

Healthy Waterways:

A Health Impact Assessment of the City of Rochester,
New York's Local Waterfront Revitalization Program

Executive Summary, May 2013



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Project Background

Health Impact Assessment (HIA) is a systematic approach to considering health in non-health decisions. How Rochester's waterfront is used affects community health in many ways. Changes in the waterfront may affect physical safety, opportunities for physical activity, water quality, and other health-supportive resources in ways that impact health. Our primary goal was to clarify health impacts of potential changes along Rochester's waterfront so decision makers can maximize health benefits and minimize risks to health.

A secondary goal of this project was to increase the community's understanding of HIA practice as it relates to local decision making. As the first HIA conducted in Rochester, Healthy Waterways serves as a demonstration of this process in our region.

The primary objectives of Healthy Waterways were to:

- Provide data to support recommendations that maximize health benefits of future waterfront uses in the City of Rochester's Local Waterfront Revitalization Program

- Increase stakeholders' understanding of how elements of the LWRP might impact the health of various populations in Rochester
- Enhance community engagement in the LWRP by identifying and communicating potential health implications of the program
- Partner with the City of Rochester, its Consultant, and the Waterfront Advisory Committee (WAC) to integrate health considerations into LWRP recommendations

What is Health Impact Assessment (HIA)?

Health Impact Assessment (HIA) is a tool for providing decision makers with information about how their proposed plans and policies may impact community health. HIAs offer recommendations to maximize health benefits and minimize negative health impacts of decisions. HIA is based on the fact that social and environmental conditions strongly influence public health. These conditions are shaped by policy decisions that often do not consider health. HIA also assesses the distribution of health impacts on different populations. HIA recommendations promote equity and reduce health disparities. HIA is a flexible tool that follows systematic procedures to assure objectivity, transparency, and integrity. More information about HIA is available on the Health Impact Project website.¹

What is an LWRP?

Local governments in New York State have the opportunity to participate voluntarily in the NYS Coastal Management Program (CMP) by preparing and adopting a Local Waterfront Revitalization Program (LWRP). The NYS Department of State's (NYS DOS) Office of Communities & Waterfronts oversees this program.

An LWRP is a locally prepared plan for managing a community's natural, public, working, and developed waterfront resources. In partnership with the NYS DOS, a municipality develops community consensus regarding the future of its waterfront.² Rochester's LWRP was originally adopted by City Council and approved by NYSDOS in 1990. A revision was drafted in 1999, but was never finalized. According to the 1999 draft, the goal of Rochester's LWRP is to "suggest how the Erie Canal, Genesee River,

¹www.healthimpactproject.org/hia.

²<http://www.dos.ny.gov/communitieswaterfronts/WFRevitalization/LWRP.html>

and Lake Ontario can be protected as a unique and unified resource, and developed to enhance Rochester's quality of life and stimulate economic growth."³

An amendment to Rochester's LWRP was adopted by City Council and approved by NYS DOS in 2011 in order to facilitate the construction of a new public marina and mixed-use development at the Port of Rochester. Healthy Waterways was conducted to inform the city's 2013 LWRP revision.

Why was the HIA Conducted?

Local waterfront revitalization can clearly have a major impact on economic development, recreation, and natural resources in a community. However, the impacts of waterfront uses on community health have not been addressed directly. Healthy Waterways was conducted to assess how policies and proposed changes to Rochester's waterfront might affect community health, and to make recommendations that maximize the health benefits of the LWRP.

What was the process?

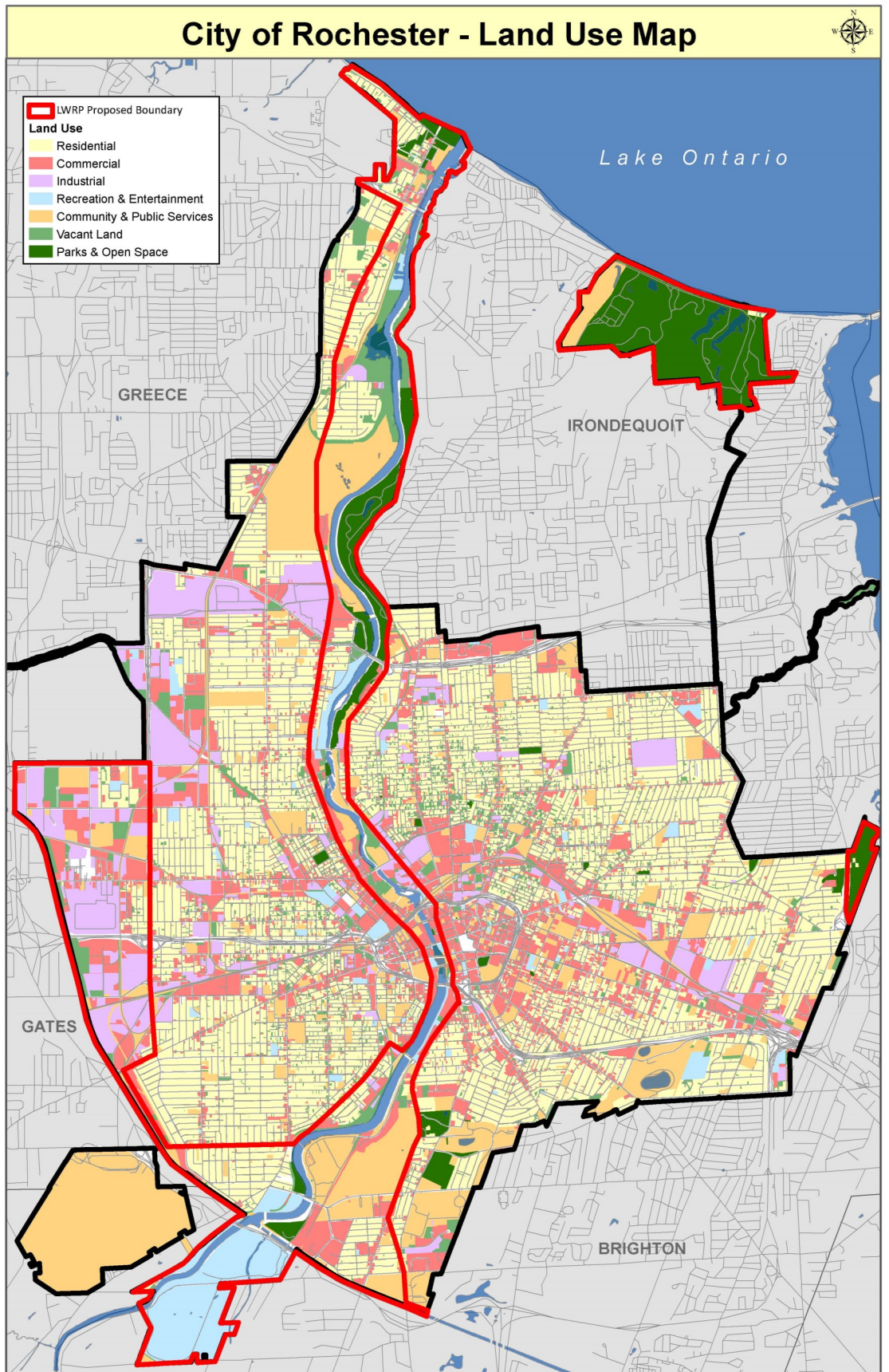
Healthy Waterways followed the Health Impact Assessment framework, which includes: screening, scoping, assessment, recommendations, reporting, and monitoring and evaluation. This executive summary highlights the key elements of the full report.⁴

During the screening and scoping phases, we solicited input from diverse stakeholder groups interested in waterfront resources and communities. We used a variety of strategies, including interviews, surveys, and presentations at community meetings. Our assessment is based on literature reviews, analysis of existing data, and limited new data collection. Recommendations based on the assessment were reviewed by stakeholders.

Throughout the HIA process, we solicited input from City LWRP staff, as well as several existing groups with broad-ranging interests in environment and health in Rochester, including the Rochester Health Impact Assessment Learning Group, the CARE collaborative, and the University of Rochester Environmental Health Sciences Center's Community Advisory Board.

³Executive Summary, City of Rochester Local Waterfront Revitalization Program, Jan. 1999

⁴The full Healthy Waterways report is available online at <http://www2.envmed.rochester.edu/envmed/EHSC/outreach/coec/projects/HIA/HealthyWaterways.html>



*Map A—Land Use and Proposed Local Waterfront Revitalization Program Boundary
 Provided by the City of Rochester*

Key Findings and Recommendations

Health Conditions of Rochester's Waterfront Population

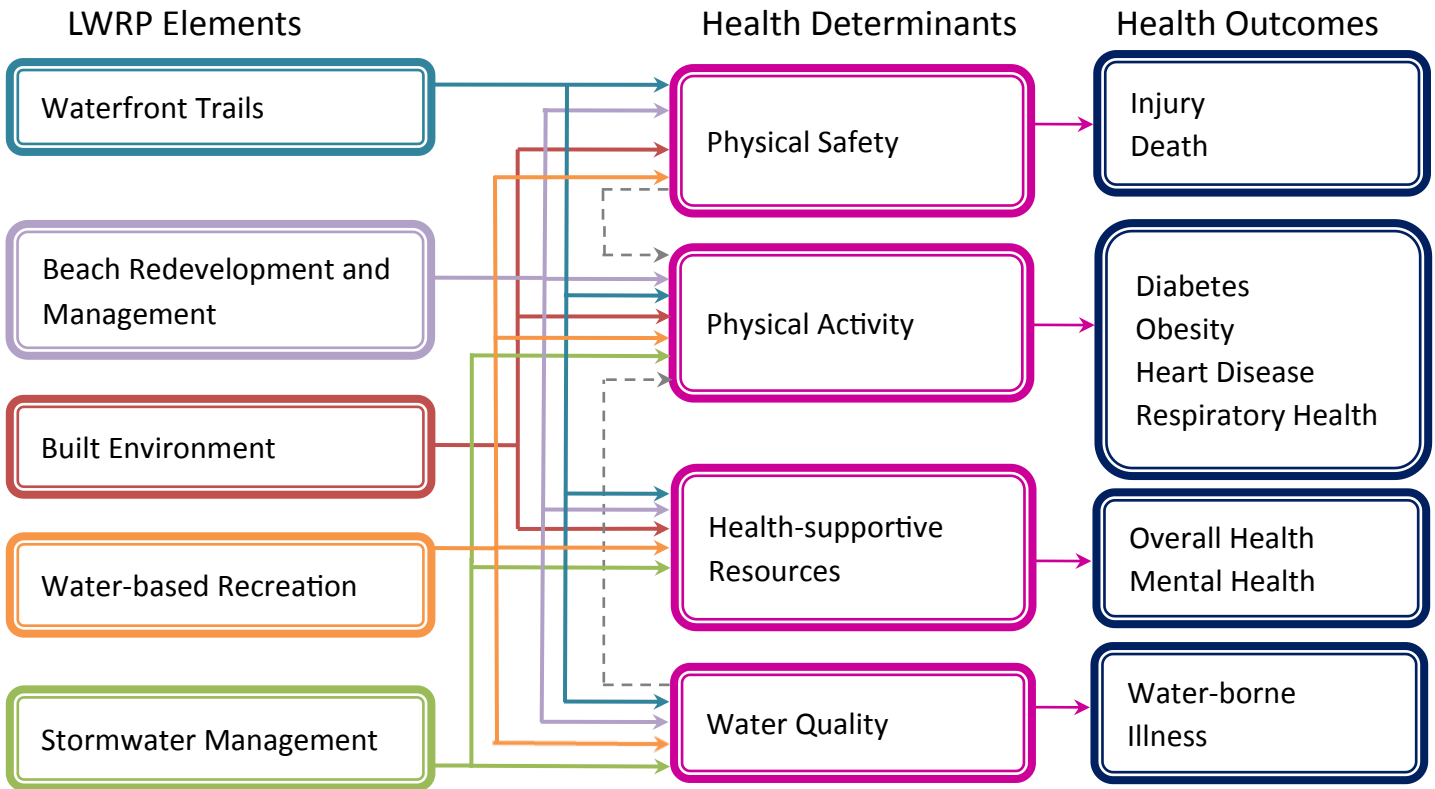
Changes along the waterfront may affect the health of people who live nearby, those who visit the waterfront, and the general population. We assessed impacts on all three groups, with an emphasis on those whose health is most likely to be affected by changes to the waterfront environment. These included children, older adults, and low-income and minority residents of the waterfront areas.

Recognizing that people who live near the waterfront are most likely to be affected, we defined “waterfront neighborhoods” based on census tracts adjacent to the proposed 1999 LWRP boundary (Map A). These waterfront neighborhood groups are all approximately within half a mile of the Erie Canal, Genesee River, or Lake Ontario. This area is significantly larger than the LWRP's proposed boundary. Waterfront neighborhood residents are most likely to use the waterfront for daily exercise and recreation, be affected by environmental changes, and be impacted by changes in residential, commercial, or industrial land use.

Obesity, cardiovascular disease, stroke, and diabetes are significant local health concerns. Together, these health conditions are the leading causes of death in Monroe County and are of particular concern among low-income and minority residents in the City of Rochester. Asthma is also an important health issue for children living in the City of Rochester.

The Monroe County Department of Public Health maintains health data for the City of Rochester. We used these data to characterize the health status of waterfront communities. Birth certificate data confirms that low-income census tracts also tend to have higher rates of low birth weight babies. Premature death rates in many city neighborhoods are due to the fact that residents are more likely to die from chronic diseases at younger ages than those living in other areas, as well as higher rates of infant mortality and homicide. Based on national data, it is likely that these same populations are disproportionately affected by poor mental health.

Figure A – Assessment pathway linking potential waterfront changes to health outcomes



Although data is limited, physical injury related to crime and pedestrian or bicyclist crashes along waterfront trails and drowning accidents in the waterfront area are rare. However, stakeholders voiced concern about current crime rates and about future changes that might increase injury rates.

Finally, although there are no documented cases of illness from exposure to polluted water along Rochester’s waterfront, the potential for water-borne illness exists. This could increase if waterfront changes result in increased water-contact recreation without significant improvements in water quality.

What Determines Health?

Four health determinants were selected for assessment: physical activity, water quality, health-supportive resources, and physical safety. Many of these health determinants are interrelated. For example, improving the perceived safety of an area may increase outdoor physical activity. Healthy Waterways summarizes each health determinant's relationship to waterfront development, the current status of that health determinant, and evidence (based on literature, local data, experience of other communities, and survey data) of its impacts on specific health outcomes.

We focused on five types of waterfront changes addressed in the LWRP: waterfront trails, beach redevelopment and management, built environment, water-based recreation, and stormwater management (Figure A). Each of these elements is likely to affect several of the health determinants. Our findings are summarized below, along with recommendations for maximizing the health benefits of the LWRP. These recommendations fall into five categories: policies, projects, programs, communication, and monitoring.



View of High Falls

Photo credit: City of Rochester, Communications Bureau

Waterfront Trails

The Genesee Riverway Trail (GRT) is a pedestrian/biking trail that runs along the Genesee River from the Erie Canal north to where the river enters Lake Ontario. Trail use varies geographically and is greatest in areas located near parks and other attractions. According to our survey of trail users, many people travel from suburbs to use the trail. However, nearly two thirds (62%) of pedestrians and 46% of bicyclists using the trail lived within one mile of the waterfront.

Research shows that free and convenient access to recreational resources such as trails can increase physical activity. Our survey also identified ways to increase trail use, for example by increasing the sense of safety on the trail.

The city’s existing plans to expand and improve the GRT are likely to improve health by promoting physical activity. Our recommendations support building new sections so that the trail is continuous, improving maintenance (trash collection, smoother surface, plowing), adding amenities (water fountains, restrooms, lights, signage, etc.), and increasing the number of access points to facilitate use by waterfront community residents. Increased communications and programming could also increase trail use. To maximize these impacts, it is important that concerns about physical safety and crime be addressed in all trails-related decisions.

Waterfront Trails Recommendations

Policies
Develop an advisory committee or “Friends of the Genesee River Trail” group for promoting the development, maintenance and use of the GRT.
Prioritize trails development in areas of the city with high concentrations of low-income and minority populations.
Prioritize linkage of bike lanes, trails and amenities to enhance connectivity of existing (universities, employers, healthy retail, and other trail systems) and new destinations.
Clarify jurisdictional responsibilities (e.g., who is responsible for management of GRT sections).
Adopt policies that remove barriers to trail use and strive for access for users of all abilities.
Projects
Add amenities to the trail including water fountains, restrooms, lighting, additional signage, benches, bicycle racks, and exercise infrastructure as appropriate to increase safe trail use.
Improve road crossings to reduce potential for trail user/ motor vehicle collisions.
Improve actual and perceived trail safety (e.g. improve signage, expand 911 emergency trail markers, improve the trail surface, trim vegetation to improve visibility, clarify system for reporting hazards).
Implement plans for a continuous dedicated trail, especially through downtown.
Design trails in ways that avoid use conflicts (for example between pedestrians and cyclists).

Waterfront Trails Recommendations (Continued)

Programs
Develop an annual maintenance schedule to ensure sustainable, safe, and increased trail use (surface condition, trash collection, winter maintenance, etc.).
Increase walking clubs and other programming to encourage use of the trails, particularly among current non-users, neighborhood residents, and vulnerable populations (including children, older adults, minorities, and low-income residents).
Coordinate with the Rochester City School District and community partners to develop programs that highlight historical, cultural, and environmental resources along the trails, encourage physical activity, and educate about safe trail use.
Improve policing to control negative behavior (criminal activity, motor vehicles on trails, other safety concerns).
Communication
Integrate trails into Safe Routes to School programs.
Compile and maintain a list of community organizations that should be involved in efforts related to the GRT.
<p>Promote interconnectivity between trails and neighborhoods:</p> <p><u>On the trail</u>: include information on distance and approximate walking time to neighborhood destinations such as recreation centers, libraries, historical sites, retail, other trails, etc.</p> <p><u>In neighborhoods</u>: increase the number of signs to direct residents to the GRT and other local amenities.</p>
Conduct and maintain a public outreach and media campaign to increase local and regional awareness of the GRT, particularly among waterfront communities.
Expand uniform signage to help residents recognize GRT signs. Consider various types of signs (natural treatments, lit or reflective signs, etc.), electronic links, and multilingual text.
Include messages about personal safety on signage.
Monitoring
Conduct periodic trail user surveys to characterize changes in use patterns, users, and desired improvements over time. Analyze and report findings to City Council, interest groups, neighborhood groups, and general public.
Collect, analyze, and report data on number of organized trail-based recreation programs and participants (including demographics, when feasible).
Consider replicating Erie Canalway Trail’s Economic Impact Survey with GRT users.
Encourage National Bike and Pedestrian Documentation (NBPD) volunteers to include GRT sites or implement automatic use counters to document changes in use over time.
Conduct localized crime assessments to track perception and reality of safety in waterfront neighborhoods and on trails; train law enforcement officers to record locations of incidents on trails to facilitate analysis by location.
Monitor use seasonally to inform decisions about appropriate winter maintenance.

Beach Redevelopment and Management

Rochester’s waterfront assets include two seasonally lifeguarded sand beaches: Ontario, which is owned by the City of Rochester and operated by Monroe County; and Durand, which is owned and operated by the City of Rochester. The two beaches vary greatly by atmosphere, amenities, and number of visitors. Beaches provide opportunities for active and passive recreation. However, there are also risks, including exposure to poor water quality and safety issues (e.g. drowning). Additionally, changes such as the introduction of fees could negatively impact health by discouraging people from using the beach.

Our assessment focused on the potential of redevelopment to affect beach use. We surveyed beach users about how they currently use the beach. About a third of Ontario Beach survey respondents said they were swimming. Over half of Durand visitors swam; about a quarter were exercising by walking at the beach. Ninety-one percent of Ontario Beach users and 65% of Durand Beach users said they would use the beach more if water quality improved. Similarly, several survey respondents reported that perception of high crime rates at both beaches prevents people from visiting. Although the Port of Rochester is a key area for development, we did not assess it directly because it is not part of the LWRP.

Our assessment revealed that beach redevelopment presents significant potential to positively impact physical activity and access to health-supportive resources. The following recommendations are aimed at ensuring that beach development proceeds in a way that increases healthy and safe use by a wide range of resident and visitor populations.



Visitors on the boardwalk at Ontario Beach Park

Beach Redevelopment and Management Recommendations

Policies
Encourage projects that promote physical activity at beachfront areas.
Ensure that future development provides access for people of all ages, abilities, and income levels.
Monitor, promote, and coordinate efforts by city, county, community, and private groups to enhance safe and healthy use of beach resources.
Projects
Develop and Implement land-based recreation and physical activity resources adjacent to the beach, such as a pool, spray park, or exercise equipment at Ontario Beach.
Improve beach transportation options to insure accessibility to people of all ages, abilities, and income levels (parking shuttle, bus service, bike trail links, boat slips).
Improve facilities to increase beach use (e.g. bathrooms at Durand and more retail options at Ontario).
Implement local projects to improve water quality (e.g. algae pump, bacteria sponge, septic system improvement).
Programs
Expand programming to attract new, more frequent, multi-season visitors, and promote safe and healthy beach use.
Implement policing, lighting, and other crime prevention efforts to improve actual and perceived safety appropriate to new use patterns.
Ensure that lifeguarded beach times and resources keep pace with changing beach use over time.
Communication
Promote beach as a safe and healthy destination.
Improve communication about timing and causes of beach closures due to water quality.
Promote safe and healthy beach use (messages about sun safety, swimming, water quality, etc.).
Monitoring
Expand and repeat beach user surveys annually; analyze and report to track change over time.

Built Environment

The waterfront currently features a mix of land uses including housing, open spaces, recreational facilities, and commercial/industrial enterprises. Waterfront development changes the natural and built environment in ways that can affect human health. The relationship between development and community health has been explored from a wide range of perspectives and is supported by a well-established and growing evidence base within health, community planning, and design fields. The challenges of balancing economic, equity and public interests are increased in waterfront areas by the high value of waterfront property.

We sought input from stakeholders and reviewed the literature on connections between built environment and health. Our assessment focused on waterfront changes in southwest Rochester, where brownfield redevelopment and other community planning efforts are currently underway. We found that future development within the LWRP may affect community members' physical activity by designing public and private spaces to provide convenient access to transportation services and promote walking to and from the facilities. Particular concerns about physical safety and crime may be reduced by physical design elements such as street lighting, façade transparency, and visual access. Waterfront redevelopment may affect access to health-supportive resources, including a healthy retail environment, employment and economy, healthy and affordable housing, and public gathering spaces.

The various improvements associated with waterfront redevelopment would likely increase access to health supportive resources and improve opportunities for physical activity and enhanced physical safety. However, future development of waterfront areas could negatively affect current residents. Risks include gentrification (potentially affecting access to safe and affordable housing) and reduced access to the waterfront. Many of the process (community input, etc.) and design standards (walkability, access, etc.) already included in the city's zoning codes and planning programs promote healthy neighborhoods. Based on our assessment, the following recommendations highlight policies and design standards that have been identified as particularly important to maintaining a healthy built environment.

Built Environment Recommendations

Policies
Support development that engages community residents and reflects the culture and desires of affected neighborhoods.
Review zoning codes to ensure they promote mixed use, healthy retail, public access, and affordable housing along the waterfront.
Promote a healthy retail environment (access to healthy food, minimize unhealthy options) in waterfront developments.
Consider impacts of development in the waterfront boundary on communities living within half a mile of the waterfront in terms of housing affordability, public access, walkability, and retail environment.
Coordinate development to enhance public access, trail continuity, and healthy use of the waterfront throughout its length (for example, distance between physical access points).
Integrate LWRP plans with other efforts in city neighborhoods to meet the needs of residents for access to healthy food and other health supportive resources.
Integrate health planning with sustainability efforts (“walkable waterfront,” active transportation, green infrastructure, etc.).
Increase physical and visual access to the water.
Projects
Enhance waterfront gathering spaces with benches, picnic tables, grills, etc.
Incorporate CPTED (Crime Prevention Through Environmental Design) principles in development plans to maximize real and perceived safety in waterfront areas. Consider EMS/fire access in new/retrofit development.
Increase public access (both visual and physical) to the waterfront for people of all abilities.
Programs
Improve policing and PACTAC (Police and Citizens Together Against Crime) patrols to enhance actual and perceived safety of waterfront areas.
Coordinate county, city, community and private crime prevention and security programs in waterfront areas to enhance real and perceived safety.
Communication
Improve signage along the waterfront for wayfinding, public access locations, and emergency contact information/resources (blue light/panic button).
All communications should be multilingual (including ASL and Braille).
Increase communication about safety resources through PSAs, GPS/smart phones, news, and media communication groups.
Monitoring
Monitor and report on air and water quality around brownfields to ensure that residents are not exposed to harmful chemicals and are aware of environmental conditions.
Conduct annual report/presentations for community groups regarding progress on waterfront development plans and future priorities.
Regularly assess retail environment for LWRP residents and integrate with other city programs to promote community access to healthy food and minimize unhealthy options.
Conduct localized crime assessments to track perception and reality of safety in waterfront areas.

Water-based Recreation

Waterfronts provide many opportunities for active and passive water-based recreation. The potential for water-based recreation varies with the diverse geography within Rochester's LWRP. The north end of the Genesee River runs through a gorge and the central portion (near downtown) is characterized by waterfalls and steep banks. Thus, most recreational access to the river and canal is south of the city center, with the exception of fishing sites at the Charlotte Pier, Turning Point Park and Seth Green Drive (note that beachfront recreation is addressed separately). There are no designated fishing piers or locations south of the falls, but people fish at informal spots along the river and canal. The Genesee Waterways Center, located in Genesee Valley Park (southwest), is a nonprofit organization offering canoe and kayak rentals, rowing and sculling, and various other water-based programs throughout the year such as regattas and family programs.

Although water-based recreation has expanded in recent years, the recreational potential of waterfront is still underutilized. In particular, there are many opportunities to expand participation by low-income residents. Development of these opportunities must consider the costs inherent in many types of water-based recreation, as well as the health and safety risks. For example, active forms of boating (particularly canoeing, rowing, kayaking, and sailing) may contribute to physical activity, but these activities are often expensive. Fishing and boating were also noted by community members as stress-reducing forms of passive recreation that are accessible to people of varied abilities. Involvement in water-based recreation may increase the potential for exposure to polluted water and for drowning risks.

Although many of the policies and proposed improvements associated with water-based recreation would have positive impacts on health, there are potential negative impacts to physical safety and water quality that need to be considered. The following recommendations offer suggestions for prioritizing development of water-based recreation along Rochester's waterfront in ways that maximize health benefits.

Water-based Recreation Recommendations

Policies
Assure physical access to the water that supports water-based recreation, particularly in low-income neighborhoods.
Encourage and support water-dependent businesses such as bait and tackle shops, boat rentals, etc.
Monitor, promote, and coordinate efforts by city, county, community, and private groups to enhance safe and healthy recreational use of waterfront resources.
Projects
Develop public fishing sites along the river south of upper falls.
Develop public boat launches for canoes and kayaks in appropriate locations; include space for trailer and vehicle parking.
Install safety features where appropriate; examples include life rings, ladders, and grab wires.
Expand the Genesee Waterways Center to support more visitors and/or promote other boat rental businesses along the river corridor.
Programs
Expand and support swimming lessons at schools and public pools to reduce drowning risk.
Expand programming to encourage people of all abilities and income levels to participate in water-based recreation.
Increase outreach, coordination, and programming with RCSD and community groups to enhance water based recreation by youth.
Communication
Include public education about water safety in all projects/programs that promote use of the river.
Provide multilingual signage about fish consumption advisories at fishing sites.
Monitoring
Encourage public, private, and community groups to report to the Parks Advisory Committee the number and nature of events, programs, and participants involved with water-based recreation (including demographic information where feasible); publicly report findings annually.

Stormwater Management

Stormwater runoff refers to the amount and quality of water that runs off the land into surface waters. Because stormwater runoff carries nutrients, bacteria, sediment, and chemicals with it, it is a major cause of non-point source pollution. Changes in stormwater management have the potential to impact human health, primarily through exposure to polluted water. If water quality improves, the risk of illness for people engaged in water-based recreation will decline. Water quality improvements may have secondary impacts on physical activity and access to health-supportive resources if swimming, boating, fishing, or other water-based uses increase.

Stormwater management is the primary local tool for improving water quality. Many types of ‘green infrastructure,’ such as grassy swales or wetlands, improve water quality and have additional benefits as open space for physical activity. However, water quality is a function of activities throughout the watershed, not just along the Genesee River shoreline or nearby coastal areas. Thus, while changes in stormwater management in the City of Rochester could affect local water quality, there are limits to the magnitude of impact. For this reason, our recommendations emphasize stormwater management measures with health “co-benefits” such as providing areas for public recreation or physical activity.



Wetlands offer recreational and environmental benefits. At left, a cyclist travels along the GRT through a wetland at Turning Point Park.

Stormwater Management Recommendations

Policies
Continue to provide incentives to encourage stormwater control measures such as green roofs and permeable pavement in new construction.
Review zoning and building codes to better promote green infrastructure in new development and rehabilitation.
Promote projects with multiple benefits for water quality protection, public access, and physical activity.
Projects
Retrofit existing amenities and developments to improve stormwater control using features such as permeable pavement, rain barrels, and swales.
Implement existing city plans to construct swales and water retention ponds.
Install bat/barn swallow boxes near retention ponds and other standing water to help control insect populations.
Programs
Sustain or enhance clean-up programs (e.g., Clean Sweep, Coastal Cleanup, and Pick up the Parks) to reduce the amount of litter entering waterbodies.
Communication
Increase public outreach and education about the function of green infrastructure; importance of stormwater management to water quality.
Provide public education about protection from insect bites and risks of insect-borne disease around wetland areas.
Educate developers/planning consultants, residents, neighborhood residents about green infrastructure.
Monitoring
Share data on green infrastructure development with MCDOPH and monitor health data on incidence of insect-borne disease.

Recommendations Summary

Our assessment identified opportunities to maximize health benefits, particularly for vulnerable populations living near the waterfront, and to avoid unintended risks to health. In addition to the above recommendations related to the various plan elements, we identified several cross-cutting recommendations that were emphasized by stakeholders throughout the process:

1. Maintain or improve access from adjacent neighborhoods to the waterfront
2. Improve safety and security for people using the waterfront area
3. Increase public awareness among area residents and visitors of how to access Rochester's diverse waterfront resources in ways that support health
4. Improve coordination among agencies and between jurisdictions (city/county/neighboring towns) responsible for managing different areas of the waterfront
5. Monitor, analyze, and report progress, challenges, and opportunities in implementing these goals and recommendations

We also identified opportunities to incorporate HIA throughout the framework of the LWRP and related decision-making and implementation processes, including:

1. Add community health to the 2013 LWRP Vision Statement
2. Add community health to the 2013 LWRP Goals
3. Include information on health and demographics in the LWRP background and inventory
4. Incorporate community health into the Department of State's policy guidelines for all LWRPs
5. Promote HIA in future city and county decision making processes

Overall, our Healthy Waterways assessment found that plans to revitalize Rochester’s waterfront are likely to produce many health benefits. However, some potential changes could negatively impact health, particularly for vulnerable populations living near the waterfront. Attention to maximizing community health benefits and avoiding unintended negative health impacts could significantly improve the community’s health.



View from Durand Eastman Beach.