Milwaukee River Greenway Master Plan

A Vision for Recreation and Restoration

June 2010

Prepared by **Plunkett Raysich Architects**

Milwaukee River Work Group
a project of the Milwaukee Environmental Consortium

Master Plan Team
Ann Brummitt, Milwaukee River Work Group
Vince Bushell, River Revitalization Foundation
Kim Forbeck, Urban Ecology Center
Kim Gleffe, River Revitalization Foundation
Therese Gripentrog, WI Department of Natural Resources
Barbara Gurican, Godfrey and Kahn
Sarah Horn, City of Milwaukee
Ray Isaacs, UWM, SARUP
Mark Keane, UWM, SARUP
Linda Keane, Chicago Art Institute
Terri Kinis, Riverside Park Neighborhood Association
Nik Kovac, 3rd District Alderman
Tory Kress, Redevelopment Authority City of Milwaukee
Ken Leinbach, Urban Ecology Center
Richard Maslowski, City of Glendale
Cheryl Nenn, Milwaukee Riverkeeper
Jeff Obirek, National Park Service
Ramsey Radakovich, Milwaukee County Parks
Bill Rumpf, Urban Ecology Center
Harold Schmidt, Friends of Estabrook Park
Guy Smith, Milwaukee County Parks
Dave Schilling, SEWRPC
Chris Swartz, Village of Shorewood
Angie Tornes, National Park Service
Tim Vargo, Urban Ecology Center
Will Warwzyn, WI Department of Natural Resources
Susan Weistrop, UWM, Community Design Solutions
Jessica Wineberg, Bicycle Federation of Wisconsin

Shared Use Trail Sub-committee
Ann Brummitt, Milwaukee River Work Group
Vince Bushell, Riverwest Neighborhood Association
Therese Gripentrog, Department of Natural Resources
Ken Leinbach, Urban Ecology Center
Jeff Obirek, National Park Service
Brian Russart, Milwaukee County
Harold Schmidt, Friends of Estabrook Park
Angie Tornes, National Park Service
Tim Vargo, Urban Ecology Center
Jessica Wineberg, Bicycle Federation of Wisconsin

Easements Sub-committee
Ann Brummitt, Milwaukee River Work Group
Lindsay Fathallah, Godfrey & Kahn
Kim Gleffe, River Revitalization Foundation
Barbara Gurican, Godfrey & Kahn
Ken Leinbach, Urban Ecology Center

Habitat Sub-committee
Ann Brummitt, Milwaukee River Work Group
Owen Boyle, Department of Natural Resources
Gary Casper, UWM Field Station
Gail Epping Overholt, UW-Extension
Kim Forbeck, Urban Ecology Center
Charles Hagner, Birder's World Magazine
Terri Kinis, Riverside Park Neighborhood Association
Martha Lunz, Glendale Resident
Harold Schmidt, Friends of Estabrook Park
Joel Springsteen, Urban Ecology Center
Brian Russart, Milwaukee County
Tim Vargo, Urban Ecology Center

Governance Sub-committee
Ann Brummitt, Milwaukee River Work Group
Vince Bushell, Riverwest Neighborhood Association
Marcia Caton Campbell, MEC
Barbara Gurican, Godfrey & Kahn
Terri Kinis, Riverside Park Neighborhood Association
Vanessa Koster, Department of City Development
Tory Kress, Redevelopment Authority City of Milwaukee
Ken Leinbach, Urban Ecology Center
Richard Maslowski, City of Glendale
Cheryl Nenn, Milwaukee Riverkeeper
Ramsey Radakovich, Milwaukee County Parks
Bill Rumpf, Urban Ecology Center
Karen Schapiro, Milwaukee Riverkeeper
Guy Smith, Milwaukee County Parks
Chris Swartz, Village of Shorewood
Angie Tornes, National Park Service

Consultant Team
Scott Kramer, Plunkett Raysich Architects
Christine Scott Thomson, Plunkett Raysich Architects
Tom Mortensen, R.A. Smith National
Susan Weistrop, UWM, Community Design Solutions
Ray Isaacs, UWM, Community Design Solutions
Sara Korshidiford, UWM, Community Design Solutions

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Milwaukee River Work Group
Vince Bushell
Eddee Daniel
Kim Gleffe
Linda Keane
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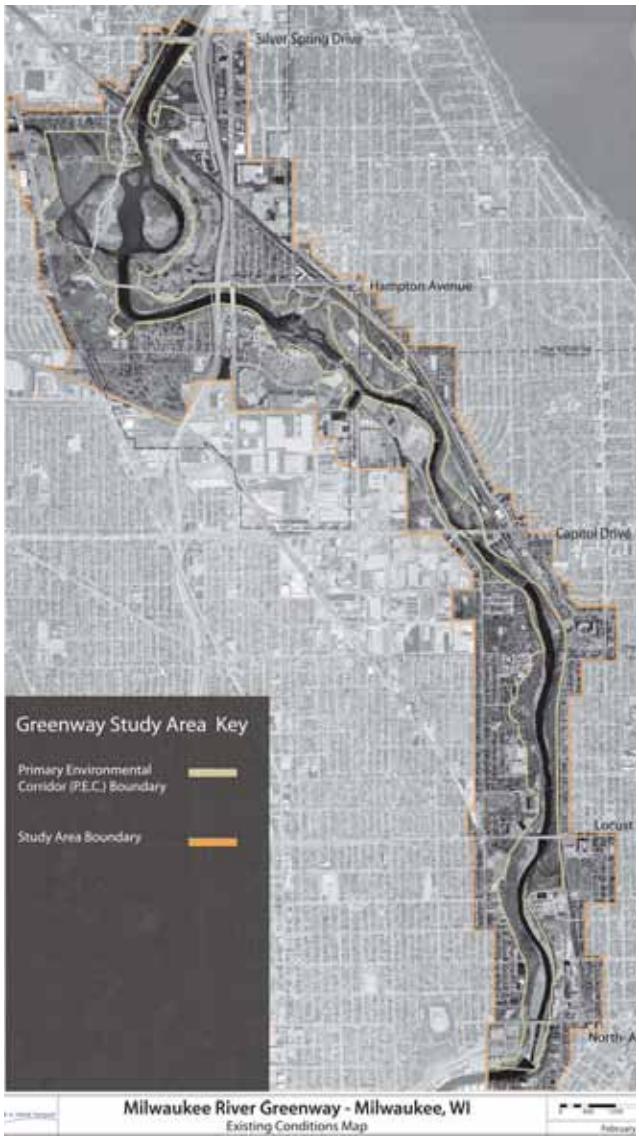
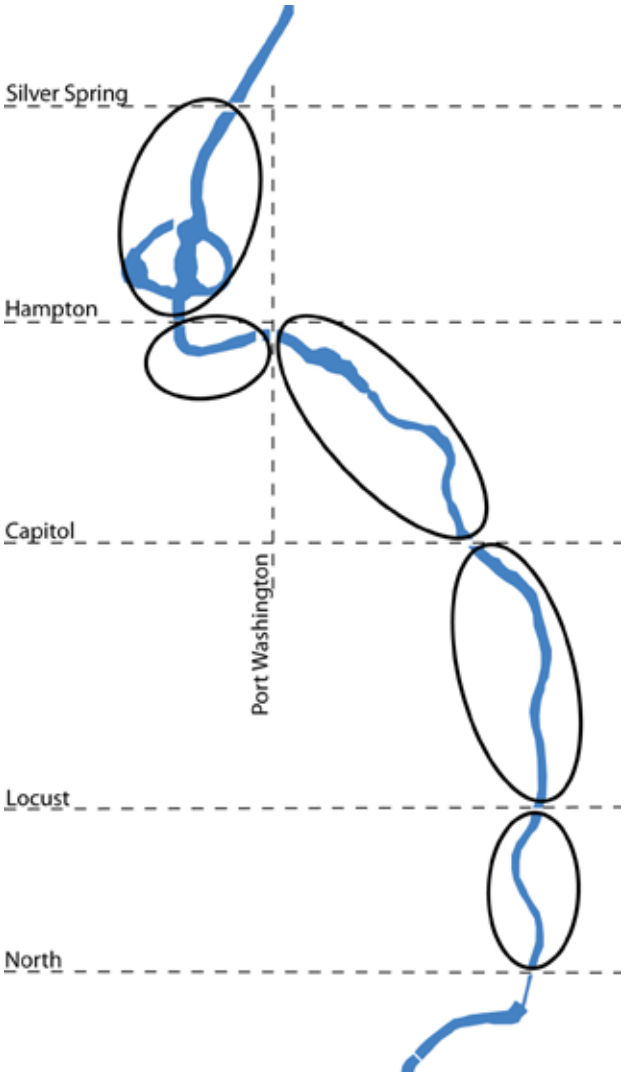
Water recreation and habitat areas are abundant along the length of this stretch of the river.





GREENWAY LOOP AND LINK TRAIL

A natural falls and recreational trails attract people to the Greenway.

Executive Summary

The flow of water from the Milwaukee River into the Great Lakes has been and will continue to be a story that shapes Milwaukee. As the City is poised to take its place as the fresh water capitol of the world, the story of how we safeguard this resource becomes preeminent.

The Milwaukee River Greenway Master Plan (Plan) creates a comprehensive strategy for the river's renaissance. The Plan sets forth a vision for a unique urban wilderness containing restored natural communities and shared recreational opportunities.

The Plan provides guidance for the formation of the Milwaukee River Greenway Coalition and identifies this group as the leader of a work plan that builds on the $9-10 million dollars that has already been invested in the corridor. The Coalition anticipates maturation into a completely self-funded organization with the ability to unlock at least $16.5 million additional dollars to restore a shared open space system containing a major waterway, numerous parks, and areas of urban wilderness in the heart of the city.

A new 13 mile "Loop and Link" shared use trail along the riverside is shown that will give residents and visitors an opportunity to reconnect with nature and each other. The Plan includes steps for habitat restoration for the Primary Environmental Corridor (more than 500 acres!) to enhance the ecological integrity of communities of plants and animals that include a diversity of birds, fish, bats, reptiles and amphibian species.

The Plan also prioritizes branding and graphic design development to create a signage program that will create a coherent identity for the seven mile stretch of river that reveals and celebrates all of the natural assets and recreational opportunities available to users. Enhanced access points and improved gateways will provide both greater access and greater stewardship.

The work plan has identified initiatives for improvements within the corridor in the five principal categories of remediation, restoration, signs, governance, and trails. Specific organizations that are already on track to accomplish these tasks have been identified and phases of work anticipated over the next 15 years has been included.

The Plan is a working document designed to establish priorities and direction for future projects that will lead to restoration and rediscovery of this unique stretch of river. The Greenway is poised to become an outstanding local resource and a world-class destination that enables natural and urban communities to thrive.

Beautiful natural areas and fun recreation opportunities are found here.

MILWAUKEE RIVER BASIN

PRIMARY ENVIRONMENTAL CORRIDOR

MASTER PLAN MISSION STATEMENT

"Create a community based master plan for the Milwaukee River that provides recommendations for preservation, revitalization, management, and improved public access and recreation."

Milwaukee River Work Group
September 2009

Introduction

A UNIQUE NATURAL, RECREATIONAL, AND CULTURAL RESOURCE

The Milwaukee River Greenway is a seven mile section of the Milwaukee River that cuts through the northeast side of the City forming a wide and expansive landscape at its northern end and a steep walled valley at its southern end to create a unique natural setting surrounded by compact urban neighborhoods. This section of the river has a natural setting separate from its urban context comprised of wetlands, woodlands, and a narrow and deep river valley.

Through time, the river has shaped the evolution of Milwaukee. The Milwaukee River Watershed (p. 2) is a 448,000 acre area that contributes to the Great Lakes Basin and lies within portions of seven counties. In total, the river system covers a region that is home to about 1.3 million people.

Prior to the arrival of Europeans, Native American settlements of the Ho-Chunk, Menominee, and Potawatomi (WI Cartographers Guild, 1998) could be found near area rivers. The river ecosystem provided a rich biotic community that contained wetlands, and forested bluffs abundant with waterfowl, wild rice, fish and game. The downstream end of the Milwaukee River became a bustling port that attracted German, Scandinavian and Eastern European immigrants; the upstream stretch of the river became the country playground of city residents. Estates, swimming schools, and parks with a country carnival atmosphere attracted great numbers of urban dwellers providing relief from daily work. As industrialization blossomed so did the need for water power, drinking water, and waste disposal associated with thriving factories, breweries, and rail transport. The City turned its back on the river as the water quality deteriorated, and what was once a playground became a dumping ground. Today the citizens of Milwaukee are rediscovering the river corridor as a vital natural link for both natural and human communities. Through hard work, the water quality has been steadily improving, natural communities are being restored, and river access, trails, and parks are being rediscovered.

WHY CREATE A MASTER PLAN?

The Milwaukee River Greenway Master Plan sets forth a structure for action to advance improvements to the river between Silver Spring Drive and the former North Avenue Dam. Attention to this part of the river is critical because of its ecological diversity, its value as a recreational resource, and its access to large populations of urban dwellers. The Master Plan is a collection of past, present, and future efforts focused on the creation

In 1921, Gordon Park swimming brought people to the river. Today, forested riverbanks attract users.

of a world-class corridor for recreation and restoration and the plan acts as a critical resource for these efforts. The document sets out a structure for the creation of a corridor-focused coalition that will oversee a variety of improvements including public access acquisition where possible; habitat restoration along the length of the study area, as well as in specific critical protection areas; and recreational trails and associated elements such as benches, boat landings, parking, signage, and more.

THE ROLE OF THE MASTER PLAN

The Master Plan collects relevant information about this stretch of the Milwaukee River in a single, easy to use document. It establishes priorities and direction for future work. It describes the public process that engaged local residents, businesses, recreational users and civic leaders in thinking about the future of the river corridor. Finally, the Master Plan sets forth an action plan with an estimated time line for completion to set the stage for a river renaissance.

MILWAUKEE URBAN WATER TRAIL

County trails are adjacent to the Milwaukee River, a major tributary of the Great Lakes watershed.

Master Plan Principles

INTRODUCTION

This reach of the Milwaukee River is recognized as an exceptional ecological corridor with diverse flora and fauna and great places to relax and enjoy the out-of-doors within the City. Today the river and the surrounding natural landscape provide a diverse plant and animal community as well as a network of soft and hard trails on both the river banks and bluffs along the sides of the channel. The corridor is formed around a flowing river with a mix of gentle and steep banks; it is a combination of urban wilderness and managed park land that not only supports abundant plant and animal communities but also links a series of recreational areas utilized by a diversity of outdoor enthusiasts.

PLANNING FOR RIPARIAN AND TERRESTRIAL WILDLIFE HABITAT

The corridor is characterized by two major plant communities: the Upland Forest and the Lowland Forest that create distinctive environments along the river. In addition to plant communities, specific plant species listed by the State as *Threatened* and *Species of Special Concern* can be found in several places within the study area. Many non-native, invasive species can also be found in the corridor. Restoration activities and on-going management to protect listed species and eradicate invasives where possible are critical to maintain and improve the ecological quality of the river corridor.

The corridor is home to hundreds of species of fish, birds, mammals, reptiles/amphibians, and invertebrates demonstrating the suitability of the riparian area to support a diversity of animal life in the heart of an intensely settled urban area.

SHARED USE DOCTRINE

The goal of the shared use philosophy is to create 13 miles of trails that serve a wide variety of recreational activities without harm to wildlife habitat. With proper management and education the current non-motorized uses that include hiking, bird-watching, fishing, biking, dog-walking, cross-country skiing, snowshoeing, etc. should be honored and permitted in the corridor. These activities can coexist with the natural habitat throughout the linear system of linked parks and public spaces. A shared use philosophy fosters people's connection and sense of responsibility towards the river ecosystem. It sets forth principles of community use that balance both the recreational and ecological principals. The shared use concept emerged out of the last three years of public meetings.

Specifically, there are certain areas (Cambridge Woods and Koenen Preserve) where recreation use should be limited to nature observation. In these areas bikers will be

Wildlife and people will share the Greenway, balancing use and ecological integrity.

diverted around the sensitive areas or be asked to walk their bikes. A one-way mountain bike loop is recommended to reduce use conflicts. In some cases for safety considerations (certain ADA sections or trail pinch points), bikers may be required to walk their bike but this would still allow for a continuous one-way loop trail around the Milwaukee River Greenway. This can be accomplished by routing around certain sensitive areas and private properties that lack easements. This trail will diminish congestion and reduce the conflicts between users. Trick riding and trail creation for BMX bikes are harmful to the river habitat and should not be allowed.

DESIGN WORKSHOP & NEWSLETTER

The Milwaukee River Master Plan was developed through an inclusive public process designed to build upon the previous efforts within the corridor and advance the discussion regarding next steps towards improving recreation and restoration. The process included a series of public information meetings held to gather public comments, and to provide a forum for discussion about this focused effort. In addition, stakeholder interviews were conducted with a series of representatives from neighborhood groups, public agencies, river focused institutions, as well as private land owners. A half-day design workshop that included over 75 people was held to create a corridor focused vision that would capture the community aspiration for an exceptional greenway and environmental corridor. Finally, an advisory committee of technical experts assisted with both general oversight and development of the plan as well as participation in specialized sub-committees focused on the following topics: easements, governance, habitat, and trails.

Community members at the design workshop identified priority areas for improvement and developed group visions for the corridor emphasizing natural habitat, neighborhood connections, and recreation. From the discussions and the design exercises several principles emerged to guide the development of the Plan. The event and the key findings from the community discussion were captured in a newsletter, which was widely distributed to enhance on-going dialogue during the planning process.

DESIGN PRINCIPLES

Four principles emerged from the design workshop that encapsulate the diverse viewpoints and central themes of the discussion about how to enhance the river corridor.

1. Ecological Integrity

Recognition of the environmental quality of the river and the surrounding green spaces is strong and growing. The steep slopes, wet conditions, and public ownership that have maintained a connected corridor of non-urbanized land has created a place with great potential to be restored into a healthy ecosystem. Industry and settlement has often overwhelmed natural systems and reduced ecological robustness. However,

Community members discussed future concepts for a restored river corridor.

today residents are stewards of these green areas. **The Master Plan utilizes ecological integrity to focus and form ideas about the quality and quantity of recreation throughout the study area.**

2. Stronger Links

The isolation of the corridor created by its natural terrain and riparian features has had the beneficial effects of limiting disruptive human activity, and the deleterious effects of encouraging dumping of trash and unintended uses. In addition, there are many barriers that prevent the community from experiencing the corridor as a diverse set of connected spaces. **The Master Plan creates stronger links between the community and surrounding neighborhoods and the river. It provides life-affirming places to enjoy while building a shared responsibility for the Milwaukee River.**

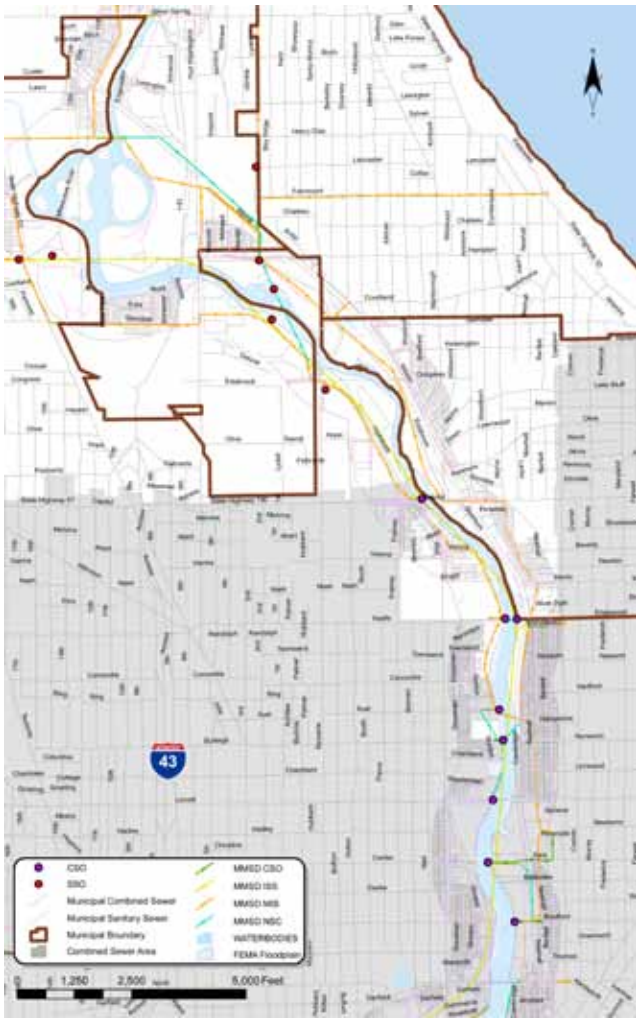
3. Imaging and Signage

An uncoordinated collection of signs is distributed throughout the corridor marking parks, trails, poor water quality, restricted fishing, combined sewer overflow outlets, and private property. None of these signs captures or communicates the idea of a greenway that is a connected territory of overlapping systems of natural and human communities or a première greenway with unparalleled ecological attractions. **The Master Plan recommends development of a logo and signs (see p. 27) that create a unified identity, provide a sense of entry and arrival, impart educational and interpretive information, indicate warnings about sensitive or special places, and mark preferred routes for way finding.**

4. High Protection Recreational Elements

Parks, boat landings, play fields, pools, golf courses, rails to trails, hiking trails all provide recreational activities and opportunities for city residents and visitors, but use of the area can be in direct conflict with natural communities containing rare plants and animals. **The Master Plan identifies critical areas and sensitive resources and encourages corridor-wide ecological assessment and goal setting. The Plan is necessary to educate and inform users, and to develop new recreational facilities that integrate sustainability and best management practices.**

Participants presented their ideas on ways to balance human use and natural quality.



MMSD SERVICE AREA SEWER MAP (2008)
Study area contains 7 sanitary sewer outfalls and 8 combined sewer outfalls that can discharge sewage during wet weather events.

OAK LEAF BIRDING TRAIL
Priority birding area is indicated along the east side of the river between Riverside & Estabrook Parks. 4 of the bird trail sites lie within the corridor.

Pedestrian and bicycle only crossings help maintain places where wildlife thrive.

Existing Conditions

STUDY AREA

The study area contains a total of 878 acres stretching from the former North Avenue Dam to Silver Spring Drive. The corridor includes the Milwaukee River and adjacent land on the City's northeast side. The study area includes the Primary Environmental Corridor (PEC) as well as portions of neighborhoods that surround streets and entry points leading to the green corridor.

This segment of the river contains 515 acres of the land within the PEC, 148 acres of which is covered by the river channel itself. The corridor contains 12 parks and more than 28 miles of hiking, biking and water trails. The corridor crosses four jurisdictions, all with a vested interest in the area's health and productivity. Milwaukee County is the primary land holder in the area, and the City of Milwaukee, the City of Glendale and the Village of Shorewood oversee portions of riverbank as well as associated commercial areas and neighborhoods.

The corridor has five primary east-west crossings that divide the length of the study area into four segments envisioned as loops or "links" within the larger corridor or "chain" of connected recreational trails and associated park spaces (p. iv). The plant communities are organized along the length of the river channel in sinuous bands forming wildlife corridors with different mixes of flora and fauna based on water and soil conditions as well as slope and level of disturbance.

CONNECTIONS/NEIGHBORHOODS

Residents and visitors are able to enjoy the river corridor through many of the numerous parks, but limited public access in several areas creates breaks that reduce public access to the area. The Connections Map (Fig. 1) indicates a large proportion of land immediately adjacent to the river is owned and managed by the County (70%). In addition to this public property, many private property owners have agreed to provide public access to the river's edge through easements. These agreements allow for the possibility of a connected trail network and corridor restoration that has greater recreational and ecological benefits than isolated patches of green space.

The connections map highlights "opportunity sites", or those with no public access today, that could invite the broader public to enjoy the river and support meaningful habitat enhancement in the future. A few properties on the west side of the river break the continuity of public access, but the most significant missing link exists on the west side of the river between Capitol Drive and Hampton Avenue.

In addition, nine access points utilized today are marked on the Connections Map indi-

Groups get outdoors and learn about the river, enjoying its tranquil landscape.

cating the entry points to the corridor from nearby neighborhoods. Primary entries used today exist in several places and are likely to be the focus of improvements, such as signage, parking, restrooms, water, and additional amenities, to enhance enjoyment of the corridor.

HABITAT/ NATURAL COMMUNITIES

The corridor contains a river channel and robust plant communities, both of which support a diversity of animal and plant species. Upstream, the river channel winds through a broad wetland that was shaped into pastoral islands and park spaces in the 1930-40's, and downstream it cuts a valley with steep banks as the river reaches the former North Avenue Dam. A continuous canopy of trees is visible near the river's edge extending into the numerous park spaces located on both sides of the waterway. Large wetland areas exist where the landscape is broad and flat, and numerous smaller, elongated wetlands can be found at the edge of the river channel where steeper slopes confine the waterway.

The two major plant communities, Upland and Lowland Forest, contain many native plant species as shown on the Habitat Map (Fig. 2). The *Threatened* Forked Aster and the *Species of Special Concern* Red Trillium are also found in the corridor. Birds are the most visible animal inhabitants throughout the corridor with more than 181 native species (more than 50 species listed by the State as *Endangered*, *Threatened*, or a *Species of Special Concern)*. Fish have a significant presence (over 38 species) in the river and their numbers and diversity have increased with the removal of the North Avenue Dam. Many species of reptiles/amphibians and invertebrates are found here, with the Butler's Gartersnake as the most recognized due to its *Threatened* status. Finally, several notable mammal species are also present in the corridor rewarding visitors with views of white-tailed deer, coyote, and red fox in the heart of the city.

Despite this understanding of the river corridor, the habitat map demonstrates that the existing information pertaining to habitat within the corridor is fragmented and information is often focused on limited areas and/or habitat types.

RECREATION/PARKS AND TRAILS

An extensive network of informal (social trails), paved, soft surface, and park access trails already exist throughout the corridor. The Recreation Map (Fig. 3) shows the Oak Leaf, East Bank, Beer Line, and the Milwaukee Urban Water Trail and their locations relative to the river channel. Additional informal trails were depicted based on "ground truthing" completed by the Trails Sub-committee over the duration of the project.

A total of 12 county and municipal parks are located in the corridor and are identified on the existing conditions map demonstrating the importance of recreation within the study area and the need to balance these uses with connection and habitat priorities.

Milwaukee's Downtown feels remote in the upper reach where fishing is popular.

Corridor Vision

VISION

The Master Plan includes a "vision" [six maps] that captures diverse sets of information and presents a unified strategy to realize a greenway that meets community goals. The project sets the ground work to guide future efforts towards a river corridor that is a restored system of intertwined natural and man-made communities.

ENVIRONMENTAL QUALITY

The Milwaukee River is a post-industrial waterway that is realizing renewal. As the community begins to face the river again, the Plan requires that the legacy of dumping and polluting be addressed. The Blue Hole, the location of the UWM Park and Ride and the site of a proposed Solar Farm, is a capped landfill containing municipal and industrial wastes. Lincoln Park is the site of continuing work to dredge and remove historically deposited PCBs from the river sediment. The Plan supports on-going work to remediate, restore, and redevelop these locations.

Additional mud flats with contaminated sediments constrain restoration efforts; floodplain and shoreline stabilization material along the banks is degrading. Efforts to reduce the impact of these elements or eliminate them altogether will be supported. In addition to hazardous and construction wastes, brush, leaves, clippings and snow laden with road salt are commonly disposed of throughout the corridor. In addition, sanitary sewer and combined sewer overflows are common (p. 8). Public health concerns associated with water that is not meeting drinkable, swimmable, or fishable levels at this time (mandated by the Federal Clean Water Act) are the focus of realizing a healthy river system and community. The vision seeks to support ongoing remediation work, encourage enforcement, and change attitudes towards a river corridor that can be an economic engine once again through its value as a place filled with enjoyable trails and parks and unique plant and animal communities.

SCENIC VIEWS

Many locations along the Greenway offer a sensory escape from the city. It is important to preserve outstanding river or trail views, overlooks, and areas of exceptional beauty. Any future corridor improvements or restoration efforts should include an assessment of impact on the scenic beauty to ensure that visual attributes are not lost.

Priority Scenic Views

- Silver Spring Dr. Bridge, view south
- Sandy Island, north bridge
- Sandy Island, water's edge
- Estabrook Falls/Estabrook Park riverside overlook

The vision for the Greenway includes places to sit, play, and foster natural communities.

- Riverside trails, on east and west bank from North Ave. to Capitol Dr.
- Locust St. Bridge overlook
- Gordon Park bluff plaza
- Wheelhouse riverside reach
- Former North Ave. dam, bridge view
- Caesar's Park overlook

FOCUS ON HABITAT AND SANCTUARY

The vision also identifies priority habitat areas where natural communities will take precedence over recreational objectives within the corridor. Several areas have sensitive resources that will require intensive management or "light touch" recreational approach (limited bikes/leashed dogs). Other places will be treated as sanctuaries or require an "interpretive" approach. This will involve controlled access (no bikes/dogs) and an emphasis on visual appreciation.

Mac Island in Lincoln Park - *Sanctuary*
The inaccessibility of this island will be maintained to provide protected habitat.

Estabrook Park Riverside Trail - *Wetlands*
The vision places priority on the restoration of the 9 early nineteenth century stone stairs and the maintenance of a primitive trail along the river's edge to limit wetland disturbance.

Hubbard Park North - *Rare Vegetation*
The ecologically significant plant communities in the park's northern part will be protected through restoration and limited pedestrian routes through this area.

Cambridge Woods - *Sanctuary*
Visual appreciation and limited recreational use will protect unique plant species.

Koenen Reserve/Quakers - *Sanctuary*
This reserve will remain protected private property.

Riverside Park - *Forest Restoration*
This recognized "urban forest" will be managed and maintained through outdoor education and will accommodate a multi-use trail through a unique ecosystem.

Rotary Centennial Arboretum - *Native Trees*
Native plant species will be on display with limited recreation. A two mile ADA accessible loop will be part of the Arboretum.

North Ave. West - *Rare Animals*
Butler Gartersnake habitat will be fostered and a primitive, shared use riverside trail will avoid harmful mowing, surfacing, or fill.

TRAIL SYSTEM

Trails will utilize a combination of riverside and bluff top trails to accommodate shared use activity with a mix of high intensity and low intensity trail treatment. The vision focuses on a priority "loop and link" trail along the entire length of the corridor adjacent to the river where possible. Bikes will be directed to follow a one-way loop to reduce trail user conflicts. The plan will recommend improvements for pedestrians and cyclists along the 5 major west-east crossings through a variety of strategies including enhanced and new sidewalks, bike lanes, separated lanes

The trail system will include forested shared use trails, signs, and scenic views.

or pedestrian/bike bridges.

Portions of the riverside trails located where there are sensitive landscapes (wetlands, threatened species, etc.) will be lower intensity trails with intensively managed routes to protect associated landscapes. Several limited use trails that connect users with sanctuaries have been identified. These trails will be for foot traffic only and will be designed to maximize quiet contemplation and nature appreciation.

The existing Oak Leaf rail-to-trail on the east side of the river corridor will also be integrated as part of the trail network. To further enhance the recreational trail system, this Plan will encourage the extension of the Oak Leaf rail-to-trail to Lincoln Park where it will intersect with the loop and link trail providing an additional connection point.

ACCESS & SIGNAGE

Gateway signage, such as banners, public art, or sculptures will occur along the five major crossings and at either end of the corridor to create public awareness of the greenway for residents and visitors alike.

The nine existing entry points to the corridor will be the focus of trailhead improvements. These locations will be marked with maps to welcome visitors to the greenway, identify the trail system, highlight the loop and link trail, and indicate important landmarks. Maps will also clearly indicate the existing resources that support the recreational trail network (such as parking in Gordon Park, or bathrooms in Lincoln Park).

Additional signage focused on natural resources will be located in each of the habitat and sanctuary areas and directional trail marking will be utilized throughout the length of the trail network.

In addition, specific needs for amenities will be addressed at 7-16 other locations each providing specific park focused elements, such as gateway markers, water access, parking, concessions (water, food, bike repair, etc.), and bathrooms.

Nine *EXISTING* access points/amenities

1. Blatz Paviliion – parking/bathrooms
2. Lincoln Park – parking (golf)/water access
3. Estabrook Park North – parking/water access
4. Estabrook Park Falls – parking/water access
5. Estabrook Park South – parking
6. Kern Park - recreation
7. River & Hubbard Parks – parking/water access
8. Gordon Park – parking/bathrooms/water
9. UEC– parking/bathrooms/water access

Seven priority *NEW* access points/amenities

1. Silver Spring Ave - gateway
2. Cambridge Woods - sanctuary/warning
3. Rotary Centennial Arboretum - gateway
4. Beerline Trail, E. Wright Street - trail head
5. UWM Dorms N. Ave East - trail head
6. Wheelhouse – gateway/water access
7. Caesar's Park - gateway

STRATEGIC PARCELS

The vision identifies three strategic locations

The Urban Ecology Center, a landmark and entry point to trails, is a likely location for trail signs.

and identifies parcels that could benefit from a realized greenway. As they are sold or developed new owners will be encouraged to consider participation with the greenway objectives of a continuous riverside trail and green corridor.

- Estabrook Corporate Center
- Blue Hole
- Capitol Southeast

INSTITUTIONS
Several landmarks and corridor focused institutions are found throughout the study area. The Plan identifies these places and encourages joint activities that enhance the quality of each location and larger program initiatives within the corridor.

- **Lincoln Park Blatz Pavilion**; recreational programming,
- **Lincoln Park Golf Course**; recreational programming
- **UWM service, research, parking**; solar farm educational experience
- **Hubbard Park**; river celebration event space, water access
- **UWM Kenwood Campus**; college educational programming
- **Urban Ecology Center**; trail head, water access/rental; youth educational programming
- **UWM Residence Halls**; trail head, college residential educational programming
- **RRF Wheelhouse Site**; conservation (gateway) programming, water access

KEY MAP

Wildlife and families will both share a variety of spaces within the Greenway.

Focus Areas

INTRODUCTION

Several planning studies have been completed along the length of the corridor providing detailed information and key graphics for specific areas. This Plan will build off previous work and seek to forward initiatives that are already underway to improve the ecological and recreational quality of the river corridor.

AREAS

1. Estabrook and Hubbard Parks featured in the *Comprehensive Outdoor Recreation Plan*, Village of Shorewood, 2007.
2. Blue Hole (UWM Park and Ride) featured in the *Milwaukee Comprehensive Plan Northeast Side*, A Plan for the Area, July 2009.
3. Hubbard Park, the focus of the *Conceptual Plan for the B-4 River District Riparian Restoration and Trail Planning and Design Project*, May 2009.
4. Locust Avenue Pedestrian Bridge featured in the *Milwaukee Comprehensive Plan Northeast Side*, A Plan for the Area, July 2009.
5. Riverside Park, focus on forestry management, a component of the *100 Year Management Plan*, June 2005.
6. Rotary Centennial Arboretum, Rotary Club of Milwaukee *Concept Site Plan*, December 2007.

KEY MAP

Many project areas have already been identified, and in several places, work is underway.

1. COMPREHENSIVE OUTDOOR RECREATION PLAN

The Shorewood Plan sets goals and objectives for the community's park spaces near the Milwaukee River. In *Estabrook Park* recommendations include (3) Secure a trail easement and construct a path at W. Olive Street (19) Formalize social paths along the river. In *Hubbard Park* recommendations include notes to construct path between Oak Leaf Trail and Lower Terrace and stabilize and formalize natural path along river.

Citation: Planning Design Institute, Cedarburg Science, Cyla Design Associates, December 2007.

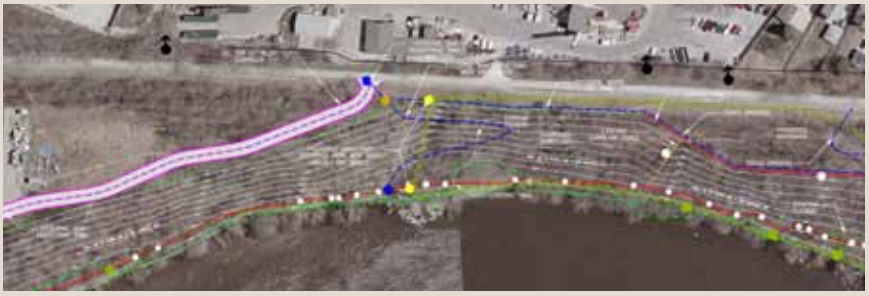
2. NORTHEAST SIDE AREA PLAN

Milwaukee's Department of City Development (DCD) produced a plan for the northeast side of the City which included detailed recommendations for enhancement for the Riverworks Area. The plan included concepts for catalyst projects including redevelopment of the Blue Hole site, a capped landfill currently used as a UWM park and ride lot. The plan envisioned baseball and soccer fields as well as a pedestrian/bike bridge.

Citation: Solomon Cordwell Buenz; Studio 1032;
Terry Guen Design Associates;
S.B. Friedman, July 2009.

3. RIPARIAN RESTORATION AND TRAIL PROJECT PLAN

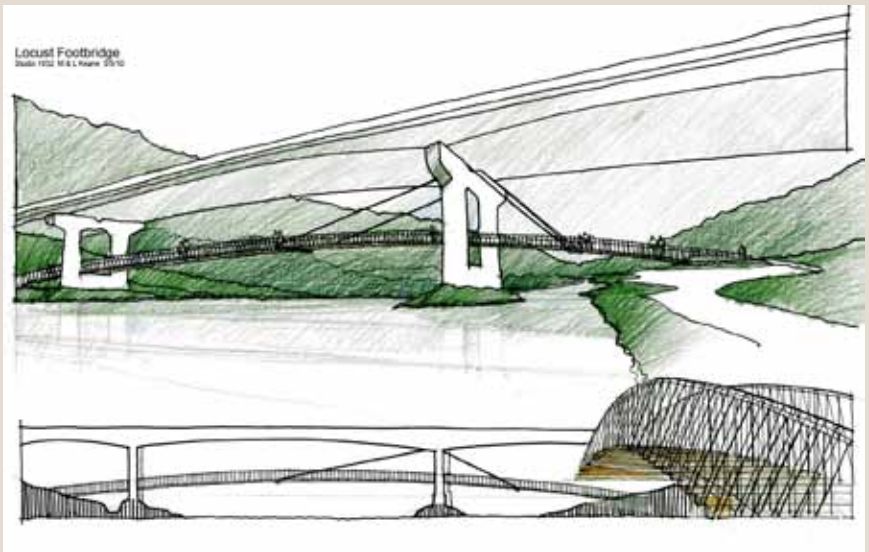
The Shorewood Plan was developed to create a trail system and restoration plan along the bluff on the east bank of the Milwaukee River from Hubbard Park to East Capitol Drive. The plan indicates the enhancement or creation of three main trails to guide visitors along the bluff, a trail head at each end of the study area, and the creation of a great vista to the river.



Citation: Marek Landscaping, LLC, May 2009.

4. NORTHEAST SIDE AREA PLAN

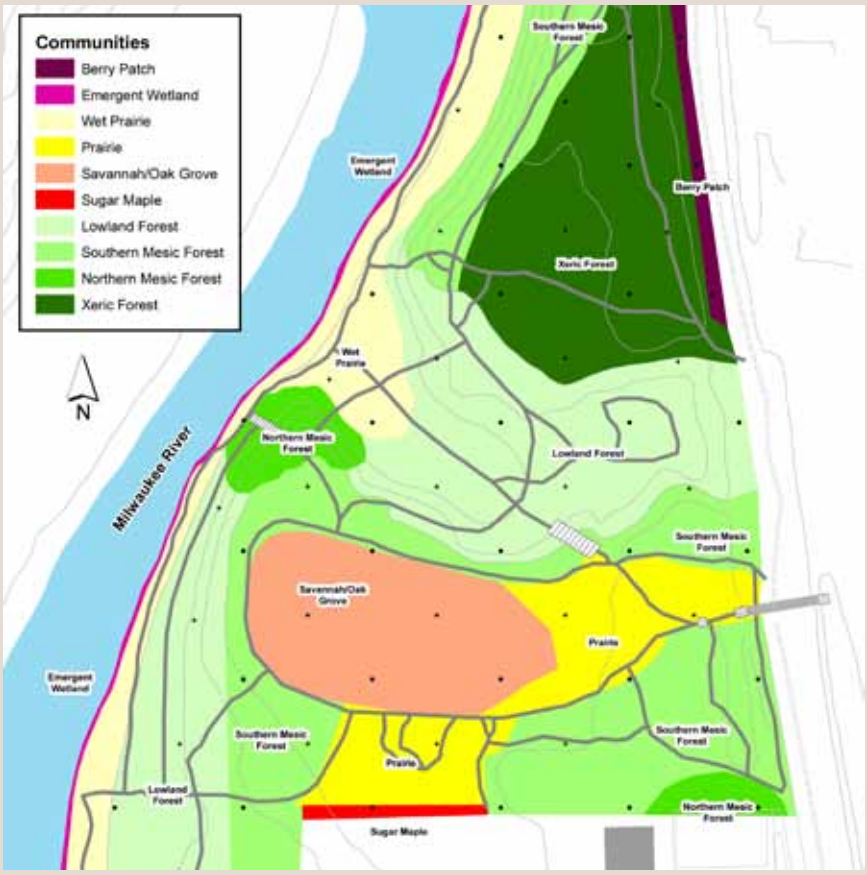
Milwaukee's DCD produced a plan for the northeast side of the City which included detailed recommendations for enhancement of the Milwaukee River Corridor. The plan focused on concepts for catalytic projects including an additional pedestrian/bike crossing under the Locust Street Bridge to link existing riverside recreational trails.



Citation: Solomon Cordwell Buenz; Studio 1032;
Terry Guen Design Associates;
S.B. Friedman, July 2009.

5. 100 YEAR URBAN FORESTRY MANAGEMENT PLAN

The Urban Ecology Center (UEC) obtained a WI DNR Urban Forestry Grant to help uphold its mission to utilize the 15.2 acre grounds of Riverside Park, which it maintains through an alliance with the Milwaukee County Parks System, as an educational tool while also maximizing biodiversity. The grant allowed the UEC to develop a detailed picture of the tree species composition to analyze plant communities more thoroughly, observe changes, and establish long and short term management goals.



Citation: Runyard, Ann and Kim Forbeck, July 2005.

6. ROTARY CENTENNIAL ARBORETUM

The Milwaukee Rotary Club partnered with the UEC, the Milwaukee Urban River Foundation, and the River Revitalization Foundation to develop a gateway to the Milwaukee River Greenway. A 40 acre arboretum will showcase native trees of Wisconsin and create an enduring symbol of the Rotary's commitment to the City. The arboretum will include gateway access to the greenway and is planned to be opened in 2013.

Citation: Rotary Club of Milwaukee, December 2007.

Habitat Plan

INTRODUCTION

The first reach of the Milwaukee River directly upstream from the Downtown Riverwalk is a remarkable valley. From a canoe or along a riverside trail, you would never sense that you are in the heart of a major metropolis. The steep, forested banks shelter wildlife and visitors from the noise and views of the City's hardscape.

Like many urban rivers, the Milwaukee River suffered decades of neglect and abuse. Industrial wastes, run off, and raw sewage polluted the waters. In the late 20th century attitudes changed and Milwaukee, like many cities, began to recognize the value of a healthy and clean waterway.

In 1997, the character of this reach of the river changed dramatically with the removal of the North Ave Dam. The water flowed freely improving water quality and fish diversity jumped six fold. The previously submerged floodplain became desirable habitat for many species including the *Threatened* Butler's Gartersnake.

Milwaukee residents and visitors began to rediscover the beauty of this urban wilderness. The Master Plan seeks to balance the needs of both a vibrant wildlife corridor and a recreational oasis for human enjoyment.

GOAL

Restore and preserve the natural value (ecological integrity, native wildlife and plant populations, water quality) of the Milwaukee River Greenway, so that its contribution to the land and water resources of the surrounding community is maintained and improved.

PLANNING OBJECTIVES

1. Complete *biotic inventory and map* of existing plant and animal communities, vegetation, and wildlife habitat types.
2. Identify species that will be the focus of management efforts. Recommend *targeted species* that have a strong or unique role in an ecosystem - keystone, umbrella and flagship types.
3. Develop *goals* for vegetation and wildlife habitats based on criteria such as: pre-settlement vegetation, current plant and animal distributions; settlement pattern limitations; corridor-wide ecological capability, etc. Conduct a *public process* to establish consensus on habitat objectives.
4. Create and implement a framework for *long-term monitoring and adaptive management* of plant and animal communities.
5. Increase the *ecological literacy* of the public through educational components (outreach, public events, workshops, field trips).

A dense canopy covers much of the Greenway providing outstanding bird habitat.

UNIQUE LOCATIONS FOR HABITAT

Lincoln Park Islands
The 2 islands in Lincoln Park and the surrounding landforms are mainly comprised of wetlands, shallow marshland, and wooded lowlands, with the exception of the public golf course closely flanking the east side and the public parkway that threads through the area.

A large wooded portion of Meaux Park hosts a variety of wildlife isolated by utility towers and other restricted, posted "no-go" areas with limited access. These large utility towers have guy wires and permanently illuminated red lights, all of which are deadly to nighttime migrants, especially in poor weather. Utilities should switch to white strobe lights for bird safety.

This stretch of the river is characterized by shallow river loops, a central channel and island banks and is relatively flat with the exception of a portion of Mac Island which currently supports several groves of evergreen trees. The islands, wooded areas and other shoreline / riparian areas offer a wide variety of habitat and have great restoration / preservation potential.

Estabrook Park/Estabrook Falls
Stepping down from the Boardwalk at the Estabrook Falls a platform of blue-grey rocks is covered with fossils. This is an extremely rare place where you can get a glimpse of the ancient world of the middle Devonian period, roughly 400 million years ago.

Hubbard Park
North of the Hubbard Park lodge lies a relatively undisturbed remnant of upland and floodplain forest. The shrub layer is dominated by native species such as nannyberry, staghorn sumac, and dogwood. Herbaceous plants include native goldenrod, wild leeks and onions, Solomon's plume, wild geranium, and forked aster. This place is noted as "one of the few remaining areas within the Milwaukee area that maintains such a high quality floral assemblage" (Barloga, Riparian Restoration & Trail Plan, 2009)

Koenen Nature Preserve
The Koenen Land Preserve is a sanctuary for many indigenous plants. Maintained by Milwaukee Friends Meeting (Quakers), the land is home to trees found in mature upland hardwood forest – beech, bur oak, red oak and one of the largest white oaks in all of the county.

Cambridge Woods
The Southeast Wisconsin Regional Planning Commission (SEWRPC) identified this area as a Critical Species Habitat. It remains one of the least disturbed areas in the Greenway and has stands of red and white oak trees, beech trees and a wide spectrum of native vegetation including the *Threatened* Forked Aster.

Riverside Park (Urban Ecology Center)
Riverside Park was designed by Frederick Law Olmstead (designer of New York's Central Park) which over the years has evolved to become a natural gem in the heart of

Spectacular specimen trees and forest plant communities create outdoor classrooms.

the city. The Urban Ecology Center, located in the park, is an environmental community center that uses the rich ecology of Riverside Park to educate urban school children about science and nature through hands on experiences. The 20,000 square foot "green" facility is also home to a 45 foot rock climbing wall, a room of live Wisconsin animals, classrooms and community rooms and lots of fun surprises! The Center is free to visit and open seven days a week.

Milwaukee Rotary Centennial Arboretum
Planned for completion in September 2013, the Arboretum will be a 40 acre sanctuary for plant and associated animal communities native to Milwaukee County. It will serve as an outdoor classroom for neighborhood schools, colleges, community residents and visitors. It will incorporate a minimum of 72 native tree species, native shrubs and herbaceous plants. The Arboretum will be managed for the prevention and removal of invasive exotic plants for perpetuity.

WILDLIFE IN THE GREENWAY

Birds
Year in and year out, the Milwaukee River provides essential stopover and nesting habitat for well over 100 different species of birds. Some, like chickadees and cardinals, live along its banks year-round. Others, including catbirds and buntings, can be found only during the summer months. But most -- colorful warblers, long-distance shorebirds, and other migrants from southern states, the Caribbean, and Central and South America -- rely on the Greenway for food, resting places, and shelter as they make their annual flights to and from nesting grounds, not only in northern Wisconsin, but also across Canada.

Fish
As water quality has steadily improved, notable species include Walleye, small mouth Bass, *Threatened* Greater Redhorse, along with 36 other species have returned. Lake Sturgeon are beginning to take hold in a restoration effort led by the Department of Natural Resources. Runs of Salmon in fall and Steelhead Rainbow Trout in spring attract anglers from afar.

Although, the River is now capable of supporting a much more diverse fish and aquatic community, critical fish spawning habitat is limited. Projects to provide additional habitat for fish and other aquatic life will be encouraged.

Bats
A recent bat survey by Citizen Scientists revealed high densities of bats the entire length of the Greenway, and then an almost complete absence of bats south of the North Avenue Dam suggesting that efforts that maintain and enhance bat populations are critical for this area.

Reptiles/Amphibians
With the removal of the North Avenue Dam the diversity of reptiles and amphibians has improved. The floodplain grasslands and surrounding urban landscapes now support a

A variety of rare plant and animal species can me found throughout the Greenway.

healthy population of the *Threatened* Butler's Gartersnake, along with many DeKay's Brownsnake and a few common Gartersnakes. Potential for establishing additional snake species with proper habitat restoration, such as Eastern Milksnakes and Northern Red-belliedsnakes exists.

The river currently supports painted, snapping, spiny softshell and map turtles. Nesting areas for these turtles are a critical habitat component and are not yet known – providing nesting areas may be an important conservation need. Northern green frogs, American bullfrogs and American toads currently breed in low numbers in the corridor. The beautiful eastern gray treefrog has been heard a few times but a breeding population has not yet been discovered.

No salamanders are currently known, although there is the potential to restore habitat to support several species (Central Newt, Blue-spotted Salamander, Eastern tiger Salamander). Amphibian diversity could be substantially increased with habitat planning for fish-free breeding ponds with surrounding terrestrial habitat improvements. The river can also support the Common Mudpuppy, Wisconsin's largest and entirely aquatic salamander. Mudpuppies may eventually establish on their own from Lake Michigan populations, and in-stream habitat provision of flat rocks would encourage nesting.

GREENWAY KEY STATISTICS		
NUMBER	UNIT	TYPE
7	miles	length of river segment
878	acres	study area
515	acres	Primary Environmental Corridor
148	acres	river channel
12	number	Public Parks
28	miles	hiking, biking and water trails

Gray Catbirds perched in the underbrush and Forked Aster in bloom create a lively summer season.

Recreation Plan

INTRODUCTION

The Milwaukee River corridor has extensive public parks serving the neighborhoods surrounding and flanking the corridor and supporting a wide variety of active and passive recreational opportunities for both local and regional users.

The focus is to provide safe, environmentally sensitive, and interesting river access, while expanding the passive and active recreational activities, such as hiking, bird watching, nature education or golf, biking, paddling, frisbee, etc.

SHARED USE TRAIL SYSTEM

A shared use philosophy will foster people's connection and sense of responsibility towards the river ecosystem.

Shared Use Trail System Principles:

- Develop print and electronic media materials to reinforce a culture of sharing.
- Involve users, neighborhood associations, and private property owners.
- Set aside some areas for limited, specific uses - a "quiet" area for nature.
- Separate user groups when appropriate or necessary to minimize conflict.
- Design trails to manage conflicts - narrow areas include bump-outs for passing.
- Shared use will be indicated on signage and symbols will indicate trail use types.
- Corridor entry signs should include types and difficulty levels of trails.
- Foster users respect for the corridor as an urban wildlife ecosystem and a place for recreation.
- Build and manage trails sustainably to minimize impact on the natural habitat.
- Insist on compliance with municipal, county, state and federal regulations.
- Foster self enforcement of the shared use philosophy to minimize policing needs.

LOOP & LINK TRAIL

A new riverside trail that still protects and enhances the riparian ecosystem and links into a larger shared use trail system will be introduced.

The riverside route will be located on both public property and public access easements and extend the entire length of the corridor. Where public access is not possible, the route will utilize public streets to make critical links.

The trail will include a one-way loop for mountain bikers to reduce use conflicts and will encourage improvements to the six major bridge crossings (Silver Spring, Hampton, Port Washington, Capitol, Locust, North) to create shorter recreational loops for pedestrian and cyclists.

Bicycling and kayaking are just a few of the recreational uses enjoyed within the Greenway.

ADA COMPLIANCE

Planning and implementation for recreational trail and amenities within the Greenway must comply with the Americans with Disabilities Act (ADA), which prohibits discrimination on the basis of disability.

Trail design will be accessible, except where grade and terrain considerations prohibit these accommodations. Alternative access to exceptional recreation experiences, like fishing access, scenic views, and the proposed arboretum will be provided.

Independence First in Milwaukee and the National Center on Accessibility will be consulted for more information and resources as detailed design of trail segments is undertaken.

Priority ADA Routes/Access Points

- Lincoln Park fishing pier (retrofit needed)
- Oak Leaf Trail System, entire corridor
- Proposed loop, from the North Ave. to Locust St., and future pedestrian bridge
- Riverside Park/UEC Trails, an accessible fishing pier and canoe launch (planned)
- Rotary Centennial Arboretum (planned)
- The East Bank Trail
- Beerline Trail (planned)

WATER TRAIL

The Milwaukee Urban Water Trail (p. 4) was developed to "connect people with places, both natural and human-made, connect past to present, and bring the boater into contact with the rivers and surrounding lands." By reuniting people with the river corridors, the water trail is intended to promote stewardship and community engagement.

The recreation plan will promote enhancement of the 8 places of note for river access along the length of the waterway. This includes locations identified by the water trail map, including a new ADA pier at Riverside Park and a new access point at Locust Avenue.

Places of Note

1. Lincoln Park Fishing Pier - signage, ADA
2. Estabrook Dam - signs, maintain portage
3. Estabrook Falls - stabilize banks, improve portage, signs (permission required on private land)
4. Hubbard Park - signs, pruning, proposed canoe launch
5. Schlitz Brewery Ice Dam - signs identifying river hazard needed
6. Riverside Park - ADA pier, signs, canoe launch
7. Locust Avenue - new water access, possible portage
8. North Avenue Dam - signs, stabilize bank, improve portage, replace matting

Water access is available in all locations, with the exception of the Schlitz Brewery Ice Dam and the new access point at Locust Avenue; parking and boat landings can be found at Lincoln Park, Estabrook Dam, Hubbard Park, Riverside Park and near the former North Avenue Dam; Restrooms are available in Lincoln Park at the Blatz Pavilion

The Greenway provides areas for passive and active recreation throughout all seasons.

High Intensity - ADA, Oak Leaf, Beer Line

Low Intensity - Primitive Trail

as well as in Riverside Park at the Urban Ecology Center.

TRAIL TYPE

The trail system is envisioned as using a mix of high intensity and low intensity trail treatment. The Plan includes several photo examples of these two trail types (p.25). Although no detailed trail design has been undertaken with this Plan, the examples show the variety in materials, media, and character possible for both a high-intensity, fully accessible trail and a low-intensity, primitive trail designed to be accessible where possible.

SIGNS

It is anticipated that the Greenway and trails will use a variety of signage (p. 27) to announce arrival, inform, warn, and lead trail users along the length of the corridor. The Plan includes several photo examples of the four key sign types: Entrance, Information, Protection, Direction.

In addition, the two sign types are included to show the variety of sign themes that can be employed. The action plan anticipates that graphic design for a greenway signage program will be undertaken after the adoption of the Plan.

ACTIVITIES

Anticipated activities within the corridor were identified as part of the initial planning meetings in 2008. The table of activities (p. 28) indicates the year round potential of the corridor to host activities as well as the seasons of greatest and least use.

PARTICIPATING ORGANIZATIONS KEY	
ABB	ORGANIZATION
MRGC	Milwaukee River Greenway Coalition
UEC	Urban Ecology Center
RRF	River Revitalization
MRK	Milwaukee Riverkeeper
BikeFed	Bicycle Federation of Wisconsin
MMSD	Milwaukee Metropolitan Sewerage District
MATC	Milwaukee Area Technical College
UWM	University of Wisconsin-Milwaukee
MURF	Milwaukee Urban River Foundation
SWWT	Southeastern Wisconsin Watershed Trust
SEWRPC	Southeast Wisconsin Regional Planning Commission
WI DOT	Wisconsin Department of Transportation
WDNR	Wisconsin Department of Natural Resources
NPS/ R&T	National Park Service/ River & Trails Program
EPA	Environmental Protection Agency

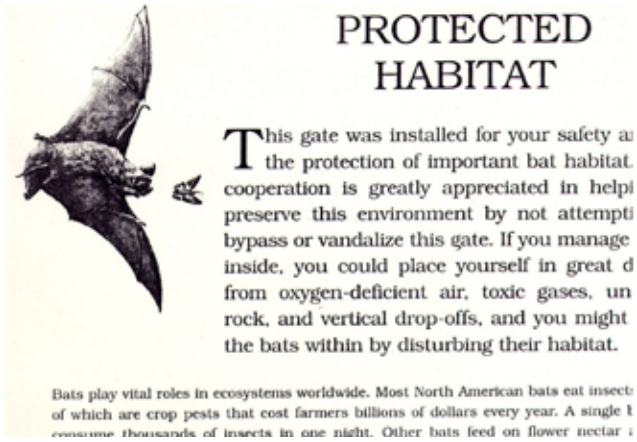
Field sports and water activities are enjoyed by all ages in the many parks and along the river.

Rustic

Artistic

Entrance

Information



Sanctuary

Direction

RECREATIONAL USE TABLE BY SEASON (Based on Initial Planning Meetings)				
SEASON	**SPRING**	**SUMMER**	**AUTUMN**	**WINTER**
ACTIVITY				
Hiking and Jogging				
Birding				
Geo-cashing				
Letterboxing				
Dog Walking				
Disc Golf				
Biking (especially Mountain)				
Canoe & Kayak				
Fishing				
Ice Skating				
Skiing				
Sledding				
Snowshoeing				
Research/Stewardship				
History and Archeology Buffs				
Educational Experiences				
Wild Rice Growing (future)				
Maple Syrup Harvesting				
Green: Recreation; Blue: Education/Agriculture				

Wooded trails and former railroad right of ways provide a variety of landscapes.

Action Plan

INTRODUCTION

The Action Plan sets the direction for implementation of the Master Plan Vision. By establishing a governance structure, identifying funding sources, and indicating tasks to be completed, the action plan identifies how the framework is realized through a clear set of tasks and next steps.

GOVERNANCE STRUCTURE

The Milwaukee River Greenway Coalition (the Coalition) will lead the implementation of the Milwaukee River Greenway Master Plan. A Memorandum of Understanding (MOU) sets forth the agreement between the parties. The Coalition will be composed of leaders from jurisdictions in the plan area, and five non-profit agencies that conduct extensive programmatic activities within the study area.

Milwaukee County and the Village of Shorewood, along with The Milwaukee Environmental Consortium, The Urban Ecology Center, the River Revitalization Foundation, the Milwaukee Riverkeepers, and the Bicycle Federation of Wisconsin will collaborate to provide recommendations regarding management, fundraising, and educational activities needed to implement in the plan.

This Coalition will bring public and private entities together to focus on improving the quality of the river corridor. It will create a forum for joint decision making, coordinate projects and programs, provide access to a diversity of public and private funding sources, and enhance implementation through its links to county, city, and village governance structure.

FUNDING SOURCES

The proposed Coalition will lead fund raising efforts to implement the goals and long-term vision of the Milwaukee River Greenway Plan. To establish the governance structure and realize the plan vision, a detailed fundraising plan will be developed. The plan will target both public and private funding sources to support a project administrator, ecological assessment, design development, construction plans, construction, and on-going management.

This group anticipates maturation into a completely self-funded organization. The Coalition will retain the fiscal sponsorship of the Milwaukee Environmental Consortium.

Groups will act to maintain trails, restore vegetation, and provide outdoor education.

ACCOMPLISHMENTS: 1997-2000		**$9-10 Million invested**
COMPLETED/ON-GOING PROJECTS	K	RESPONSIBLE GROUP
Removal of North Ave Dam (1997) & river restoration	$4,660	WDNR, EPA, City of Mke, MMSD
Lincoln Blatz Pavilion sediment removal		WDNR, Mke County, EPA
Fish Reef habitat	$104	EPA, US Fish & Wildlife Service, Walleyes for Tomorrow
Protective zoning ordinance Shorewood/Mke	$20	City of Mke, Shorewood, MRGC
Shorewood Master Plan for river frontage	$40	Shorewood
UEC 100 Year Forestry Management Plan		UEC
Riverside Park Master Plan		UEC, Mke County
Butler Gartersnake monitoring		UEC
Milwaukee Urban Water Trail		MRK, NPS, Mke County
East Bank Trail	$255	RRF, Mke County, Coastal Mgmnt
Acquire/convey/construct Beerline Trail	$500	RRF, Mke County
Acquisition/fundraising for Rotary Centennial Arboretum	$2,000	Mke Rotary, UEC, MURF, RRF, Mke County
Acquisition of Melanec's Wheelhouse	$1,400	RRF, WDNR, MMSD
Greenway workshops (2007)	$1	MRGC
Shared Use Plan	N/A	MRGC
Milwaukee River Greenway Master Plan	$25	MRGC

PHASE I	**YEARS: 2010-2012**	(key to groups on p. 26)
CATEGORY	WORK PLAN	RESPONSIBLE GROUP
GOVERNANCE	Implement the MOU	MRGC
	Develop brand identity & adopt plan	MRGC
	Fund raising Plan	MRGC
REMEDIATION	Lincoln Park & floodplain upstream of North Ave. Dam contaminated sediment removal	WDNR, EPA, Mke County
TRAIL	Lincoln Park *Trail Maintenance*	Mke County, MRGC
	W. Estabrook Blvd. - Capitol Dr. *Trail*	MATC, WDNR, MRGC
	Capitol Dr.- Locust St. *Streetscape*	City of Mke
	Gordon Park *Access Improvement*	Mke County
	UWM Dormitory *River Trail Access*	UWM Real Estate Foundation, Mandel
	North Ave. Bridge - Wheelhouse *Gateway*	Mke County, RRF
	Beerline *Trail Construction* (August 2010)	Mke County, WDNR, RRF
	Maintain Mke Urban Water Trail Signs	MRK
HABITAT	Corridor-wide habitat inventory and analysis	MRGC
	Nature appreciation/ education **(all phases)**	UEC
	Restore Wheelhouse/ youth crews **(all phases)**	RRF
	Bike camp trail riding & clean-up	BikeFed
	Habitat areas (aquatic, birds, veg)	Various
SIGNS	Signage program graphic design	MRGC

PHASE II	**YEARS: 2012-2015**	(key to groups on p. 26)
CATEGORY	WORK PLAN	RESPONSIBLE GROUP
REMEDIATION	Shoreline matting repair North/Locust	City of Mke
	Address beneficial use impairments in AOC	WDNR, UW Extension
	River clean-ups **(all phases)**	Mke Riverkeeper
	Address Estabrook Dam issues	Mke County
TRAIL	Silver Spring Dr. - N. Edgewater Ln. *Streetscape*	Glendale
	Oak Leaf Trail Rail to *Trail Extension*	Mke County
	Capitol Dr. - Locust Ave. *River Trail/Access*	Mke County, MRGC
	Capitol Dr. - Hubbard Park *Trail Development*	Shorewood
	Cambridge Woods *Sanctuary/Interpretive Trail*	Mke County, MRGC
	Locust Ave. Bridge Improve/Ped Bridge	City of Mke
	Locust Ave. - North Ave. *River Trail Development*	Mke County, UEC
	Locust Ave. - Riverside Park *Trail Improvements*	Mke County, UEC
	Arboretum - North Ave. Bridge *Trail*	UEC, Mke Rotary, MURF, Mke County
	North Ave. Bridge - Caesar's Park *Gate/Trail*	Mke County, MRGC
	Improve and maintain water trail **(all phases)**	MRK
HABITAT	Habitat monitoring plan	MRGC
	Rotary Centennial Arboretum Opening (2013)	UEC, MKE County, RRF, Mke Rotary, MURF
SIGNS	*Info/Interpret Signs* (1) Blatz Pavilion/Lincoln Park; (2) Golf Pavilion/Lincoln Park; (3) Estabrook Park North; (4) Estabrook Park Falls; (5) Estabrook Park South; (6) Kern Park; (7) Hubbard Park; (8) Gordon Park; (9) Riverside Park/UEC. *Specialized Signs* (1) Cambridge Woods - Sanctuary/Warning; (2) UWM Dormitory East - Directional/Trail Marker; (3) Rotary Arboretum - Gateway	MRGC, Mke County

PHASE III	**YEARS: 2015-2025**	(key to groups on p. 26)
CATEGORY	WORK PLAN	RESPONSIBLE GROUP
REMEDIATION	Develop TMDLS for Mke River Watershed/Estuary AOC	MMSD, WDNR, SWWT
TRAIL	Silver Spring Bridge *Pedestrian Improvements*	WI DOT
	W. Glendale Ave. - W. Estabrook Blvd. *Streetscape*	Glendale
	Port Washington Rd. *Streetscape*	City of Mke, Glendale
	Estabrook Park Trail *Maintenance, Improvements, Gateways*	Mke County, Shorewood, & Friends of Estabrook Park
HABITAT	Habitat areas (aquatic, birds, veg)	Various
SIGNS	*Specialized Signs* (1) Silver Spring - Gateway (2) Wheelhouse - Gateway; (3) Caesar's Park - Gateway	MRGC, Mke County, Rotary, UWM Real Estate Foundation, RRF

FUNDING SOURCES	
PROGRAM	**DESCRIPTION**
Recreational Trails Program	Existing & new trails, trail heads, trail linkages
Wisconsin Coastal Management Grants	Management, protection, and restoration of Wisconsin's coastal resources, and increases public access to the Great Lakes
WDNR River Planning Grants	Riverine ecosystems, management organizations, public understanding, management plans
WDNR River Management Grants	Purchase land, develop regulations, non-point sources pollution control, restoration, implementation, education
EPA Environmental Education Grants	Environmental education
Knowles-Nelson Stewardship Program	Wildlife habitat, water quality and fisheries, and outdoor recreation
Urban Forestry Grant Program	Improve community tree management
EPA Great Lakes Restoration Initiative (see also Sustain Our Great Lakes)	Initiative to target including invasive aquatic species, non-point source pollution, and contaminated sediment.
Urban non-point source & stormwater grants	Stormwater planning projects in an urban area
Land and Water Conservation Fund	Outdoor recreation, public health, and partnerships
EPA Urban Watershed Capacity Building Grant	Establishment and management of urban watershed sub award program and watershed technical services
Sustainable Communities Planning Grant	Regional planning efforts to integrate housing/transportation decisions, and increase capacity to improve land use and zoning
NOAA	Great Lakes habitat restoration
WI Environmental Education Board	Enhance the environmental literacy of Wisconsin citizens. Forestry education.
Great Lakes Commission	Program for soil erosion/sediment control
National Fish and Wildlife Foundation	Keystone Initiative Grants

Projects, testing, and clean-ups will all be part of restoring the Greenway.

Appendix

ASSOCIATED PLANS AND SUPPORTING DOCUMENTS

Milwaukee Comprehensive Plan for the Northeast Side, 2009
Conceptual Plan for the B-4 River District, May 2009
US EPA Great Lakes Legacy and WDNR Remediation Project/Lincoln Park, 2008
MMSD Infrastructure Map, February 2008
Master Plan for Milwaukee's Central Park (Initial Planning Meetings) March 2008
Delisting Targets for the Milwaukee Estuary Area of Concern, March 2008
Trails Network Plan, Milwaukee County Parks, January 2007
Milwaukee County Trail Network Draft Plan June 2007
Proposed Milwaukee River Greenway Corridor Interim Study Overlay District, May 2007
Shorewood Parks Plans – Hubbard and Estabrook 2007
Comprehensive Outdoor Recreation Plan, Village of Shorewood, 2007
SEWRPC Regional Water Quality Management Plan, 2007
Trails and Natural Area Crew Annual Report, Milwaukee County Parks, 2005 & 2007
Ch. 535 Shoreland Ordinance, Village of Shorewood, October 2006
Ecological Restoration and Management Plan for Milwaukee River July 2006
SEWRPC Field Inspections for Parcels along the Milwaukee River 2000-2006
Milwaukee Urban Water Trail, Milwaukee Riverkeeper, 2006
Changing Habitat & Biodiversity of the Lower Mke River & Estuary, Wisconcont DNR, August 2005
Preliminary Neighborhood Plan and Vision – Cambridge Woods, May 2005
SEWRPC Wetlands Map, May 2005
Planned Environmental Corridor along the Milwaukee River, SEWRPC, 2005
Master Plan for Public Access to the Milwaukee River in Riverside Park 2005
100 Year Floodplain along the Milwaukee River, SEWRPC, 2005
City of Milwaukee GIS: County Owned Land & Easements, 2004
A Regional Natural Areas & Critical Species Habitat Protection & Management Plan (Plan #42), 1997
Estabrook Corporate Park Map; Vegetation inventory; Covenants & Rest. 1990; 1997
Riverwest Lower Eastside Neighborhood Strategic Plan, CDBG Milwaukee, 1995
Woodward-Clyde Trail Map, 1994
The Riverway Plan, Milwaukee River Revitalization Council, 1991

Learning about and taking care of natural places provides opportunity for everyone.

An Historical Overview of the Milwaukee River Basin, WI DNR, 1989
A Planning Guide for the Middle and Upper Portions of the Milwaukee River 1989
Milwaukee Urban Water Trail Gap Analysis Study
Cambridge Avenue Parklands Vegetation Inventory
Typical Riverbank Stabilization, Access, and Maintenance Easement
City of Milwaukee Zoning Along the Milwaukee River Corridor
Off Street Bikeway Study, Bike Federation of WI
Milwaukee River Estuary Habitat Restoration Project Fact Sheet
River Revitalization Foundation Vegetation Map North Ave Dam to Locust
Map of RRF property and Snake Habitat
Urban Forestry Management and Education Project
MATC Solar Education Farm, Johnson Controls

REFERENCE DOCUMENTS
Bicycle Facility Design Handbook, WI DOT January 2004 ADA
Public Trust Doctrine: dnr.wi.gov/org/water/wm/dsfm/shore/doctrine.htm
Contaminated Sites: dnr.wi.gov/org/aw/rr/gis/index.htm
Oak Leaf Birding Trail: www.county.milwaukee.gov/

RESOURCES
Milwaukee River Work Group. Overlay District, September 2010
Root River Master Plan, UWM's SARUP, Spring 2007
Innovista Waterfront Park Memo, Innovista Master Plan for USC, Sasaki, 2006
Chicago's Water Agenda 2003, City of Chicago, 2003
Chicago River Corridor Design Guidelines and Standards, City of Chicago, April 2005
Chicago River Agenda, City of Chicago, City of Chicago, June 2005
UrbanRiver Visions, Worcester & Chicopee, Massachusetts EOEA, Goody Clancy, 2004
R.A. Smith National Grants Directory

Funding for this Master Plan provided by the following generous donors:
Brico Fund, LLC; John C. Bock Foundation; WI Department of Natural Resources; WE Energies; WI Coastal Management Program

A healthy Greenway will foster joy and wonder and safeguard resources for future generations.