

City of Buffalo

DRAFT

Local Waterfront Revitalization Program (LWRP)

June 2014

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Note:

This LWRP has been prepared in conjunction with the Buffalo Development Framework (BDF). To ensure consistency across the BDF plans, a shared Citylevel inventory has been prepared and included in the final BDF package and cross referenced whenever appropriate. In addition, this LWRP specific inventory details features of unique importance to the LWRA and the coastal policies.

I. REGIONAL SETTING AND COMMUNITY CHARACTERISTICS

A. Great Lakes Megaregion/ Megalopolis

The Great Lakes contain one-fifth the world's surface fresh water and have a combined shoreline of 10,210 miles (17,017 km).

The City of Buffalo is located on the eastern shore of the Niagara River between Lake Erie and Lake Ontario.

The America 2050 project has identified eleven Megaregions of the United States, including the Great Lakes Megalopolis. As a separate economy, the Great Lakes are one of the world's largest economies. The Bi-national Great Lakes Megaregion is estimated to have a 2009 population of 59,781,623. According to America 2050 project, The US Great Lakes Megaregion had a 2010 population of 55,525,296 people, comprising 18% of the United States.

In 2005, the US region had a GDP of 2,072,869,000,000, comprising 17% of the US GDP. The US Great Lakes MegaRegion is expected to grow by 28.3 percent between 2010 and 2050.



B. The Golden Horseshoe

Buffalo is strategically located in a bi-national urban region sometimes known as the “Golden Horseshoe”. It is home to nearly 10 million people and stretches from the Greater Toronto Area, around the western end of Lake Ontario, through the Niagara Peninsula and across Western New York, including the Buffalo and Rochester metropolitan areas.

The Golden Horseshoe is the fourth largest urban region in North America, and with a growth rate of 110,000 people per year, the region is the second fastest growing major urban region on the continent. Most of the growth is on the Canadian side of this bi-national region, but the future potential for investment and economic growth in the US parts of the region, because of our proximity to our Canadian economic partners, is substantial and should be exploited.



C. Western New York/Buffalo Niagara Region

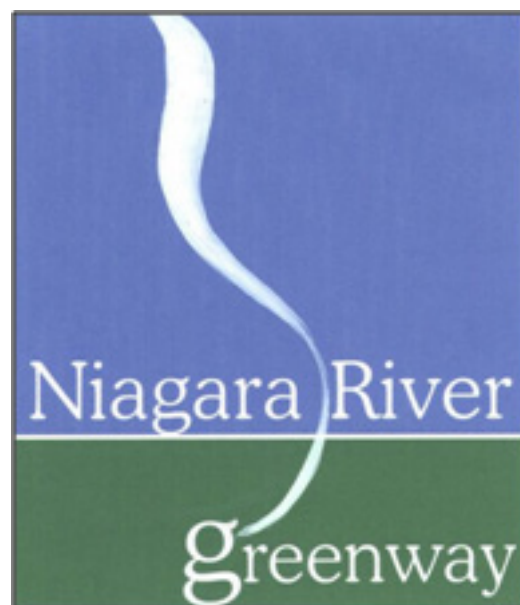
Buffalo serves as the urban center of the Erie and Niagara County region, also known as the Buffalo-Niagara Falls Metropolitan Statistical Area. This “Buffalo Niagara region” is located in the US along the Niagara River between Lake Erie and Lake Ontario, serving as a key gateway between the two nations. This region defines not only a US census unit, but the core of a regional labor market, a media market, a commuter-shed, a transportation planning area, and many other regional functions including ongoing efforts to improve metropolitan governance.

In all but the broadest definitions of this region, Buffalo has long been the dominant urban center, economically, politically, culturally and demographically. Over the past half century, however, Buffalo’s predominant position in the region has deteriorated as the urban core declined in population and the suburbs grew. In 1950 nearly two-thirds of the people in Erie County lived in the City of Buffalo. By the turn of the century, less than one-third of the population lived there.



D. Niagara River Greenway

In 2004 Governor George Pataki and the New York state legislature created the Niagara River Greenway commission (NRGC) to “implement or cause to be implemented a linear system of parks and conservation areas that will ...redefine the Niagara riverfront.” The NRGC completed the Niagara River Greenway Plan in April 2007, establishing the following vision: “The Niagara River Greenway is a world class corridor of places, parks and landscapes that celebrates and interprets our unique natural, cultural, recreational, scenic and heritage resources and provides access to and connections between these important resources while giving rise to economic opportunities for the region. The plan was adopted by the Buffalo Common Council and every community within its boundaries



The City of Buffalo is the southernmost municipality along the Niagara River Greenway. The City of Buffalo LWRP proposes the re-alignment of the LWRA to maximize consistency with the Niagara River greenway focus area to the greatest extent practicable. In addition, the Buffalo LWRP recommends that interpretive signs in the LWRA are consistent with the Niagara River Greenway signage design guidelines available at http://www2.erie.gov/environment/index.php?q=NRG_Signage.

E. City of Buffalo

The City of Buffalo is also known as the Queen City of the Great Lakes. The largest and most prosperous city along the Great Lakes at the end of the 1800's, it was at one point the second largest trade port in the North after New York City. The Buffalo waterfront contains approximately 57.7 linear miles of shoreline. Included in this area are the eastern portion of Lake Erie, the southern section of the Niagara River, Squaw Island and the Black Rock Canal, the Buffalo River, and portions of Cazenovia Creek and Scajaquada Creek. The surface water bodies cover approximately 7.5 square miles or 4,825 acres. The upland portion of the Local Waterfront Revitalization Area (LWRA) is nearly equivalent at just under 7 square miles or 4,387 acres.

I. LWRA Residents and Environmental Justice

A detailed description of the overall socio-economic conditions in the City of Buffalo and region are provided in the BDF Shared Inventory referenced at the beginning of this inventory. Of particular note within the LWRA, is the wide range of socio-economic communities within the City's LWRA. Two communities, located around Delaware Park and the Erie Basin Marina, experience some of the lowest poverty rates in the City, less than 10% and 13%, respectively.

However, the remaining neighborhoods within the LWRA either fall within the NYS DEC guidelines for Potential Environmental Justice Areas due to either the high prevalence of minority residents or poverty levels. Two neighborhoods, Kaisertown (23% poverty) and a

portion of South Buffalo between McKinley Parkway and Cazenovia Creek (20% poverty), fall just below the DEC poverty threshold. Potential environmental justice areas are presented as Map 7.

Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.



Environmental justice efforts focus on improving the environment in communities, specifically minority and low-income communities, and addressing disproportionate adverse environmental impacts that may exist in those communities.

For those without robust financial resources, protection of the public trust within the LWRA is critical. Many of the City's residents, including many immigrants, rely upon subsistence shoreline fishing as a family protein source. Shoreline fishing access, affordable license fees, easily understood fish consumption advisories, habitat protection and fish population growth strategies support these communities.

For those without financial resources for travel and recreation, public waterfront parks and natural areas provide important spaces for exercise, play, gatherings of family and friends, scenic views and natural inspiration.



CITY OF BUFFALO LOCAL WATERFRONT REVITALIZATION PROGRAM Environmental Justice Areas



LEGEND

- LWRA Boundary
- NYS DEC Potential Environmental Justice Area
- ▨ Below Poverty Above 23.59%
- ▨ Minority Population Above 88.7%



MAP 7 - ENVIRONMENTAL JUSTICE AREAS

For those with limited or no access to a car, the implementation of the City's complete streets program in the LWRA is critical to connecting all residents to the City's waterways- particularly those who walk, bike or utilize public transit.

For those with literacy and language barriers, clear signage helps to protect residents from hazards such as combined sewer overflows and dangerous currents.

For vulnerable populations and those with limited access to health care, protection from environmental hazards and contamination in the LWRA help ensure that the waterfront is safe and healthy for all Buffalo residents.

The economic development of the waterfront and the creation of jobs for LWRA residents, empowers employees with the financial means necessary for independence.

Finally, the open and transparent administration of the Buffalo LWRP consistency review process, is critical to ensuring that all of Buffalo's residents share in the revitalization of the Buffalo LWRA.

2. The Blue Economy

Brookings Institute economist John Austin has identified three traditional, and four emerging, ways that water influences the economy. Traditionally, water has served as:

- ▶ a conduit for commerce through freight shipping and warehousing as demonstrated by Buffalo's Erie Canal shipping and grain elevator prowess;
- ▶ an input and resource to grow and make things through agriculture, manufacturing and energy production as demonstrated by the historic proliferation of water intense manufacturing facilities along the Buffalo River as well as modern brewing and food production; and
- ▶ a "place-definer and quality of life enhancer", epitomized by the region's association with Niagara Falls, its active waterfront event calendar and elevated real estate values for waterfront housing.

Increasingly, water can contribute to Buffalo's economic revitalization as Buffalo:

- ▶ businesses innovate, deploy and manufacture smart and sustainable water use, reuse, efficiency and cleaning technologies;
- ▶ serves as a training ground and hub for water and ecosystem restoration research and implementation professionals such as those associated with the Buffalo State College Great Lakes Center, UB Great Lakes program and NYS Pollution Prevention Institute;
- ▶ water protection measures, including green infrastructure in key roadway landscape projects, send a value cue indicating Buffalo's commitment to sustainability and innovation;
- ▶ capitalizes upon its Great Lakes location as one of the few places on earth that can provide a sustainable platform for long-term population and economic growth.

Locally, water and the LWRA contribute to many other aspects of the region's growing economy including:

- ▶ commercial boating businesses; marinas; fishing charters, birding and ecotourism enterprises, and related businesses like bait shops; boat building, rental and sale and repair shops generate water dependent business, waterfront activity and tourism revenue;
- ▶ Lake Erie locally caught, fish offer a cost effective, low carbon, more sustainable alternative to fish imported from the nation's coasts and foreign markets. The total value of Lake Erie's commercial fishery was \$194 million in 2011.
- ▶ the local, public water supply presents a cost effective, low carbon alternative to imported bottled potable water, saving each resident hundreds, if not thousands, of dollars every year;
- ▶ ecosystem restoration activities such as the \$75 million Buffalo River sediment clean up and brownfields clean up efforts provide high quality technical and construction jobs. According to research from the Brookings Institute, every \$1 invested in restoration generates \$2 in economic benefit and up to \$4 in economic activity through jobs, development, tourism and property values.

- ▶ water infrastructure investments, such as the \$425 Buffalo Sewer Authority combined sewer long term control plan, create over 16 percent more jobs dollar-for-dollar than a payroll tax holiday, nearly 40 percent more jobs than an across-the board tax cut, and over five times as many jobs as temporary business tax cuts;
- ▶ Natural protective features and waterfront smart growth minimizes economic losses from flooding and high wind events; and
- ▶ Reliable, affordable water supply is essential to almost all building heating and cooling systems, contributing to employee health and productivity; and
- ▶ The Buffalo LWRA’s western boundary at the US-Canada border provides numerous opportunities to serve as an International Gateway for people, innovation and goods travelling from Canada.

Collectively, these activities have been dubbed the City’s “blue economy.”

3. Existing Land Use Table & Map

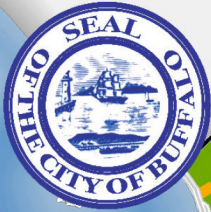
The LWRA comprises 23% of the total parcel acreage in the City of Buffalo and just under 5% of the City’s parcels. As the table below illustrates, the overwhelming portion of parcels in LWRA are either residential (64%) or vacant (23%). However, parks and formal open space comprise nearly 30% of the acreage in the LWRA, with 24% of the acreage as vacant land. Map 8 illustrates existing land use within the LWRA.

	City				LWRA			
	Parcels	%	Acres	%	Parcels	%	Acres	%
Residential	70,087	75	7,786	41	2,820	64	362	8
Parks/Open Space	228	0	2,055	11	59	1	1,328	30
Commercial	4,912	5	2,448	13	319	7	438	10
Industrial	480	1	1,267	7	98	2	402	9
Transportation/Utilities	1,134	1	2,299	12	116	3	812	19
Vacant	16,374	18	3,254	17	1,019	23	1,045	24
Total	93,215	1	19,109	1	4,431	1	4,387	1

4. Surface Land Ownership Patterns

According to City of Buffalo parcel data, the City owns the largest percentage of land within the LWRA, with almost 2,018 acres comprising 337 parcels. Private owners, including not for profits, comprise the second largest land owner class, holding almost 1,668 acres on nearly 4,000 parcels. The State of New York is the third largest property owner with 464 acres on 75 parcels (these figures do not reflect the pending sale of the NFTA’s Port Terminal Complex on the City’s Outer Harbor.) Public land holdings within the LWRA are presented in the table below as well as on Map 9

	Acreage	%	Parcels	%
City	2,017.72	46	337	7.6
County	110.68	02	18	0.4
State	463.97	10	75	1.7
Federal	29.28	01	5	0.1
Peace Bridge	20.54	00	14	0.3
Canada	0.03	00	1	0.0
Utilities	53.48	1	28	0.6
Rail	68.38	2	13	0.3
Private	1,667.69	38	3,950	88.9
	4,431.77	1	4,441	1



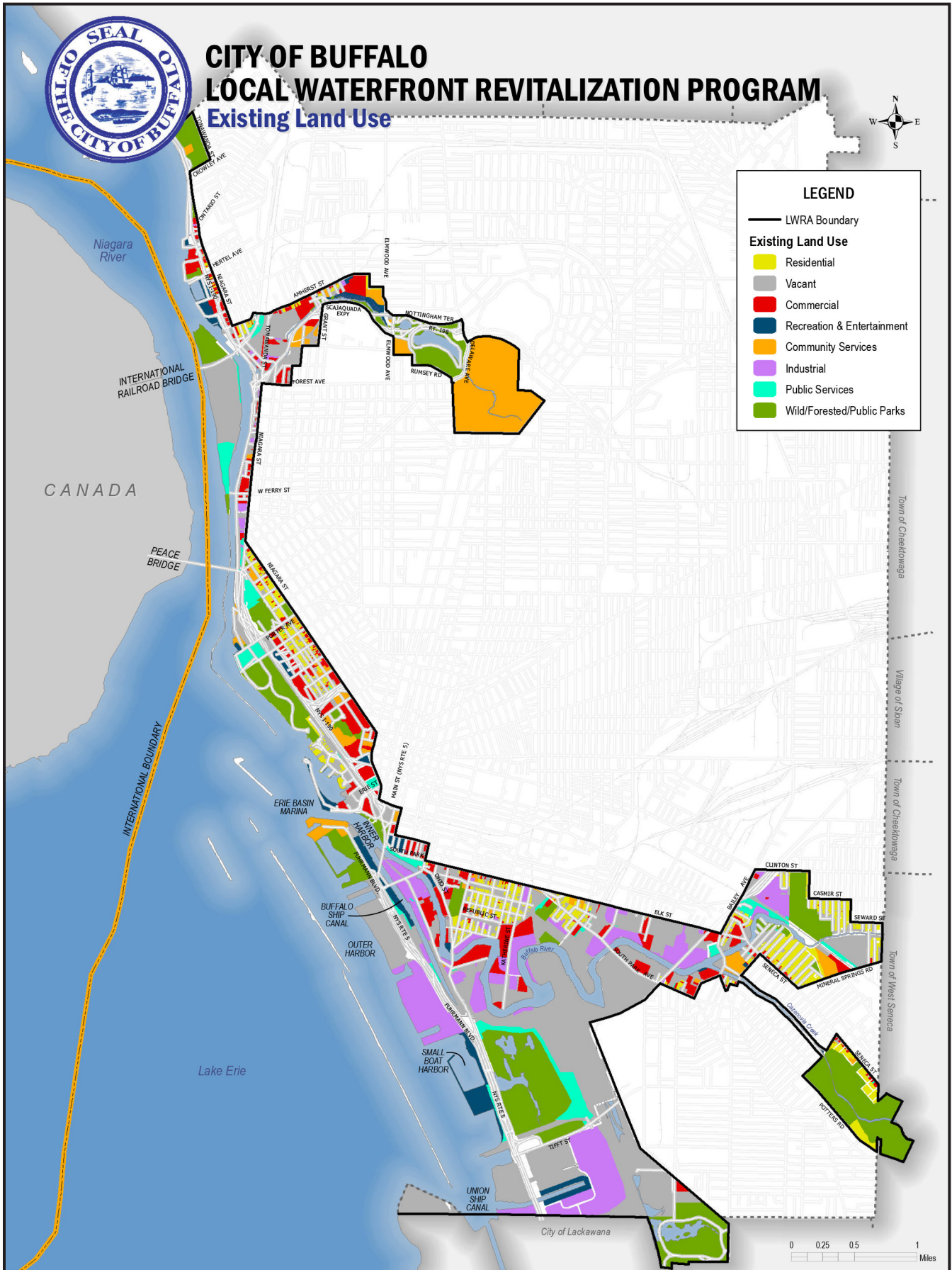
CITY OF BUFFALO LOCAL WATERFRONT REVITALIZATION PROGRAM

Existing Land Use

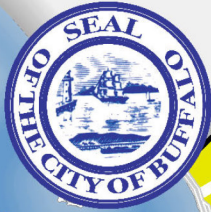


LEGEND

- LWRA Boundary
- Existing Land Use**
 - Residential
 - Vacant
 - Commercial
 - Recreation & Entertainment
 - Community Services
 - Industrial
 - Public Services
 - Wild/Forested/Public Parks



MAP 8 - EXISTING LAND USE

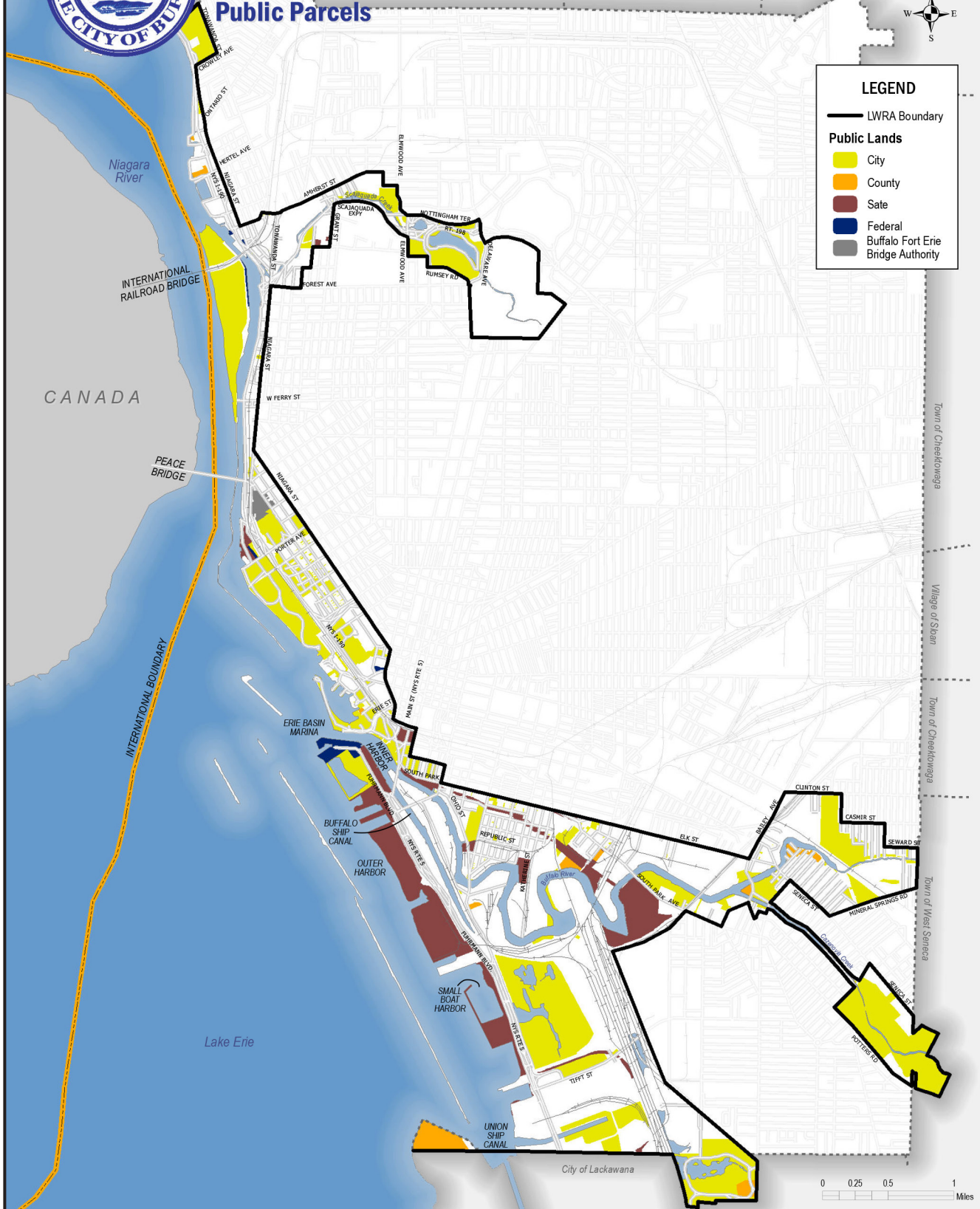


CITY OF BUFFALO LOCAL WATERFRONT REVITALIZATION PROGRAM Public Parcels



LEGEND

- LWRA Boundary
- Public Lands**
 - City
 - County
 - State
 - Federal
 - Buffalo Fort Erie Bridge Authority



MAP 9 - PUBLIC PARCELS

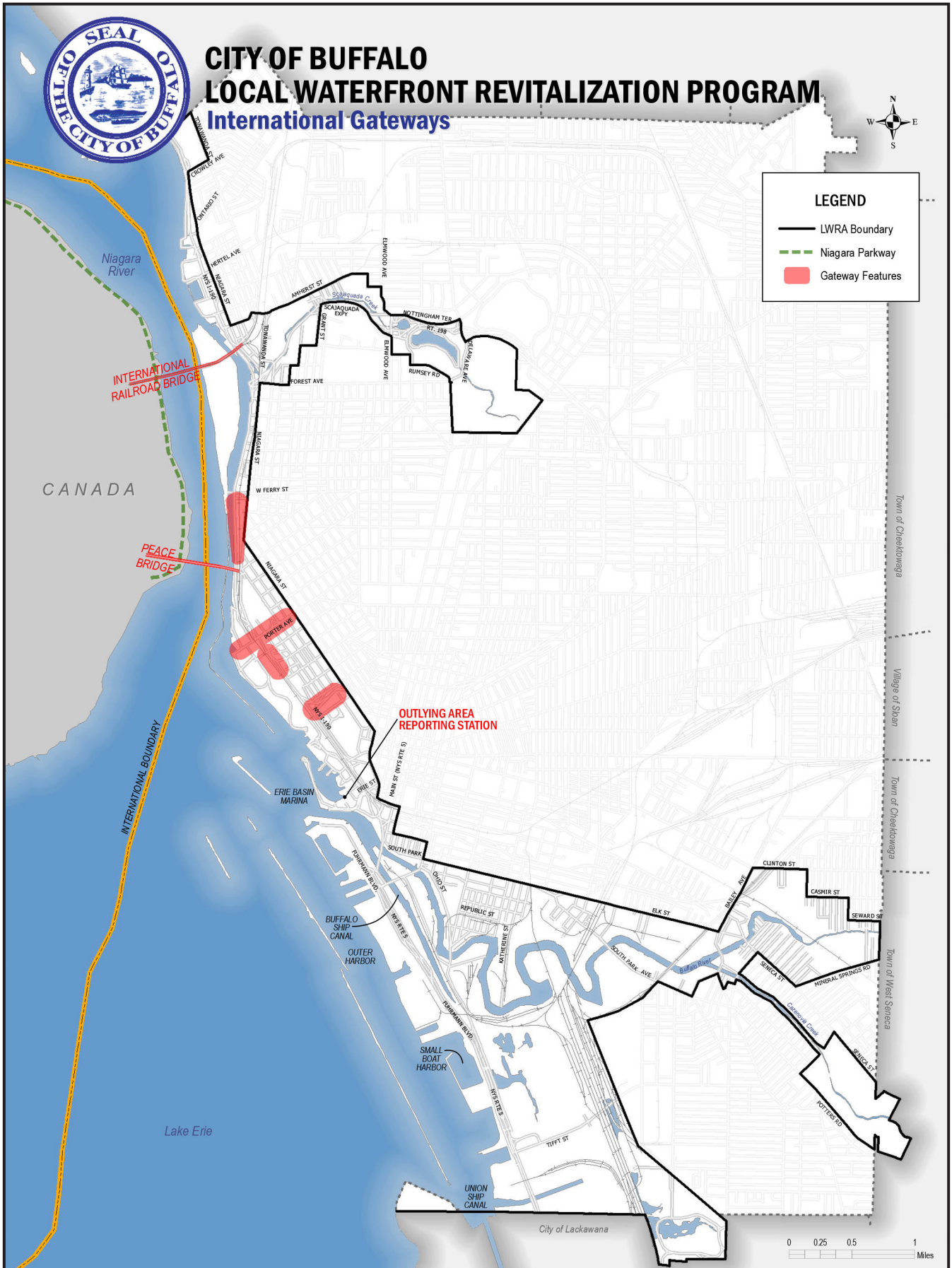


CITY OF BUFFALO LOCAL WATERFRONT REVITALIZATION PROGRAM International Gateways



LEGEND

- LWRB Boundary
- - - Niagara Parkway
- Gateway Features



MAP 14 - INTERNATIONAL GATEWAYS
INVENTORY & ANALYSIS

5. Underwater (Submerged) Land Ownership

Ownership and jurisdiction of Lake Erie and all submerged lands, including the subsurface lying under the lake within the territorial limits of New York State, is held by the State of New York, unless ownership has been granted to any other person or entity. The beds of the Great Lakes are susceptible of private ownership only for special purposes. The boundary line between State ownership of the lakebed and ownership of the adjacent upland is the low water mark.

State-owned underwater lands are managed by the New York State Office of General Services (OGS). The OGS issues grants, leases, easements and other interests for these underwater lands. They also investigate encroachments on littoral rights (the right of an upland owner to access the navigable waters of the lake) and make sure there is no interference with navigable channels. The OGS reviews NYSDEC and USACE comments for proposed projects that affect State-owned bottom lands to ensure that the benefits of the public will not be deprived and that the environment will not be adversely impacted. The OGS strives to achieve satisfaction on the part of all parties involved prior to the issuance of an interest.

For the past few decades, OGS has been issuing licenses for certain structures that exceed the thresholds and, therefore, require State authorization for use of underwater lands. The typical license is issued for 10 years, allowing for the use of State-owned bottom lands. Unlike a grant, the State does not release the real interest in the property. The licensee pays a fee for the “use” of these State-owned underwater lands. Licenses have been issued to the following sites:

- ▶ Harbour Place Marina;
- ▶ Rich Marine Sales;
- ▶ Buffalo Yacht Club;
- ▶ Erie Basin Marina;
- ▶ First Buffalo Marina;
- ▶ RCR Yachts/Skyway Marina; and
- ▶ NFTA Boat Harbor.

In 1901 and 1904, the United States acquired certain lands at the north end of the Outer Harbor peninsula. This is the area that is now occupied by the U.S. Coast Guard facility. It is also noted, that Chapter 265 of the Laws of 1900 provided the U.S. Government with the underwater land area for the breakwater that protects the Outer Harbor area.

Chapter 373 of the Laws of 1904 authorized the underwater lands to the United States Government for the construction of the Black Rock Canal. Today the Black Rock Canal is under the jurisdiction of the State Canal Corporation (which is a sub-section of the New York Thruway Authority).

The outer (western) shoreline of Squaw Island was extended toward the Niagara River through a series of underwater land grants (for both commerce and beneficial enjoyment) that were conveyed between 1894 and 1926 to the Squaw Island Freight Terminal Company and the Niagara River Hydraulic Company. These land grants established the pier and bulkhead line that exists today and, together with the construction of the Black Rock Canal, are responsible for the present geographic configuration of Squaw Island. The City of Buffalo acquired the land on the southern portion of Squaw Island, which now comprises Broderick Park, pursuant to Chapter 350 of the Laws of 1911. The shoreline of the Niagara River, north of Squaw Island, contains a number of old underwater land grants that were issued to private landowners, between 1863 and 1906, primarily for beneficial enjoyment. A few small conveyances were made to the NYSDOT in 1968 for the construction of the interstate highway (I-190 Expressway). The lands currently occupied by the former Ontario Street boat launch at Black Rock Canal Park, Harbour Place Marina and Rich Marina are former land issuances that have been passed on with the title to these lands.

In 2011, a legal analysis of the ownership of Buffalo River and City Ship Canal underwater lands was submitted to the US Environmental Protection Agency in support of the Buffalo River dredging project. That analysis concluded that the City of Buffalo was the fee owner of the beds of both water courses.

A 1957 Department of Transportation survey of right of way parcels along the NY Route 198 Scajauada Expressway indicates that, from the former rail right of way at Letchworth Street to the east, the City of Buffalo owns the Creek and adjacent land. West of the rail right of way, the analysis indicated that all parcels were privately owned. The analysis did not indicate who owns the Creek itself west of the rail right of way.¹

6. Zoning

A. Existing Zoning

The Zoning Ordinance for the City of Buffalo was adopted in 1953. This Ordinance, known as Chapter 511 of the City of Buffalo Charter and Ordinance, has been revised several times since. Lands within the LWRA presently lie within the following fourteen zoning districts.

- ▶ R1 One-Family District
- ▶ R2 Dwelling District
- ▶ R3 Dwelling District
- ▶ R4 Apartment District
- ▶ R5 Apartment Hotel District
- ▶ C1 Neighborhood Business District
- ▶ C2 Community Business District
- ▶ C3 Central Business District
- ▶ CM General Commercial District
- ▶ M1 Light Industrial District
- ▶ M2 General Industrial District
- ▶ M3 Heavy Industrial District
- ▶ PB Porter/Busti Special District
- ▶ SS Seneca Street Special District

¹Some portion of the Creek in this area was dredged in conjunction with National Fuel Gas and Westwood Squibb clean-up efforts. The clean up documentation is being researched in support of the final LWRP draft.

In addition to the aforementioned zoning districts, the following Special Districts, which are deleted in the tables above, coincide within the LWRA boundary:

- ▶ Buffalo Coastal Special Review District (Section 511-67 (A))

Any uses that are presently permitted under the existing zoning regulations, which fall within this area, are subject to the issuance of a restricted use permit. Uses exempt from review include:

- ▶ residential uses in residential districts;
- ▶ development plans duly adopted;
- ▶ C1, C2 and CM uses on land ten thousand (10,000) square feet or less;
- ▶ public parks, playgrounds and nature preserves;
- ▶ educational facilities;
- ▶ improvements to properties not exceeding \$10,000 in permit value;
- ▶ installation of air and water quality improvement equipment;
- ▶ demolition of substandard structures; and
- ▶ any action needed to comply with requirements of law.

The maximum height of any use seeking to be established or extended within the Buffalo Coastal Special Review District is subject to the restrictions of the underlying zoning and approval of the Buffalo Common Council. Once the LWRP is adopted, this special district will be repealed.

- ▶ Buffalo River Open Space Corridor (Section 511-67(B))
Development in this area requires a waterfront yard of not less than 100 feet in depth, as measured from the established dockline (the point distinguishing land from water) or the top of developed bank for all property in the City that falls within 25 feet of the Buffalo River within the Buffalo Coastal Special Review District. No structure or use shall be extended into the yard along the river frontage unless the property owner can demonstrate a physical need to locate said structure or use in this area. The waterfront

yard is to be maintained with natural plant materials, wherever possible.

▶ Buffalo Coastal Special Review District (Section 511-67 (C))

Development in this district requires that a setback from the water's edge be maintained of not less than 25 feet in depth, as measured from the property line adjacent to the waterfront or from the shoreline where the shoreline exceeds the property line. No structures or uses shall extend into the required setback along the Buffalo River frontage. The required setback shall be maintained, where possible, with natural plant material.

▶ Niagara River Coastal Special Review District (Section 511-68).

Any uses that are presently permitted under the existing zoning regulations, which fall within this area, are subject to the issuance of a restricted use permit.

Uses exempt from review include:

- residential uses in residential districts;
- development plans duly adopted;
- C1, C2 and CM uses on land (10,000 square feet or less);
- public parks, playgrounds and nature preserves;
- educational facilities;
- improvements to properties not exceeding \$10,000 in permit value;
- installation of air and water quality improvement equipment;
- demolition of substandard structures; and
- any action needed to comply with requirements of law.

The maximum height of any use seeking to be established or extended in the Niagara River Coastal Special Review District is subject to the restrictions of the underlying zoning and approval of the Common Council.

The current City Zoning Ordinance was adopted in 1953. The code has been amended numerous times, and numerous overlay districts have been added. This often makes the current zoning ordinance difficult to use, interpret, and enforce.

The current zoning is Euclidian, the primary purpose of which is to segregate uses that are perceived to be incompatible. The current code regulates hundreds of individual uses including ones that are no longer applicable, such as asbestos manufacturing. The traditional land use pattern of the City, with mixed use neighborhoods that include residential and retail or commercial uses surrounded by housing, allowing employees to walk to work, was discouraged or outlawed under the current zoning. The zoning code also developed new lot sizes and setbacks, which often were in conflict with the existing neighborhood character and lot sizes. This created a situation where the reuse of existing buildings was discouraged, new buildings were markedly different in style, and the traditional mixed use nature of areas was discouraged. The zoning also introduced a number of regulations relating to accommodating the automobile, including parking minimums based on size and type of use.

This created a number of conflicts between the existing built environment and what was allowed by zoning. For example, the minimum lot frontage length for residential development in the current zoning code is 40-feet; however, existing City lots are as narrow as 15-feet. Therefore, if a house was demolished on the 15-foot wide lot, it could not be rebuilt at the same site, without a variance. Minimum front side and rear yard setbacks decreased the percentage of lot area that could be covered by a building and encouraged wider separations between buildings. This is more often associated with suburban development, with decreased population density, and discouraged walkable developments and neighborhoods.

B. Proposed Unified Development Ordinance (UDO)

The City has prepared a UDO that combines zoning, subdivision, sign, street design and approval standards into a single document. The UDO:

- ▶ updates the land use designations based upon the Comprehensive Plan, BOAs and LWRP;
- ▶ encourages the implementation of development best management practices and consistent, high quality development;

- ▶ consolidates approval procedures; and
- ▶ eliminates conflicts among related codes.

The proposed UDO is form-based and emphasizes neighborhood character as its basic organizing principle. This approach was chosen because of its unique capacity to help the city adapt to an evolving economy and realize the community's vision for walkable, green neighborhoods. The proposed zoning ordinance aims to:

- ▶ Support walkable, mixed-use development;
- ▶ Strengthen the city's economic centers;
- ▶ Protect and enhance Buffalo's historic character;
- ▶ Remove barriers to the creative reuse of vacant land and structures;
- ▶ Simplify approvals to encourage investment; and
- ▶ Help citizens drive fewer miles, use less energy, and improve environmental quality.

The proposed UDO has a number of graphics intended to allow all users, not just land use specialists, to understand what is allowed in terms of building height, scale, type, placement, function, and other factors in each zone.

C. Waterfront Corridor Zone

Under the proposed UDO, projects within the LWRA are subject to both process and substantive provisions. All projects located within the LWRA, except the construction of one to three family residential structures, will be subject to major site plan review. Further, the code's Waterfront Corridor Zone establishes minimum setback and vegetative buffer requirements for shoreline properties and restricts certain uses from being located within the LWRA. A full copy of the proposed waterfront zone has been provided as Appendix E.

II. NATURAL WATER INFRASTRUCTURE

A. Buffalo's Surface Waterbodies

The City of Buffalo is strategically located at the eastern end of Lake Erie, as the Lake narrows to form the Niagara River strait.

1. Lake Erie

Lake Erie is the shallowest and smallest by volume of the Great Lakes, and as a result, the lake warms relatively quickly in the spring and summer and cools quickly in the fall. During winter, a large percentage of the lake is covered with ice, and occasionally freezes over completely.

The lake is naturally divided into three basins. The eastern basin is the deepest, with an average depth of 82 ft and a maximum depth of 210 ft. The eastern basin thermally stratifies every year impacting the internal dynamics of the lake physically, biochemically, and chemically.

2. The Niagara River



The Niagara River begins at the terminus to Lake Erie and flows 37 miles north to Lake Ontario. The entire drainage of the upstream Great Lakes system, an area of 263,700 square miles, drains into the Niagara River at Buffalo. The local watershed on the US side of the Niagara River has a drainage area of approximately 1,225

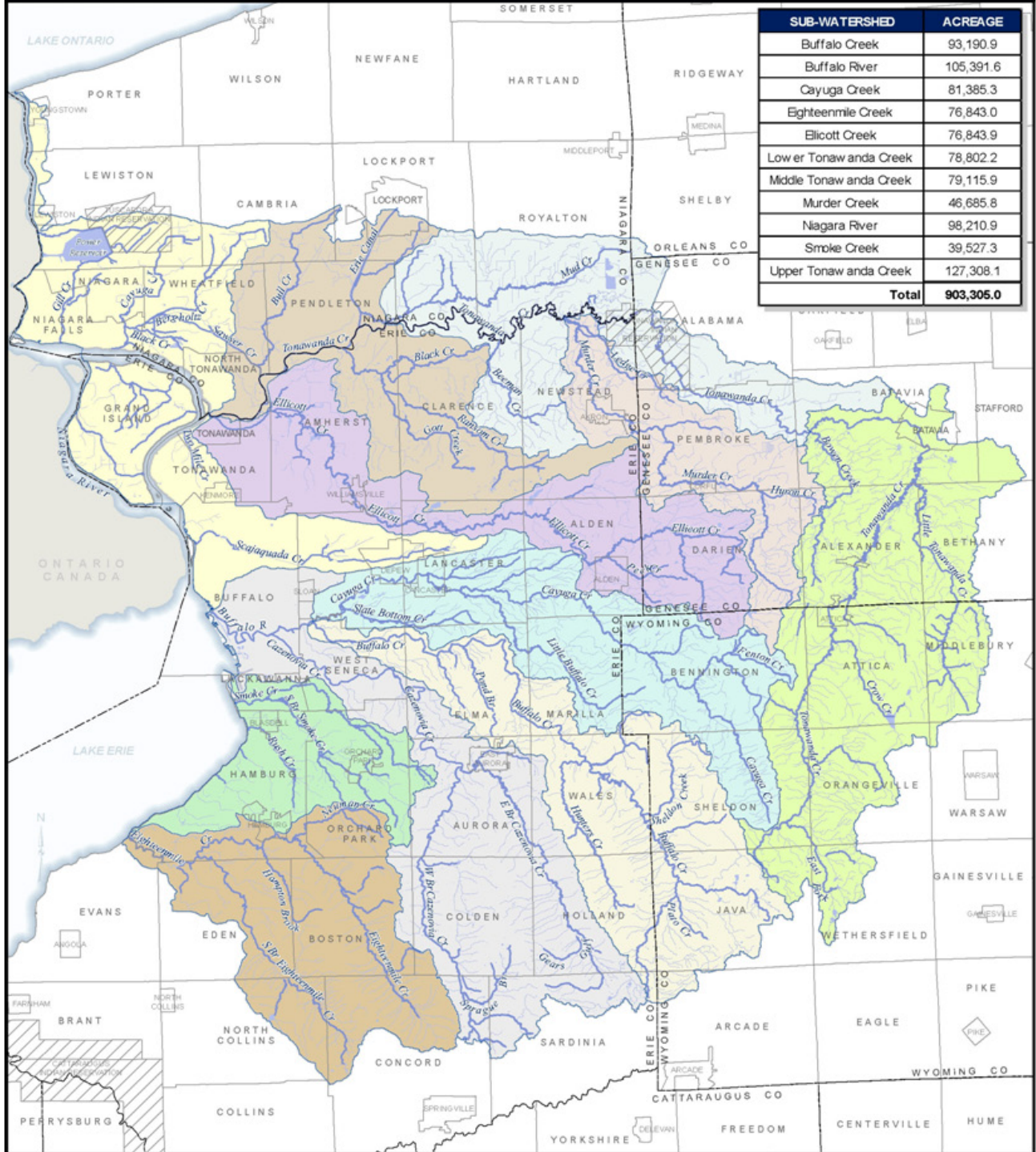
square miles. The Niagara River watershed encompasses the entire the City. The river carries an average flow of about 200,000 cubic feet per second from Lake Erie to Lake Ontario (83 percent of the tributary flow to Lake Ontario).

There are several tributaries to the river from the watershed on the US side near the City of Buffalo including Scajaquada Creek, Two Mile Creek, Tonawanda Creek, Cayuga Creek, and Gill Creek. Of these, only the Buffalo River and Scajaquada Creek are located in the City of Buffalo and the LVRA. Due to the gentle slope and small drainage areas of the river's local tributaries, their flows are not large except during times of heavy runoff.

Historically, Cornelius Creek was also a tributary to the Niagara River. It flowed through North Buffalo, along a path roughly following Hertel Avenue. As development began to occur, Cornelius Creek was replaced by the first Hertel Avenue trunk sewer in the late 1880s and by the second Hertel Avenue trunk sewer in the late 1920s. With the construction of the North Interceptor in the 1930s, the Hertel trunk sewers were connected to the interceptor system to allow conveyance of flows to the wastewater treatment plant. Consequently, what remains of Cornelius Creek is its discharge into the Niagara River, at Black Rock Canal Park, at CSO Outfall 055.



Niagara River Watershed and Sub-Watersheds WESTERN NEW YORK



SUB-WATERSHED	ACREAGE
Buffalo Creek	93,190.9
Buffalo River	105,391.6
Cayuga Creek	81,365.3
Eighteenmile Creek	76,843.0
Ellicott Creek	76,843.9
Lower Tonawanda Creek	78,802.2
Middle Tonawanda Creek	79,115.9
Murder Creek	46,685.8
Niagara River	98,210.9
Smoke Creek	39,527.3
Upper Tonawanda Creek	127,308.1
Total	903,305.0

County
 Municipality

Sub-Watershed
 Buffalo Creek
 Buffalo River
 Cayuga Creek
 Eighteenmile Creek
 Ellicott Creek
 Lower Tonawanda Creek
 Middle Tonawanda Creek
 Murder Creek
 Niagara River
 Smoke Creek
 Upper Tonawanda Creek

0 2.5 5 10
 Miles

Data Sources:
 Sub-Watersheds : USGS 10-Digit Hydrologic Units;
 Waterways : NYS CSCIC Linear & Area Hydrography;
 NYS DOT Civil Boundaries.
 All data obtained from NYS GIS Clearinghouse.

Prepared by Lisa Matthes-Wiza, Sept 2010.

3. Scajaquada Creek/Jubilee Springs/Hoyt and Mirror Lakes

The Scajaquada Creek watershed drains an area of 29 fully urbanized square miles, of which 16 square miles lie outside the city limits. The creek is 15 miles long and has an average daily flow volume of 32 cubic feet per second and a 10-year peak flow of 2,900 cubic feet per second. Scajaquada Creek originates in the Town of Lancaster and flows west through the Town of Cheektowaga and the City of Buffalo to its outfall at the Black Rock Canal. From Pine Ridge Road in Cheektowaga, the creek runs through a 19,000 foot long, 14.75-foot by 29.5-foot rectangular arch called the Scajaquada Drain. A diversion and trash rack structure was built at the downstream end, at Main Street, to direct wet weather flows up to 455 million gallons per day into the Delavan Avenue trunk sewer to protect Hoyt Lake from pollution and to maintain a base flow in Scajaquada Creek.



Scajaquada Creek daylights in Forest Lawn Cemetery to form the only natural waterfall within the City's boundary. There are over 30 springs underneath the cemetery, and they recharge Scajaquada Creek as it flows downstream. The city's original water supply, called Jubilee Springs, originates here. After a cholera pandemic in 1832, Jubilee Springs Water Works sold the spring's water in bottles until the 1920s. To protect Hoyt Lake water quality, the Creek was separated from Hoyt Lake and directed into a concrete viaduct shortly after flowing beneath Delaware Avenue, flowing below ground and reemerging near the eastern end of Hoyt Lake. This viaduct is designed to convey up to 455 MGD of flow. When Scajaquada Drain

flows in excess of 910 MGD the Scajaquada Creek basin may overflow into Hoyt Lake.

The southern bank of Mirror Lake, which is located behind the Buffalo History Museum, is physically divided from the waters flowing through Scajaquada Creek by a concrete barrier.

4. Buffalo River

The Buffalo River flows into Lake Erie at the head of the Niagara River. The Buffalo River and its three major tributaries drain approximately 446 square miles in Erie, Genesee and Wyoming Counties, about 4% of which is located within the City limits. The river has an average daily flow volume of 365 cfs and a 10-year peak flow of 29,500 cfs. The gradient of the river is slight, less than one foot per mile. During periods of mean or low flows, the downstream end of the river is influenced by lake level variations and has an estuarine character. During the summer months, the river water is warm relative to lake water, and therefore less dense, resulting in the river water flowing on top of the cooler, denser lake water. This results in stratification in the water at the confluence of the river to the lake. In the fall, the situation can be reversed, with the river water being cooler and denser and flowing below the lake water. Although the Buffalo River discharges into the Niagara River at Lake Erie, its plume tends to stay on the eastern shore due to strong currents and a prevailing southwesterly wind, with little cross mixing.



The Buffalo River is a navigable waterway maintained by the US Army Corps of Engineers (USACE) for lake vessel access. The River is dredged from its mouth to a point just downstream of the confluence between the Buffalo River and Cazenovia Creek to a depth of 22 feet below low lake level datum.

The Buffalo River is fed by three tributaries: Cayuga Creek, Cazenovia Creek, and Buffalo Creek. Two of the

tributaries, Buffalo Creek and Cazenovia Creek, flow through the City of Buffalo LWRA. Cazenovia Creek joins the Buffalo River approximately 6 miles upstream of Lake Erie, just west of the Bailey Avenue Bridge. The creek drains 138 square miles (less than 1% of the watershed lies within the City of Buffalo limits) and runs through woodlands, small residential communities and recreational areas. Approximately 2.25 miles of the creek are within the City limits.



5. NYS Waterbody Designations

Article 15 of the Environmental Conservation Law (ECL) requires that all waters of the State be provided a class and standard designation based on a determination of their existing or expected best use for each waterway or waterway segment. This classification is based upon the characteristics of bordering lands, stream flow, water

quality, present and past uses and potential future uses. Waterbodies that are designated as C (T) or higher (i.e., C (TS), B or A) are collectively referred to as “protected streams” and are subject to the stream protection provisions of the Protection of Waters regulations. The New York State DEC Waterway Classifications for the City of Buffalo are provided in the following table.

Use Class		Water Body	Description
A (special)	(a) The best usages of Class A-S waters are: a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The waters shall be suitable for fish, shellfish, and wildlife propagation and survival. (b) This classification may be given to international boundary waters	Niagara River (American side)	Waters from the international boundary to the American shore above line due west from the south end of Bird Island Pier.
		Lake Erie	Main Lake/ North and northeast shoreline
A I	The best usages of Class A waters are: a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The waters shall be suitable for fish, shellfish, and wildlife propagation and survival.	Scajaquada Creek	Reach 2 - From the crossing on Main Street in the City of Buffalo downstream to mouth of Scajaquada Creek at the Niagara River.
B	The best usages of Class B waters are primary and secondary contact recreation and fishing. These waters shall be suitable for fish, shellfish, and wildlife propagation and survival.	Lake Erie/ Outer Harbor	Waters easterly of old or middle breakwater and south breakwater between the line from the northern end of old or middle breakwater to south pier light at US Coast Guard station and line represented by extension of Tiff Street to south end of south breakwater.
		Cazenovia Creek	Reach 1 - From the Cazenovia Street Bridge upstream to the junction of the East and West Branches of Cazenovia Creek.
		Delaware Park Hoyt Lake	

C	The best usage of Class C waters is fishing. These waters shall be suitable for fish, shellfish, and wildlife propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.	Buffalo River	Downstream of confluence with Cayuga Creek to the mouth
		Cazenovia Creek	
		.	Reach 2 - From the Cazenovia Street Bridge downstream to the confluence with Buffalo River
		Scajaquada Creek	Reach 1 - From the crossing on Main Street in the City of Buffalo upstream to "tributary 4", which is in line with continuation of Frederick Drive, Town of Cheektowaga (underground portion).
		Black Rock Canal	Waters east of Squaw Island and Bird Island Pier between canal locks and a line from the south end of Bird Island Pier to Buffalo Harbor Light #6.
		Erie Basin Marina	Waters southerly of line from Buffalo Harbor Light #6 to south end of Bird Island Pier; easterly of line from south end of Bird Island Pier to north end of north breakwater; easterly of north breakwater; easterly of line from south end or north breakwater to north end of old or middle breakwater and northerly end of line from north end of old or middle breakwater to south pier light at US Coast Guard Station.

6. Surface Water Quality

The NYSDEC Division of Water periodically publishes a list of surface waters that cannot be fully used as a resource or have problems that can damage their

environmental integrity. The “Priority Waterbodies List” is used as a base resource for the NYSDEC Division of Water program management. The Niagara River and its tributaries within Buffalo have been included on the 2013 Priority Waterbodies List.

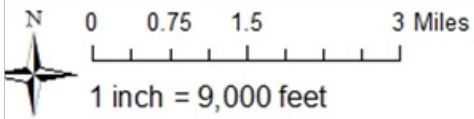
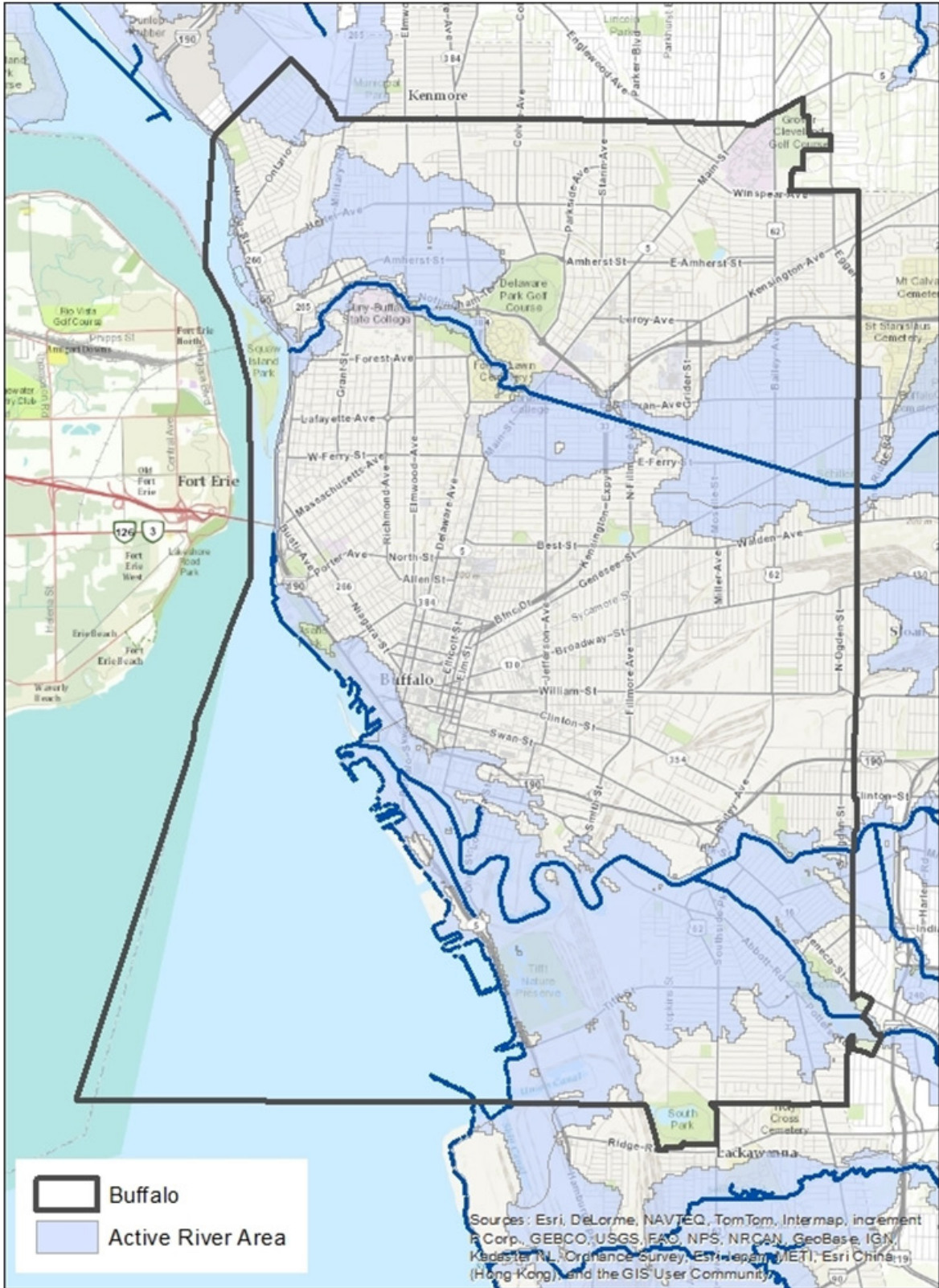
Water Body	Impaired Use	Severity	Data	Type of Pollutant	Source
Black Rock Canal	Fish Consumption	Impaired	Good	Priority Organics (PCBs)	Contaminated Sediments
	Aquatic Life	Stressed		Non-priority Organics (PAHs)	Habitat Modification
	Habitat/ Hydrology	Impaired			CSO Runoff Urban Runoff Landfills
Buffalo River	Fish Consumption	Impaired	Good	Priority Organics	Contaminated Sediments
	Fishing	Impaired	Good	Oxygen Demand Metals Pathogens	Urban Runoff Land Disposal
	Fish Propagation	Stressed	Good	Silt/Sediment	Industrial Municipal Storm Sewers CSOs Hydromodification
Cazenovia Creek	Fishing	Stressed	Some	Silt (sediment)	Streambank Erosion
	Fish Propagation	Stressed	Some	Oxygen Demand	Construction
	Fish Survival	Stressed	Some	Pathogens Hydromodification	Urban Runoff On-site Systems Roadbank Erosion

Water Body	Impaired Use	Severity	Data	Type of Pollutant	Source	
Niagara River	Fish Consumption	Impaired	Good	Priority Organics (PCBs, PAHs)	Land Disposal	
	Water Supply	Threatened	Some		Pesticides	Contaminated Sediments
	Aquatic Life	Stressed	Some	Water Level/Flow		Urban Runoff
	Habitat/Hydrology	Impaired		Non-priority Organics		CSOs Hydrologic/Habitat Modification
Scajaquada Creek	Bathing	Precluded	Some	Aesthetics	CSOs	
	Aquatic Life	Precluded	Some	Priority Organics	Urban/Stormwater Runoff	
	Habitat/Hydrology	Stressed	Some	Nutrients	Contaminated Sediments	
	Recreation	Impaired	Some	Silt/Sediment	Land Disposal	
	Aesthetics	Stressed	Some	Oxygen Demand	Chemical Leaks/ Spills	
Delaware Park (Hoyt) Lake	Bathing	Impaired	Good	Nutrients	Urban/Stormwater Runoff	
	Fish Consumption	Impaired	Good	Algae/Weed Growth	Contaminated Sediments	
	Recreation	Impaired	Good	Priority Organics (PCBs)		
				Oxygen Demand		

B. Active River Area, Wetlands and Floodplains

I. Active River Area

The Active River Area (ARA) is a conservation framework for rivers and streams that integrates both physical and ecological processes that form, change and maintain a wide array of habitat types and conditions in and along rivers and streams. A draft map of the Niagara River ARA was prepared in connection with the Niagara Regional Habitat Conservation Strategy. The City of Buffalo is located within the low-watershed of the Niagara River. It contains almost 13 % of the 70,553 acres that comprise the Niagara River ARA. Within the City, the ARA includes both floodplain and wetlands areas



Buffalo Niagara Riverkeeper
DRAFT
 10/7/2013

2. Federal Wetlands

The Federal Government, through the USACE, regulates wetlands regardless of size, in accordance with the Clean Water Act. These areas, mapped by the U.S. Fish and Wildlife Service, are designated as wetlands based upon the presence of three features: hydric soils, wetland vegetation and specific hydrologic conditions.

A permit must be issued by the USACE if a wetland is disturbed or filled, or development is proposed within identified wetland areas. A Water Quality Certification could also be required from the NYSDEC, based upon the amount of federal wetland to be filled or otherwise disturbed.

The U.S. Fish and Wildlife Service National Wetland Inventory classifies the Niagara River corridor, Scajaquada Creek, North Buffalo Harbor, Buffalo Ship Canal, Buffalo River, and Cazenovia Creek as Federal wetlands. The areas in and around Times Beach Nature Preserve, Tift Nature Preserve, the southern portion of Gallagher Beach and certain lands in the Buffalo Lakeside Commerce Park (BLCP), are also designated as potential wetland habitats.

3. State Wetlands

Pursuant to the New York Freshwater Wetlands Act, the NYSDEC regulates activity within State-designated freshwater wetland areas and the area immediately adjacent to wetlands (within 100 feet).

The New York Freshwater Wetlands Act assigns classifications to State wetlands ranging from Class I (Highest) to Class IV (lowest). According to the act:

- ▶ Class I wetlands are the most significant, providing the most critical benefits and habitat value, a reduction of which is acceptable only in the most unusual of circumstances. A permit will be issued only if it is determined that the proposed activity satisfies a compelling economic or social need that clearly and substantially outweighs the loss of or detriment to the benefit(s) of the Class I wetland.
- ▶ Class II wetlands provide important wetland benefits, the loss of which are acceptable only in very limited

circumstances. A permit will be issued only if it is determined that the proposed activity satisfies a pressing economic or social need that clearly outweighs the loss of or detriment to the benefit(s) of the Class II wetland.

Class I and II wetlands have been designated within the City of Buffalo LWRA. NYSDEC controls a small number of freshwater wetlands south of the Buffalo River. They include:

- ▶ the Times Beach Class I wetland, which is also underlain by an unconfined aquifer;
- ▶ Several Class I wetlands located in Tift Nature Preserve and BLCP, and wetlands located along the rail corridors; and
- ▶ A Class II wetland area located south of Tift Street, within the BLCP.

Where practicable, upland wetland areas designated in the Buffalo LWRA have been protected in the City's UDO as open space.

4. Floodplains

The City of Buffalo LWRA contains flood zones that have been designated by the Federal Emergency Management Agency (FEMA) as areas subject to potential flood hazards. These areas or flood zones are depicted on the FEMA Flood Insurance Rate Maps (FIRMs) developed for the City. The flood zones are established based upon the degree to which an area is susceptible to flood damage. The two general flood zones that exist within the LWRA include:

- ▶ "AE" Zone – (also called the area of special flood hazard), which is the area of land that would primarily experience still water flooding, without significant wave activity, during a 100-year storm; and
- ▶ "C" Zone – which are areas of minimal flooding.

Flood zones or plains are flat areas that surround streams and are periodically inundated with water due to overbank flow. As shown on Map 10, most of the surface water bodies found within the LWRA are surrounded by 100-year floodplains.

Where possible, publicly held lands within the current 100-year floodplain have been preserved as parkland or open space under the UDO. Two neighborhoods are located within the current 100-year floodplain along the Buffalo River: Kaisertown and South Buffalo's Seneca Street community.

Flood berms buffer most of Kaisertown from flood risk, while the Seneca Street community is aided in part by the protective function of the Seneca Bluffs wetlands. Planned improvements to the Bailey Avenue bridge over the Buffalo River may also help reduce ice jams and associated upstream flooding. The continued dredging of the Buffalo River navigation channel also provides some flood management capacity.

FEMA has presented draft revised floodplain maps for the City with a projected effective date of March 2015. The current draft expands the flood hazard area to include several developed and/or redevelopment priority areas, as follows:

- ▶ The Black Rock Village area between Niagara Street and the Niagara River north of the Black Rock Locks;
- ▶ most properties in the First Ward/Cobblestone/Canalside portion of the City, located between the I-190 to the north and Buffalo River to the South; and
- ▶ some lands in south Buffalo to the east of Seneca Street to South Park, north of Tiff Street.

Article 31 of the City Charter regulates land use and development that occurs within in the 100-year flood plain and floodway, a hydrologically determined area with a one percent chance of flooding in any given year.

C. Habitat Resources

I. New York State Designated Significant Coastal Fish and Wildlife Habitats

As shown on Map 10, State-designated Significant Coastal Fish and Wildlife Habitats were identified within the LWRA. These habitat areas include the Times Beach diked disposal site, North Buffalo Harbor, the Small Boat Harbor and Tiff Nature Preserve. Habitat designation by the NYSDOS was based on the area's fish and wildlife

population levels, species vulnerability, ecosystem rarity, human use and replaceability. For additional information on the types of species within these habitats, please refer to the NYSDOS Division of Coastal Resources website (http://nyswaterfronts.org/waterfront_natural_narratives.asp)

A. Times Beach

Times Beach is located in the City of Buffalo, one mile southwest of downtown. This 55-acre fish and wildlife habitat is a partially filled, diked, dredge spoil disposal site on the shore of Lake Erie. It is owned by the City of Buffalo and is leased to the USACE. The USACE constructed the Times Beach diked disposal site in 1971 to contain dredged sediment from the Buffalo River, Buffalo Harbor, Black Rock Canal and Tonawanda Harbor, that was determined to be unsuitable for open-lake disposal. Dredged sediments were deposited in the Times Beach site over a 4-year period from 1972-1976. Deposited sediments contain varying concentrations of organic and inorganic pollutants originating from industries along the Buffalo River and Harbor.

Times Beach contains several distinct physical zones, including: a deep water zone up to about 6 feet in depth, with submergent aquatic plants; a low-lying mud or silt flat zone of variable width (inundated by high lake levels); a gradually sloping shallow water zone with emergent marsh vegetation; and an upland zone, containing tall herbs, grasses, and stands of variously sized trees and shrubs.

The site lies on the eastern end of Lake Erie, a critical geographical feature for bird migration north in the spring and south in the fall. More than 220 species of birds have been observed on the site including Pied-Billed Grebe, (State threatened), Peregrine Falcons, Bald Eagles (State endangered), Cooper's hawk (State threatened), Common Tern (State threatened), and Osprey (State threatened).

Times Beach features public walkways and bird viewing blinds, as well as educational and interpretive features.

B. North Buffalo Harbor

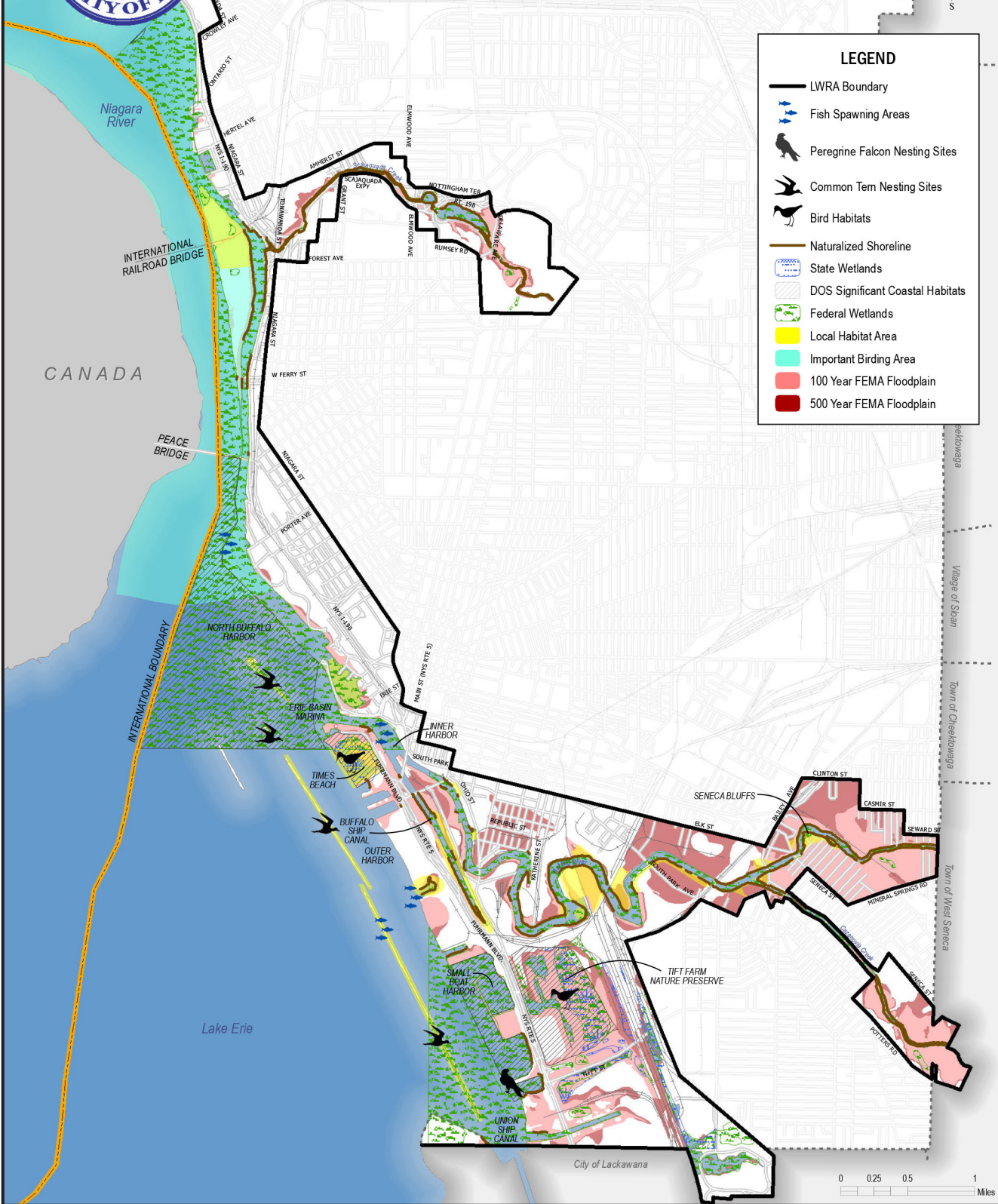


CITY OF BUFFALO LOCAL WATERFRONT REVITALIZATION PROGRAM Natural Resources



LEGEND

- LWRA Boundary
- Fish Spawning Areas
- Peregrine Falcon Nesting Sites
- Common Tern Nesting Sites
- Bird Habitats
- Naturalized Shoreline
- State Wetlands
- DOS Significant Coastal Habitats
- Federal Wetlands
- Local Habitat Area
- Important Birding Area
- 100 Year FEMA Floodplain
- 500 Year FEMA Floodplain



MAP 10 - NATURAL RESOURCES
INVENTORY & ANALYSIS

The North Buffalo Harbor is located in the northeast corner of Lake Erie, at the head of the Niagara River. This harbor consists of approximately 800 acres of open Lake water and upper river channel, extending roughly from the mouth of the Buffalo River to the Peace Bridge. Water depths vary from less than six feet over several small reefs to over 20 feet below mean low water. The harbor is home to several important wildlife communities including:

- ▶ 150 nesting pairs of Herring Gulls, on the sand and gravel bar located at the north end of Donnelly's



Wall, their only nesting area between Buffalo and the eastern basin of Lake Ontario.

- ▶ 400 nesting pairs of Common Tern on the broken concrete surfaces of three of the breakwalls, including Donnelly's Wall, the North End Light Breakwater and the abandoned lighthouse near Middle Reef. This is the largest colony of this declining species anywhere in the Great Lakes.
- ▶ Concentrations of many waterfowl species including loons and grebes, as well as gulls, and terns, are present in North Buffalo Harbor during spring and fall migrations (March-April and September-November, respectively). Winter waterfowl surveys done by NYSDEC have tallied up to 68,000 ducks in this open area at one time, and weekly surveys done throughout the winter regularly count 20,000 and above. The birds take advantage of the open water created downstream of the Lake Erie ice boom, feeding on the abundant supply of small fish, such as emerald shiners and shellfish.

- ▶ Muskellunge is a native apex predator fish species with local populations supported entirely by natural reproduction in the Buffalo Harbor and Upper Niagara River. During the early 1990's survey work in shallow, vegetated embayments in the Buffalo Harbor indicated that young-of-year muskellunge were present in four of these embayments, indicating that these areas were muskellunge spawning habitats (Culligan et al 1994). More recently, from 2007 to 2009, young-of-year muskellunge have been collected from two embayments: "Ice Boom Bay" (the embayment directly south of the Times Beach Preserve) and the Bell Slip. The numbers of young muskellunge collected at these locations recently are generally much lower than during the early 1990's.
- ▶ North Buffalo Harbor supports a major urban fishery, of regional significance. Predominant fish species occurring in the harbor include rock bass, white bass, smallmouth bass, yellow perch, walleye, northern pike, muskellunge, brown trout, rainbow trout, and coho salmon. Among the most popular fishing spots are near Donnelly's Wall, and the "fish market" located just outside of the southern portion of Bird Island Pier.

C. Small Boat Harbor

The Small Boat Harbor is located on the Outer Harbor and has an area of approximately 165 acres. The Small Boat Harbor is the only sizable shallow water embayment on Lake Erie in Erie County (generally less than 12 feet deep below mean low water). Sheltered from prevailing winds and wave action by a two-mile long rock breakwall, the harbor is armored on three sides with rip-rap, concrete bulkheads, and gravel-cobble beach; the fourth side (westerly) is open to the Outer Harbor, with an approximate 30-foot deep dredged navigation channel. This protected location has resulted in enhanced sediment deposition and growth of submerged aquatic macrophytes, such as water milfoil, wild celery, and pondweeds. Substrates vary from a mixture of sand, gravel, and cobble, in some nearshore areas, to a dark brown gelatinous type sediment (gyttja).

The harbor supports a highly productive and diverse littoral community, with concentrations of many fish and wildlife species occurring in the area. Studies of the harbor in 1981 demonstrated that this was a diverse and productive fisheries habitat. The major adult fishes found in the area were pumpkinseed, yellow perch, and brown bullhead, along with largemouth bass, muskellunge, carp, and freshwater drum. Ichthyoplankton sampling revealed substantial reproduction by centrarchids, shiners, and yellow perch. Carp and drum may also enter the area to spawn. By midsummer, the Small Boat Harbor is ideal for centrarchids and bullheads as macrophytes fill the embayment. The Small Boat Harbor is the largest, most obvious nursery area for numerous harbor and lake species on the Erie County shoreline. In addition, the harbor supports a productive macrobenthic community, dominated by snails and clams.

Submerged, rooted macrophytes and their associated invertebrates and fish provide valuable food resources for many species of waterfowl and other migratory birds. The Small Boat Harbor attracts concentrations of these birds during spring and fall migrations (March-April and September-November, respectively), with some species remaining until the harbor freezes in early to mid-winter. The most abundant birds observed during these periods are the diving ducks, including canvasback, scaups, mergansers, common goldeneye, scoters, mallard, black duck, Canada goose, loons, grebes, and gulls. Hundreds of these birds are regularly found in the area during late fall, with the greatest numbers occurring when open waters on Lake Erie are rough. Prior to ice-up, the Small Boat Harbor serves as a refuge and feeding area for some of the larger concentrations of waterfowl in North Buffalo Harbor. During the summer months, ring-billed gull, herring gull, and common tern may feed in the area, but the extent of their use has not been documented. The concentrations of birds which utilize the harbor, and the availability of good public access and vantage points, makes this a popular birdwatching site during waterfowl migration periods and in early winter.

The harbor provides high quality recreational fishing opportunities throughout the year. Anglers from throughout the Buffalo metropolitan area are attracted

to the diverse warmwater fisheries, and ice fishing is especially popular.

D. Tift Nature Preserve

Tift Nature Preserve is the largest contiguous fish and wildlife habitat area within the City of Buffalo. The 264-acre former landfill was designated a preserve in 1976 and is owned by the City of Buffalo and operated by the Buffalo Museum of Science.

Of special importance is the relatively undisturbed wetland area, which is the largest of its kind along the Lake Erie coastline. The site includes a 75-acre cattail marsh, small freshwater ponds and old canal remnants, old fields (partly covering a former solid waste transfer site), forested wetland, and shrub-sapling stages of succession.

Birds of 264 species and subspecies have been recorded in and immediately adjacent to its boundary including least bittern, American bittern and osprey. Tift is home to white tailed deer, beaver, muskrat, weasel, mink, red and grey fox and coyotes. Reptiles and amphibians include northern water snake, snapping and painted turtles, bullfrog, green frog, northern leopard frog, and Jefferson salamander, which are year-round residents. At least two species of fish, the central mudminnow and brook stickleback, are present. Tift Preserve also contains a population of burrowing crayfish, one of only three known localities for this species in New York State.

2. Rare or Endangered Species Habitat



The New York State Natural Heritage Program had identified rare or endangered species throughout New York State. According to their records, the City of Buffalo LWRA includes ninebark, a rare vascular plant; gull and common tern nesting areas; two rare fishes, mooneye (*Hiodon tergisus*) and lake sturgeon (*Acipenser fulvescens*), both New York State threatened species; and peregrine falcons. Lake sturgeon have been caught at the north gap of the Buffalo Harbor within the LWRA. Lake sturgeon are listed as a threatened species in New York; therefore, there is no open season for the fish and possession is prohibited. Anglers are more likely to encounter sturgeon in May and June when the fish gather to spawn on clean gravel or cobble shoals and in stream rapids.



In 2010, a nesting pair of peregrine falcons, a state endangered species, was discovered on the Cargill Pool grain elevators at the foot of Tiffitt Street, along Furhmann Boulevard. A New York State threatened species, the common tern, makes its home on the breakwalls in the Buffalo Harbor, as described earlier.



3. Niagara River Globally Significant Important Bird Area

The Niagara River has been designated as a Globally Significant Important Bird Area (GSIBA), a rare designation given by National Audubon to only 71 other sites in the world. The eastern end of Lake Erie provides two geographic features that assist in the lake crossing. One is Long Point, Ontario, a peninsula of land that juts 28 miles out into Lake Ontario, greatly narrowing the crossing. Birds “jump off” the end of the peninsula, and greatly reduce the time they spend over water before they reach the opposite shore. The second feature is the isthmus formed where Lake Erie drains into Lake Ontario via the Niagara River. Migratory birds are drawn to these features because most birds do not like to cross expanses of water where they lose the critical thermal updraft provided by warm air rising over land that reduces the metabolic cost of flight. Additionally, if they tire while flying over water, death is almost certain because in the large open waters of Lakes Erie and Ontario, there are no islands on which to land.

According to the Audubon Society of New York, the Niagara River GSIBA annually supports one of the world’s most spectacular concentrations of gulls, with 19 species

recorded and one-day counts of over 100,000 individuals. The site is particularly noteworthy as a migratory stopover and overwintering site for Bonaparte's Gulls, with one-day counts of 10,000 to 50,000 individuals (2 to 10 % of the world population). Herring Gull one-day counts vary from 10,000 to 50,000 and Ring-billed Gull one-day counts vary from 10,000 to 20,000 individuals. The river also hosts a remarkable diversity and abundance of waterfowl. Winter surveys taken by NYSDEC have shown a 22-year average of 2,808 Canvasbacks (32 % of state overwintering population), 7,527 Common Mergansers (31 % of state overwintering population), 2,015 Common Goldeneyes (29 % of state overwintering population), and 2,369 scaup (6 % of state overwintering population). Annual peak numbers for Canvasbacks range from 2,000 to 15,000, for Common Goldeneyes from 2,300 to 3,000, for Common Mergansers from 2,500 to 12,000, and for Greater Scaup from 2,500 to 15,000 individuals. The river also supports breeding colonies of Common Terns, Herring Gulls, Ring-billed Gulls, Black-crowned Night Herons (50 to 60 pairs), Great Blue Herons, Great Egrets, and Double-crested Cormorants. The habitats along the river edge support an exceptional diversity of migratory songbirds during spring and fall migrations. Many of the migrating species find habitat and refuge at the various open areas and nature preserves that exist in the vicinity of the river, including Times Beach Preserve and Tiff Nature Preserve (which is also designated by the Audubon Society as an IBA).

4. Local Habitat Areas and Restoration Sites

The following habitat sites have been identified through either Buffalo or Niagara River Great Lakes Area of Concern habitat analysis and restoration efforts. Highly detailed information regarding each habitat site on the Buffalo River has been developed in conjunction with the Buffalo River Ecological Restoration Master Plan and Buffalo River Sediment Remediation Feasibility Study.

▶ Squaw Island

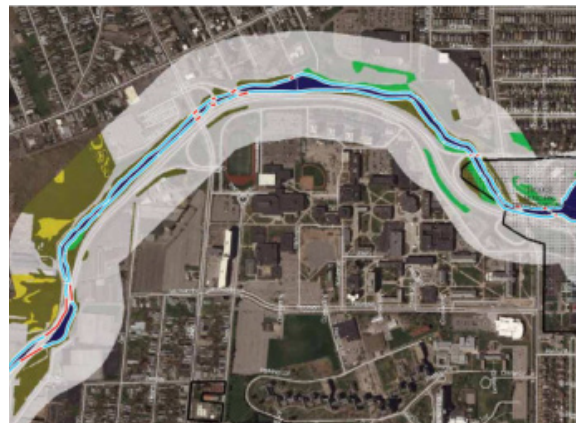
A former City of Buffalo landfill, the north end of Squaw Island was closed and developed as a passive park. According to 2012 Natural Land Cover analyses associated with the Niagara River Habitat

Conservation Strategy development (NRHCS), the north end of the Island and park currently offers pond, emergent wetland, grassland/shrub and woodland habitats. In addition, the eastern edge of Squaw Island, between the International Railroad Bridge and the West Ferry Lift bridge features forest habitat and is often frequented by herons, waterfowl and gulls.



▶ Scajaquada Creek

According to the 2012 NRHCS, Scajaquada Creek offers woodland open water and grassland/shrub habitat along its course from Forest Lawn Cemetery to the Black Rock Channel. The US Army USACE of Engineers is studying the lower reaches of Scajaquada Creek, including opportunities to improve habitat in the Creek corridor.



▶ City Ship Canal

The head of the City Ship Canal is owned by CSX railroad and others. According to the Buffalo River

Feasibility Study, this area has been identified as one of the Buffalo River Habitat Opportunity Areas. Although City Ship is an artificial channel, it has value as a habitat link between Lake Erie coastal and Buffalo River habitats, especially for waterfowl and fish in need of nesting and resting places. Native shoreline and aquatic vegetation has naturalized the western edge of the canal, south of the active industrial area. Buffering, removal of debris and slag piles from the eastern bank and sediment remediation would increase the habitat value of the canal. Numerous fish species have been observed at the head of the City Ship Canal, including largemouth bass, rock bass, crappie, bullhead, carp, redbreast, sunfish, and goldfish.

▶ Ohio Street/Dead Creek

One of three projects completed under the 1996 Buffalo Fish and Wildlife Habitat Restoration Demonstration Project, this project established fish-spawning habitat and improved passive fishing access at Dead Creek on Ohio Street. The site is owned and managed by the New York State Department of Environmental Conservation and is maintained by the City of Buffalo Parks department.

Fish species observed at this location include largemouth bass, small mouth bass, rock bass, and sunfish. There is abundant fishing along this stretch in areas with natural and unnatural cover/overhanging vegetation.

This remnant “canal” once connected the Buffalo River to what is now “Father Conway Park”. The parcel now still functions as a combined sewer overflow (CSO) outfall. Due to river hydrology, this canal collects debris, trees, and litter.

▶ Katherine Street Peninsula

This 4.8-acre parcel features almost one thousand linear feet of naturalized shoreline with mature vegetation within the 100-foot floodplain.



Figure 1 - Katherine Street Peninsula

▶ Blue Tower Turning Basin

The Blue Tower Turning Basin located east of the foot of Katherine Peninsula at the southern end of Concrete Central Peninsula is named for the blue Buffalo River Improvement Corporation (BRIC) water tower located to the south. The shoreline in this area of the River is natural with overhanging vegetation. Due to Buffalo River flow and deposition patterns, significant debris has accumulated along the eastern shore of the River at the site. The New York State DEC has identified a large freshwater bryozoan colony, characteristic of unpolluted, unsilted ponds and streams, at the site.



Figure 2 - View south towards Blue BRIC Tower Turning Basin

► Concrete Central Peninsula (CCP)

Because of its isolation, Concrete Central Peninsula has remained relatively undisturbed. Located within the 100-year floodplain, CCP has been identified in Buffalo River greenway plans and by USACE as a “refuge for species not generally expected in an urban ecosystem” including peregrine falcon, snapping turtle, painted turtle and leopard frog”.

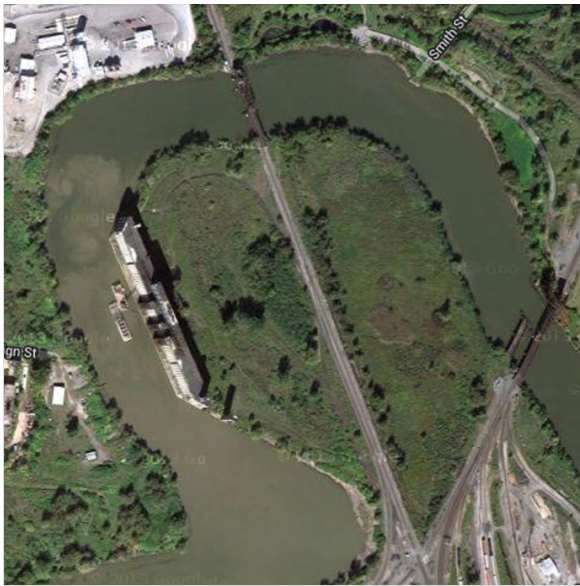


Figure 3 - Concrete Central Peninsula

► Red Jacket Riverfront Park (also known as the Smith Street Recreation Site)

Red Jacket Riverfront Park is 44 acres of open space located at the end of Smith Street, including 7 acres owned and maintained by Erie County. One of three projects completed under the 1996 Buffalo Fish and Wildlife Habitat Restoration Demonstration Project, wetlands reconstruction, habitat restoration, invasive species management and passive public access facilities were created at Red Jacket Park.

The park was formerly the site of parking areas for the employees of Concrete Central. Bought by Erie County in the 1990s, the site was remediated and turned into the open space park that exists today. The park includes a series of nature trails with benches that guide visitors

through the various ecosystems present within the park. These include marshlands, forests, meadows and the riparian corridor of the Buffalo River. The park also includes murals painted on an old concrete wall along Smith Street, a fishing pier at the terminus of Smith Street, a canoe/kayak launch area, several parking areas for visitors and river overlook areas.



Figure 4 - Wetland Restoration Project at Smith Street

► Buffalo Color Peninsula

The Buffalo Color Peninsula site is located on the northern bank of the Buffalo River, between River Mile 4.5 and 5.0. In 1997, Honeywell Corporation implemented the following measures to address contamination on the site: 1) installation of a slurry wall surrounding the entire site to isolate groundwater; 2) removal of wastefill from outside of the slurry wall, including sediment from the river bank; and 3) stabilization of the excavated river bank using riprap, geotextile liner, or concrete extending out to near the navigation channel dredge limit. Since the site has been remediated, upland grassland habitat has become established.



Figure 5 - Buffalo Color Peninsula Grassland

► Riverbend

The Riverbend habitat restoration site is comprised 4,320 linear feet and 9.8 acres of shoreline area located at the RiverBend Commerce Park property. The RiverBend site provides one of the longest stretches of undeveloped shoreline in the Buffalo River Area of Concern and was identified in the 1989 Buffalo River RAP as a high priority restoration “Habitat Restoration Opportunity Area” site.

Buffalo Niagara Riverkeeper received grant funding from the US Environmental Protection Agency and the National Oceanic Atmospheric Administration to complete a riparian habitat restoration project on the site. Riverbank enhancements include the planting of native trees and vegetation for habitat as well as invasive species removal.

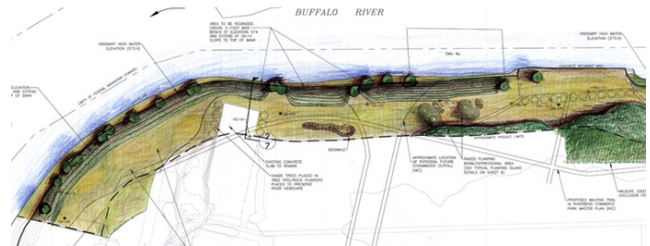


Figure 6 Riverbend Habitat Restoration Plan

► Babcock Street/Exxon Mobil Former Terminal

The site is 90 acres in size and located on Elk Street in the City of Buffalo. The site is bisected by Babcock Street running north-south and Prenatt Street, which is a paper street, running east-west. The goal of the voluntary brownfield cleanup action for the site is to achieve cleanup levels that protect public health and the environment. In addition to contamination management the project will involve:

- riverbank stabilization and vegetation to prevent contaminated fill from eroding into the Buffalo River; and
- the construction of a treatment wetland to manage storm water on site.



Figure 7 Elk Street Redevelopment Plan

▶ Old Bailey Woods

The Old Bailey Woods site, near the confluence of the Buffalo River and Cazenovia Creek, is a large wooded lot that is used by local residents for fishing and passive recreation. This 3.1-acre lot, which is the only floodplain forest in the City, was designated as a passive park under a settlement agreement associated with the development of the Iron Mountain Records facility, east of the site. There is an internal dirt path that allows access to this property from either Payson Street or Bailey Avenue.



Figure 8 - Old Bailey Woods Fishing Access

▶ Bailey Avenue Peninsula (Confluence Point)

One of three projects completed under the 1996 Buffalo Fish and Wildlife Habitat Restoration Demonstration Project, habitat restoration, invasive species management and passive public access facilities were created at Confluence Point Park at the confluence of Cazenovia Creek and the Buffalo River. This 3.8-acre Erie County-owned and maintained site provides walking trails, scenic overlooks of the Buffalo River and interpretive signage. The site is used heavily for fishing by local residents and also offers several scenic vistas with benches.

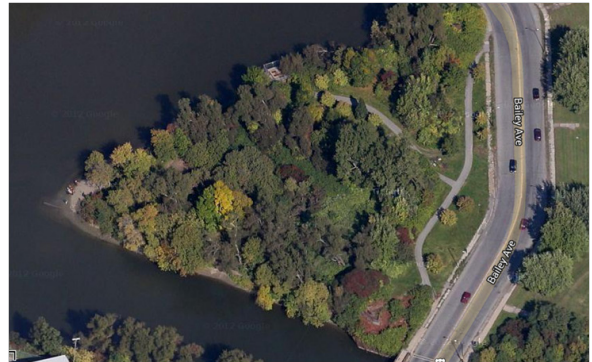


Figure 9 - Bailey Peninsula/Confluence Point

▶ Seneca Bluffs

Seneca Bluffs Natural Habitat Park is a designated Erie County wetlands restoration area located at the Seneca Street Bridge, between Elk Street and Avon Place. It consists of 15 acres of riparian floodplain located in a heavily urbanized area along the Buffalo River. Habitat types include floodplain island, seasonally flooded wetland, forested floodplain, and upland meadow, along with 2,500 feet of shoreline. Migratory birds, wading birds and waterfowl make use of this site. Challenges include the domination of approximately 85 percent of the site by invasive and non-native plants and areas of shoreline that are actively eroding.

The City owns a small number of undeveloped street right-of-ways that extend toward the river immediately upstream of Seneca Bluffs. These include Avon Place and the terminus of Leamington Place, Avondale Place and Juniata Place. This area is submerged when melting snow increases the flow and subsequent water level in the Buffalo River.



Figure 10 - Seneca Bluffs

▶ Houghton (Stachowski) Park to City Line

From Bailey Avenue east to the City line, including substantial City-owned acreage at Houghton Park, the north shore of the Buffalo River is characterized by forested floodplain, emergent wetland habitat and upland grassland areas.



Figure 11 - Buffalo River facing east to South Ogden Bridge

▶ Buffalo School Sites along the Buffalo River

Public school properties at Southside Elementary, Red Jacket Elementary and South Buffalo Charter School are located adjacent the Buffalo River and contain woodland, grassland and important shoreline habitat resources.

▶ Bell Slip/100 year floodplain/ Outer Harbor Shoreline



The 2,300 linear feet of shoreline at the Outer Harbor Bell Slip was enhanced as part of the \$13.5 million Outer Harbor Greenbelt project. Improvements included soil remediation, installation of new stone revetment and slope embankment to prevent erosion, landscaping, construction of shallow water habitat supportive of fish spawning, and installation of bio-engineered compost to support vegetation and attract wildlife. Substantial portions of the vacant land north of the Ford Terminal Complex on the Outer Harbor are within the 100-year floodplain and serve as natural protective features.

▶ Ship Canal Commons



As part of the wildlife habitat improvements at Ship Canal Commons, large tree trunks were weighted and placed on the bottom of the Union Ship Canal and partially buried in an underwater stabilization berm, with the roots exposed, to create artificial reefs. Floating rafts of willow logs also provide cover for fish. A one-half acre portion of the site, adjacent to the northwest corner of the canal, was excavated to create a small marsh where native aquatic plants were placed.



D. Fish Resources

While no commercial fisheries are known to exist on Lake Erie in New York, Lake Erie remains the largest freshwater commercial fishery in Canada, and one of the most valuable freshwater commercial fisheries in the world. In 2011, the Lake Erie commercial fishing industry caught nearly 22 million pounds of fish worth \$28 million, much of which were sold to food stores and restaurants in Ontario, the U.S. and around the world. The total value of Lake Erie's commercial fishery was \$194 million in 2011.

Within the Buffalo LWRA, Lake Erie and Niagara River are home to several sport fishing charter businesses, bait shops, numerous shoreline fishing sites with large numbers of residents, including the City's growing immigrant communities, relying upon locally caught fish as a source of protein.

There is an abundance of fishery resources in the LWRA, including both native and non-native species. Native species found in Lake Erie and the Upper Niagara River include: largemouth and smallmouth bass, yellow perch, walleye, northern pike, muskellunge, rock bass, sheepshead, smelt, emerald shiners and lake sturgeon. In general, the potential for overfishing is not considered to be a problem; however, catches of certain highly-sought species, such as muskellunge, walleye or steelhead, under certain conditions, may pose concerns for anglers and fisheries managers.

NYSDEC's management of Lake Erie fishery resources includes a component focused on providing steelhead and rainbow trout fishing opportunities, particularly in the major tributaries. Approximately 250,000 steelhead are stocked annually in selected New York tributaries of Lake Erie, including about 45,000 in the Buffalo River system. Steelhead are stocked in early spring, usually April, in Cayuga Creek, Cazenovia Creek and the Buffalo River in order to imprint the young so they will return to these streams when they mature. Since 2005, a portion of steelhead have been stocked into holding pens in the Buffalo River at the Bison City Rod and Gun Club to improve survival and imprinting. The fish are held

for about three weeks, fed, monitored, measured and released by volunteers.

The Buffalo River has a long history of significant environmental degradation. There are numerous reports describing a variety of factors related to the degradation, including impacts upon aquatic resources. There have also been substantial improvements in the fish community in recent decades. Many of the fish species expected to be found in this type of habitat are present, although abundance of many highly desirable native fish species, such as smallmouth bass, walleye, northern pike, and muskellunge, is low. There are many limitations to achieving a fully-recovered fish community in the Lower Buffalo River. They include physical factors such as lack of shallow areas, excessively high surface water temperatures, seasonal low flows, lack of natural shoreline, lack of underwater cover, and poor condition of bottom sediments. Important chemical limitations include episodes of dissolved oxygen depletion and contaminated sediments. Reduced areas of aquatic vegetation, associated wetlands and contiguous shoreline vegetation are biological factors that have been identified as problematic for fish populations.

During 2003, NYSDEC, in cooperation with an advisory group, initiated a walleye restoration project for the Buffalo River. The objective of the project is to establish a self-sustaining, riverine walleye population in the Buffalo River. This project could potentially develop a seasonal walleye fishery in the Buffalo River and enhance walleye fishing in the Buffalo Harbor. A successful spawning population of walleye in the Buffalo River would diversify walleye reproduction in Lake Erie, helping to ensure more consistent walleye recruitment in Lake Erie. From 2004 to 2007, approximately 76,000 walleye fingerlings and approximately 419,000 walleye fry have been stocked into the Buffalo River, in anticipation that stocked fish would survive and return as adults to spawn. Unfortunately, in 2007, NYSDEC fish disease policy to contain the spread of viral hemorrhagic septicemia (VHS), caused a suspension of the stocking program, and it is hoped that the stocking program can be continued once disease related issues are resolved. In 2008, DEC conducted follow-up walleye sampling activities in the Buffalo River

since this was the first year that both males and females of the 2004 stocking cohort would be fully mature and perhaps detectable as a spawning concentration. No adult walleye were detected during this sampling effort; however, additional effort will be expended in the future to monitor success of the stocking activities.

A most notable aquatic resource in the LWRA is the presence of emerald shiners, a small, silvery minnow found in great abundance on a seasonal basis. Large numbers of shiners, a native species, are found in the Buffalo Harbor, Buffalo River and Upper Niagara during late winter, spring and early summer. The adult emerald shiners migrate in association with ice flows from Lake Erie into the Niagara River. This species is an important food item for many of the fish-eating birds and predatory fish found in the system. These abundant minnows are also a staple of the local baitfish industry. However, the importance of locally caught shiners has diminished greatly since 2006/2007 when Federal and State fish disease regulations were implemented to control the spread of VHS. Prior to that time, large numbers of emerald shiners were commercially dipped from the Niagara River for local sale, as well as transport to other bait dealers in New York and other northeastern states.

Protection of emerald shiners and their migratory corridor is important. Each year during late summer and fall, millions of young shiners migrate upstream, against the current, from the Niagara River to Lake Erie where they grow to adults. In the river, these very small, young minnows have limited swimming capabilities and they swim along the shoreline of the River, taking advantage of areas where current velocities are reduced by rocks and other cover. In the vicinity of the Peace Bridge, where current velocities are very fast, habitats conducive to migrations are very limited, especially where there are long stretches of smooth, vertical concrete or metal structures.

The Buffalo LWRP policies aim to help rebuild the Lake Erie-Niagara River food web, supporting sport and subsistence fishing in the short term and contributing to the long term restoration of sustainable commercial fishing in NY's Lake Erie waters.

E. Great Lakes Areas of Concern (AOCs)

The Buffalo and Niagara Rivers have been identified as two of 43 toxic hot spots on the Great Lakes that have been designated by EPA and the International Joint Commission (IJC) as "areas of concern". An AOC is a place that is so heavily polluted by raw sewage, contaminated sediments, invasive species, and habitat and wetland destruction that the damage threatens the ecosystem, the economy, water quality and the health of the community. The Buffalo and Niagara Rivers, their sediments and nearshore areas have been impaired by over a century of industrial activities and municipal waste discharges. Contamination of the river channels continues today from upstream non-point sources, CSO discharges, and historic contaminants contained in river sediments and riverfront brownfields.

The Niagara River AOC is located in Erie and Niagara counties in western New York. This AOC extends from Smokes Creek near the southern end of the Buffalo Harbor, north to the mouth of the Niagara River at Lake Ontario. Past municipal and industrial discharges and waste disposal sites have been a source of contaminants to the Niagara River. A long history of development has also changed the original shoreline along much of the river, affecting fish and wildlife habitat. Habitat degradation and the survival of aquatic life in this AOC have been impaired by toxic chemicals, such as PCBs, mirex, chlordane, dioxin, dibenzofuran, hexachlorocyclo-hexane, PAHs, and pesticides. Fish migration from Lake Ontario has an influence on the Niagara River community, as does the related effects of invasive species. Metals and cyanides in the sediment prevent open lake disposal of bottom sediments dredged from the river. Sources and loadings of pollutants causing use impairments in the Niagara River include these sediments, as well as inactive hazardous waste sites, CSOs, and other point and nonpoint sources. Contamination originating from discharges within Lake Erie's watershed contributes to effects in the Niagara River and Lake Ontario.

The Buffalo River AOC is located in the City of Buffalo. The river flows from the east and discharges into Lake Erie, near the head of the Niagara River. The Buffalo

River “impact area” extends from the mouth of the Buffalo River to the farthest point upstream at which the backwater condition exists during Lake Erie’s highest monthly average lake level. The impact area is 6.2 miles in length. The AOC also includes the entire 1.4-mile stretch of the Buffalo Ship Canal, located adjacent to the river. The AOC impact area is characterized by historically heavy industrial development in the midst of a large municipality. There are three major streams in the watershed that create the AOC “source area”: Cayuga Creek, Buffalo Creek and Cazenovia Creek. The total drainage area for the Buffalo River watershed is approximately 440 square miles.

committees, prepared Remedial Action Plans (RAPs) for the Buffalo River in 1989 and the Niagara River in 1994. The RAPs, and subsequent updates, identified Beneficial Use Impairments (BUI) for each river, set forth by the IJC, as well as plans to remediate the impairments. The goal of the Buffalo River RAP is to delist the Buffalo River as an Area of Concern by 2016, thereafter monitoring the river as an Area of Recovery.

To address these problems, NYSDEC, in conjunction with the Buffalo Niagara Riverkeeper and citizen advisory

Buffalo River and Niagara River Areas of Concern, Beneficial Use Impairments

IJC’s Beneficial Use Impairments		Buffalo River AOC Status (as of 2011)	Known or Likely Cause	Niagara River AOC Status	Known or Likely Cause
1	Restrictions on Fish & Wildlife Consumption	Impaired	PCB’s and chlordane in sediments	Impaired	PCB’s and chlordane in sediments
2	Tainting of Fish & Wildlife Flavor	Impaired	PAHs in sediment	Not Impaired	-
3	Degradation of Fish & Wildlife Populations	Impaired	Low dissolved oxygen, river channelization, and contaminated sediments	Unknown	-
4	Fish Tumors and Other Deformities	Impaired	Contaminated sediments	Impaired	Contaminated sediments
5	Bird or Animal Deformities or Reproductive Problems	Impaired	PCBs, DDT, and metabolites in sediments	Impaired	-
6	Degradation of Benthos	Impaired	Contaminated sediments and navigational dredging	Impaired	Contaminated sediments
7	Restrictions on Dredging	Impaired	Contaminated sediments	Impaired	Contaminated sediments
8	Eutrophication or Undesirable Algae	Not Impaired	-	Not Impaired	

IJC's Beneficial Use Impairments		Buffalo River AOC Status (as of 2011)	Known or Likely Cause	Niagara River AOC Status	Known or Likely Cause
9	Restrictions on Drinking Water Consumption or Taste and Odor Problems	Not Applicable	-	Not Impaired	
10	Beach Closings	Not Applicable	-	Not Impaired	
11	Degradation of Aesthetics	Impaired	Floatables, debris, and foul odor from CSOs and upper watershed	Not Impaired	-
12	Added Costs to Agriculture and Industry		Not Applicable	-	Not Impaired
13	Degradation of Phytoplankton and Zooplankton Populations	Not Impaired	-	Not Impaired	-
14	Loss of Fish & Wildlife Habitat	Impaired	Physical Disturbances such as bulkheading, dredging, steep slopes, and lack of suitable substrate	Impaired	Physical disturbances and low water quality

III. HARBOR MANAGEMENT

A. “Port of Buffalo”

1. Port Functions

New York State Coastal Policy #3 identifies Buffalo as one of the state’s existing major ports.

Historically, Buffalo’s location at the terminus of the Erie Canal, extensive railway system and major manufacturing facilities resulted in tremendous port activity. In 1845, almost 100,000 passengers travelled left the City of Buffalo for Detroit, Chicago and other Great Lakes ports.

However, the opening of the St. Lawrence Seaway in 1957, the decline of the City’s manufacturing base and the rise of automobile transportation dramatically reduced Buffalo’s port activities.

Today, within the Buffalo LWRA, remnants of the City’s former cargo port remain as the grain elevators continue to rely upon waterborne cargo. Water-based cargo facilities are also available at the City’s Ford Terminal Complex. Commercial and recreational boating exists throughout the City’s waterfront.

The LWRA continues to serve as an important rail freight hub with major rail facilities located south of the Buffalo River. However, waterborne cargos to rail transfers are limited.

The Department of Homeland Security Customs and Border Patrol also manages three international entry points within the LWRA:

- ▶ the Peace Bridge passenger and truck entry;
- ▶ the International Railroad Bridge rail freight entry; and
- ▶ the Erie Basin Marina Outlying Area Reporting Station for boaters.

2. Port Authority

In 1956, the State of New York and United States Congress created Public Law 834 Chapter 758 to create the Niagara Frontier Port Authority to take over, maintain

and operate the Peace Bridge over the Niagara River. In addition to the Peace Bridge, the Niagara Frontier Port Authority purchased the Ford Terminal Complex on the City of Buffalo Outer Harbor from the Ford Motor Co. in 1962.

In 1967, the Niagara Frontier Transportation Authority was created under Public Authority’s Law to continue, develop and improve transportation services, including marine transportation facilities, within the region. The enabling legislation defined the Niagara Frontier Port Authority as a subsidiary corporation of the NFTA and all of the Port Authority’s properties were controlled by the NFTA.

In 2013, the NFTA negotiated the sale of its marine transportation facilities in two transactions:

- ▶ the Small Boat Harbor and Seaway Piers parcels will be transferred to the Erie Canal Harbor Development Corporation, an Empire State Development Corporation subsidiary; and
- ▶ Ford Terminal Complex holdings on the Outer Harbor will be sold to a private manufacturing entity.

The NFTA, and its subsidiary the Niagara Frontier Port Authority, retain continued authorization to develop new marine transportation facilities and services under its enabling legislation.

3. Buffalo Harbor Master and Harbor Management

The City of Buffalo Code Chapter 495 addresses the operation of wharves, harbors and bridges in the City of Buffalo. Chapter 495 Article 2 creates the position of Harbormaster with responsibility to supervise and control harbor operations and enforce the laws of Chapter 495. A full copy of Chapter 495’s provisions has been attached as Appendix F.

Chapter 299 -11 of the Buffalo Code regulates personal conduct in watercraft.

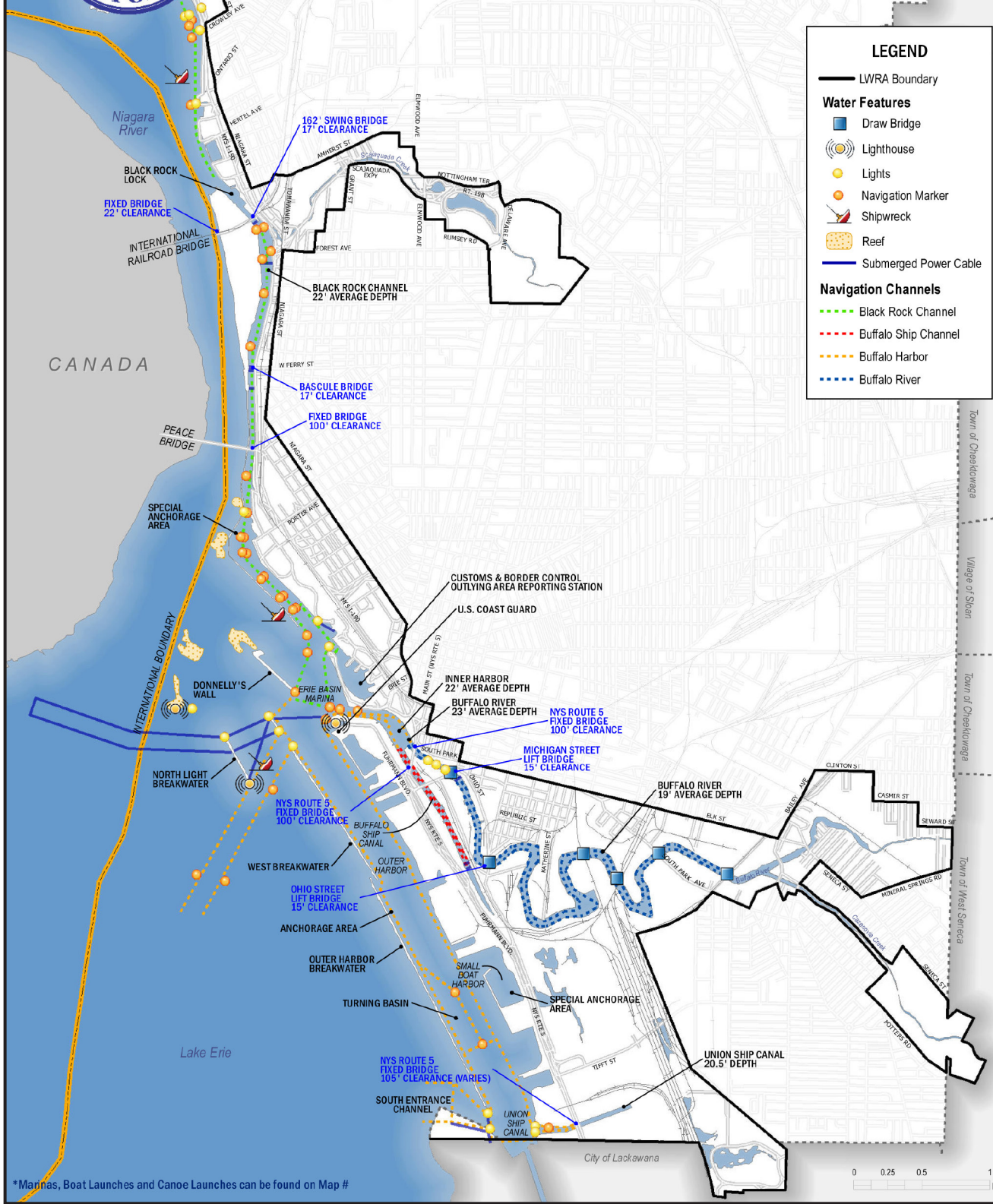


CITY OF BUFFALO LOCAL WATERFRONT REVITALIZATION PROGRAM Water Use / Harbor Management Plan*



LEGEND

- LWRA Boundary
- Water Features**
 - Draw Bridge
 - Lighthouse
 - Lights
 - Navigation Marker
 - Shipwreck
 - Reef
 - Submerged Power Cable
- Navigation Channels**
 - Black Rock Channel
 - Buffalo Ship Channel
 - Buffalo Harbor
 - Buffalo River



*Marinas, Boat Launches and Canoe Launches can be found on Map #



MAP 4 - WATER USE / HARBOR MANAGEMENT PLAN



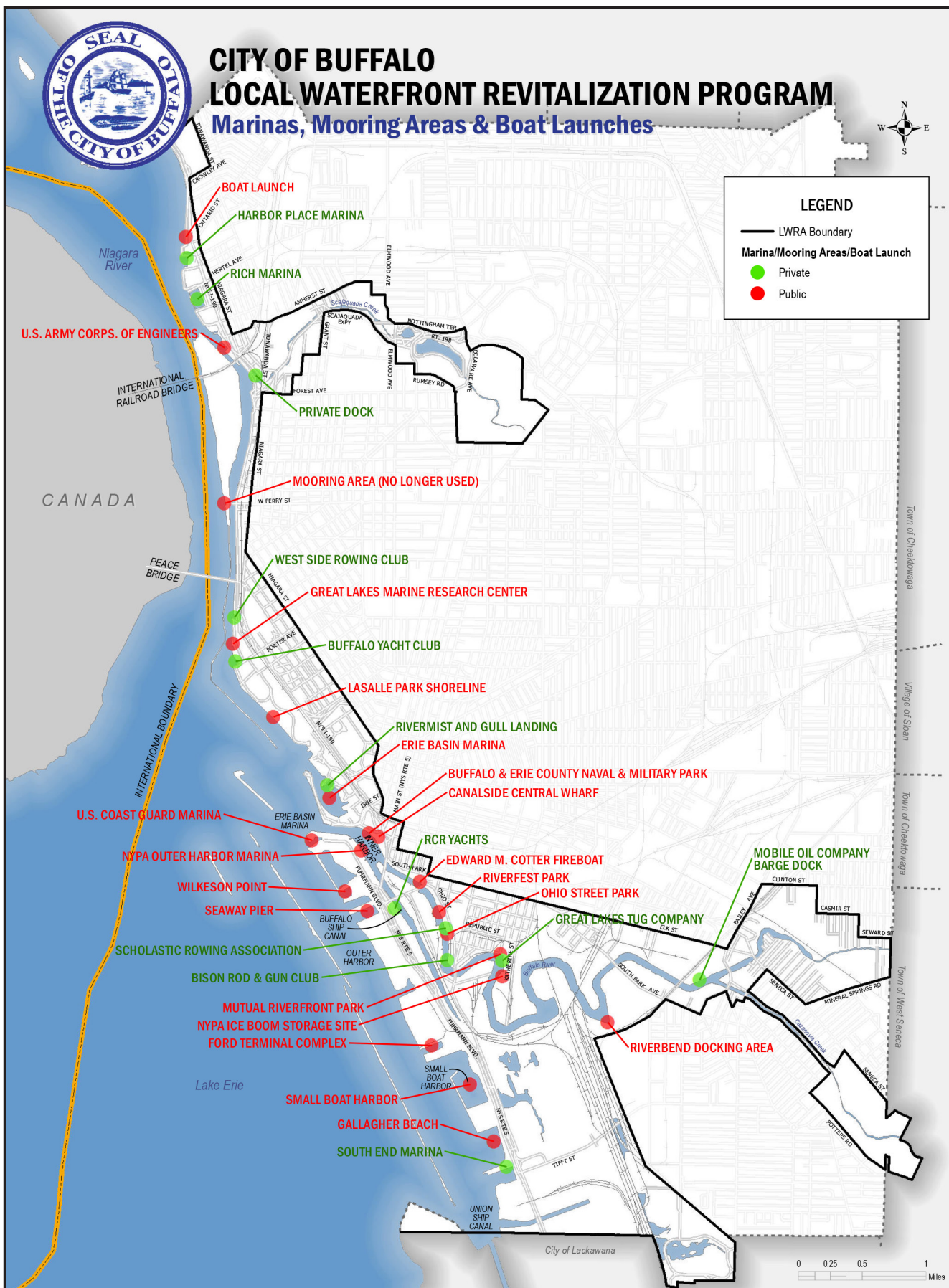


CITY OF BUFFALO LOCAL WATERFRONT REVITALIZATION PROGRAM Marinas, Mooring Areas & Boat Launches



LEGEND

- LWRA Boundary
- Marina/Mooring Areas/Boat Launch
- Private
- Public



MAP 5 - MARINAS, MOORING AREAS & BOAT LAUNCHES

B. Navigation Channels and Canals

The City of Buffalo LWRA contains four navigation channels, two canals and a river system that essentially comprise the Buffalo Harbor complex (Map 4). These waterways are described below, from north to south.

I. Black Rock Canal & Channel

Due to the strong currents in the Niagara River, the Black Rock Canal was built to allow safe navigation between the Buffalo Harbor and Tonawanda. The Black Rock Canal lies adjacent to the western shoreline of Buffalo and is formed by a breakwater that separates it from the Niagara River. The breakwater ends at the southern tip of Bird Island, which then extends the canal northward to the United States Army Corps of Engineers' (USACE) lock at the northern end of Squaw Island.

The Black Rock Canal is 3.5 miles long and its navigation channel is at least 200 feet wide at all points. Water levels in the canal are controlled by the lock with an average depth of the 22 feet. The lock and channel accommodate both pleasure and commercial vessels up to 625 feet in length, with drafts up to 21 feet. Flow in the canal can occur in either direction.

The Black Rock Canal entrance channel, which is located just north of the Erie Basin Marina, converges with the entrance channel to the Buffalo River and the northern channel for the Outer Harbor. The canal entrance channel also provides access to the Erie Basin Marina. This entrance channel is about 1,000 feet wide and approximately 23 feet deep at its junction with the other navigation channels.

There is a special anchorage area in the southern portion of the Black Rock Canal, off shore of the Colonel Ward Pumping Station. This anchorage area is afforded protection by the Bird Island breakwater that extends around the entrance to the canal. In the event that two boats wish to use the canal, commercial freighters or other commercial vessels have the right-of way. Smaller recreational vessels can use the anchorage area to maneuver out of the navigation channel and moor temporarily. The water in this special anchorage area is

generally two to four feet deep, with a large volume of silt collecting along the seawall.

There has been a lock at Black Rock since 1833, when the State of New York built one as part of the Erie Canal. The present lock, which was constructed by the USACE between 1908 and 1913, provided the capacity to accommodate large Great Lakes vessels. The lock is 650 feet long and 70 feet wide.

The Black Rock Canal is crossed by two drawbridges and one fixed bridge. The International Railroad Bridge is located at the northern end of the canal and extends across the canal and the Niagara River. The section that extends over the canal is a swing bridge that carries two railroad tracks, a single travel lane for motor vehicles, and a pedestrian/bicycle pathway. This bridge has a horizontal width of 162 feet and vertical clearance of 17 feet. The portion of the bridge that crosses the Niagara River is fixed, with a vertical clearance of 22 feet and a horizontal width of 154 feet.

There is a bascule drawbridge located near the southern end of Squaw Island, at the foot of West Ferry Street. The clearance beneath this bridge, when not raised, is 17 feet and the horizontal width is 149 feet. This bridge supports two travel lanes for motor vehicles and a pedestrian/bicycle pathway. The Peace Bridge crosses the canal at the head of the Niagara River. The vertical clearance is 100 feet and the horizontal width is 200 feet on the eastern side of the bridge, over the canal; the western extent along the Canada shoreline has a vertical clearance of 83 feet and a horizontal width of 385 feet.



The Black Rock Canal is heavily used by recreational boaters, and to a lesser extent, commercial shipping vessels that deliver fuel oil, coal and gasoline to refineries and power plants in Tonawanda. Pleasure craft are required to yield to commercial vessels because of the confined waters of the channel. The low level of freighter traffic in the canal allows it to be used the West Side Rowing Club and for rowing training and competition programs from March through October.

2. Buffalo Harbor Complex

Buffalo Harbor is a deep draft commercial harbor. It is protected by 4.5 miles of breakwater structures. The harbor complex includes a series of authorized federal navigation channels design and maintained so that deep draft commercial vessels can safely move through the harbor.

The north entrance channel of Buffalo Harbor provides navigable access from the open waters of Lake Erie to the Buffalo Harbor complex and canals. The north entrance channel is located west of the Outer Harbor. It is approximately 750 feet wide and 25 feet in depth. This is the primary means of ingress and egress from Lake Erie to the Buffalo River, the canals and the Outer Harbor channel.

The Inner Harbor is situated between the south end of the Erie Basin Marina and the northern extent of the Outer Harbor and provides access to the Buffalo Ship Canal and the Buffalo River. The Inner Harbor channel varies in width from a minimum of approximately 40 feet to 750 feet; the average channel depth is approximately 22 feet. The NYS Route 5 (Skyway) fixed bridge traverses the mouths of the Buffalo Ship Canal and Buffalo River, just south of the Inner Harbor channel. The vertical clearance beneath this structure is 100 feet and the horizontal width is 215 feet.

The Outer Harbor has three navigation channels: the north, the middle, and the south channels. The north channel is approximately 40 feet from the shoreline and 1000 feet wide. The Outer Harbor middle channel narrows to a width of 500 feet in two locations to accommodate an anchorage area and the Outer Harbor

turning basin. The channel widens again to 1000 feet along its southern segment, to a point at the end of the Outer Harbor seawall, where it converges with the south entrance opening. This entryway is only 500 feet wide. Directly east of the south entrance is the Union Ship Canal. This 0.7-mile canal is 20.5 feet deep, with a 250 feet wide channel. The canal is crossed by NYS Route 5 via a fixed bridge with a vertical clearance of approximately 105 feet as well as a lower pedestrian bridge.

Vessel use along these waterways is a combination of commercial freighter traffic and recreational boating. The majority of vessel traffic entering the Outer Harbor navigation channel does so through the south entrance, which is located near the boundary between the City of Buffalo and the City of Lackawanna.

Recreational boaters use this entrance to access Lake Erie and the Seneca Shoal, a very popular fishing spot located southwest of the LWRA further out in Lake Erie. Another popular and widely used fishing spot is Fish Haven, located due west of the Outer Harbor within the LWRA. The game fish found in this area include a wide range of species native to the Great Lakes, including lake sturgeon, muskellunge, walleye, lake trout, and smallmouth bass.

3. Buffalo Ship Canal

The Buffalo Ship Canal extends 1.3 miles southward from the Inner Harbor channel. It is approximately 250 feet wide and 22 feet deep. This channel provides docking access to the industries and marinas that are located along the shorelines of Kelly Island and the Outer Harbor.



4. Buffalo River

The Buffalo River navigation channel is maintained by the USACE to an average depth of 23 feet at the mouth of the river and 19 feet further upstream. The channel extends up the Buffalo River 6.2 miles.

The Buffalo River is crossed by three fixed bridges: the NYS Route 5 overpass, Bailey Avenue and Seneca Street. Cazenovia Creek is served by fixed bridges at Bailey Avenue, Southside Parkway, Stevenson Street, Cazenovia Street and Cazenovia Parkway. There are seven drawbridges that cross the Buffalo River, including lift bridges that carry traffic over South Michigan Avenue, Ohio Street and South Park Avenue, and four bascule bridges that provide railway access over the river.

Commercial vessels travelling into the Buffalo River are generally associated with the Great Lakes Tug Company, New York Power Authority (NYPA) Ice Boom site and grain and concrete elevators. The average number of freighters using the Buffalo River ranges from between 115 and 140 vessels per year. These ships navigate the Buffalo River at speeds around two miles per hour.

Increasingly, the Buffalo River is being used for small water craft, including canoeing, kayaking and activities associated with the Buffalo Scholastic Rowing Association.



Photo Credit: Rick Smith

5. Channel Maintenance

The USACE is authorized to maintain Buffalo federal navigation channels, including the 6.2 miles of the

Buffalo River and 1.4 miles of the Buffalo Ship Canal to an authorized depth of 22 feet below low water datum (LWD).

The USACE conducts an annual survey of the federal navigation channels to determine which areas require dredging. Routine operation and maintenance dredging is typically conducted every two to three years. Due to funding limitations, only portions of these channels can be dredged in areas where shoals substantially impede commercial navigation, resulting in a buildup of sediment in the channels.

The USACE reports that the Outer Harbor requires no regular dredging or other maintenance but that increased traffic through the North entrance channel in the future may necessitate such activity to provide the necessary draft. The South entrance channel is deep enough to handle current recreational boating traffic. The harbor was last dredged in 2008, when 78,000 CY of sediment was removed. There are no plans to dredge for the near future.

Decades of industrial and municipal discharges have polluted the Buffalo River and Ship Canal. The USACE is removing approximately 40,000 cy of sediment/shoals from the authorized limits of the federal navigation channel in the lower reaches of the Buffalo River and canal as a part of the Buffalo River Restoration project (see Section I.1). The work, part of the USACE' regularly scheduled maintenance dredging program, was scheduled to be completed by the end of July 2012.

The Black Rock Canal requires dredging approximately every 12 to 18 months. The Canal was last dredged in October of 1999. This work was performed from the Black Rock Canal lock to the south canal entrance near the Buffalo Harbor. An estimated 15,000 CY of dredging material was removed, the majority of which came from an area of the Canal between the Black Rock lock and the Peace Bridge.

Dredged sediment that is removed from Buffalo waterways is placed in Confined Disposal Facility #4, a 107- acre site, adjacent to the former Bethlehem Steel site which was constructed by the USACE in 1972 for

the placement of material that is unsuitable for open-lake placement in Lake Erie. Material dredged by non-USACE entities from other areas is periodically placed in the CDF with USACE approval.

C. Breakwaters

The USACE maintains several breakwaters in the LWRA that provide protection for the Buffalo Harbor and Black Rock Canal. These include:

- ▶ Bird Island Pier (also known as Nowak Pier), a one and a half-mile long stone dike that parallels the shoreline separating the Black Rock Canal from the Niagara River. The Pier is constructed of mortared riprap and stone revetment. The Bird Island Pier is replaced by a concrete breakwater, which extends further south beyond the Peace Bridge. This breakwater protects the entrance and southern portion of the Canal;
- ▶ Donnelly's Wall, a half-mile long concrete wall and lighthouse facility located northwest of the mouth of the Buffalo River;
- ▶ North End Light breakwater, a 500-foot long concrete wall located due west of the Buffalo River;
- ▶ West breakwater, a concrete barrier that is situated further south and west of the North End Light structure; and
- ▶ Outer Harbor breakwaters, which consist of two long concrete walls that provide protection for the Outer Harbor navigation channel.

D. Aids to Navigation

The entrance channels and canals in the LWRA are marked by navigational buoys, shoreline lights, a lighthouse and breakwater lights maintained by the Coast Guard (Map 4). Red and green colored buoys mark the length of the Black Rock Canal, from the lock to the Erie Basin Marina. These buoys are placed at close intervals along the mainland side of the Canal. In addition, there are two lights that flash at synchronized intervals to alert vessels of the nearby shore. There is also a navigation light

located on top of the Massachusetts Avenue Pump intake on the Niagara River and a light on top of the Colonel Ward pumping station water intake to alert boaters of their presence. The north and south entrance channels to the Outer Harbor are marked by lights. The Buffalo Main Harbor Lighthouse is located on the breakwater, which is situated west of the north entrance to the Outer Harbor channel.

E. Marinas, Mooring Areas and Boat Launches¹

I. Public

- a. A public boat launch is located at the terminus of Ontario Street and is open year round, although waters around the launch typically freeze between December and April;
- b. The outer shoreline of Squaw Island, facing the Niagara River, has iron bollards along the bulkhead. This bulkhead is no longer used for mooring due to the swift current.
- c. In the Black Rock Canal, between the Black Rock Canal lock and the shoreline, there is a single-vessel mooring area where the USACE stores its tugboat during the winter;
- d. The Great Lakes Marine Research Center at Cotter Point, administered by the State University of New York College at Buffalo, has a wet side dock and a dry dock for research vessels. The laboratory also utilizes an iron barge, which is secured along the Black Rock Canal shoreline, south of Squaw Island, for vessel docking;
- e. The entire shoreline of LaSalle Park, situated on the mainland at the head of the Canal, is protected by a concrete bulkhead that provides iron bollards for docking;
- f. Erie Basin Marina is owned by the City of Buffalo, and leased to an operating company that is responsible for maintenance. The Marina operates

¹ Presented on Map 5.

400, 20 to 40 foot long, boat slips and a boat launch from May through October. This facility has electric and water hook-ups, a pump-out station, fuel dock, fishing supplies and marine hardware, showers, a restaurant and concessions. The basin is also home port for the Miss Buffalo II and the Moondance Catamaran;

g. Buffalo and Erie County Navy and Military Park. This facility includes a museum devoted to Western New York's contributions to America's seapower, the U.S.S. Sullivan national historic landmark, the U.S.S. Little Rock, and the U.S.S. Croaker submarine.

h. The Coast Guard maintains a small marina at the north end of the Outer Harbor for official Coast Guard vessels. There is a small park with a picnic shelter, a walking path and benches that overlook Lake Erie and the entrance channel to the Inner Harbor. There are several scenic and historic monuments, including the Buffalo Main Lighthouse, on the northwestern corner of the station grounds;

i. Erie Canal Harbor Development Corporation (ECHDC)'s Wilkeson Point features a portable pier for fishing and canoe or kayak launching, as well as a small transient dock;

j. NYPA Outer Harbor Marina, formerly First Buffalo Marina, has approximately 100 slips, offering marine service, winter storage and transient docking;

k. The Seaway Pier has docking space for 16 vessels. Boaters can also tie up to approximately 50 metal cleats that are installed on the pier bulkhead;

l. The Ford Terminal Complex inlet has corrugated steel and concrete bulkheads that act as wharves for loading and offloading freight from commercial freighters;

m. The Small Boat Harbor is located on the lakeshore of the Outer Harbor. It contains 1,042 boat slips with a pump-out facility, 12 boat launches and berths for transient docking (which varies between 50 and 100 slips, depending on seasonal slip rentals), restaurant, fuel dock, marine store, a fish

cleaning station, public restrooms and showers for slip holders;

n. Gallagher Beach offers 1,500 linear feet of shoreline access, a non-motorized watercraft access ramp to the shore, a separate launch ramp for motorized personal watercraft, a 1,400-foot pedestrian boardwalk, a 144-foot fishing pier and a floating dock;

o. The Canalside Central Wharf provides transient dockage and is also home to the Spirit of Buffalo schooner;

p. City of Buffalo docks the Edward M. Cotter fireboat in the slip between the Michigan Avenue bridge at South Park and the NFTA's DLW Terminal;

q. RiverFest Park features a 90-foot wharf that can accommodate guest boats such as tugs, fireboats, etc. The park offers 160-linear feet of portable docks for transient boaters and a 20-foot lower dock for kayak use;

r. Ohio Street Park is located on the eastern shore of the Buffalo River at the intersection of South Street and Ohio Street and is home to the NYSDEC Buffalo River Boat Launch. The launch is a designated "hand launch," enabling visitors to explore and fish the Buffalo River by canoe, kayak or row boat. A small parking area is also located at the park, and is connected to the park through a series of small, unimproved, rock-lined trails;

s. Mutual Riverfront Park is located on the Buffalo River at the intersection of South Street and Hamburg Street. The Park includes a 20-foot kayak and canoe EZ dock. An additional 40-foot boat dock will be installed at the foot of Hamburg to accommodate the Queen City Ferry and transient boaters visiting Mutual Park and the Waterfront Memories and More Museum;

t. NYPA Ice Boom Storage Site. As part of the Niagara Hydropower Relicensing agreement, NYPA relocated its ice boom storage facility to a 10-acre site along Katherine Street in the Old First Ward.

Public access to the ice boom storage facility is prohibited; and

u. RiverBend docking area. The northwest shoreline of the RiverBend property, adjacent to the Concrete Central peninsula, has corrugated steel and concrete bulkheads that can serve as wharves for loading and offloading freight.

Public ownership and the close geographic proximity of the NYPA Outer Harbor Marina, City Erie Basin Marina and NFTA/ECHDC Small Boat Harbor creates opportunities to optimize local marina facilities and minimize public operational costs in support of the LWRA's economic development. An opportunities analysis has been proposed as a project in the LWRP Action Strategy.

2. Private

a. The Harbor Place Marina, which is located just south of the terminus of Ontario Street, offers transient dockage; engine, sail, and hull repair; haul out service; marine hardware; electric and water hook ups; a pump-out station; showers and restrooms; and a restaurant;

b. Rich Marina, located at the foot of Hertel Avenue, has 500, 16 to 45-foot long boat slips; transient dockage; engine, sail, and fuselage repair; haul out service; marine hardware; electric and water hook ups; a pump out station; showers and restrooms; winter storage; as well as a launch ramp and marine supplies. Rich Marina has a concrete seawall to protect the docking area, which has iron bollards for boat docking;

c. A small private dock with a boatlift is located on the Black Rock Canal shoreline, near the Scajaquada Expressway / I-190 Expressway interchange;

d. The West Side Rowing Club boathouse is located on the Black Rock Canal shoreline, at Cotter Point, south of the Peace Bridge. This facility provides a launch and storage for rowing shells. Directly adjacent is the Frank Lloyd Wright Boathouse, which also provides storage for rowing shells;

e. The Buffalo Yacht Club, located at the foot of Porter Avenue has 43 boat slips and a boatlift. This private club offers transient dockage, electric and water hook ups, a pump-out station, showers and a restaurant;

f. The Rivermist and Gull Landing residential communities at the Erie Basin Marina offer private dock facilities for residents;

g. Scholastic Rowing Association. The Buffalo River Rowing Center, to be completed in 2014, will provide storage for 36 eights, 24 fours and 16 pair/doubles; equipment, meeting space and indoor training facilities and 120 feet of floating dock space;

h. Bison Rod and Gun Club. This private club offers temporary dock facilities for visiting members;

i. The Great Lakes Tug Company utilizes the inlet on the northwest shoreline of Katherine Peninsula to dock two tugboats;

j. The Mobil Oil Company barge dock, which is located approximately 1,500 feet northeast of the South Park Avenue lift bridge, remains intact, but is no longer used for waterborne transport;

k. RCR Yachts, located along the western shoreline of the Buffalo Ship Canal, provides dockage for 137 boats, transient dockage, electric and water hook-ups, marine hardware, a 20-ton haul out, winter storage, and rigging, sail and engine repair; and

l. The South End Marina, located south of Gallagher Beach, includes 6.5 acres of deep-water access on Lake Erie with a boatlift and dry dock facilities, as well as boat storage area, but does not maintain boat slips.

F. Navigation Hazards

Navigation hazards within the LWRA include areas of shallow water and reefs, water intakes, submerged cables, shipwrecks and steel seawall plates and rocks (see Map 4).

The Massachusetts Avenue Pumping Station intake and the Colonel Ward intake are marked by lights, but are still considered hazards since these waters are heavily used by recreational boaters. There is an additional intake located south of Strawberry Island for the Town of Tonawanda Pumping Station and another in the inlet between the former Freezer Queen facility and the NFTA Small Boat Harbor on the Outer Harbor.

A shipwreck is located east of the Strawberry Island intake crib, which is situated only eight feet below the surface. There is also a shipwreck that extends above the water surface, just south of the Black Rock Canal seawall, near LaSalle Park, and another near the west breakwater. A large rock immediately north of the easternmost pier of International Railroad Bridge, also presents a potential hazard

There are a number of shallow reefs located in the vicinity of the intake pipe for the Colonel Ward pumping station. The average depth to these reefs is between one and three feet. An area north of the North Breakwater, known as Horseshoe Reef, presents minimum depths of less than one foot.

G. Navigation Security

The U.S. Coast Guard and the Erie County Sheriff's Marine Division are responsible for enforcing navigation laws and vessel regulations within the LWRA. In the event of an underwater rescue, the Buffalo Police Department Underwater Recovery Team assists the Erie County Sheriff's Office.

The Coast Guard maintains a fleet of three boats at its base on the Outer Harbor. These consist of a 47-foot motor lifeboat, a 24-foot RHI inflatable, and a 14-foot ice skiff used for ice rescues. There are 19 full-time personnel stationed at this location. The Coast Guard enforces a six-mile per hour speed limit through the Black Rock Canal and the Buffalo River, and a 10-mile per hour speed limit in the Buffalo Harbor area. This harbor speed limit is currently not posted. The Coast Guard is on duty year round to conduct emergency rescue and law enforcement activities. The Buffalo Sector has acquired a

Rescue 21 system that became operational in September of 2011. The Rescue 21 is an advanced command, control and direction finding communications system for search and rescue missions. Since it went into operation, it has been used for more than 618 search and rescue cases, contributing to the rescue of 131 boaters.

The Erie County Sheriff's office maintains a fleet of three patrol boats that are utilized for the enforcement of navigation law, for search and rescue efforts and accident investigations. The Sheriff's Marine Unit patrols Lake Erie, Buffalo Harbor, the Buffalo River, and Black Rock Canal. The Sheriff's use a 40-foot Twin-Screw Munsen and a Twin 424 patrol boat, which are docked at the Harbour Place Marina near the Black Rock Canal, and a Grady White with an outboard motor that is docked at the Erie Basin Marina. The Sheriff's Marine Division has five to six deputies assigned to these vessels annually. In addition, there are 15 reserve officers who use their own boats to assist the regular patrol boats during special details. Usually only two reserve boats are active at any time. The Erie County Sheriff's Marine Division enforces State maritime laws within 100 feet of the shoreline. Vessels within 100 feet of the shore, any dock or pier, or any other anchored vessel may not exceed five miles per hour or exceed a reasonable and prudent operating speed, depending upon weather and traffic conditions. The Division maintains regular patrols from mid-April through mid-November, or whenever vessel traffic becomes minimal. They also conduct a dock watch program.

The Buffalo Police Department Underwater Recovery Team consists of 13 professional divers trained in swift water and ice rescues. The Team maintains a 21-foot Boston Whaler patrol boat that is docked at the Erie Basin Marina. The primary responsibility of this team is to assist the Erie County Sheriff's Marine Division with rescue operations.

IV. WATER SUPPLY AND WASTEWATER

A. Water Supply

The City of Buffalo Water Authority (BWA) operates a public water supply system treating approximately 22 billion gallons of water per year with an average of 60 million gallons each day. The peak single day volume in fiscal year 2012-2013 was 76 million gallons of water treated. The City's total per capita water use was approximately 84 thousand gallons per person per year. The City's residential only water use was 42,000 gallons per person per year.

The City draws its water from Lake Erie through an intake located in the Emerald Channel at the northeastern end of the Lake where the Lake meets the Niagara River. A back-up intake is located immediately north of the Peace Bridge in the main Niagara River channel. The water flows from the lake through a large conduit to the Colonel Ward Water pumping station and treatment plant located on Porter Avenue, adjacent to LaSalle Park. The Colonel Ward Water Treatment Plant has a design capacity of 160 million gallons per day (mgd). The BWA owns two storage tanks and three storage towers, as well as a 28 million-gallon clear well, located below filter beds clear well, for a total storage capacity of 40 million gallons. Colonel Ward process water is discharged into the Black Rock Canal in accordance with State Permitted Discharge Elimination System (SPDES) permit (NY0032174).

From the plant, treated water is transported throughout the BWA's 46 square mile distribution area. With the exception of a large parcel bordered by South Park, Abby Street, Fuhrmann Blvd and Tiff Street, the system supplies water to all residents and businesses (Paul Gareis, City of Buffalo Division of Water, September, 2012). The BWA system features 810 miles of pipes, 23,800 valves, 80,000 service connections and 7,965 fire hydrants. A majority of the distribution lines in the LWRA were installed after World War II. Only Ohio Street, Childs Street, Hamburg Street, Katherine Street, Bailey Avenue and the area north of Seneca and Mineral Springs were installed in the early

1900's. The water system is primarily comprised of cast iron water mains with some concrete and steel water mains that measure between 4 to 60 inches in diameter. Marginal to fair water pressure currently exists in the northwest section of the City, and good water pressure is available within the remainder of the City.

In 1992, the City sold the water system to the Buffalo Water Board (BWB) which began an accelerated Capital Improvement Program. The program included numerous improvements and enhancements throughout the system including upgrades at the Colonel Water Pump Station, Treatment Plant and the Massachusetts Avenue Pump Station, water storage tanks, and distribution mains.

The water system is managed by a private utility firm, Veolia Water, under contract with the City's Division of Water, Department of Public Works.

B. Buffalo River Improvement Corporation

The Buffalo River Improvement Corporation (BRIC) was created in 1967 to provide water for cooling and processing to industrial users along the Buffalo River. The BRIC pumps water from Lake Erie to augment flows in the Buffalo River. The BRIC has a design capacity of 120 million gallons per day. At its peak operation, BRIC contributed 90 percent of the River's flow during the drier summer months serving several industrial customers including Buffalo Color Corporation, PVS Chemical Corporation, Republic Steel and Allied Chemical Corporation. Today, PVS Chemical is the only active user of the system.

C. Municipal Wastewater Disposal

The Buffalo Sewer Authority (BSA) operates and maintains the city's public sewage collection and waste water treatment system.

The collection system consists of a mix of separate sanitary sewers, separate storm sewers and combined sewers approximately 850 miles in length, with 10 outlying pump stations and a 17 million gallon capacity stormwater

retention basin. The collection system conveys an average daily flow of approximately 150 million gallons per day (mgd) to the treatment plant, which includes more than 30 mgd that comes in from outside municipalities that are tributary to the BSA system.

The BSA Bird Island Wastewater Treatment Plant (WWTP), the second largest wastewater treatment plant in New York State, can provide full primary and secondary wastewater treatment for 240 mgd. Planned improvements will increase BSA's capacity to 340 mgd.

During rain and snow melt events, the actual amount of wastewater (both stormwater and sewage) collected within the combined system at times exceeds WWTP capacity. To protect the treatment plant and private property from flooding (including basements), excess flow is discharged to local waterways through combined sewer overflow (CSO) points.

The United States Environmental Protection Agency (EPA) CSO Control Policy provides guidance on how communities with combined sewer systems can meet Clean Water Act goals in as flexible and cost-effective a manner as possible. Under the CSO Control Policy, communities with CSOs must develop long-term CSO control plans that will ultimately provide for full compliance with the Clean Water Act, including attainment of water quality standards.

In 2014, the US EPA and NYS DEC approved the Buffalo Sewer Authority's Combined Sewer Overflow Long Term Control Plan. The strategy will dramatically reduce combined sewer overflow events to our local waterways, improving water quality while helping to promote economic development.

The \$425 million, 20 year plan, will result in :

- 97.4% total capture of combined sewer volume;
- 6 or fewer combined sewer overflows per year;
- 73% decrease in overflow volume from 1.89 billion to 504 million gallons per year; and



- 10% reduction in City impervious surfaces, 1315 -1620 acres of stormwater management.

The BSA CSO LTCP includes a combination of system efficiencies, innovative green infrastructure programs, treatment plant upgrades and new storage facilities. The BSA has already completed several “gray infrastructure” projects proposed in the original 2004 Long Term Control Plan and \$1 million of green infrastructure.

Green infrastructure uses vegetation, soils, and natural processes to manage water and create healthier urban environments. The Buffalo Sewer Authority plan is the first in the country to receive regulatory approval for the use of specific demolition sites as green infrastructure. To date the City's demolition program has created over 350 acres of green stormwater infrastructure. In addition, the BSA is currently working with the City's Department of Public Works to implement green infrastructure improvements on Ohio Street, Niagara Street, Genesee Street, Carlton Street, Fillmore Avenue and Kenmore Avenue.

D. Industrial Discharge Permits

The following private industries maintain NYS DEC SPDES permits for discharge effluent into Buffalo LWRA surface waters.

PERMIT	TYPE	PERMITTEE	FACILITY	RECEIVING WATER
NY0085294	01-State Significant Industrial	LINDE INC	101 KATHERINE STREET	Buffalo River
NY0110043	01-State Significant Industrial	PV S CHEMICALS INC	55 LEE STREET	Buffalo River
NY0204668	02-Non Significant P/C/I	BUFFALO (C) DPW	TIFFT FARM PLAYFIELD TEAM BLDG.	0
NY0171042	02-Non Significant P/C/I	BUFFALO & PITTSBURGH RAILROAD INC.	BUFFALO CREEK YARD, RIDGE RD AND LEHIGH ST	0
NY0002470	03-EPA Major Industrial	BUFFALO COLOR CORP	100LEE ST	Buffalo River
NY0000906	03-EPA Major Industrial	NFB CARBON PRODUCTS, LLC	333 GANSON STREET	Niagara River
NY0269743	04-Non Significant Industrial	STATE UNIVERSITY COLLEGE AT BUFFALO	7 PORTER AVENUE	Black Rock Canal
NY0269905	04-Non Significant Industrial	STATE UNIVERSITY COLLEGE AT BUFFALO	HOUSTON GYMNASIUM POOL, 1300 ELMWOOD AVENUE	Scajaquada Creek
NY0000655	04-Non Significant Industrial	GENERAL MILLS OPERATIONS, INC.	54 S MICHIGAN AVE	Buffalo River and Ship Canal
NY0065170	04-Non Significant Industrial	CSX TRANSPORTATION INC	BUFFALO FRONTIER YARD, 1836 BROADWAY	Buffalo River
NY0095346	04-Non Significant Industrial	HENKEL CORPORATION	710 OHIO STREET	Buffalo River
NY0204480	04-Non Significant Industrial	BUCKEYE TERMINALS, LLC	625 ELK STREET	Buffalo River
NY0242772	04-Non Significant Industrial	GULL LANDING CONDOS	40 WATERFRONT CIRCLE	Lake Erie (Erie Basin)

E. WNY Stormwater Coalition

The City of Buffalo and Buffalo Sewer Authority are members of the WNY Stormwater Coalition. The Coalition is a regional collaboration of 42 municipal entities in Erie and Niagara counties that have joined together to develop a stormwater management program to protect our waterways and enhance our quality of life.

The Western New York Stormwater Coalition is a forum for these regulated communities to share resources and work in partnership toward compliance with the United States Environmental Protection Agency (U.S. EPA) Phase II Stormwater requirements.

The overall goal of the Coalition is to utilize regional collaboration to identify existing resources and develop programs to reduce the negative impacts of stormwater pollution. The purpose of the public outreach website is to enhance public knowledge and awareness of stormwater pollution and provide information to individuals and households to prevent stormwater pollution and protect water quality.

F. Vessel Discharge

In October 2012, the NYSDEC, the Environmental Facilities Corporation (EFC) and NYSDOS submitted petitions to the EPA to designate the New York's portion of Lake Erie and the St. Lawrence River as a "Vessel Waste No Discharge Zone." This designation means that boaters and shippers are not allowed to discharge their on-board sewage into local surface waters. Instead, they are required to dispose of their sewage at pump-out stations that are available for recreational boater use.

Upon concurrence by EPA, an opportunity for public comment will be announced in the Federal Register. When that concludes, EPA will address comments and determine if there are adequate vessel pump-out stations to support the No Discharge Zone. If EPA concurs, the No Discharge Zone would be enforced by DEC law enforcement, state police, and local authorities.

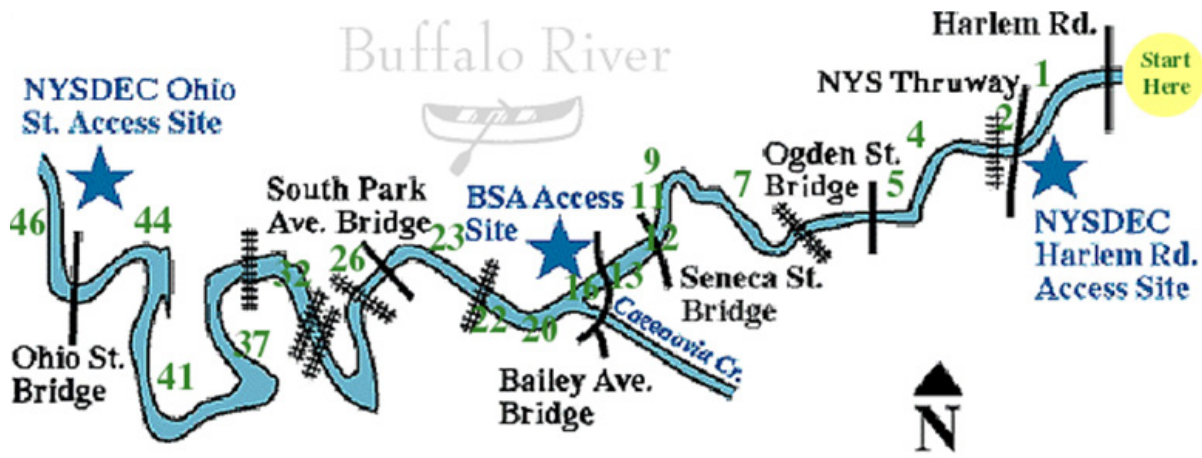
New York State's Clean Vessel Assistance Program, which is recognized as one of the nation's best clean vessel programs, has helped establish and annually supports 37 pump-out facilities on Lake Erie and the St. Lawrence Seaway, providing recreational boaters with convenient access to pump-out stations for the safe disposal of septic waste. The Small Boat Harbor, Erie Basin Marina and Rich Marine offer pump out facilities.

V. RECREATION

The City of Buffalo LWRA has numerous water dependent and enhanced recreational facilities. Water dependent recreation includes swimming, boating and fishing. Water enhanced recreation includes active recreation park facilities and trail systems.

A. Swimming

There are no swimming beaches or facilities located within the LWRA. However, Erie Canal Harbor Development Corporation (ECHDC) is collaborating with the Niagara Frontier Transportation Authority on a major study to determine the feasibility of a sandy and swimmable Gallagher Beach (the beach area is presently comprised of small stone and gravel). The study is scheduled to begin in September of 2012 and involves the placement of sand in two strategic locations along the beach to determine whether a sand beach would survive the winds and waves of an Outer Harbor winter. If the sand stays in place, the ECHDC will work with other governing agencies to determine how to make Gallagher Beach a swimmable beach.



Similar tests are proposed for Wilkeson Point. However, the ecological significance as muskellunge spawning/nursery habitat may impact swimming beach development (see Section K.2).

B. Boating

Inventory Section IIID outlines the large number of boating, mooring and launch facilities available in the LWRA. In addition to these facilities, several private boat tours and charters including canoe/kayaks, solar powered launch, historic schooners, fishing boats, catamarans and multi-story tour boats are available on the waterfront.

The Buffalo River Urban Canoe Trail is a self-guided tour of 48 environmental, historical and industrial sites visible from the water. The trail is six miles in length and takes about four hours to complete. This trail was developed by NYSDEC, commencing at the Ohio Street Canoe Launch and terminating at the NYSDEC public access site at Harlem Road in the Town of West Seneca (there is a mid-point access site located at the South Buffalo Pump Station, near the Bailey Avenue Bridge). Parking lots are provided at all three access site for convenience.



CITY OF BUFFALO LOCAL WATERFRONT REVITALIZATION PROGRAM Recreation & Open Space*



LEGEND

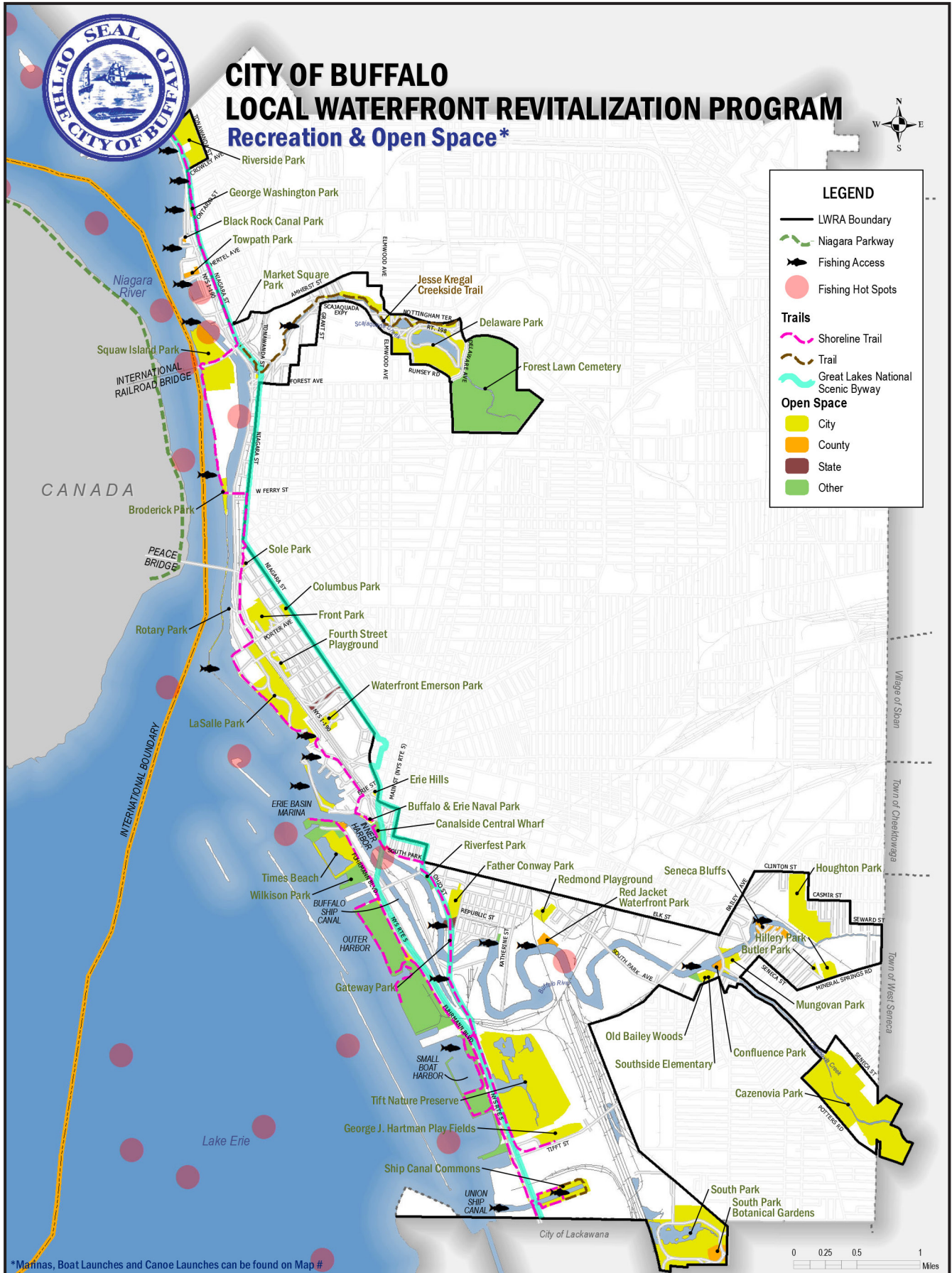
- LWRA Boundary
- - - Niagara Parkway
- 🐟 Fishing Access
- Fishing Hot Spots

Trails

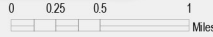
- Shoreline Trail
- Trail
- Great Lakes National Scenic Byway

Open Space

- City
- County
- State
- Other



*Marinas, Boat Launches and Canoe Launches can be found on Map #



MAP 11 - RECREATION & OPEN SPACE

C. Fishing

Inventory Section IID describes the health of the local fisheries resource and fisheries management activities.

1. Boat-Based Sport Fishery

The boat-based portion of the Lake Erie sport fishery, including the Buffalo Harbor, has been monitored by NYSDEC each year since 1988, and results of annual surveys are published in the NYSDEC Lake Erie Annual Report to the Great Lakes Fishery Commission. Results from the 2008 fishing season survey indicated an overall sport fishing effort in New York waters of Lake Erie of approximately 314,000 angler hours. Peak fishing activity in 2008 occurred during July, and the most frequently used access site was the Small Boat Harbor with approximately 88,000 angler hours. Walleye fishing comprised 50% of the overall effort of the boat fishery in 2008, and 27% of the effort was directed toward smallmouth bass.

2. Shoreline Sport Fishery

The shoreline based portion of the sport fishery is a significant portion of the overall fishing effort, especially on the upper Niagara River. Results of an angler survey on the upper Niagara River stated that the fishing effort expended for the entire shore fishery would easily exceed the boat fishing component. Further, the Ferry Street site and a section of the Bird Island Pier accounted for more than three times the fishing effort of the next most utilized shore fishing location on the upper Niagara. During this study, the section of Bird Island Pier south of the Peace Bridge was not included, thus understating the importance of the Ferry Street-Bird Island Pier complex as a focus of fishing effort.

There are a number of other public lands that provide shoreline fishing access along the Upper Niagara River, Buffalo Harbor and Buffalo River. These locations include: Ontario Street Boat Launch- Riverwalk, Towpath Park, Squaw Island Park, Lasalle Park, Erie Basin Marina (during off season), Bell Slip, Small Boat Harbor (during off season), Tiff Nature Preserve, Ohio Street Boat Launch, and Bailey Avenue Peninsula.

Property adjoining the Union Ship Canal is currently used as an informal fishing area. The Union Ship Canal lands were remediated as part of the development of the Buffalo Lakeside Commerce Park (BLCP). Restoration plans for the BLCP include the creation of enhanced public access (Lakeside Commons) to the Canal shoreline and aquatic habitat enhancements in the Canal in order to benefit anglers.

3. Angler Effort

NYSDEC conducted a survey of angling activity in seven major Lake Erie steelhead tributaries from 2003 to 2004 and 2004 to 2005. During the two survey periods, a total of approximately 193,000 and 263,000 angler hours, respectively, were reported from the tributaries. During these two periods, a total of approximately 12,000 and 17,000 angler hours, respectively, were reported from Buffalo and Cayuga Creeks combined. All the survey locations in Buffalo and Cayuga Creeks were upstream of the LWRA; however, this illustrates that a substantial steelhead fishery exists. Many steelhead migrate through the LWRA on their way upstream from, or downstream to, Lake Erie. Some of the steelhead present in the lower Buffalo River are caught by anglers at LWRA locations where angling access is available and typical steelhead holding habitat is present.

4. Fish Consumption Advisories

The NYS Department of Health has posted a number of health advisories for contaminants in sport and game fish, primarily PCBs, for the Buffalo River and Buffalo Harbor, Hoyt Lake in Delaware Park, Upper Niagara River and Lake Erie. Buffalo Niagara Riverkeeper has worked to improve the effectiveness of Fish Consumption Advisory educational materials and outreach activities, with a particular focus on environmental justice communities that often rely upon subsistence fishing as a primary protein source.

5. Fishing Facilities

Erie County maintains an inventory of public fishing sites in support of the region's angling tourism sector. The "Fishing Hot Spot" list in the LWRA includes:

- a. Niagara River – Black Rock Canal Park (former Ontario Street Boat Launch – Riverwalk) for Largemouth Bass, Rock Bass, Smallmouth Bass, Muskellunge, Yellow Perch, and Steelhead Trout;
 - b. Niagara River - Towpath Park for Largemouth Bass, Rock Bass, Smallmouth Bass, Muskellunge, Yellow Perch, and Steelhead Trout;
 - c. Squaw Island Park Ponds for Largemouth Bass, Rock Bass, Smallmouth Bass, BlueGill/Pumpkinseed, Carp, Bullhead, and Perch;
 - d. Niagara River - Ferry St. - Broderick Park for Smallmouth Bass, White Bass, Yellow Perch, Sheepshead, Smelt, Lake Trout, Steelhead Trout, and Walleye;
 - e. Niagara River - Bird Island Pier for Largemouth Bass, Smallmouth Bass, White Bass, Muskellunge, Yellow Perch, Northern Pike, Sheepshead, Smelt, Suckers, Steelhead Trout, and Walleye;
 - f. Niagara River - LaSalle Waterfront Park for Largemouth Bass, Rock Bass, Smallmouth Bass, BlueGill/Pumpkinseed, Carp, and Yellow Perch;
 - g. Hoyt Lake for Largemouth Bass, Rock Bass, BlueGill/Pumpkinseed, and Carp
 - h. Buffalo River - Bailey Avenue Peninsula for Largemouth Bass, BlueGill/Pumpkinseed, Bullhead, Suckers, and Steelhead Trout;
 - i. Lake Erie – Small Boat Harbor for Largemouth Bass, Rock Bass, Smallmouth Bass, BlueGill/Pumpkinseed, Carp, Yellow Perch, Northern Pike, Sheepshead, Smelt, and Rainbow Trout; and
 - j. Lake Kirsty - Tiff Nature Preserve for Largemouth Bass, Rock Bass, BlueGill/Pumpkinseed, Bullhead, Carp, and Northern Pike.
- b. Scajaquada Creek;
 - c. DEC's Ohio Street Access Site;
 - d. Mutual Riverfront Park;
 - e. Red Jacket Riverfront (Smith Street) Park;
 - f. Old Bailey Woods;
 - g. Seneca Bluffs;
 - h. City Ship Canal;
 - i. Erie Basin Marina; and
 - j. Ship Canal Commons.

The only fish cleaning station in the LWRA is located at the Small Boat Harbor.

D. Water Enhanced Multi-Use Trails

1. Shoreline Trail

The Shoreline Trail (formerly Riverwalk) is a paved, multi-use pathway, owned by the State of New York and maintained by the City of Buffalo. Approximately 85 percent of the pathway is situated directly adjacent to the Niagara River and Squaw Island shoreline.

2. Jesse Kregal Creekside Trail

Jesse Kregal Creekside Trail (former Scajaquada Pathway) is a 1.8-mile, City-owned and maintained pathway. The trail extends from the confluence of Scajaquada Creek and the Black Rock Canal at Niagara Street and eastward to Delaware Park, providing an inland connection to the internal pathway network inside the park.

3. Outer Harbor Greenbelt

The Outer Harbor Greenbelt provides a greenspace corridor, multi-use pathway and shoreline stabilization along the shore. The Greenbelt is linked to the Shoreline Trail system, providing a public connection to the Small Boat Harbor area, the Inner Harbor, Tiff Nature Preserve, and points further along the trail south. The Industrial Heritage of the region's waterfront is interpreted with

In addition to the Erie County Hot Spots listed above, shoreline anglers often fish at:

- a. Black Rock Canal Locks (North End of Squaw Island Park);

heritage markers that identify historic and contemporary industries.

4. Fuhrmann Boulevard Greenway

The Fuhrmann Boulevard Greenway includes elements of the Industrial Heritage Trail and the Tift Street Pier. Located at the western end of Tift Street, near the Cargill Pool Grain Elevator, the Tift Street Pier project has been designed to include the namesake pier that extends into the Outer Harbor; a covered pavilion, a boardwalk, a park, benches and dedicated locations for public art installations. The boardwalk and Industrial Heritage Trail provide non-motorized access along the Fuhrmann Boulevard Parkway and includes benches, aesthetic period lighting and landscaping.

5. Niagara River Parkway and Recreational Trail

The Niagara River Parkway and Recreational Trail are a 34-mile long scenic roadway and multi-use pathway system along the Canadian side of the Niagara River shoreline. The system links to the Shoreline Trail via the Peace Bridge crossing at Buffalo. Bi-national activities, including the Niagara Falls International Marathon that typically originates in the City of Buffalo, utilize the parkway route.

E. Water Enhanced Parks

I. City of Buffalo Olmsted Parks

Buffalo is home to a public park system designed by Frederick Law Olmsted. Olmsted is regarded as the greatest American landscape architect, who designed Central Park in New York, the grounds of the U.S. Capitol in Washington, the Niagara Falls Scenic Reservation, and the 1893 World's Colombian Exposition in Chicago. In 1868, Olmsted was brought to Buffalo, where he implemented a parks plan involving three parks connected to one another by a series of broad, tree-lined residential avenues and parkways. The development of the Buffalo Olmsted parks plan, which was substantially completed by 1876, marked a transitional period during Buffalo's waterfront history. Olmsted's plan for Buffalo was presented at the 1876 Centennial Exposition in

Philadelphia, where Olmsted proudly described it as "the most complete system of recreational grounds." The first of its kind in the United States, several component parks of the system occupy significant amounts of waterfront land.

Olmsted's scheme of parks, landscaped circles, parkways and avenues includes Riverside Park and a portion of Delaware Park, Front Park, Cazenovia Park and South Park (five of the six parks that anchor the Olmsted system are in the LWRA). The entire Olmsted Parks system is a designated Local Historic District and was listed on the National Register of Historic Places and as a National Historic District in 1982. These parks are owned by the City of Buffalo and managed in partnership with the Buffalo Olmsted Parks Conservancy (BOPC).

- a. Riverside Park – This 37-acre park, located at Niagara Street and Vulcan Street, includes playgrounds, baseball fields, a football field, picnic facilities, walking paths, an outdoor public pool, an indoor hockey rink, basketball courts, and a pedestrian bridge that crosses the I-190 Thruway, linking the park to the Riverwalk. This park is used on a City-wide basis by sports leagues and locally for summertime youth programming and community events.

The BOPC is working on a design to restore an area of Riverside Park known as the minnow ponds. This project involves the re-establishment of a series of small ponds and waterfalls that were part of the original park design. The new RiverRock Gardens will incorporate extensive plantings that will be installed along the course of this water feature, including a 1,850-foot winding pathway that will be highlighted with a stone pedestrian bridge.

- b. Delaware Park- With nearly 350 acres, this is the biggest and most complex park in the Olmsted system and a major regional destination. Delaware Park encompasses Hoyt Lake, which is a focal point of this facility, as well as Mirror Lake. Site amenities in the park include:

- ▶ large areas of open space and lakeside pathways, including a portion of the Jesse Kregal Creekside Trail;

- ▶ the Rose Garden, which includes 33 different flower beds containing many varieties from the All-America Rose Selections;
- ▶ the Japanese garden, located alongside Mirror Lake, encompasses six acres with three small islands, numerous plantings and other features common in a traditional Japanese garden landscape;
- ▶ boating facilities on Hoyt Lake;
- ▶ an 18-hole golf course;
- ▶ Parkside Lodge, which houses the offices for the BOPC, the golf course pro shop and a small restaurant; and
- ▶ Marcy Casino, which overlooks Hoyt Lake and offers space for conferences, meetings or parties.

The park grounds are home to the Buffalo and Erie County Historical Society, the Buffalo Zoo and the Albright Knox Art Gallery. It is also located immediately adjacent to Forest Lawn Cemetery.

c. Front Park- Originally called the Front, this park encompasses 23 acres, located to the U.S. Toll Plaza to the Peace Bridge, between Busti Avenue and the I-190 Thruway. The park contains a memorial statue, soccer fields, picnic shelters and walking paths, and is used for various recreational sports leagues and numerous community events.

Long term plans include restoring the Terrace with cobblestones, restoring the formal gardens at the edge of the Terrace and replacing the cannons that were once located on the Terrace. The playground and picnic shelter are also proposed to be rebuilt. Other plans include construction of an earthen berm along the I-190 Thruway corridor (which separates the park from the Niagara River) and constructing site walls to reclaim views.

d. Cazenovia Park- This 186-acre park encompasses the Cazenovia Creek corridor and contains several creekside walking paths, a nine-hole golf course, ball diamonds and soccer fields, tennis and basketball courts, playgrounds and picnic areas, a spray pool and swimming pool and an indoor ice rink. The

park also has an historic casino building and shelter house. Cazenovia Park is heavily used for City-wide events, youth and adult sports leagues, and passive recreation.

e. South Park – The 155-acre South Park was designed in 1894 as an arboretum, with more than 2,300 types of trees, shrubs and plant life, and room for a large conservatory building, now home to the Buffalo & Erie County Botanical Gardens.

2. City of Buffalo Parks

a. Black Rock Park- This 2.4-acre park is located at the foot of Peter Street on the Scajaquada Creek shoreline. Site amenities include a playground and a basketball court. The Jesse Kregal Creekside Trail travels through the park, connecting it with Delaware Park and a local commercial business district. The park is used heavily by local residents for passive recreation and for fishing during the spring when water levels in Scajaquada Creek are high. As noted above, park improvements were made at this site as part of the BOPC's Creekside Trail project.

b. Squaw Island Park - This park, located on 60-acres on the northern portion of Squaw Island, was completed in 2006. Squaw Island Park provides views of the International Railroad Bridge, which passes through the park, the Niagara River and the Canadian shoreline. Squaw Island Park offers passive recreation, picnic areas and bicycle paths. The park is also a popular for residents that fish from the Niagara River shoreline of Squaw Island and the on-site ponds.

c. Broderick Park- A 3.8-acre park located at the southern end of Squaw Island with excellent views of the Niagara River and the Canadian shoreline. Site amenities include an amphitheater, several historical markers commemorating the historic Underground Railroad, a concession stand, picnic shelters, and a pathway on the Bird Island Pier break wall that extends south, separating the Black Rock Canal and the Niagara River. This park is used for fishing, bird watching and passive recreation.

d. LaSalle Park- A 89-acre park is located between the Black Rock Canal and the I-190 Thruway overlooking Lake Erie. Site amenities include the Centennial pool and splash pad, a concert bandstand, Bark Yard dog-park, skate plaza, several lighted ball diamonds and soccer playing fields, playground and picnic facilities. It is also used for fishing and bird watching. The Riverwalk is situated adjacent to the shoreline as it travels through the Park. A pedestrian walkway provides access across the expressway to the park from the Lakeview neighborhood.

e. Erie Basin Marina - The park portion of the Erie Basin Marina is used year round for passive recreation, with pedestrian access to the shoreline and the harbor lighthouse and views of Lake Erie and the Canadian shoreline. The park includes the Erie Basin Marina Gardens - a test site for floral and seed companies, providing a preview of many new flowers and plants.

f. Father Conway Park - Located along Louisiana Street, just east of Riverfest Park, the 15-acre park has two softball diamonds, used by local recreation leagues in the spring, summer and fall, and several acres of open space. The park also has a fenced in playground, complete with large jungle gym and swing set. A sidewalk lined with landscaped trees connects Father Conway Park with the residential sections of the Old First Ward.

g. Ship Canal Commons- This 22-acre public green space along the perimeter of Union Ship Canal was developed as part of the Buffalo Lakeside Commerce Park brownfield remediation project. Ship Canal Commons features bike and walking trails, over 400 native tree species and a foot bridge that spans 200 linear feet over the Union Ship Canal. The multi-use trails connect pedestrians to the Outer Harbor, Tiff Nature Preserve and the Seaway Trail.

h. Houghton (formerly Stachowski) Park- This 45-acre park is located between the Buffalo River and Clinton Street. Site amenities include two lighted baseball diamonds, several playgrounds, a street hockey rink, a community center, a pool and a large wooded area adjacent to the River. The shoreline portion of

the park is used for dog walking and wildlife viewing, although the river shoreline is physically removed from the park by a railroad corridor.

i. Emerson Young Park - This 35-acre park, located north of Waterfront School, contains several paved sports enclosures, a softball diamond, a paved basketball court, a playground, a small amphitheater and maintained green space.

j. Erie Hills Park & Pedestrian Mall - Erie Hills Park is a small pocket park situated beneath the Buffalo Skyway and the I-190 Thruway, between Franklin Street and Bingham Street. The park contains tree-lined sidewalks that navigate around several small hills. The sidewalks include pedestrian benches along the network of paths.

k. Buffalo and Erie County Naval & Military Park - The Buffalo and Erie County Naval & Military Park is located on approximately one and a half acres along the Buffalo Inner Harbor. The park is home to the several decommissioned World War II United States Naval vessels, including the cruiser USS Little Rock, the destroyer USS The Sullivans and the submarine USS Croaker, which are all moored in the Buffalo River harbor. The park also contains numerous other military amphibious, air and land vehicles on display.

l. Other parks. The City of Buffalo also owns and operates several smaller park facilities including Rotary Park, Prospect and Columbus Parks, Butler Park, Old Bailey Woods, Market Square Park, Sole Park, the Bluff, Fourth Street Playground and the Hank Nowak Bird Island Fishing Pier.

3. Erie County Parks

In addition to Erie County's Red Jacket Riverfront Park, Bailey Avenue Confluence Park and Seneca Bluffs habitat parks on the Buffalo River (described in Inventory Section II.D.4.) Erie County also operates two active waterfront recreation sites on the Buffalo waterfront.

a. Black Rock Canal Park (formerly Ontario Street Boat Launch.) This 6.8 acre park is located at the foot of Ontario Street on the Niagara River shoreline. This

site is used for launching small watercraft, shoreline fishing, bicycling, and scenic viewing of the Niagara River and Canadian shoreline. The site also includes a Bark Park off leash dog park facility.

b. Towpath Park- Towpath Park is a 5.3-acre park, located at the foot of Hertel Avenue on the Niagara River shoreline. Site amenities include a boardwalk-style viewing area with views of Rich Marina and the Black Rock Locks, benches and walking paths. This park is used for shoreline fishing and passive recreation.

4. State (ECHDC/NFTA/ NYPA) Public Access Sites

In addition to the Small Boat Harbor and NYS DEC Ohio Street fishing access sites, the following waterfront public access sites have been developed by State entities within the City of Buffalo.

a. Canalside Central Wharf - The Erie Canal Harbor Central Wharf is located along the waterfront immediately south of the Buffalo and Erie County Naval & Military Park. The 12.5-acre parcel was filled in after the original Erie Canal ceased as a major mode for the transport of goods, and was used for municipal parking until the 1990s. The park is used for many public events including large scale concerts. The site features food and small watercraft vendors, interpretive signage and exhibits, passive green space, colorful Adirondack chairs and transient boat slips.

b. Gallagher Beach/Small Boat Harbor Park – Small Boat Harbor Park is located adjacent to the public Small Boat Harbor marina. The park is primarily comprised of maintained lawn areas used for recreation and picnicking. The park is adjacent to Gallagher Beach, which features 1,200 linear feet of water frontage, a boardwalk, fishing pier, a boat launch, pavilion structures and a small parking area for cars.

c. Wilkeson Point is comprised of approximately 22 acres of former Cargill and NYPA Ice Boom Lands immediately south of the Times Beach Nature Preserve. The site offers public access along the entire length of the perimeter and water’s edge, pedestrian

paths, volleyball courts, natural playgrounds, wind sculptures and public docking. Six acres of shovel ready land has been reserved in the north east portion of the site for future mixed-use development.



d. Mutual Riverfront Park – When the NYPA relocated the ice boom to Katherine Street, the portion of the property located at the foot of Hamburg Street (at South Street) was designated for the development of Mutual Riverfront Park. This 1.3-acre park includes a brick boathouse, recreational boat launch for kayaks and canoes, boat storage area, a boardwalk promenade, picnic tables, benches and chess tables, landscaping and open lawn area. There is also a building on the site that will house the Waterfront Memories and More Museum. The park provides views of the Buffalo River and historic grain elevators.

5. Other Parks

a. Forest Lawn Cemetery – Forest Lawn Cemetery is a 270-acre facility created by Charles Clark in 1850. The cemetery is recognized both for its core cemetery services as well as its landscape and cultural heritage assets. Forest Lawn is the “permanent residence” for many important local and historic figures, numerous works of architecture, sculpture and art; more than 3,500 trees, representing 100 different species and the City’s only waterfall created as Scajaquada Creek emerges from underground. Over 240 bird species have been spotted in the Cemetery. The Cemetery’s

roadways are actively utilized for both biking and running.

b. Riverfest Park - Riverfest Park, spearheaded by the efforts of the Valley Community Center, serves as a gateway from the Cobblestone District into the City's Old First Ward residential neighborhood. The three acre park features six hundred feet of Buffalo River shoreline providing views of historic Kelly Island grain elevators. The park is comprised of green space and plantings, a paved pathway leading to a band shell, a large wooden pergola with bench seating that faces the riverfront, a boardwalk with additional benches, parking area and a floating, seasonal dock. Future plans for the park include the construction of a brick lodge and restaurant.



VI. HISTORIC AND SCENIC RESOURCES

A. Historic Resources

Buffalo's waterfront has served as the stage for several important elements of the nation's history including early settlement by the Neutral and Seneca members of the Iroquois Confederacy, the War of 1812, the Erie Canal, urban design as per Joseph Ellicott and Frederick Law Olmsted, the Underground Railroad and the growth and decline of the steel industry.

I. Iroquois Confederacy

Prior to European colonization, Buffalo's inhabitants were an Iroquois tribe called the Neutrals by French settlers, who found them helpful in mediating disputes with other tribes. The area was later settled by the Senecas.

Historical accounts explain that the city of Buffalo was named after the Buffalo Creek (now known as the Buffalo River), a stream which evidently received its name from the frequent visits of the American bison to a salt spring which welled up about three miles from its mouth, "where the buffalo drinks."

The Native Americans knew this region as the locality of Teosahwa or Teshuway, "the place of the basswood" for the dense basswood trees lining the creek, and also sisilichanne, "waters sought by the buffaloes." Historic paintings and engravings found of the Buffalo Creek confluence with the lake show a thickly wooded riparian zone along the river. (This name has also been given to counties in Nebraska, South Dakota, and Wisconsin, and numerous creeks, rivers, towns, and villages.)¹

¹http://books.google.com/books?pg=PA804&lpg=PA804&dq=buffalo%20place%20of%20the%20basswood&sig=FCdV_uxt3deoAqhI6HyQEVtiffk&ei=2gBUTczuLtKRgQfemlmlCQ&ct=result&sqi=2&id=rjtJMAAAAMAAJ&ots=KZ3hmxXZ6-&output=text

<http://digitalgallery.nypl.org/nypldigital/dgkeysearchdetail.cfm?trg=1&strucID=118362&imageID=54308&total=1&e=w;>

The name for Scajaquada comes from a variation of Kenjockety, after Phillip Kenjockety of the Seneca tribe. The Seneca name for it is Ga-noh'-gwaht-geh, after a particular wild grass that grew along its banks. The word "Niagara," once thought to mean "thunder of the waters" more probably means, "neck," to describe the strait.

Mapping from the early 18th century shows development in the Buffalo region with settlements concentrated along the Niagara River and Lake Erie and stretching along the Buffalo River corridor. Buffalo Creek, as it was noted in these early settlement and purchase maps, was notable for the Native American settlements along its shores. A map from 1804 shows historic trails, and ribbons of tributaries that empty into Buffalo Creek. Upstream archeological sites along Buffalo River and Scajaquada Creek are aboriginal in nature including the Seneca House site, the location of a former long house.

2. Ellicott Radial Street Plan

Joseph Ellicott was hired by the Holland Land Company in 1797 to conduct the Great Survey, the surveying and division of 3.3 million acres of land purchased from Robert Morris west of the Genesee River to the shore of Lake Erie. His mission also was to determine the specific boundaries of the Seneca Indian reservations.

Impressed by the work of Major Pierre L'Enfant and influenced by his brothers who were also surveyors and had established a radial street plan for Washington D.C., Ellicott applied the same system to Buffalo, with Niagara Square as a hub and a series of streets laid out at acute angles. While most of Ellicott's radial system remains intact, connections to the water at Erie Street, Court Street and Genesee Street were disrupted with the construction of the NYS Thruway.

<http://freepages.history.rootsweb.ancestry.com/~wcarr1/Lossing2/Chap18.html>

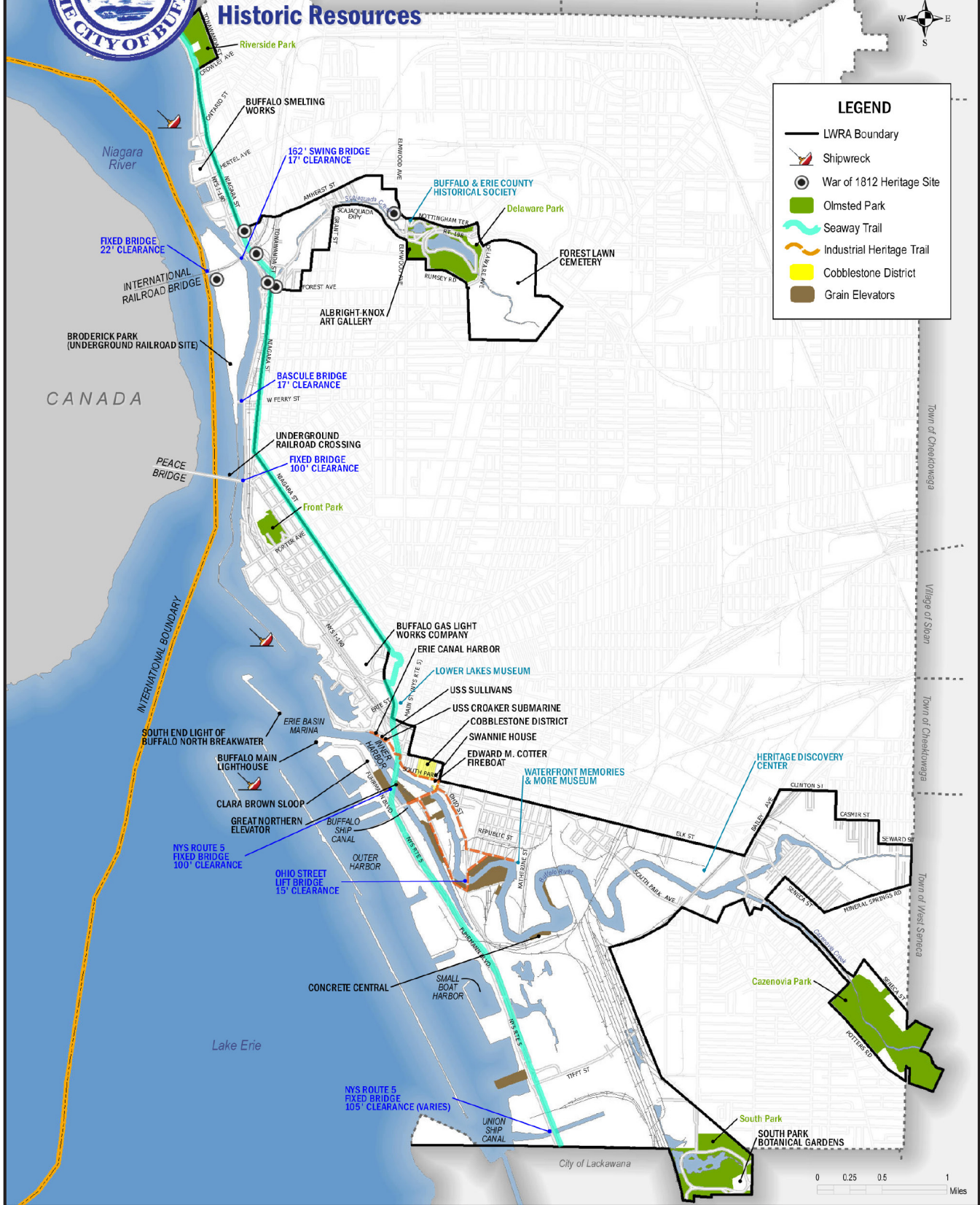


CITY OF BUFFALO LOCAL WATERFRONT REVITALIZATION PROGRAM Historic Resources



LEGEND

- LWRA Boundary
- Shipwreck
- War of 1812 Heritage Site
- Olmsted Park
- Seaway Trail
- Industrial Heritage Trail
- Cobblestone District
- Grain Elevators



MAP 12 - HISTORIC RESOURCES

INVENTORY & ANALYSIS



3. War of 1812

The War of 1812 ranged along much of the Great Lakes' coastline where American, British and Native American forces clashed for control of the heart of the continent.

After destroying much of the Niagara Frontier, the British troops were finally halted in their southbound march as Americans set fire to a bridge over Tonawanda Creek. The British returned to the Canadian side of the Niagara and marched south, carrying their boats around Niagara Falls. The British crossed the Niagara in the early hours of December 30, 1813, landing approximately two miles downstream of Black Rock. They pressed onward, forcing the retreat of the Americans whom they pursued all the way to the Village of Buffalo. Once in Buffalo, the British and Indians burned nearly all of the buildings and destroyed the navy yard and several ships. They then moved back to Black Rock and torched the town before crossing back to Canada.



4. Erie Canal

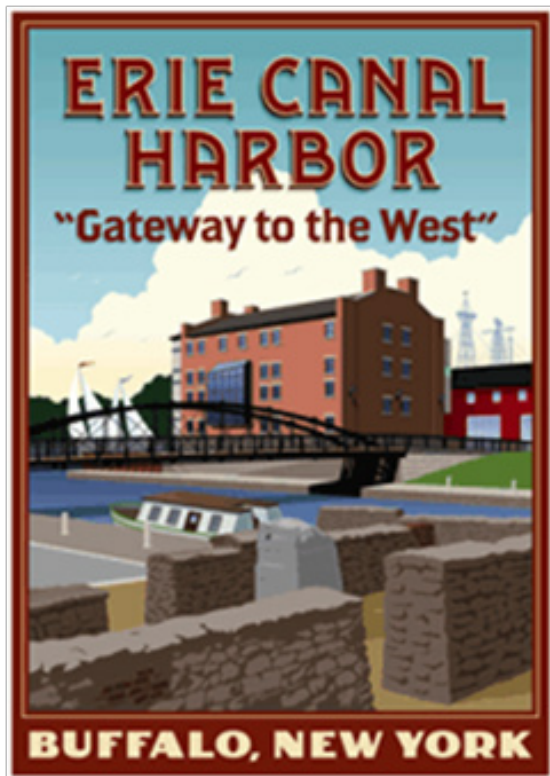
The Erie Canal runs 363 miles (584 km) from Albany to Buffalo, completing a navigable water route from the Atlantic Ocean to the Great Lakes. First proposed in 1807, it was under construction from 1817 to 1825 and officially opened on October 26, 1825. It was the first transportation system between the eastern seaboard and the western interior of the United States that did not require portage, was faster than carts pulled by draft animals, and cut transport costs by about 95%. The canal fostered a population surge in western New York State and opened regions farther west to settlement.

Today, the Erie Canal is part of the New York State Canal System. In 2000, Congress designated the Erie Canalway National Heritage Corridor to recognize the national significance of the canal system as the most successful and influential human-built waterway and one of the most important works of civil engineering and construction in North America..



Erie Canal Harbor and the Central Wharf were originally built in 1825 as the western terminus of the Erie Canal. The results of the initial excavation work uncovered the original Commercial Slip of the Buffalo Harbor. The original cobblestone and brick streets were uncovered, the main docking wharf was revealed behind the eastern seawall, and the building foundation of the first African American- owned business, founded by a freed slave years before the Emancipation Proclamation, was discovered.

According to the Buffalo Preservation Board, the remnants of the Erie Canal, the Commercial Slip, the Prime Slip and the Grand Canal are eligible for listing on the National Register of Historic Places, although no local landmark designation has been made.



The Erie Canal Harbor project features several fully restored facets of the original Erie Canal Harbor, including:

- ▶ Commercial Slip, which served as the historic juncture between the Erie Canal and the Great Lakes, and the 40-foot wide, wooden planked Central Wharf (which includes a 400-foot long waterfront floating dock);
- ▶ a replica of the Coit-McCutcheon canal era building that houses a Naval museum and restaurant;
- ▶ Reconstruction of Commercial Street and three other original cobblestone streets by the City of Buffalo;
- ▶ Whipple Truss foot bridge that spans the canal slip and connects the Central Wharf to Commercial Street; and
- ▶ Installation of informational signage and various interpretive exhibits and landscaping throughout the site to educate and inform visitors about the importance of the area.

5. Buffalo's Harbor Heritage

The Erie Canal construction resulted in tremendous growth of the Buffalo Harbor and port. Several elements from Buffalo's active commercial harbor era remain including:

- a. Lighthouses
 - ▶ Buffalo Main Lighthouse was built in 1833 and is the oldest building on Buffalo's waterfront, as well as one of the oldest on the Great Lakes. The lighthouse has been recognized by the United States Coast Guard in an effort to preserve the maritime heritage of the US.
 - ▶ Buffalo North Breakwater South End Light at the Buffalo Harbor
 - ▶ South Buffalo North End Light on the Outer Harbor
- b. Grain Elevators. Invented to maximize loading dock space, the remaining grain elevators that dot Buffalo's waterfront are a testament to those days when the city was the busiest grain-transfer port in the world. The first grain elevator was built by Joseph Dart, in 1842, in the port of Buffalo. These structures comprise the most outstanding collection of extant grain elevators in the United States. They collectively represent a variety of construction materials, building forms and technological innovations that revolutionized the handling of grain in this country.

The Concrete Central Elevator is listed on the National Register of Historic Places. According to the Buffalo Historic Preservation Board, the following grain elevators along the Buffalo River industrial corridor are eligible for listing on the National Register of Historic Places:

- | | |
|------------------------------|---------------------|
| ▶ Cargill Superior | ▶ Kellogg |
| ▶ Connecting Terminal | ▶ Agway |
| ▶ Pillsbury (Great Northern) | ▶ American Exchange |
| ▶ Perot Malting | ▶ Lake and Rail |
| ▶ Standard | ▶ Marine "A" |

In addition, there are four more elevators within the LWRA including:

- ▶ Electric Annex
- ▶ GLF-A
- ▶ St. Mary's Cement
- ▶ Cargill Pool
- ▶ LaFarge
- ▶ GLF- B
- ▶ Washburn Crosby

Erie Canal Harbor Development Corporation (ECHDC) completed a lighting design study for the waterfront grain elevators and bridges in 2013. The project seeks to highlight the waterfront's progress, the history of the grain elevators and their impact on the growth and development of the City. ECHDC committed funding for the implementation of the first phase of the project, including lighting of the Connecting Terminal grain elevator, Ohio Street Bridge and the underside of the Skyway. Eventually, the lighting of up to 16 grain elevators as well as the Michigan Avenue bridge is proposed.

c. Freight House Landing. The Erie Freight House is the last extant example of an early (c1868) transshipment facility. In November 2013, the Buffalo Common Council approved the proposed demolition of the local landmark. Preservation Buffalo Niagara, 441 Ohio Street, LLC and its agent Savarino Companies have produced a plan for the evaluation, repurposing and interpretation of the Erie Freight House.

The plan calls for:

- Evaluation of the building's structural condition (completed)
- Documentation of the building's historic significances and integrity (completed)
- Identification of building's original salvageable structural components (completed)
- Deconstruction strategy for the building onsite and subject to DOL oversight
- Identify potential sites suitable for reuse or reconstruction of salvageable elements

- Identify funding and reuse plan for the reconstructed portion of the building

d. Historic Watercraft. The City of Buffalo is home to several historic watercraft including, but not limited to, the Clara Brown Sloop, Cotter Fireboat and Naval Museum ships. The Buffalo Maritime Center also maintains an inventory of historic vessels.

6. Frederick Law Olmsted

As discussed in the recreation section above, Buffalo is home to a public park system that was designed by Frederick Law Olmsted in 1868 and substantially completed by 1876. Olmsted is regarded as the greatest American Landscape Architect. Five of Buffalo's six major Olmsted park facilities are located within the LWRA.

The following is a 1914 map of the Olmsted system.



7. Underground Railroad

Buffalo was a significant link in the Underground Railroad for slaves that escaped from the South and sought refuge in Canada. During this emancipation era, several buildings and locations along the waterfront were links in the Underground Railroad. Broderick Park, on Squaw Island, has been recognized as a vessel launching point for slaves travelling across the Niagara River to Canada to gain freedom.



8. Industrial Heritage

Buffalo was home to a booming heavy industrial economy with many areas of the LWRA dedicated to manufacturing. Today, only a few remnants of the City's industrial heritage remain. However, the City's industrial legacy is celebrated in at least three projects.

a. The Industrial Heritage Trail tells the story of the Grain Elevators and manufacturing along the Buffalo River and Outer Harbor.

b. The Industrial and Rail Heritage Discovery Center, home to the Western New York Railway Historical Society's (WNYRHS) railroad museum and the Steel Plant Museum, will display vintage railroad and steel making artifacts. An operational steam locomotive will be on adjacent rail lines next to the building. The Center will occupy 35 acres of the former Buffalo Color site located in South Buffalo along the Buffalo River, bounded by Elk Street, South Park Avenue and Lee Street. The site was used to manufacture dye products for the food and clothing industries. A powerhouse on the site will be incorporated into the project.

c. Ship Canal Commons features interpretive signs, landforms and an iconic steel ladle at the head of the Canal, as discussed in Section V.E. Recreation City Parks.



9. Full Historic Resource Listing

A full listing of local, state and federal historic structures, sites and districts within the City of Buffalo has been provided in the Shared Inventory/GEIS. The inventory indicates each feature that is within the City's LWRA boundary.

F. Great Lakes Seaway Trail

The Great Lakes Seaway Trail is a 518 mile National Scenic Byway that follows the shores of Lake Erie, the Niagara River, Lake Ontario, and the St. Lawrence River. Within the City of Buffalo, the Great Lakes Seaway Trail follows Niagara Street south to Niagara Square, then travels south on Delaware Avenue to Route 5 and south to the City line.

The reconstruction of Ohio Street and Fuhrmann Boulevard creates an opportunity to offer a local Great Lakes Seaway Trail route alternative. Travelers can either follow the Route 5 highway or drive at grade through the Canalside, Cobblestone and grain elevator districts



G. Local Waterfront Scenic Areas

In addition to the historic and cultural assets which serve as Buffalo waterfront landmarks, there are several scenic features associated with the waterfront. These include:

I. Waterfront Sunsets

Located at the eastern end of Lake Erie, Buffalo is the only Great Lakes city to enjoy a view of the sun setting over water.



2. Canada

Buffalo's location on the opposite shore of Fort Erie in Ontario affords unique views of the Canadian shoreline, including Fort Erie's beaches, Old Fort Erie and the Niagara River Parkway.

3. Marinas

Buffalo's marinas are the heart of the community's engagement with its water. Boats, fishing, shoreline trails and restaurant facilities create opportunities for residents and visitors to actively utilize the region's fresh water resources.

VII. TRANSPORTATION

Niagara River Greenway Plan Action Plan (Section F) deals extensively with transportation issues.

The transportation facilities that provide access to the Niagara River Greenway are essential to its overall success. Roads can provide access but they can also serve as barriers to public access and enjoyment of the Niagara River. Achieving a balance between providing ease of access to the properties and uses along a transportation route and facilitating traffic movement through the region is difficult. People want to be able to get to their destinations easily and without delay. However, the focus within the Greenway is to create a climate in which people can comfortably navigate through the system and enjoy all of its assets, activities and attractions, not to promote the rapid movement of vehicles through the area.

The greenway should facilitate alternative transportation along the river corridor, while always respecting environmental sensitivities...

As a general rule, excess pavement should be discouraged, and design should reflect a greater emphasis on pedestrians, bicyclists and other non-motorized traffic.

Transportation projects within the Greenway should avoid creation of barriers between the water's edge and the neighborhoods surrounding it. Interstate 190 in the City of Buffalo cut off physical and visual access to the water's edge. To the extent that future transportation planning and improvements can mitigate this damage, they should be encouraged. Removal of the I-190 and building an alternative (non-interstate) route away from the Niagara River is obviously a very ambitious, expensive and long-term project. However, if redesign or relocation is able to go forward, it would be an important enhancement to the Greenway

Transportation projects should seek to maximize access to the resources along the River. The realignment of Erie Street as proposed by the City of Buffalo, will re-establish view sheds from downtown Buffalo to the waterfront, recreating a stronger connection between the City and the waterfront that helped create it.

For routes near the water, the focus should be on access by alternate transportation modes, including non-motorized traffic, rather than a singular focus on the efficient movement of traffic.

Transportation projects within the Greenway should also prioritize land use over efficiency of traffic movement. Where there is overbuilt capacity, there should be a preference for returning excess pavement to another use.

Transportation projects should seek to minimize their intrusiveness. More than ten years of intensive planning for the Peace Bridge expansion project has been complicated and faced with many constraints. Selection of a preferred alternative must be made within the context of a comprehensive evaluation process. However, there should be a preference for an alternative that complements Front Park, that helps restore the connections between the City and the waterfront, and is true to Olmsted's vision.

A. Great Lakes Seaway Trail

As discussed above in Inventory Section V.F., the Great Lakes Seaway Trail is a 518-mile National Scenic Byway that follows the shores of Lake Erie, the Niagara River, Lake Ontario, and the St. Lawrence River.

In the northern half of the City's waterfront, Niagara Street (a substantial segment of the Great Lakes Seaway Trail in Buffalo) serves as the major waterfront transportation corridor connecting several waterfront parks, neighborhood centers and employment areas. Currently, Niagara Street is a wide expanse of pavement, with billboards, minimal right-of-way landscaping, few traffic calming measures, and minimal bike and pedestrian facilities. Travel speeds regularly exceed the posted speed limit by 15 miles per hour or more creating dangerous conditions that have resulted in numerous accidents, including one fatality in 2013.

The City of Buffalo is working with stakeholders and partners to reconstruct Niagara Street as a complete, green street with traffic calming measures, clear bicycle and pedestrian facilities, improved transit, street

furniture, landscaping and heritage interpretation, where appropriate.

The Niagara Street project will complement the 2011 reconstruction of Fuhrmann Boulevard and the 2014 reconstruction of Ohio Street, to form a true local network of attractive, complete and green streets along the City's waterfront. Buffalo waterfront travelers can either follow the Route 5 highway or drive at grade through the Canalside, Cobblestone and grain elevator districts.

B. Neighborhood Connections

Limited access highways dominate the Buffalo waterfront, creating visual and access barriers between neighborhoods and the waterfront, consuming substantial waterfront land and generating noise and air pollution. However, the Niagara/Ohio/Fuhrmann/South Park local waterfront roadway system offers several physical and visual access connections between the City's waterfront and its neighborhoods. These include:

Vulcan Street	Ontario Street
Hertel Avenue	Austin Street
Amherst Street	Forest Avenue
Delevan Avenue	Lafayette Avenue
West Ferry	Albany Street
Hampshire	Massachusetts Avenue
Porter Avenue	Hudson Street
Genesee Street (historic)	Erie Street
Main Street	Michigan Avenue
Louisiana Avenue	Hamburg
Katherine	Smith/Fillmore
Bailey Avenue	Ogden Street
Seneca Street	Tiff Street

The Greater Buffalo Niagara Regional Transportation Council (GBNRTC) has included funding for the extension of Erie Street, from Franklin Street to Main Street, as a four lane roadway in its 2035 Long Range Transportation Plan.

C. Complete Streets

A complete street provides for the safe, convenient and comfortable travel by foot, bicycle, transit, vehicle, car and truck. In 2011, the Common Council adopted a Complete Street's Ordinance that supports the development of a system of bikeways, pedestrian facilities and shared use paths, bicycle parking and safe crossings connecting residences, businesses and public places. The City promotes bicycling and walking for health, environmental sustainability, exercise, transportation and recreation.

Buffalo's Complete Street ordinance requires that bicycle and pedestrian facilities be provided in all new construction, reconstruction and maintenance projects unless one of the following conditions is met:



- ▶ Bicyclists and pedestrians are prohibited by law from using the roadway. In this instance, bicyclists and pedestrians will be accommodated elsewhere within the right-of-way or within the same transportation corridor;
- ▶ The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. Disproportionate is defined as exceeding 20% of the cost of the larger project; or
- ▶ In cases where the existing right-of-way does not allow for sidewalks, bike lanes, paths or other improvements, potential alternatives will include the appropriate use of paved shoulders, signage, traffic calming and/or enhanced education and enforcement.

Bicycle and pedestrian facilities will be provided and maintained in accordance with guidelines adopted by the

United States Department of Transportation (USDOT), New York State Department of Transportation and the American Association of State Highway & Transportation Officials. On county and state maintained roadways within the City, bicycle and pedestrian facilities will be provided in accordance with this policy.

D. Public Transit

Public bus transit service, which is provided by the Niagara Frontier Transportation Authority (NFTA), operates along most of the local roadways within the LWRA. Service is provided seven days a week, with reduced service on non-business days. This bus system uses downtown Buffalo as the major hub where riders can transfer from one bus line to another to move throughout the LWRA. Riders may also transfer from local bus service to access the NFTA light rail line, which runs along Main Street. A rail station is located in the Inner Harbor. The NFTA Bus Terminal serves Greyhound and other regional bus carriers and acts as a transfer station for the local bus system.

The GBNRTC 2035 Long Range Transportation plan includes funding for “High Quality/High Capacity Transit service between LaSalle Station and Tonawanda City along Main and Niagara Street.”

E. Waterfront Highways

Three major limited access highways are located within the Buffalo LWRA including:

- ▶ Interstate-190 owned by the New York State Thruway Authority;
- ▶ NYS Route 198 (Scajaquada Expressway) owned by the New York State Department of Transportation; and
- ▶ NYS Route 5 (Great Lakes Seaway Trail National Scenic Byway) owned by the New York State Department of Transportation.

Two major projects to address waterfront highways are included on both the region’s Transportation Improvement

Program and GBNRTC 2035 Long Range Transportation Plan. In addition, the Tiff Street project is listed on the GBNRTC 2035 Long Range Transportation Plan.

1. Scajaquada Expressway Project

Built in the 1960s and running through Delaware Park, the Scajaquada Expressway is part of the National Highway System. This divided highway with grade separated interchanges carries between 37,600 and 65,000 vehicles per day at speeds at or above 50 miles per hour. It is located between Interstate 190 and New York State Route 33 Kensington Expressway.

The New York State Department of Transportation is exploring options to employ “context sensitive” and “flexibility in highway design” principles, to evaluate the feasibility of transforming over three miles of the Scajaquada Expressway into a landscaped boulevard. The design could feature new at-grade intersections, enhanced pedestrian and bicyclist accommodation, improved aesthetics, and decorative lighting in an effort to reduce operating speeds, improve overall safety, and develop a community gateway.

More detailed project graphics are provided in the Action Strategy of this LWRP.

2. Outer Harbor Bridge

Buffalo Harbor Bridge Study, developed for Erie Canal Harbor Development Corporation (ECHDC), seeks to determine possible locations and structural options for a rapid access vehicle and pedestrian connector between the Inner and Outer Harbors. The proposed Buffalo Harbor Bridge is intended to replace the capacity of the former South Michigan Avenue Bridge over the City Ship Canal. The former South Michigan Avenue Bridge once passed over the City Ship Canal in the vicinity of the General Mills Plant and connected Michigan Avenue to Fuhrmann Boulevard. It was rendered inoperable and removed by the City of Buffalo in the early 1960s.

The Buffalo Harbor Bridge Study is now in the Draft Environmental Impact Statement stage and ECDHC is working toward a community-preferred alternative. Final design and construction will commence after completion

of the Buffalo Harbor Bridge environmental impact statement and funding is awarded. The Buffalo Harbor Bridge will provide a vital link between Buffalo's Central Business District, Canalside and developable land on the Outer Harbor.

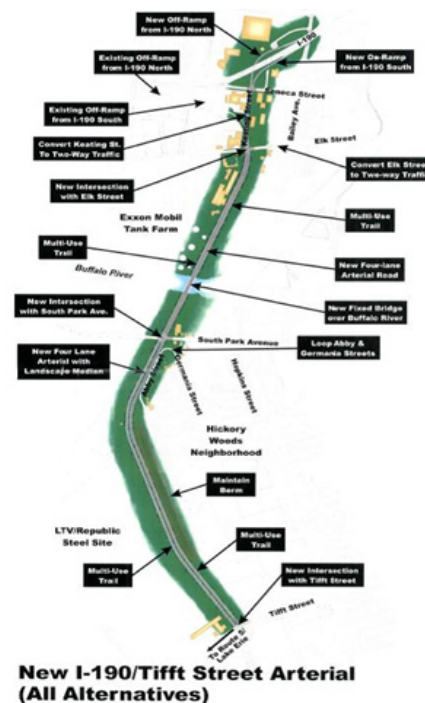
In 2006, the New York State Thruway Authority ceased the collection of tolls at the Breckenridge Toll Plaza located along the Black Rock Canal. Since that time, the toll facilities have been removed. The site has been identified as an opportunity for improving public access to the Black Rock Canal.

3. Tift Street Arterial



The Southtowns Connector project and South Buffalo Brownfields Opportunity Area study analyzed opportunities to develop a direct connection from Tift Street to the I-190, just north of Seneca Street, to divert traffic from the City's waterfront and support the development of the Riverbend site. The corridor right-of-way has been preserved in the Riverbend BOA planning efforts.

4. Former Thruway Toll Plaza



F. International Crossings

I. Peace Bridge

The Peace Bridge, a major international crossing to Canada, is located within the LWRA.



a. Shared Border Management

The Buffalo and Fort Erie Public Bridge Authority is one of two US-Canadian pilot sites where officials will determine whether it's more efficient to inspect cargo headed for America in Canada rather than the U.S. If the pilot project is successful, Bridge Authority officials have suggested that by 2015 a plan could be in place to move the first-line inspections of all truck cargo to the much larger Peace Bridge property in Fort Erie; which could eliminate the need for additional inspection booths on the American side. The Authority will have to build a new secondary inspection facility in Buffalo for approximately 10 percent of truck traffic.

b. Plaza Changes

In 2013, the Authority announced plans to:

- ▶ Relocate its entry ramp off Porter Avenue, just past Fourth Street, where an entrance to the northbound Niagara Thruway exists, with either a roundabout or signalized intersection;
- ▶ Remove the current entry road, restoring Olmsted's Front Park;
- ▶ Create a single plaza exit system with vehicles going

- onto the existing ramp to the southbound I-190;
- to a new, direct ramp to the northbound I-190; or
- onto Niagara Street.

No final plans have been presented to the public. The layout for the proposed changes is illustrated below.



2. Passenger Rail to Toronto and Eastern New York

The VIA Rail/Amtrak's Maple Leaf line travels from New York City through Buffalo and Niagara Falls to Toronto, Ontario. The Amtrak line in Buffalo runs parallel to Interstate 190. A rail station is located two blocks east of Main Street, near the Inner Harbor. The GBNRTC 2035 Long Range Plan includes funding for the Buffalo/Niagara Falls commuter rail service improvements between Buffalo Exchange Street Amtrak Station and the Niagara Falls Amtrak station.

On weekends and holidays, GO Transit, the regional public transit service for the Greater Toronto and Hamilton Area, provides four rail and one bus round trips supplementing the two VIA Rail daily runs between Toronto and Niagara Falls, Ontario. One of the greatest challenges to a direct Toronto - Niagara Falls - Buffalo connection is the customs inspection process. Presently, after trains cross the border, agents board the train to check passports and visas and inspect luggage. Although the current schedule allows for an hour and fifteen minutes into Canada and almost two hours into the United States to clear the border, these trains can be delayed by passport or customs issues.

3. International Railroad Bridge

Freight trains crossing the Black Rock Canal and the Niagara River into Canada use the International Railroad Bridge. There are no customs facilities located in Buffalo for train inspection.

G. Rail

There are several major rail corridors within the LWRA. These are owned and operated by Norfolk Southern, Canadian National Railroad, CSX and Buffalo Southern. The greatest presence of railroads is in South Buffalo, where several major lines meet at large switching yards, and several local businesses still utilize the railroad for moving freight. The major railroad line from Buffalo to Erie Pennsylvania and destinations in the western United States is located directly east of the Tiftt Nature Preserve. This line is operated by CSX. There are major rail spurs that run off of this line throughout the area that serve grain and feed mills, steel fabricators, sand and cement companies, and chemical companies.

There are two major crossings over the Buffalo River located near the South Park Avenue Lift Bridge. The first bridge moves freight from the Amtrak line along the I-190 to the CSX corridor; the second line moves freight from the CSX lines that travel from Boston, Albany and Syracuse to a western railroad line also operated by CSX.

VIII. ENERGY

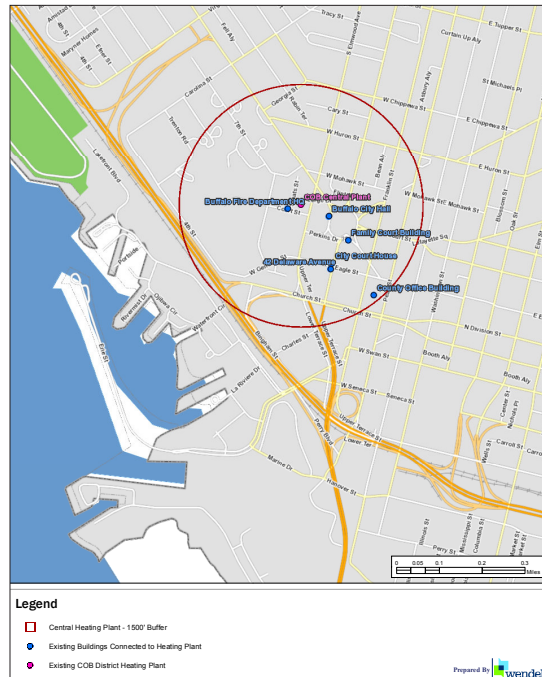
Increasingly, shorelines and aquatic environments have been the subject of interest of energy development projects. Several proposals have been developed for the Buffalo waterfront including district energy facilities, ethanol production, wind turbines, and hydrokinetic proposals.

A. District Energy

District energy systems produce steam, hot water or chilled water at a central plant. The steam, hot water or chilled water is then piped underground to individual buildings for space heating, domestic hot water heating and air conditioning. As a result, individual buildings served by a district energy system don't need their own boilers or furnaces, chillers or air conditioners. The district energy system does that work for them, providing valuable benefits including:

- ▶ Improved energy efficiency
- ▶ Enhanced environmental protection
- ▶ Fuel flexibility
- ▶ Ease of operation and maintenance
- ▶ Reliability
- ▶ Comfort and convenience for customers
- ▶ Decreased life-cycle costs
- ▶ Decreased building capital costs
- ▶ Improved architectural design flexibility

The City of Buffalo has a District Energy system located within the LWRA. The City of Buffalo District Heating Plant is located in the Fire Headquarters, immediately west of City Hall and currently provides heat to the Fire Headquarters, City Court, City Hall, Family Court, County Office and Old City Hall buildings. Through the City Energy Plan development process, the City is exploring options for expanding the portfolio of buildings utilizing district heat.



B. Wind

I. Upland Wind Development

The U.S. Department of Energy provides an 80-meter (m) height, high-resolution wind resource map for the United States with links to state wind maps. States, utilities, and wind energy developers use utility-scale wind resource maps to locate and quantify the wind resource, identifying potentially windy sites within a fairly large region and determining a potential site's economic and technical viability. According to these maps, land along the Buffalo shoreline has an average wind speed of 6.5-7 meters per second, meeting the 6.5 meter per second threshold for commercially acceptable wind generation.

According to the National Weather Service of the NOAA, though wind directions vary day by day, the average wind directions are from southwest to west during the winter season, while they are from northwest to north-northwest during the summer. Average wind directions range from southwest to west-northwest during the spring and fall. Average wind speed ranges from 6.9 mph (November) to 12.5 mph (April), according to the data of

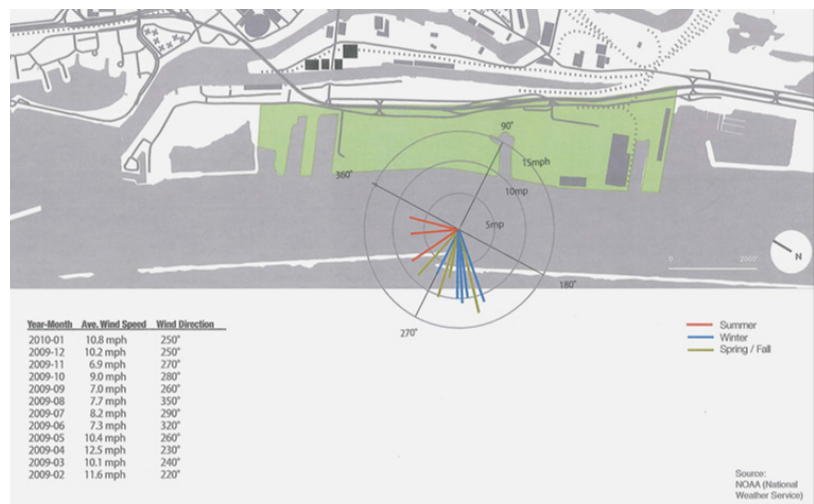
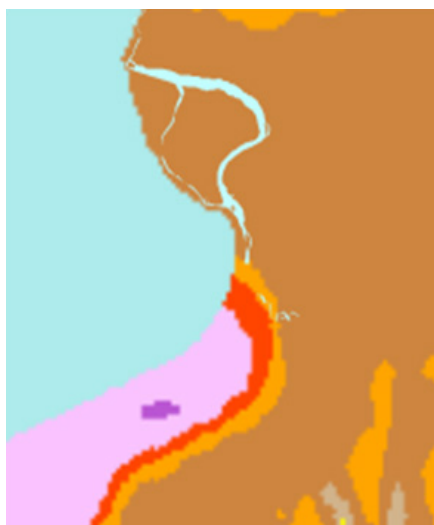
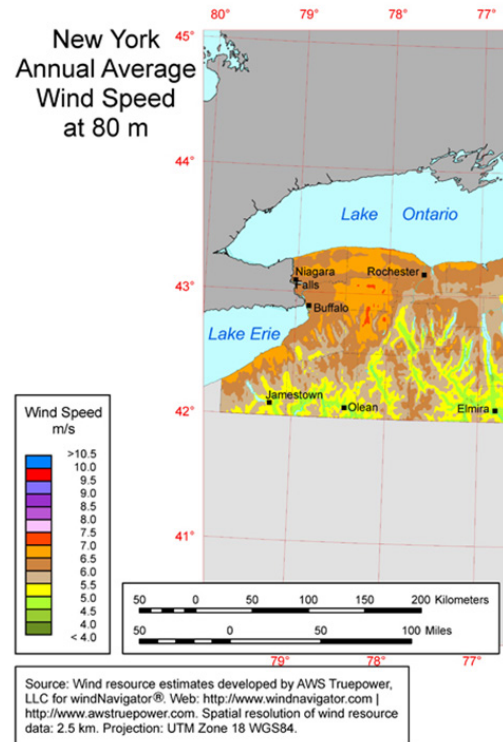
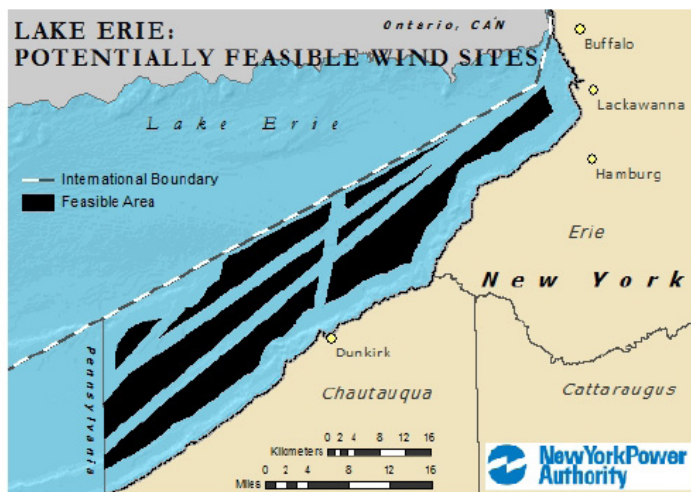
2009. The highest wind speed was recorded at 43 mph in December, according to the 2009 data.

The Buffalo Green Code permits the development of wind farms within the LVRA subject to site plan review.

2. Off-Shore Wind

From 2009 through 2011, the New York Power Authority explored the development of off-shore wind in Lake Erie and Lake Ontario through its Great Lakes Off-shore Wind (FLOW) project. The analysis indicated that there was the potential for off-shore wind in Lake Erie in Western New York.

In March 2011, the Erie County Legislature formally opposed the “exploitation of Lake Erie as a site for a wind farm.”



C. Hydrokinetic

In 2008, hydrokinetic developer, Free Flow Power Corp., applied to the Federal Energy Regulatory Commission for a preliminary permit, on behalf of its FFP Niagara Project I LLC, to study the 17.5-MW Niagara River hydrokinetic project (No. 13098) above the falls. That project would have utilized 875 Free Flow Power hydrokinetic units grouped in matrices placed along 17.5 miles of the Niagara River from Peace Bridge, within the LWRA, to the lower end of Grand Island, above Niagara Falls. The company later withdrew their proposal.

D. Natural Gas

In 2002, Congress imposed a moratorium on drilling on or directionally beneath the Great Lakes. The ban was made permanent by the Energy Policy Act of 2005.

NYS Environmental Conservation Law (ECL) § 23-1101 (1) restricts the DEC from making a lease for the exploration, development and production of oil in state-owned lands under the waters of Lake Erie or along its shoreline.

NYS ECL § 23-1101 (3) prohibits the development of natural gas wells nearer than one-half mile from the Lake Erie shoreline, two miles from public water supply intakes, and 1,000 feet from any other structure or installation on or in Lake Erie.

In January 2014, Erie County Executive Poloncarz signed into law a prohibition on:

- ▶ hydraulic fracturing on land owned by Erie County;
- ▶ the storage, disposal, or treatment of natural gas waste and fracturing fluids or solids by any wastewater treatment facility owned or operated by Erie County,
- ▶ the purchase or acquisition of such materials by Erie County; and
- ▶ the application of any of these products to construct or maintain any road owned or maintained by Erie County.

Chapter 288-4 of the Code of the City of Buffalo prohibits the exploration for or extraction of natural gas within the City of Buffalo.

In December 2006, the Buffalo Sewer Authority prohibited the acceptance of hydraulic fracturing industrial discharges pending regulator review. In March 2011, the BSA Board of Directors authorized the General Manager to “continue its established policy of prohibiting the acceptance of hydraulic fracturing industrial discharges from natural gas well sites.”

IX. CONTAMINANT HAZARDS

Contaminant hazards exist in the LWRA in conjunction with both ongoing activities and the City's industrial past. The shared inventory, GEIS and BOA's prepared a detailed list of sites containing contaminant hazards including Chemical Bulk Storage Facilities, Petroleum Bulk Storage Facilities, Major Oil Storage Facilities, State Superfund Clean Up Sites, Environmental Restoration Program Clean Up Sites, Volunteer Hazardous Waste Clean Up Sites, Voluntary Brownfield Clean Up Sites, Confined Disposal Facilities, former landfills, and junkyards.

The LWRP policies support the cleanup of legacy contamination within the LWRA, including in submerged sediment.

The UDO prohibits many new waterfront uses that have strong potential to introduce contaminant hazards. Instead, these uses are directed to areas of the City where their potential to impact surface waters is limited.



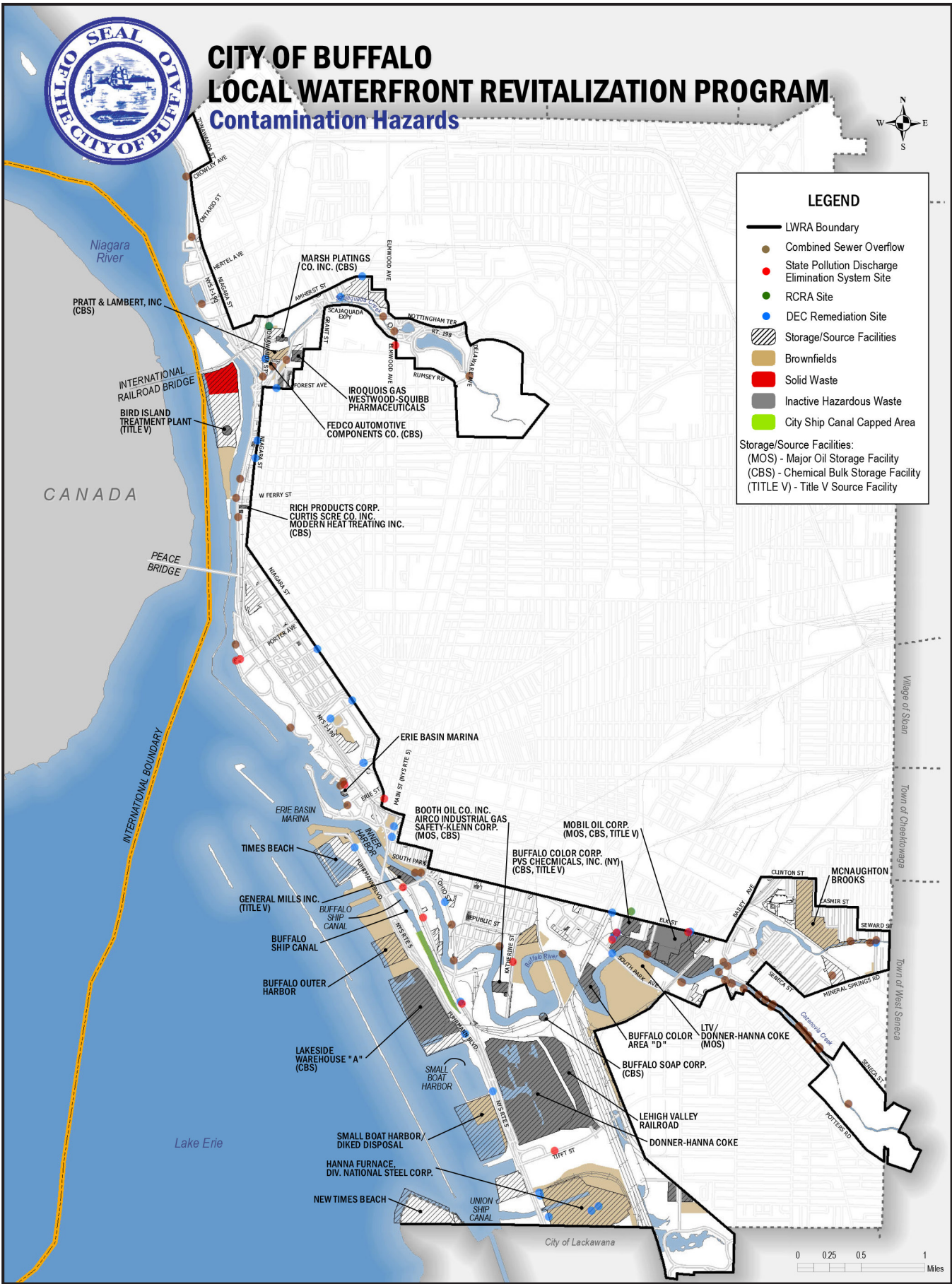
CITY OF BUFFALO LOCAL WATERFRONT REVITALIZATION PROGRAM Contamination Hazards



LEGEND

- LWRA Boundary
- Combined Sewer Overflow
- State Pollution Discharge Elimination System Site
- RCRA Site
- DEC Remediation Site
- Storage/Source Facilities
- Brownfields
- Solid Waste
- Inactive Hazardous Waste
- City Ship Canal Capped Area

Storage/Source Facilities:
 (MOS) - Major Oil Storage Facility
 (CBS) - Chemical Bulk Storage Facility
 (TITLE V) - Title V Source Facility



MAP 15 - CONTAMINATION HAZARDS