Water Trails and Greenways Plan

Photo: John Wenck, Des Moines River

Booklet 1 of 8
Greater Des Moines
Water Trails and Greenways
2016
**This Booklet**

The Greater Des Moines Water Trails and Greenways Plan covers more than 150 miles of waterways. This booklet provides an overview of the plan, as well as policies and strategies available to support and improve the environmental, recreational, and economic potential for the entire community around water trails and greenway development. There are companion booklets that highlight specific recommendations for each waterway.

**Water Trails and Greenways Plan Steering Committee**

Chair: Rick Tollakson, Hubbell Realty

- Convention and Visitor Bureau (Greg Edwards)
- Downtown Partnership (Jay Byers)
- MidAmerican Energy (Kathryn Kunert)
- Principal Financial (Mark Lagomarcino)
- Capital Crossroads (Bethany Wilcox)
- DNR (John Wenck, Nate Hoogeveen, Ben Dodd, Josh Gansen)
- Polk County Soil and Water Conservation District (Jennifer Welch)
- Clive City Council Member (Ted Weaver)
- West Des Moines City Council Member (Russ Trimble)
- Des Moines City Council Member (Joe Gatto)
- Des Moines staff (Phil Delafield)
- West Des Moines staff (Lynne Twedt)
- Johnston staff (Dave Wilwerding)
- US Army Corps of Engineers – Saylorville (Scott Rolfes, Dayne Magneson)
- Polk County Conservation (Rich Leopold)
- Iowa River Revival and Des Moines Trails and Greenways (Linda Appelgate)
- Central Iowa Paddlers (Carol Kersey)
- Iowa Natural Heritage Foundation (Lisa Hein and Andrea Boulton)
- Angler – (LuWayne Luers)
- Izaak Walton League (Rick Cerwick)
- Raccoon River Watershed Coalition (Steve Roe)
- Des Moines Sail and Power Squadron (Kenneth Danley)
- Des Moines Rowing Club (Julia Martinusen)
- Citizen (Curt Sytsma)
- Nature Conservancy (Susanne Hickey) – advisory
- American Rivers (Staci Williams) – advisory
Letter from the Steering Committee

Dear Dreamers and Doers:

Dreamers and doers came forward by the hundreds to help develop the Greater Des Moines Water Trails and Greenways Master Plan. They included citizens from all walks of life and neighborhoods. They also included the people for whom this plan provides a roadmap for implementation – mayors, city council members, county supervisors, business leaders, non-profit leaders, park and recreation board members, city and county staff members, and many more.

We now have a shared vision of what Greater Des Moines' rivers and creeks can become. The ideas for wading areas, fishing spaces, habitat restoration and more were all captured and included in this report. Next comes the fun part – putting the plan into action.

If we are to see this vision turned into reality, an ongoing dialog is critical. And, collaboration between business and city leaders to discuss funding and implementation is our next conversation. Moving forward, we will work together to determine operational needs, a budget, a timeline and discuss how to pull funding from multiple directions.

I am excited about the opportunities this roadmap presents to our metro area. Ten years from now, we will have the pleasure of looking back at what we did together, having embraced our region's greatest natural asset as a signature recreational amenity for Greater Des Moines.

Sincerely yours,

Rick Tollakson,
CEO of Hubbell Realty
Chair of the Steering Committee
Executive Summary

We are a river town. Des Moines was founded as a city because of its location at the confluence of two major rivers. For thousands of years, these waterways have been sources of food and sustenance, transportation and energy, respite and beauty. The past 50 years have seen us more disconnected from the water than ever. Where would you go to touch the water? Despite riverwalks, numerous parks that border creeks and rivers, and an extension trail system, the Des Moines region lacks access to get down to the water to fish, paddle and play. Our primary relationship with our streams is one of concern over poor water quality and threat of floods. It is not a place of recreation and joyful experience.

In cooperation with several community partners, the Des Moines Area Metropolitan Planning Organization (MPO) completed the Greater Des Moines Water Trails and Greenways Plan which envisions an abundant network of water recreation for 150 miles of the region’s creeks and rivers, including places for tubing, birding, hiking, paddling, boating, and fishing, the establishment of area greenways, floodplain protection and improved habitat. The plan covers the Des Moines, Raccoon, South Skunk, North and Middle rivers, as well as Beaver, Fourmile, Mud and Walnut creeks. When implemented, the recommendations outlined in the plan will bring about transformational change – reconnecting thousands of people with the rivers as a keystone natural resource.

**Quality of life** will improve with more outdoor recreation opportunities.

**Economic development** will benefit from improved recreational amenities.

**Tourism** will benefit from new attractions.

**Public health** will improve with more outdoor recreation.

**Water quality**, as an issue, will gain champions as more people interact directly with waterways.

**Workforce recruitment** will be supported by the addition of water creation.
We couldn’t have imagined 20-30 years ago what long-term impact the paved trail system would have on our region. With 150 miles of streams, there are abundant places to offer tubing, fishing, paddling, respite, stone skipping and mucking around. The Greater Des Moines Water Trails and Greenways Plan, when implemented, will reimagine and reconnect us with our river roots.

The plan was adopted on November 17, 2016, at which time the MPO, on behalf of the region, will transition to regional coordination of implementation of projects listed in the vision document.

**Recommendations identified through Community Input and Stakeholder Discussions:**

- Activate the Des Moines River in downtown Des Moines through dam mitigation, shoreline improvements, fishing nodes, tube and boat rentals, bird viewing areas and other amenities;
- Improve access for anglers, paddlers, tubers, birders and families;
- Brand three regional parks along Raccoon and Des Moines rivers by connecting networks of existing parks;
- Develop greenway through protection of the 100 year floodplain;
- Expand programming, events and businesses along and in the river and creeks;
- Restore river and creek shoreline and numerous quarries;
- Encourage of water quality improvements and flood mitigation efforts;
- Coordinate regionally across government entities and user groups;
- Emphasize economic development nodes;
- Increase soft trails and paved trail connections;
- Support historic preservation and interpretation;
- Expand multi-modal options for river engagement; and,
- Create family-friendly amenities along creeks and rivers.
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**Booklet 8: Walnut Creek**
The Greater Des Moines Water Trails and Greenways Plan establishes a regional vision for our rivers, creeks, and greenways. Through extensive community engagement, and with the help of a strong steering committee, a clear regional vision emerged.

**Regional Vision**
The water trails and greenways of Greater Des Moines will be a natural haven, healthy ecosystem, signature recreational destination, economic driver, and community focal point that welcome people of all ages, abilities, interests, incomes, and cultures to connect with their rivers, creeks, and greenways.

**Mission**
Ever mindful of future generations, our mission is to cooperate across political boundaries, cultures and recreational uses to accentuate and enhance the region’s water trails and greenways to realize their immense potential as a multifaceted centerpiece for a vibrant and dynamic region.
Goals to Guide the Plan

Three goals guide the plan forward into implementation. Under each goal are objectives to be achieved along with relevant performance measures to evaluate the region’s efforts to improve the water trails and greenways.

Goal 1: Expand access and connections between diverse communities and the rivers, creeks, and greenways

1. Improve access to river corridors for all users
   - Increase or improve the number of facilities that support paddling, boating, tubing, rowing, birding, angling, biking, walking, hiking, hunting, and other activities
   - Improve access to equipment for safe river use throughout the region
   - Increase user activity along river corridors
   - Create a variety of on-water experiences for low flow and ideal flow

2. Improve connections between the river corridors and the communities within the region
   - Incorporate access to rivers into land-use planning in the region
   - Develop wayfinding system to improve awareness of access locations to rivers throughout the region and location of paddlers when on the water
   - Identify and connect nodes of high use along river corridors with area businesses or other key amenities to create hubs that benefit from the waterway use
   - Make river access and amenities accessible to all people
   - Honor historic roots of the rivers within the region
   - Integrate art into river amenities to provide sense of place

3. Provide multimodal connections to the river corridors
   - Improve access to multi-use trails and provide connections for pedal-paddle opportunities
   - Connect river corridors with existing and proposed bus routes
   - Identify opportunities for on-demand transportation services to and from the river corridors

4. Improve safety
   - Mark or remove hazards for users both on and off the water
   - Identify and implement strategies to improve safety around dams and bridges
   - Identify locations for and place 911 makers along water trails
Goal 2: Conserve and enhance the environmental health of the rivers, creeks, and greenways

1. Be stewards of the river corridors
   - Establish an Urban Wildlife Refuge Partnership
   - Receive official designation as a Partnership and Urban Bird Treaty City
   - Establish an Urban Wildlife Refuge on Army Corps of Engineers Saylorville Lake property
   - Identify and improve targeted streambanks
   - Increase the amount of 100-year floodplain protected as public land
     - Current percentages of study area protected
       - Study Area 36%
       - Beaver Creek 36%
       - Des Moines River 75%
       - Fourmile Creek 16%
       - Middle River 43%
       - Mud Creek 0%
       - North River 1%
       - Raccoon River 27%
       - Skunk River 27%
       - Walnut Creek 41%

2. Improve the water quality of the rivers and creeks
   - Support the implementation of the regional watershed management plans
   - Reduce the amount of sediment in the rivers
   - Develop a river health rating system for river corridors and track river health
   - Improve water filtration within the watersheds

3. Educate and empower citizens
   - Train and encourage participation in lowater water quality testing
1. **Establish a group to provide cohesive marketing and communication for recreation opportunities and greenway promotion**
   - This group spearheads the creation of a central website to be the catch-all repository of water trails information and activities including information on uses, safety, regulations, and flow rates in accessible formats
   - Develop branding to be used for wayfinding, kiosks, etc.

2. **Educate and empower citizens**
   - Provide instructional programs for various uses on and off the river
   - Develop materials, interpretive signage, and programs about nature and wildlife within the river corridors
   - Host events to get citizens to the rivers and attract visitors to the region
   - Provide historical perspective of the river corridors

3. **Identify and establish sustainable funding sources to enhance and maintain the water trail and greenway system**
   - Train and encourage participation in lowater water quality testing

4. **Develop uniform policies and ordinances for buffers along greenways and implement existing policies and plans for existing watershed authorities and publicly owned land adjacent to rivers**

5. **Strengthen regional organizations’ commitment to support on-going development, coordination, management, and maintenance of the water trails and greenways**
Plan Development

How We Got Here
The Greater Des Moines Water Trails and Greenways Master Plan is the work of hundreds of people from non-profit organizations, businesses, local governments, and the public at large. Not only were they engaged as part of the public-involvement process; a core group of them helped lead the development of the plan itself by serving on a steering committee, chaired by Hubbell Realty Co. President and CEO Rick Tollakson.

The plan was developed over approximately 18 months starting in spring of 2015, led by the Des Moines Area Metropolitan Planning Organization under contract with the Iowa Department of Natural Resources. While the MPO facilitated the planning process, the resulting vision belongs to the community, which was involved every step of the way. These steps include:

Getting on the water
No planning process for developing water trails would be complete without getting on the river to experience it firsthand. Throughout the process, several paddle outings were organized, some open to the public, some invite-only. Among the many guests to participate were elected officials and members of the media.

Existing Conditions
Much work had been done by others prior to this planning process starting. The MPO consulted their work early and often, scouring the shelves of cities, counties, parks and recreation boards, and several other organizations in the public and private sectors for past studies, historical reviews and future plans relating to the rivers of the region. Collectively, these pieces provided a valuable foundation on which to develop a broader, regional plan.

Moreover, the MPO met with users groups representing the interests of rowers, paddlers, anglers, birders as well as other stakeholders such as city planners, emergency responders and engineers. The MPO also contracted a field review of every mile of river and creek in the study area to document existing environmental conditions.

From this work came the “State of the Rivers,” a comprehensive resource for understanding the state of the rivers throughout Greater Des Moines.
Plan Development
Once the existing conditions had been established, and the time came to start thinking about what the future could hold, the MPO reached out to the wider public to solicit their ideas.

- Focus groups were formed around 20 areas of interest, ranging from history to birding, paddling to powerboating, in order for a diverse group of stakeholders to advise the MPO.
- Public workshops were held at eight locations throughout the region, whereat people could draw their ideas for improving the rivers onto maps. Public officials from each part of the region participated, as well.
- An online Water Trails Input Map let visitors sketch out their concepts for natural-area preservation and recreational development.
- Design My Water Trails
- The Dam Debate was held in partnership with The Des Moines Register, the City of Des Moines and the Iowa DNR. The highly visible public meeting attracted more than 200 people who used real-time voting to debate the fate of the dams in downtown Des Moines.

Draft Plan Review
The ideas gathered during the first two phases of the planning process were incorporated into a draft plan – then taken back out to the public to make sure the plan was were consistent with the community’s vision.

- Nitefall on the River is where the draft plan was unveiled. There, attendees were invited to complete a short survey via text.
- More than 20 public presentations of the draft plan were given by MPO staff to the Boards of Supervisors, City Councils and Parks and Recreation Boards representing every jurisdiction in the planning area. The public was invited to attend.
- An online survey remained open throughout this part of the process, as a means for the public to say whether they supported the draft plan and recommend changes.
- The Dam Debate II, also in partnership with The Des Moines Register, City of Des Moines and Iowa DNR, gave the public opportunity to react to the entirety of the recommendations in the draft plan.
- Three open houses were held to give the public opportunity to review the draft plan, ask questions, and provide feedback on the recommendations.

For a more comprehensive overview of the public-engagement process, see Appendix X ...

Plan Adoption
The plan was adopted through the governance structure of the Des Moines Area MPO, assuring that the recommendations were fully vetted and supported by staff and elected-official representatives of all of the local governments in the planning area. Those reviewing the plan’s recommendations on its way toward adoption included, in order:

- City and county staff
- Bike/Pedestrian Roundtable
- MPO Transportation Technical Committee
- MPO Executive Committee
- MPO Policy Committee

The plan as formally adopted by the MPO by unanimous vote of the Policy Committee on November 17, 2016. Next, the plan was forwarded out to the local governments within the planning area for adoption by their boards, such that the recommendations within the Greater Des Moines Water Trails and Greenways Master Plan could be integrated into each of their long-range plans, funded, and implemented.
The development of the Greater Des Moines Water Trails and Greenways Master Plan was a collaborative effort that involved a variety of local governments, agencies, and stakeholders. The plan outlines a number of key improvements along the 150 miles of waterways that were part of the study area. These improvements included upgrading existing access and adding additional access points, habitat restoration, streambank restoration, and dam mitigation to develop the region’s waterways into fully functioning water trails and greenways.

The plan provides a vision for the future of water trails and greenways in central Iowa – a vision that will likely take several decades to fully realize. The projects identified in the plan span a number of jurisdictions. Just as the development of the plan depended on collaboration, so will its implementation. While the goal is that projects are implemented in a coordinated fashion, ultimately the responsibility for development and maintenance of the identified projects – whether an access or stream-bank stabilization – will fall on the jurisdiction that manages the land where the project is taking place. That specific jurisdiction will be responsible for seeing the project to fruition, including project initiation, regulatory process, design, public involvement, grant management, and project delivery.

Once developed, the ongoing maintenance of the project(s) is also the responsibility of the jurisdiction or agency who manages and owns the land where the project is located. This will require jurisdictions to prioritize, budget, and incorporate the identified projects into their Capital Improvement Programs (CIP).

The MPO will serve as the facilitator of collaboration among governments implementing the plan. This will included helping to identify ways of sharing costs, timing, and prioritization of projects undertaken by local jurisdictions. The MPO will also coordinate Phase 1 of the plan which involves raising funds to develop preliminary engineering for each of the projects identified in the plan. This will allow for the development of an overall cost estimate for plan implementation and help prioritize projects.

The sheer number of projects identified in the Greater Des Moines Water Trails and Greenways Master Plan will require a variety of funding sources to successfully implement. This will include significant public investment in addition to public-private partnerships and grant funding. In cooperation with several community partners, the MPO is preparing for the first phase of implementing the plan. The project – the Water Trails Engineering Study – is being funded through a public-private partnership in order to identify project cost-estimates, strategies, and priorities for implementation. After cost estimates are established and feasibility of projects are understood, individual jurisdictions will be asked to move forward leading the implementation of their individual projects including integration of the plan into long range plans and capital improvement budgets.
Accessibility–ADA Compliance

Access to Central Iowa’s waterways is often provided by launches, especially for canoers, kayakers, and motorboaters. The Iowa Department of Natural Resources has several types of launch designs available, but the most accessible by far, especially with the Americans With Disabilities (ADA), is the Universal Launch Design. Federal ADA standards are not mandated for boat launches, but the Iowa DNR’s Universal Launch Design does incorporate ADA standards from trail designs. In general, the universal design practices try to ensure that facilities are constructed to integrate users of varying abilities. In particular, Universal Launch Design standards include two ramps, one for pedestrians and one for vehicles.

Not all accesses need to be ADA compliant, and each location can be constructed in a way that fits the natural characteristics of the area. The Iowa DNR has several boat- and pedestrian–oriented launch access designs because not all access designs will fit all types of waterways. However, it is highly encouraged to consider all waterway users when designing launch accesses.

Other types of accesses – such as fishing spots, beaches, and other infrastructure – are also encouraged to incorporate ADA design standards to comply with ADA requirements when applicable.

**Actionable Items:**
- Refer to standards and launch designs in the developing water trails in IOWA guidebook from the Iowa DNR
Rivers and streams have been a major driver of economic development for centuries. It is no coincidence that many of our greatest cities grew up next to rivers. They provide the water necessary for development, provide additional modes of transportation for industry, generate power for consumption, and act as natural areas for leisure and activity. Today, according to outdoorindustry.org, outdoor recreation activity spending in the United States reaches over $640 billion annually. When all activities including direct spending, jobs supported, and income are considered, that figure reaches over $1.6 trillion. Here in Iowa, outdoor recreation generates at least $6.1 billion annually in consumer spending.

In order to help quantify the economic output of rivers locally, the Center for Agricultural and Rural Development (CARD) at Iowa State completed a study that estimated economic impacts through the usage of the fifty largest rivers in Iowa. The results of that study showed that visitors generate almost $824 million in direct and induced spending, $130 million of personal income, and support over 6,350 jobs. In the Central Iowa Study Area we are fortunate to have sections of 5 of the largest 50 rivers in Iowa. Looking at these specific rivers, they are estimated to generate over $78 million in spending, over $12 million in personal income, and 608 jobs, approximately 9.5% of the statewide totals. While not all of this activity takes place within the study area, it does go to show how impactful these rivers are on the Central Iowa Economy. The table below shows the breakdown of these figures by river within the study area.

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<th>River</th>
<th>Direct and Indirect Spending</th>
<th>Income Effects</th>
<th>Job Effects</th>
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<tr>
<td>Des Moines River</td>
<td>$47,835,095</td>
<td>$7,546,417</td>
<td>369</td>
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<tr>
<td>Middle River</td>
<td>$5,532,810</td>
<td>$872,851</td>
<td>43</td>
</tr>
<tr>
<td>North River</td>
<td>$3,288,070</td>
<td>$518,723</td>
<td>25</td>
</tr>
<tr>
<td>Raccoon River</td>
<td>$14,796,315</td>
<td>$2,334,252</td>
<td>114</td>
</tr>
<tr>
<td>South Skunk River</td>
<td>$7,334,925</td>
<td>$1,157,150</td>
<td>57</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$78,787,215</strong></td>
<td><strong>$12,249,393</strong></td>
<td><strong>608</strong></td>
</tr>
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*Source: Economic Impacts of River Trail Recreation in Iowa 2012 (Iowa State University)*

With the knowledge that rivers and streams offers many economic benefits in this water trails plan we identify areas as economic hubs, which represent the convergence of multiple assets such as trails, residential and economic clustering, and other factors around rivers and other waterways. By designating areas as economic hubs, we are able to identify areas that can or would be good places for waterway based economic activity.

Moving forward a newer study, similar to the CARD survey that was completed, but up to date and focused on Central Iowa would give local communities a better idea of the kinds of economic activity currently taking place and what development could be supported moving forward.

**Actionable Items:**
- Commission an economic impacts report that identifies current economic outputs associated with waterways in Central Iowa, as well as potential impacts of associated waterway economic development
- Tie development within identified economic hubs to the associated waterway
Floodplain Management

A floodplain management ordinance is a community program of preventative and corrective measures to reduce current and future flood damage. The program typically consists of an emergency preparedness plan, flood-control works, floodplain management regulations, and zoning, subdivision, or building regulations. The primary goals of a program are flood loss reduction, conservation, and protection of natural and beneficial functions of water resources.

The basic level of floodplain management implements standards that meet the minimum requirements of the National Flood Insurance Program (NFIP) or other state or federal rules. Many communities across the Iowa choose to exceed those standards by requiring more effective floodplain management strategies. The Association of State Floodplain Managers (ASFPM) developed a floodplain management approach and toolkit called “No Adverse Impact” (NAI) which presents best management practices that provide a higher level of flood protection for communities and citizens. The goal of NAI is to prevent increased flooding now and in the future, all while not adversely impacting the property and rights of others. The following best management practices are encouraged:

- Floodplain Regulations
  - Increase minimum freeboard requirements
  - Prohibit earthen fill in the floodway and floodway fringe
  - Prohibit construction of critical facilities (hospitals, schools, fire/police stations, etc) in the floodplain
- Improve local flood hazard maps
- Preserve floodplains for open space, recreation use, and wildlife habitat
- Protect river corridors, streams, wetlands, and watersheds
- Develop regional stormwater management plans
- Identify green infrastructure retrofits to stormwater infrastructure
- Limit new impervious surfaces
- Join the NFIP Community Rating System to reduce cost of flood insurance
- Integrate hazard mitigation and disaster resiliency among the goals and objective in comprehensive plans and regional plans
- Educate property owners about flood mitigation and property protection

**Actionable Items:**

- Develop a best practices toolbox
- Develop a model floodplain development / management ordinance
- Protect and enhance existing floodplains, wetlands, and buffers

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Flooding in Johnston  
Downtown Des Moines, 1993
Honoring Our River Roots

The rivers and creeks of Greater Des Moines have played host to a long and fascinating history. Water trails and greenway development offers the opportunity to tell these stories through interpretive signage, educational programming, and public art pieces. Whether it is the natural history of the glaciers carving out the landscape, the Native American history and culture that has deep roots in the area, or later histories of European settlers and urbanization; all of the varied experiences and cultures have had an enormous impact on the region and are valuable to pass on to future generations. Providing space, amenities, and programming to relate this history can be integrated into the design, management, and use of any water trails and greenways development.

**Actionable Items:**
- Place interpretive signage along water and greenway trails to highlight cultural, natural, or environmental aspects of the area
- Review the Office of the State Archaeologist’s (OSA) report and contact the OSA office before moving forward with any water trails and greenway development
- Identify education opportunities and programming that can share the histories of the water trails and greenways

Multimodal Connections

Multimodal connections are important in facilitating access to the waterways through a variety of means, including by automobiles, walking, biking, and transit. The key to maximizing multimodal opportunities is to identify locations where transit routes and biking/walking trails intersect with the waterways. These locations have the potential to provide people with alternative means to interact with the water. It can also solve a critical problem for many paddlers: how to get back upstream where you left your vehicle. Things to consider include locating canoe/kayak/boat rentals or storage facilities near these locations so that alternative transportation users can easily get on the water and/or back to their starting location. Locations where trails are in close proximity to the waterway also provide the opportunity for pedal-paddle excursions. Some of the key locations for these types of activities are in and around Raccoon River Park, Waterworks Park, Grays Lake, Downtown Des Moines, and the Neal Smith Trail along the Des Moines River.

Integrating multimodal transportation presents an opportunity to develop and incorporate a water taxi system in the metro. This system has the potential to move water trails and greenway users to their starting point or allow for commuters to utilize this alternative transportation, especially to and from the downtown Des Moines.

**Actionable Items:**
- Develop pedal-paddle routes in areas where the trails and waterways intersect
- Improve the connection between trails and the water allowing trail users to directly interact with the water
- Locate canoe and kayak rental and storage facilities in locations with strong multimodal connections
- Develop a water taxi system to move commuters, trail users, and general public
Programming

Programming can draw in new water trail users and enhance current user experiences. Not all potential users know how to enjoy water trails. Programming can increase access. Programming can include providing opportunities to learn or try a new activity such as paddling, swimming, boating, and fishing classes. Some users will need help accessing the equipment necessary for some activities, in which case it would be beneficial to offer rentals or equipment liveries for boats, fishing poles, tubes, and life jackets. Classes and programming are an opportunity to talk about river safety, rules, and safety equipment. When thinking about educational classes and events, it is important to remember the wide range of needs among users. Offering programs in multiple languages and for a wide variety of skill levels and ages helps make water trails accessible for everyone. Classes and programming can be used to build resident’s understanding of nature and ecology. Finally, programming can be a way to draw community members and tourists to the region’s waterways. This could be in the form of events such as concerts, trash clean up days, adventure races, or a water trails equivalent of RAGBRAI.

Actionable Items:

- Organize events, classes, and other forms of programming that are appropriate for the diverse needs of residents. Offer programming that is appropriate for different ages, abilities, cultures, and incomes, as well as programming that is accessible in multiple languages and for all literacy levels
- Coordinate equipment rentals or liveries in popular locations and access points
- Partner with area institutions and organizations, such as the Greater Des Moines Botanical Garden, the Science Center of Iowa, and the Historical Society to program events and activities
Quarry Restoration

Multiple quarries along the central Iowa water trails and greenways network provide opportunities for future enhancements and connections between different recreational experiences, including swimming, fishing, boating, birding, paddling, hiking, picnicking, bicycling, and many others. This plan recommends that 100 percent of the current areas under extraction become public open spaces and restored as natural areas.

Restoring the quarries to include natural areas and wetlands can provide many benefits for the community, such as:

- Increase wildlife and ecological habitat
- A laboratory for ecological research
- Educational opportunities
- Improve water quality
- Enhance the community’s quality of life
- Propel community economic development
- Act as water supply source

Quarry restoration successes

Recreation Park / Natural Area
- Ada Hayden Park - Ames, IA
- Stearns County Quarry Park and Nature Preserve – Waite Park, MN
- City of Crystal Lake Quarry Restoration/ Lake and Wetland Park – Crystal Lake, IL

Water Supply
- City of Urbandale, IA
- Vulcan Quarry – Fairfax County, VA

Ada Hayden Park

Stearns County Quarry Park
Recreation Recommendations

The vision for engagement with our waterways is broad in scope. This water trails plan hopes to capture a variety of activities that bring people to rivers and creeks. Many water trails only consider the needs of paddlers. While offering key amenities for paddlers, the recommendations in this plan hope to improve the experiences for birders, boaters, anglers, hikers, rowers, river surfing, swimmers, wading, hunting and the many other ways people recreate in and along our streams. Activities promoted through implementation of the plan will provide exercise, relaxation, discovery and play to a variety of ages and abilities.

Beyond directly benefiting people, the thoughtful development and management of water trails offers Iowa a chance to protect fragile ecosystems, as well as to gradually restore low-quality stream reaches and watersheds. Use of water trails, in turn, draws public attention to the state's surface waters and riparian landscapes and can demonstrate the relationship between water quality and land management.

Water trails can seek state designation in order to utilize state resources such as technical assistance and project review, funding and promotion. State-designated trails are held to a small but consistent set of standards for organization and construction. State designation of water trails does more than point out that recreational opportunities exist. For users, the designation signals that planning has been done to connect experiences users seek (introductory to expert, urban to wilderness) to those they are interested in, and it generates expectations for a certain level of service for a given experience type. That could mean a high degree of infrastructure geared for ease of use and accessibility, or it might mean water experiences in which difficulties and unpredictable. Water trail users, especially new paddlers, benefit from positive experiences on streams. This plan suggests the potential designation the water trails in the study area could receive given implementation of recommendations in the plan. For more information about the DNR's classification system, please refer to Chapter 2 of the Iowa DNR's Developing Water Trails in Iowa toolkit.
### Current and Potential Experience and Water Trail Classifications

<table>
<thead>
<tr>
<th>Stream Segment</th>
<th>Current Skill Level</th>
<th>Potential Classification</th>
<th>Potential Skill Level</th>
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<tbody>
<tr>
<td>Beaver Creek</td>
<td>Intermediate</td>
<td>Gateway</td>
<td>Intermediate</td>
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<tr>
<td>Chichaqua Bottoms</td>
<td>Intermediate</td>
<td>Wilderness</td>
<td>Beginner</td>
</tr>
<tr>
<td>DSM River–HWY 210 to Saylorville</td>
<td>Advanced</td>
<td>Challenge</td>
<td>Advanced</td>
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<tr>
<td>DSM River–Rock Creek</td>
<td>Intermediate</td>
<td>Recreational</td>
<td>Beginner</td>
</tr>
<tr>
<td>DSM River–Saylorville to Downtown</td>
<td>Intermediate</td>
<td>Recreational</td>
<td>Intermediate</td>
</tr>
<tr>
<td>DSM River–Downtown</td>
<td>Intermediate</td>
<td>Gateway</td>
<td>Beginner–Challenge</td>
</tr>
<tr>
<td>DSM River–Downtown to Yellow Banks</td>
<td>Intermediate</td>
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<tr>
<td>DSM River–Yellow Banks to Red Rock</td>
<td>Advanced</td>
<td>Challenge</td>
<td>Advanced</td>
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<tr>
<td>Fourmile Creek</td>
<td>Advanced</td>
<td>Not Recommended</td>
<td>Not Recommended</td>
</tr>
<tr>
<td>Middle River</td>
<td>Advanced</td>
<td>Challenge</td>
<td>Advanced</td>
</tr>
<tr>
<td>Mud Creek</td>
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<td>Not Recommended</td>
<td>Not Recommended</td>
</tr>
<tr>
<td>North River</td>
<td>Advanced</td>
<td>Not Recommended</td>
<td>Not Recommended</td>
</tr>
<tr>
<td>Raccoon River</td>
<td>Intermediate</td>
<td>Recreational/Gateway</td>
<td>Intermediate/Beginner</td>
</tr>
<tr>
<td>South Skunk River</td>
<td>Intermediate</td>
<td>Recreational</td>
<td>Beginner</td>
</tr>
<tr>
<td>Walnut Creek</td>
<td>Advanced</td>
<td>Recreational</td>
<td>Advanced</td>
</tr>
</tbody>
</table>

### Regional Cooperation

Regional coordination is essential to the success of central Iowa water trails. Some of the projects will require joint efforts among many partners for funding and implementation to complete. A single city’s investment in a river access will be lost if there isn’t a corresponding access point up or down stream. Addressing stream bank issues in one location can impact another jurisdiction downstream. Water quality and trash issues are joint challenges along any given segment and are impacted by neighboring communities. Finally, consistent management approaches, rules, and signage will ease the use of the water trails for residents and visitors. Things to consider are the plans of nearby municipalities, opportunities for collaboration, shared challenges, how the needs of users may cross jurisdictional lines, and the environmental impact of projects.

**Actionable Items:**

- Establish a designated manager through a 28E agreement to coordinate implementation and maintenance of paved trails and water trails
- Utilize a shared signage program including standardized look for wayfinding, interpretive signage, and marketing
Regional marketing is important to build excitement and knowledge of water trails. Various government jurisdictions will need to work together to provide one location for all information relating to recreation along and in the area’s waterways and greenways. People need information about how to access water trails. This includes providing users with the information necessary to safely access our rivers and creeks such as routes and flow rates. People also need to hear positive stories about the waterways and the region’s river history. Promotion of events, amenities, new opportunities, and unique ways to enjoy water trails will build community pride and use. Water trails are an opportunity to draw visitors to communities and shared marketing can help ensure this happens.

Water Trails designated by the Iowa DNR has official signage that is used to standardize wayfinding and communication. Color, size, and graphics are intentionally designed to be consistent and the DNR has supplied a signage manual for water trails developers. The manual includes standards for both on and off river signage. Any navigational signage, besides meeting Iowa DNR Water Trails requirements, must also follow all applicable federal and state regulations and should follow traditional navigation aid symbology. Additional signage may be required to indicate suggested travel paths to reduce conflicts during peak usage periods on the river.

**Actionable Items:**

- **Develop regional water trails website that is an easy-to-use information hub including:**
  - Maps with accurate water trail routes, accesses, and points of interest. Must have printer–friendly versions.
  - Sample paddling and tubing trips for different experience levels
  - Descriptions of non-boating opportunities
  - Information about animals, plants, and natural features
  - Nearby attractions, amenities and landmarks
  - Timely water level information
  - Relevant laws, regulations and safety information
  - Outfitter and rental information
  - Events and opportunities
  - River stewardship and protection
  - River history and river related stories
  - Seasonal updates, such as the DNR fishing updates
- **Develop and distribute messaging that presents a positive picture of our waterways, motivates residents to take ownership of waterways, and promotes general awareness of opportunities**
- **Utilize shared signage and branding, including wayfinding signage on bridges along the waterways**
River Restoration

Many areas along the central Iowa water trails and greenways are experiencing degraded conditions, including streambank and streambed erosion, exposed utility crossings, reduced water quality, habitat loss, aquatic species passage barriers, and loss of riparian vegetation. There are opportunities to improve these concerns by implementing multi-beneficial river restoration practices. These practices include grade-control structures, fish-habitat structures, streambank stabilization, and vegetative management. Properly designed restoration practices have been shown to reduce future erosion, protect infrastructure, improve the health of aquatic life and provide passage, benefit wildlife habitat, reduce flood damage, enhance aesthetics, and provide safe water access for recreational opportunities. The Iowa Department of Natural Resources – Rivers Program is currently developing a best management practices toolbox for river restoration that will serve as a future resource for river restoration projects.

Examples of these best management practices are provided as follows.

**Grade-Control Structures**

Grade-control structures function to maintain streambed stability. Degradation of the streambed causes can widen channels, erode streambanks, damage the riparian corridor, and lead to damaged trails, bridges, culverts, utilities, and other infrastructure. Rock riffles and boulder weirs (cross vane, w-weir, j-hook) are types of natural grade-control structures that provide streambed stabilization and allow for aquatic species passage.
**Fish Habitat Structures**

Fish habitat structures provide enhanced environments for fish and other aquatic species. These structures create pools, provide cover, and create habitat for aquatic species. Boulder clusters, large woody debris, rock vanes, and boulder or log weirs are examples of fish habitat structures. Additionally, a fishing access can be incorporated into the design, such as a fishing walkway.

![Fish habitat structure](image)

**Streambank Stabilization**

Streambank stabilization techniques can be applied to degraded streambanks to reduce erosion, protect critical infrastructure, improve in-stream habitat, connect floodplain, and improve access to the water. Implementation of streambank stabilization techniques that incorporate natural channel design principles, which includes use of natural materials and native vegetation, are encouraged. Examples include: soil bioengineering, bank reshaping, toe protection with use of toe wood or rock, incorporating a bankfull bench, live plantings, floodplain re-connection, bendway weirs, and straight stone vanes. Hard armoring is another technique that may be applicable to protect critical infrastructure for sites that have space or access restrictions.

![Streambank stabilization intervention](image)
Vegetative Management

Vegetation is an important component to river restoration. It serves as a functional role in the stability of in-stream and riparian areas as well as adjacent upland woodland areas. Maintaining and restoring diverse, resilient, and stable vegetation consisting of native plant species is the primary goal of vegetative management. This is achieved by eliminating invasive and nonnative trees, shrubs, and herbaceous plants, managing the tree and shrub canopy layer, seeding and planting of native species, and maintaining restoration efforts over time.

Actionable Items:
- Develop a baseline assessment of the existing stream channel and riparian vegetation conditions to identify issues and prioritize restoration projects
- Incorporate restoration projects that remove or mitigate barriers to aquatic species passage
- Enhancement of in-stream aquatic habitat
- Incorporate streambank stabilization projects to protect existing infrastructure and to reduce erosion
- Reestablish stream connectivity with the floodplain and off-channel wetlands
- Reestablish native vegetation along degraded streambanks
- Monitor projects before, during, and after implementation
- Utilize adaptive management for restoration projects
- Restore/protect riparian vegetation and buffer areas
- Develop and implement a vegetative management strategy
Safety on rivers and streams is one of the most important aspects of increasing the access and use of Central Iowa’s waterways. From 1998 to 2007 there were 48 drownings on rivers in Iowa, and between 1999 and 2009 there were 15 drownings at low-head dams. There are a variety of issues that can cause injury or death on the river, ranging from alcohol impairedness to water hazards such as low head dams and logjams.

When considering the promotion of waterways, there should be significant thought given to several safety topics. Making Iowa DNR safety materials and water courses available to all interested parties is an important first step in educating water users. In addition, there should be signage reminding people of life-jacket requirements and warning of possible river hazards. In the case of temporary blockages, such as logjams, temporary signage can be utilized to notify users of possible portage sites. Most importantly users must be warned of dangerous hazards such as low-head dams. Clearly communicated signage should be placed upstream far enough to allow water users the ability to leave the water in a safe manner.

Indicating the type of experience class as defined by the Iowa DNR is also recommended because the classes are linked with individual stream and river settings. Providing information to water users on the current discharge or volume of water that passes a given location within a given period of time, of a particular waterway is also encouraged. Typically these numbers are reported in cubic feet per second (CFS). While it is not advisable to directly indicate if a particular CFS or set of river conditions is safe or unsafe to use, users, especially less-experienced users, should be provided some information. Signage or kiosks that link directly to USGS gauges that will report current river flows, as well as interpretive language, should be available for users. Indicating potential ranges of safety for different CFS numbers and how they correspond to user experience can provide a helpful way for users to gauge river safety while limiting liability.

With that said activities on, in, and around rivers and streams carry inherent risks that everyone must acknowledge. Eliminating risks, in essence, jeopardizes the essential activities that one would undertake. These include canoeing, kayaking, swimming, fishing, tubing, or walking along the river. While various activities are riskier than others conditions of the waterway, experience level, and type of equipment all play a factor in the inherent risks to an activity. Risks can also vary by water level, a higher water level can pose risks not present during lower water levels and visa versa. When any community or region implements items from this plan, it is imperative to make possible risks known to users so that they can make an informed decision. Risk can never be eliminated, but acknowledgment and understanding of inherent risks can reduce the likelihood of accidents.
Successful implementation of this project will lead to potentially thousands of residents and visitors engaging with the water resources in the region, which is not without its dangers. Local emergency responders must be prepared for this influx and have the right training and equipment at their disposal. Users must have sufficient education as well, particularly about the variety of users, water levels, and water speeds they may encounter. Of particular concern is the low-head dams located in or near downtown Des Moines and the dangers they present.

An important part of ensuring emergency responders are prepared is informing them of community and regional water trails efforts. Emergency response departments need to know of development so that they can tailor their equipment and training practices to potential responses. So if a community is advocating for more canoeing, rowing, or tubing on a waterway, fire and EMS services needs to be brought into the conversation and given adequate time to prepare for development, ideally they should be included early on in the development process. All recommendations made by this plan assume that implementing entities include emergency services as part of the overall project discussion.

Options to improve safety include developing facilities that encourage beginners to recreate in areas most safe for beginners, providing safety education and training, placing on-site signage and online resources that communicate how to judge the safety of the water, address swimming in rivers and in-water hazards, and reducing conflict points among different user groups.

**Actionable Items:**
- Refer to standards for signage in the [developing water trails in IOWA guidebook from the Iowa DNR](#).
- When implementing projects on and near waterways, communities should include language that makes users aware of the risks involved, and that by engaging in activities they assume all liability
Buffers adjacent to streams provide numerous environmental protection and resource management benefits which can include the following:

- Restoring and maintaining the chemical, physical, and biological integrity of the water resources
- Removing pollutants delivered in urban stormwater
- Reducing erosion and controlling sedimentation
- Stabilizing stream banks
- Providing infiltration of stormwater runoff
- Providing tree canopy to shade streams and promote desirable aquatic organisms

Stream buffer ordinances are beneficial as they establish minimal acceptable requirements for the design of buffers to protect the streams and provide for the environmentally sound use of land resources. Several cities in the metro have some mention of strategies to protect the waterways. The strongest example of a stream buffer ordinance is that of Pleasant Hill. All of the metro communities should establish ordinances with similar strength and comprehensiveness. Pleasant Hill’s ordinance breaks its streams into three categories – type 1 – 3, ranging from perennial to intermittent. Depending on what category the stream falls in the plan recommends buffers from 50 to 100 feet.

**Actionable Items:**

- Restricted development in 100- and 500-year floodplains
- Adopt stream buffer ordinance modeled after Pleasant Hill’s
- Incorporate natural stormwater management strategies in development projects
Water quality is a key issue for central Iowa and concern about water quality was a common theme during the water trails planning process. Most all of the waterways in the planning area are designated as impaired, often consisting of high levels of bacteria and nitrates. This not only impacts the perception of the region’s rivers and streams, but also has rippling health and financial impacts for the region.

The economic and recreational potential of this plan is directly tied to the improvement of water quality and mitigation of flooding in the region. The recreational interest in our streams will increase when people feel it is safe and inviting. While not a water quality plan, this plan strongly recommends the swift implementation of area watershed plans, encourages regional watershed planning and ongoing funding of targeted conservation practices, and asks for identifying proactive approaches to optimize nutrient and other chemical applications and sustainable urban development.

**Actionable Items:**

- Implementation of area watershed improvement plans including but not limited to plans recently completed for Walnut, Fourmile, Mud, Camp and Spring Creeks.
- Green infrastructure techniques should be tied to rural, suburban, and urban context, though not all techniques are appropriate in certain contexts
- Sufficient, permanent and dedicated State and federal funds should be established to support watershed improvements.
- Adopt state-wide policies and funding for source water protection and comprehensive planning to mitigate flooding and improve water quality.
Ever mindful of future generations,

**we collaborate across political boundaries**

to achieve social, economic, and environmental resilience for

Greater Des Moines