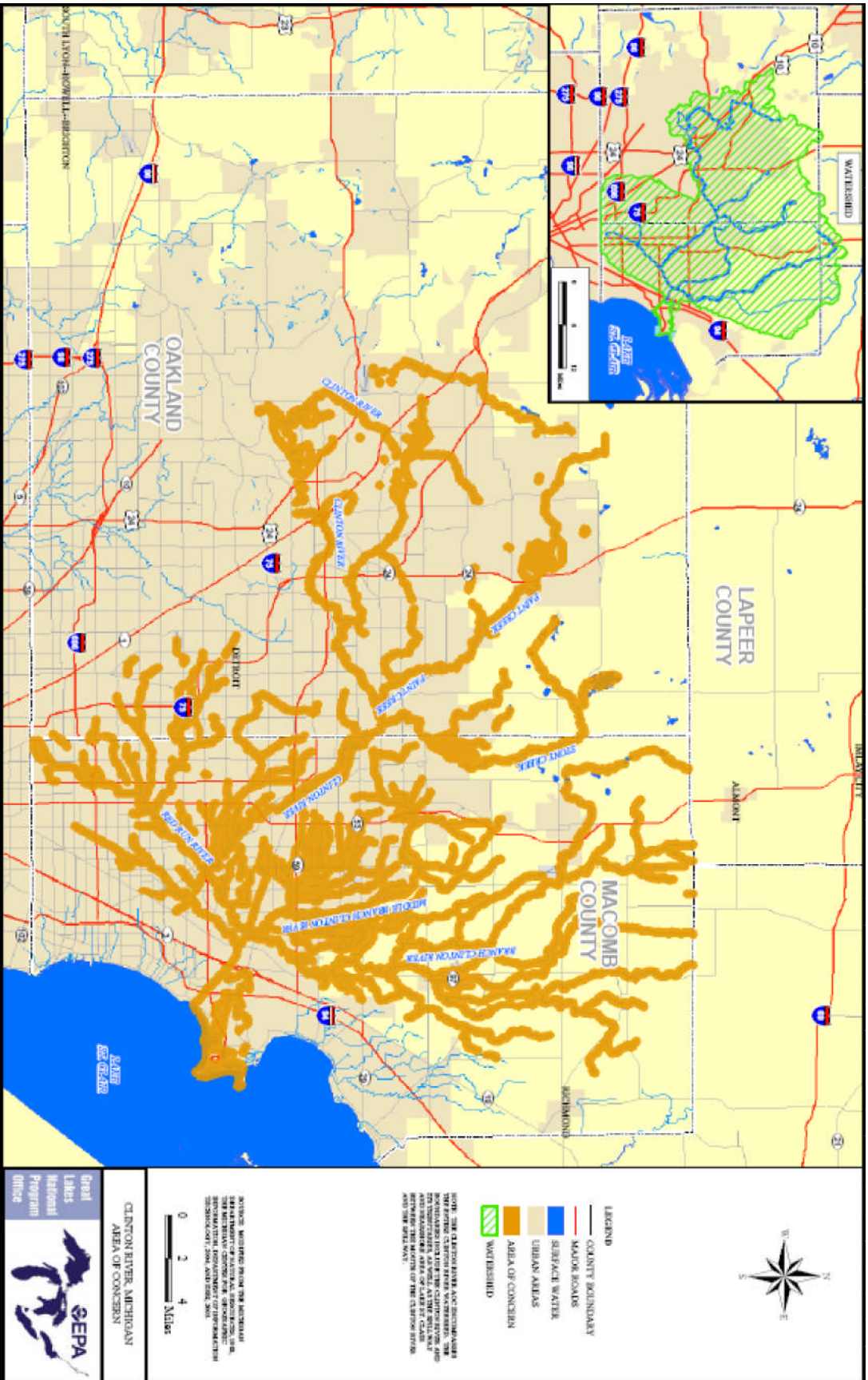


Figure 1. The Clinton River Area of Concern.

## **1) Restrictions on Fish and Wildlife Consumption**

### **Significance in the Clinton River Area of Concern**

As a result of the historical PCB contamination in the Clinton River, a fish contamination and consumption advisory has been identified as an impaired use in the AOC (MDNR, 1988). The Michigan Department of Community Health (MDCH), "Michigan Family Fish Consumption Guide", recommends various consumption advisories below the Yates Dam for carp and rock bass for women and children only, but there are no consumption advisories for the general public (MDCH, 2008). Details are in the Michigan Fish Advisory, A Family Guide to Eating Michigan Fish, available from the MDCH website at: <http://www.michigan.gov/mdch>.

### **Restoration Criteria**

The beneficial use will be considered restored when the fish consumption advisories in the AOC are the same or less restrictive than the associated Great Lake or appropriate control site.

### **Current Status and Actions to be Undertaken**

This beneficial use is currently impaired.

## **2) Degradation of Benthos**

### **Significance in the Clinton River Area of Concern**

According to the 1988 RAP, benthic impairments were due to historical PCB contamination from a variety of sources from within the AOC, including: contaminated sediments, waste disposal sites and industrial point sources located along the river; heavy metals from urban non-point sources, waste disposal sites, and industrial point sources; suspended solids from combined sewer overflows (CSOs); and oil and grease from industrial point sources, urban non-point sources, and CSOs (MDNR, 1988).

### **Restoration Criteria**

The beneficial use will be considered restored when an assessment of benthic community, using the DEQ's SWAS Procedure #51 for wadeable streams, yields a score for the benthics metrics which meets the standards for aquatic life in any 2 successive monitoring cycles.

### **Current Status and Actions to be Undertaken**

This beneficial use is currently impaired. A pre-assessment of this BUI will be completed by the Clinton PAC in 2012. A technical committee will be convened to determine whether this BUI is ready for a formal review and assessment. The technical committee will review the results of all remedial actions completed and other supporting documentation to provide a decision on whether or not to support a recommendation to formally remove this BUI. Further current information is in the BUI Tracking Matrix.

## **3) Restrictions on Dredging Activities**

### **Significance in the Clinton River Area of Concern**

Sediments in the lower portion of the Clinton River watershed from Pontiac downstream to the mouth of the river are moderately to heavily contaminated with metals, semi-volatile organic compounds, petroleum hydrocarbons, PCBs, and dichlorodiphenyl trichloroethane (DDT) (MDEQ, 1998).

In general, the headwaters regions of the Clinton River are not degraded due to toxic contamination, but are degraded from the surrounding watershed areas. There are historical isolated areas in the headwaters requiring source identification and control for metals and some semi-volatile organic compounds. These areas include the Main Branch of the Clinton River at Dixie Highway in Clarkston, Upper Paint Creek downstream of Newman Road, Salt Slang Drain on the east side of the Garfield Road overpass, Newland Inter-county Drain at the north end of Almont Road Conduit, and Coon Creek Inter-county Drain at Pratt Road (MDEQ, 1995).

Sediments of the Main Branch of the Clinton River from Pontiac to the confluence with Red Run Drain are moderately contaminated with metals, petroleum hydrocarbons, some semi-volatile organic compounds, and nitrogen. Based on historical data, the contamination is fairly widespread throughout this portion of the river (MDEQ, 1995). In comparison, sediments from the Red Run Drain/Plum Brook drainage have historically been moderately to heavily contaminated with metals, petroleum hydrocarbons, semi-volatile organic compounds, and nitrogen. Contaminants of particular concern are mercury and PCBs because they have caused fish consumption advisories (MDEQ, 1995).

The remainder of the downstream portion of the river and the spillway are the most heavily contaminated reaches within the watershed. Elevated levels of metals, petroleum hydrocarbons, semi-volatile organic compounds, nitrogen, PCBs, and DDT (and its breakdown products dichlorodiphenyl dichloroethylene [DDE] and dichlorodiphenyl dichloroethane [DDD]) are common in the sediments. The presence of DDT, DDE and DDD has been found localized in the lower strata of the sediment cores indicating historical usage of these contaminants. PCBs, where present, are commonly found in the surficial sediments as well as in deeper strata (MDEQ, 1995).

### **Restoration Criteria**

This beneficial use will be considered restored when either there have been no restrictions on routine commercial or recreational navigation channel dredging by the US Army Corps of Engineers (USACE), based on the most recent dredging cycle; or, in cases where dredging restrictions exist, a comparison of sediment contaminant data from the commercial or recreational navigation channel (at the time of proposed dredging) in the AOC indicates that contaminant levels are not statistically different from other comparable, non-AOC commercial or recreational navigation channels.

### **Current Status and Actions to be Undertaken**

This beneficial use is currently impaired. A Dredging Technical Committee, formed by the MDEQ and comprised of state and federal agency experts, conducted an initial statewide assessment of this BUI in 2008 and found that restrictions on dredging do exist within the Clinton River AOC due to chemical contamination. A statewide assessment of this BUI is currently being conducted. The DEQ will convene a technical committee when the status of this BUI is ready for a formal review. The technical committee will review the results of the assessment and other supporting documentation to decide whether to support a recommendation to formally remove this BUI. Further current information is in the BUI Tracking Matrix.

## **4) *Eutrophication or Undesirable Algae***

### **Significance in the Clinton River Area of Concern**

According to the 1988 Clinton River RAP, monitoring during the 1970s showed that turbidity and total phosphorus was consistently high, indicative of eutrophic conditions (MDEQ, 1988). The Clinton River has also experienced excessive algal growth in the lower portion of the river primarily due to high nutrients from stormwater runoff and low flow in the river (MDEQ, 1998). In addition, historically there were a number of residential and commercial properties within communities in the Clinton River watershed that used failing septic systems or had illegal connections to storm sewer systems. Even today, these properties potentially serve as sources of nutrients discharging to the river.

### **Restoration Criteria**

This beneficial use will be considered restored when no waterbodies within the AOC are included on the list of impaired waters due to nutrients or excessive algal growths in the most recent Clean Water Act Integrated Report, which is submitted to U.S. EPA every two years.

### **Current Status and Actions to be Undertaken**

This beneficial use is currently impaired. A technical committee has been convened by the Clinton River PAC to determine whether this BUI is ready for a formal review and assessment. The technical committee will review the results of all remedial actions completed and other supporting documentation to provide a decision on whether or not to support a recommendation to formally remove this BUI. Further current information is in the BUI Tracking Matrix.

## **5) *Beach Closings***

### **Significance in the Clinton River Area of Concern**

The only public beach located in the Clinton River AOC is the Huron-Clinton Metropolitan Authority Metropolitan Beach. Therefore, recreational contact with surface water contaminated with bacteria is an ongoing concern. The potential sources of bacterial contamination throughout the watershed include discharges from upstream wastewater facilities, especially CSOs, urban and rural stormwater runoff, failing septic systems, and illegal connections to storm sewers.

### **Restoration Criteria**

This beneficial use will be considered restored when no waterbodies within the AOC are included on the list of impaired waters due to pathogens in the most recent Clean Water Act Integrated Report, which is submitted to U.S. EPA every two years. In cases where the waterbodies in the AOC are on the list of non-attaining waters due to the presence of CSOs the BUI will be considered restored when updated information reveals that the CSOs have been eliminated or are being treated.

### **Current Status and Actions to be Undertaken**

This beneficial use is currently impaired. A statewide assessment of this BUI is currently being conducted. The DEQ will convene a technical committee when the status of this BUI is ready for a formal review. The technical committee will review the results of the assessment and other supporting documentation to decide whether to support a recommendation to formally remove this BUI. In addition, a technical committee has been convened by the Clinton River PAC to determine whether this BUI is ready for a formal review and assessment. Further current information is in the BUI Tracking Matrix.



## **6) Degradation of Aesthetics**

### **Significance in the Clinton River Area of Concern**

Degradation of Aesthetics was originally identified as an impaired use due to widespread erosion, in-stream sedimentation, localized algal blooms, habitat degradation, and litter throughout the watershed (MDEQ, 1998). In addition, studies conducted in the Clinton River during the 1970s documented poor water quality due in part to high turbidity, high suspended solids, and total phosphorus loadings (MDNR, 1988).

### **Restoration Criteria**

This BUI will be considered restored when monitoring data for two successive monitoring cycles indicates that Clinton River AOC does not exhibit persistent, high levels of the following “unnatural physical properties” (as defined by Rule 323.1050 of the Michigan WQS) in quantities which interfere with the State’s designated uses for surface waters:

- turbidity
- color
- oil films
- floating solids
- foams
- settleable solids
- suspended solids
- deposits

### **Current Status and Actions to be Undertaken**

In 2011, the Clinton River will be assessed for aesthetic impairments as part of a statewide effort to assess all AOCs with the Aesthetics BUI. The DEQ will convene a technical committee when the status of this BUI is ready for a formal review. The technical committee will review the results of the Clinton River aesthetics assessment and other supporting documentation to decide whether to support a recommendation to formally remove this BUI. Further current information is in the BUI Tracking Matrix.

## **7) Loss of Fish and Wildlife Habitat Degradation of Fish and Wildlife Populations**

Based on the inextricable connection between habitat and populations, the Clinton River PAC established local targets in 2009 for restoring the fish and wildlife BUIs, to be addressed as: Delisting Targets for Fish/Wildlife Habitat and Population Beneficial Use Impairments for the Clinton River Area of Concern (CRPAC, 2009). Therefore, they are dealt with in the same manner in this document. This is in contrast to, but not in conflict with the Great Lakes Water Quality Agreement’s listing of these BUIs as: Loss of Fish and Wildlife Habitat and Degradation of Fish and Wildlife Populations.

### **Significance in the Clinton River Area of Concern**

In the 1990’s, Oakland County led the state in new construction, followed by Macomb County. Very rapid urban expansion and insufficient land use planning within the Clinton River watershed has led to degradation of fish and wildlife habitat. Wetlands and other wildlife habitat have been almost entirely eliminated from the downstream portion of the basin, and natural drainage has been drastically altered throughout the watershed.

The geology of the area and the increasing amount of impervious surfaces has resulted in a variable stream flow within the Clinton River watershed. Low flows during dry periods and high flows that scour stream channels and banks during rainstorms have resulted in loss of fish habitat. In addition, seawalls, dredging, and draining have reduced or eliminated hydrologic

connections between wetlands and their source of water, which has made it difficult to manage the hydrology of the river (MDEQ 1995).

Historically, the North Branch of the Clinton River was a significant spawning area for walleye migrating from Lake St. Clair. Dams and lake level controls upstream and west of Pontiac prevented natural flows, or reduced the flow to a trickle, severely impacting the fish population in the river. Modifications to the spillway weir were completed in 1997 which now diverts more water to the Clinton River during low flow periods (MDEQ, 1998).

The Clinton River was once had a rich assemblage of unique native mussels (MDEQ, 1995). Currently, these native mussel populations have been impacted by in-stream sedimentation and potentially, out-competed by the exotic zebra mussel.

### **Restoration Criteria**

The restoration criteria for fish and wildlife populations and habitat include the following delisting targets:

#### **Degradation of Fish and Wildlife Populations**

1. A healthy fish population is determined by the relevant resource management agencies to exist within the AOC at selected sites (to be determined cooperatively by the CRPAC, MDEQ, and MDNR)
2. Relevant inventories, sightings, and observations made at selected sites lead to the determination that a diverse wildlife population exists within the AOC and that species that should be at those sites actually are at those sites.

#### **Loss of Fish and Wildlife Habitat**

1. Degradation of Benthos BUI is delisted
2. No waterbodies within the AOC are included on the list of non-attaining waters due to low dissolved oxygen on the most recent Clean Water Act Integrated Report.
3. Additional habitat restoration remedial actions as outlined in the Delisting Targets for Fish/Wildlife Habitat and Population document.

### **Current Status and Actions to be Undertaken**

This beneficial use is currently impaired. In 2011, a pre-assessment of this BUI was completed by the Clinton PAC. A technical committee has been convened to determine whether this BUI is ready for a formal review and assessment or if additional monitoring is required. Further current information is in the BUI Tracking Matrix.

## ***Actions to Delist: Clinton River AOC BUI Tracking Matrix***

The following BUI Tracking Matrix is intended as a simple way to track ongoing progress with the remedial activities identified as being necessary to remove each BUI, and subsequently to delist the AOC entirely. As progress is made, the matrix will be updated to reflect current conditions. Completed activities will remain in the matrix as it is updated, but updates will reflect completed status and completed BUI removals.

The matrix lists each BUI, indicates whether each BUI is scheduled for assessment in the current year, and lists the actions/tasks necessary to advance toward BUI removal. If a funding source has been identified, it is listed along with the targeted start and end dates for each action. Project leads are identified as appropriate, along with the targeted BUI removal date.

The matrix represents the AOC program's current best effort to assess activity in an AOC at the time the document was updated. The matrix does not necessarily commit the listed entities/individuals to any particular activity. Contracts, grant agreements, etc. are the documents governing commitments that have been or will be made. Work does not always proceed as planned, and the MDEQ recognizes that unforeseen circumstances can arise at any time.

The MDEQ is dedicated to facilitating the completion of each of the projects listed in the most timely manner possible. The dates listed reflect the MDEQ's best estimate of project completion, given currently available information. Target dates in the future may change for any number of reasons.

There are a myriad of details that could be included in the matrix, but it was necessary to limit that information to maintain a certain level of simplicity and usefulness.

## Clinton River AOC BUI Tracking Matrix

Date: September 2011

Area of Concern Name	Beneficial Use Impairment Name	Assessment in 2011? (Y/N)	Actions/Tasks Needed	Funding Source	Start Date	Targeted Completion Date	Project Lead	Targeted BUI Removal Date	Comments	Staff
Clinton River	Restrictions on Fish and Wildlife Consumption	No	Collect fish contaminant data and develop plan to address residual contamination	TBD	TBD	TBD		TBD	AOC was not included in the 2011 GLRI funded assessment by MDCH.	Tewkesbury
Clinton River	Degradation of Fish and Wildlife Populations	Yes	Completed pre-assessment with 2010 PAC support grant; need to look at additional monitoring to complete data assessment for potential BUI removal	TBD	Jun-10	TBD	Clinton PAC	TBD		Tewkesbury
Clinton River	Degradation of Benthos	Yes	Awarded funding under PAC support grant for 2011 to complete benthos pre-assessment	GLC/DEQ	Jun-11	TBD	Clinton PAC	TBD		Tewkesbury
Clinton River	Restrictions on Dredging Activities	Yes	Evaluate dredge spoils in federal navigational channel, prepare and submit BUI removal documentation	2010 EPA GLRI Grant	Aug-11	Dec-11	Swart (MDEQ)	TBD		Tewkesbury
			Assess and Remove Contaminated Sediments from Suspected or Known Locations within the East Subwatershed	GLLA	Apr-11	Oct-13	GLNPO, Clinton PAC		Also addresses F&W Habitat BUI	Tewkesbury
			Shadyside Park Contaminated Sediment Removal - Mt. Clemens	GLLA	TBD	TBD	GLNPO, Clinton PAC		Also addresses F&W Habitat BUI	
			Assess and Control Remaining Sources of Contaminated Sediments in the East Subwatershed	2010 EPA GLRI Grant	Apr-11	Oct-12	MCHD		IDEF Facility Dye Testing and Household Hazardous Waste Great Lakes Shoreline Collection	Tewkesbury

Clinton River	Eutrophication or Undesirable Algae	Yes	Analyze existing data and conduct pre-assessment of Beneficial Use Impairment	TBD	TBD	TBD	Clinton PAC	TBD	PAC sub-committee has been formed to explore assessment of this BUI and to identify future actions/tasks for BUI removal	Tewkesbury
Clinton River	Beach Closings	Yes	Analyze existing data and conduct assessment of Beneficial Use Impairment	2010 EPA GLRI Grant	Jun-11	Dec-12	Aiello (MDEQ)	TBD	PAC sub-committee has also been formed to explore assessment of this BUI and to identify future actions/tasks for BUI removal	Tewkesbury
			Development of E. coli TMDL Implementaion Plan for Coon Creek	2010 EPA GLRI Grant	Apr-11	Oct-11	Michigan State University		If successful, may serve as model for other TMDLs in the watershed.	Tewkesbury
Clinton River	Degradation of Aesthetics	Yes	Analyze existing data and conduct assessment of Beneficial Use Impairment	2010 EPA GLRI Grant	Jul-11	Jun-12	Riley, Tewkesbury, Goodwin (MDEQ)	Oct-11	First onsite assessment completed July 2011; second on-site assessment to be completed October 2011	Tewkesbury
Clinton River	Loss of Fish and Wildlife Habitat	Yes	Completed pre-assessment with 2010 PAC support grant; need to evaluate if additional monitoring is needed to complete data assessment for potential BUI removal	TBD	Jun-10	TBD	Clinton PAC	TBD		Tewkesbury
			Cascade Dam Removal - North Branch	USFWS, Sustain Our Great Lakes	Apr-10	Oct-10	DNR, Clinton PAC			Tewkesbury
			Wolcott Park Dam Removal - North Branch	USFWS, Sustain Our Great Lakes	Apr-10	Oct-10	DNR, Clinton PAC			Tewkesbury
			Lake St. Clair Coastal Marshland Restoration	2010 EPA GLRI Grant	Jun-10	Oct-11	MCPWO, Clinton PAC			Tewkesbury
			Paint Creek Dam Removal and Riparian Corridor Resotration	2010 EPA GLRI Grant	Apr-11	Oct-11	Clinton PAC, CRWC			Tewkesbury

			Riparian Zone Restoration at Children's Park on Paint Creek	Various	Oct-11	May-11	City of Rochester			Tewkesbury
			Clinton River Spillway Habitat Restoration	NOAA	Oct-11	Jun-13	MCPWO		Current grant is for planning and design only	Tewkesbury
			Storm Water Management Project at Van Hoosen Farm on Stony Creek	TBD	TBD	TBD	Clinton PAC, CRWC and City of Rochester			Tewkesbury
			Acquisition of Riparian Conservation Easements on the Main Branch, North Branch, Paint Creek, and at the Upland Hills Nature Center.	TBD	TBD	TBD	Clinton PAC, CRWC			Tewkesbury
			Streambank Stabilization and Habitat Restoration within Harrington Drain	TBD	TBD	TBD	Clinton PAC, CRWC			Tewkesbury
			Avon Creek Restoration	2010 EPA GLRI Grant	Apr-11	Oct-11	City of Rochester Hills			Tewkesbury
			Oakland County Complex Mainland Drain Project	TBD	TBD	TBD	TBD			Tewkesbury
			Rochester Hills Woody Debris Management Plan	TBD	TBD	TBD	TBD		Identified in the Delisting Targets for F&W Habitat and Population BUIs for the Clinton AOC document	Tewkesbury
			McBride Drain Restoration - North Branch	TBD	TBD	TBD	TBD		Identified in the Delisting Targets for F&W Habitat and Population BUIs for the Clinton AOC document	Tewkesbury
			Hart Drain Restoration - North Branch	TBD	TBD	TBD	TBD		Identified in the Delisting Targets for F&W Habitat and Population BUIs for the Clinton AOC document	Tewkesbury

			Ferry Drain and Renshaw Drain Stabilization - City of Troy	TBD	TBD	TBD	TBD		Identified in the Delisting Targets for F&W Habitat and Population BUIs for the Clinton AOC document	Tewkesbury
			Crystal Lake Dam Cold Water Bottom Draw	TBD	TBD	TBD	TBD		Identified in the Delisting Targets for F&W Habitat and Population BUIs for the Clinton AOC document	Tewkesbury
			Fish Passage Modification to the Oakland/Woodhull Lake Level Structure	TBD	TBD	TBD	TBD		Identified in the Delisting Targets for F&W Habitat and Population BUIs for the Clinton AOC document	Tewkesbury
			Clarkston/Kern Road Crossing Improvements	TBD	TBD	TBD	TBD		Identified in the Delisting Targets for F&W Habitat and Population BUIs for the Clinton AOC document	Tewkesbury
			Silver Bell Road and Dutton Road Crossing Improvements	TBD	TBD	TBD	TBD		Identified in the Delisting Targets for F&W Habitat and Population BUIs for the Clinton AOC document	Tewkesbury
			Stream Bank Restoration near Riverside Park - Auburn Hills	TBD	TBD	TBD	TBD		Identified in the Delisting Targets for F&W Habitat and Population BUIs for the Clinton AOC document	Tewkesbury
			Deer Creek Restoration - North Branch	TBD	TBD	TBD	TBD		Identified in the Delisting Targets for F&W Habitat and Population BUIs for the Clinton AOC document	Tewkesbury
			Assess and Remove Contaminated Sediments from Suspected or Known Locations within the East Subwatershed	GLLA	Apr-11	Oct-12	GLNPO, Clinton PAC		Also addresses Restrictions on Dredging BUI	Tewkesbury
			Shadyside Park Sediment Removal - Mt. Clemens	GLLA	TBD	TBD	GLNPO, Clinton PAC		Also addresses Restrictions on Dredging BUI	Tewkesbury

			Sterling Relief Spillway Naturalization	TBD	TBD	TBD	TBD		Identified in the Delisting Targets for F&W Habitat and Population BUIs for the Clinton AOC document	Tewkesbury
			Springfield Township Wetland Restoration	TBD	TBD	TBD	TBD		Area believed to be pre-settlement wetlands as identified by MNFI and Clinton AOC Wetland Restoration Prioritization Project	Tewkesbury
			Independence Township Wetland Restoration	TBD	TBD	TBD	TBD		Area believed to be pre-settlement wetlands as identified by MNFI and Clinton AOC Wetland Restoration Prioritization Project	Tewkesbury
			Oakland Township Wetland Restoration Project	TBD	TBD	TBD	TBD		Area believed to be pre-settlement wetlands as identified by MNFI and Clinton AOC Wetland Restoration Prioritization Project	Tewkesbury
			Bruce Township Wetland Restoration Project	TBD	TBD	TBD	TBD		Area believed to be pre-settlement wetlands as identified by MNFI and Clinton AOC Wetland Restoration Prioritization Project	Tewkesbury
			Ray Township Wetland Restoration Project	TBD	TBD	TBD	TBD		Area believed to be pre-settlement wetlands as identified by MNFI and Clinton AOC Wetland Restoration Prioritization Project	Tewkesbury
			Washington Township Wetland Restoration Project	TBD	TBD	TBD	TBD		Area believed to be pre-settlement wetlands as identified by MNFI and Clinton AOC Wetland Restoration Prioritization Project	Tewkesbury



			North Branch Floodplain Restoration, Conservation Easement and Nicholson Center	TBD	TBD	TBD	TBD		33 acre conservation easement with Six Rivers Regional Land Conservancy	Tewkesbury
			Phragmites Removal Projects Throughout Watershed	Various	Ongoing	TBD	MCPWO, Clinton PAC		Identified in the Delisting Targets for F&W Habitat and Population BUIs for the Clinton AOC document	Tewkesbury

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## **References**

Revised Great Lakes Water Quality Agreement of 1978. International Joint Commission, 1987.

LeSage, S. and J. Smith. 2008. Water Quality and Pollution Control in Michigan: 2008 Sections 303(d), 305(b), and 314 Integrated Report. Report MI/DEQ/WB-08/007. Available at: [http://www.michigan.gov/deq/0,1607,7-135-3313\\_3686\\_3728-12711--,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3686_3728-12711--,00.html)

Michigan Department of Community Health Fish Consumption Advisory  
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