Delisting Targets for Fish/Wildlife Habitat and Population Beneficial Use Impairments for the Rouge River Area of Concern Addendum

Office of the Great Lakes
Great Lakes Management Unit
Michigan Department of Natural Resources

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Degradation of Fish and Wildlife Habitat and Populations and Degradation of Benthos Beneficial Use Impairments

Significance in the Rouge River Area of Concern

According to the 2004 RAP, much of the Rouge River's natural floodplain still exists as parklands, and in certain areas of the headwaters, riparian habitat quality is relatively good. However, loss of fish and wildlife habitat and degraded populations are considered impaired in all four main branches and tributaries. In-stream aquatic population and habitats throughout the watershed have been damaged by high peak flows due, in part, to the significant amount of impervious surfaces, and by stream bank erosion that have resulted in significant sediment loads to the river. Wetlands have also been significantly reduced due to development. Floodwater storage has been reduced while flow volumes and flow velocity have doubled. Excessively high storm water quantities have eroded stream banks, scoured streambeds, and have degraded aquatic habitat by filling in pools and burying riffles.

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 RRAC, 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.

It was the intention of the Rouge River AOC F/W Plan technical committee that the targets be challenging yet not unrealistically attainable. It was recommended that the overarching targets be periodically reviewed and modified if it was determined that any of them were deemed impossible to reach. Further, the Rouge River AOC F/W Plan identified a number of high priority habitat restoration projects that, due to a lack of resources, did not have any detailed feasibility studies associated with them. These targets and project descriptions were compiled into the Delisting Targets for Fish & Wildlife Habitat & Population Beneficial Use Impairments for The Rouge River Area of Concern (Rouge River AOC F/W Plan). As of 2010, the Rouge River AOC F/W Plan had not been formally

approved by the MDEQ (currently MDNR).

In order to better define the extent of the fish and wildlife populations and habitat impairments and degradation of benthos impairment, the RRAC completed a Fish and Wildlife Population BUI Pre-Assessment and a Degradation of Benthos BUI Pre-Assessment in 2014. During this process existing fish, wildlife, and benthic data was analyzed to provide a rating for all of the sampled reaches within the watershed. All analyses were reviewed by a technical committee comprised of fisheries and biological experts. In addition, a review was completed by the MDNR AOC Coordinator of the most current MDEQ and MDNR biological assessments of the Clinton River watershed to provide additional technical information.

Based on this work the following reaches were identified as the most impaired within the AOC:

Impaired Segment	**Source**	**Findings**
Johnson Creek	1994 RAP Update	DO issues
Sump Drain	1994 RAP Update	Lack of instream habitat
Fowler Creek	1994 RAP Update, MDEQ Biological Assessment 2009	Poor fish scores, lack of instream habitat
Bell Creek	1994 RAP Update	Lack of instream habitat
Tarabusi Creek	1994 RAP Update, MDEQ Biological Assessment 2009	Lack of instream habitat
Willow Creek	1994 RAP Update	Lack of instream habitat
Minnow Pond Drain	1994 RAP Update	Lack of instream habitat
Bishop Creek	MDEQ Biological Assessment 2009	High total dissolved solids due to non-point sources, poor benthic scores, poor fish scores
Sines Drain	MDEQ Biological Assessment 2009	Poor benthic scores, poor fish scores
Middle Rouge near Wayne and Hines	MDEQ Biological Assessment 2009	Poor benthic scores
Tonquish Creek	MDEQ Biological Assessment 2009	Poor benthic scores, poor fish scores
Deer Drain at Hix	MDEQ Biological Assessment 2009	Poor benthic scores, poor fish scores
Seeley Drain	MDEQ Biological Assessment 2009	Poor benthic scores

Ashcroft Drain	MDEQ Biological Assessment 2009	Poor benthic scores
Pebble Creek	MDEQ Biological Assessment 2009	Poor fish scores
Evans Creek	MDNR Fisheries Assessment 1998	Very poor macroinvertebrate populations with little diversity
Wayne Road downstream to Newburgh Lake	MDNR Fisheries Assessment 1998	Very poor macroinvertebrate populations with little diversity
Lower Rouge from Merriman downstream	MDNR Fisheries Assessment 1998	Very poor macroinvertebrate populations with little diversity

Building from the list of most impaired segments within the Rouge River AOC, it was determined that a habitat subcommittee or workgroup be convened to begin the process of establishing a list of habitat projects that would best address these areas and eventually lead to the removal of the fish and wildlife, as well as benthos, BUIs.

One of the first charges of the committee was a solicitation of potential habitat projects from all PAC members especially those that would address the identified impaired areas. The projects were reviewed for a number of factors including progress towards fish and wildlife BUI removal, benthos BUI removal, feasibility, viability, and landowner cooperation among others. After an initial evaluation of the potential projects additional information was requested of the project sponsors to include specific quantitative measures such as reduction in sediment loads, miles of connectivity, feet of in-stream habitat, etc. After this additional information was received a formal review of the candidate projects was completed over a period of eighteen months to create the final Rouge River AOC Habitat Project List.

Outcomes and Quantitative Measures
Completion of the 28 Projects Necessary for the Loss of Fish/Wildlife Habitat and Populations BUI Removal would result in the following:

- **58 acres** of wetland habitat
- **22 acres** of open water habitat
- **4,380 linear feet** of instream habitat
- **4,795 linear feet** of shoreline habitat
- **49 acres** of upland habitat
- **15 acres** of reforestation
- **One** fish passage project
- **158 miles** of river reconnectivity

- **400 linear feet** of streambank naturalization
- **36 acres** of invasive species management

Although the Rouge River AOC encompasses 467 square miles and over 126 river miles. These selected projects have been designed to address those areas within the watershed that are the most degraded based on current and historical data. Restoring habitat within these targeted areas will improve the overall health of the entire Rouge River AOC which includes the entire Rouge River watershed. The anticipated investment to implement the 25 habitat projects, not including the Concrete Channel Modification/Enhancement, equates to approximately $64,094 per square mile of watershed and approximately $22.17 per watershed resident with the estimate of 1.35 million residents, the second most populous river basin in Michigan. Implementation of the 25 projects identified within this document, success of previously completed projects, and continued progress on the remaining BUIs, will bring the Rouge River AOC to all management actions complete and eventual AOC delisting.

ROUGE RIVER AREA OF CONCERN (AOC)
PROJECTS NEEDED TO REMOVE THE HABITAT BUIs

Prepared by the Rouge River Advisory Council (RRAC)
February 25, 2016
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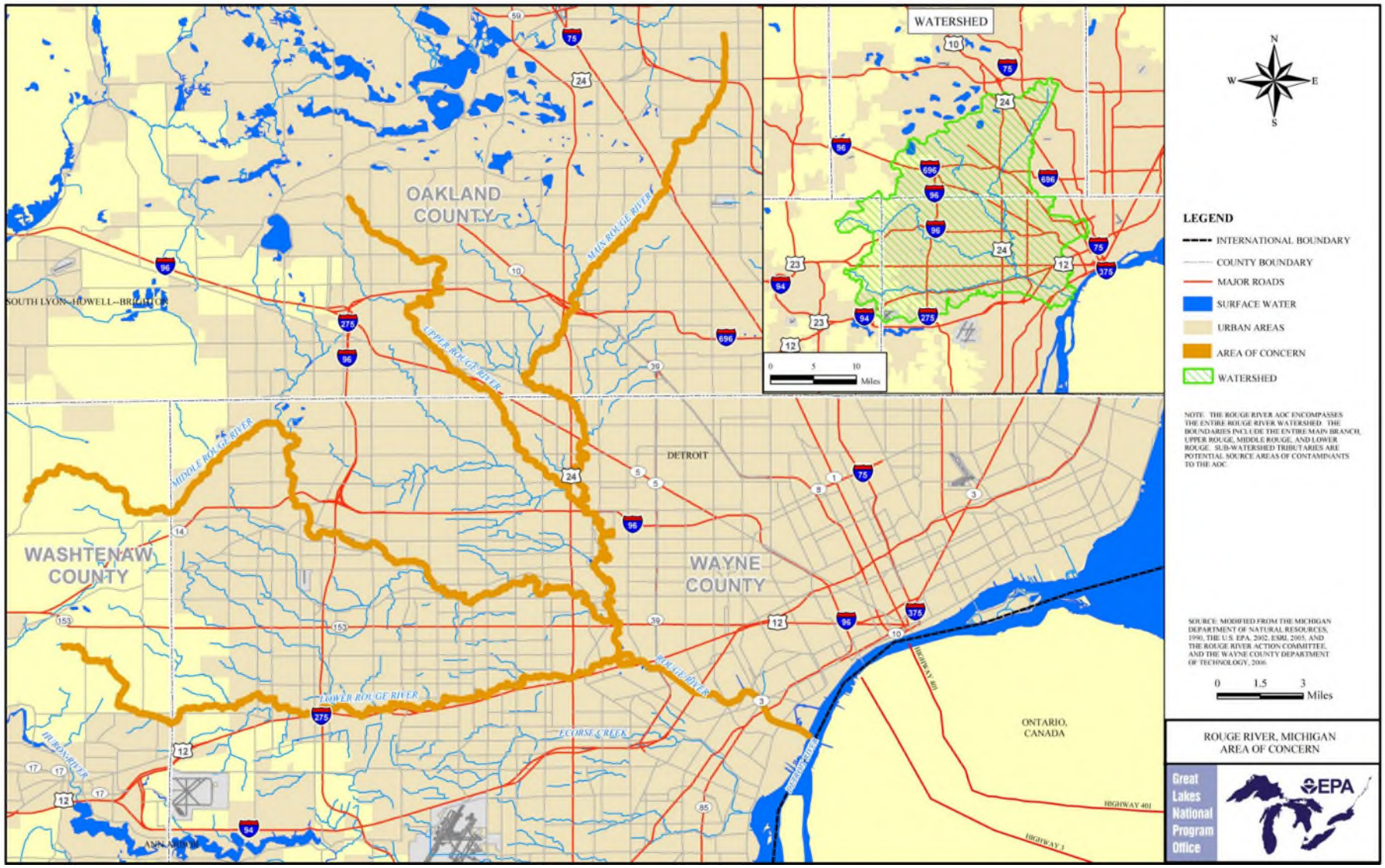
BRANCH	MAP ID	PROJECT NAME	COST ESTIMATE
MAIN	A	Valley Woods Wetland Restoration	PROJECTS COMPLETED
	H	Eliza Howell & River Rouge Parks Habitat Improvements	
	B	Danvers Pond Dam Removal and Stream Restoration	
	C	Rouge Oxbow Restoration	
	D	Carpenter Lake Restoration	
	E	Kingfisher Bluff Restoration	
	F	Fordson Island Marine Debris Removal	
	1	Fordson Island and Upland Habitat Restoration (Phase 1 & 2)	$2,732,000
	2	Patton Park Wetland Restoration	$900,000
	3	Rouge Oxbow Restoration Phase 3	$1,600,000
	4	Henry Ford Estate Dam Fish Passageway	$1,950,000
	5	Tamarack Creek Stream and Wetland Restoration	$2,700,000
	6	LTU Wetland Restoration	$519,000
	7	Fire Fighters Park Sprague Stream Improvements	$650,000
	TOTAL FOR MAIN BRANCH		**$11,051,000**
UPPER	I	Lola Valley Park Habitat Improvements	PROJECT COMPLETED
	8	Lola Valley Park Wetlands	$404,200
	9	Bell Creek Park Wetlands	$469,200
	10	Seeley Creek Restoration	$815,000
	TOTAL FOR UPPER BRANCH		**$1,688,400**
MIDDLE	J	Newburgh Lake Restoration	PROJECTS COMPLETED
	K	Wayne County Parks Property Habitat Improvements	
	11	Merriman Hollow Wetland & Grow Zone	$196,500
	12	Perrin Park Wetlands & Reforestation	$884,000
	13	Wallaceville West Wetland	$208,600
	14	Nankin Lake Restoration	$2,935,800
	15	Riverview Park Wetlands	$2,186,600
	16	Wilcox Lake Habitat Improvements	2,052,750
	17	Phoenix Lake Habitat Improvements	$182,000
	18	Johnson Creek Fish Hatchery Park Habitat	$612,780
	19	Sherwood Park Wetland	$295,500
	20	Johnson Intercounty Drain Restoration	$2,995,000
	TOTAL FOR MIDDLE BRANCH		**$12,549,530**
LOWER	L	Inkster CSO Basin Habitat Improvements	PROJECTS COMPLETED
	M	Venoy Park Habitat Improvements	
	G	Wayne Road Dam Removal and Stream Restoration	
	21	Inkster Park Wetlands & Fish Habitat Structures	$949,000
	22	Venoy Wetlands & Fish Habitat Structures	$1,286,200
	23	Colonial Park Wetland & Reforestation	$558,000
	24	Lower Rouge River Habitat Restoration	$1,000,000
	TOTAL FOR LOWER BRANCH		**$3,793,200**
VARIOUS BRANCHES	25	Grow Zone Retrofits	$850,000
ARMY CORPS	26	Concrete Channel Modifications/Enhancements with Oakwood Commons Oxbow and Michigan Ave./Evergreen Rd. Stormwater Treatment and Habitat Restoration	TBD
GRAND TOTAL FOR ALL BRANCHES			**$29,932,130**


WATERSHED
OAKLAND COUNTY
WASHTENAW COUNTY
WAYNE COUNTY
DETROIT
ONTARIO, CANADA
SOUTH LYON–HOWELL–BRIGHTON
ANN ARBOR
MAIN ROUGE RIVER
UPPER ROUGE RIVER
MIDDLE ROUGE RIVER
LOWER ROUGE RIVER
RIVER ROUGE
ECORSE CREEK
HURON RIVER
DETROIT RIVER
HIGHWAY 401
HIGHWAY 3
0 5 10 Miles
N
W
E
S
LEGEND
INTERNATIONAL BOUNDARY
COUNTY BOUNDARY
MAJOR ROADS
SURFACE WATER
URBAN AREAS
AREA OF CONCERN
WATERSHED
NOTE: THE ROUGE RIVER AOC ENCOMPASSES THE ENTIRE ROUGE RIVER WATERSHED. THE BOUNDARIES INCLUDE THE ENTIRE MAIN BRANCH, UPPER ROUGE, MIDDLE ROUGE, AND LOWER ROUGE. SUB-WATERSHED TRIBUTARIES ARE POTENTIAL SOURCE AREAS OF CONTAMINANTS TO THE AOC.
SOURCE: MODIFIED FROM THE MICHIGAN DEPARTMENT OF NATURAL RESOURCES, 1990, THE U.S. EPA, 2002, ESRI, 2005, AND THE ROUGE RIVER ACTION COMMITTEE, AND THE WAYNE COUNTY DEPARTMENT OF TECHNOLOGY, 2006.
0 1.5 3 Miles
ROUGE RIVER, MICHIGAN
AREA OF CONCERN
Great Lakes National Program Office
EPA

Resources

Michigan Department of Environmental Quality. 2004. Rouge Remedial Action Plan.

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