Chapter 4: Middle One Subwatershed Goals

4.1 Goals of the Middle One Subwatershed Advisory Group

The designated and desired uses for the Middle One Subwatershed, as well as the vision for the Rouge River as stated by the RAP, the Subwatershed Advisory Group (SWAG) and the public, provide a basis from which to build long-term goals and objectives for the subwatershed. In the list of goals and objectives below, it is important to realize that the SWAG is striving not only for the restoration of impairments in the subwatershed, but also for the protection of high quality waters and existing natural features which define many of the tributaries in the subwatershed as described in Chapter 3. In addition to defining long term goals for the restoration and protection of these natural systems through improving ecological parameters, the SWAG has also incorporated into its goals administrative parameters that will define the long term institutional framework and sustain the planned restoration and protection efforts over time.

Long term goals, for the purposes of this plan, are defined as a future condition of the river toward which the communities and agencies of the SWAG will work. Long-term goals are roughly defined as goals that are not expected to be met within the first five years of plan implementation, but are to be met at some time beyond the first five years of implementation. Progress in achieving the goals will be defined by monitoring the physical and biological conditions of the river. These long-term goals have been developed on a subwatershed-wide basis. This means that the goals have been established to identify the direction toward which the subwatershed will collectively strive to improve or protect the condition of the river. As a result, no single community or agency is responsible for achieving all of the goals or any one of the goals on its own. However, the goals represent the desired end product of many individual actions, which will collectively and synergistically protect and improve the water quality, water quantity and biology of the river. The subwatershed communities and agencies will strive together to meet these long-term goals to the maximum extent practicable, by implementing a variety of BMPs over time, as applicable to the individual communities and agencies, relative to their specific priorities, their individual jurisdictions, their authority and their resources.

Objectives[47], for the purpose of this plan, define the general list of activities, tasks, or BMPs that are recommended for addressing and ultimately reaching each long-term goal. It should be noted that, given the diversity of the communities and agencies within this subwatershed, there are some objectives that have already been undertaken in some areas, some objectives that need to be implemented in other areas, and some objectives that only apply to certain governmental jurisdictions that have authority over a specific action. Thus, not all objectives apply to all communities and agencies across the subwatershed. Rather, the objectives describe which types of actions or BMPs should be applied where appropriate and feasible to best collectively meet a specific subwatershed goal.

Due to the complex ecological nature of the response of the river to stormwater management, it is difficult to predict when these goals will be met in the future. Some of the administrative long term goals might realistically be met in the next few years, whereas some of the ecological goals will require more study and improvements, and may take ten to twenty years to achieve, or more. Rather than attempting to predict when these goals will be achieved, the SWAG will continuously strive to meet these goals by implementing various best management practices (BMPs) that are recommended for addressing the various goals. The SWAG will understand what progress is being made to achieve these goals by using an iterative process of implementing BMPs and evaluating the effects of these BMPs by regularly monitoring the river for change and degree of improvement, as described in Appendix D.

Listed below are the collective long term goals and objectives as agreed upon by the Subwatershed Advisory Group. Note that the goals, nor the objectives listed underneath, are not in any specific order of

[47] It should be noted that the General Permit language states that "short term goals" must be defined in this plan. As per MDEQ agreement during the plan development process, however, short term objectives may be substituted for short term goals in the plan.

priority. These goals are followed by a description of the designated and desired uses for the Middle One Subwatershed, as well as the goals established by the Rouge River Remedial Action Plan Update (RAP, 1994), and each of these relates to the subwatershed goals established in this plan.

Long Term Goals and Objectives for the Middle One Subwatershed of the Rouge River:

Long Term Goal 1: **Reduce flow variability.**

Objectives:

1.A. Develop water resource protection and management ordinances to manage peak flow rates.

1.B. Study and implement BMPs for low impact development for undeveloped areas.

1.C. Study and implement BMP programs for developed areas.

Long Term Goal 2: **Reduce nutrient loading, especially with regard to all impoundments of the Middle Rouge River, upstream of and including Newburgh Lake.**

Objectives:

2.A. Develop ordinances for reducing nutrient loading,

2.B. Develop education, incentive, and public stewardship programs promoting source control and treatment of nutrients.

2.C. Study and implement BMP programs or projects for developed and undeveloped areas for source control and treatment of nutrients.

Long Term Goal 3: **Reduce soil erosion and sedimentation.**

Objectives:

3.A. Develop or revise ordinances to prevent, minimize and reduce soil erosion and sedimentation, especially from construction sites.

3.B. Implement BMPs for effective soil erosion and sedimentation prevention and mitigation, addressing both upland sources as well as sources from streambank erosion.

3.C. Improve soil erosion and sedimentation control inspection and enforcement, as well as education, for parties responsible.

Long Term Goal 4: **Protect and mitigate the loss of natural features.**

Objectives:

4.A. Develop natural features inventories and/or assessments to determine plans for preservation and/or restoration of natural features.

4.B. Develop ordinances for managing natural features to benefit stormwater quality and quantity.

Long Term Goal 5: **Increase opportunities for passive and active recreational uses.**

Objectives:

5.A. Eliminate/correct sources of bacteria that are harmful to public health and that limit river use, including illicit connections, failing septic systems and other sources.

5.B. Identify key areas to protect and plan for recreational and interpretive opportunities in appropriate communities, especially along the river.

5.C. Develop or restore recreational uses - such as fishing, canoeing, hiking, biking - where feasible, appropriate and desired, especially along the river and certain creeks.

Long Term Goal 6: **Improve water quality, water quantity and biological monitoring in the subwatershed to measure progress.**

Objectives: 6.A. Review existing and historical monitoring; identify and secure additional long-term monitoring resources.

Long Term Goal 7: **Increase public understanding of their role in protecting water quality.**

Objectives: 7.A. Develop and/or promote existing public involvement programs (workshops, events, etc.) to improve the public's understanding of their role in protecting water quality.

7.B. Develop and/or continue Information and Education programs (brochures, newsletters, etc.) to disseminate water quality messages to the public.

Long Term Goal 8: **Integrate stormwater management in planning and land use approval process.**

Objectives: 8.A. Develop water resource ordinances, site plan review processes, education and incentive programs to encourage stormwater management in planning.

8.B. Develop plans/programs for ongoing education about stormwater management tools for local officials, planning commissioners and others.

Long Term Goal 9: **Establish financial and institutional arrangements for the fulfillment of the management plan.**

Objectives: 9.A. Develop creative financing programs to support local stormwater management systems.

9.B. Continue involvement with the Rouge River Advisory Council (RRAC) and the Rouge River Steering Committee as advisory and decision-making bodies to guide watershed-wide decisions so that standards, ideas, programs are shared.

Long Term Goal 10: **Enforce action plans and increase accountability for stormwater management.**

Objectives: 10.A. Develop and implement enforceable Storm Water Pollution Prevention Initiatives (SWPPIs), acceptable to regulatory agencies as well as local communities and agencies.

10.B. Develop and adopt water resource protection ordinances that are enforceable.

4.2 Designated uses of waterbodies in the Middle One Subwatershed

According to the Michigan Department of Environmental Quality, the primary criterion for water quality is whether the waterbody meets certain designated uses. Designated uses are recognized uses of water established by state and federal water quality programs. In Michigan, the goal is to have all waters of the state meet all designated uses, that apply to the waterbody. It is important to note that not all of the uses listed below may be attainable, but that as a basis for establishing long-term goals, they provide a positive direction toward which the subwatershed can move. The table below provides a reference to the goals of the SWAG and how they relate to the designated and desired uses for the Rouge River system.

It is the assumption of the SWAG that if the communities and agencies take action toward the ten goals listed above, that the designated uses appropriate for local creeks and the river, will be under restoration and improved considerably. Taking actions and measuring the progress toward reaching these goals will be characterized by an iterative approach. As described in Appendix D, the goals and actions will be compared to results of regular monitoring on a bi-annual basis, and on a subwatershed and watershed level, to determine reasonable and steady progress toward these goals, related water quality standards, and designated or desired uses over the long term.

Middle One Subwatershed Designated Uses[48]:

All surface waters of the state of Michigan are designated for and shall be protected for all of the following uses[49]. Those that apply to the Middle One Subwatershed (according to discussions and understanding of the Middle One SWAG) are in **boldface**:

1. Agriculture (N/A)
2. Industrial water supply (N/A)
3. Public water supply at the point of intake (N/A)
4. Navigation (N/A)
5. **Warmwater fishery**
6. **Other indigenous aquatic life and wildlife**
7. **Partial body contact recreation**
8. **Total body contact recreation between May 1 and October 31**
9. **Coldwater fishery (for Johnson Creek only)**

Table 4.1: Middle One Subwatershed Threatened, Impaired and Desired Uses

Threatened Use	Concern	SWAG Goals that address concerns/uses
A. Coldwater fishery (for Johnson Creek only)	High flow variability. Increase in impervious surfaces. Loss of natural features. Need for protection of riparian corridor. Need for protection of groundwater recharge areas. Need to protect temperature regime.	1-6, 8-10
B. Warmwater fishery	High flow variability. High total suspended solids. High nutrient loading.	1-6, 8-10

[48] Brown, E.; Perterson, A.; Kline-Roback, R.; Smith, K.; Wolfson, L. February, 2000. Developing a Watershed Management Plan for Water Quality: and Introductory Guide, Institute for Water Research, Michigan State University Extension, Michigan Department of Environmental Quality, P.10.
[49] R323.1100 of Part 4, Part 31 of PA 451, 1994, revised 4/2/99

Threatened Use	Concern	SWAG Goals that address concerns/uses
C. Indigenous aquatic life and wildlife	Increasing loss of natural features and habitat. High flow variability. High nutrient loading. High sediment loading. Directly connected impervious surfaces. Increased future development.	1-6, 8-10
Impaired Use	**Concern**	**SWAG Goals that address concerns/uses**
D. Partial body contact recreation	High E. coli bacteria. High nutrient loading.	2, 5, 6, 8-10
E. Total body contact recreation between May 1 and October 31	High E. coli bacteria. High nutrient loading.	5,6, 8-10
Desired Use	**Concern**	**SWAG Goals that address concerns/uses**
F. Developing/enhancing recreational uses in and along the river system; enhancing aesthetics	Public access insufficient. Public awareness and stewardship needed. Frequent log jams. High total suspended solids. High nutrient loading causing algal blooms. High E. coli bacteria. Need for riparian protection and restoration. Need to restore fisheries.	1-5, 7-10

4.3 Comparison with Rouge River Remedial Action Plan Goals

The Great Lakes Water Quality Agreement (GLWQA), a water quality preservation agreement between the United States and Canada, laid out a format for the development of remedial action plans (RAPs) for specified waterways within the Great Lakes Watershed. The Rouge River Watershed is one of these Areas of Concern (AOC) for the Great Lakes region. Therefore, the RAP goals are based on certain "use impairments" as determined relevant to the Rouge. The GLWQA defines "use impairments" as any change in the chemical, physical or biological integrity of the Great Lakes System that causes certain problems such as loss of fish and wildlife habitat and degradation of benthos (aquatic insects). The original Rouge River RAP, a nine-volume document published in 1989, defined an ambitious 20-year program of actions needed to protect public health and to make substantial progress toward full cleanup of the river. The 1989 RAP focused on sources of pollution largely those that presented an immediate threat to human health and were easier to regulate and control such as sanitary sewer systems. The 1994 Rouge River RAP Update began to integrate more of an ecosystem approach into the Rouge RAP and contains goals to more directly address the River's impaired uses. These long term goals are listed below. For information about progress toward these goals since 1994, consult the 1998 Rouge River Remedial Action Plan Progress Report. It should be kept in mind that not all of the impaired uses nor the long and short term goals apply directly to the Middle One Subwatershed in that the RAP was conducted on a Watershed-wide basis, covering all seven diverse subwatersheds in the Rouge. However, the related goals that are being addressed in this Subwatershed Management Plan are indicated in the right-most column.

Table 4.2: Comparison of Middle One SWAG Goals with Rouge River Remedial Action Plan Goals

Rouge River Use Impairments (in order of priority)	Long term goals (1994 RAP)	Short term goals (1994 RAP)	SWAG Goals that address RAP goals
1. Restrictions on swimming and other water-related activities.		- Reduce the bacterial levels in problem areas in order to make the river safe for full body contact recreation	3, 4, 7, 8, 10
2. Loss of Fish and Wildlife Habitat	- Encourage the enhancement of existing wetlands and other critical habitats and the creation of new wetland habitats.	- Minimize the negative effects on existing fish and wildlife habitats. - Identify and protect the remaining relatively healthy headwaters, biotic refuges, riparian areas, floodplains, and smaller, intact river habitats throughout the watershed. After protection of these healthy habitats is complete, begin to rehabilitate the areas between them to link these healthy portions together. - MDNR divisions should coordinate with other divisions/agencies in reviewing proposed developments.	4,8
3. Degradation of fish populations	- Protect and enhance fish populations.		1-7
4. Degradation of benthos	- Benthic macroinvertebrate communities throughout the Rouge River Watershed should routinely achieve a rating of at least "good" (or slightly impaired) as defined in the MDNR's Great Leakes and Environmental Assessment Section Procedure (GLEAS) 51.		1-8, 10
5. Degradation of wildlife populations	- Protect and enhance wildlife populations within the Rouge River Watershed with special emphasis on protection of rare, threatened or endangered species.		1-5, 7,8
6. Eutrophication or growth of undesirable algae	- Eliminate cultural eutrophication or undesirable algae		2,4,7,8, 10
7. Degradation of Aesthetics	- Eliminate objectionable deposits, unnatural color of turbidity, and unnatural odors that interfere with river aesthetics. It should be noted that the removal of all woody debris is not recommended, because in some cases it provides important habitat for aquatic organisms.		1-5, 7-10
8. Restrictions on fish consumption	- Work toward the elimination of fish consumption advisories in resident fish.		2-10
9. Bird or animal deformities or reproductive problems	- Determine if deformities or reproductive problems exist in bird and animal populations and reduce their occurrence if present.		2-4, 7-10
10. Restrictions on dredging activities	- Eliminate restrictions on dredging activities.	- Ensure that local governments are made aware of areas with contaminated sediments in order to reduce environmental and human health risks from exposure to these sediments.	3, 6, 8-10
11. Fish tumors or other deformities	- Reduce contaminant-caused tumors to less than two percent of the fish population.		3,6,8
12. Tainting of fish and wildlife flavor	- Determine if tainting of game fish and wildlife flavor exists and, if present, eliminate any sources of contamination that may cause and undesireable taste.		1-3, 7, 8

Rouge River Use Impairments (in order of priority)	Long term goals (1994 RAP)	Short term goals (1994 RAP)	SWAG Goals that address RAP goals
13. Restrictions to navigation	- Identify and eliminate sources that are contributing to the obstruction of stream channels.		1, 3, 5