

Chapter 8: Implementation Strategy

8.1 Introduction

The overall implementation strategy of the Watershed Restoration Plan (WRP) is presented in this chapter. The implementation strategy incorporates an "adaptive management" approach, which is a systematic management approach that allows decisions to be modified and improved over time based on results from previous decisions and/or new information. This approach can be summarized by the phrase: Plan-Do-Check-Act. The terms in this phrase, for the purposes of this WRP, are summarized below:

Plan – Identify actions to improve water quality and habitat in the Kinnickinnic River watershed.

Do – Implement the identified actions.

Check – Monitor the incremental progress of the implemented actions toward achieving water quality and habitat improvements.

Act – Evaluate the results, consider new information, and then modify the plan as necessary. Actions that have been successful should be continued. Actions that did not produce the desired outcome should be modified or eliminated. This starts the adaptive management process over again.

This strategy, along with previous chapters in this WRP, can be used by the Southeastern Wisconsin Watersheds Trust, Inc. (SWWT) to further develop an implementation plan for the watershed. The specific portions of the WRP that will be the most useful for this purpose include: Chapter 4, Appendix 4A, Chapter 6, Chapter 7 (especially Tables 7-1 through 7-5), and the information provided in this chapter. The Southeastern Wisconsin Regional Planning Commission's (SEWRPC) Regional Water Quality Management Plan Update (RWQMPU) is also a tremendous resource that can be used to help develop the plan.

As part of the "Plan" component under the Plan-Do-Check-Act approach, a phased approach for implementation is recommended. As noted in Chapter 2, the recommended phasing strategy for implementation of this WRP is as follows:

- ◆ **Phase 1- Completed and Committed Actions/Projects:** The first phase in implementing this WRP includes identifying relevant actions or projects that have been recently completed and a recommendation to implement already committed projects and programs. This phase represents recent progress and will continue approximately through the year 2015.

This Phase is documented in Tables 8-1 and 8-2:

- 1) Completed actions are shown in Table 8-1. These are actions/projects that have been completed subsequent to the completion of the SEWRPC's RWQMPU at the end of 2007.
- 2) Actions that are underway are shown in Table 8-2. These are actions/projects that are in the process of being completed at the time this report was being finalized (March 2010)



- ◆ **Phase 2 – Implement Identified Foundation Actions and Other Identified High Priority Actions:** The second phase of adaptive implementation of this WRP includes the implementation of the foundation actions and the other high priority actions identified in this WRP. This phase represents progress in the years 2010 to about 2015.

This phase is documented in Tables 8-3 and 8-4:

- 1) Actions that are being initiated are shown in Table 8-3. These are actions/projects that are being initiated at the time this report was being finalized (March 2010).
 - 2) Actions that are being considered by the Southeastern Wisconsin Watersheds Trust, Inc. (SWWT) and other agencies and those that are recommended in this WRP are shown in Table 8-4.
- ◆ **Phase 3 – Full Implementation of the RWQMPU:** The third phase of adaptive implementation of this WRP consists of full implementation of the RWQMPU recommendations. Depending on the monitoring results of the first two phases, these actions could include more widespread implementation of the same or modified actions or they could include most of the remaining elements contained in the RWQMPU (medium- and low-priority actions) and the additional actions identified through the development of the WRP. These actions are discussed in Chapters 5, 6 and 7 of this WRP. An emphasis would be placed on the controls that are determined to be most successful (technically, socially, and financially) during Phases 1 and 2. The development of the initiatives noted in Phase 2 will facilitate this effort. This phase would represent progress in the years 2016 to about 2020.

It is anticipated that Phase 3 would result in meeting the water quality and habitat improvement goals presented in the RWQMPU and discussed in Chapter 3 of this WRP. Phase 3 is not presented further in this chapter because the details of this phase will depend upon the results of Phase 1 and 2.

- ◆ **Phase 4 - Enhanced Level of Controls:** The fourth phase of adaptive implementation of this WRP consists of an enhanced level of controls to further improve water quality or habitat beyond the goals established by the RWQMPU. Depending on the monitoring results of the first three phases, these actions could include more widespread implementation of the same or modified actions. An emphasis would be placed on the controls that are determined to be most successful (technically, socially, and financially) during Phases 1, 2 and 3. The development of the initiatives noted in Phase 2 will facilitate this effort. This phase could overlap with Phase 3 and could represent progress in the years 2016 to 2020 or beyond.

Phase 4 is not yet developed nor presented in this chapter because this phase will depend upon the results of Phases 1, 2, and 3.

- ◆ **Phase 5 – Fully Meet Water Quality Standards:** The final phase of implementation would be the adoption of all controls necessary to fully meet achievable water quality standards, whether those are the existing standards, site-specific standards, or future changes in water quality standards. This phase would likely occur after 2020.

8.2 Phase 1 and Phase 2 Actions

The actions identified under Phase 1 and Phase 2 of the implementation strategy are provided in the tables below. For each table, the Focus Area that each action is intended to address is provided. As discussed in Chapters 3 and 5, the Focus Areas were developed with the SWWT committees in order to focus the WRP on three main parameters. The parameters include public health/bacteria, habitat (designated as either land-based or instream-based) and aesthetics, and nutrients/phosphorus. The participants that have either worked on the action, are currently working on the action, or are understood to work on the action in the future are also listed. The listed participants are not intended to limit other organizations from participating and may not be a complete list. However, they are provided to give an indication of who is or might be working on or participating with the implementation of the action. When the participants would likely involve additional organizations that are members of SWWT, SWWT is listed. The list of SWWT member organizations as of March 2010 is provided in Appendix 5B. Also listed in the tables are the results of completed actions, the status of ongoing actions, and/or the intended purpose of the action. If the action was identified as a Foundation Action or Priority Action in Chapter 7, it is noted on the table below the action.

These tables will change over time as actions are completed and the planning process continues. The intent is for the SWWT to update these tables regularly and modify them as necessary to help track progress and results. As the adaptive management process moves forward, the actions for Phases 3, 4 and 5 will be determined and can be added to these tables.

8.2.1 Completed or Committed Actions

Table 8-1 lists recently completed actions on the Kinnickinnic River watershed, the Focus Area the action is intended to address, and the known results of the action. The meanings of the acronyms used are noted at the end of the table.

TABLE 8-1
RECENTLY COMPLETED ACTIONS

Action	Focus Area	Participants	Results
1. Remove Kinnickinnic River Sediment	Habitat – Instream-Based	WDNR, USEPA	Removal of approximately 170,000 cubic yards of sediment contaminated with PCBs and PAHs from Becher Street downstream to Kinnickinnic Avenue

Notes:

PAHs = Polycyclic aromatic hydrocarbons

PCBs = Polychlorinated biphenals

USEPA = U.S. Environmental Protection Agency

WDNR = Wisconsin Department of Natural Resources

Table 8-2 lists actions that have been initiated on the Kinnickinnic River watershed. Initiation is defined as the steps necessary to implement an action, as defined in Table 8-5, have started. The source of the information is footnoted at the end of the table along with the meaning of the acronyms used.



TABLE 8-2
UNDERWAY (ACTION IS FUNDED AND UNDERWAY)

Action	Focus Area	Participants	Purpose	Status
1. Develop and Implement Watershed Restoration Plans ¹	All Focus Areas	Led by the SWWT and including all organizations that are members of SWWT	Use non-governmental organization (NGO) expertise, capacity and constituent base to ensure that non-traditional (people who normally do not engage in these efforts) and traditional participants are engaged in the watershed restoration planning process and that innovative, cost effective approaches are taken to improve water resources	Steps 1-9 of Table 8-5 are underway
2. Initiate legal and Policy Implementation of the Watershed Restoration Plans	All Focus Areas	Led by the SWWT and including Midwest Environmental Advocates, Sixteenth Street Community Health Center, Clean Wisconsin	a. Identify and advance effective and innovative policies and legal tools that will result in watershed restoration	Steps 1-4 of Table 8-5 are underway
			b. Engage key stakeholders through the SWWT Policy Committee in the watershed restoration planning process and choose legal/policy approaches best suited to bringing about the improved water quality and water resources goals of the SWWT	Steps 1-5 of Table 8-5 are underway
3. Develop an Outreach and Communications Strategy ¹ (Foundation Action)	All Focus Areas	1000 Friends of Wisconsin, Clean Wisconsin, Milwaukee Riverkeeper, Midwest Environmental Advocates	a. Raise the awareness of SWWT in the greater Milwaukee watersheds and encourage involvement with issues concerning water quality and coordinated watershed restoration	Steps 1-9 of Table 8-5 are underway
			b. Recruit and involve a broad constituency for watershed restoration efforts	Steps 1-9 of Table 8-5 are underway

Continued...



TABLE 8-2
UNDERWAY (ACTION IS FUNDED AND UNDERWAY)

Action	Focus Area	Participants	Purpose	Status
			c. Communicate the progress and successes of SWWT initiatives	Steps 1-3 of Table 8-5 are underway
			d. Demonstrate the strength of non-traditional partnerships and collaborations in meeting state stormwater regulations and advancing watershed restoration efforts	Steps 1-3 of Table 8-5 are underway
4. Expand SWWT Administration and Committee Support ¹	All Focus Areas	SWWT ESC	Create an integrated structure that supports watershed restoration across municipal and organization boundaries	Steps 1-5 of Table 8-5 are underway
5. Implement projects to comply with nonagricultural (urban) NR 151 requirements (Foundation Action)	Public Health/Bacteria, Phosphorus	WDNR and Municipalities	Compile required reports and estimates of TSS reductions (will also have some benefit for bacteria and phosphorus reduction)	Steps 1-5 of Table 8-5 are underway
6. Complete Kinnickinnic River Flood Management, South Chase Avenue to South 27th Street ² (Foundation Action)	Habitat – Land and Instream-Based	MMSD	a. Reduce the risk of flooding to structures located within the Kinnickinnic River watershed	Steps 1-4 of Table 8-5 are underway
			b. Rehabilitate 12,000 linear feet of concrete channel and replace concrete channel liner with a bioengineered channel and widen the channel where feasible	Steps 1-4 of Table 8-5 are underway
			c. Replace the South 6 th Street Bridge to increase channel conveyance	Steps 1-4 of Table 8-5 are underway
			d. Improve fish passage, channel aesthetics, and riparian area	Steps 1-4 of Table 8-5 are underway
				<i>Continued...</i>

TABLE 8-2
UNDERWAY (ACTION IS FUNDED AND UNDERWAY)

Action	Focus Area	Participants	Purpose	Status
			e. Evaluate alternatives to rehabilitate the channel with a bioengineered channel where feasible	Steps 1-3 of Table 8-5 are underway
7. Complete KK River Sediment Transport Study <i>(Priority Action)</i>	Habitat – Instream-Based	MMSD	Provide a planning document for appropriate flood management, streambank stabilization, and rehabilitation activities within the Kinnickinnic River Watershed. Critical need to reduce channel erosion from 43 rd to 60 th Streets.	Steps 1-3 of Table 8-5 are underway
8. Complete Wilson Park Creek Flood Management Plan ³ <i>(Foundation Action)</i>	Habitat – Land-Based	MMSD	Reduce the flood risk to structures in the Wilson Park Creek subwatershed	Steps 1-3 of Table 8-5 are underway
9. Complete Villa Mann Creek Flood Management ³ <i>(Foundation Action)</i>	Habitat – Land-Based	MMSD	Reduce the flood risk to structures in the Villa Mann Creek subwatershed	Steps 1-3 of Table 8-5 are underway
10. Evaluate and implement Best Management Practices in Holmes Avenue Creek <i>(Foundation Action)</i>	Habitat – Land-Based	American Rivers, MMSD	Promote natural stormwater management practices to reduce flooding, improve water quality and save money and energy	Steps 1-4 of Table 8-5 are underway
11. Research development of better indicator test than fecal coliform to assess risks of disease and determination of human sources <i>(Priority Action)</i>	Public Health/Bacteria	MMSD, SEWRPC, WDNR, GLRI	Develop a better assessment of human health risk to address pathogens in stormwater	Steps 1-3 of Table 8-5 are underway

Continued...



**TABLE 8-2
UNDERWAY (ACTION IS FUNDED AND UNDERWAY)**

Action	Focus Area	Participants	Purpose	Status
12. Implement traditional and innovative techniques to 1) ensure adequate conveyance and storage volume and 2) reduce erosion at outfalls (Priority Action)	Habitat – Land-Based and Phosphorus	MMSD, WDNR, Municipalities	Reduce water quality and quantity impacts from stormwater outfalls, nonpoint runoff and sewer overflows	Steps 1-3 of Table 8-5 are underway
13. Continue outreach and storm drain stenciling, waste disposal, and awareness of invasive species (Priority Action)	Habitat – Land-Based and Instream-Based and Phosphorus	MMSD, WDNR, Municipalities	Continue and expand informational programming	All steps in Table 8-5 are underway
14. Implement MMSD's H ₂ O Capture tool	All Focus Areas	MMSD	Track implementation of green infrastructure within the watershed with an interactive, web-based mapping tool	Table 8-5 action plan steps need to be initiated
15. Continue adaptive implementation of overflow control program (point source control) (Foundation Action)	Public Health/Bacteria and Phosphorus	WDNR, MMSD, and Municipalities	Reduce annual volume and frequency of CSO and SSO	All steps in Table 8-5 are underway
16. Support reduction of phosphorus loads due to the state ban of phosphorus in commercial fertilizers (Foundation Action)	Phosphorus	WDNR, Municipalities, businesses and citizens	Reduce phosphorus loads to the watershed	Steps 1-5 of Table 8-5 are underway

Continued...

**TABLE 8-2
UNDERWAY (ACTION IS FUNDED AND UNDERWAY)**

Action	Focus Area	Participants	Purpose	Status
17. Conduct Water Quality Monitoring ₁ <i>(Priority Action)</i>	Public Health/Bacteria and Phosphorus	MMSD, SEWRPC, WDNR, USGS, Milwaukee Riverkeeper, River Alliance of Wisconsin	a. Improve quality and quantity of data collected to improve decision making b. Ensure a sound, scientific basis for the development, refinement and implementation of the WRPs c. Measure the effectiveness of implementation efforts d. Engage the community, including non-traditional (people who normally do not engage in these efforts) community members, in evaluating improvements in water quality, aesthetics, and habitat	All Steps in Table 8-5 are underway

Continued...



TABLE 8-2
UNDERWAY (ACTION IS FUNDED AND UNDERWAY)

Action	Focus Area	Participants	Purpose	Status
18. Conduct Modeling and Science Work ¹ <i>(Priority Action)</i>	Public Health/Bacteria and Phosphorus	MMSD, SEWRPC, River Alliance of Wisconsin, Clean Wisconsin, Milwaukee Riverkeeper	<p>a. Use scientifically sound modeling results, field collected data, and analysis to inform WRPs (including: continue maintenance of the MMSD conveyance model, the watershed-wide riverine water quality model)</p> <p>b. Measure the effects of implementation activities informed by scientifically sound monitoring results, field collected data, and analysis</p> <p>c. Collaborate between non-governmental organizations (NGO), academics, consulting and practicing science experts, and interested member of the public on scientific dimensions of SWWT's work</p> <p>d. Identify and eliminate illicit discharges to reduce the bacterial pollution in target watersheds to target levels</p> <p>e. Build relationships and generate the necessary resources to eliminate illicit discharges</p>	All Steps in Table 8-5 are underway

Sources:¹ Joyce Fund Reports² MMSD GLRI proposals, November 2009³ MMSD Requests for Proposals posted on website

MMSD = Milwaukee Metropolitan Sewerage District

NR 151 = Wis. Admin. Code Natural Resources (NR) 151 *Runoff Management*

PPCPs = Pharmaceutical and personal care products

SWWT = Southeastern Wisconsin Watersheds Trust, Inc.

TRANS 401 = WisDOT CHAPTER TRANS 401: *Construction Site Erosion Control*

TSS = Total suspended solids



Table 8-3 lists actions that have been initiated on the Kinnickinnic River watershed. Initiation is defined as some initial steps have been completed to begin the action, but due to lack of funding or other factors, steps to complete the action have not started as of the date of this report (March 2010). The source of the information is footnoted at the end of the table along with the meaning of the acronyms used.

TABLE 8-3
INITIATED ACTIONS

Action	Focus Area	Participants	Purpose	Status
1. Develop Green Infrastructure Plan ^{2,3} (Foundation Action)	All Focus Areas	MMSD, SWWT, American Rivers, Municipalities, WDNR and UW-Extension	a. Study green infrastructure and development recommendations for the prioritized implementation of green infrastructure projects b. Quantify the reduction in stormwater runoff and enhanced water quality in the receiving waters c. Continue Green Milwaukee program	Table 8-5 action plan steps need to be initiated
2. Develop engineering techniques to find and fix illicit connections ^{2,3} (Foundation Action)	³ Public Health/Bacteria and Phosphorus	SEWRPC, SWWT, MMSD, Municipalities	Reduce bacteria in the watershed coming from illicit connections	All Table 8-5 action plan steps underway
3. Develop Total Maximum Daily Loads ²	Public Health, Phosphorus, Habitat – Instream-Based	SWWT, MMSD	a. Set the maximum amount of pollutants a watershed can receive while still meeting water quality standards b. Identify steps needed to reach the load allocations and waste load allocations	Table 8-5 action plan steps need to be initiated <i>Continued...</i>

**TABLE 8-3
INITIATED ACTIONS**

Action	Focus Area	Participants	Purpose	Status
4. Renovate the KK River Flushing Station ² (Priority Action)	Public Health, Habitat – Instream-Based	SEWRPC, SWWT, MMSD	Determine the need and economic justification to renovate the Kinnickinnic River Flushing Station in order to improve dissolved oxygen levels	Table 8-5 action plan steps need to be initiated
5. Implement Real Time Monitoring ² (Priority Action)	Public Health, Phosphorus, Habitat – Instream-Based	USGS, MMSD, SWWT	a. Install 4 to 6 real time continuous water quality monitoring sites	All Table 8-5 action plan steps underway
	Public Health, Phosphorus, Habitat – Instream-Based		b. Improve the quality and quantity of data collected to improve decision making	All Table 8-5 action plan steps underway
6. Utilize surveys and management activities to identify and restore both the riparian buffer width and length (including public lands) and inventory environmentally sensitive lands, discourage additional development (Priority Action)	Habitat – Land-Based	SWWT	Expand buffer width and continuity	All Table 8-5 action plan steps underway
7. Expand and continue inventory maintenance for fish passage, habitat and aquatic biota (Priority Action)	Habitat – Instream-Based	SWWT	Continue and expand monitoring and informational programming	All Table 8-5 action plan steps underway
8. Implement Citizen Monitoring Program (includes illicit connection detection) (Foundation Action)	Public Health and Habitat – Instream-Based	Milwaukee Riverkeeper	General water quality sampling as well as location of unknown bacteria sources	All Table 8-5 action plan steps underway <i>Continued...</i>

TABLE 8-3
INITIATED ACTIONS

Action	Focus Area	Participants	Purpose	Status
9. Implement Stormwater Trees program	Habitat – Land Based	SWWT, MCSC, City of Milwaukee, River Revitalization foundation	Plant stormwater trees to help control stormwater runoff	All Table 8-5 action plan steps underway

Sources:

¹ Joyce Fund Reports

² MMSD GLRI proposals, November, 2009

³ SWWT WRP Action Team Summary, November, 2009

KK = Kinnickinnic

MCSC = Milwaukee County Service Corps

MMSD = Milwaukee Metropolitan Sewerage District

SEWRPC = Southeastern Wisconsin Regional Planning Commission

SWWT = Southeastern Wisconsin Watersheds Trust, Inc.

USGS = U.S. Geological Survey

WDNR = Wisconsin Department of Natural Resources

Table 8-4 lists future actions that are recommended in this plan. These are actions that have not been initiated on the Kinnickinnic River watershed as of the date of this report (March 2010). More information for these actions, such as effectiveness and implementation or pollutant reduction targets and goals, is provided in Chapters 5, 6, and 7 in this WRP. The source of the information is footnoted at the end of the table along with the meaning of the acronyms used.

TABLE 8-4
FUTURE ACTIONS RECOMMENDED IN THE WATERSHED RESTORATION PLAN FOR THE KINNICKINNIC RIVER WATERSHED

Action	Focus Area	Participants	Purpose
1. Obtain LEED training and certification for public agency staff ¹	Habitat – Land-Based	Municipalities, Milwaukee County, WisDOT,	Educate public agency staff on general environmental issues
2. Restore Wilson Park Lagoon ¹ (Priority Action)	Habitat – Land-Based	SWWT, Milwaukee County	Improve water quality for recreational use of the lagoon
3. Conduct stormwater public education and outreach consortium ¹ (Foundation Action)	Habitat – Land-Based	Municipalities, Milwaukee County, WisDOT, MMSD	Increase public knowledge regarding stormwater and its relationship to surface water quality <i>Continued...</i>

TABLE 8-4
FUTURE ACTIONS RECOMMENDED IN THE WATERSHED RESTORATION PLAN FOR THE KINNICKINNIC RIVER WATERSHED

Action	Focus Area	Participants	Purpose
4. Implement chloride reduction education and certification program ¹ (Foundation Action)	Habitat – Land-Based	Milwaukee County, WisDOT, private contractors, Municipalities	Educate public works and snow plowing contractors on the issues associated with chlorides and water quality
5. Conduct stormwater/water issues survey of watershed residents ¹	All Focus Areas	1000 Friends	Gather public input on issues of importance
6. Conduct Great Lakes Educational Programs on Lakeshore State Park ¹	All Focus Areas	1000 Friends, Lakeshore State Park, WDNR, UWM, GLWI, Discovery World, Neighborhood House	General public outreach/education
7. Participate in Gathering Waters Festival ¹	All Focus Areas	Lakeshore State Park, US Forest Service Dept. of Agriculture, Keep Greater Milwaukee Beautiful, Milwaukee Moms.com, Columbia St. Mary's, Historic Third Ward, REI, Veolia Water, Rip Tide, Milwaukee Summerfest, USEPA, MMSD and WDNR	General public outreach/education
8a. Develop a Riparian Corridor Management Guide 8b. Implement pilot demonstration projects for the Southern Lake Michigan shoreline and inflowing rivers ¹ (Priority Actions)	Habitat – Land-Based	SEWRPC, Chicago Metropolitan Agency for Planning, Northwestern Indiana Regional Planning Commission, and the Southwest Michigan Regional Planning Commission, SWWT	a. Develop a comprehensive riparian corridor management guide that would address information gaps relative to effectiveness and design features of riparian buffers in rural and urban settings

Continued...



**TABLE 8-4
FUTURE ACTIONS RECOMMENDED IN THE WATERSHED RESTORATION PLAN FOR THE
KINNICKINNIC RIVER WATERSHED**

Action	Focus Area	Participants	Purpose
			b. Provide guidelines for optimally addressing multiple buffer-establishment objectives c. Relate the establishment of buffers to improvements in ecological health, habitat, water quality and aesthetics d. Examine legal issues related to developing buffers
9a. Conduct dry weather surveys to identify outfalls that have dry weather flows 9b. Sample outfalls to determine which have human bacteria discharges (wet and dry weather samples) 9c. Determine ownership/owner of outfalls that have dry weather flows and/or human bacteria 9d. Initiate discussion with owner of outfall to begin determining corrective actions 9e. Implement projects to correct/remove/disconnect unknown sources of bacteria ²	Public Health/Bacteria	Municipalities SWWT with assistance from UWM GLWI and MMSD	Identify unknown sources of bacteria, and correct/remove/disconnect them
<p>(Foundation Actions)</p>			<p style="text-align: right;"><i>Continued...</i></p>

TABLE 8-4

**FUTURE ACTIONS RECOMMENDED IN THE WATERSHED RESTORATION PLAN FOR THE
KINNICKINNIC RIVER WATERSHED**

Action	Focus Area	Participants	Purpose
10a. Identify recreational and body contact areas	Public Health/Bacteria	SWWT	Increase recreational use of watershed
10b. identify other areas with suitable water quality and safe flow conditions for recreation or body contact			
10c. Prioritize areas to restore for recreational use identified above based on success of removing unknown sources of bacteria. ²			
(Foundation Actions)			
11. Identify where public ownership of land can serve as a starting point to increase riparian buffers. ²	Habitat – Land-Based	Milwaukee County, Municipalities, WDNR, DATCP, USDA, SWWT, and Land Trusts	Reduce bacteria sources from land-based activities
(Foundation Action)			
12. Manage pet litter by improving existing municipal and other programs and establishing new programs	Public Health/Bacteria	Milwaukee County, Municipalities, and SWWT	Increase the number of municipalities with strengthened pet litter programs
(Foundation Action)			
13. Implement programs to discourage unacceptably high numbers of waterfowl from congregating near water features - identify areas and take action to discourage waterfowl feeding	Public Health/Bacteria	Milwaukee County, Municipalities, and SWWT	Increase number of areas documented, and successful implementation of programs to eliminate feeding or other food sources for waterfowl
(Foundation Action)			
14. Survey, inventory, maintain and preserve Environmentally Significant Lands	Habitat – Land-Based	MMSD, SEWRPC, WDNR, and others such as land trusts	Increase number of acres purchased or preserved
(Priority Action)			<i>Continued...</i>

TABLE 8-4

**FUTURE ACTIONS RECOMMENDED IN THE WATERSHED RESTORATION PLAN FOR THE
KINNICKINNIC RIVER WATERSHED**

Action	Focus Area	Participants	Purpose
15. Reduce flashiness of streams by restoring floodplain connectivity with the stream system and implementing and maintaining stormwater management practices ² <i>(Foundation Actions)</i>	Habitat – Land-Based	MMSD, WDNR, Municipalities, Milwaukee County	Moderate flow regimes to decrease flashiness, or quick changes in flow
16a. Evaluate existing road salt reduction programs	Habitat – Land-Based	WDNR, MMSD, Municipalities, Milwaukee County	Reduce chloride concentration in streams
16b. Implement new pilot road salt reduction programs			
16c. Implement road salt reduction program education ² <i>(Foundation Actions)</i>			
17. Promote the application of and eliminate barriers to implementation of LID on new developments in the watershed	Habitat – Land-Based	Municipalities, Milwaukee County, and State with support from SWWT and MMSD	Allow developers to use LID to simulate natural hydrology and reduce runoff from development

TABLE 8-4

**FUTURE ACTIONS RECOMMENDED IN THE WATERSHED RESTORATION PLAN FOR THE
KINNICKINNIC RIVER WATERSHED**

Action	Focus Area	Participants	Purpose
18a. Remove concrete-lined channels and other obstructions to fish and aquatic life passage (Foundation Action)	Habitat – Instream-Based	Municipalities SWWT, WDNR and MMSD	Restore fish and aquatic organism passage from Lake Michigan to the headwaters and tributaries (i.e. Follow 3-Tiered Prioritization Strategy as outlined in Appendix 4A)
18b. Restore connectivity with floodplain and recreate a more natural meandering stream to restore stream hydrology dynamics (Foundation Action)			
18c. Expand passage restoration efforts beyond the mainstem to the tributaries and develop and implement plans to remove additional obstructions ² (Foundation Action)			
18d. Provide habitat, maintain water quality to support fisheries, and protect excessively eroding banks (Priority Action)			
19. Implement projects and programs to comply with MS4 permits (Foundation Action)	Phosphorus	WDNR, Municipalities and MMSD	Reduce phosphorus loads from regulated discharges
			<i>Continued...</i>

TABLE 8-4

**FUTURE ACTIONS RECOMMENDED IN THE WATERSHED RESTORATION PLAN FOR THE
KINNICKINNIC RIVER WATERSHED**

Action	Focus Area	Participants	Purpose
20a. Continue MMSD water quality monitoring program and expand it to include biotic sampling	All Focus Areas	MMSD, WDNR, SWWT, USGS	Continue existing level of water quality sampling and funding and integrate data collection efforts among organizations
20b. Continue involvement of USGS in MMSD Corridor Study			
20c. Coordinate WDNR sampling and monitoring programs with MMSD and USGS and integrate NGO sampling efforts			
(Priority Actions)			
21. Identify source locations and continue and expand trash and debris collection and disposal	Habitat and aesthetics	WDNR, MMSD and Municipalities	Continue removal of trash and improve aesthetics
(Priority Action)			
22. Research development of alternatives to phosphorus compounds by public and private researchers in area universities and industries	Phosphorus	MMSD and Municipalities	Reduce use of phosphorus compounds used for control of lead and copper in drinking water systems
(Foundation Action)			
23. Develop a wildlife habitat restoration plan	Habitat – Instream-Based and Land-Based	SWWT	Develop a more specific roadmap to restore habitat in the watershed
(Priority Action)			
24. Protect and expand highest quality aquatic communities, reintroduce natives species, and remove non-natives	Habitat – Instream-Based	SWWT	Restore a sustainable fishery and aquatic community
(Priority Action)			
<i>Continued...</i>			

TABLE 8-4

**FUTURE ACTIONS RECOMMENDED IN THE WATERSHED RESTORATION PLAN FOR THE
KINNICKINNIC RIVER WATERSHED**

Action	Focus Area	Participants	Purpose
25. Enhance WRP implementation planning capacity ¹	All Focus Areas	Clean Wisconsin, Milwaukee Riverkeeper, 16 th St CHC, MMSD, SEWRPC, municipalities, technical consultants, SWWT	Build team that can develop adaptive implementation plan
26. Reduce flashiness of streams by restoring floodplain connectivity with the stream system and implementing and maintaining stormwater management practices ²	Habitat – Land-Based	MMSD, WDNR, Municipalities, Milwaukee County	Moderate flow regimes to decrease flashiness, or quick changes in flow

(Foundation Action)

Sources:¹ SWWT WRP Action Team Summary, November, 2009² Watershed Restoration Plan Chapter 7 Tables³ Organizations listed are understood to participate with implementing the action

CSO = Combined sewer overflow

GLWI = Great Lakes WATER Institute

LEED = Leadership in Energy and Environmental Design

LID = Low impact development

MMSD = Milwaukee Metropolitan Sewerage District

MS4 = Municipal separate storm sewer systems

NGOs = Non-governmental organizations

NR 151 = Wis. Admin. Code Natural Resources (NR) 151
Runoff Management

RWQMPU = Regional Water Quality Management Plan Update

SEWRPC = Southeastern Wisconsin Regional Planning Commission

SSO = Sanitary sewer overflow

SWWT = Southeastern Wisconsin Watersheds Trust, Inc.

UWM = University of Wisconsin-Milwaukee

WDNR = Wisconsin Department of Natural Resources



8.2.2 Watershed Restoration Plan Action Plan for Actions Underway or Initiated

Table 8-5 lists action plan steps to be taken for those actions already underway or initiated as detailed in Tables 8-2 and 8-3. The table is meant as a roadmap for SWWT action, as the leader and coordinator for the Kinnickinnic River watershed restoration.

The SWWT term used in the table refers to the entire SWWT organization including the Executive Steering Council (ESC), the Science Committee, the Kinnickinnic River watershed Action Team (WAT), and the Policy Committee. The SWWT ESC will have to determine which parts of the organization will participate in specific projects; the ESC will also perform the overall collaboration function.

TABLE 8-5
ACTION PLAN STEPS FOR ACTIONS UNDERWAY (TABLE 8-2) OR INITIATED (TABLE 8-3)

Step	Responsibility	Comments
1. Ask lead organization to report progress	SWWT ¹	WRPs will identify actions underway
2. Designate member to monitor the action	SWWT	One individual should be designated to monitor an action and report on it
3. Offer assistance and input on the action	SWWT	Start involvement in the various actions to keep SWWT connected
4. Offer review comments on interim work products	SWWT	Continue connection to actions
5. Assess how the action can synergize with other watershed actions (build upon actions underway)	SWWT	Key activity – need to build regional actions in a way that maximizes synergy of all actions – avoid disjointed actions
6. Determine if the action needs supportive action from others	SWWT	What can SWWT do to assist in the implementation of the action by enlisting others to assist in implementation?
7. If supporting action is warranted – start the “new actions” process	SWWT	Build on actions that are already started
8. If supporting action not warranted - develop supportive resolutions	SWWT	In keeping with the non advocacy role – support the basic science of the action if warranted
9. Participate in the interim and final work product reviews	SWWT	Participate in the process and make SWWT's voice heard
10. Participate in the development of the next steps	SWWT	Main function of the SWWT – coordinate and collaborate so regional progress continues <i>Continued...</i>

Step	Responsibility	Comments
11. Participate in determining impacts of the particular project on other actions underway or potential new actions	SWWT	Main function of the SWWT – coordinate and collaborate so regional progress continues

1 – SWWT is defined as the whole organization, led by the ESC

ESC = Executive Steering Council
 SWWT = Southeastern Wisconsin Watersheds Trust, Inc.
 WRP = Watershed restoration plan

8.2.3 New Actions – How to Begin the Process (Implementation Measures)

Table 8-6 lists action steps for new recommended actions/projects in Tables 8-3 and 8-4. The table is meant as a roadmap for SWWT action, as they lead and coordinate the Kinnickinnic River watershed restoration.

The term SWWT used in this table refers as noted to the entire SWWT organization, including the Executive Steering Council (ESC), the Science Committee, the Kinnickinnic River Watershed Action Team (WAT), and the Policy Committee. The ESC will have to determine which parts of the organization will participate in specific projects; the ESC will also perform the overall collaboration function.

TABLE 8-6
ACTION PLAN STEPS FOR NEW ACTIONS (TABLES 8-3 AND 8-4)

Step	Responsibility	Timeframes	Comments
1. Prioritize Foundation Actions	WAT/SWWT	Month 1-3	WRPs will be a good start but may not complete the prioritization
2. Identify lead organization	SWWT	Month 4-5	One organization has to lead
3. Identify collaborating organizations	SWWT	Same as above	Many can collaborate
4. Assemble information for the action (WRPs and other available information and data)	Lead organization and collaborating organizations	Month 6-7	WRPs are the start but all data needs to be assembled utilizing the SWWT membership
5. Determine if any funding is available	SWWT and Lead Organization	Concurrent with activities 2-4	All sources need to be looked at – budgets, grants, foundations, etc.
6. If none available – develop funding strategy	SWWT and Lead Organization	Concurrent with activity 5	Most difficult action – SWWT (ESC) must lead this

Continued...



TABLE 8-6
ACTION PLAN STEPS FOR NEW ACTIONS (TABLES 8-3 AND 8-4)

Step	Responsibility	Timeframes	Comments
7. Develop package to apply for funds	Lead and collaborating organizations	Month 8-10 (considering schedule requirements for funding requests)	Package will vary depending upon funding source
8. Develop implementation schedule assuming funds are obtained	Lead organization	Concurrent with activity 7	Schedule will have to be prepared as a part of the funding request
9. Implement the action with the funds obtained	Lead and collaborating organizations	Based upon when funds are obtained	Lead organization assign responsibilities
10. Monitor the progress of the action	Lead and collaborating organizations	Based upon detailed action schedule	Monitor and report periodically to the WAT, Science Committee and SWWT ESC
11. Assess the results of the action	Lead and collaborating organizations	Based upon detailed action schedule	Develop data for posting on SWWT website
12. Determine outcomes of the action	Lead and collaborating organizations	Based upon detailed action schedule	Write a report on the results
13. Develop next action (and restart the process)	SWWT and Lead Organization	Based upon detailed action schedule	Did the action result in achieving the measureable interim target?
14. Participate in the determining the impacts of the particular project on other actions underway or potential new actions (Synergy)	SWWT and Lead Organization	Based upon detailed action schedule	Main function of the SWWT – coordinate and collaborate so regional progress continues

ESC = Executive Steering Council
 SWWT = Southeastern Wisconsin Watersheds Trust, Inc.
 WAT = Watershed Action Team
 WRP = Watershed restoration plan



8.2.4 Implementation Schedule and Process

A simplified process chart for Table 8-6 actions is presented as Figure 8-1. This chart depicts how the various implementation actions are meant to fit together as an ongoing process. This WRP and this process should form the basis for development of an adaptive strategic action plan for the Kinnickinnic River watershed.

The SWWT committees can use the information provided in this WRP to further develop an implementation plan for the watershed. In addition to this chapter, other portions of the WRP that will be the most useful include the following:

Chapter 4 – Provides detailed information for each assessment point area, including land use, pollutant loading, and water quality.

Appendix 4A (SEWRPC's Memorandum Report No. 194: Stream Habitat Conditions and Biological Assessment of the Kinnickinnic and Menomonee River Watersheds: 2000-2009) – Contains detailed habitat information and recommendations to improve habitat.

Chapter 6 – Provides anticipated load reductions and other benefits expected from the recommended management measures used in the RWQMPSU.

Chapter 7 – Presents additional management measures and identifies the priority actions for implementation. Tables 7-1 through 7-5 in Chapter 7 provided detailed information for the proposed actions.

In addition, SEWRPC's RWQMPSU, which was the basis for this plan, should be used as a resource when developing the plan. Many other plans and projects have been completed by SEWRPC, MMSD, WDNR, NGOs and others that can be used as resources as well.

The key element for an action plan for new actions and projects is the designation of the lead organization. Once this has been done and the collaborating organizations have been identified, the next step in the action plan will be to develop the new action/project.

The key element of any new project is obtaining funds for implementation of the project. Once funding is obtained, the implementation schedule can then be further developed.

8.3 Potential Funding Sources

Financial assistance for potential WRP projects may be available from government agencies and private organizations. Various programs may award money to individual landowners, nonprofit organizations, educational institutions, and local and state governments. Summaries of the types of available funds from each source are presented below; more detailed information is available in Chapter XI and Appendices U and V of *A Regional Water Quality Management Plan Update for the Greater Milwaukee Watersheds* (SEWRPC, 2007). Appendices U and V of the RWQMPSU are provided in this report as Appendix 8A.

8.3.1 Local Governments

County and municipal governments are permitted to borrow and issue bonds according to Chapter 67 of the *Wisconsin Statutes*. Additionally, counties and cities have the power to assess special taxes for park and parkway acquisitions and improvements. County and municipal governments may apply for many of the state, federal, and private grants and cost-share programs.



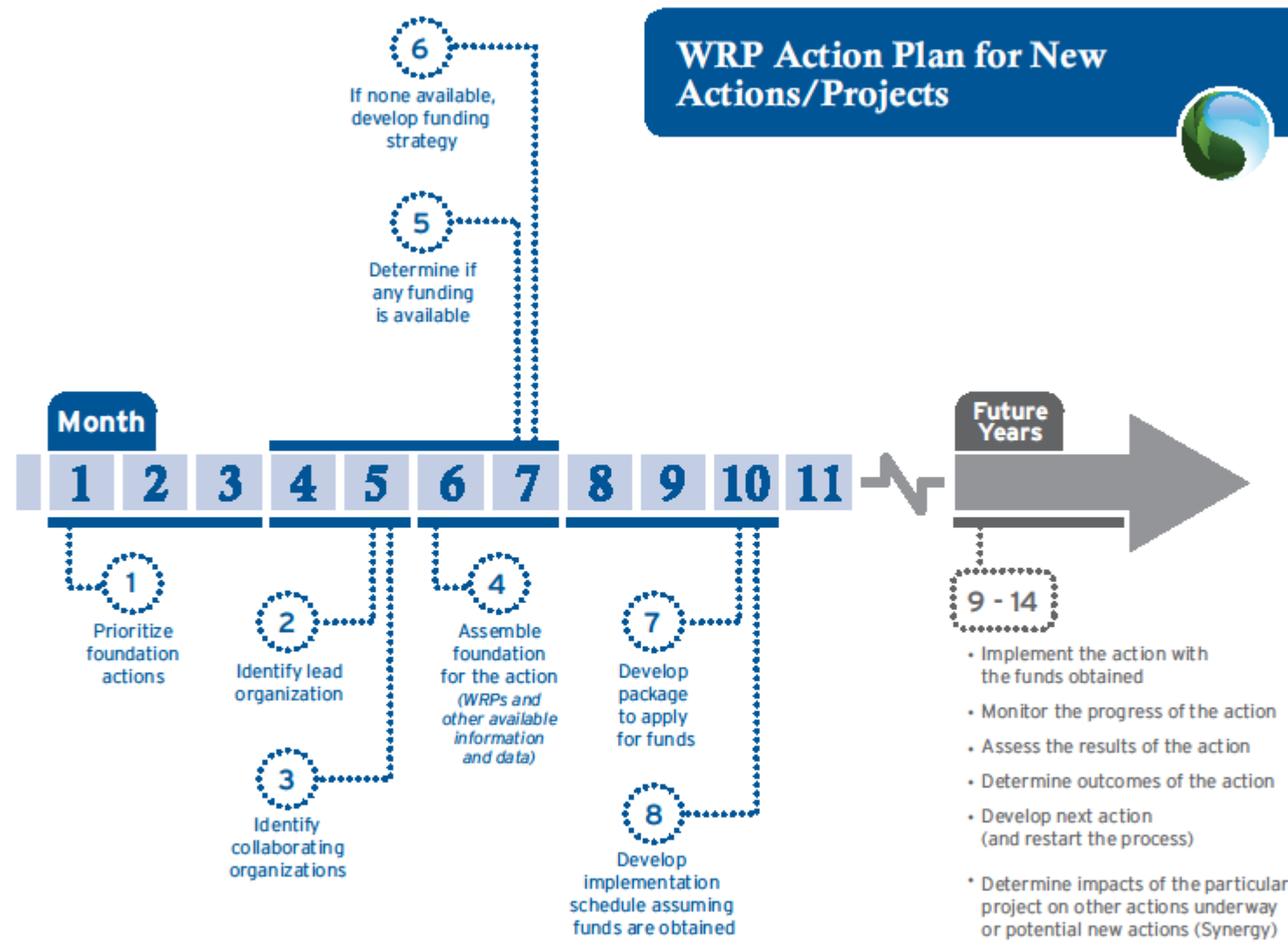


FIGURE 8-1
**WRP ACTION PLAN FOR NEW
ACTIONS / PROJECTS**
Kinnickinnic River watershed

8.3.2 State Governments

The Wisconsin Department of Natural Resources (WDNR) and Wisconsin Department of Agriculture, Trade and Consumer Protection (WDATCP) maintain a number of financial assistance programs. The WDNR tends to provide funds to maintain existing natural forestlands; to purchase lands for urban stream preservation or restoration; to remove small dams; to design and implement urban nonpoint source best management practices; to establish easements; to protect and enhance stream, lake, and wetland habitat; to control and manage invasive species; and to establish riparian corridors. Additional cost-sharing programs are available from WDNR to provide assistance with project planning, for educational programs, and for public involvement programs. The WDATCP provides funding for county water resources management planning. The WDNR provides funding for flood-proofing and flood mitigation to incorporated local governments and their sewerage districts.

Many federal grant and cost-share programs are administered through WDNR. For example, WDNR administers the *Land and Water Conservation Fund*, which is funded by the U.S. Department of the Interior, for planning and acquiring lands for public use (e.g., open space, natural areas, and recreation). Additionally, some federal agencies provide grants directly to the states for use as the states see fit. For example, the U.S. Environmental Protection Agency (USEPA) provides money to Wisconsin's Clean Water Fund via the Clean Water State Revolving Fund.

8.3.3 Federal Government

Many of the federal agencies in the U.S. Departments of Agriculture and the Interior and various other federal agencies have funding programs, including cost-sharing, grants, and loans. Such programs may provide financial assistance to either individual landowners or state and sub-state governments. In some cases, funding is provided to support easements or for the acquisition of private land to local governments for parks and reserves.

Through the Farm Service Agency and Natural Resource Conservation Service, the U.S. Department of Agriculture funds various programs to restore or enhance wildlife habitat, to reclaim wetlands on agricultural lands, for farming conservation management, and to provide for flood protection or prevention. The U.S. Fish and Wildlife Service (FWS) provides funding for several programs for wildlife and fish habitat restoration and improvement. The U.S. Department of Transportation's Transportation Enhancement Program can provide funds to mitigate the effects of the transportation network upon natural streams and wetlands.

The USEPA provides funding for numerous programs including: wildlife habitat restoration; state water pollution control, monitoring, and enforcement activities; and for local and state governments to develop watershed partnerships. The USEPA also funds environmental and human health education projects. Projects that implement instream water quality management and habitat improvements may be eligible for U.S. Army Corps of Engineers (USACE) grant programs. The USACE funds can be used to enhance or mitigate instream channel stability and habitat conditions, including the removal of concrete channel linings, and to restore and enhance nearshore and estuarine habitat.

8.3.4 Detailed Data on Federal Funding Source

Table 8-7 shows a detailed summary of a typical federal funding source – Nonpoint Source Implementation Grants (319 Program). This is an example of the detailed requirements for federal grants and is typical of common federal requirements.

TABLE 8-7

FUNDING PROGRAM NAME: NONPOINT SOURCE IMPLEMENTATION GRANTS (319 PROGRAM)

Item	Requirement
Application Deadline	Varies by state. Consult the lead nonpoint source agency in WI (WDNR) (for contact information click on the link listed under "Secondary Internet").
When Funds are Available	Varies by state.
Average annual number of applicants	55 states and territories receive grants. Number of tribal grants awarded highly variable. Applications from recipients to states vary highly by state.
Typical percentage of applicants funded	Percentage of applicants who receive money is highly variable by state and within state from year to year.
Is a matched amount required?	Case-dependant.
Match Amount	States required to provide 40% non-federal match for whole grant. Recipients within state typically required to provide 40% match for each project, but this may be negotiable with a given state.
Funding Level FY 2007	\$194 million
Funding Level FY 2008	\$200.9 million
Funding Level FY 2009	\$200.9 million
Typical lowest amount awarded	Check with the WDNR regarding administration of 319 Grants.
Typical highest amount awarded	Check with the WDNR regarding administration of 319 Grants.
Typical median amount awarded	Check with the WDNR regarding administration of 319 Grants.
Other details on funding	N/A
Primary Address	U.S. Environmental Protection Agency Office of Wetlands, Oceans and Watersheds Nonpoint Source Control Branch (4503T) Ariel Rios Bldg., 1200 Pennsylvania Ave., NW, Washington, DC 20460
Primary Telephone	(202) 566-1155
Primary Internet	www.cfda.gov (search on program 66.460)
Secondary Internet	www.epa.gov/owow/nps/contacts.html
Legislative Authority	Clean Water Act, section 319(h)

Continued...



TABLE 8-7

FUNDING PROGRAM NAME: NONPOINT SOURCE IMPLEMENTATION GRANTS (319 PROGRAM)

Item	Requirement
Associated Keywords	Agriculture, Best Management Practices, Coastal Waters, Drinking Water, Outreach/Education, Fisheries, Forests, Land Acquisition, Monitoring, Nonpoint Source Control, Partnerships, Planning, Point Source Control, Pollution Prevention, Research, Restoration, Floodplains/Riparian Zones, Source Water Protection, Stormwater Management, Watershed Management, Wetlands, Wildlife
Eligible Organizations	Business, Community/Watershed Group, Nonprofit Groups, Educational Institution, Private Landowner, Conservation District, Local Government, State/Territorial Agency, Tribal Agency, Federal Agency
Eligibility Constraints	The immediate grantees are designated state and territorial NPS agencies. The ultimate recipients of funds are typically state and local governments, Indian tribes, universities, and nonprofit organizations, which submit grant applications to the designated state or territorial agency for funds in accordance with state and Federal requirements.

FY = Fiscal year
 WDNR = Wisconsin Department of Natural Resources
 WI = Wisconsin

8.3.5 Private

The National Fish and Wildlife Foundation and other sources help fund a number of programs that are administered in cooperation with federal agencies (e.g., USEPA, FWS). For example, the *Partnership for Wildlife* program is operated by the National Fish and Wildlife Foundation and administered by the FWS. The Kenosha/Racine Land Trust, Milwaukee Area Land Conservancy, Ozaukee-Washington Land Trust, and Waukesha Land conservancy acquire lands or easements for environmentally-valuable lands via purchases, donations, and grants. Eastman Kodak maintains a small grant program to assess and enhance greenways.

8.3.6 Funding Summary

Appendix U of the SEWRPC Regional Report (SEWRPC Planning Report No. 50), which is provided as Appendix 8A to this plan, contains a detailed summary of potential funding programs to implement plan recommendations.

8.4 Watershed Policy Issues

Policy issues need to be considered as projects are considered for implementation. Consideration of these policy issues may influence the implementation schedule and process. Issues should be prioritized and examined by the SWWT Policy Committee and should include the following as an initial list:

- ◆ Total maximum daily load development (TMDL): This consideration should include the timing of any TMDLs, agency leadership of the TMDLs, and the exact format of the TMDLs in terms of which pollutants and which portions of the watershed are included in



the TMDL. An additional potential issue is the regulatory relationship between Wis. Admin. Code Natural Resources (NR) 151 *Runoff Management* and TMDLs, as noted in Chapter 2 of this report.

- ◆ Consideration of watershed permits: The issues to be addressed regarding this topic are summarized in the “white paper” found in Appendix 8B.
- ◆ Water quality trading: The issues to be addressed regarding this topic are summarized in Appendix 8B.
- ◆ NR 151 implementation: The regulatory and financial issues regarding the implementation of this regulation may change the assumed impact of this regulation on water quality and the implementation of this WRP.
- ◆ Alternatives to adding phosphorus compounds to drinking water: There are policy issues that should be addressed as this major source of phosphorus to the watershed is not currently the focus of any scientific study or regulatory program.
- ◆ Alternative indicator to replace fecal coliform bacteria: The policy implications of building a local consensus for and support of new methods to assess water borne disease risk need to be addressed.
 - State of Wisconsin 303(d) list: The policy implications of the existing listing and delisting criteria and process for the development of the Wisconsin 303(d) list need to be addressed.
- ◆ Evaluate a potential utility to help pay for implementation of the watershed restoration plan.

8.5 Post-Implementation Monitoring

8.5.1 Use of Adaptive Management

Conclusions and recommendations contained in this WRP are based on the best information and data that are currently available. Nonetheless, it is acknowledged that uncertainties or data gaps exist with regard to existing conditions, impacts of the proposed actions, some of the proposed water quality targets, and various other issues.

Other unknowns are present as well, such as the ability of the proposed restoration measures to fully attain the estimated pollutant reductions. The proposed adaptive management approach will allow the watershed interests to move forward with water quality improvement activities at the same time that additional data gathering occurs. These data will then be used to confirm or adjust some of the plan’s technical assumptions, to fill remaining data limitations, and to evaluate the effectiveness of restoration measures on an individual and collective basis. This is part of the "Check" component under the Plan-Do-Check-Act approach.

8.5.2 Measuring Success

Focused monitoring efforts will be required to fulfill three primary objectives:

- ◆ Obtain additional data to address information gaps and uncertainty in the current analysis (data gaps monitoring and assessment). Many of the tasks detailed in Table 8-3 and 8-4 deal with information gaps, but some will remain or will be determined in the future.



- ◆ Ensure that identified management actions are undertaken (implementation monitoring). This measurement activity is focused on Table 8-2 actions and all Table 8-3 and 8-4 actions as they progress to implementation.
- ◆ Ensure that management actions are having the desired effect (effectiveness monitoring). This measurement activity deals with the actual watershed conditions regarding water quality and habitat, and the assessment of improvement, stability or degradation.

Proposed basic elements of a monitoring strategy to meet these three objectives are described below. During the implementation phase, the monitoring and analysis plan will need to be updated and refined as outlined in Section 8.5.5).

8.5.3 Data Gaps

Collection of data to fill current data gaps is the highest priority because these data are needed to move forward with specific restoration strategies. For example, work on illicit connections should be prioritized based upon existing or potential recreational opportunities in the Kinnickinnic River watershed, but no baseline data are available to do the prioritization. Similarly, no chloride reduction targets are presented due to limited historical and recent water quality data and an incomplete understanding of the relationship of chloride use to water quality conditions. A lack of data also resulted in an incomplete understanding of the water quality issues with metals. These data gaps and others identified during the development of the WRP include the following:

- ◆ Location of existing or potential recreational areas in the watershed
- ◆ Chloride data linking road salt usage (and perhaps other sources) to water quality impacts
- ◆ Water quality data regarding metals and polycyclic aromatic hydrocarbons (PAHs)
- ◆ Wildlife data, aquatic and non-aquatic species
- ◆ Wildlife habitat restoration plan
- ◆ Location and causes of unknown sources of fecal coliform bacteria entering streams
- ◆ Local BMP monitoring data
- ◆ Compilation of existing maps and data that would assist in the implementation of the WRP
- ◆ Citizen monitoring data, that has undergone the appropriate quality assurance process, should be added to the comprehensive database

A full list of data gaps should be developed by the SWWT as implementation continues. Additional monitoring or studies are therefore needed to address these data gaps. Some of this information will be obtained as a result of implementing the actions listed in Tables 8-2 to 8-4. For example, as noted in Table 8-2, the MMSD is developing a web-based tool called H₂Ocapture that is expected to allow individuals, residents, and community groups to track their stormwater management and green infrastructure efforts on maps with an easy to use, friendly, web interface (Draft MMSD Sustainability Document, November 2009). Although it will not contain all of the information needed to fill the gap, it is anticipated that this tool will help with the data gap regarding the compilation of maps that will assist in the implementation of the WRP.



The SWWT and the other participants noted in the tables should take the lead in performing these actions assuming adequate budgets and resources are available.

8.5.4 Implementation Monitoring

The purpose of implementation monitoring is to document whether or not actions and projects were completed as planned and designed. Objectives of an implementation monitoring program include the following:

- ◆ Measuring, documenting, and reporting the watershed-wide extent of recommended actions and other watershed restoration measures. Suggested measures for this monitoring activity are outlined for the various actions in the Chapter 7 tables.
- ◆ Evaluating the general effectiveness of the various actions as applied operationally in the field. This monitoring activity should concentrate on the water quality and habitat information – both historical and newly developed.
- ◆ Determining the need and direction of watershed education and outreach programs.

Implementation monitoring must consist of monitoring these three major action areas. The monitoring must be done by the lead organization. This type of information will provide the Kinnickinnic River WAT with data on the progress of the various actions. The WAT should help guide the overall implementation monitoring as it varies by each type of action.

8.5.5 Effectiveness Monitoring

A formal review of the Kinnickinnic River WRP should occur in 2015 and should use the water quality data and habitat data available at that time for each pollutant (and/or the measures that best represent interpretations of the water quality and habitat conditions existing at that time) to assess overall progress toward meeting water quality restoration goals.

This effort will include a combination of water quality and biological monitoring and habitat assessment aimed at determining the effectiveness of restoration activities. This assessment can be made based on data collected by the SWWT and all of its partners. A much more thorough and meaningful assessment will be possible if additional data are collected during the intervening years. Due to many resource constraints, these additional data would need to be collected by watershed stakeholders with input from the SWWT and the WAT.

Data trends that should be tracked (at a minimum) include the following:

- ◆ Fecal coliform and other bacterial indicator water quality data
- ◆ Fish and aquatic life conditions
- ◆ Phosphorus water quality data

8.6 Progress Evaluation and Refinement

This WRP provides the basis for and the documentation of over 60 actions that are underway (Table 8-2), that have been initiated (Table 8-3), or that are planned (Table 8-4) for the Kinnickinnic River watershed. This is an unprecedented level of activity to improve water quality and habitat in the Kinnickinnic River watershed and will require a significant level of evaluation.



The first element in the evaluation process, which corresponds to the "Check" component of the Plan-Do-Check-Act approach is an annual reevaluation of the status of the actions. There should be periodic comprehensive reviews of the status of all the actions that are to be completed during the timeframe of 2010 to 2015. These reviews could be made an integral part of annual SWWT meetings or scheduled at a separate meeting. The annual reevaluation should start with all the actions in Tables 8-2, 8-3 and 8-4; after the evaluation, the tables should be updated to reflect the current status of the actions.

The second element in the evaluation process should be the annual evaluation of the results of the various actions. The measures that should be used are noted in the tables in Chapter 7 and provide understandable measures upon which to base progress. This also corresponds to the "Check" component.

The third element of the evaluation process is more complex. It involves reviewing the water quality data and habitat data with the purpose of determining if the watershed is improving, has stabilized, or is continuing to deteriorate. This process will require the Science Committee of the SWWT to assess all new data from the period 2009 to 2015 and determine to the best extent possible the "improving/stable/deteriorating" status of the watershed in terms of the three focus areas: public health, habitat and aesthetics, and phosphorus. This element corresponds to the "Check" component as well, but it is the beginning of the "Act" component.

The last element of the evaluation process deals with potential revision or refinement of the action plan. This is a complex process that may require an update to this WRP. The key decision in this element involves – "should the actions be changed if progress is not being made?" and/or "should the actions be changed due to new information that indicates different actions should be pursued?" This element corresponds to the "Act" component of the Plan-Do-Check-Act approach.

The third and fourth elements of the evaluation and refinement process will require an update to this WRP in 2015 if a majority of the actions are completed and the results are known.