Strategic Plan
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Friends of Yahara River Headwaters, Inc.

Village of DeForest, Dane County
Wisconsin

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Executive Summary

The Friends of Yahara River Headwaters, Inc. has made numerous accomplishments in its 12-year history. The strategic plan lays the groundwork for continuation of FYRH's community-based watershed improvement work. It provides a framework for understanding the watershed by discussing the history of watershed management work and of the FYRH itself. It also provides description and maps of watershed natural resources. Finally, the plan outlines goals, objectives and actions the FYRH chould take to achieve its mission: "To enhance and protect the quality of the Yahara River headwaters while educating the community and providing sustainable recreational opportunities".

Watershed Background

Watershed Description

The Upper Yahara River watershed (hereafter UYW) covers 73 square miles of Dane (45 square miles) and Columbia (28 square miles) Counties (Figure 1). The Friends of Yahara River Headwaters, Inc. defines its area of interest as all lands draining to the Yahara River north of where it intersects State Highway 19. This area includes the Village of Deforest, the urban core of the UYW, and the Towns of Vienna, Windsor, Westport, Leeds and Arlington. The UYW also includes the Village of Arlington in Columbia County and the unincorporated community of Morrisonville.

The Upper Yahara River rises in southern Columbia County. Numerous small tributaries feed the Upper Yahara before it joins Token Creek a short distance south of Highway 19 and then empties into Lake Mendota. Many of its tributaries have been dredged and straightened and many of its adjoining wetlands have been tiled and ditched. Drainage districts, which cover 3,014 acres in the UYW, have overseen the drainage of huge expanses of wetlands (Figures 4 & 5). The districts continue to maintain drainage ditches within their boundaries. Wetland drainage has undermined natural pollutant removal processes and, in combination with intensive row-crop farming in the watershed, has transformed much of the Yahara River into a conduit for nutrients and sediment.

However, the Upper Yahara still contains a quality warm water fishery between County Highway V and Windsor Rd. (Lake Mendota Priority Watershed Project, p. S-9). This reach, which appears to have strong groundwater inflow and good in-stream habitat, is also known to support trout, which probably entered from Token Creek (Mike Sorge, WDNR, personal communication). Other reaches of the Upper Yahara may have potential for fishery improvement if stream channel habitat improvements and watershed remediation measures are taken.

The geology of the UYW consists of glacial deposits. Ground moraine, which is a gently undulating layer of glacial sediment and rocks, is the prevailing glacial landform. It is dotted with drumlins – isolated oval-shaped hills – that were amassed and sculpted by the retreating glacier. Moreover, outwash plains, which are low, level areas of sand and gravel deposited by glacial melt water, are present in many areas. Some low areas in the UYW were glacial melt water lakes immediately following the retreat of the glaciers. Many of these lakes eventually became marshlands until they were drained by Europeans to create tillable land.

UYW lands are level to undulating and mostly well drained, lending them to both agriculture and urban development. The majority of UYW land is agricultural. Row crops – corn and soybeans –

account for most farmland acreage, with alfalfa and grass hay comprising a smaller share of the acreage. The watershed contains many lands of exceptional agricultural productivity (Kevin Conners, Land & Water Resources Department, Dane County). Urban land use, most of it residential and commercial areas in the Village of DeForest, is the second most prevalent land use.

Natural land cover of grassland, forest and wetland comprises a relatively minor fraction of watershed land cover compared to agricultural and urban areas. Nonetheless there are large wetlands on the main stem of the Yahara River, notably within the Conservancy Place development, where there are regionally significant sedge meadows, a rare and ecologically valuable wetland community type. Large expanses of wetlands also exist on the Yahara and its tributaries north of the Village of DeForest (Figure 2). Elsewhere in the watershed, wetlands are isolated and scattered across the landscape, creating important islands of wildlife habitat in a human dominated landscape.

Forests and grasslands combine with wetlands to form continuous corridors of natural habitat following the Yahara River and its tributaries. These corridors undoubtedly host numerous bird, mammal, reptile and amphibian populations. Like the isolated wetlands, they constitute critical wildlife refuges within urban/agricultural landscapes.

Future land use change surrounding the Yahara River and its tributaries is certain. The Village of DeForest has experienced rapid growth in recent years and, based on projections contained in the Village of DeForest Comprehensive Plan, will likely sustain high growth in coming decades. It doubled in population between 1990 and 2000. Since then it has grown by roughly 2.7% annually. Current residential acreage in the Village is about 800 acres. Based on a projected annual population growth rate of 3%, approximately 50 acres will be broken annually for new homes over the next 20 years (Village of DeForest Comprehensive Plan, p. 156).

History of the Friends of Yahara River Headwaters

The Friends of Yahara River Headwaters has its origin in a community workshop sponsored by the Village of DeForest in 2003. The village obtained a River Protection and Planning grant from the Wisconsin Department of Natural Resources to create a strategic plan for the Yahara River corridor. The workshop was an effort to initiate the strategic planning process. Several focus groups were formed at the workshop to address a range of river corridor management issues, like habitat restoration and river navigability. In addition, a steering committee was formed to guide the development of a strategic plan.

After completion of the strategic plan, the Yahara River Planning Committee remained active. It organized river cleanup events in the river channel between County Highway V and Windsor Road. It also conducted outreach to riparian landowners and to youth groups, like Future Farmers of America.

In 2006, the Yahara River Planning Committee formed The Friends of Yahara River Headwaters, Inc., a 501c3 organization. Like the planning committee, FYRH organized river cleanups, but it also focused on improving river access by creating canoe access points with the help of the village, and removing woody debris from the river. It hosted talks on river ecology and fishing. It maintained a presence at public events in the village like Yahara River Fest and Dragon Arts Fair. During this period, FYRH's membership increased from approximately 10 members to over 40.

In 2011, FYRH obtained a WDNR River Protection and Planning grant to initiate "Level 2" water quality monitoring on the Yahara River and its tributaries. Level 2 monitoring is collection of professional grade water quality data, including dissolved oxygen, PH, temperature and transparency, to be entered into WDNR's SWIMS (Surface Water Integrated Monitoring) database. FYRH established 12 Level 2 monitoring sites in the greater village area (Figure 6)

Looking forward, FYRH would like to build on years of progress in public outreach, river corridor management and water quality monitoring by increasing its membership and strengthening its partnerships with local units of government and citizen's groups.

Past Watershed Planning & Management

The UYW was the subject of study and management under the Priority Watershed Project for Lake Mendota (1996-2008). The watershed was also looked at, although less intensively, under the Yahara CLEAN (Capital Lakes Environment Assessment & Needs) Engineering Report (2012) and the Yahara CLEAN Strategic Action Plan (2013).

The Priority Watershed Project, whose goal was to reduce sediment and phosphorus to Lake Mendota by 50%, began with an inventory of livestock operations, farming practices and sediment sources. It identified barnyards responsible for nutrient contamination of nearby waterways and cost-shared the necessary improvements. It also helped farmers develop nutrient management plans and crop rotations that would reduce nutrient runoff. The project installed grass stream buffers and identified and repaired eroded stream banks.

The Priority Watershed Project engaged roughly 40% of the landowners in the Lake Mendota watershed and spent almost 2 million dollars (state & federal) on conservation practices. It achieved nearly 75% of the reduction goal for phosphorus and 40% for sediment. It certainly resulted in improvement to the water quality of Lake Mendota and its tributary streams compared to no action. However, a number of high rainfall years, which resulted in high nutrient runoff to surface waters, since the Priority Watershed Project was completed have obscured the benefits of the project to Lake Mendota (Jane Carlson, Strand Associates, personal communication).

The Yahara CLEAN Engineering Report and the Strategic Action Plan, which was an extension of the Engineering Report, examined the watersheds of all lakes in the greater Yahara River watershed. The reports were based on a detailed watershed modeling study, completed by the local consulting firm, Montgomery & Associates, which estimated total phosphorus loading for each subwatershed within the greater Yahara watershed.

The reports enumerated 14 better management practice focus areas for reduction of phosphorus loading to waterways. The focus areas were divided between rural and urban practices. They were also rated by the amount of total phosphorus they would divert from waterways. Urban practices, which included construction site erosion control and leaf management, were estimated to contribute relatively little to phosphorus reduction. However rural (meaning agricultural) practices were estimated to contribute significantly to phosphorus reduction. Improved cropping practices and manure reduction through community digesters were found to be the leading phosphorus reduction strategies for the Yahara watershed.

The UYW was not found to be a major contributor of phosphorus to Lake Mendota. Of course it still contributes significant quantities of the nutrient to the lake, it is just not one of the leading subwatersheds. The subwatersheds of Sixmile Creek and Pheasant Branch Creek hold that distinction. That is why community manure digesters are built, or planned for construction, in those subwatersheds.

Watershed Stakeholders

The Friends of Yahara River Headwaters could partner with other organizations to enhance its mission: "To enhance and protect the quality of the Yahara River headwaters while educating the community and providing sustainable recreational opportunities". To date its chief partner has been the Village of DeForest. It has also worked with DeForest Area High School on water quality monitoring via Ms. Gwen Boettcher's environmental science class and her Future Farmers of American program.

FYRH is open to partner or work with other organizations. When applicable, to work with a variety of entities, including neighborhood associations, local governments and business associations. The following is an example of potential entities:

- Town of Vienna
- Town of Windsor
- Lake Windsor Neighborhood Association
- Oak Springs Lake District
- Token Creek Watershed Association
- Token Creek Conservancy
- Madison Audubon's Goose Pond Sanctuary
- Neighbors of Little Lake Mendota
- DeForest Area Chamber of Commerce
- Friends of Cherokee Marsh
- Office of Lakes & Watersheds, Dane County Land and Water Resources Department
- Clean Lakes Alliance
- River Alliance of Wisconsin
- Rock River Coalition
- Wisconsin DNR

Strategic Plan

Goals

Goal 1: Maintain & Build Organizational Capacity.

Goal 2: Monitor Watershed Natural Resources.

Goal 3: Increase Public Awareness & Education of Watershed Issues.

Goal 4: Establish Partnerships with Organizations in the Watershed.

Goal 5: Conduct Ecological Restoration of Riparian Areas.

Objectives & Actions

Goal 1: Maintain & Build Organizational Capacity.

Objective: Retain existing members.

Objective: Attract new members.

Objective: Attract new board members.

Objective: Develop fund raising strategies.

Define Action Steps

Goal 2: Monitor Watershed Natural Resources.

Objective: Maintain existing water quality monitoring program.

Objective: Initiate wildlife population monitoring in Yahara River riparian areas.

Objective: Advocate for wetland monitoring by neighborhood groups.

Define Action Steps

Goal 3: Increase Public Awareness & Education of Watershed Issues.

Objective: Maintain presence at public events.

Objective: Conduct outreach to youth.

Objective: Conduct outreach to property owners regarding watershed protection practices.

Define Action Steps

Goal 4: Establish Partnerships with Organizations in the Watershed.

Objective: Identify priority partners and initiate relationships.

Objective: Host gatherings to solidify relationships and promote networking.

Objective: Identify watershed projects that offer partnership opportunities.

Define Action Steps

Goal 5: Conduct Ecological Restoration of Riparian Areas.

Objective: Coordinate with the Village of DeForest to identify volunteer restoration opportunities on village lands.

Objective: Advocate for stream buffers in the greater watershed.

Objective: Advocate for riparian zone protection and restoration within newly annexed urban growth areas.

Objective: Advocate for and coordinate action on invasive species control.

Define Action Steps

Appendix I: Long Range Planning Documents

Summary meeting two (06-27-13)
Priorities

In ten years, we would like to be able to say that our stretch of the Yahara River has high quality water in a free-flowing channel which is accessible in multiple locations for kayaking and canoeing. In order to do this, it is imperative that the Friends remain a financially stable stewardship group.

We have three categories of priorities, including:

I. River Health
   - A. High quality water
   - B. Free-flowing channel

II. Recreation
   - A. Kayaking and canoeing
   - B. Multiple locations accessible in DeForest area
   - C. Naturally beautiful, scenic

III. Education & Stewardship
   - A. Friends remains a financially sustainable stewardship group
   - B. Friends known as the go-to group for the community and government
   - C. Sustained program with DeForest Area School District

Mission: To enhance and protect the quality of the Yahara River headwaters while educating the community and providing sustainable recreational opportunities.		
Promote River Health	**Enhance Recreational Opportunities**	**Provide Education and Stewardship**
A. High quality water B. Free-flowing channel	A. Kayaking & canoeing B. Multiple locations accessible in DeForest area C. Naturally beautiful, scenic	A. Remain a financially sustainable stewardship group B. Be known as the go-to group for the community and government C. Maintain a sustained program with DeForest Area School District

Vision
Enhance & Protect the Quality of the Yahara River Headwaters While Educating the Community & Providing Sustainable Recreational Opportunities
Objectives
Financially Viable Stewardship Group
Growth vs. 2012
2013
Chg.
Cash Flow ($)
Members (#)
Strategies
'13-'15 Goals
RIVER HEALTH
• Develop & Maintain high quality River Water
- Monitor Water Quality
- Add Phosphorous Monitoring when feasible
• Ensure Free Flowing River Water
- Conduct 1 each Community & Civic Clean-Up
- Create Interactive Map of the Headwaters & Watershed
RECREATION
• Complete Signage Project
• Support Kayaking & Canoeing
- Build Access Points
- Ensure appropriate Portage Points where necessary
• Maintain Naturally Scenic Beauty?
• Investigate Potential for enhancing the Fishery
EDUCATION & STEWARDSHIP
• Build credibility as River Management Experts
- Develop a Community Education Program
- Increase Awareness with 2 public events
- Sustained Program w/ DASD
• Develop Membership Plans
• Create Partnership with Town of Windsor

Appendix II: Water Resources Data Sources for Dane County

- **Capital Area Regional Planning Commission**
  - Water Quality , Land use plans and Watershed plans
    - http://www.capitalarearpc.org/Publications.html
- **USGS**
  - Wisconsin Water Science Center
    - http://wi.water.usgs.gov/
  - General Water education
    - http://water.usgs.gov/edu/
- **Dane County**
  - DCIMAPS
    - https://dcimapapps.countyofdane.com/dcmapviewer/
  - My Fair Lakes
    - http://www.myfairlakes.com/default.aspx
  - Lakes and watershed Commission. Includes list of watershed associations Groups
    - http://www.danewaters.com/
  - Dane County's technical manual on stormwater management.
    - http://www.danewaters.com/pdf/manual/appendixpreface1.pdf
- **MMSD**
  - Yahara Wins
    - http://www.madsewer.org/Programs-Initiatives/Yahara-WINs
- **Clean Lakes Alliance**
  - Strategic Action Plan for Yahara River
    - http://www.cleanlakesalliance.com/wp-content/uploads/2012/11/Strategic-Action-Plan-11092012.pdf
  - Yahara 101: Monthly seminars from local water experts
    - http://www.cleanlakesalliance.com/events/yahara-lakes-101/
- **UW Madison**
  - Water Sustainability and Climate in the Yaraha watershed
    - https://wsc.limnology.wisc.edu/research/scenarios
  - Wisconsin Water library
    - http://aqua.wisc.edu/Waterlibrary/
  - Water Action Volunteers
    - http://watermonitoring.uwex.edu/wav/monitoring/database.html
- **WDNR**
  - Interactive map with tons of watershed information
    - http://dnr.wi.gov/topic/surfacewater/swdv/
  - Rock River TMDL
    - http://dnr.wi.gov/topic/TMDLs/rockriver/

Figures