



Fox River Corridor Plan from Johnsburg to Burtons Bridge

Adopted

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Chapter 1

INTRODUCTION



The Fox River Corridor Plan presents a shared vision for the future of four municipalities, unincorporated communities, expansive open space, and the waterway that connects them all. It is the result of a collaborative effort led by McHenry County Planning and Development, City of McHenry, and the Chicago Metropolitan Agency for Planning (CMAP) with the support of the Fox Waterway Agency (FWA); Illinois Department of Natural Resources (IDNR); McHenry County Conservation District (MCCD); the Villages of Johnsburg and Holiday Hills; residents; business owners; and civic groups.

The plan provides elected officials, municipal staff, community residents, business owners, recreational users, and environmental advocates with a long-term framework for making informed decisions about development and conservation that will affect the river and the adjoining land. It builds on planning initiatives at the community, county, and watershed scales and integrates recommendations from past plans that strive to strengthen the health, vibrancy, and resilience of the Fox River and the area it supports.

To guide implementation of its recommendations, the plan identifies actions and potential partners for the counties, villages, and other stakeholders within the corridor. These implementation strategies do not represent a complete list of actions but provide suggested next steps to help realize the vision for the corridor.

Project Background

The Fox River is one of the greatest natural, recreational, and cultural assets of McHenry County and the region. Historically, it has played a major role in shaping the region's landscape, both natural and developed, and continues to present untapped potential for the future.

This project is a continuation of broader multi-jurisdictional planning efforts that have taken place along the Fox River. The Villages of Algonquin and Carpentersville were the first communities to develop a river corridor plan through CMAP's Local Technical Assistance (LTA) program. Adopted in 2016, the plan covered a portion of the Fox River that sits between their respective historic downtowns. Inspired by this effort, McHenry County Planning and Development applied to the LTA program to develop a vision for the portion of the Fox River that extends upstream through McHenry and Lake Counties. Building on the success of this second plan, McHenry County and the City of McHenry reapplied to the LTA program in 2018 to continue developing the vision for the Fox River and its communities further upstream, before reaching the Chain O'Lakes.

The plan covers an active stretch of the Fox River that spans unincorporated lands in eastern McHenry County; City of McHenry; the Villages of Johnsburg, Holiday Hills, and Prairie Grove; conservation areas; state parks; and floodplains.

The Fox River

The Fox River originates near Waukesha, Wisconsin and flows for over 185 miles before reaching the Illinois River in Ottawa, Illinois. The Fox River watershed — the area drained by the river — spans 2,658 square miles across both states (see Figure 1.1). In its northern reaches, the watershed comprises many wetlands, lakes, and glacial formations, among rural communities and agricultural land. The middle reach of the Fox River, known in Illinois as the Upper Fox, is more developed with cities, villages, and unincorporated communities. The Upper Fox includes the Chain O'Lakes, a series of connected waterbodies in Lake and McHenry Counties popular for motorized recreational boating. Climate change and pressures associated with expanding urban development have resulted in conservation and watershed planning efforts to protect sensitive habitat and improve water quality within this ecologically rich area.

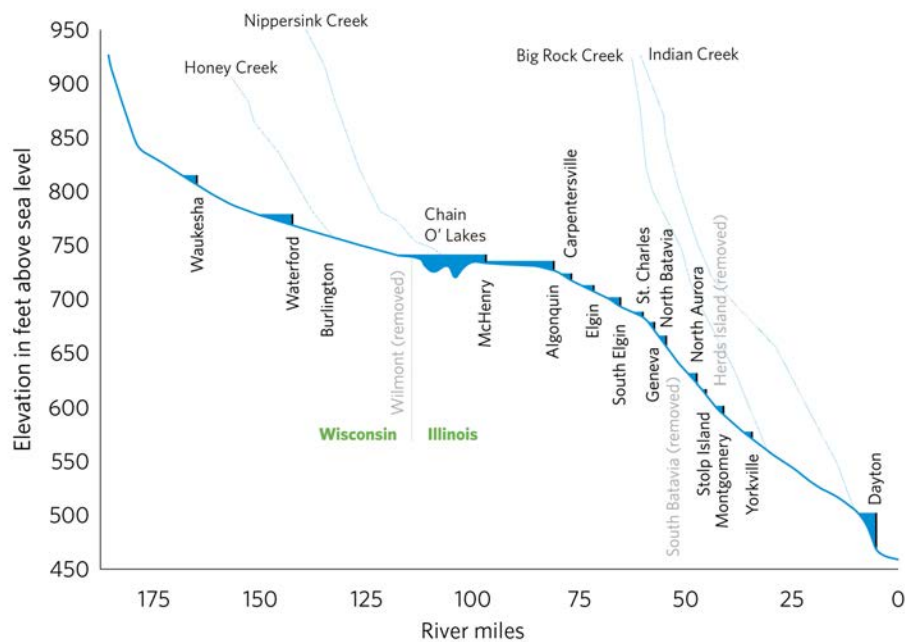
The flat landscape of the watershed, particularly McHenry County, creates a relatively shallow riverbed between the Chain O'Lakes and the Algonquin Dam, making the study area the flattest section of the entire Fox River (see Figure 1.2). The IDNR manages water levels for recreational boating on the Chain O'Lakes and for water supply use by the cities of Elgin and Aurora and Fermilab in Batavia. Flows are maintained through the Stratton Lock and Dam near McHenry and further downstream at the Algonquin Dam, south of the study area. Water levels near docks and in the backwater channels and tributaries of the Fox can become low at times, but water sports persist.

Figure 1.1 Fox River watershed



Source: Fox River Study Group (2013) adapted by CMAP.

Figure 1.2 Elevation cross-section of the Fox River



Note: Vertical lines indicate dams

Source: Fox River Fish Passage Feasibility Study redrawn by CMAP.

Fox River Communities

Located approximately 55 miles northwest of downtown Chicago, the corridor communities have a rural character, and at times suburban small-town appeal, with ample recreational amenities and high-quality natural resources in close proximity (see Figure 1.3).

Burtons Bridge: Burton's Bridge is an unincorporated community in McHenry County featuring a small concentration of restaurants, entertainment, and other businesses on the west bank of the Fox River at IL Route 176.

City of McHenry: The city's motto, "Heart of the Fox River," speaks to its central location between the Stratton Lock and Dam and the Chain O' Lakes. The downtown offers a mix of restaurants, marinas, and a Riverwalk that provides residents and visitors

opportunities to enjoy the riverfront.

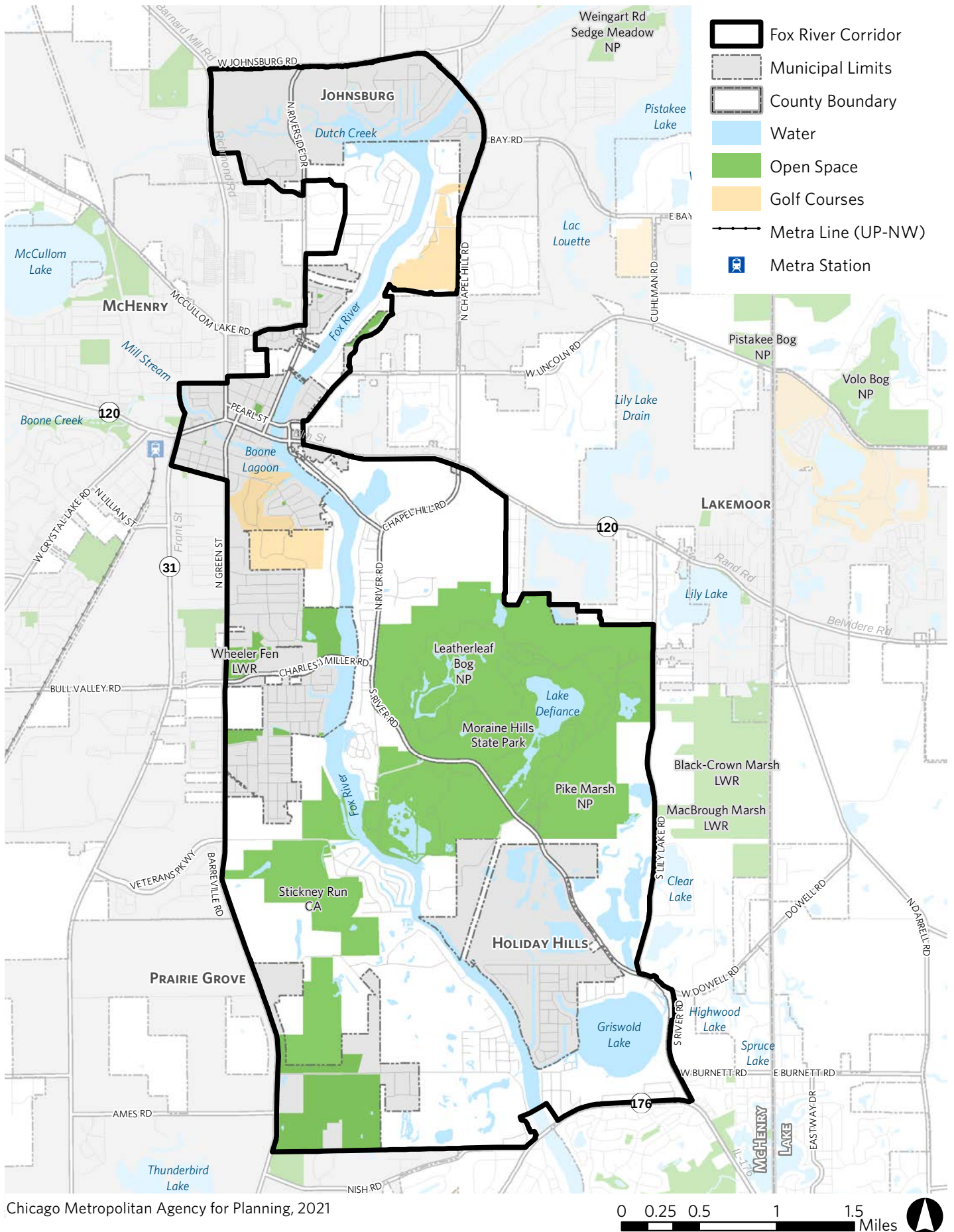
Ferndale: Ferndale is a small unincorporated residential community in McHenry County that is located on the east side of the Fox River and bound by Moraine Hills State Park and Holiday Hills.

Village of Holiday Hills: Holiday Hills is a small residential community located on the east side of the river, south of Moraine Hills State Park and the Stratton Lock and Dam.

Village of Prairie Grove: Prairie Grove is a mile inland from the west side of the Fox River. Its eastern edges encompass parts of Stickney Run Conservation Area and borders the Burton's Bridge community.

Village of Johnsburg: The Village boasts the most waterfront of any community along the Chain O' Lakes with boundaries extending across the Fox River, Dutch Creek Bay, and Pistakee Lake.

Figure 1.3 Fox River Corridor study area





Why does the Fox River need a corridor plan?

The health of the Fox River is intrinsically connected to the quality of life and economic prosperity of the corridor communities. Decisions and actions of one riverfront community can have significant impacts on others that are adjacent or downstream. Issues such as climate change, flooding, water pollution, sedimentation, invasive species, and poor pedestrian and bikeway connectivity extend beyond municipal and county lines and involve many different stakeholders. By planning together, the county and municipalities can develop complementary strategies to continue to protect, enhance, and enjoy the unique resource that connects them all — the Fox River.

The plan serves as an educational tool and provides a consistent framework for planning decisions related to economic development that is sensitive to its surroundings, natural resource protection, parks and recreation, as well as access and connectivity for bicyclists and pedestrians. Building on the previous two planning frameworks established by downstream communities, it also offers a cohesive structure for protecting and improving the waterway with strategies that are tailored to the unique opportunities and concerns of this stretch of the river.

The plan encourages cross-agency collaboration among large landholders and waterway managers such as IDNR, the FWA, and MCCD. It will also help McHenry County, City of McHenry, and other corridor communities leverage resources to implement improvements and programs that serve the shared interests of the corridor, the Fox River watershed, and the greater northeastern Illinois region as a whole.

Planning Process

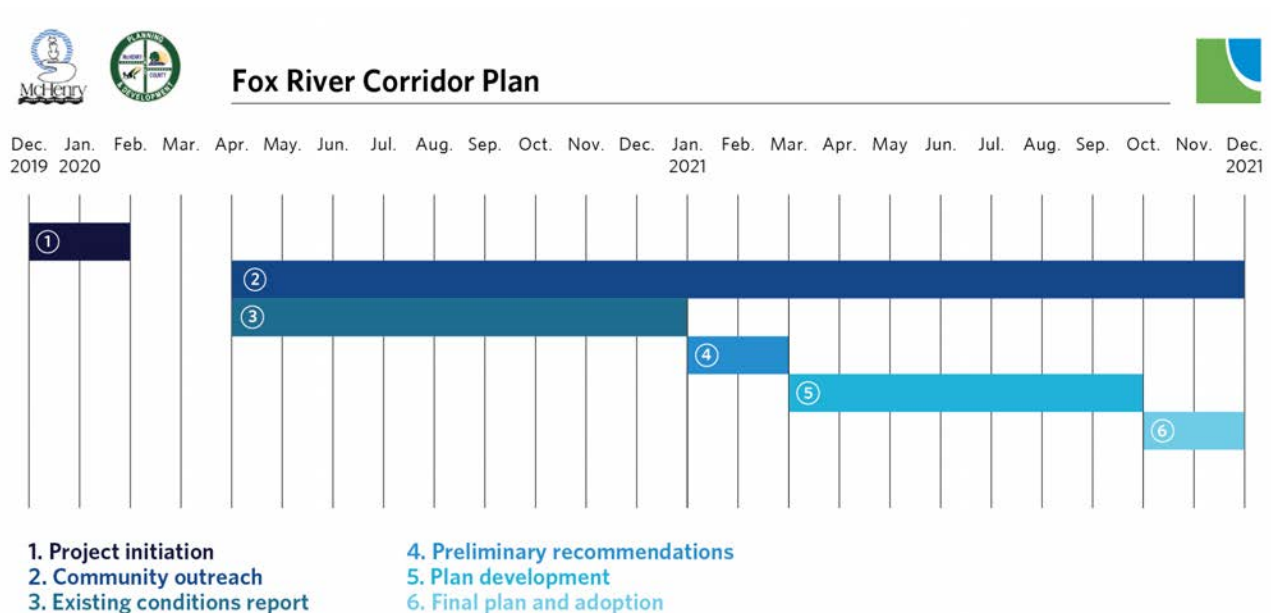
The planning process to create the Fox River Corridor Plan included multiple steps that were undertaken over approximately 22 months (see Figure 1.4).

The process was crafted in close consultation with McHenry County and the City of McHenry. It was designed to include extensive input from various county and municipal officials, residents, business owners, open space and waterway managers, civic organizations, and community leaders throughout the corridor.

Community Engagement

To better understand and address the communities' needs and vision for the corridor's future, a number of community engagement activities were conducted to gather public input. In addition to the ongoing guidance and feedback from the project steering committee, this included conducting two public workshops, three online surveys, and confidential interviews with key stakeholders throughout the corridor to identify the primary concerns of local residents, businesses, and recreationists, among other stakeholders.

Figure 1.4 Planning process timeline



Since the start of the planning process, nearly 250 residents and stakeholders have participated in the community engagement process. Engagement began in the first phase of the planning process with the formation of the project's Steering Committee. The Committee was composed of individuals representing a variety of interests and perspectives and was tasked with providing insights on existing issues and opportunities, guidance and feedback on central goals, reviewing interim deliverables, and stakeholder engagement. Shortly after forming, their first meeting was held in late February 2020 to kick off the project and begin discussing the issues and opportunities unique to the corridor.

The second phase of the planning process — Existing Conditions Analysis — involved several outreach activities including the launch of the project website, the first online survey and interactive mapping exercise, stakeholder interviews, a second steering committee meeting, and two public open houses to kick off the project with residents, business owners, and recreationists, among other corridor stakeholders. The open houses were held via Zoom on Tuesday, November 10, and Thursday, November 12, 2020. Each open house gave the public an opportunity to learn about the project and break out into small groups to discuss the strengths and challenges of the corridor. Specifically, discussions focused on the following topics: Economic development, environmental quality, parks and recreation, and transportation.

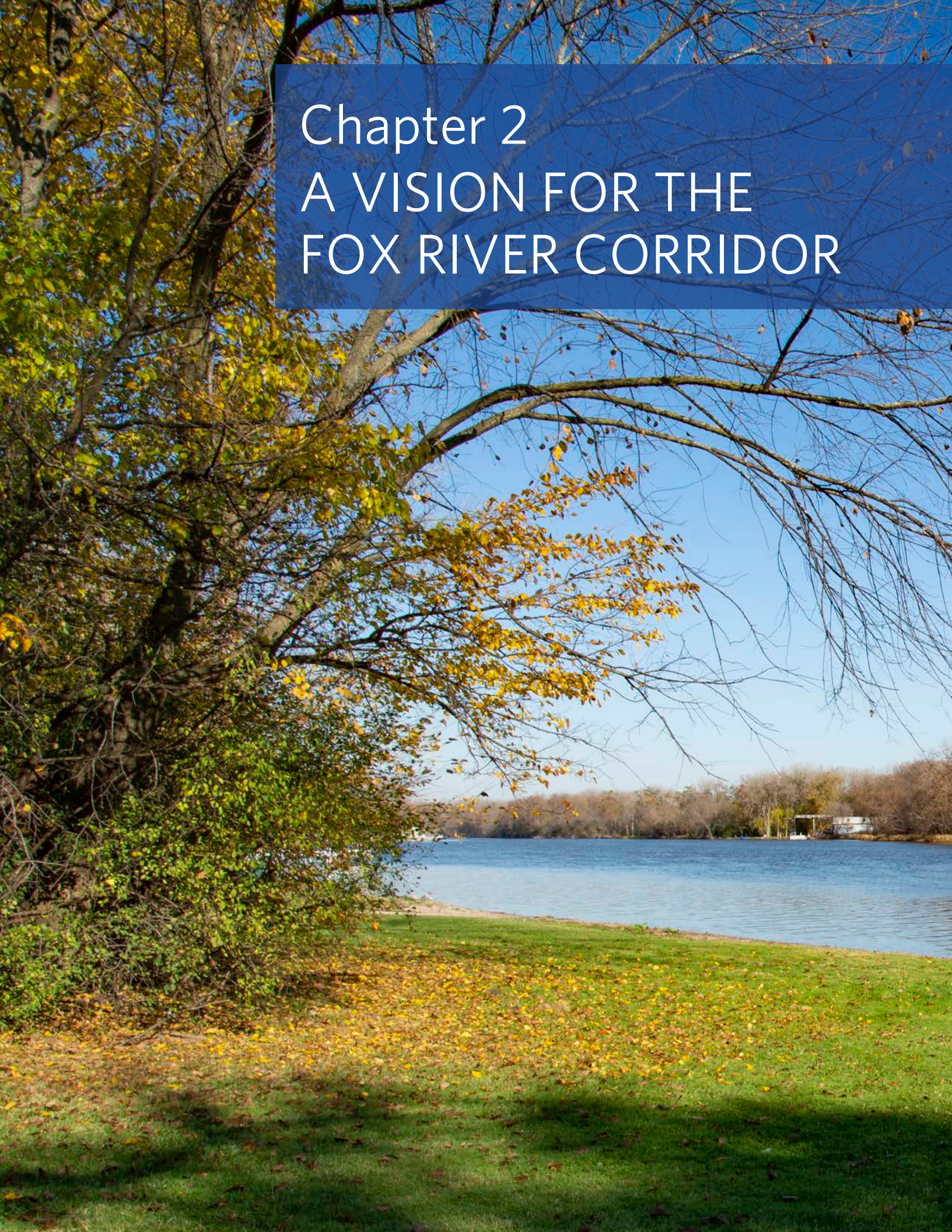
Outreach activities in the third phase of the planning process — Visioning and Plan Development — focused on presenting key findings from the existing conditions analysis and garnering feedback from residents and stakeholders on potential solutions to the issues and opportunities that were identified during phase two. Activities included an online visioning survey, two public visioning workshops, and a third steering committee meeting to present preliminary recommendations. Visioning workshops were held via Zoom on Tuesday, January 19, and Thursday, January 21, 2021. Attendees participated in facilitated small group discussions to identify their visions and goals for economic development, river management, environmental protection, recreation, and transportation in the corridor. The group reconvened to rank priority actions that helped develop a shared vision for the plan. Results from the visioning workshops were incorporated into the plan during the plan development phase.

Throughout the planning process, participants expressed a strong desire for improved stormwater management and sedimentation control to improve water quality, maintain waterway navigation, and safeguard the integrity of riverfront homes and businesses. There was also renowned interest in improving river safety as well as bicycle and pedestrian access between corridor destinations, including the river, downtown areas, and open space. While increasing public river access was a common desire, many were concerned that additional access would heighten safety concerns. Despite these differences, there is widespread interest in improving existing river amenities and stronger connections between the corridor's downtowns and the river itself.

Impacts of COVID-19

The planning process was undertaken amid the COVID-19 pandemic. In light of the challenges and limitations of conducting and hosting in-person meetings during this time, nearly all outreach activities were conducted virtually. Although the pandemic's full impact is not yet known, we anticipate changes over time related to demographics, economic development, and transportation in the study area. Nevertheless, the plan does attempt to take known impacts into consideration as recommendations and guidance are presented over the course of the next decade and beyond.



A scenic view of a river, likely the Fox River, with a grassy bank in the foreground covered in fallen yellow leaves. A large tree with green and yellow foliage is on the left, and bare branches frame the top right. The river flows towards a distant shoreline with trees and a small building under a clear blue sky.

Chapter 2

A VISION FOR THE FOX RIVER CORRIDOR

The Fox River Corridor has an optimistic future. It has the potential to support a clean, healthy river filled with aquatic life and diverse ecosystems that can be enjoyed by all residents, boaters, and other recreationists alike. Corridor communities can become resilient to the impacts of climate change and sustain thriving economies that are well connected and enhance the quality of life for its residents and the region. Eight overarching goals emerged for the planning process that guide the strategies outlined in the Fox River Corridor Plan:

1. Reduce flood risk and make communities more resilient to the impacts of climate change.
2. Create a clean, healthy river that supports aquatic life and diverse ecosystems.
3. Balance the recreational use and preservation of the Fox River and surrounding ecological assets.
4. Elevate safe and equitable use of the river.
5. Establish a more connected corridor with access to the river for all.
6. Promote education and environmental stewardship.
7. Strengthen the vibrancy and economic prospects of riverfront communities.
8. Foster collaboration to uphold the corridor for future generations.

Framework Plan

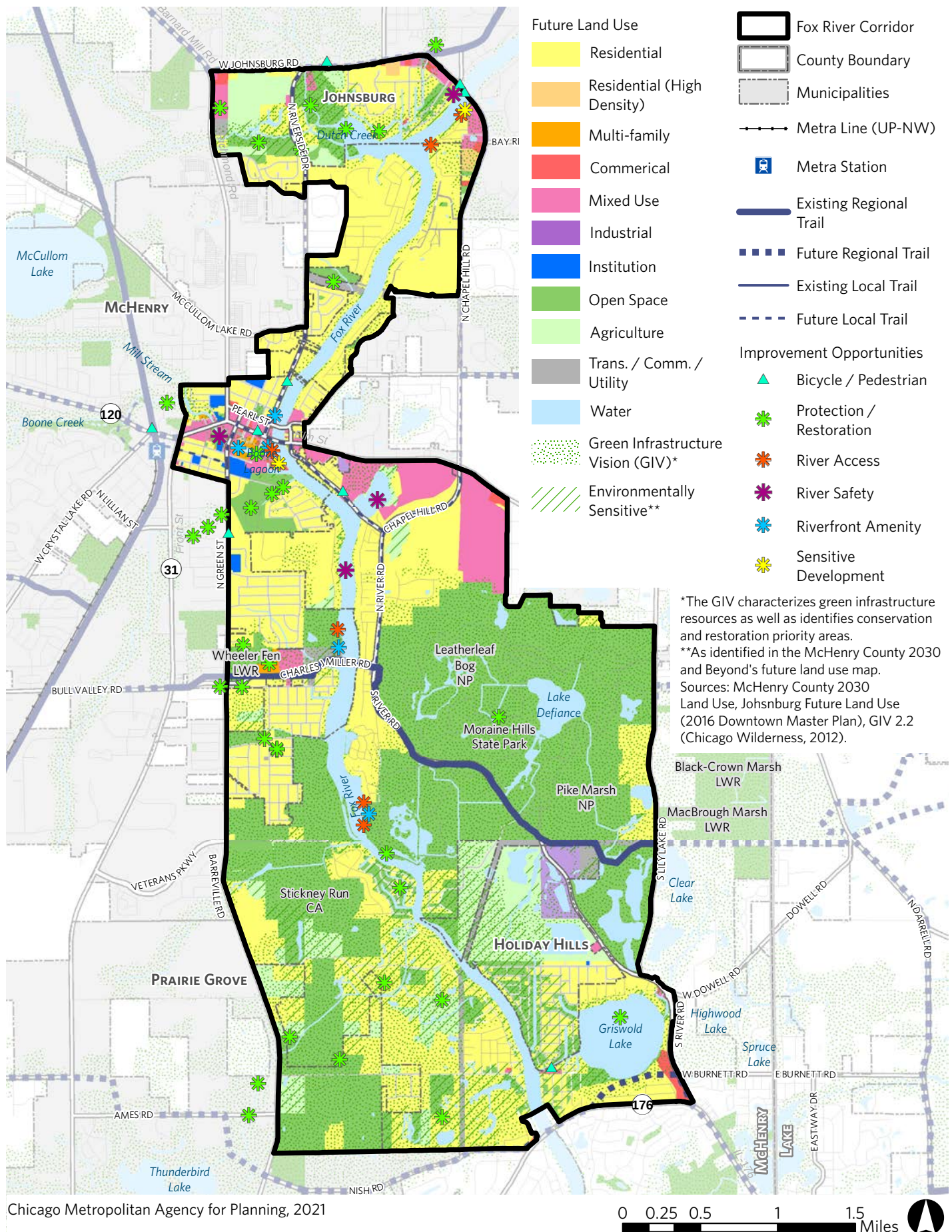
The framework plan compiles many of the site-specific recommendations made in the Fox River Corridor Plan that, when implemented, would help corridor communities take steps toward achieving the vision (see Figure 2.2). These are stakeholder-driven opportunities that aim to improve the natural environment, bicycle and pedestrian facilities, river safety, and riverfront access and amenities as well as guide communities toward responsible and sensitive development.

The framework plan also illustrates future land use recommendations, including those from previous municipal- and county-led planning initiatives like Johnsburg's downtown concept master plan that identifies new land use and transportation connections as well as the countywide green infrastructure network that identifies riparian areas, wetlands, and other important habitat that should be considered in future land use decisions. All recommendations within the map will be described in more detail in the subsequent chapters of the plan.

Figure 1. Concept illustrations highlighting the vision for the Fox River Corridor (UrbanLab, 2021)



Figure 2.1 Framework plan for the Fox River Corridor



Chapter 3

ECONOMIC DEVELOPMENT



Key Findings

The Fox River and surrounding open space attract visitors and generate business. Communities within the corridor benefit from their proximity to the Fox River as well as nearby parks, trails, and forest preserves. Although there is a wide range of amenities and activities, they are not well advertised or known outside the local area. The corridor has the potential to capture additional visitors from nearby communities who are interested in outdoor dining and entertainment or recreational opportunities that the Fox River, Chain O'Lakes, and vast open space afford.

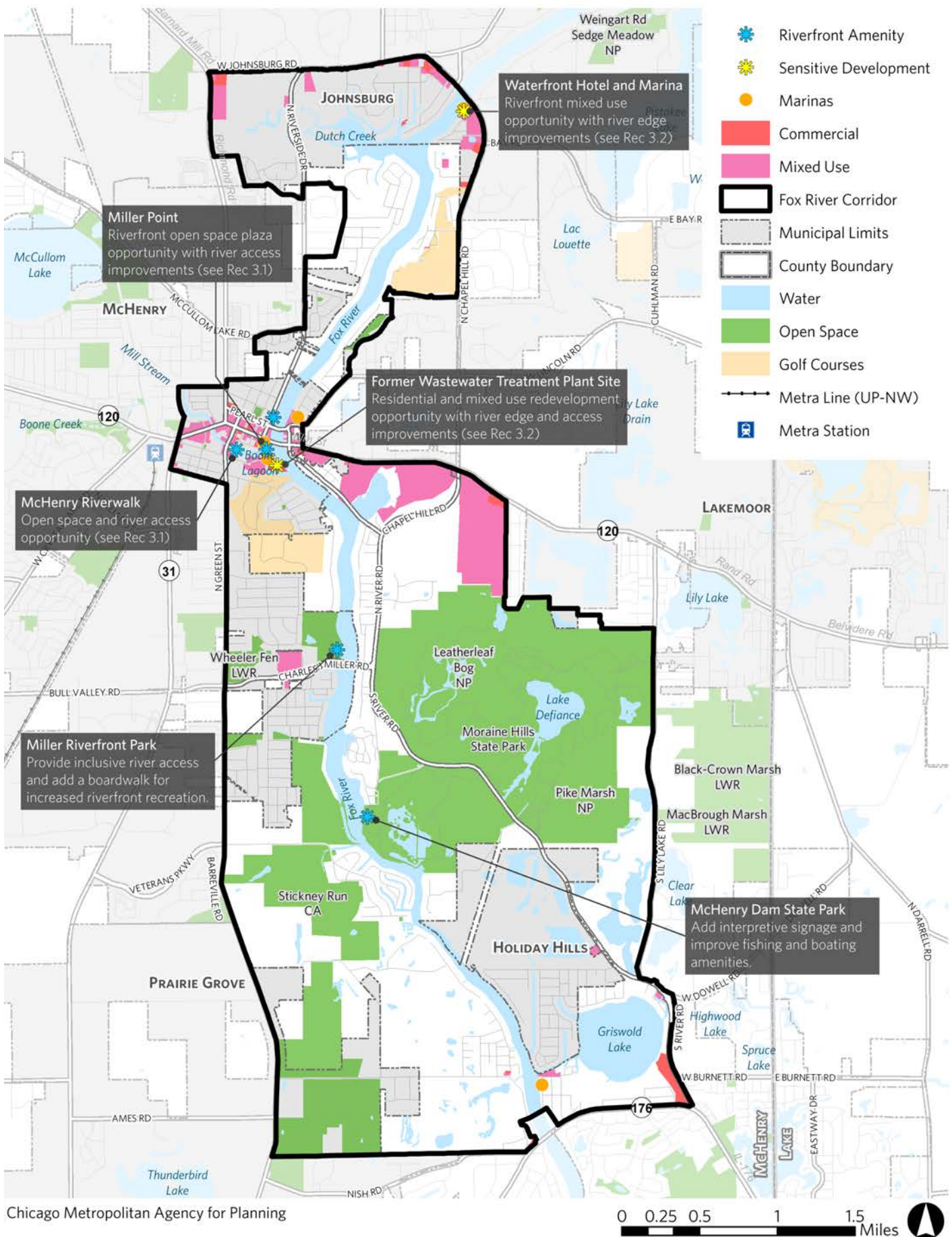
McHenry and Johnsburg are reinvesting in their downtowns. McHenry and Johnsburg are two communities in the corridor with downtown areas that have the potential to attract people to the Fox River as well as draw river users off the water to downtown businesses. In an effort to spur economic development, both communities have been investing in revitalization projects aimed at diversifying land uses as well as improving downtown walkability and riverfront access.

Riverfront development prospects exist in McHenry's and Johnsburg's downtown. While much of the riverfront is developed or serves as protected wildlife habitat, there are a few locations along and near the river that are either under development or have been identified as potential development or redevelopment opportunities.

Reinvestment efforts may be interrupted by COVID-19.¹ The Fox River Corridor may be more economically resilient than more urbanized areas given the diversity of natural assets and recreational opportunities it affords. At the same time, reinvestment in the corridor may be difficult for communities to prioritize. Funding opportunities available from state grants and programs may be limited due to budgetary shifts associated with state-wide COVID-19 response and recovery measures.

Vision —
The Fox River Corridor will achieve a vibrant local economy anchored by recreation, ecologically sensitive development, and a clean healthy river for everyone to enjoy.

Figure 3.1 Economic development plan



Recommendations

3.1 Continue to invest in public open space and downtown redevelopment

3.2 Support resilient and ecologically sensitive development

3.3 Market the Fox River as a destination for tourism and recreation

3.1 Continue to invest in public open space and downtown redevelopment

The downtowns of McHenry and Johnsburg have the potential to draw people to the Fox River and attract river users to downtown businesses. Each of these communities has a downtown area plan that has been guiding their efforts to create more pedestrian-friendly downtown areas that support a diverse mix of commercial businesses, housing, activities, and destinations. McHenry and Johnsburg should continue to invest in their downtown cores with a focus on walkability and public open space, infill and ecologically sensitive riverfront development, and business retention and attraction (see Figure 3.1). Collectively, these efforts will attract residents and visitors alike and strengthen the health, vibrancy, and economic competitiveness of the corridor.



Businesses within downtown McHenry, Illinois.

Promote infill and mixed-use development

The City of McHenry and the Village of Johnsburg should promote infill development by bringing more retail, offices, housing and open space into their downtowns. Infill development, or growth that occurs in built-up areas with existing infrastructure, is a key strategy for reinvestment. This type of development helps revitalize the local economy, supports new growth without building costly additional infrastructure, and preserves natural resources. Infill also makes communities more livable and sustainable by promoting walkability, supporting a range of housing and transportation choices, as well as providing access to schools, jobs, services, and basic amenities.

Corridor communities with riverfront downtown cores should provide resources to educate residents and stakeholders about the benefits of infill and increases in density, as well as diverse housing options. Density increases, mixed-use development, and diverse housing options that suit a range of income levels are often contentious issues that attract NIMBYism. Local governments and advocates alike can benefit from case studies and data that help to overcome local resistance based on miseducation or bias.

Both communities should prioritize developing city-owned parcels with uses that reflect future land use and goals of the community. Communities should continue to keep their online parcel inventories up to date as well as seek opportunities for advertising sites to potential developers and existing businesses. Communities may also want to explore open space opportunities that provide stormwater management and water quality improvements. The City of McHenry and Village of Johnsburg should consider connecting with the Urban Land Institute (ULI) to hold a retail workshop for municipalities regarding realistic expectations for attracting and retaining hospitality, retail, housing, and office land uses within their downtown cores given the large commercial corridors inland from the Fox River.

Increase public open space and riverfront access

The City of McHenry and the Village of Johnsburg recognize that public open space and riverfront access are central aspects of downtown reinvestment. Public open spaces can function as destination points and gathering spaces that draw people and events to the downtown and riverfront. Similarly, adding public docks, canoe tie-ups, or river access points near high trafficked areas makes it easier for passing boaters and paddlers to park and visit downtown and riverfront businesses. Each community should continue to work toward enhancing public open space and seeking opportunities to increase riverfront access to the Fox River from their downtown cores. The following are two sites that have the potential to help achieve these objectives.

McHenry Riverwalk. Initiated by the city and the McHenry Riverwalk Foundation in 2006, the Riverwalk is a revitalization project that has capitalized on the Fox River and the confluence with its tributary, Boone Creek, which has generated growth and development in McHenry's downtown. The Riverwalk is the most expansive riverfront access that exists within the corridor. The pathway and supporting amenities, such as boat slips and boat rentals, give visitors the opportunity to venture into McHenry's downtown or experience Boone Creek and the river from its edge and on the water. The Riverwalk Foundation's vision is to extend the path to the west past Green Street to Route 120. There is potential for it to extend further to Webers Park through commercial riverfront property.

Finishing the Riverwalk as planned will require significant cooperation with private landowners and fundraising. The city should serve as a liaison between the riverfront property owners — who would need to agree on the extension — and the Riverwalk Foundation. The city, in partnership with the Riverwalk Foundation, should seek grant opportunities that could contribute to construction and maintenance costs. They should ensure any additions provide recreation amenities, and enhance the river's water quality and habitat. Additionally, the city should work with the city's Public Works Department to establish a maintenance schedule to ensure the Riverwalk remains in good condition.

Depending on the project's progress, the city and Riverwalk Foundation should be realistic about their vision for the pathway and adjust the vision accordingly. If a second visioning exercise is warranted, it should be a community-driven visioning process geared toward communicating the benefits of the Riverwalk, garnering public buy-in, and developing a high quality public amenity with community-driven solutions.

Miller Point. The city should continue to redevelop Miller Point as a public plaza and gathering space that generates activity in, and improves access to, the river and downtown. Throughout the planning process, stakeholders voiced their support for this public downtown transformation. Located at the confluence of Boone Creek and the Fox River, the city-owned parcel is well positioned to be a major gateway for land and water users alike. In 2019, the McHenry Riverwalk Foundation constructed the Miller Point Pavilion, and the city added public boat slips on the water to increase river and riverfront access.

While these additions have improved access, more planning and design should go into the cohesiveness of the site and its connection to nearby downtown areas. Since the site's redevelopment plan is over eight years old, the city should consider developing a new vision and strategic plan for the site. This could be done through the city's upcoming comprehensive planning process or through a series of design charrettes and public meetings. A new vision and implementation plan should aim to give the city guidance on development in light of the Riverwalk's completion and nearby commercial property. It should also ensure the site's plan reflects the most recent goals and vision of the community. The city should then consider using Tax Increment Financing (TIF) funds as well as leveraging any momentum from the McHenry Riverwalk development to bring this site to fruition.



Improve local business communication and collaboration

In light of the economic impacts of the COVID-19 pandemic, communication and collaboration between communities and their local businesses, as well as among the business community itself, has become increasingly important to survive and prosper through turbid and uncertain economic downturns. Although federal funds from the CARES Act and American Rescue Plan will provide Illinois and local governments with resources to support industries and workers. Corridor communities should be communicating regularly with local businesses to ensure they are supported and have the resources needed to recover. Similarly, members of the business community can take a similar approach to leverage resources, address common business challenges, and collectively work toward building a stronger local economy.

The McHenry Area Chamber of Commerce and the Johnsburg Area Business Association are two organizations that are dedicated to promoting and supporting local businesses. Corridor communities should encourage businesses to become members of these organizations to take advantage of their marketing services and support. These organizations also serve as a forum for municipal staff to inform business owners of new municipal procedures, potential funding opportunities from grants or outside sources, availability of commercial properties, and the status of other projects in the corridor. It can be a forum for riverfront businesses to discuss flooding issues as well. This is particularly important for those that have experienced damage from flooding and/or lost revenue during times when the river is closed to recreational boaters.

3.2 Support resilient and ecologically sensitive development

The corridor is comprised of a mix of land uses, including residential homes that line the river's edge and commercial businesses dispersed throughout the downtown areas, and a large amount of water and open space. Naturally, corridor communities are embracing the Fox River to facilitate the revitalization of their riverfront, downtown cores, and commercial areas. Municipalities should continue to explore strategies that support, preserve, and strengthen existing businesses as well as pursue responsible redevelopment that enhances the corridor as a local and regional destination. It is also important that municipalities ensure future development restores and protects water quality and the river's edge and floodplains, increases public access, and enhances the overall enjoyment of the river.

Pursue river-oriented development

While much of the riverfront is developed or serves as protected open space, there are a few locations along and near the river that have been identified as potential redevelopment opportunities. There are potential development locations in the City of McHenry and the Village of Johnsburg where there are opportunities to create vibrant corridor destinations that embrace the Fox River. Municipalities should market these available sites to potential developers and existing businesses looking to expand their facilities. At the same time, municipalities should use these opportunities to integrate the related plan goals of flood risk reduction, conservation, access, and resilience into future redevelopment.

Former Central Wastewater Treatment Plant. The City of McHenry is pursuing a redevelopment project at the city's former Central Wastewater Treatment Plant site at 3302 W. Waukegan Road (see Figure 3.2). The project presents a significant economic development opportunity that could bring a wider range of housing options and mixed-use development to the city's riverfront and downtown core, benefiting residents and visitors.

Figure 3.2. City of McHenry's former wastewater treatment plant.



Source: City of McHenry

In June 2021, the city posted a request for proposals and voiced interest in residential and mixed-use development that could help strengthen its downtown core. The site is located in the city's TIF district, and the city should continue to pursue extending the TIF's term to help fund the site's development. The wastewater treatment structures have been removed and the site has been graded. However, over 90% of the site is within the 1% annual chance flood hazard area, often referred to as the 100-year floodplain.

Although the city has applied for a Conditional Letter of Map Revision that would allow development to proceed, the site will likely remain vulnerable to riverine flooding, particularly as climate change impacts continue to intensify. The site also has potential to generate stormwater runoff that will affect water quality. To mitigate these potential impacts, the city should work with developers to incorporate flood mitigation and water quality protection measures into the building and landscape design. These could include building flood-proofing measures, green stormwater infrastructure, vegetative buffers, in-stream aquatic habitat protection, public access, and setbacks. The city should use these elements in the RFP review process as well as ensure the site expands public river access and includes amenities that all stakeholders of the corridor can enjoy.

Waterfront Hotel and Marina. The Waterfront Hotel and Marina site is a riverfront development opportunity on the southeast side of Chapel Hill Road bridge that has the potential to increase public river access and open space, as well as attract boaters, paddlers, and other new visitors to Johnsburg. The property is currently for sale and includes a recently renovated hotel with a bar and restaurant as well as a marina with 22 slips, a boat launch, a second waterfront structure, and roughly 18 acres of undeveloped land that includes an intact oak grove (see Figure 4.3).² Future redevelopment of the site should consider improving the launch site, providing public access to certain site amenities, preserving the oak grove, and incorporating water quality and habitat protection measures into building and landscape design.



Integrate natural resources mapping and riverfront design guidelines into the development review process

In addition to municipal plans, land development ordinances, stormwater regulations, and other land management tools, development proposals and the development review process for a site play a significant role in shaping the development. Corridor municipalities should draft development proposals to include, and amend the development review process to consider, development incentives and regulations related to flood-proofing, stormwater best management practices (BMPs), waterbody buffer and setback zones, parking and streetscaping guidelines, and the preservation and restoration of wetlands and other sensitive natural areas. Municipalities have opportunities to ensure that new and redeveloped public facilities incorporate such measures through the capital improvement planning process and other public facility planning and development processes as well.

The development review process can also be amended to require the use of existing natural resources maps and data, such as McHenry County's Green Infrastructure Vision and Sensitive Aquifer Recharge Areas (SARAs), to inform development decisions. Municipalities may want to partner with the McHenry-Lake County Soil and Water Conservation District (SWCD) to develop Natural Resource Inventory (NRI) reports when evaluating a proposed development or making land use decisions. The reports provide local officials and other decision makers with unbiased information on the presence of natural resources, such as floodplains, wetlands, and soils, for a particular site of interest.³

Municipalities with riverfront development prospects should use riverfront design guidelines to guide future riverfront development that balances river and property protection with economic development. The City of Chicago's Chicago River Design Guidelines⁴ is an example of a unified set of guidelines for riverfront development (see Figure 3.3). The guidelines provide planning and economic development departments with a standard for reviewing and approving projects while offering developers with streamlined information on several site design elements that can strengthen a development's public access and wayfinding, habitat protection and restoration, naturalized shoreline, and stormwater management.

Figure 3.3. Chicago River Design Guidelines and menu of improvements for planned developments



Source: City of Chicago

Promote low-impact, conservation-oriented development

For development on and beyond the riverfront, corridor communities should promote low-impact and conservation-oriented development in areas with significant natural resources. Sensitive development techniques such as conservation design and low-impact development can help ensure the preservation of the corridor's high quality natural assets and agricultural lands as well as the continuity and connectivity of natural areas via open space corridors, all of which are critical to protecting native species and systems. Designated growth areas could also prioritize development in locations that have adequate infrastructure and can better accommodate growth, such as the downtown cores.

Corridor communities should ensure that sustainable development patterns included in their future land use plan are reinforced through local land use regulations. Subdivision ordinances, zoning codes, and site and subdivision design standards may be outdated and contain language that could contradict or inhibit future land use from being fully realized. Municipal staff should review their regulations and modify them as needed. McHenry County should review their regulations as a part of their upcoming comprehensive plan update.

Zoning codes, for example, should permit and support multiple types of residential development (such as townhomes, multifamily, accessory dwelling units), mixed-use development, as well as small lot single family, cluster and conservation development for rural areas. Site and subdivision design standards should allow smaller lot sizes, preserve existing natural landscapes like oak groves and wetlands, promote landscaping with native plants, require buffers, and prohibit development in floodplains. Standards could also regulate parking minimums, turf coverage and total imperviousness, as well as require water-efficient irrigation systems to improve local stormwater management and promote water conservation.



3.3 Market the Fox River as a destination for tourism and recreation

River-oriented businesses and events as well as recreational opportunities that exist within the corridor can spur economic activity, expand local tax revenues, and provide unique services to local residents and visitors alike. To capitalize on these benefits, McHenry County and the corridor communities should collaborate with local chambers of commerce as well as the county's visitor's bureau, Visit McHenry County, to promote the corridor as a destination for tourism and recreation at both local and regional scales. The visitor's bureau and local chambers that specialize in promoting activities and events could benefit from increased coordination and collaboration among municipalities and civic organizations that can provide them with local content to promote across their networks and social media channels. Corridor communities should also work with local chambers and the county's visitor bureau to leverage and build upon existing marketing campaigns, consolidate recreation and tourism information, as well as promote local events and programming within the corridor (see Figure 3.4).

Participate in existing marketing efforts to promote local tourism

In response to COVID-19, Illinois recognized the potential impact that tourism and recreation can have on local and regional economic recovery. As part of a statewide recovery plan, counties throughout the region have been participating in a regional tourism campaign — Enjoy Illinois — that encourages communities and residents to highlight community assets and support local businesses as means toward economic recovery (see Figure 3.5). Corridor communities should participate in this campaign to highlight the diverse range of recreational amenities, dining options, and natural assets found along the Fox River and within the corridor at large. Local chambers and civic organizations should also encourage businesses and residents to participate in this campaign on behalf of their community. Similarly, local chambers should build upon the campaign to promote the same activity across local channels as well.

Figure 3.4. Visit McHenry County Insider Guide



Source: Visit McHenry County

Figure 3.5. Illinois 2021 tourism campaign



Source: Illinois Office of Tourism

Figure 3.6. McHenry County's bikeshare program campaign



Sources: Visit McHenry County

Another marketing idea expressed during the planning process is the development of self-guided tours accessible through a phone app that can give people structure and direction as they explore the corridor. Visit McHenry County in partnership with the county and local chambers should assess the viability of this marketing concept as a method for expanding their existing marketing efforts. Self-guided tours would be most suitable for promoting pedestrian activity in downtown areas as well as encouraging bicycling and the use of the county's bikeshare program, #bikeMC (see Figure 3.6). It could also be used to highlight local landmarks and key destinations found within the corridor or the county more broadly.

Stakeholders also suggested the use of coordinated social media, wayfinding and signage, and promotional deals to market opportunities throughout the corridor. See Recommendations 6.1 and 7.1 for relevant wayfinding and signage strategies that can be used to promote recreational opportunities and enhance safety and circulation throughout the corridor.

Streamline recreation and tourism information

During the planning process, stakeholders also noted that information about the various recreational activities and amenities found within the corridor is dispersed across multiple websites, which can become cumbersome to those unfamiliar with the area. Visit McHenry County should become a central hub for recreation, activities, and events within the corridor. Corridor communities, civic organizations, and land and waterway managers, such as the Illinois Department of Natural Resources (IDNR), McHenry County Conservation District (MCCD), and Fox Waterway Agency (FWA), can work with the visitor's bureau to streamline information and provide a comprehensive overview of the services and seasonal opportunities found within the corridor. This could include providing detailed information on relevant organizations and stepwise information on how to partake in a particular activity, such as how and where to get boating permits. Visit McHenry County should work closely with these partners as well as local chambers and parks and recreation departments on an annual basis to ensure that information is accurate and to date.

Draw people to the river and downtowns via programs and events

Programs and events hosted by municipalities and parks draw residents and visitors to the corridor each year. Stakeholders voiced interest in public art and more family-oriented events that take place in public spaces that support more passive uses. Municipalities and park managers should work together and explore ways to incorporate art into public spaces as well as create events and programs that serve a mix of residents and increase the use of the riverfront and park space. The McHenry Area Chamber of Commerce, for example, regularly holds Fiesta Days, which is a series of events that take place in McHenry County that are focused on music, dining, and the arts (see Figure 3.7).

Fox River communities should also collaborate with IDNR staff at Moraine Hills State Park, McHenry Dam State Park, and park districts, as well as watershed and citizen groups to develop and promote recreational programs and events that take advantage of the Fox River and underutilized riverfront areas. See Recommendation 5.3 for educational programming and stewardship opportunities that can draw people to the river and open space areas within the corridor. Also, see Recommendation 6.1 for more strategies to draw people to the river through open space improvements.

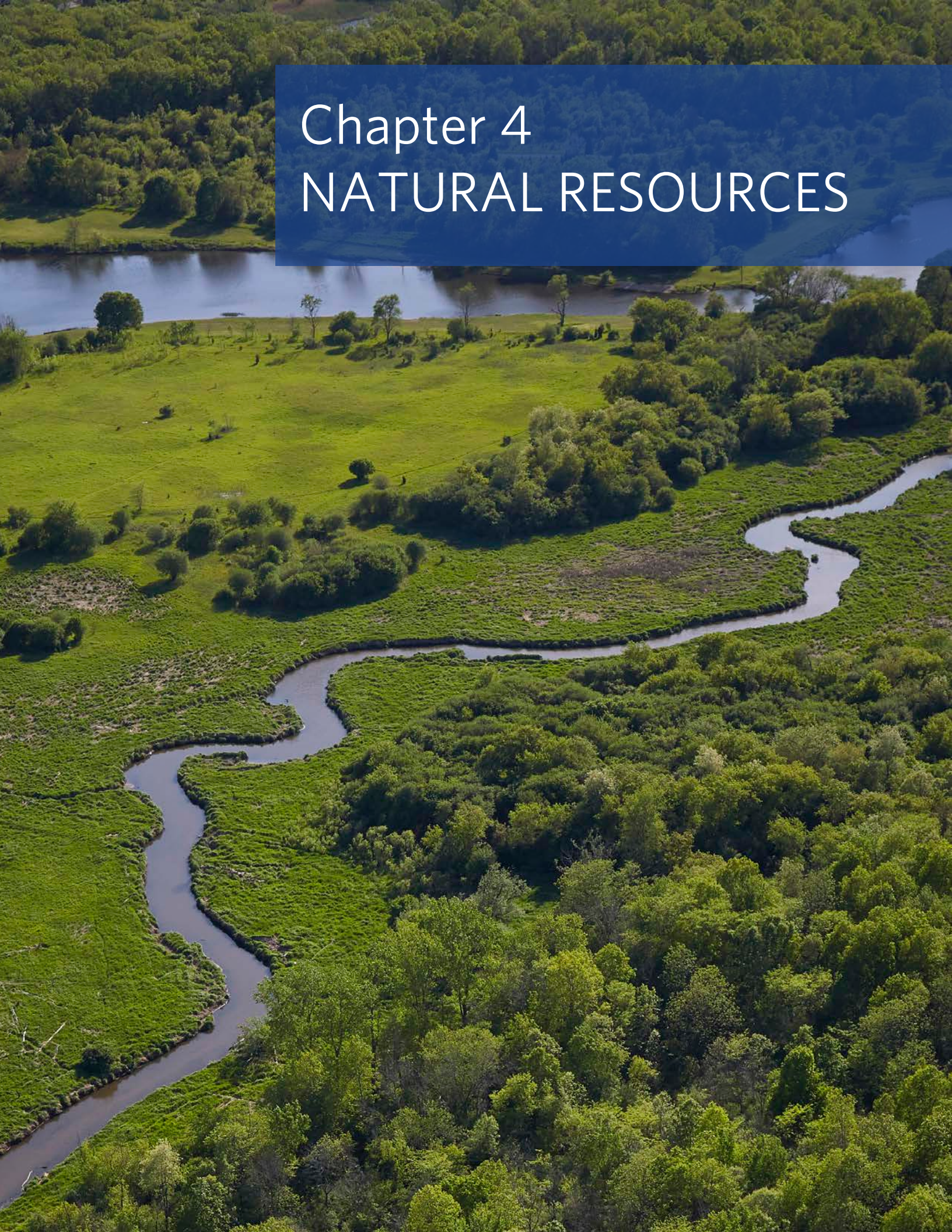
Figure 3.7. Food trucks at Fiesta Days



Source: McHenry Area Chamber of Commerce

Implementation Actions

Recommendation	Timeline	Lead and Partners
3.1 Continue to invest in public open space and downtown redevelopment.		
Promote infill and mixed-use development. City of McHenry and Johnsburg should convene a ULI land use workshop with neighboring communities to identify realistic expectations for attracting and retaining hospitality, retail, housing, and office land uses within their downtown cores. Corridor communities should evaluate and revise zoning and municipal codes to promote infill and mixed use development.	2-5 years	City of McHenry, Village of Johnsburg, Urban Land Institute (ULI)
Increase public open space and riverfront access. Riverfront developments should be designed to include riverfront access and amenities as appropriate. The City of McHenry should hold a community design charrette to develop a vision and strategic plan for transforming Miller Point into a vibrant public space. McHenry, in partnership with the McHenry Riverwalk Foundation, should use their upcoming comprehensive plan update to reengage the community and property owners about the Riverwalk and prioritize the next steps for completing the Riverwalk extensions west to Route 120 and north to Weber's Park.	5-8 years	City of McHenry, Village of Johnsburg, McHenry Riverwalk Foundation, riverfront businesses and property owners
Improve local business communication and collaboration. Corridor communities should work alongside chambers and business associations as well as the county's visitor's bureau to identify opportunities to interact with local businesses and provide resources needed to recover from the 2020 economic downturn. Businesses should become members of the McHenry Area Chamber of Commerce or the Johnsburg Business Association, respectively.	Ongoing	Corridor municipalities, McHenry Area Chamber of Commerce, Johnsburg Business Association, Visit McHenry County
3.2 Pursue river-oriented economic development.		
Pursue river-oriented development. Corridor municipalities should use riverfront development opportunities to integrate the related plan goals of conservation, access, and resilience. Municipalities should maintain a list of available sites and properties and market available sites to potential developers and existing businesses through business group meetings and local economic development websites.	Ongoing	City of McHenry, Village of Johnsburg
Integrate natural resources mapping and riverfront design guidelines into the development review process. Corridor municipalities should develop RFPs and amend the development review process to require or provide incentives promoting the integration of best practices related to stormwater management, water quality protection, erosion control, open space preservation, and equitable access. Communities should consider partnering with the McHenry-Lake County SWCD to develop NRIs as part of the review process. Communities should also review and revise local development ordinances and design guidelines to promote flood-proofing, stormwater BMPs, waterbody buffers and setback zones, parking and streetscaping best practices, and preservation/restoration of sensitive natural areas on private land.	2-5 years	City of McHenry, Village of Johnsburg, McHenry County
Promote low-impact, conservation-oriented development. Corridor communities should evaluate and revise zoning and municipal codes to promote low-impact and conservation-oriented development. Designated growth areas could also prioritize development in locations, such as downtown cores.	Ongoing	McHenry County, corridor municipalities
3.3 Market the Fox River as a destination for tourism and recreation.		
Participate in existing marketing efforts to promote local tourism. Corridor communities should participate in the state's regional tourism campaign to highlight the diverse range of recreational amenities, dining options, and natural assets found within the corridor. Communities should also work with local chambers, business associations, and the county's visitor's bureau to promote recreational and community events through forms of social media, online calendar of events, and posters. All relevant stakeholders should get involved with the Fabulous Fox Water Trail Initiative (FFWTI) to integrate or align corridor branding and promotion efforts.	Immediate	Visit McHenry County, McHenry County, corridor municipalities, McHenry Area Chamber of Commerce, Johnsburg Business Association, MCCD, FFWTI
Streamline recreation and tourism information. Visit McHenry County should convene corridor communities, civic organizations, and land and waterway managers to discuss strategies for streamlining the recreation/tourism information and seasonal opportunities found within the corridor. The bureau should consider being the primary host and director of relevant information. They should also consider hosting regular meetings with this group of stakeholders to share new information, address challenges, and maintain open communication.	2-5 years	Visit McHenry County, McHenry County, corridor municipalities, IDNR, FWA, MCCD
Draw people to the river and downtowns via programs and events. Municipalities and park managers should incorporate park amenities as well as wayfinding and interpretive signage whenever feasible. New developments should be designed to include streetscape amenities. Municipalities and park managers should work with local groups and businesses to support existing events and plan new ones that attract residents and visitors to the corridor throughout the year.	Ongoing	Corridor municipalities, IDNR, MCCD, park districts, Visit McHenry County, McHenry Area Chamber of Commerce, McHenry County, Johnsburg Business Association

An aerial photograph of a winding river flowing through a vibrant green landscape. The river meanders from the bottom left towards the top right, surrounded by dense forests and open grassy fields. The scene is captured from a high angle, showing the intricate patterns of the river and the surrounding vegetation. A semi-transparent blue banner is overlaid on the top right of the image, containing the chapter title in white text.

Chapter 4

NATURAL RESOURCES

Key Findings

Corridor communities are vulnerable to flooding. Homes and businesses near and within the floodplain experience property damage, economic losses, and reduced quality of life due to flooding. Projected increases in rainfall and heavy storms will further expose riverfront communities to flood-related impacts, including the potential for more river closures and greater shoreline erosion, sediment buildup, and water pollution.

Water pollution affects aquatic life and limits recreation. Stormwater runoff and other sources of pollution from certain land use and land management practices harm the aquatic habitat, watersport opportunities, and aesthetics of the Fox River. Land use and land management practices introduce sediment, toxins, and excess nutrients to the river, while hydromodification activities—including dredging and channelization—have altered the natural flow and composition of the river to the point that it has diminished its ability to support habitat for riverine aquatic species.

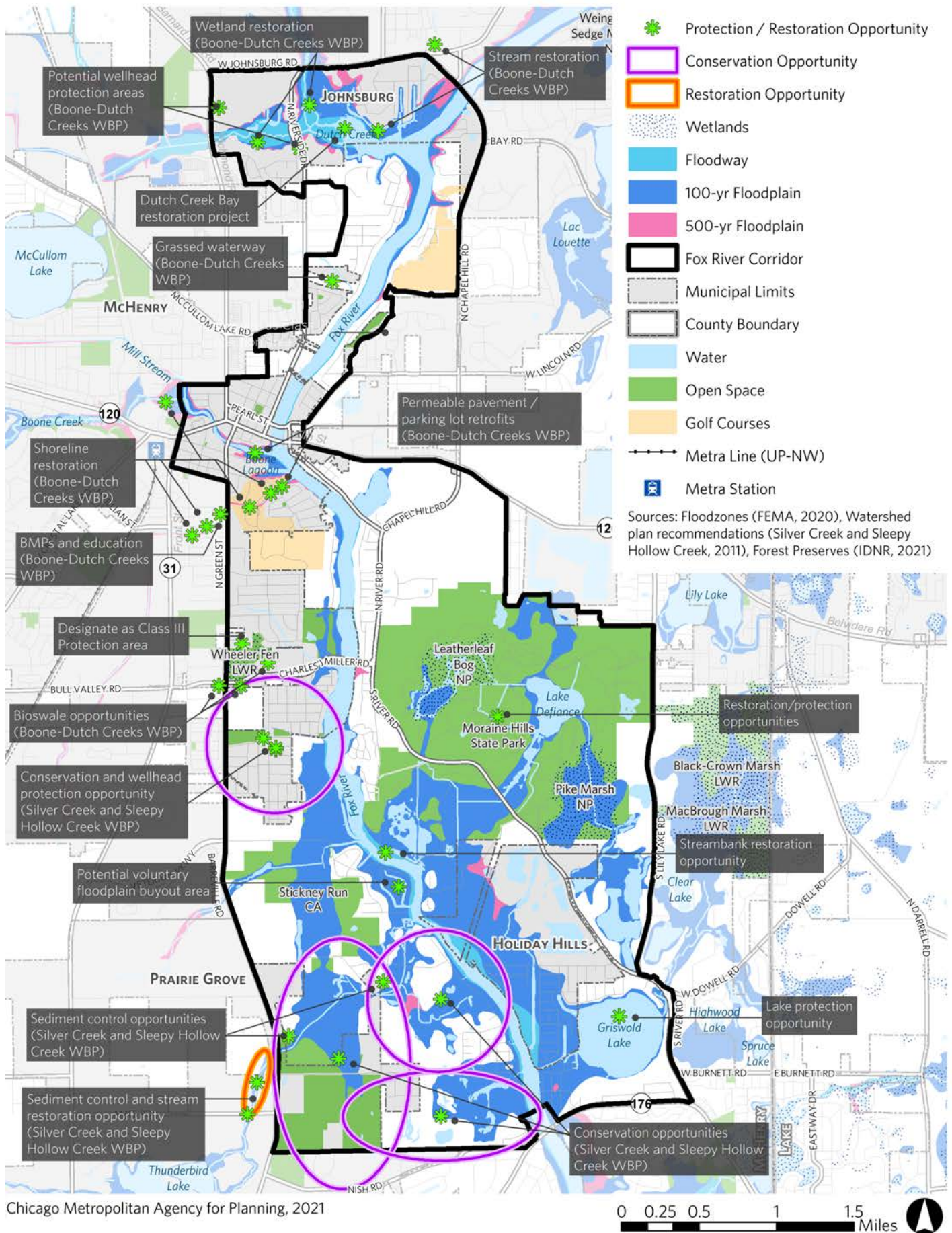
Groundwater contamination is a threat to water supply and aquatic habitat. Groundwater is the primary drinking water source for corridor communities and contributes water to the Fox River and other local waterbodies. The corridor's shallow aquifers are particularly vulnerable to contamination, drought, and loss of recharge, yet pollution continues to impact these vital water resources. Pollutants from lawns, agriculture, commercial and industrial businesses, and roads can infiltrate the ground and impact water quality. Some shallow wells within the region are already seeing an increasing trend in chloride concentrations over the past five years.

Open space provides ecosystem benefits and supports unique flora and fauna. The corridor is home to a significant amount of open space, including prairies, sedge meadows, oak forests, and wetlands. These ecosystems serve a crucial role in mitigating flooding, recharging groundwater, and filtering stormwater runoff. Continued protection and management of open space, creation of landscape linkages, and enhanced coordination will ensure that these valuable and productive natural resources increase the corridor's resilience.

Vision —

The Fox River Corridor will boast a protected and connected network of thriving natural resources that helps communities withstand the impacts of climate change while also supporting recreation, diverse habitat, and economic activity.

Figure 4.1. Natural resources opportunities map



Recommendations

4.1 Increase resilience of flood-prone communities

4.2 Improve and protect water quality

4.3 Enhance diverse ecosystems

4.1 Increase resilience of flood-prone communities

Flooding on the Fox River is one of the greatest concerns for stakeholders, particularly residents and business owners in flood-prone areas and those that are a part of the boating community. Flooding results in widespread property damage, increased sedimentation, and a reduced quality of life in the corridor. It also leads to river closures, which cause economic hardship to businesses that rely on recreational boaters and other river users. During the visioning workshops, addressing the flooding on the Fox was an idea that ranked highly among attendees. Although riverine flooding is an issue that extends beyond the corridor and needs to be addressed at the watershed-scale, there are numerous strategies that can be taken at the community level to help control the amount of runoff reaching the Fox River and its tributaries (see Figure 4.1).

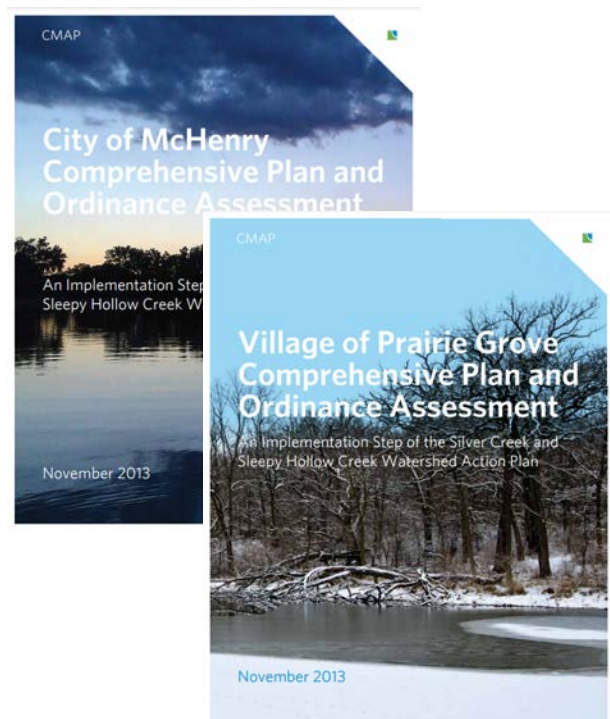
Strengthen local ordinances

Development ordinances regulating stormwater, subdivisions, and zoning are important mechanisms local governments can use to minimize flooding and effectively manage stormwater while also providing protection and restoration of riparian areas on private land. McHenry County and the corridor municipalities can help improve resilience by revising regulations to support and contribute to improved stormwater management and flood control. They should use an ordinance checklist to identify opportunities to strengthen their ordinances.

The checklist should include the following:

- Reduced impervious lot coverage and use of site-scale green infrastructure;
- Waterbody setbacks to limit development, defined as a set distance from the ordinary high-water mark of the Fox River, streams, lakes, and ponds, or the edge of wetlands;
- Waterbody buffers of native vegetation, which establish a minimum width of protected buffer strip along the edge of the Fox River, streams, lakes, ponds, and wetlands;
- Restoration of stream and wetland habitat, hydrology, and morphology on sites with degraded aquatic systems;
- Preservation, restoration, and/or creation of protected natural areas to reduce invasive species and enhance biodiversity;
- Tree protection, especially for mature oaks and oak ecosystems; and
- Dedicated open space and high quality, naturalized stormwater management within residential areas.

Figure 4.2. Comprehensive plan and ordinance assessments





KEY CONCEPTS: FLOODING IN A FLAT LANDSCAPE

The plan study area is located in the middle of the Fox River watershed, which flows from Wisconsin through Illinois, and encompasses the flattest section of the entire river. As a result, there is little elevation keeping river water within its banks and moving downstream. During a storm event that brings excess water into the river system, water quickly spill over its banks into river-adjacent properties and communities. As the region continues to see an increase in the frequency and duration of storms that bring recurring flooding, restoration and protection of wetlands and floodplains are critical steps to minimizing flooding within such a flat landscape. Healthy wetlands and undeveloped floodplains can act as sponges and natural barriers that hold back floodwaters from reaching developed areas.

Checklists help assess the performance of development ordinances and identify improvements to protect riparian areas and other natural resources. In 2013, CMAP conducted comprehensive plan and ordinance assessments for the City of McHenry and the Village of Prairie Grove (see Figure 4.2). Both communities should revisit their checklists and pursue revisions that have yet to be addressed. Johnsburg and Holiday Hills, should undertake the same kind of ordinance review. The county should also assess and continue to make improvements to their Stormwater Management Ordinance (SMO) given that this ordinance applies to unincorporated areas within the corridor.

Participate in FEMA's Community Rating System (CRS) program

The corridor can also strengthen ordinances and take on other resilience-building measures through the Federal Emergency Management Agency's (FEMA) CRS program. The program provides local governments with opportunities to achieve discounted flood insurance rates for residents by implementing various floodplain management practices that exceed the National Flood Insurance Program (NFIP) minimum requirements. Corridor communities should participate in the program, and McHenry County should improve its ranking. McHenry County is currently ranked as Class 7, which means unincorporated county residents receive a 5-15% reduction in flood insurance premiums.

The Association of State Floodplain Managers Flood Science Center developed a "Green Guide" of the most impactful elements for the CRS program.¹³ It includes co-benefits as well as success stories from other communities. For example, South Elgin has achieved CRS program success by conducting voluntary buyouts, using more stringent regulations than Kane County, cataloging protected open space, and acquiring additional open space from developers who donated land in the Special Flood Hazard Area.¹⁴

The 2021 addendum to the CRS Coordinator's Manual provides new opportunities to achieve CRS credits and prerequisites for certain CRS class rankings.¹⁵ McHenry County should explore these new credit opportunities for unincorporated areas. The county should also work with partners and use its flooding and flood protection web page to disseminate informational materials to municipalities about the CRS and the insurance premium markdowns it can provide when they invest in community-wide flood risk reduction strategies.¹⁶ The county can use these outlets to distribute educational materials about flood risk, flood insurance, floodproofing, and flood assistance as well.

Restore natural drainage areas and floodplains

As the region faces changing precipitation patterns and flooding challenges, municipalities should work toward restoring the natural drainage areas and floodplains within the corridor to build up its natural flood control functions. Protecting undeveloped land in floodplains through designated land use mapping changes and continuing to promote voluntary floodplain buyouts are two strategies that the county and corridor communities can take to improve flood control and restore natural drainage areas.

Municipalities can designate undeveloped parcels within wetlands and floodplains as public parks and recreation areas on future land use maps and pursue restoration projects to enhance flood protection and detention. The Village of Johnsburg is currently pursuing a project to restore aquatic shoreline and emergent wetland areas on village-owned land near Dutch Creek Bay to ensure continued natural flood protection. The CRS program rewards preservation of open space in the floodplain for flood control, so participating communities can improve their CRS class if natural drainage areas and floodplains are protected as open space. The NOAA Office for Coastal Management created a training tool to help communities calculate the credits that a community can earn for existing protected areas and identify unprotected land (e.g., undeveloped land in the floodplain or high quality habitat) that could qualify for credits if protected in the future.¹⁷



While protected open space makes up a large part of the floodplain in the corridor, residential properties account for 17.8% of the land within the 100-year floodplain. Acquisition of flood-prone properties (or “buyouts”) from willing sellers and conversion into open green space is another way to add natural flood control capacity while enabling homeowners to move out of flood-prone areas. The McHenry County Hazard Mitigation Plan, the Fox River Flood Commission Report, and other relevant plans and reports identify buyouts as one of the most effective tools for flood protection. Buyouts remove people and property from harm’s way, eliminate repetitive losses, and are less costly than providing protection through large-scale flood control infrastructure. In addition, removing development from the floodplain enhances its natural functions to hold and infiltrate floodwaters and reduce pollutants. Flood risk reduction through buyouts can also improve a community’s CRS class.

McHenry County has previously pursued voluntary floodplain buyouts with funding from FEMA’s Hazard Mitigation Grant Program, Illinois Emergency Management Agency (IEMA), and IDNR. County staff should continue to work closely with these government partners, all of whom provide financial or technical assistance through the buyout process. Municipal and county staff should also continue to engage with residents to better understand their needs and concerns around flooding and buyouts, as well as provide educational opportunities to help homeowners understand the advantages of participation.

Since buyouts are strictly voluntary, the county should encourage property owners who decide not to participate in the program to take risk reduction measures, such as elevating their home and floodproofing their basement. The county’s SMO outlines a handful of FEMA resources to help residents with retrofits and alternative mitigation measures. If properties do participate, and after properties are purchased and demolished, responsible agencies should identify short- and long-term maintenance strategies to ensure continued flood control. Early interventions are important to ensure that invasive species don’t establish themselves on recently cleared land.

Communicate existing flood risk to obtain flood mitigation funding

Communicating flood risk can empower communities to take control and work toward impactful stormwater management solutions. The McHenry County Hazard Mitigation Plan calls for the county or municipalities to seek a mitigation planning grant to identify repetitive flood loss areas and compile a comprehensive list of structures located in the county's floodplains, including critical facilities that potentially need flood protection. By creating Repetitive Loss Area maps and a list of interested property owners, the county can target areas of concern and higher risk for future buyout projects. Areas within the study area that are particularly at risk of riverine flooding and could benefit from this type of communication include residential developments around Griswold Lake, in Holiday Hills along the Fox River, and around Fox River inlets by Greening Road and Riverside Drive West. A list of targeted areas will be helpful for when funding does become available. The county and municipalities should also explore the following flood mitigation resources:

- FEMA Building Resilient Infrastructure and Communities (BRIC) program provides funding for mitigation planning, mitigation activities, and management
- FEMA Hazard Mitigation Grant Program (HMGP) funds hazard mitigation plans and projects, including buyouts and land acquisition for flood mitigation
- IEMA Flood Mitigation Assistance Program (FMA) administers a cost-share program (75% federal, 25% local match) through which communities can receive grants for the development of a comprehensive flood mitigation plan and the implementation of flood mitigation projects, including buyouts of repetitive loss properties
- Community Development Block Grants (CDBG) are available annually and can be used for flood mitigation acquisition projects as well as structural improvements that can lower insurance premiums, such as elevating mechanical equipment and providing proper flood openings
- Community Development Block Grants – Disaster Resilience (CDBG-DR) where a federally-declared disaster has occurred
- IDNR Open Space Lands Acquisition and Development (OSLAD) Program

Additional federal funding may become available in the near future. The Water Resources Development Act of 2020 directs the U.S. Army Corps of Engineers (USACE) to develop a feasibility study on flood risk management along the Fox River, which will likely identify flood mitigation projects and potentially open up funding. Federal stimulus funds may become available as well.

Invest in green and grey infrastructure

The county and corridor communities should integrate green infrastructure through capital improvement planning as well as encourage retrofits of private property. Green infrastructure has the potential to improve the flood control and stormwater systems of corridor communities while achieving co-benefits unavailable with gray infrastructure solutions. Bioswales, rain gardens, permeable pavement, green roofs, rainwater harvesting, green streets, and vegetated stream buffers are all green infrastructure practices that, when considered cumulatively, can reduce pressure on local stormwater infrastructure. They can also decrease the installation or replacement costs of grey infrastructure, improve air quality and public health, increase habitat diversity and property values, and enhance a community's visual image and identity.

Coordinating green and gray infrastructure solutions into public investments (e.g., streets, parks, schools, and public grounds and facilities) allows municipalities to leverage existing funding sources and reduce overall project costs while addressing flooding issues. Demonstration projects on public land such as city halls, municipal campuses, and street rights-of-way provide opportunities to educate residents about the value of green infrastructure. Resources for integrating green infrastructure into streets have also expanded in recent years. Delta Institute's Green Infrastructure Toolkit⁵ provides downloadable design templates as well as cost and maintenance estimates for right-of-way bioswales, rain gardens, and permeable pavement. National best practices in the National Association of City Transportation Officials' (NACTO) Urban Street Stormwater Guide⁶ can help retrofit and reconstruct roadways that promote safety and improved stormwater management.

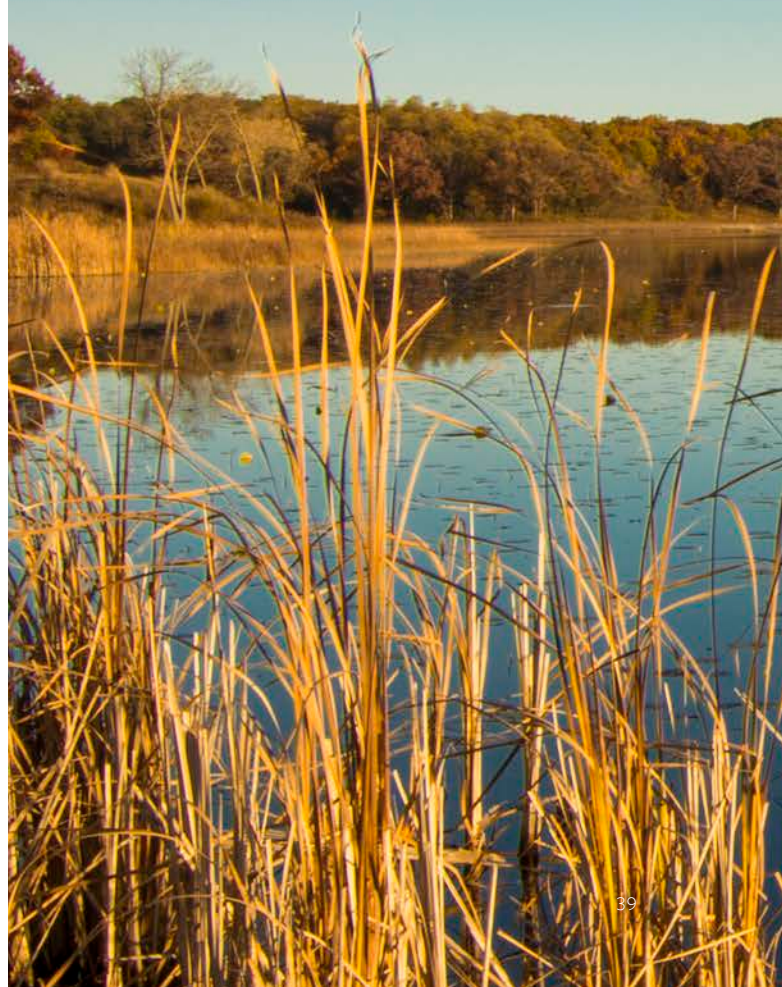
McHenry County and corridor communities should consider promoting best management practices on private land through education and outreach programs, development incentives (e.g., stormwater permit fee discounts, expedited permit review, zoning incentives) and financing assistance through rebates or cost-sharing programs. Kane County, for example, has a cost-share drainage program that provides technical and financial assistance to help homeowners in older subdivisions address flooding challenges.⁷ Similarly, DuPage County has a program that provides grants to individuals, organizations, and government agencies for up to 25% of eligible construction costs for regional water quality improvement projects including green infrastructure like rain gardens, permeable pavers, green roofs, wetland and riparian buffers, detention basin retrofits, and natural shoreline stabilization.⁸

Communities should pursue external funding opportunities to bolster capital and maintenance budgets and help offset the costs of green and grey infrastructure investments. The Illinois Environmental Protection Agency's (IEPA) Green Infrastructure Grant Opportunities (GIGO) Program funds green infrastructure installation as well as some design costs.⁹ IEPA Section 319(h) grants and 604(b) grants fund water quality management planning; Section 319(h) grants also fund BMP implementation, including conducting monitoring to measure BMP performance.¹⁰

Corridor communities should also consider adopting a stormwater utility that provides a more stable, long-term funding solution for supplementing public and private stormwater infrastructure. A growing number of communities throughout Illinois have adopted stormwater utility fees to fund capital and maintenance costs for both gray and green stormwater infrastructure. The county's Water Resources Action Plan (WRAP) is a great resource for corridor communities to learn about different utility fee structures, how to set up a fee, and the legal authority behind them.¹¹ There is also a CMAP report — The Value of Stormwater Utilities for Local Governments in the Chicago Region — that communities may find beneficial.¹²

CASE STUDY: VOLUNTARY FLOODPLAIN BUYOUTS IN THE FOX RIVER CORRIDOR

McHenry County's Water Resources Division used IDNR Hazard Mitigation Program grant funding to purchase seven structures on 20 properties in the Orchard Heights subdivision near Stickney Run Conservation Area in 2020. Once the structures have been demolished, the sites will be turned over to the McHenry County Conservation District (MCCD) and Nunda Township for long-term maintenance as open space.



4.2 Improve and protect water quality

The Fox River and its tributary streams and backwaters support a multitude of flora and fauna, their habitats, and a variety of recreational activities. Shallow aquifers provide the baseflow of the Fox River and streams, contribute water to wetlands, lakes, and ponds. Groundwater also serves as the primary drinking water source for communities throughout the corridor. The county, corridor communities, and other landowning and river management agencies can improve and protect the quality of the corridor's surface water with strategies through streambank stabilization, stormwater management and erosion control practices that reduce runoff at the source, as well as sustainable agricultural techniques. Similarly, the quality of the corridor's groundwater can be protected by reducing chlorides and promoting sensible salting strategies, strengthening local ordinances to protect recharge areas and wetlands, providing guidance on septic system maintenance to reduce leakage, supporting connections to community wastewater treatment systems whenever possible, and encouraging water conservation through regulatory amendments and incentives. Collective action within the corridor will help ensure sustainable and clean water resources for future generations.



Parking lot with permeable pavers

Source: Metropolitan Water Reclamation District

Improve stormwater management and erosion control

Stormwater runoff degrades water quality, erodes stream channels and shorelines, and contributes to flooding and property damage within the corridor. The county, corridor communities, and partner agencies should strive to improve surface water quality by reducing stormwater runoff and minimizing the erosion that's taking place within and upstream of the corridor. Employing green infrastructure BMPs, stabilizing shorelines, and applying sustainable agricultural practices are key strategies that can minimize sediment, chlorides, excess nutrients, and other toxins that enter and pollute the corridor's waters.

Green infrastructure BMPs are cost-effective ways to control and reduce runoff by using vegetation, soils, and natural processes to mimic natural functions and treat runoff at its source. BMPs capture rainwater onsite, slowing down the rate at which it flows into surface waters, as well as filtering pollutants accumulated in runoff. Bioswales, rain gardens, permeable pavement, green roofs, rainwater harvesting, green streets, and vegetated stream buffers are all BMPs that provide water quality and stormwater management benefits. See Recommendation 4.1 to learn how public and property owners can integrate BMPs into the landscape to improve surface water quality. As the county and corridor communities strengthen local ordinances (see Recommendations 3.2 and 4.1), they should also consider amending regulations to promote the installation of stormwater BMPs and mandate stream setbacks and vegetated buffers to further ingrain the benefits of these practices.

Even with improved stormwater management, shoreline maintenance will continue to be important for riverfront property owners. Shoreline erosion was identified as a significant problem during the plan's outreach phase. Streambank stabilization and other shoreline protection measures can help mitigate soil loss and associated negative impacts on water quality, flooding, habitat, water-based recreation and ultimately, the local economy.



CASE STUDY: IDNR SHORELINE STABILIZATION PROJECT SOUTH OF STRATTON LOCK AND DAM

IDNR is creating a plan to address shoreline erosion that is occurring within McHenry Dam State Park, below the Stratton Lock and Dam. The project would help control soil loss and sedimentation as well as provide more stable and improved access for fishing and the existing concessioner to rent row and paddle boats. Although plans are still in the works, it may have the potential to provide some space for tie-off anchors for boat access to the park.

Corridor municipalities should encourage developers and public and private landowners to invest in natural or bioengineered buffers along shorelines and repair failing seawalls. Best practices include maximizing the use of native vegetation and minimizing the use of riprap, using riprap revetments where structural shoreline protection is required in place of vertical bulkhead walls which can exacerbate flooding and erosion elsewhere, and planting buffers of appropriate native vegetation along shorelines.

Shoreline stabilization projects require permits from several different entities, including a joint permit between the USACE, IDNR Office of Water Resources, and IEPA, as well as a county general permit. The county should implement ways to educate and engage villages, homeowners' associations (HOAs), and waterfront property owners on best practices, potential partnerships, and how to navigate the permitting process. Stakeholders, including riverfront property owners and HOAs, should seek funding opportunities for streambank stabilization through cost sharing, Section 319 grants, and the Illinois Department of Agriculture Streambank Stabilization and Restoration Program.

Accumulated sediment in the Fox River is also harmful to water quality and aquatic habitat. The transport and build-up of sediment in a river system — also known as sedimentation — is a natural process; however, the rate at which it is occurring in the Fox River has been accelerated by development, human activity, and inadequate upland erosion control that is often exacerbated by more recurrent major floods. See Recommendation 5.2 for strategies to address sedimentation issues within the corridor and the Fox River watershed at large.

Upstream agricultural runoff is a significant source of sedimentation and excess nutrients in the Fox River. Corridor communities should partner with the McHenry-Lake County SWCD to promote sustainable agricultural management practices that conserve soils and protect water resources. Recommended practices may include integrated pest management, crop rotation, precision farming, grassed waterways of native prairie plants, streamside buffers, and animal grazing management, which aim to minimize the use of fertilizer, herbicides and insecticides, stabilize soils, and reduce nutrients in stormwater runoff.

Private landowners and renters can get started with these agricultural management practices through opportunities like the Illinois Department of Agriculture's (IDOA) Partners for Conservation program or financial and technical assistance programs through the USDA-Natural Resources Conservation Service (NRCS) and Farm Service Agency. McHenry-Lake County SWCD also has a cover crop cost-share program that covers 75% of the actual costs (or average cost) of the conservation practice for fields that have not been previously planted with cover crops.¹⁸ The Midwest Cover Crop Council has a cover crop decision support tool for public use as well.¹⁹

Enhance groundwater protection measures

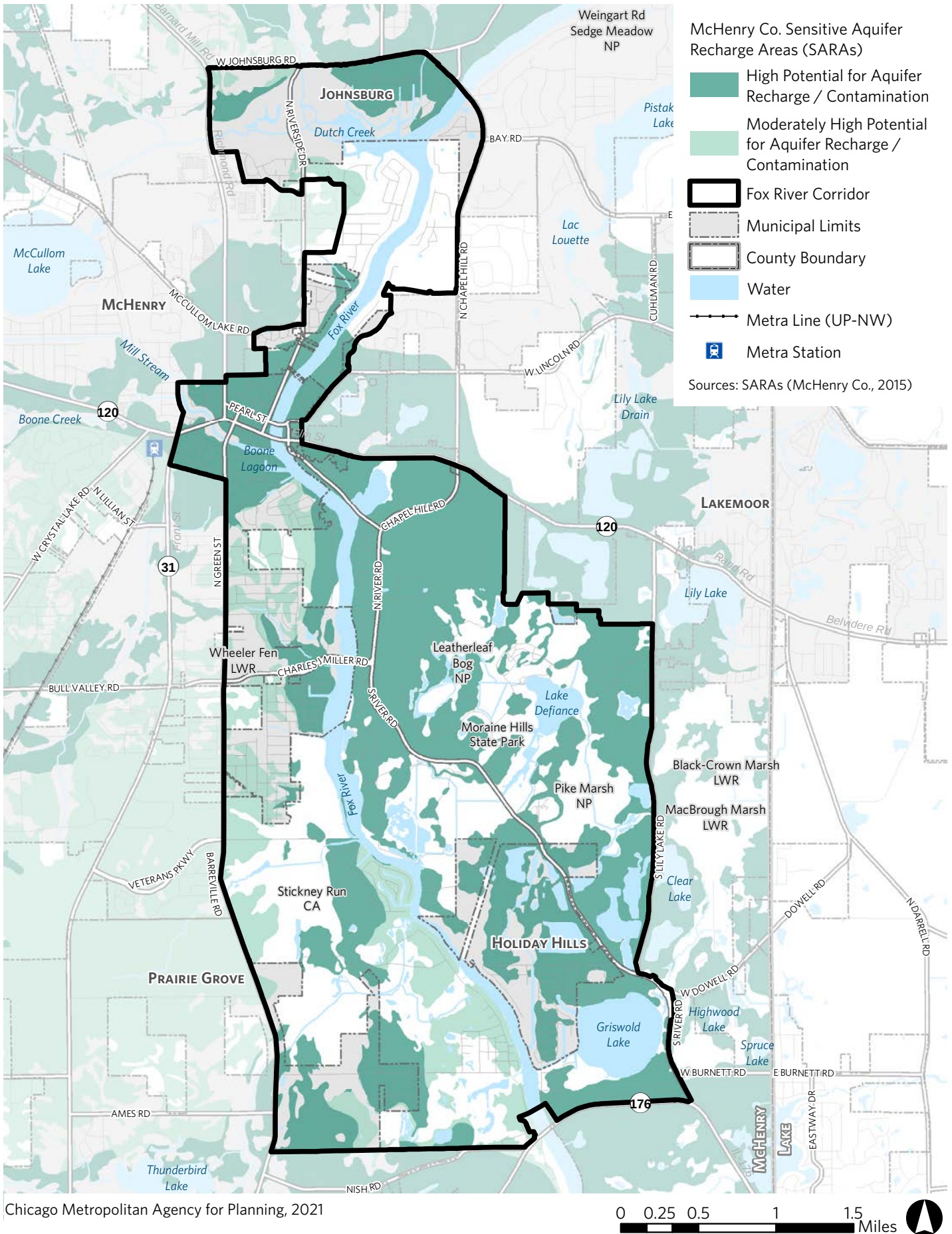
Protecting and managing the county's groundwater supply is essential for ensuring corridor communities have a sustainable and high-quality drinking water source as well as protecting the overall health of the Fox River. Although shallow aquifers are capable of providing clean sources of potable water, they rely on groundwater recharge and are sensitive to depletion, drought, contamination, and climate change impacts. Regulatory and non-regulatory measures should be taken at the county and municipal level to protect the quality and supply of the corridor's groundwater resources. Efforts should focus on water conservation and areas most susceptible to contamination and/or threatened by loss of recharge.

Communities should use McHenry County's Sensitive Aquifer Recharge Areas (SARAs) map to identify areas in need of groundwater protection.²⁰ SARAs are areas containing highly permeable soils and geology that promote groundwater recharge but are also susceptible to contamination. Figure 4.3 identifies key areas for groundwater protection and is intended to guide local land use planning decisions, assist watershed planning efforts, and support efforts to develop a countywide wellhead protection program and groundwater protection ordinance. The use of conservation design practices in new development and redevelopment projects can also help preserve these critical groundwater recharge areas.

KEY CONCEPTS: WHAT IS GROUNDWATER RECHARGE?

Recharge is the process by which rainwater or snowmelt infiltrates into the ground and resupplies aquifers. It becomes more challenging when development replaces natural ground with pavement, buildings, or other impervious surfaces. Projected increases in summer droughts and precipitation (in the form of rain, ice, and snow) in the winter and spring can also exacerbate these conditions, which could result in less aquifer recharge (and an increase in consumption) as well as elevated threats of runoff and chloride contamination, respectively.

Figure 4.3. McHenry County sensitive aquifer recharge areas



As of August 2019, the Illinois Pollution Control Board requires each community water supplier to develop a Source Water Protection Plan (SWPP) and submit that plan to the IEPA for review and approval.²¹ The purpose of this new requirement is to facilitate the protection of source water quality and quantity at the local level. Community water suppliers within the corridor should use this planning process to establish goals and determine which tools are most suitable for protecting the quality and supply of its drinking water source within the community.

As SWPPs are developed, community water suppliers should consider pursuing the following measures to protect their source water:

- Establish maximum setback zone ordinances in addition to the minimum setback zones that are required for public water supply wells. Municipalities can voluntarily adopt maximum setback zones that are up to 1,000 feet.²² This type of zone helps prevent contamination through siting restrictions, regulations on existing and new potential sources of contamination (including certain land uses), and community awareness of the zone's sensitivity to contamination. The IEPA has a maximum setback zone workbook²³ that can be used to determine if a community's well(s) is eligible as well as help define an appropriate distance for the zone.²⁴
- Develop a groundwater protection overlay district ordinance, which offers water quality protections from contamination over a broader area compared to a setback zone. These districts are often developed after identifying recharge areas or areas that are vulnerable to groundwater contamination. One local example is the City of Crystal Lake's Watershed District.²⁵ The city modeled groundwater and surface water interactions to determine how impervious development and contamination from on-site human activity, like an underground storage tank, would directly impact their water resources.
- Adopt a water conservation ordinance (or improve an existing one). Holiday Hills and Prairie Grove could benefit from adopting a water conservation ordinance like the Northwest Water Planning Alliance's (NWPA) model ordinance that promotes year-round lawn watering best practices that reduce outdoor water use. Johnsbury and McHenry could benefit from improving upon their existing ordinance to reflect all elements included in the NWPA model.
- Update development standards to encourage water-efficient development patterns, such as conservation-oriented and compact development (see Recommendation 3.2). These can also be tailored to minimize development intensity, impervious surfaces, and extensive grading to promote infiltration and groundwater recharge.
- Restrict or eliminate the use of coal tar sealants and other pavement sealants. These chemicals are high in polycyclic aromatic hydrocarbons, which are toxic to aquatic species and a known carcinogen to human health.²⁶
- Adopt ordinances for salt storage and handling, septic system testing and maintenance, and pet waste pick-up. (More information on septic system testing and maintenance is outlined in the following strategy.)

Municipalities should also incorporate sensible salting practices into road and parking lot maintenance operations during the winter season to reduce chlorides (see Figure 4.4). McHenry County offers sensible salting workshops and educational resources communities can use to instruct staff — as well as residents and businesses — on application rates, methods, and alternative anti-icing and de-icing products, such as mixtures with beet juice near ecologically sensitive areas.²⁷ These types of best practices can also be applied by the Illinois Department of Transportation (IDOT), McHenry County Division of Transportation (MCDOT), and townships within the study area. The county and corridor municipalities can also promote landscaping with deep-rooted native vegetation to increase infiltration and reduce the need for supplemental water as well as encourage (or require) the use of phosphorus-free lawn fertilizer.²⁸

Figure 4.4. “Why be salt smart?” infographic



Source: Salt Smart Collaborative, 2020

McHenry County has completed their 2020 update to the County Water Resources Action Plan, which can help guide municipalities and residents in implementing many of these strategies (see Figure 4.5).²⁹ The Plan aims to educate decision-makers from the county, municipalities, businesses, and individuals about water resources, the potential threats to those resources, and strategies and actions that could be taken to help protect or restore them. Communities can also develop a wellhead protection plan and recharge area management program to help with enforcement and implementation of water quality protection measures at the local level.³⁰

Figure 4.5. McHenry County Water Resources Action Plan

McHenry County Water Resources Action Plan 2020 Update



Prepared by:
Water Resources Action Plan Task Force
and
Department of Planning and Development

Source: McHenry County, 2020

Modernize wastewater infrastructure and operations

Wastewater infrastructure, including municipal collection sewers, pumping stations, and treatment plants, as well as on-site wastewater treatment systems (i.e., septic systems), can pose a threat to surface and groundwater resources if not properly operated and maintained. In an effort to protect the quality of surface and groundwater resources, the county and corridor communities should proactively help homeowners maintain degraded septic systems as well as optimize wastewater facilities and operations to curtail current and future water quality threats.

Septic systems are prone to leakage and overflows due to age and poor maintenance, allowing sewage to seep into the local water table and pollute shallow aquifers. Many of these properties are within the floodplain along the Fox River, making them even more susceptible to backups when groundwater levels are too high and/or drain fields are saturated with overflowing river water. Malfunctioning systems and unpermitted repairs or modifications can also cause groundwater contamination and pose a threat to private drinking water wells.

Corridor communities should strive to transition residents to a sanitary sewer system to alleviate the water quality concerns associated with septic systems. Septic system maintenance is the responsibility of individual property owners, some of which may not have the financial capacity or knowledge to keep their septic tank and drainfield functioning properly; whereas sanitary sewer system maintenance is the responsibility of the municipality or private utility, who comparatively is more equipped for detecting and addressing maintenance issues, such as leakage, than individual property owners.

The Village of Johnsburg invested in a sanitary sewer system and wastewater treatment plant in 2002 and has since been connecting residential properties that are on private septic systems to the Village's sanitary sewer system. Once the Village brings sewer lines into a neighborhood, residents have five years to connect and are given the option to pay for connection costs upfront or finance the amount on their sewer bill over a 20-year period.³¹ Cost has proven to be a barrier for some residents; however, the Village aims to reduce costs by seeking grant funding with the support of state representatives and working with multiple properties at a time to achieve economies of scale. Johnsburg should continue their efforts to move residents onto the Village's system.

Other communities in the corridor should consider Johnsburg's methods for investing in a sanitary sewer system and wastewater treatment facility or connecting to an existing system nearby. Holiday Hills is entirely on septic, and McHenry has a few neighborhoods on septic despite having a sanitary sewer system serving the majority of its residents. In July 2021, Holiday Hills agreed to partner with Northern Moraine Wastewater Reclamation District, which provides sewer connections to communities near the corridor, to extend their services into their community.³² Through this transition, the Village — as well as other communities still dependent on septic systems — should seek funds dedicated to help with connection costs and bringing sanitary sewers to communities, such as the State's CDBG for public infrastructure and IEPA's State Revolving Fund (SRF) program and the Unsewered Communities Construction Grant Program (UCCGP).³³ Communities should also seek partnerships with nonprofit organizations like the Fox River Study Group (FRSG) that could help expand funding opportunities as well as provide long-term data on Fox River water quality within the corridor (see Recommendation 5.4 for more strategies on improving data collection and sharing through collaboration).

Where transferring to the municipal sewer system is not possible, the county and corridor communities should communicate the importance of septic system maintenance and encourage regular testing and system upgrades. Replacing septic systems is expensive but can be delayed or avoided if systems are regularly inspected and maintained over time.



Source: City of McHenry

The McHenry County Department of Health (MCDH) should support increased septic system oversight, education, and maintenance efforts. The MCDH is responsible for responding to complaints regarding malfunctioning, unpermitted, or non-compliant onsite wastewater treatment systems. The WRAP notes several types of properties that would benefit from additional oversight and maintenance. These include unincorporated properties with antiquated systems that would not meet current standards or are subject to very shallow seasonal high groundwater influences and/or flooding, and areas where there is a high density of septic systems in highly permeable soils.

The county should also consider updating the county's Public Health Ordinance to include septic system maintenance requirements. The county can look to Wisconsin for guidance on maintenance requirements and standards. Both the state and counties have regulations, such as pumpage thresholds and regular inspection rates, to ensure proper septic system maintenance.³⁴ The county could work with the Illinois Department of Public Health, IEPA, and MCDH to assist with outreach and education, system upgrades, inspections, and enforcement.

For municipalities that do have a centralized wastewater treatment system within the corridor, the utilities and public works departments from these communities should partner with the FRSG to ensure that their systems are employing best practices in wastewater treatment, using the most up-to-date technologies, and optimizing treatment for reducing excessive nutrient loading to the Fox River. Wastewater treatment systems and their discharges are major contributors to the phosphorus found in the Fox River. The FRSG's Fox River Implementation Plan (FRIP) aims to create a 75% reduction in the Fox River's phosphorus levels by 2022. Corridor communities can become members of the FRSG to better understand the impacts of phosphorus on the river, seek assistance toward reducing phosphorus discharges, and improve overall system operations, while helping FRSG members achieve their overall goal to reduce phosphorus-related impairments in the Fox River.

4.3 Enhance diverse ecosystems

The Fox River is one of Illinois' greatest natural resources. It boasts diverse ecosystems that sustain native vegetation and wildlife, enhance water quality, aid flood mitigation, and promote recreational opportunities (see Figure 4.6). Land managers such as MCHCD, IDNR, and municipal parks departments have had success in protecting, restoring, and managing the corridor's ecological assets and should continue existing efforts. Still, there are opportunities to promote resilient ecosystems by prioritizing management action and open space acquisition and maximizing limited resources through enhanced coordination and innovative approaches.

Target green infrastructure management and expansion

The Fox River Corridor enjoys vast expanses of protected open space, floodplains, wetlands and fens, oak groves, and other high-quality habitats. Maximizing ecosystem services and healthy habitat provided by these natural areas requires ongoing management and restoration. This task is becoming ever more important due to constrained resources and climate change, which is expected to cause more flooding that can result in more aquatic invasive species getting washed into fens, wetlands, and riparian areas.

In addition to climate change, stakeholders identified habitat fragmentation as one of the greatest threats to the corridor's biodiversity and voiced the need to create and maintain landscape linkages to sustain biodiversity. Expanding the network of these natural areas through targeted acquisitions, easements, or other land conservation methods will benefit the ecosystems and the services they provide, including stormwater management, recreation, and economic prosperity.

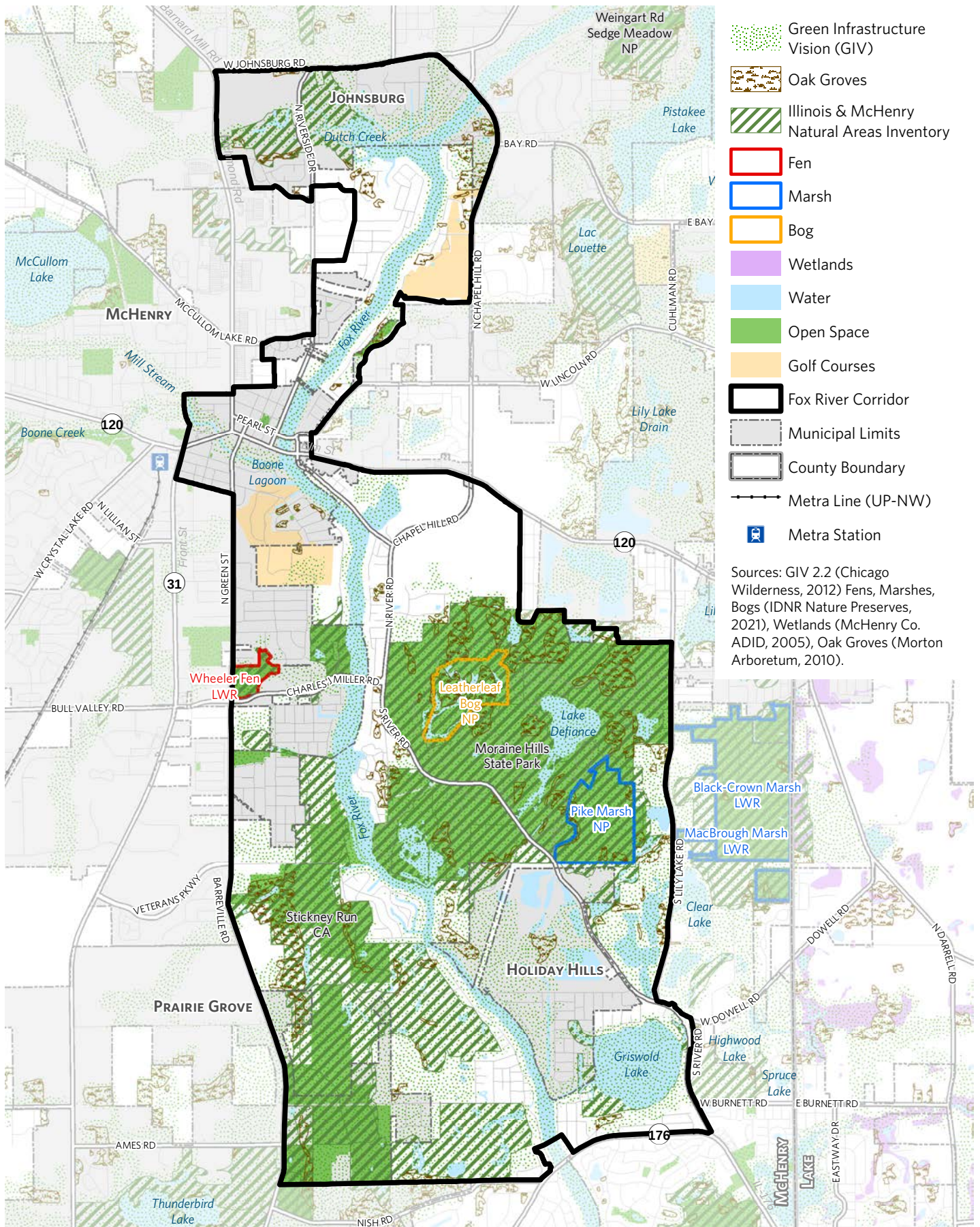
Municipalities, townships, and state and local land conservation organizations should use the McHenry County Green Infrastructure Plan and other natural resource inventories to prioritize open space management and acquisition.³⁵ Priority areas for restoring and expanding the green infrastructure network include (See Figure 4.6):

- Conservation, stream restoration, and wetland restoration opportunities identified in watershed-based plans for the Boone-Dutch Creeks and Silver-Sleepy Hollow Creeks watersheds.

- Unprotected lands that are contiguous to state parks and conservation areas, or in the Illinois Natural Areas Inventory or McHenry County Natural Areas Inventory that would expand existing protected areas. One specific opportunity that has been identified is the land between Moraine Hills State Park and Volo Bog State Natural Area. IDNR and partners should consider opportunities to acquire land to connect the two parks, including agricultural land northwest of Moraine Hills.
- Unprotected wetlands that are adjacent to a waterbody or that would connect protected wetlands (such as those surrounding Dutch Creek Bay and Griswold Lake), interspersed throughout the Stickney Run Conservation Area, and along the Fox River in Holiday Hills.
- Flood-prone property and undeveloped or vacant property within floodplains. Priority areas include vacant land in Holiday Hills and Dutch Creek Bay as well as residential properties interested in selling through voluntary "buyout" programs, including properties around Griswold Lake, the Fox River inlets by Greening Road and Riverside Drive West, and other unincorporated riverfront areas.
- Oak groves throughout the corridor.
- SARAs within the corridor (see Recommendation 4.2).

To further target management, open space administrators should use Illinois' Species in Greatest Need of Conservation inventory³⁶ and threatened and endangered species lists³⁷ to allocate resources that will improve the habitat of vulnerable species. Restoring wooded riverfront areas for rookeries is also critical to maintaining bird populations such as great blue herons, black crowned night herons, and great egrets. Similarly, restoration of wooded and pasture lands can benefit other wildlife that supply restoration and open space management dollars through hunting permit fees. To expand protection through land acquisition, communities and open space managers should partner with local watershed groups and organizations like the Land Conservancy of McHenry County (TLC) and McHenry County Conservation Foundation and pursue funding sources, such as IDNR's OSLAD program. See Recommendation 4.1 for more information on acquisition and protection strategies.

Figure 4.6. Green infrastructure and diverse ecosystems



Sources: GIV 2.2 (Chicago Wilderness, 2012) Fens, Marshes, Bogs (IDNR Nature Preserves, 2021), Wetlands (McHenry Co. ADID, 2005), Oak Groves (Morton Arboretum, 2010).

Chicago Metropolitan Agency for Planning, 2021



Maximize resources for management and restoration

Natural resources agencies have grappled with budget constraints in recent years, and due to further budget and capacity challenges tied to impacts of COVID-19, funding open space management and restoration may become more challenging. In an effort to maximize resources, communities and land managers should consider pursuing the following strategies:

- ***Collaborate with schools and active stewardship groups:*** Land managers, such as the MCCD and IDNR, should continue to collaborate with active stewardship groups within the corridor to leverage volunteer networks and accomplish management goals. The Friends of Moraine Hills State Park, Environmental Defenders of McHenry County, and Boone-Dutch Creeks Watershed Alliance are three organizations that offer volunteer opportunities and work with schools to promote environmental stewardship. See Recommendation 5.4 for a list of organizations that could serve as potential partners.
- ***Explore joint-management partnerships:*** Landowners and open space managers should explore joint management partnerships for ecosystems that span jurisdictional or park boundaries. This level of communication and coordination can help align management plans and activities.



Lake Defiance at Sunset, Moraine Hills State Park
Source: James Jordan, 2014, Flickr. CC BY-ND 2.0.

- ***Seek partnerships and grants that can increase and build staff capacity.*** Open space managers should pursue grants, such as IDNR's Illinois Natural Areas Stewardship Grant Program and the Community Stewardship Challenge Grant administered by the Illinois Clean Energy Community Foundation. Managers should also consider partnering with AmeriCorps and the McHenry County College to create stewardship positions that would help augment open space management staff.
- ***Pursue innovative approaches to invasive species management:*** One innovative approach to invasive species management is being employed by IDNR, who is leasing out IDNR land that is overgrown with invasive species to farmers. The land is cleared and put into agricultural production for several years, thereby improving soil conditions and preparing it for future native plantings. Municipalities and land managers at the state and local levels should work with the McHenry-Lake County SWCD to identify and target areas and farmers that could implement this approach in other areas within the corridor.
- ***Select resilient trees and vegetation:*** Land managers and municipalities can conserve resources as well as boost ecosystem resilience by selecting hardier native tree species and vegetation and practicing routine pruning. Native plants are often less resource intensive, require less maintenance to thrive, and more resilient to extreme weather and damage from severe summer and winter storms. Land managers in coordination with municipalities should also work with landowners to promote the management of private lands, particularly those near protected areas.
- ***Establish Class III Special Resource Groundwater designations.*** The county and corridor communities should work with IEPA to establish Class III special resource groundwater designation for Wheeler Fen on the west side of the Fox River. These designations provide additional resources through the Illinois Nature Preserves Commission to help protect groundwater recharge areas associated with groundwater dependent wetlands (fens) and other aquatic ecosystems.

Implementation Actions

Recommendation	Timeline	Lead and Partners
4.1 Increase resilience of flood-prone communities		
Strengthen local ordinances. The county and corridor municipalities should use an ordinance checklist to identify opportunities that strengthen ordinances and revise regulations accordingly to improve community resilience and contribute to improved stormwater management and flood control.	3-5 years	Corridor municipalities, McHenry County, environmental civic organizations
Participate in FEMA's CRS program. Communities should have planning and public works staff review the CRS resources and seek advice on the program and process from the county and nearby communities that are participating members. The county should revisit its CRS class and seek ways it can be improved, particularly in light new credit opportunities within the 2021 addendum.	0-2 years	Corridor municipalities, McHenry County
Restore natural drainage areas and floodplains. The county and corridor municipalities should acquire flood-prone properties through voluntary buyouts programs. Municipalities should designate municipally owned, undeveloped parcels in floodplains and wetlands as protected open space on future land use maps and update zoning codes accordingly. Municipalities should also seek partnerships and funding to restore the land's natural flood control qualities. <i>Funding:</i> IEMA Flood Mitigation Assistance Program, FEMA BRIC and HMGP, OSLAD	Ongoing	Corridor municipalities, McHenry County, MCCD, IDNR, IEMA, Fox River Flood Coalition
Communicate flood risk to obtain flood mitigation funding. The county and corridor municipalities should seek federal and state funding to identify and prioritize areas in greatest need of flood mitigation as well as implement flood mitigation projects. Stakeholders should identify and map repetitive flood loss areas and compile a comprehensive list of structures located in the corridor's floodplains. The Fox River Flood Coalition should help stakeholders acquire funding and take on this data collection effort. <i>Funding:</i> CDBG, CDBG-DR, FEMA BRIC and HMGP, IEMA FMA OSLAD, federal stimulus funds	0-2 years	Corridor municipalities, McHenry County, Fox River Flood Coalition
Invest in green and grey infrastructure. The county and corridor communities should integrate green infrastructure through capital improvement plans and encourage retrofits on private property. The county should consider developing a cost-share program similar to that of Kane and DuPage Counties. Municipalities can encourage retrofits through education and outreach programs and development incentives. Municipalities can also explore stormwater utility fees to support the capital and maintenance costs of stormwater infrastructure. <i>Funding:</i> IEPA GIGO Program, IEPA Section 319(h) and 604(b) grants, stormwater utility fees	Ongoing	McHenry County, corridor municipalities (including residents), MCCD, FWA, IDNR, and civic organizations
4.2 Improve and protect water quality		
Improve stormwater management and erosion control. The county, corridor communities, and partner agencies should employ green infrastructure BMPs, stabilize shorelines, and apply sustainable agricultural practices to minimize sediment, chlorides, nutrients, and other toxins that pollute the corridor's waters. <i>Funding:</i> McHenry-Lake County SWCD Cover Crop Cost-Share Program; IDOA's Partners for Conservation Program; IEPA GIGO and Section 319 programs; USDA-NRCS and Farm Service Agency's financial and technical assistance programs	Ongoing	McHenry County, corridor municipalities, IDNR, MCCD, FWA, McHenry-Lake County SWCD, USDA-NRCS
Enhance groundwater protection measures. Regulatory and non-regulatory measures should be taken at the county and municipal level to protect the quality and supply of the corridor's groundwater resources. Efforts should focus on water conservation and areas most susceptible to contamination and/or threatened by loss of recharge.	Ongoing	McHenry County, corridor municipalities, IDNR, MCCD
Modernize wastewater infrastructure and operations. The county and corridor communities should proactively manage degraded septic systems and optimize wastewater facilities and operations to curtail current and future water quality threats. <i>Funding:</i> IEPA SRF and UCCGP, US EPA Water Infrastructure Finance and Innovation Act program, CDBG for public infrastructure	3-5 years	McHenry County, MCDPH, corridor municipalities, private sewer utilities, FRSG, IDPH
4.3 Enhance and protect diverse ecosystems		
Target green infrastructure management and expansion. Maximizing ecosystem services and healthy habitat provided by these natural areas requires ongoing management and restoration. This task is becoming ever more important due to constrained resources and climate change. Expanding the network of these natural areas through targeted acquisitions, easements, or other land conservation methods will also benefit the ecosystems and the services they provide. <i>Funding:</i> Land and Water Conservation Fund, Illinois Natural Areas Stewardship Grant Program	Ongoing	McHenry County, corridor municipalities including City of McHenry Parks & Recreation and Public Works Urban Forestry Program, MCCD, IDNR, TLC
Maximize resources for management and restoration. Corridor communities and land managers should consider the following strategies: Collaborate with schools and stewardship groups; pursue innovative invasive species management approaches and joint-management partnerships; plant native vegetation; and establish Class III groundwater protection designations.	3-5 years	McHenry County, MCCD, IDNR, corridor municipalities, local watershed groups

Chapter 5

Collaboration, Education, and Engagement



Key Findings

Management of the river and supporting infrastructure is becoming progressively challenging. River management is becoming progressively more challenging given the complex relationship between the system's ongoing sedimentation issues, flooding, climate change, and the demand for water-based recreation. The Illinois Department of Natural Resources (IDNR), Fox Waterway Agency (FWA), and other partner agencies are striving to improve how the river is managed in light of these ongoing challenges.

Sedimentation limits recreational boating and safe navigation. The accumulation of sediment is most prevalent in narrow stretches of the river as well as bays, channels, and other backwater areas. The extensive land area in Illinois and Wisconsin draining to this section of the Fox contributes high loads of sediment, among other pollutants, via urban and agricultural runoff. Sediment degrades aquatic habitat and impedes recreational access for boaters and other river users. Projected increases in the frequency and intensity of rain events will increase the need for better stormwater management and erosion control.

Citizen groups are working to improve water quality. The corridor benefits from the actions and dedication of several citizen groups formed to protect the Fox River through education, stewardship, and advocacy. These groups include the Fox River Ecosystem Partnership, Fox River Study Group, Friends of the Fox River, Environmental Defenders of McHenry County, Northwest Water Planning Alliance, Sierra Club, Boone-Dutch Creeks Watershed Alliance, and Silver and Sleepy Hollow Creeks Watershed Coalition, among others.

There is a strong network of stewardship and management organizations. The active stewardship and management of open space within the corridor can be attributed to state and local agencies, conservation organizations, and community groups. Stewards and land managers pursue partnerships and collaborations to streamline maintenance responsibilities and apply cohesive management methods that work toward common goals.

Vision —

The Fox River Corridor will foster multi-jurisdictional collaboration that improves the health and management of the river, advances education and stewardship of community assets, and addresses watershed-wide stormwater challenges.

Recommendations

5.1 Support regional and bi-state efforts to address riverine flooding and sedimentation

5.2 Maintain river capacity through increased coordination and collaboration

5.3 Educate and engage the public as stewards of the corridor

5.4 Collaborate across jurisdictions and with stakeholder groups

5.1 Support regional and bi-state efforts to address riverine flooding and sedimentation

The IDNR, FWA, and other partner agencies should continue to pursue strategies that bolster ongoing coordination and collaboration as well as address regional issues at the watershed scale. Corridor communities should also support initiatives that are taking a more regional, system-wide approach to address flood risk, curb sedimentation, and mitigate flooding along the Fox River.

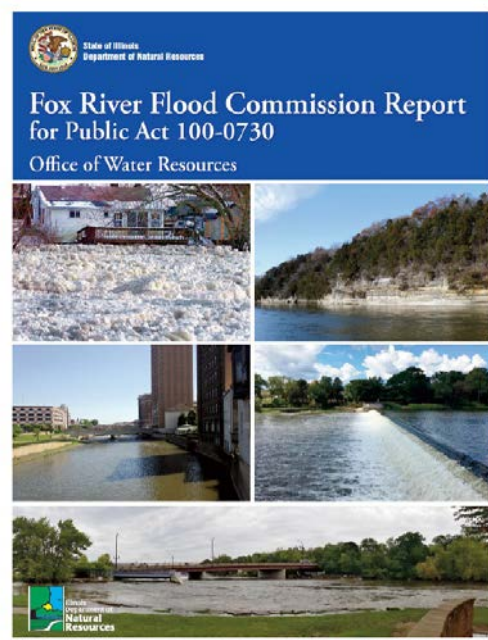
Convene the Fox River Flood Coalition

In 2018, the Flood Control Act of 1945 was amended in response to severe flooding along the Fox River that occurred in the summer of 2017. The amendment (Public Act 100-0703) created and charged the Fox River Flood Control Commission to study the extent of flooding and develop a structure for a long-term integrated flood management coalition.³⁸ This effort culminated in December 2019 with the Fox River Flood Commission Report and the Commission's commitment to convene a multi-jurisdictional group that would continue to address flooding issues along the Fox River (see Figure 5.1).

The FWA with support from IDNR, McHenry County, Kane County, and other Commission members, should convene the Fox River Flood Coalition using the structure outlined in the 2019 report. Together, the Coalition should work with stakeholders throughout the Fox River watershed to improve coordination and foster collaboration around common goals of minimizing, and cost-effectively managing, flooding along the Fox River. Collectively, the Coalition would be well-positioned to help prioritize projects as well as explore more sustainable funding streams and mechanisms, such as federal grants or a special purpose district, to support the necessary projects that will help minimize flooding impacts and improve the overall management the river system.

The Coalition should consist of representatives from municipalities, townships, and each county along the Fox River as well as representatives from the IDNR and the FWA. McHenry and Kane Counties should help the FWA garner participation among river-adjacent townships and municipalities as well as other entities that can help tackle the issues at hand. Stakeholders also expressed interest in annual public meetings to learn about the Coalition's progress.

Figure 5.1. Cover of the Fox River Flood Commission Report



Source: IDNR Office of Water Resources, 2019

Partner with the U.S. Army Corps of Engineers (USACE) to study system-wide watershed issues

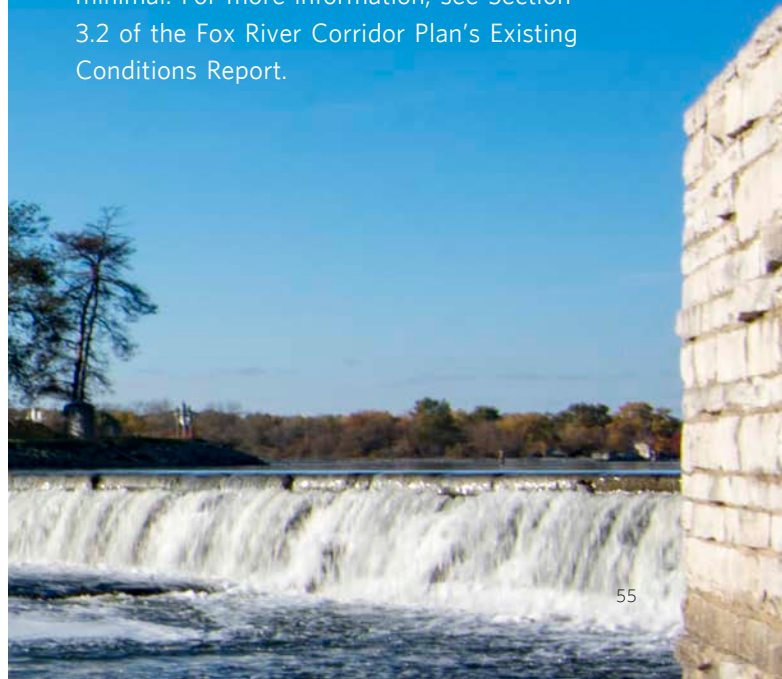
The USACE has jurisdiction over navigable waters of the United States and is not strictly bound to state boundaries, which makes the group a key stakeholder in successfully bringing regional and bi-state watershed-scale strategies to fruition. The IDNR and FWA should continue to request USACE assistance to address system-wide issues of riverine flooding and sedimentation. The FWA should also work with the USACE and IDNR to improve administrative processes that would enable them to readily restore shorelines as well as address sedimentation and navigational hazards within their jurisdiction in a timely manner.

In August 2020, IDNR's Office of Water Resources (OWR) requested the USACE Chicago District to conduct a feasibility study on sedimentation management through their Planning Assistance Study program to help address flood risk and mitigate flooding throughout the Fox River watershed. A similar study has been requested by state representatives and local partners, but at the scale of the bi-state Fox River watershed. Stakeholders should continue to support the public entities that are pursuing these studies.

In December 2020, the U.S. Congress passed the Water Resources Development Act (WRDA) of 2020.³⁹ The legislation gave the USACE authorization to pursue WRDA projects; however, budgeting and appropriations are still being finalized. If the USACE decides to pursue one of more of these projects, McHenry County, the FWA, and river communities should work closely with USACE to ensure the study is comprehensive in scope and considers all relevant data and input. They can also serve as the liaisons between USACE and local residents and provide project updates and solicit public input if requested. McHenry County, corridor communities, and the FWA should use this opportunity as a mechanism to improve regional coordination and garner support for future partnerships with USACE.

KEY CONCEPTS: STRATTON DAM OPERATIONS

Historically, the river and lakes system has not been the easiest to navigate by boat due to existing shallow conditions. In response, the Stratton Dam was constructed in 1939 followed by the construction of the lock in 1960. The facility is currently operated and maintained by IDNR's OWR as directed by the McHenry County Dam Act (615 ILCS 100). The Act requires that OWR regulate water levels within the Fox River and Chain O'Lakes to maintain a navigable water depth following guidelines set forth in the Operations of Stratton and Algonquin Dams (updated in 2012). Regulating flows and operating the dam may include opening its gates during storm events; however, the dam's primary purpose is to meet IDNR's directive to maintain navigable water depths. The OWR does not have the legal authority to operate the Stratton Dam in a manner that aims to prevent flooding — e.g., drawing down water levels in preparation of floodwaters — without a modification to the McHenry County Dam Act. It's also important to note that Stratton Dam was not designed for flood control and as a result, its ability to reduce flood level are minimal. For more information, see Section 3.2 of the Fox River Corridor Plan's Existing Conditions Report.



5.2 Maintain river capacity through increased coordination and collaboration

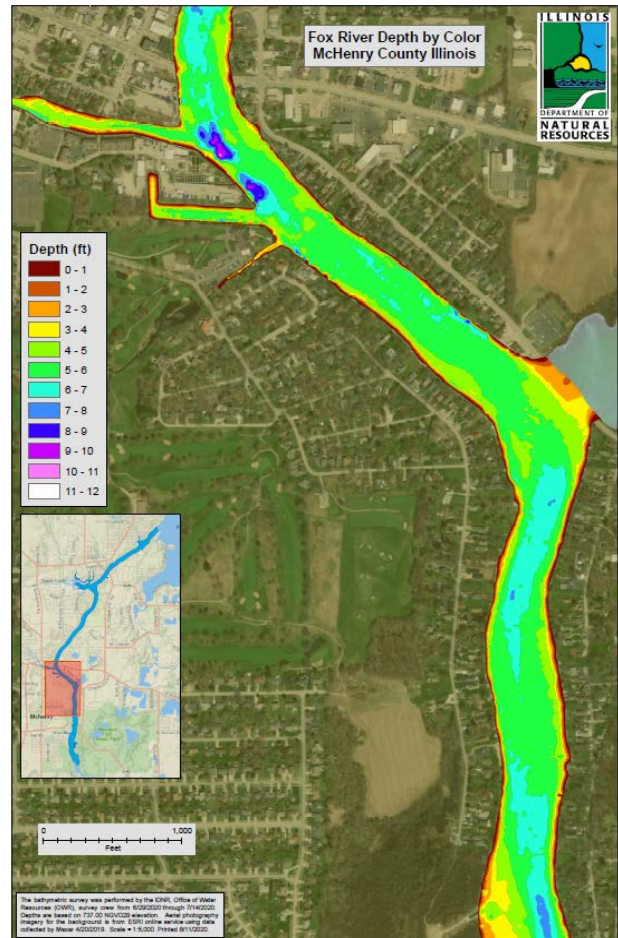
Climate change has been contributing to short-term drought conditions that lower water levels as well as an increase in the frequency and duration of storm events that cause reoccurring flooding and naturally raise water levels in the Fox River. At the same time, the rate at which sediment is building up in the river has been accelerated by development, human activity, and inadequate upland erosion control that is often exacerbated by more recurrent major floods. Sediment build-up becomes even more apparent during low flow conditions where river capacity is further limited. Despite these challenges, waterway managers need to continue working together and engaging with river users to ensure river capacity supports the local economy and river recreation while also ensuring the safety of riverfront communities.

Prioritize areas in most critical need with IDNR's modeling efforts

In October 2020, IDNR's OWR completed a bathymetric survey measuring the elevation of the river bottom along a 6.5-mile stretch of the Fox River, north of the Stratton Lock and Dam (see Figure 5.2).⁴⁰ The data collection effort is helping OWR better understand the flow of the river, including areas that may be impeded by accumulated sediment. The OWR is using the data to create a hydraulic model for the 6.5-mile stretch of the river that will be able to help identify the impacts different strategies (e.g., dredging, debris removal, and/or other channel modifications) may have on water levels. The OWR anticipates these efforts will be completed in 2021.

Once complete, the FWA should work with OWR to use the model and subsequent cost-benefit analyses to develop a three to five-year strategic plan focused on increasing river capacity and maintaining the waterways for recreational use. The plan may include a variety of strategies, such as dredging, stormwater management, and flood control projects. A strategic plan can communicate a greater sense of agency direction, guide annual budgeting, and function as a marketing tool when seeking sustainable and external funding sources. In addition to river capacity, identifying other co-benefits like water quality improvements could be beneficial as well.

Figure 5.2. Section of IDNR's 2020 bathymetric survey



Source: IDNR Office of Water Resources, 2020

Continue to monitor and communicate water level impacts

In an effort to address the fluctuations in water levels amid sedimentation and the variability in weather patterns caused by climate change, IDNR's OWR published a survey in April 2020 for businesses to communicate how they have been impacted by water levels in the Chain O'Lakes and the Fox River to the Algonquin Dam. Survey results will assist the OWR in determining the economic impacts various water levels, including conditions caused by sedimentation and flooding events that produce boating restrictions, have on businesses. IDNR's OWR should continue to monitor and work with river users and groups like the Lower Fox River Alliance that can help communicate the impacts water levels have on river communities. The FWA and boating groups should also work with OWR to communicate to the boating community the challenges associated with maintaining water levels under existing statutes and weather patterns.



CASE STUDY: PARTNERSHIP IN ACTION

The FWA has had success partnering with communities to remove sediment and share the cost of its removal. In 2018, FWA partnered with the City of McHenry to dredge sediment from Boone Creek. FWA removed the built-up sediments and McHenry handled the transportation and process of dredged material.

In an effort to further benefit the waterway and its users, the FWA is currently pursuing a different partnership model with Johnsburg, where the depositing and processing of sediments would take place on privately-owned land.

Promote local partnerships to improve dredging operations

Many stakeholders throughout the planning process voiced the need for increased dredging activities. However, dredging projects are costly and require land to deposit the dredged material or prepare it for sale. Although dredging is not the primary tool for stormwater management and erosion control (see Recommendation 4.2 for related strategies), supporting operations in close proximity to the river can make it a more cost-effective strategy that can supplement land management techniques and erosion control practices aimed at preventing soils from entering the waterway in the first place.

The FWA should continue to work with McHenry County and corridor communities to identify parcels that are suitable for depositing and processing sediment. This type of coordination and collaboration can improve FWA's dredging operations and capacity to take on more projects. It also serves as a strategic model for the corridor to help improve sediment management. The county and corridor communities,

as well as boating groups and environmental organizations, can also help the FWA engage and inform residents and landowners of the challenges associated with dredging projects alongside the benefits of processing sediment locally. Educational efforts could increase the number of suitable parcels and landowners willing to dedicate land to improving the corridor's sedimentation issues.

As dredging projects are pursued, the FWA should explore partnerships with the University of Illinois Extension and the McHenry-Lake County SWCD to assess the market and feasibility of a circular business model where the nutrient byproduct of dredging is sold to local farms and agriculture businesses and other private property owners within northeastern Illinois. Provided the dredged material is clean, it could support row crops and production of local food, while revenues from the byproduct would help cover excavation and drying costs on newly dredged material. Pursuing available state and federal grant incentives will help promote the sustainability of the business.

PUBLIC OUTREACH HIGHLIGHT: INTEREST IN EDUCATIONAL MATERIALS ON FLOODING AND FLOOD MANAGEMENT

Throughout the planning process, stakeholders expressed a need to inform corridor residents and visitors about flood risk and management. Educational materials that outline the causes of flooding, ongoing mitigation efforts, and personal flood risk reduction strategies can benefit corridor communities. Additional information about river dynamics, the elevation of the river, and causes of sedimentation can give residents a better understanding of the river system and how they can play a role in reducing river flooding.

5.3 Educate and engage the public as stewards of the corridor

An educated and engaged public is the foundation for protecting and preserving the corridor's economic, recreational, and ecological assets. Stakeholders expressed the need to educate river users and inform landowners about the threats facing the Fox River Corridor as well as increase opportunities to build local capacity and become local stewards. Local governments, open space managers, and civic organizations should work together to increase public awareness of corridor-specific pressures and challenges as well as promote existing educational and outreach programs that respond to the needs of the corridor. Many of these entities already implement outreach activities that can benefit from increased collaboration and promotion of their programs among residents and visitors, riverfront property owners, boaters, and other river users alike.

Build stewardship capacity through education and outreach

Local governments and civic organizations should work together to bolster and distribute educational materials on the threats facing the corridor to help local stakeholders develop a better understanding of the issues at hand and the role stakeholders have in shaping the corridor's future. Municipalities, local chambers, business as well as neighborhood groups and HOAs should consider featuring educational materials through their websites, social media, and newsletters. Tabling at public events and outdoor fairs can also be an effective avenue through which the concerns and challenges can be shared with the public.

Stakeholders suggested additional education and outreach strategies, such as the use of mobile apps and distribution of educational placements to local restaurants. Apps could help people learn the difference between native and invasive plant species and promote other citizen science efforts. Placemats could feature information on the significance of the Fox River Corridor and stewardship best practices. Signage in strategic areas can also help the public become more aware of the corridor's history, culture, and assets while also functioning as a tool for placemaking and wayfinding. See Recommendation 6.1 for more signage strategies.



Promote stewardship and volunteer opportunities

McHenry County and corridor municipalities, natural resources agencies, and civic organizations should work together and promote educational resources, programs, and campaigns, as well as volunteer opportunities to increase local stewardship and capacity. Efforts should be targeted at youth, private landowners and businesses, river users, and the general public within the corridor.



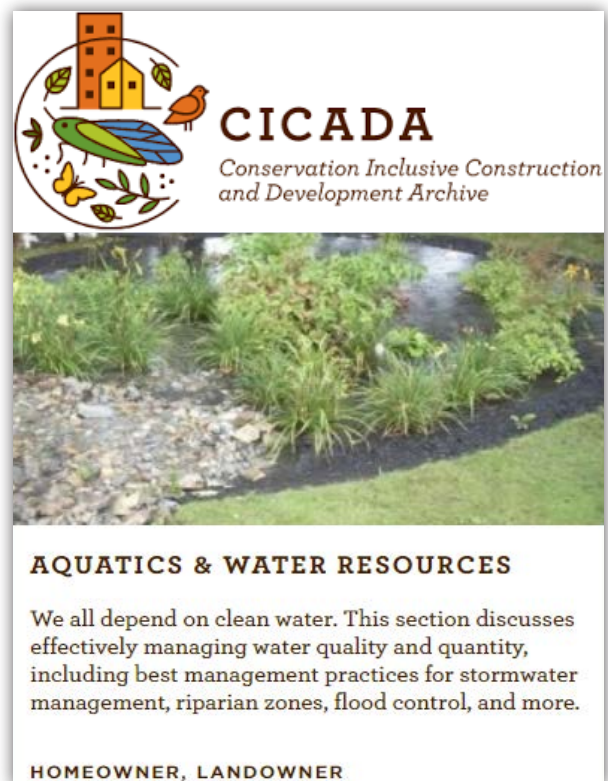
Citizen science education with the Friends of the Fox River
Source: Friends of the Fox River, 2021.

Youth: Engaging students through environmental education and volunteer events can encourage young people to become lifelong stewards. Schools should consider incorporating education and outreach opportunities and resources into their curriculum. Friends of the Fox River (FOFR) has an outdoor education program — Stewards of their Streams — that engages students and the general public in water quality monitoring and hosts a variety of volunteer cleanup activities.⁴¹ Similarly, McHenry County leads the McHenry County Schools Environment Education Program that provides environmental education to students, youth groups, teachers, and parents. Environmental Defenders of McHenry County also hosts a variety of educational events and supports local school environmental clubs. They even offer three annual environmental scholarships for local high school students.⁴²

Private landowners and businesses: Individual private landowners can have an important role in preserving open space, protecting sensitive ecosystems, and improving habitat connectivity and water quality. Investing in native vegetation, installing filter strips, restoring streambanks, and purchasing low-impact home and garden products are just some of the actions that private landowners and businesses can take to become better stewards. There are multiple resources that communities can share to help implement landowners with these actions:

- IDNR's recently launched website, Conservation Inclusive Construction and Development Archive (CICADA), provides a wide variety of resources for landowners and homeowners that walk through how to manage land to protect natural resources and improve wildlife and habitat connectivity (see Figure 5.3).⁴³ The streambank and shoreline protection guides and resources on rain gardens and stormwater management would be particularly helpful for corridor homeowners.

Figure 5.3. Example of the resources within the CICADA



Source: Illinois Department of Natural Resources

- TLC coordinates the Conservation@Home and Conservation@Work programs (initially started by the Conservation Foundation), which encourage the use of native plants on residential yards, business properties, and campuses, protection and restoration of natural areas, promotion of good water resource practices such as rain barrels and rain gardens, education of landowners on how to improve habitats, and provision of a visible sign of good conservation design and implementation.⁴⁴
- Other existing programs include Illinois-Indiana Sea Grant's Natural Lawn Care Initiative⁴⁵ and the Salt Smart Collaborative⁴⁶ for sensible salting practices that residents and businesses that hire private contractors can employ.

In addition to existing resources, municipalities can promote the use of conservation easements or land donations to protect sensitive areas like private wetlands. TLC has worked with landowners throughout McHenry County through their conservation easement program.⁴⁷ They can also encourage action through rebate or cost-share incentive programs that help cover the upfront costs for landowners. See Recommendation 4.2 for strategies and funding opportunities for private landowners to address stormwater management and streambank erosion.



Certified Conservation@Home property owner near Moraine Hills State Park

Source: The Land Conservancy of McHenry County

River users: Marina operators, boaters, and other river users play an important role in protecting the health of the Fox River. The FWA, IDNR, and municipalities can promote the following programs and campaigns to encourage river users to become better stewards of the corridor:

- IDNR's Coastal Management program manages a Clean Marina Initiative to encourage marina operators and recreational boaters to adopt practices that protect coastal water quality.⁴⁸ Illinois' program recommends practices for operations and maintenance, stormwater management, vessel maintenance and repair, waste management, and aquatic invasive species awareness that are important to inland waters like the Fox River. Counties, municipalities, open space managers, chambers of commerce, and other entities should draw on the Illinois Clean Marina Guidebook to foster positive change among businesses and river users.
- "Be a Hero, Transport Zero" is an outreach campaign from Illinois-Indiana Sea Grant and IDNR aimed at reducing the spread of aquatic invasive species.⁴⁹





In addition to existing programs, the county, IDNR, state representatives, and other stakeholders should also consider developing a program to encourage the electrification of motorized boats on the waterway to reduce gasoline and noise pollution. For example, New York launched a program that provides targeted investment and incentives to encourage such a transition among rental boat companies.

General public: Multi-jurisdictional groups and environmental advocates within the corridor have long offered volunteer opportunities for residents and visitors that support conservation efforts in protected areas, such as cleaning up litter, removing invasive species, conducting water quality sampling, and other activities. FOFR organizes an annual “It’s Our Fox River” Days in different communities along the river that serve as opportunities for celebration, education, and river clean-ups, while other groups like Environmental Defenders of McHenry County and Friends of Moraine Hills State Park host regular volunteer workdays.

Public agencies and stewardship groups should advertise volunteer opportunities and increase participation, particularly with communities that are under-represented in natural resources protection. Potential recruitment opportunities could take place at Moraine Hills State Park, which hosts a variety of events, and McHenry Dam State Park, which attracts many visitors every year for fishing and picnicking.

5.4 Collaborate across jurisdictions and with stakeholder groups

Water, habitat, and other natural resources do not obey jurisdictional boundaries. Creating and maintaining a healthy river ecosystem with high quality water requires coordination and collaboration across state, county, township, municipal, and district lines. This coordination will continue to play an important role in building resilient communities in the face of climate change. The Fox River Corridor boasts several civic groups and environmental advocacy organizations that should be leveraged to advance its goals.

Support existing cross-jurisdictional groups

State and local governments should continue to support existing cross-jurisdictional organizations through collaboration and partnerships, meeting participation, and data and information sharing. Collaboration among these organizations provides opportunities to leverage limited economic resources, avoid duplication of work, and scale up best practices to maximize impact across the corridor and Fox River watershed as a whole. These include:

Fox River Ecosystem Partnership (FREP) convenes a broad set of stakeholders to advance restoration and educational goals, including improving water quality. The Southeast Fox River Partnership in Wisconsin, in collaboration with FREP, has been convening the annual Fox River Summit since 2013 to increase collaboration and data and information sharing across the watershed in Wisconsin and Illinois. The county, corridor communities, and other stakeholders should continue to engage in efforts to increase collaboration across state lines to improve water quality.

Fox River Study Group (FRSG) is a coalition focused on improving water quality throughout the watershed. The group formed in 2001 to prepare a Total Maximum Daily Load (TMDL) study on the river and has since developed the FRIP — a “watershed-based” implementation plan for the Fox River from the Stratton Lock and Dam to the confluence with the Illinois River. FRSG implements the plan by regularly conducting water quality monitoring and modeling, tracking municipal actions, reporting progress to IEPA, and supporting stakeholder engagement.

Fox Valley Sustainability Network brings together public and private sector stakeholders to work on various issues and projects in the Fox Valley surrounding green infrastructure, water, waste, transportation, economic development, energy, and food.

Friends of the Fox River (FOFR) is dedicated to preserving, protecting, and restoring the Fox River watershed. In addition to advocacy and volunteer clean-up activities, FOFR engages students and the general public in water quality monitoring. FOFR is well equipped to partner with corridor communities and support stewardship and environmental education activities.

Northwest Water Planning Alliance (NWPA) is a voluntary coalition of communities and county governments planning for and managing a sustainable water supply in the Fox River watershed. The county and corridor communities should take advantage of their sensible salting and outdoor water conservation resources as well as coverage of current water supply and water quality issues and best practices.

Watershed groups that are active within the corridor include: Silver and Sleepy Hollow Creeks Watershed Coalition (SSHCWC), Boone-Dutch Creeks Watershed Alliance, (BDCWA) and the McHenry County Watershed Roundtable. See the *Enhance watershed planning* strategy below for more details.

Enhance watershed planning

Watershed planning plays an important role in improving and protecting water quality and other resources throughout the corridor. Watershed-based plans develop strategic recommendations to help restore polluted waters and protect and maintain the quality of clean or threatened waters. The Silver-Sleepy Hollow Creeks and Boone-Dutch Creeks watershed-based plans provide coverage across the west side of the corridor; however, the east side could benefit from one or more watershed-based plans. Corridor communities and multi-jurisdictional organizations should work together to develop plans for the remaining half of the C\corridor. Collaboration is also important for the implementation of these plans because the recommended actions often cross jurisdictional boundaries. Watershed groups will often form following the completion of watershed plans to assist with implementation.

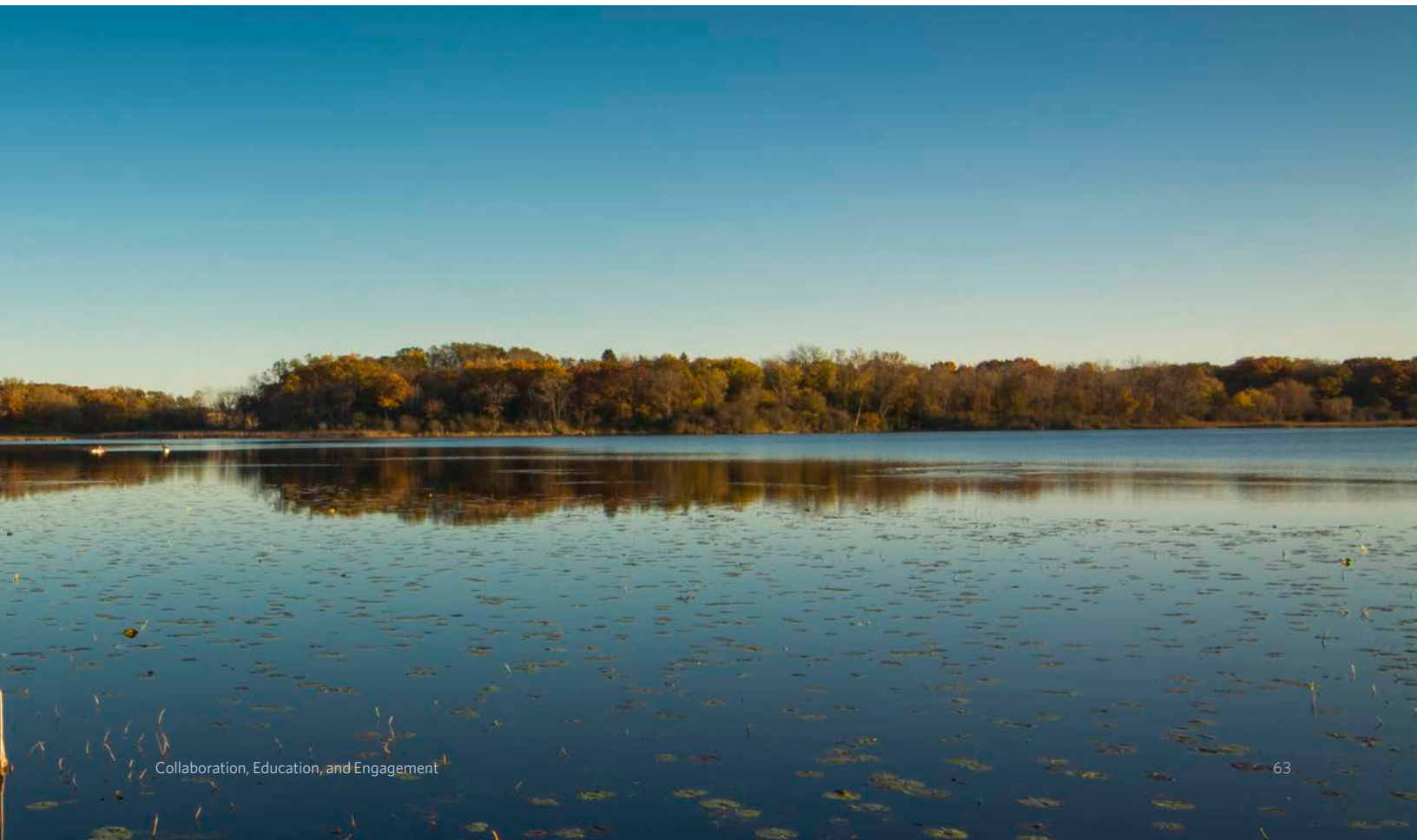
The county, corridor communities, and other stakeholders should participate in existing watershed groups, such as the SSHCWC and the recently reactivated BDCWA, to implement watershed-based plan recommendations, conduct monitoring, and stay up to date on funding opportunities and educational resources. Local governments should also participate in recurring meetings and contribute to data and information sharing in support of groups like FREP, FRSG, and the McHenry County Watershed Roundtable that advance watershed planning and implementation within the Fox River watershed. McHenry County may also consider taking a more active role in the FRIP.

Improve data collection and sharing efforts

Obtaining and sharing data on water quality and flooding is important for understanding and addressing the myriad challenges facing the river. There are multiple agencies and organizations collecting, monitoring, and disseminating data that could benefit from increased coordination and collaboration. There are also opportunities for residents to help improve data collection and monitoring in the corridor as well.

FRSG conducts water quality monitoring at several gages and monitors the region's progress toward the Fox River's water quality goals as outlined in the FRIP. FRSG currently partners with the U.S. Geological Survey (USGS) and IDNR to operate a continuous probe of the Fox River at the Stratton Lock and Dam that provides real-time measurements of water temperature, pH, conductivity, chlorophylls, turbidity, and dissolved oxygen.

As FRSG starts to develop an updated FRIP (due to IEPA by December 2022), the organization and participating community partners should explore the possibility of expanding the study area northbound to improve water quality data sharing within the corridor. Currently, the FRIP study area — and FRSG's modeling efforts — only extends as far north as the Stratton Lock and Dam. There are several USGS gages north of the dam, including at Charles Miller Bridge in McHenry, in Johnsburg, and in the Chain of Lakes.



The FRSG's monthly water quality monitoring effort includes the Johnsbury location at the Chapel Hill Road bridge. Additional monitoring at other USGS gages could be initiated, thereby strengthening modeling efforts that can bolster the FRIP as well as help monitor other projects and initiatives that are impacted by water quality and flooding. For example, the gage at the Charles Miller Bridge was deployed in partnership with MCDOT to monitor water levels to ensure bridge clearance and safety. Roadway agencies should use USGS and FRSG water level data to inform planning and decision-making. FOFR also provides volunteer monitoring training for residents and students. Educating local residents and stakeholders can increase monitoring capacity within the corridor.



FRSG water quality monitoring
Source: Fox River Study Group, 2016

Corridor municipalities and other government entities at the county, state, and federal levels should also increase data collection efforts to better understand and communicate flood risk to vulnerable communities. Agencies should establish a data-sharing agreement that could improve flood mitigation planning and response along the Fox River. For example, a municipality could work with IDNR and the National Weather Service to document various flood levels, such as flooding of the roadway, basement, or main living area, and relate it to the nearest river gauge data to improve the flood alert system for residents and businesses. Residents that live in flood-prone communities may also want to consider forming a flooding action group. Organizing a group with this specific focus can help empower residents and other community members to take control over their situation and reduce their flood risk. These groups provide a structure for the community to record and communicate problems, discuss flooding causes and solutions, and engage with government and non-governmental organizations.

Explore opportunities for coordinated investment

As local governments face constrained resources and rising costs, municipalities can work together on creative ways to deliver public services more efficiently through shared services and coordinated investment opportunities. Corridor communities looking to collaborate in this way should take advantage of the McHenry County Municipal Partnering Initiative (McMPI). For example, the City of McHenry currently participates in group procurement opportunities with McHenry County and other communities through this initiative, which has enabled them to put out joint bids for public works projects like street sweeping, sewer lining, and televising. McHenry County's local government collaboration webpage is also a useful resource that lists updated joint purchasing as well as current grant opportunities within the county.⁵⁰ The McHenry County Coordinated Investment Study outlines additional recommendations for local government coordination.

Implementation Actions

Recommendation	Timeline	Lead and Partners
5.1 Support regional and bi-state efforts to address riverine flooding and sedimentation		
Convene the Fox River Flood Coalition. The FWA with support from IDNR, should convene the Fox River Flood Coalition using the structure outlined in the 2019 report. McHenry County, corridor communities, and other Fox River Flood Commission members should participate.	Immediate	FWA, IDNR, Fox River Flood Coalition, McHenry County, corridor municipalities
Partner with USACE to study system-wide watershed issues. The IDNR and FWA should continue to request USACE assistance to address system-wide issues of riverine flooding and sedimentation. FWA should collaborate with local state representatives to garner USACE support. McHenry County and corridor communities should support the study and assist the FWA and IDNR in data collection efforts.	0-2 years	FWA, IDNR, USACE, local state representatives, corridor municipalities
5.2 Maintain river capacity through increased coordination and collaboration		
Prioritize areas in most critical need with IDNR's modeling efforts. The IDNR OWR should work with the FWA to conduct a cost-benefit analysis to compare the impact different sedimentation and stormwater management strategies (e.g., dredging, debris removal, and/or other channel modifications) will have on water levels. The FWA should use the analysis to develop a five-year strategic plan focused on increasing river capacity and maintaining the waterways for recreational use.	0-2 years	IDNR, FWA
Continue to monitor and communicate water level impacts. The IDNR OWR should continue to monitor and work with river users to better understand the safety and economic impacts water levels have on river communities. The FWA and boating groups, like the Lower Fox River Alliance, should also work with OWR to communicate the challenges associated with maintaining water levels under existing statutes and data limitations to the boating community.	Ongoing	IDNR, FWA, boating groups
Promote local partnerships to improve dredging operations. The FWA should continue to work with McHenry County and corridor communities to identify parcels that are suitable for depositing and processing sediment. The FWA should expand partnerships to include agriculture and farming entities that could profit from recycled soils.	3-5 years	FWA, corridor municipalities, McHenry County, McHenry-Lake County SWCD
5.3 Educate and engage the public as stewards of the corridor		
Build stewardship capacity through education and outreach. Local governments and civic organizations should work together to bolster and distribute educational materials on the threats facing the corridor to help local stakeholders develop a better understanding of the issues at hand and their role stakeholders have shaping the corridor's future. <i>Funding:</i> IL Clean Energy Community Foundation's Natural Areas Program Grants ⁵¹	Ongoing	MCCD, IDNR, FREP, Environmental Defenders of McHenry County, City of McHenry Parks and Recreation, TLC, and other civic organizations
Promote stewardship and volunteer opportunities. McHenry County and corridor municipalities, natural resources agencies, and civic organizations should work together and promote existing educational resources, programs, and campaigns, as well as volunteer opportunities to increase local stewardship opportunities and capacity. Efforts should be targeted at youth, private landowners and businesses, and river users within the corridor. <i>Funding:</i> IL Clean Energy Community Foundation's Natural Areas Program Grants, Illinois Natural Areas Stewardship Grant Program ⁵²	3-5 years	McHenry County, corridor municipalities, MCCD, IDNR, TLC, FREP, FRSG, Environmental Defenders of McHenry County, and other civic organizations
5.4 Collaborate across jurisdictions and with stakeholder groups		
Support existing cross-jurisdictional groups. State and local governments should continue to support existing cross-jurisdictional organizations through collaboration and partnerships, meeting participation, and data and information sharing.	Ongoing	McHenry County, corridor municipalities, FRSG, FREP, FVSN, FOFR, NWPA, and other relevant stakeholders
Enhance watershed planning. The county, corridor communities, and other stakeholders should participate in watershed planning groups to help implement watershed-based plans, conduct monitoring, and stay up to date on funding opportunities and educational resources. Stakeholders should also work together to develop watershed-based plans for the remaining half of the corridor.	Ongoing	BDCWA, SSHCWC, other watershed groups, McHenry County, corridor municipalities, FRSG, FREP
Improve data collection and sharing efforts. As the FRSG updates the FRIP, the group should consider expanding the study area northbound to improve water quality data sharing within the corridor. Corridor municipalities and other government entities should assess how existing data collection efforts could be used to better understand and communicate flood risk to vulnerable communities.	3-5 years	Corridor municipalities, McHenry County, FRSG, USGS, IDNR
Explore opportunities for coordinated investment. Corridor municipalities and townships interested in collaborating through joint purchasing and coordinated investments should participate in the McMPI. Corridor communities should regularly check the McMPI webpage for current grant opportunities within the county.	0-2 years	Corridor municipalities, McHenry County

Chapter 6

RECREATION



Key Findings

Public river access is limited throughout the corridor. A significant portion of the corridor's riverfront is privately owned and the public access points that do exist are not well marked and can be difficult to find. Multiple stakeholders would like to see more public access to the river and the river's edge in the form of improvements to existing access points and the addition of new ones. Given the diversity of river users, this translates to marinas, boat and kayak launches, as well as riverfront parks and open space.

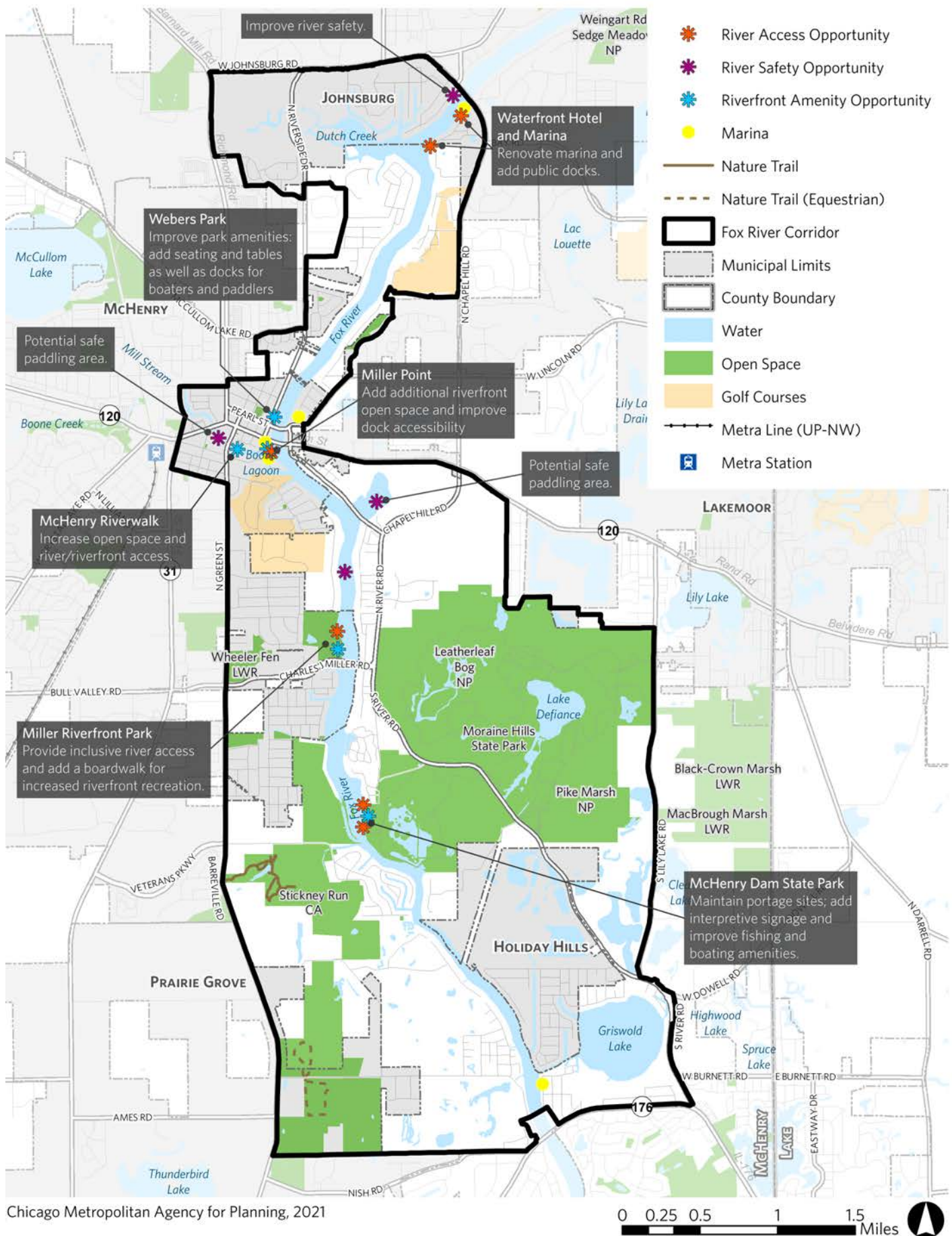
There are opportunities to improve and expand recreational amenities and programming within the corridor. While the Fox River has always attracted visitors from throughout the region, there is potential for its parks and green spaces to serve people through increased programming like music festivals and educational visits and amenities such as park benches, shelters, informational signs, and food vendors.

There is a need for increased safety among all river users. Providing more opportunities for recreation in and out of the water will require special considerations to ensure the safety of all users. During the boating season, the river can be overwhelmingly crowded. Stakeholders expressed a need for increased safety among all river users if river access or diverse recreational opportunities also increase over time.

Vision —

The Fox River Corridor will offer ample recreation opportunities through new and improved amenities while also balancing the protection of natural resources and increasing safe and convenient access to, from, and on the river for everyone.

Figure 6.1 Recreation opportunities plan



Recommendations

6.1 Enhance river access and amenities

6.2 Improve safety for all river users

6.1 Enhance river access and amenities

Parks and open space throughout the corridor offer ample opportunities to expand recreational options and river access for residents, visitors, and educational programming. Throughout the planning process, stakeholders voiced a desire to improve access and amenities that bolster existing activities and accommodate a wider range of river users, including anglers, birders, paddlers, bicyclists, and hikers. Some improvements like the installation of educational and wayfinding signage could be a relatively small effort, while others like the creation of an interpretive center or a new canoe and kayak launch, will require more planning and funding. To achieve the corridor's conservation, recreation, and safety goals, it will also be important to consider the impact recreation amenities and enhancements will have on the environment as well as the safety of river users (see Figure 6.1).

Improve existing parks and open space

Corridor communities and open space managers should make improvements to existing parks that would support a wider range of recreation activities and make the sites more accessible. Boardwalks, fishing piers, restrooms, beaches, and an outdoor interpretive center, as well as picnic tables, grills, and other amenities that would support outdoor gatherings among family and small groups, are all examples of improvements that stakeholders would like to see. Funding for these improvements can be sourced through local revenue, partnerships, or grants, or integrated into future development opportunities.

Any improvements should comply with Americans with Disabilities Act (ADA) rules and regulations. The ADA Standards for Accessible Design were updated in 2010 and include specific requirements for several types of recreational facilities including boating facilities (e.g., launch ramps, boat slips and boarding piers), fishing piers, and other platforms.⁵³ Corridor communities and open space managers should perform an assessment to better understand the barriers to access so they can address site-specific issues and identify solutions. The United States Department of Agriculture (USDA) published an Accessibility Guidebook for Outdoor Recreation and Trails that can be used to ensure that spaces are accessible and up to code. The guide covers everything from surface slopes to resting intervals.⁵⁴

Improvements to parks and conservation areas should also seek to protect and enhance habitats that support fishing, birding, and other recreation. This can be done by stabilizing shorelines and restoring wetlands, rookeries, and native vegetation, as well as incorporating stormwater BMPs to reduce the water quality impacts of runoff from parking lots and other impervious surfaces. Integrating natural resource protection into park maintenance and improvements can expand the potential pool of available funding sources and make for a more competitive grant application.

Corridor communities and open space managers will need to continue to engage residents and local businesses in the development of improvements so that they reflect the desires of the community and consider ways to bolster the local economy (see Recommendation 3.1 and 3.3 for strategies related to activating public open space). Environmental and civic organizations as well as the local business chambers should also assist communities and open space managers with outreach and public engagement as they pursue improvements.

CASE STUDY: MCHENRY COUNTY WATERSHED SIGNAGE

Environmental Defenders of McHenry County and MCDOT received a grant from the Full Circle Family Foundation to place signs at river crossings that call out the river and its watershed. The goal is to improve awareness of the health and safety of our streams and watersheds as well as provide a form of wayfinding within the county. Environmental Defenders of McHenry County would like to expand the project and place signs along township and municipal roads in the near future.

Figure 6.2. Fox River watershed wayfinding signage



Source: Environmental Defenders of McHenry County, 2021

Install wayfinding and interpretive signage

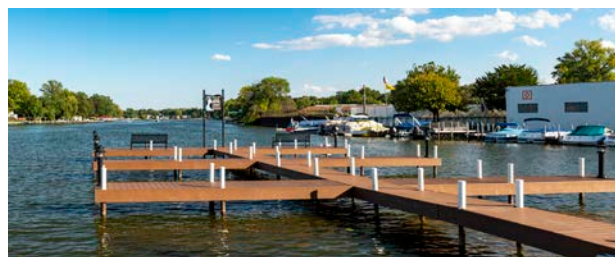
Wayfinding and interpretive signage can enhance open spaces and recreation opportunities while increasing awareness and education. Throughout the planning process, stakeholders revealed that they were not aware of all the public docks, piers, launches, and other access points along the river. Corridor communities and open space managers should work together to install signage at public access points to clearly communicate what facilities are available for public use. The strategic placement of wayfinding and informational signage near public docks and launches, recreation areas, and commercial districts would help improve river access within the corridor. Stakeholders also indicated that they would like to see these amenities publicized through the corridor's marketing efforts (see Recommendation 3.3 for more information). Communities and open space managers should collaborate with the Fabulous Fox Water Trail Initiative (FFWTI) who is interested in signage to direct visitors to accessible areas and route users through sites upon arrival. At the same time, they should coordinate with the FWA and IDNR to ensure signage does not obstruct picturesque views and conveys the most accurate information regarding launch and parking fees.

Signage can also help people navigate to parks and conservation areas, call out existing amenities, and inform them on passive recreational activities like birding and fishing. Protected open spaces, such as Moraine Hills State Park, are already popular among birders because of extensive, high-quality wildlife habitat. A variety of bird species, including Red Tail Hawk, Eastern Bluebird, Tree Swallow, Eastern Kingbird, and Northern Flicker, are present in the corridor. While experienced birders are already familiar with these species, the installation of interpretive signage at key points in public parks and conservation areas would help casual observers identify the birds they see and direct them to the right locations and times within a year for viewing harder-to-find species. Similarly, signage should be placed at popular fishing spots to inform users of rules and guidelines, common and unique species, and water quality impacts. Interpretive signage should be supplemented with online information, maps, and brochures promoting the corridor's recreational assets. See Recommendation 3.3 for strategies to market the Fox River as a destination for tourism and recreation.

Signage at entry points and along multi-use trails can educate users on the types of activities that are allowed and limit potential user conflicts. Signage across road bridges can help people navigate or provide directions when on the water as well. Additionally, all wayfinding signage should be consistent throughout the corridor. See Recommendation 7.1 for standards, signage design and placement, as well as strategies that can improve the bicycle and pedestrian network and safety within the corridor.

Upgrade and repair boat docks and slips

The Fox River is a popular destination for a variety of watersports. Motorized boating, wakeboarding, and tubing are popular between the Stratton Lock and Dam and Chain O'Lakes. The prevalence of boating, in particular, can be seen through the corridor's local economy with a handful of riverfront restaurants that provide docking and boat slips for customers, public docks and launches, as well as five marinas that offer a range of services, including slips for day and seasonal use, in/out service, fuel, storage, maintenance, and repair.



Docks at Miller Point in McHenry (top) and Vickie's Place (bottom)
Source: Visit McHenry County (bottom image only)

Despite the array of boating services and amenities, stakeholders voiced the need for dredging around existing docks to improve access, particularly within side channels and near restaurants, and general dock infrastructure upgrades and repairs. Corridor communities should work with the FWA to prioritize dredging that aligns with IDNR's modeling and cost-benefit analysis results (see Recommendation 5.1 for more information on related dredging strategies). Communities with public docks and slips should repair their facilities and provide ongoing maintenance to ensure safe and equitable access for all river users. Additional amenities such as restroom facilities and signage can also improve access and the overall boating experience. Local business chambers should consider coordinating with marinas and riverfront restaurants to pool together resources and apply for grants to help make improvements to private facilities.

In addition to improvements to existing boating facilities, stakeholders expressed interest in more publicly available boat launches, docks, and marinas that would give river users more opportunities to enjoy nature as well as restaurants for food and entertainment. Riverfront communities, in coordination with FWA and IDNR, should assess whether additional boat docks and slips are feasible under the USACE's permitting process (also known as the "no-net increase in slips" policy) that applies to the Fox River and Chain O'Lakes. USACE regulates boat piers and ramps under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Multi-user facilities, such as marinas, hotels, homeowners' associations, and other facilities with overnight mooring, and the installation of boat ramps require the removal of an existing pier or ramp for each one constructed.⁵⁵

Communities will need to identify areas where slips can be removed and placed elsewhere that afford public access. Areas of potential interest for increased public boat access include downtown McHenry and public riverfront parks like Miller Point and Weber Park in McHenry. By strategically locating boat docks for temporary parking at public parks and near river-oriented businesses, corridor communities could encourage more people to visit local parks, businesses, and attend events. These improvements could include basic amenities geared toward day trips to the corridor or capitalizing on boaters passing through.

Additional access should be evaluated with caution and careful consideration of river education and safety and the potential for user conflict concerns to increase alongside increased river use (see Recommendation 6.2). Corridor communities should measure the usage of the public access points currently available, marina capacity, and a thorough assessment of potential sites in relation to river accessibility and congestion. In an area already exhibiting a vast number of public and private facilities, additional access points may be legally challenging in light of the “no-net increase in slips” policy, and therefore, should be approached strategically. Given the popularity of boating within the corridor, proposals for new facilities should seek to maximize the recreational and economic benefits generated in the corridor. New facilities should also reduce the environmental impact on the corridor by adopting best practices from the Clean Marina Guidebook.⁵⁶

Improve canoe and kayak launches and portages

Heavy motorboat traffic along this stretch of the Fox River makes paddling much less appealing than its downstream counterparts, south of the McHenry and Algonquin Dams. However, interest in paddling along the Fox River is growing. During the planning process, several residents and local paddlers expressed a desire for new and improved canoe and kayak launches, such as those made by Easy Launch. Making this stretch of the Fox more accessible to paddlers will allow more people living near the river to enjoy it. Enhanced launches and portages would also connect corridor communities and natural areas to the Fabulous Fox Water Trail, which could bring additional revenue to the area.

McHenry, Johnsburg, and IDNR should incorporate launch design best practices in the improvement of existing launches or the development of new ones. Best practices should aim to improve both physical accessibility and ecological sensitivity, advancing the plan’s goal of balancing preservation and recreation.

CASE STUDY: ADA ACCESSIBLE BOAT LAUNCHES

Paddlers of all abilities should be able to launch smoothly without capsizing or damaging their watercraft. Adaptive boat launches offer safe and accessible ways for those in wheelchairs or with disabilities to enter and exit a boat more easily. These launches offer sufficient space to accommodate the length of the watercraft during put-in and take-out. They also stabilize the watercraft during transitions into and out of their vessel and into and out of the water.



Paddling advocates and water trail planners have established a number of design and maintenance best practices for canoe and kayak launches. For example, access points for paddlers are recommended every five to eight miles, should have a gradual slope to the water, and should provide some level of protection for users entering and exiting the water. This helps make trips of different lengths and connections to regional trails more viable. There is no one set of practices appropriate for every location; however, there are helpful resources on launch design from the River Management Society and National Park Service's Prepare to Launch and the Iowa Department of Natural Resources' Developing Water Trails in Iowa.⁵⁷

Corridor communities can also look to existing boat launches to increase canoe and kayak access. Many boat launches can be improved to better accommodate non-motorized watercraft sports by incorporating ADA-accessible ramps, transfer steps or boards, or erosion resistant features. In addition to existing access improvements, stakeholders identified some of the corridor's backwaters as potential locations for canoe and kayak access, given they are set back from the main stem of the river. In all, the locations to consider adding or improving canoe and kayak access include:

- Moraine Hills State Park – There are two portage access points on the east side of the Fox River within Moraine Hills State Park that are specifically for canoes and kayaks. The first is located above the Stratton Lock and Dam, while the other is located below. Simple kayak/canoe storage between these two sites could provide paddlers with an opportunity to hike the trails as well.
- Miller Point Boat Launch – According to the FFWTI, the boat launch at Miller Point in McHenry is accessible to paddlers. Improvements at this location, including kayak storage, bathroom facilities, and other basic amenities would help draw paddlers and other boaters into the downtown area.

- Miller Riverfront Park – There is potential for Miller Riverfront Park to become a key access point to the river. Currently, there is a small boat launch and pier to accommodate motorboats. Incorporating a canoe/kayak launch would provide residents with a place to put in and provide access to the river. Additional amenities such as boat storage and restroom facilities would bolster this location and attract people looking to spend the day at the river.
- Boone Creek – A kayak launch in Boone Creek near the Miller Point redevelopment site could give people the opportunity to dock their boats and have lunch in downtown McHenry. Its location is off the main stem of the river, which makes it an excellent opportunity to improve to support paddlers of all experience levels.
- Dutch Creek Bay – This is a potential location for a new public launch. The shallow conditions of the bay are conducive to paddling that is safe and distant from motorized boat traffic.
- Private marinas – Several private marinas along this section of the Fox River allow paddlers to use existing boat launches. Designating non-motorized launch areas, where possible, would separate paddlers and boaters making for a more safe and enjoyable experience. The Waterfront Hotel and Marina in Johnsburg is an example of a private marina where public boat launches and access could be provided.

Similar to boat docks and slips, additional canoe and kayak access should be comprehensively evaluated with careful consideration of river education, safety, and user conflict concerns with increased river access and use (see Recommendation 6.2). Prior to adding new access, corridor communities and the IDNR need to develop a thorough understanding of the potential environmental and safety impacts access will have on the corridor. More detailed exploration of these sites should also be conducted in partnership with the FFWTI through the development of the Fabulous Fox Water Trail Plan. The Initiative can help ensure both existing and new sites comply with Designated Water Trail best practices. Local paddlers' groups, such as the Illinois Paddling Council and Illinois Water TrailKeepers, can also provide important input on appropriate amenities.

6.2 Improve safety for all river users

Each year, approximately 17,000 boats pass through the Stratton Lock and Dam along the bustling section of the Fox River across the way from McHenry Dam State Park. The popularity of watersports on the river has amplified the potential for conflict among river users during the summer, especially on weekends. Boating is extremely popular between the Stratton Lock and Dam and the Chain O'Lakes, and many stakeholders were concerned with heavy boat traffic and unsafe speeds through the narrow stretches of the river. Stakeholders expressed a desire for more safety measures in the form of education and enforcement to ensure that all river users are mindful and respectful of others while on the river. There are a variety of strategies and resources available to river users that can help them be more informed and enjoy the river in a safe manner. Corridor communities, FWA, IDNR, and civic organizations can create new opportunities as well as promote existing ones to learn about river safety and best practices.

Strengthen education on river safety

Education can help to curtail conflicts on the water, speeding, and naive and reckless driving as well as foster a culture of shared responsibility and respect among all river users. During the planning process, river safety education was very popular among stakeholders, especially for new boat drivers, paddlers, and watercraft rental customers. There is also recognition that instilling river safety knowledge across the full spectrum of river users and experience levels will become important as non-motorized watercraft become more common within the upper reaches of the Fox River.

Corridor communities and waterway managers, including the FWA, IDNR, and McHenry County Sheriff's Office, should pursue the following initiatives with support from civic organizations that focus on safe, river-oriented recreation and stewardship:

- ***Install informational signage at all river access points.*** Informational signage can function as a consistent reminder for river users, including boaters, paddlers, and anglers, to adhere to the water safety and navigation guidelines as well as state and local regulations. Signs should highlight safety precautions such as hours of operation, fish consumption risks, current speed limits, no wake zones, caution against drinking, and the importance of wearing a life jacket. These signs could be placed throughout the corridor to remind the public of safety rules and best practices.
- ***Incorporate safety information into rental consent forms.*** Businesses providing watercraft or other equipment rentals should incorporate safety information into their rental consent forms (see Figure 6.2). Information should be tailored to the equipment being rented and services being provided. Topics for watercraft rentals should address safety concerns such as speed and control, negligent operation, tow sport safety, as well as water quality and fish consumption precautions.⁵⁸ In addition to consent forms, rental businesses should provide detailed instructions on vessel operations and guidance on ideal routes based on the type of vessel being rented. It would be beneficial if marinas offered pamphlets to customers to take home with this type of information as well.
- ***Integrate safety information into the corridor's local permit process.*** Safety information should become a component of the FWA permit application and renewal process. Each year, watercraft — including non-motorized vessels — are required to display an FWA sticker on their vessel to legally be on the water within the corridor. Similar to consent forms, incorporating safety information into the permitting process is another method for reinforcing the importance of practicing safe boating.

Figure 6.2. Example of a watercraft safety checklist



KEEPING YOUR BOATING EXPERIENCE FUN AND SAFE

NASBLA Seal of Safe Boating Practices

A Checklist from the U.S. Coast Guard and this Company



- ☐ I will make sure my passengers and I each have a properly fitted and properly adjusted U.S. Coast Guard-approved life jacket and know how to put it on.
- ☐ I understand that my passengers and I should wear a U.S. Coast Guard-approved life jacket at all times when boating.



- ☐ I have assigned one responsible adult to keep track of the whereabouts and safety of each child on board.
- ☐ I understand that life jackets sized for adults are unsafe for children.



- ☐ I understand when crossing the path of another boat, I should yield to the boat on my right, (starboard).

IF I OR THE OTHER BOAT FAIL TO ACT



- ☐ I understand there is the threat of a collision and it is my responsibility to slow down, steer away, and/or stop.



- ☐ I understand that when I meet another boat head-on, I should steer to the right (starboard).



- ☐ I understand that when I overtake another boat, I should pass on the left (port) side, leave plenty of room, and yield (give way) to that boat. If conditions require it, I may pass on the right (starboard) side.



- ☐ I understand that I must yield (give way) to all boats under sail.



- ☐ I understand that under federal and/or state law, it is a crime to operate a boat while persons are sitting on the front (bow), sides (gunwales), rear (stern), or swim platform. This behavior is considered grossly negligent operation of a boat.



- ☐ I understand that using alcohol, drugs and certain prescription medications may impair my ability to operate this boat safely.
- ☐ I will not operate this boat or allow any-one else to operate this boat while under the influence of alcohol or drugs.



- ☐ I will not permit swimming, diving, sliding, or jumping from or near the boat unless the boat motor is turned off, the keys are removed, and I have counted to 10 to allow the propeller time to stop spinning.
- ☐ I will check to make sure that the water is deep enough before allowing head-first diving from the boat.
- ☐ I will instruct my passengers never to dive or jump off of a moving boat.



- ☐ I confirm that rental company staff have informed me about local hazards such as shallow water, submerged objects, currents, and weather conditions. A list is attached.



- ☐ I acknowledge that rental company staff have explained to me the local laws and regulations that apply to boating in this area. I understand them and will follow them carefully.



- ☐ I understand that five short blasts of a horn or whistle signal danger or need for assistance.



- ☐ I understand that it is recommended that I take a safe boating course approved by NASBLA through the U.S. Coast Guard Auxiliary, United States Power Squadrons,® and individual states which would help me when I rent or operate boats.

Source: USCG, 2018

- ***Advertise watercraft safety courses, certificates, and workshops.*** Riverfront communities should consider working with local shops, marinas, or fleet clubs to receive seasonal discounts on services as an incentive for participating in workshops or existing continuing education courses. The U.S. Coast Guard (USCG) and the American Canoe Association (ACA) have a wide range of resources, safety courses, and workshops for motorized and non-motorized watercraft. The USCG is dedicated to improving the knowledge, skills, and abilities of recreational boaters. The ACA is particularly useful for non-motorized watercraft. They provide education related to all aspects of paddling and stewardship aimed at protecting paddling environments, as well as hosting programs and events to promote paddlesport competition, exploration, and recreation. Additionally, there are two online course providers that are endorsed by IDNR, BoatEd and BoaterExam.com. These courses are for all types of motorized watercraft ranging from boats to personal watercraft vessels. IDNR offers seasonal in-person instructor-led courses as well. Similarly, there are two safety certificates that are valid in Illinois, which are issued by the USCG Auxiliary and the U.S. Power Squadron.
- ***Encourage the use of phone apps dedicated to safety.*** Among many useful and informative tools on their website, they also have a boat safety app that can help boaters find the latest safety regulations and navigation rules; request a vessel safety check; examine safety equipment; file a float plan, report a hazard, pollution, or suspicious activity; and request emergency assistance. The FWA also has an app that provides information on local weather, waterway status, water levels, relevant notifications, as well as a waterway concern form for reporting navigational hazards on the waterway. Corridor communities and waterway managers should encourage river users to take advantage of these apps.
- ***Promote river safety through events, newsletters, and social media.*** Corridor communities and waterway managers should leverage existing events as well as newsletters and social media outlets as avenues to promote river safety and education. National Safe Boating Week is a campaign initiated by the National Safe Boating Council, which encourages boating enthusiasts to communicate with their local community about responsible boating at the start of the boating season via digital outreach, launch point reminders, outreach events, vessel safety checks, and more.⁵⁹ The FWA, in partnership with McHenry and Johnsburg, should participate in this campaign to help kick off the boating season. They should focus on safety best practices that are applicable to all watercraft river users, such as wearing life jackets, understanding the buoy system, and using the orange flag system. The “Our Fox River Day” is another event that can be leveraged to promote river safety among river users within the corridor (see Figure 6.3). Publications including the Visit McHenry County Insider, the Daily Herald, MCCD’s website and local Facebook groups, and other platforms could also publish safety tips and information on river conditions throughout the boating season to keep safety top of mind.
- ***Communicate safety measures throughout the winter.*** Ice fishing and snowmobiling frequently takes place on the river during the winter season. Safety can be improved through improved communication of ice thickness as well as other relevant precautions and risks. Information should be displayed through signage along the river in popular areas for these activities as well as websites and social media platforms used by users.



Volunteers at a 'Our Fox River Day' event (top); a frozen Fox River above the Stratton Lock and Dam (bottom).

Source: FOFR (top); Chauncy, Feb 2021 CCBY 2.0 Flickr (bottom)

Improve coordination across enforcement agencies and river-oriented businesses

Improving coordination among enforcement agencies can complement education efforts to ensure river user safety. The USCG, IDNR Conservation Police, MCCD, and the McHenry County Sheriff's office should increase coordination efforts to ensure appropriate police enforcement is provided on the Fox River as well as within riverfront parks and conservation areas. These agencies may want to meet regularly, particularly throughout the summer, to identify strengths of each agency; report on agency capacity, establish clear lines of communication under certain types of scenarios, and collaboratively address emergent issues. Waterway managers and riverfront communities could also host informational sessions with the general public to discuss the most up-to-date issues and challenges seen during the active summer months.

Marinas, watercraft rental services, boating clubs, and other businesses supporting river recreation can also play a role in helping create safe conditions on the river. Businesses can relay information gathered by customers to water enforcement agencies. Similarly, these businesses can work with enforcement agencies to ensure the most accurate safety information is being communicated to their customers.

Communicate best practices for non-motorized watercraft activities

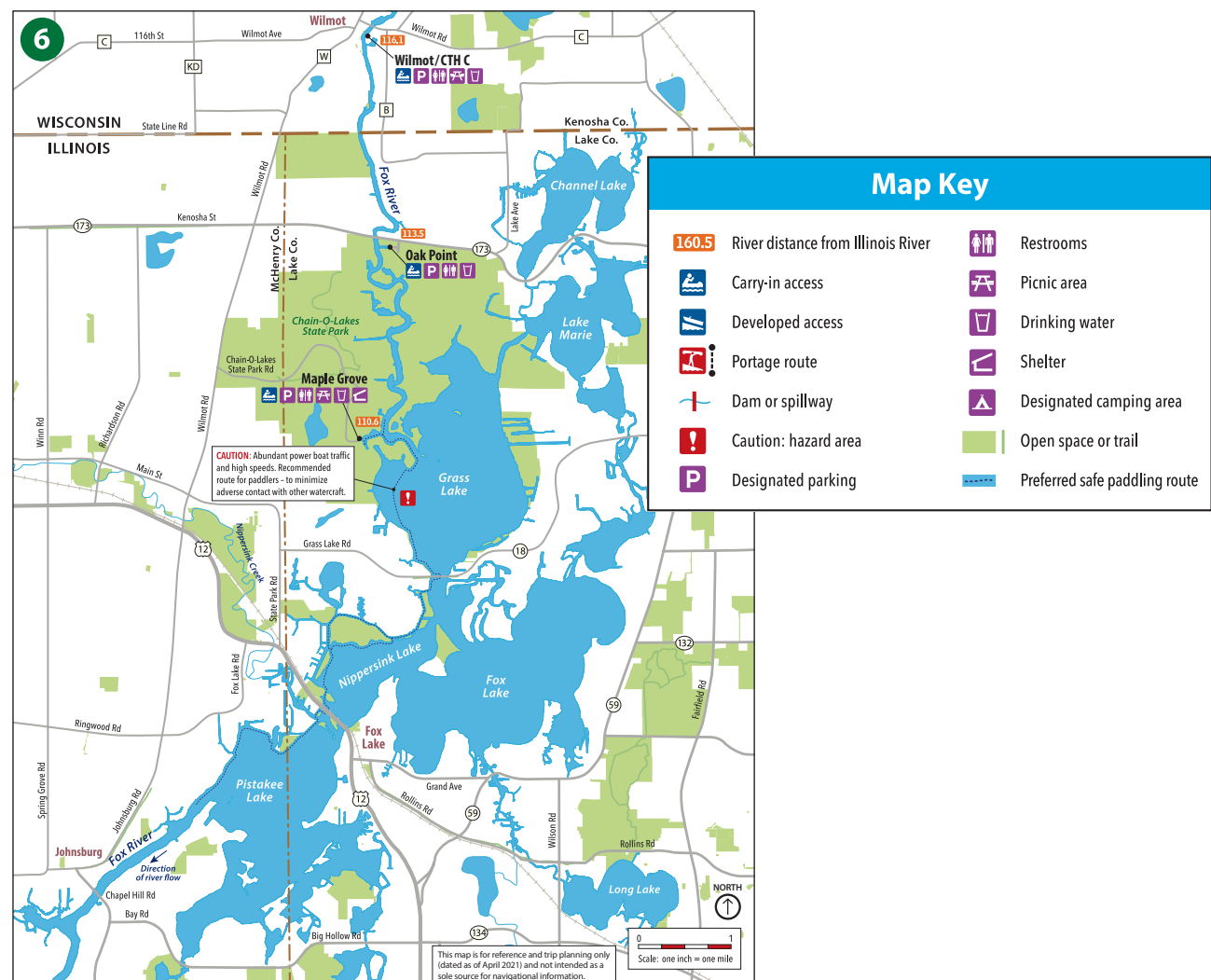
The FFWTI, FWA, and other water user groups should work with Fox River communities to communicate best practices for non-motorized watercraft activities along the Fox River. The Fox River is open to all watercraft types and activities, which can become challenging on a busy, shallow, and narrow waterway. To help ease safety and user-conflict concerns, there are best practices, guidance and precautions regarding routes, locations, and times that can be taken into consideration when participating in non-motorized watercraft activities on the Fox River.

The FFWTI developed a series of maps that highlight preferred routes for paddling activities along the Fox River and outlined detailed itineraries, two of which route through the Fox River Corridor planning area. No wake areas — specific locations on the waterway where it is unlawful for any person to operate any boat in excess of 5 miles per hour or at a sufficient speed to create a wake — exist within the corridor as well. Areas with this designation include all side and secondary channels throughout the Fox River as well as portions of the Fox River near downtown McHenry, Moraine Hills State Park at the Stratton Lock and Dam, and Dutch Creek Bay. Routes and locations like these should be shared clearly and consistently across websites, maps, signs, and relevant educational materials. The FFWTI should also update their maps to include no wake zones. Similarly, the FWA should update their zone maps to depict no wake areas. The FWA should also consider directing users to FFWTI's resources on the recommended routes and itineraries through their website and app.

While there are currently no limits to when and where one can partake in activities along the Fox River, river users have expressed that safer paddling conditions may exist when the number of motorized watercraft on the water is significantly reduced. Although there is no guarantee this will always be the case, stakeholders identified that paddling on the river early in the day during the peak season, or any time during the day in early spring and late fall may ease safety and user conflict concerns.

In addition to these best practices, all watercraft user groups and the FWA should regularly discuss waterway concerns and ideas to help ensure the safe use of the waterway by all watercraft types. The FWA has a customer concerns form as well as monthly board meetings that should be used to foster open dialog across various waterway users. Although the FWA does not have the authority to enforce waterway safety measures, the FWA board does have the authority to set certain waterway restrictions. Leveraging platforms like these would help give all waterway users an opportunity to share input and maintain an equitable river environment.

Figure 6.4. FFWTI Water Trail Map



Source: Fox River Water Trail Initiative, 2020

Implementation Actions

Recommendation	Timeline	Lead and Partners
6.1 Support regional and bi-state efforts to address riverine flooding and sedimentation		
Improve existing parks and open space. The IDNR, MCCD, and local park districts should use strategic plans to improve and add new park amenities (e.g., seating and tables for group gatherings, bathrooms, and signage). These agencies should administer a needs assessment survey to prioritize amenities. Improvements should also seek to protect and enhance habitats that support fishing, birding, and other recreation. <i>Funding:</i> IDNR Trails Grant and OSLAD program	3-5 years	IDNR, Moraine Hills State Park, MCCD, corridor municipalities
Install wayfinding and interpretive signage. Corridor communities and open space agencies should work together to install signage at public access points to improve navigation to recreation areas and limit user conflicts on multi-use trails. Agencies should also install interpretative signage to enhance passive recreational activities like birding and fishing.	3-5 years	IDNR, Moraine Hills State Park, MCCD, Environmental Defenders of McHenry County, corridor municipalities
Upgrade and repair boat docks and slips. Corridor communities with public docks and slips should repair their facilities and provide ongoing maintenance to ensure safe and equitable access for all river users. Business groups may want to consider developing a program to help local businesses with dock maintenance. Additional access should be sought pending careful evaluation of river safety and the potential for user conflicts. <i>Funding:</i> IDNR Boat Access Area Development (BAAD) program	3-5 years	All relevant stakeholders, corridor municipalities, JABA McHenry Area Chamber of Commerce, USACE, FWA, IDNR, riverfront businesses and property owners, boating clubs
Improve canoe and kayak launches and portages. Improve existing launches and portages at McHenry Dam State Park. City of McHenry should consider adding a public ADA-accessible kayak dock at Miller Point or along Boone Creek. Corridor communities should work with the FFWTI, IDNR, and FWA to identify and determine the feasibility of additional launch sites within the corridor. <i>Funding:</i> ACA's Club Fostered Stewardship and Adaptive Paddling programs, IDNR's BAAD program	3-5 years	All relevant stakeholders, corridor municipalities, USACE, FWA, IDNR, riverfront businesses and property owners, boating clubs
6.2 Improve safety for all river users		
Strengthen education on river safety. All relevant stakeholders, including enforcement agencies, the FWA, corridor municipalities, and river user groups should assist with the following: Install informational signage at all river access points; incorporate safety information into rental consent forms; integrate safety information into the corridor's local permit process; advertise watercraft safety courses and workshops; and promote river safety through events, newsletters, and social media.	Ongoing	FWA, river user groups, McHenry County, corridor municipalities, FFWTI, USCG, ACA, National Safe Boating Council, Rental Boat Safety
Improve coordination across enforcement agencies and river-oriented businesses. The USCG, IDNR Conservation Police, MCCD, and the McHenry County Sheriff's Office should increase coordination efforts to ensure enforcement is provided. More collaboration among these agencies, the FWA, and boating clubs would also help maintain safe river conditions by removing large debris and keeping buoys in alignment.	0-2 years	Enforcement agencies, FWA, river user groups, McHenry County, corridor municipalities, FFWTI, USCG, ACA, National Safe Boating Council, Rental Boat Safety
Communicate best practices for non-motorized watercraft activities. The FFWTI and FWA should update their maps to reflect existing no wake zones within the corridor. The FWA should consider including a link on their website and app to FFWTI's non-motorized watercraft safety resources and recommended routes for non-motorized watercraft activities on the Fox River. The FWA should continue to promote its customer concerns form and monthly board meetings as platforms for all river users to voice concerns and ideas about safety on the waterway. The FFWTI, FWA, and corridor communities should continue to work together to promote and foster open dialog across various waterway users to build a more inclusive river environment.	0-2 years	FWA, FFWTI, corridor municipalities

Chapter 7

Transportation and Connectivity



Key Findings

Local trail systems could benefit from stronger connections to the regional trail network. There are over 12 miles of multi-use trails within the corridor; however, they are contained within recreational areas and do not currently connect to the nearby Prairie Trail or other regional trails. Recognizing the benefits that trail connections can have on safety, recreation, and economic development, the county and corridor communities are looking for opportunities to improve connectivity between the regional trails as well as parks and conservation areas, communities, and other key corridor destinations.

Safety and circulation within the corridor are improving. Communities within the corridor are still heavily dependent on cars and provide minimal bike infrastructure, despite efforts to improve accessibility in downtown areas. Nevertheless, safety improvements are being made throughout the corridor to reduce the number of crashes and make all forms of transportation safer.

There are limited public transit options to boost local and regional tourism. Access to public transportation within the corridor is limited and oriented toward traveling by car. As communities within the study area strategize ways to bolster the local economy through tourism, public transportation should be considered given that the lack of existing options can deter people without cars from visiting the corridor.

Vision —

The Fox River Corridor will create a safe, diverse, and equitable transportation network that boasts improved road infrastructure, bicycle amenities and walkable streets, as well as local and regional connections to and from popular destinations.

Recommendations

7.1 Expand bicycle and pedestrian network

7.2 Improve transportation infrastructure and safety

7.3 Invest in walkability

7.4 Diversify transportation options

7.1 Expand bicycle and pedestrian network

Expanding the corridor's trail network and on-road facilities will create a safe and convenient system that connects residents and visitors with the regional trail system and local destinations, such as parks, nature trails in conservation areas, riverfront restaurants, and neighboring communities. While some of the corridor's streets have low posted speed limits and traffic volumes that make biking and walking more comfortable, others do not afford this solace. Areas in most need of improvement tend to be along busier streets since they provide bicyclists and pedestrians with the most direct or only route to destinations and can often act as barriers if they are difficult to cross or unsafe to walk or bike along. At the same time, creating connections between more comfortable streets and neighborhoods can also help by providing bicyclists and pedestrians with more route choices.

Corridor municipalities and the MCDOT should coordinate with IDOT, McHenry and Nunda Townships, and MCDOT to expand the network and strengthen connections through transportation planning and programming as well as pursue joint grant opportunities (See Figure 7.1). As the corridor looks toward the future, network improvements will help improve quality of life, attract more visitors to recreation and commercial areas, and contribute to its overall economic growth.

Regional priority connections

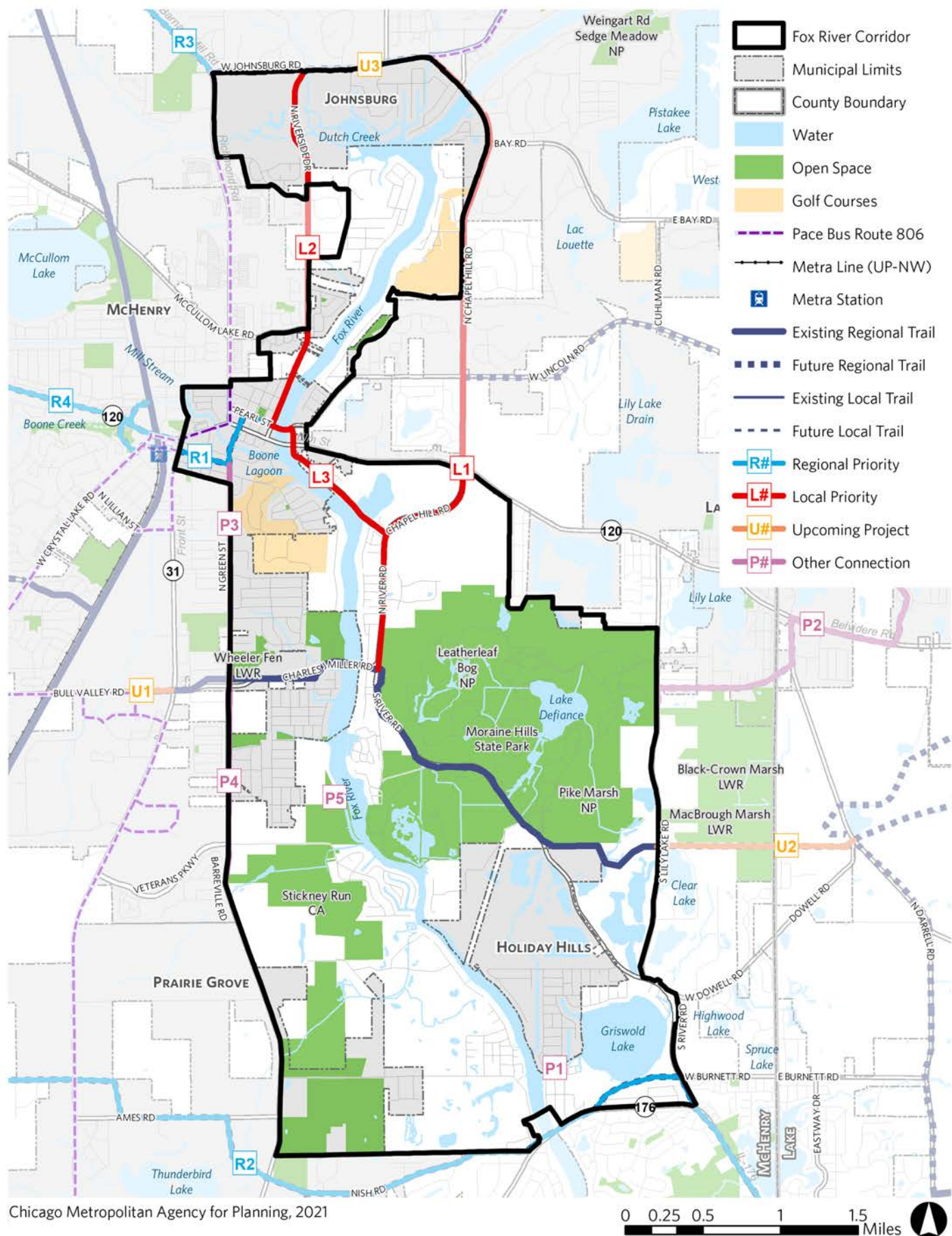
These comprise bicycle and pedestrian improvements that would increase safety and improve regional connections throughout the Fox River Corridor, especially on roads identified for future regional trails.

- **Downtown McHenry to Prairie Trail via Main Street (R1):** A route that connects downtown McHenry to the Prairie Trail would help attract businesses into and boost activity within McHenry's downtown. This is one of the most vital regional connections that takes advantage of residential streets with lower traffic volumes than the main roadways.
- **Prairie Trail-Island Lake Connector (R2):** A regional connection via Route 176 that would give Holiday Hills and Prairie Grove more direct access to the Prairie Trail.
- **Johnsburg Rd to Prairie Trail (R3):** A route heading west on Johnsburg and northwest on Route 31 would provide Johnsburg residents a connection to the Prairie Trail.
- **IL-Route 120 Side Path (R4):** A route realignment project that would extend the downtown McHenry-Prairie Trail route via Main Street (R2) further south. The project is included in the county's Long Range Transportation Plan (LRTP).



Section of the Prairie Trail in McHenry County
Source: AllTrails (Prairie Trail (IL) webpage)

Figure 7.1 Bicycle and pedestrian network improvements





Local priority connections

These comprise bicycle and pedestrian improvements that would increase safety and improve connections within the corridor.

- ***River-Chapel Hill Route (L1)***: A route along North Chapel Hill Road and North River Road would connect the northern and eastern half of the corridor to Moraine Hills State Park and trail system as well as access to the west side of the river via an existing bicycle route on Charles Miller Road.
- ***Riverside Road (L2)***: A route that would provide a local connection between McHenry and Johnsburg, which could help bolster economic activity in both communities.
- ***North River Rd to West Elm (L3)***: A route that provides a more direct connection to/from McHenry's downtown and Moraine Hills State Park, particularly for the northern and eastern half of the corridor.

Upcoming projects

These are county-led bicycle and pedestrian projects within the corridor that are underway or programmed and anticipated to start within one to five years.

- ***Bull Valley Road Shared-Use Path (U1)***: A regional connector along Bull Valley Road that would connect the Prairie Trail to IL Route 31. The City of McHenry is pursuing this route and plans to feature an Americans with Disabilities Act (ADA) compliant railroad crossing as well as pedestrian signals at the intersection. Phase I is in the final stages; although construction is dependent on the Union Pacific railroad, it is scheduled to begin in 2022 or 2023. Once complete, it will connect the Prairie Trail to Moraine Hills State Park.
- ***River Road-Chapel Hill Road Corridor (U2)***: A major road corridor that would provide north and south connections to local and regional trails along the east side of the study area. A feasibility study will identify immediate and long-term safety, capacity, structural, and pedestrian needs that can be addressed by a nine-mile corridor safety project. The study is anticipated to start in 2023.
- ***Johnsburg Road Bridge (U3)***: The MCDOT will be overseeing a project to replace the existing bridge going across Dutch Creek in Johnsburg to improve vehicle and pedestrian traffic. Construction is anticipated to start in 2024.

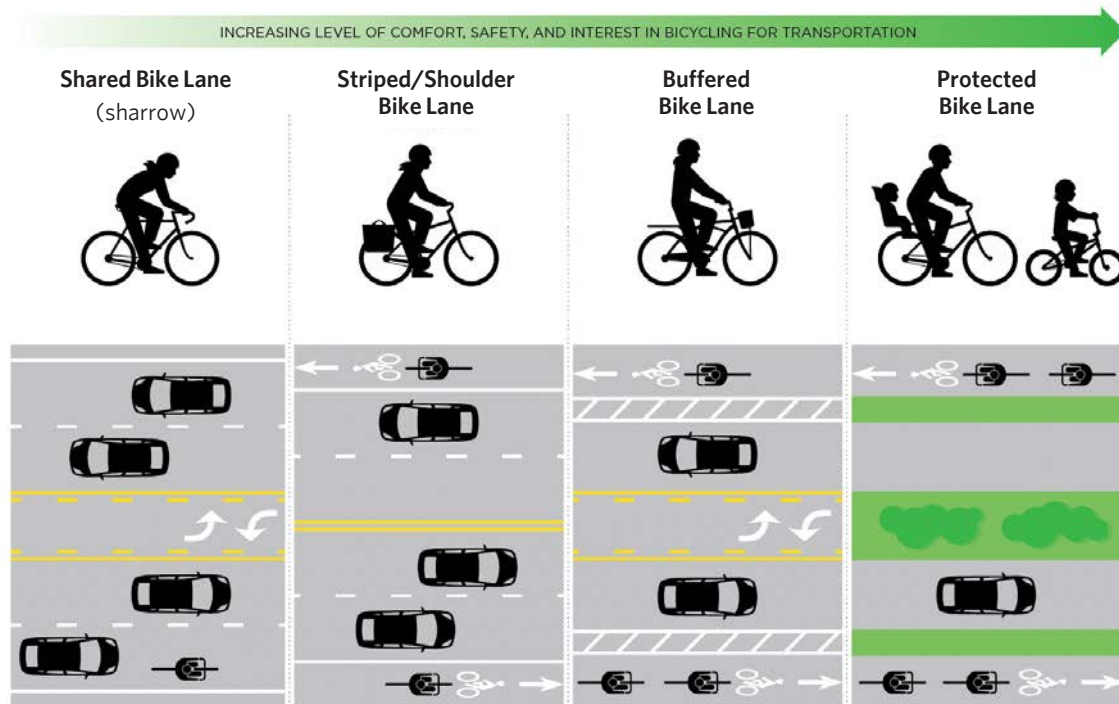


Other potential connections

These include pedestrian improvements that were identified by stakeholders during the planning process to improve bicycle and pedestrian connectivity.

- Bicycle/Pedestrian Bridge at the Fox River-Griswold Lake Channel (P1)***: This is a local trail connection identified by stakeholders during the planning process that would improve local access and connectivity for Holiday Hills and other residential areas along the river in unincorporated McHenry County.
- Moraine Hills State Park to Volo Bog State Natural Area (P2)***: This is a regional route identified by stakeholders during the planning process that would extend out of the corridor and connect the two IDNR properties.
- Green Street Route (P3)***: Green Street is neighborhood street that would provide a local connection for residents on the south side of Boone Creek access to McHenry's downtown.
- Barreville Road (P4)***: If Green Street becomes an official route, an extension further south along Barreville Road would provide a connection to the hiking trails at Stickney Run Conservation Area.
- Pedestrian overpass near the Stratton Lock and Dam (P5)***: This is a local trail connection identified by stakeholders during the planning process. It would allow people to get between Moraine Hills State Park and the Stickney Run Conservation Area over the Fox River, and connect them to the existing trail networks within the State Park. This also would be beneficial if there is any future development along Veterans Parkway/State Park Road.

Figure 7.2. Types of on-road bicycle lanes



Source: CMAP modified graphic prepared by Alta Planning and Design for Bend, Oregon

Enhance on-road bicycle safety and facilities between commercial and recreational areas

Throughout the planning process, stakeholders specifically advocated for safe, protected connections between recreational areas like the Fox River and Prairie Trail and commercial areas within McHenry, Johnsburg, and Prairie Grove. The county and corridor municipalities should prioritize network enhancements, such as on-street markings indicating shared roadways and dedicated bicycle and pedestrian infrastructure, that improve connections between these destinations. As these types of improvements are prioritized, municipalities should be open to partnerships with the state and townships to help ensure facilities and amenities are maintained over time.

Bike markings on the roadway are meant to create safer conditions for people biking and people driving. They signal that the road is meant to be shared by multiple users, whether they are on two wheels or four. Municipalities should consider installing bike lanes to ease traffic stress, form direct connections between recreational areas and downtown corridors, and create a more comfortable situation for cyclists.

The four main types of bike lanes are shared lanes or sharrows, painted or striped bike lanes, buffered lanes, and protected bike lanes (see Figure 7.2). Several roads could benefit from dedicated bike lanes and improved connections that residents and stakeholders seek:

Shared lanes (sharrows)

- North Chapel Hill Road bridge in Johnsburg
- Pearl Street bridge in McHenry
- Downtown McHenry to Prairie Trail via Main Street

Painted (striped) lanes

- West Elm Street bridge in McHenry – Bike lane on south side⁶⁰

Protected lanes

- River Road between West Elm Street bridge and Charles Miller Road

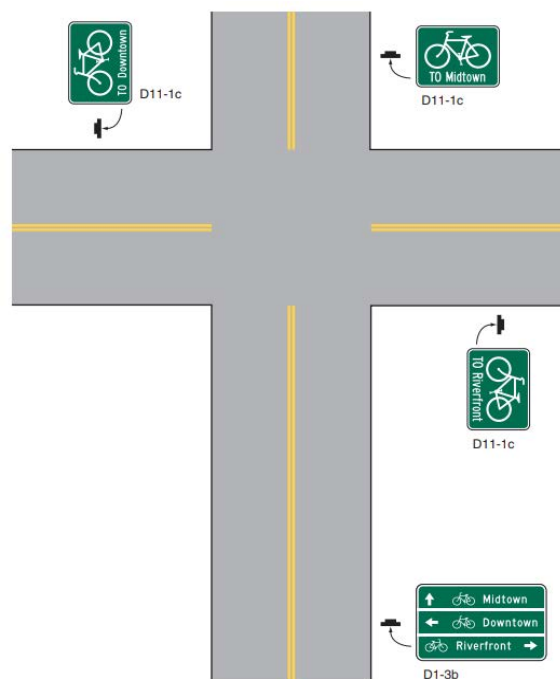
Adding bicycle and pedestrian infrastructure would also help strengthen the connection between recreational and commercial areas. Treatments such as bike racks, air pumps, and benches would encourage more people to bike and walk from one destination to another. For example, a bicyclist coming off the Prairie Trail will be more apt to bike to downtown McHenry if they know there's a place where they can park their bike. Bike racks could also provide a marketing/public art opportunity. Benches for pedestrians provide a similar type of incentive, especially for older adults who might need to take a rest during a long walk. These amenities are relatively simple to install and can provide a lot of character to the community.

Develop signage and wayfinding

Several stakeholders expressed the need for signage and wayfinding throughout the corridor, particularly to highlight routes between recreational and commercial destinations. The MCDOT and corridor municipalities should collaborate with each other and coordinate with IDOT and other road agencies to install signage and wayfinding that enables bicyclists, pedestrians, and even motorists to navigate the corridor more easily. Signage can help identify clear routes to destinations and alert motorists that they are driving along a bicycle or pedestrian route and to use caution. They can also raise community awareness of bicycling and encourage ridership.

There are generally three types of wayfinding signs: confirmation, turn, and decision signs. Signs should be placed at key intersections and at regular intervals so that bicyclists entering from side streets can still navigate the route. Signs should also be installed along routes in areas with sight line challenges, either due to trees or hilly topography, to alert motorists that bicyclists or pedestrians may be present. The Manual on Uniform Traffic Control Devices (MUTCD) standards should be followed when designing and installing signage to ensure consistency across municipal and county boundaries (see Figure 7.3).⁶¹

Figure 7.3. Example of Bicycle Guide Signage and Placement



Source: MUTCD for Streets and Highways (USDOT, 2009)

Other types of wayfinding signage that should be considered include full route map boards, yield etiquette signage, as well as decorative signs and art installations. Yield etiquette signs, such as Bikes Yield to Peds, help clarify yielding rules on shared paths. Decorative signs and art installations may take a variety of forms with the primary purpose of creating a sense of place and signifying that the corridor is bicycle friendly. MCDOT and the corridor communities should also consider developing a common logo for signage along the Fox River Corridor that can help create a unified corridor identity and brand. Local business information and distances to key destinations should also be posted to help drive downtown business development.

Support the upcoming McHenry County Connection Master Plan

The McHenry County Council of Mayors, in partnership with the MCDOT, is developing a bicycle and pedestrian plan for McHenry County. The plan aspires to create an equitable and active regional transportation network that supports commuting, recreation, and tourism and is accessible to all pedestrians and cyclists.

As this collaborative, community-driven planning effort proceeds, corridor municipalities should continue to participate in public engagement opportunities and advocate for stronger bicycle and pedestrian connections within their communities as well as more equitable access for all abilities and modes of transportation used within the corridor. Municipalities should also share any public feedback they receive on local projects that might be relevant to the plan.

As the plan examines connections and issues facing McHenry County's trail system at large, municipalities within the corridor should focus on smaller projects and actions that can be taken at the local level and support the larger goals of the countywide plan. This will require consistent communication between planners and municipalities to ensure that projects align with overall county goals and help create a stronger network of trails that residents and visitors can enjoy. As opportunities arise, municipalities within the corridor should consider applying jointly for various grants and funding sources whenever possible. Joint applications cut down on the work needed to file for and sustain the grant and can make an application more competitive.



Passing fellow bicyclists in rural McHenry County (top); McHenry County Connection Master Plan logo (bottom)

Source: Allix Roger, August 2011, Flickr. CC BY-NC-ND 2.0 (top); McHenry County Council of Mayors (bottom)

7.2 Improve transportation infrastructure and safety

Modernizing and improving the safety of the transportation infrastructure is essential for the corridor to enhance its quality of life, bolster economic growth, and protect natural resources. Across the region, roads, bridges, sidewalks, and other infrastructure that supports the movement of people are in dire need of repair and investment. Strategic planning and coordination will be needed to ensure the corridor's transportation infrastructure enhances the walking experience, improves traffic flow, and increases safety. Leveraging existing transportation and capital improvement programs, applying complete streets policies, and targeting investments in major road crossing and pedestrian amenities are all strategies that the county and municipalities can take to improve the accessibility, safety, and resilience of the corridor's transportation infrastructure.

Leverage transportation and capital improvement programming

Transportation programming as well as capital improvement plans help local governments prioritize capital projects and purchases to pursue over a relatively short time frame (three to five years). The county and corridor communities should use their transportation programming and capital improvement plans to fund priority bicycle and pedestrian infrastructure improvements. These plans establish a direct link between annual appropriations and strategies within adopted plans and help ensure that communities are programming public dollars in a strategic manner.



McHenry County 2021-2025 Transportation Program

Source: McHenry County DOT

Certain transportation projects can also be leveraged to incorporate bicycle and pedestrian facilities depending on the funding source. For example, surface transportation projects under direct Federal Highway Administration control must make sure that project planning, design, construction, and operations adequately address pedestrian access for people who have disabilities. In this way, bicycle and pedestrian elements can be included in larger transportation projects that have the potential to impact the public right-of-way temporarily or permanently. Additionally, municipalities can update zoning and subdivision regulations to require that developers design projects with bicycle and pedestrian amenities and improve surrounding transportation networks as well as green infrastructure to improve stormwater management.

Integrate complete streets policies into future transportation projects

A complete streets policy is a commitment to include consideration for bicyclists, pedestrians, and transit users, along with drivers, within all street design activities. It expresses a municipality's priority in creating safe streets for all users, regardless of age, ability, or mode of transportation. Types of complete streets vary in design including right-of-way widths, street classification, and location.

Common elements include sidewalks, bike lanes, crosswalks, wide shoulders, medians, bus pullouts and bus lanes, and audible pedestrian signals. In 2019, municipalities within McHenry County adopted complete streets policies as part of a larger initiative to promote a unified approach to safe and thoughtfully designed streets within the county. As transportation and road infrastructure improvements are programmed, the county and municipalities should refer to their complete streets policies and integrate infrastructure elements that create safe, environmentally sensitive, and accessible streets for all people.

7.3 Invest in walkability

Walking and pedestrian facilities are a growing part of how communities make themselves livable, accessible, healthy, and prosperous. Creating a high-quality pedestrian environment through design and physical infrastructure encourages more people to walk in the corridor, enhancing quality of life and increasing environmental sustainability, safety, and mobility.

Add new and maintain existing pedestrian amenities

The county and corridor communities should invest in adding and maintaining amenities that support pedestrian activity. Examples of amenities that should be considered include benches, trees that provide shade, outdoor dining areas, pedestrian-scale lighting, public art, plazas and parks, drinking fountains, awnings, trash receptacles, walkways, and high-quality landscaped areas. These features not only help draw pedestrian traffic but can also support mobility among vulnerable groups, including children, people with disabilities, and older adults.

All mobility-related pedestrian amenities should also be retrofitted or built in compliance with the ADA, which mandates that all public spaces (including sidewalks) accommodate persons with disabilities. A variety of treatments can be applied to aid persons with disabilities, the most notable being curb ramps, detectable warning surfaces, and accessible pedestrian signals at signalized intersections. Stakeholders throughout the corridor should continue to look for opportunities to add new amenities while maintaining existing features. They should encourage business owners to add amenities and require developers to incorporate them into new projects as well.



In 2021, the City of McHenry hired Christopher Burke Engineering to create a streetscape master plan for their historic downtown areas. As this plan is developed, the city should advocate for the inclusion of amenities that would enhance the walkability and accessibility of their downtown. Similarly, the Village of Johnsburg hired HRGreen in July 2016 to create a conceptual streetscape master plan for their downtown. The plan outlined pedestrian elements, bikeway access, lighting, parking considerations for the entire area, downtown triangle improvements, incorporation of public art, and walkability. Johnsburg should continue working toward the goals and concepts outlined in the plan. Other municipalities should consider these types of plans to guide their work toward making the corridor pedestrian-friendly.

Remove sidewalk gaps and improve circulation

Sidewalk connectivity is an important aspect of improving walkability and accessibility and encouraging activity. Missing sections of sidewalk exist throughout the corridor, including in downtown areas. Corridor communities should use CMAP's sidewalk inventory data to identify gaps in sidewalk infrastructure within the study area.⁶² Corridor communities, such as Johnsburg and McHenry should prioritize filling gaps that are in the downtown cores, riverfront destinations, as well as along key routes that would encourage transit ridership. Stakeholders, including the private sector, should also incorporate pedestrian amenities into site plans and development projects whenever feasible. For example, sidewalks should be incorporated at the corner of IL Route 120 and North Chapel Hill Road, where new businesses are anticipated, to make the area more walkable and improve access.

Improve crossings at major intersections

Major street crossings may pose a significant barrier to bicyclists and pedestrians hoping to cross the street safely. The proper infrastructure for safe crossings is often lacking, forcing people to calculate distance and time on their own to cross the street. The NACTO has published guidelines for intersection design that communities within the corridor should refer to when designing or updating major intersections. The following are examples of pedestrian crossing improvements to consider:

- Make pedestrian and bicycling crossings more visible. Ways to alert motorists to pedestrian activity at intersections include decorative brick pavers, re-striped/painted crosswalk markings, signage, and pedestrian-scaled lighting.
- Shorten the distance pedestrians, people with disabilities, and bicyclists have to travel. Depending on street design and right-of-way width, communities can shorten the distance and time it takes people to cross a street by installing curb bump-outs, curb ramps, medians, and refuge islands.
- Ensure proper signalization and signing. Include pedestrian-activated push buttons that are accessible to pedestrians and are designed to provide a comfortable amount of time to cross the street. In addition to installing signage that notifies motorists of pedestrian activity, directional signs should be used to inform pedestrians of nearby destinations.

Improvements should be designed in accordance with MUTCD and more detailed engineering analysis should be undertaken to determine the specific improvements that should be made.

The MCDOT has focused its programming on Bull Valley Road and Chapel Hill Road, both of which feature several major intersections that are in need of safety improvements. Although it is not currently programmed, the intersection where the Prairie Trail crosses over Route 120 in McHenry is also in need of improvements. The intersection is heavily trafficked with approximately 28,000 cars passing through the intersection each day.⁶³ While there is a crosswalk connecting the north and south sides of the trail, a refuge island should be considered to help break up the long trip across Route 120 and make it less daunting for cyclists and pedestrians using the trail.

CASE STUDY: SAFE ROUTES TO SCHOOL

As part of the 2019 funding cycle for IDOT's Safe Routes to School program, the Village of Johnsburg received a grant to extend sidewalks along Chapel Hill Road, which is under the county's jurisdiction, to the bridge. This improvement will impact Johnsburg Elementary, Johnsburg Junior High, and St. John the Baptist Catholic School. The new sidewalk will encourage more students to walk and ride to school and ultimately have an impact on the community at large.



7.4 Diversify transportation options

Safe and convenient access to a variety of transportation modes is a key element of a vibrant and healthy corridor. While cars may continue to be the primary mode of transportation for most, other modes — like walking, bicycling, and transit — could make up a greater share of trips in the future. This diversification could help activate sidewalks and streets throughout the corridor and improve public health.

Support active transportation

Walking, bicycling, and taking transit will activate streets and sidewalks while also improving public health and reducing greenhouse gas emissions. In addition to bicycle and pedestrian infrastructure improvements, the county and corridor communities should use educational programming to communicate the social, economic, and environmental benefits that active living can bring to individuals and the community at large. Communities and civic organizations within the corridor should partner with the local school districts, parks departments, McHenry County, IDNR, local hospitals, and health care providers to help communicate and promote active transportation.

In 2018, the Bike Walk Education in Schools Act (HB 4799) was passed requiring K-8 public schools in Illinois to provide instruction, study, and discussion of effective methods for the prevention and avoidance of traffic injuries related to walking and bicycling. To help schools meet this requirement, Active Transportation Alliance and the Illinois Association of School Board compiled a resource list for school districts that includes easy-to-use guides that cover a wide range of topics that can be taught in classrooms and via bike lessons.⁶⁴ Schools within the corridor can take advantage of these guides to meet this requirement and help educate students on best practices for walking and biking.

Corridor communities can also support infrastructure investments and educational programs through IDOT's Safe Routes to School program. The program helps fund projects and activities that improve safety and reduce traffic in areas around elementary and middle schools. Improvements can include new sidewalks, efforts to reduce speeding and other traffic offenses, public education, and outreach programs. Communities should assess their roads and streets near schools to determine eligibility.



Examples of active and safe routes

Source: Daily Herald (top); Active Transportation Alliance (bottom)

Promote McHenry County's Bikeshare Program

Corridor communities should help support McHenry County's bikeshare program, #bikeMC Bike Share. In 2019, the countywide bikeshare program was launched in McHenry at the Bike Haven bicycle shop. As the primary sponsor, Visit McHenry County should help communities promote the program locally. As the program grows, the county should analyze user data to determine the need and location for additional bicycles and stations, particularly near the Fox River, downtowns, and other recreational areas within the corridor. If warranted through ridership and community-wide support of the program, partnerships with neighboring corridor communities, local healthcare providers, IDNR, or local park departments should be explored to create a larger regional network. Additionally, the county should consider sending surveys to users and members to identify areas for improvement. Special deals or promotions can also be used to encourage more people to become members.



McHenry County #bikeMC bicycles

Source: Northwest Herald

Encourage public transportation ridership

As the county and corridor communities strategize how to strengthen the local economy through tourism, they should encourage the use of three local public transportation options currently available within the corridor — Metra, Pace, and Pace's McRIDE Dial-A-Ride services. Metra functions as a regional transit option to get to the corridor on the weekdays. Pace also has a bus, Route 806, that extends from Crystal Lake to Fox Lake through McHenry and Johnsburg and serves as a local transit option during weekday rush hours. The McRIDE Dial-A-Ride on-demand services function as another transit option, which caters to (but is not limited to) seniors and people with disabilities. The Illinois Department of Aging also has a Ride Free Transit Benefit program for seniors and persons with disabilities using Metra and Pace fixed-route services.

Municipalities within the corridor should also work with the public transit agencies to track existing ridership and destinations. This will help assess the need for additional services in the future. City of McHenry, in partnership with Metra, should consider conducting a needs assessment survey to develop a better understanding of the public's interest in transit service within the corridor, particularly over the weekends when it is not currently available. Demonstrating that there is a need or desire to travel by train would help bolster the case for expanding weekend service within the corridor.

While services are limited, the county and corridor communities should help bolster ridership by publicizing bus and train schedules and on-demand services in local papers and online platforms, as well as highlighting destinations and activities that can be easily reached via public transportation. Similarly, wayfinding signage to transit stations along pedestrian and bike routes would also improve travel experience and encourage transit ridership. Key transit stops are also ideal locations to display local and regional bicycling and pedestrian routes that would improve the experience for people traveling to the corridor. For example, Metra's McHenry Station could benefit from a kiosk that provides guidance on preferred routes into McHenry's downtown areas, the river, nearby open space, and the regional trail network.

Municipalities within the corridor should also work with public transit agencies to track existing ridership relative to economic activity and destinations, and explore the need for additional service, including feeder bus service and last-mile transit options from major transit hubs. Feeder and last-mile transit services focus on filling transit gaps that exist between two major transit routes, hubs, and nearby destination points, such as a downtown area. This type of service often is provided in the form of additional bus routes or a shuttle service between common destinations. Metra should consider expanding rail service at the McHenry Station in light of a proposed project to improve and extend the UP-NW train line to Johnsburg. Although the proposed project timeline is uncertain, the County, McHenry, and Johnsburg should continue to work with Metra to meet the corridor's travel needs in the most appropriate manner. Pace should consider increasing the frequency of service on Route 806 to provide mid-day as well as weekend bus service within the corridor. Increasing the service would align with McHenry County's Transit Plan, which also makes this recommendation.



Outbound Metra train on the UP-NW line.

Source: contemplative imaging, April 2009, Flickr, CC BY-NC-SA 2.0.

Evaluate parking and electric vehicle infrastructure

In the next 10-30 years, there is likely to be a dramatic increase in plug-in and hybrid electric vehicles. Public transit agencies and local governments within the region have started to invest in electric vehicles and replace their fleets with more energy efficient and less polluting vehicles. Yet, improved charging infrastructure is an ongoing challenge that needs to be addressed to increase adoption rates of electric vehicles.

The county and corridor communities should proactively and strategically invest in electric vehicle (EV) infrastructure given the emergence of electric vehicles and corridor's reliance on vehicles for transportation. Communities should review their development ordinances to identify ways to promote electric vehicle infrastructure within their transportation network. They should also partner with the Environmental Defenders of McHenry County for guidance and investment support. The Environmental Defenders is a leading advocate for EV infrastructure investments in the county and has experience working with local municipalities to install EV infrastructure for municipal and public use. As EV infrastructure investments are considered, corridor communities will need to evaluate existing parking availability near the corridor's transit options and within community downtown cores. Managing an adequate supply of parking for different types of vehicles will be an essential ingredient to the success of any downtown core.

Implementation Actions

Recommendation	Timeline	Lead and Partners
7.1 Expand bicycle and pedestrian network		
Prioritize connections between commercial and recreational areas. The county and corridor municipalities should include connections in capital transportation program plans that would expand the existing network. Adding facility enhancements, such as on-street markings indicating shared roadways as well as dedicated bicycle and pedestrian infrastructure that improves connections between destinations should also be prioritized and coordinated with capital improvement planning. <i>Funding:</i> Illinois Trails Grant Program, PeopleForBikes Community Grant Program, Surface Transportation Program (STP), Transportation Alternatives Program (TAP-L), Transportation Enhancements Program (ITEP)	3-5 years	MCDOT, IDOT, McHenry Township, Nunda Township, corridor municipalities
Develop signage and wayfinding. Signage indicating connections and routes should also be installed with support from transportation programming and/or capital improvement planning and funds.	Ongoing	MCDOT, IDOT, McHenry Township, Nunda Township, corridor municipalities
Support the upcoming McHenry County Connection Master Plan. Municipal staff and residents should work with the McHenry County Council of Mayors (MCCOM) on the Connection Master Plan to advocate for and identify stronger bicycle and pedestrian connections within their communities.	Immediate	MCCOM, corridor municipalities, McHenry Township, Nunda Township, McHenry County Bicycle Advocates
7.2 Improve transportation infrastructure and safety		
Leverage transportation and capital improvement programming. Capital improvement programming should be used to make transportation and connectivity improvements, including those for bicyclists and pedestrians. Communities should work with residents to understand their needs and voice them as budgets and capital improvement plans are formed. <i>Funding:</i> Illinois Trails Grant Program, PeopleForBikes, Community Grant Program, STP, TAP-L, ITEP	Ongoing	All relevant stakeholders, MCDOT, IDOT, McHenry Township, Nunda Township, corridor municipalities
Integrate complete streets policies into future transportation projects. Communities should refer to their complete streets policies and integrate infrastructure elements that create safe, environmentally sensitive, and accessible streets for all people. <i>Funding:</i> People for Bikes Community Grants Program	0-2 years	Corridor municipalities, McHenry Township, Nunda Township
7.3 Invest in walkability		
Add new and maintain existing pedestrian facilities. The county and corridor communities should invest in amenities (e.g., benches, trees, lighting) that support pedestrian activity and are ADA-compliant. These features would help draw pedestrian traffic and support walkability among vulnerable groups, including children, people with disabilities, and older adults. <i>Funding:</i> Illinois Trails Grant Program, People for Bikes Community Grants Program, STP, TAP-L, ITEP	3-5 years	McHenry County, McHenry Township, Nunda Township, corridor municipalities
Remove sidewalk gaps and improve circulation. Corridor communities should use CMAP's Sidewalk Inventory data to identify gaps in sidewalk infrastructure within the study area.	2-5 years	Corridor municipalities, MCDOT
Improve crossings at major intersections. Johnsburg and McHenry should assess the major intersections in their communities and prioritize projects that increase pedestrian safety.	0-2 years	IDOT, MCDOT, McHenry Township, Nunda Township, corridor municipalities
7.4 Diversify transportation options		
Support active transportation. All communities within the corridor should support active transportation whenever possible. Forms of active transportation, such as walking and biking, increase a person's wellness and overall happiness. <i>Funding:</i> CMAQ (Congestion Mitigation & Air Quality), RTA's Access to Transit Program	Ongoing	McHenry County, Metra, RTA, corridor municipalities
Encourage public transportation ridership. Since public transit is limited within the corridor, municipal staff, in partnership and coordination with transit agencies, should seek to promote the services that are available in an effort to increase ridership and make taking public transit a more viable option.	Immediate	McHenry County, Metra, RTA, corridor municipalities
Evaluate parking and electric vehicle infrastructure. The county and corridor communities should proactively and strategically invest in electric vehicle (EV) infrastructure given the emergence of electric vehicles and corridor's reliance on vehicles for transportation. <i>Funding:</i> MMC's Electric Vehicle (EV) Ready Program, VW Settlement Beneficiary Mitigation Plan	0-2 years	McHenry County, corridor municipalities, Environmental Defenders of McHenry County, Metropolitan Mayors Caucus (MMC)

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Acronyms

ACA	America Canoe Association
ADA	Americans with Disabilities Act
BMP	Best Management Practice
BDCWA	Boone-Dutch Creeks Watershed Alliance
BRIC	Building Resilience Infrastructure and Communities
CA	Conservation Area
CMAQ	Chicago Metropolitan Agency for Planning
CDBG	Community Development Block Grant
CDBG-DR	Community Development Block Grant - Disaster Recovery
CRS	Community Rating System
EV	Electric vehicle
FEMA	Federal Emergency Management Agency
FFWTI	Fabulous Fox Water Trail Initiative
FOFR	Friends of the Fox River
FREP	Fox River Ecosystem Partnership
FRSG	Fox River Study Group
FVSN	Fox Valley Sustainability Network
FWA	Fox Waterway Agency
HMGP	Hazard Mitigation Grant Program
HOA	Homeowners' Association
GIGO	Green Infrastructure Grants Opportunities
GIV	Green Infrastructure Vision
IDOA	Illinois Department of Agriculture
IDNR	Illinois Department of Natural Resources
IDOT	Illinois Department of Transportation
IEMA	Illinois Emergency Management Agency
IEPA	Illinois Environmental Protection Agency
ITEP	Illinois Transportation Enhancement Program
LTA	Local Technical Assistance
LWR	Illinois Land and Water Reserve
MCCD	McHenry County Conservation District
MCDH	McHenry County Department of Health
MCDOT	McHenry County Division of Transportation
McMPI	McHenry County Municipal Partnering Initiative
MUTCD	Manual on Uniform Traffic Control Devices
NACTO	National Association of City Transportation Officials
NFIP	National Flood Insurance Program
NP	Illinois Nature Preserve
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service

NWPA	Northwest Water Planning Alliance
OSLAD	Open Space Lands Acquisition and Development
OWR	Office of Water Resources
SARA	Sensitive Aquifer Recharge Area
SSHCWC	Silver and BDCWA Creeks Watershed Coalition
SMO	Stormwater Management Ordinance
SRF	State Revolving Fund
STP-L	Surface Transportation Program (Local)
SWCD	Soil and Water Conservation District
SWPP	Source Water Protection Plan
TAP-L	Transportation Alternatives Program (Local)
TIF	Tax Increment Financing
TLC	The Land Conservancy of McHenry County
UCCGP	Unsewered Communities Construction Grant Program
ULI	Urban Lab Institute
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
WRAP	Water Resources Action Plan

Appendix

1 "Fox River Corridor Existing Conditions Report: Existing Conditions Overview for the Fox River Corridor Plan from Burtons Bridge to Johnsburg," CMAP, January 2021, <https://engage.cmap.illinois.gov/4367/widgets/20709/documents/17054>



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See cmap.illinois.gov for more information.