CHAPTER 6: GEIS

6.0 GENERIC ENVIRONMENTAL IMPACT STATEMENT

A. Purpose and Need

In September 2004, Governor Pataki signed the legislation creating the Niagara River Greenway Commission. That legislation defines the Commission's purpose as undertaking "all necessary actions to facilitate the creation of a Niagara River greenway." As part of that legislation, the Commission was directed to develop a draft of the Niagara River Greenway Plan and Generic Environmental Impact Statement (GEIS) in order to "… implement or cause to be implemented a linear system of parks and conservation areas that will…redefine the Niagara riverfront by increasing landside access to the river; creating complimentary access to the Greenway from the river; augmenting economic revitalization efforts and celebrating the region's industrial heritage" The legislation also set forth a list of 15 elements to be addressed in the Niagara River Greenway Plan. This plan and the corresponding Final GEIS have been prepared in response to the legislation, as well as the grassroots support for a unified vision and coherent plan for the future of this resource. The Plan is necessary to help guide the development of the Greenway, including defining what a greenway will be and establishing a vision that will enable the region to achieve a world-class Niagara River Greenway. The Plan provides criteria to be used to evaluate activities, projects and proposals being advanced within the Greenway, in order to assess the consistency of a specific project with the goals and purposes of the Greenway. It also establishes a framework of implementation concepts that develop system-wide strategies for integrating the many assets and resources of the Greenway.

The region comprised of the counties of Erie and Niagara contains a wealth of assets and resources that are both natural and man-made. The Greenway Plan will serve as the foundation for organizing, evaluating, capitalizing upon and promoting these resources.

B. Description of Proposed Action

As mentioned in the previous section, the legislation establishing the Niagara River Greenway was enacted in 2004 and includes a list of 15 elements that must be addressed in the Plan. These elements are described in Chapter 1 of the Niagara River Greenway Plan. The plan is intended to guide the planning efforts throughout the Greenway by establishing a set of evaluation criteria with which proposed projects must comply. The action for review in this FGEIS has been defined as the adoption and implementation of the Niagara River Greenway Plan.

The Niagara River Greenway Plan and Final Generic Environmental Impact Statement (FGEIS) are both contained within this document. The Niagara River Greenway Plan is described in detail in Chapter 4 of this Document, and is included into the FGEIS (Chapter 6) by reference. The reader is encouraged to refer to Chapter 4 and previous sections of the Plan for a more detailed description of the Greenway Plan and planning process.

Projects that are undertaken, approved or funded by a state agency is required to demonstrate compliance with the State Environmental Quality Review Act (SEQR). As such, this chapter of the Plan addresses the proposed action and its implementation on a generic level. While this GEIS is necessarily focused on the types of environmental impacts that can reasonably be foreseen in most situations, individual projects may warrant a more site-specific environmental review and are not evaluated in the GEIS. The process by which future projects will be reviewed is described

in Section J of this GEIS, "Future Environmental Reviews." The Draft GEIS and the Draft Plan were the subject of public hearings and the public review process under SEQR. Public hearings were held on December 12 in Niagara Falls and December 13, 2006 in Buffalo. Comments on the Draft Plan and DGEIS were accepted until January 17, 2007. Changes to the Draft Plan and "comments and responses" are address in Chapter 7.

C. Alternatives

The alternatives to the proposed Niagara River Greenway are to take no action or to adopt the current proposal.

- **No Action Alternative.** This plan and the corresponding GEIS have been prepared in response to the 2004 legislation which created the Niagara River Greenway Commission and directed the Commission to develop a draft of the Niagara River Greenway Plan. As described in Chapter 1 Section A of this document, the legislation set forth a list of 15 elements to be addressed in the Plan. The 'no action alternative', or non-preparation of the Plan, is not a viable alternative since the legislation requires preparation of a Plan. At the implementation level, non-preparation of a Plan would mean no Plan for integrating the assets and resources of the Greenway; no set definition of a Greenway or boundary; and no vision to achieve a world-class Greenway. Individual municipalities would continue to be responsible for providing or procuring funding for individual projects that were not evaluated under a set of cohesive criteria.

- **Adoption and Implementation of the Greenway Plan.** This alternative, which is evaluated throughout this EIS, is a direct response to the 2004 legislation. This legislation requires definition of a Greenway; development of system-wide strategies for integrating the assets and resources of the Greenway; and establishing a vision that will achieve a world-class Niagara River Greenway. This alternative also addresses 15 elements required of the legislation. These fifteen elements, and plan criteria, are described in Chapter 1 Section A of the Plan. Selection of this alternative will meet the requirements of the 2004 legislation.

D. Environmental Setting, Impacts and Mitigation Measures

As mentioned above, the following discussion of Environmental Setting, Impacts, and Mitigation Measures applies to the proposed action, which is adoption and implementation of the Niagara River Greenway Plan. Chapter 2 of the Greenway Plan includes an Inventory of Greenway Resources which is hereby incorporated into this FGEIS. County-level and regional figures were utilized due to the generic nature of the Environmental Impact Statement. The GEIS was designed to assess the impacts of adoption and implementation of the Plan itself, as a document, and not any future projects that may result. Future projects may be required to undergo their own environmental reviews, based on the specifics of the project.

In general, the Niagara River Greenway Plan, when implemented, will provide benefits on a regional basis. Improved environmental quality, improved tourism development, improved connections to the Niagara River, direct/indirect economic activity and improved quality of life will provide real and substantial beneficial impacts that extend beyond the Greenway boundaries.

CHAPTER 6: GEIS

1. Land Use Controls and Patterns

The Niagara River Greenway boundary includes thirteen local municipalities in Erie and Niagara counties. Development within these municipalities and along the Niagara River Greenway is guided and controlled by a number of plans, proposals, and ordinances, all of which are targeted toward preservation, protection and revitalization. Each municipality has either a comprehensive plan and/or a Local Waterfront Revitalization Program which guides local development and permitted land uses. The New York State Coastal Zone Management Program is discussed in greater detail in Section D.2. of this GEIS.

Regional Land Use - Land use patterns along the Niagara River Greenway are mixed and they transition from one land use to another based on past development activity. Table 1 summarizes land uses in municipalities within the Greenway boundary, by County. As shown in the Table, residential development and agricultural comprise the largest percentage of uses throughout the Greenway municipalities. As shown in Figure 53, uses along the river transition from industrial/commercial and dense residential in the south, to low-density residential, recreational, and agricultural in the north. A more detailed discussion of land uses along the River and its tributaries follows.

Table 1: Greenway Land Use

Land Use Category	Acreage of Greenway Parcels in Erie County	Acreage of Greenway Parcels in Niagara County	Percent of Total Land Use Along Greenway
Agricultural	6	22,391	17%
Residential	18,790	24,122	31%
Vacant	10,191	13,146	17%
Industrial	2,343	2,623	4%
Commercial	5,347	3,009	6%
Community Services	3,023	2,031	4%
Public Services	1,709	3,085	4%
Wild, Forested, Conservation Lands	3,339	1,422	4%
Recreation and Entertainment	1,390	2,134	3%
Unknown*	2,649	11,986	10%
Total	48,787	85,949	100.0%

* primarily includes Niagara River

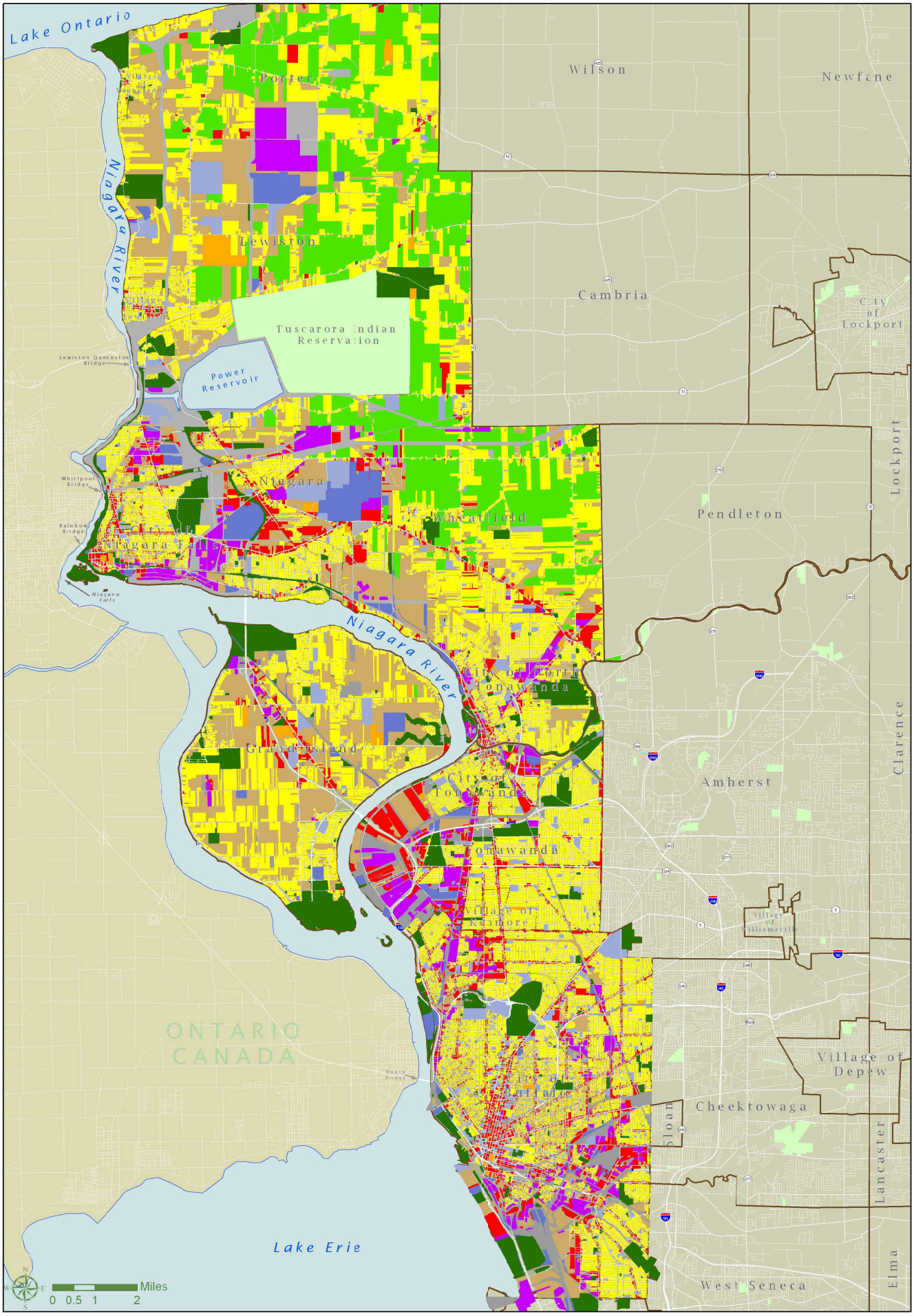
Along the southern portions of the river (e.g., City of Buffalo, Town of Tonawanda, etc), land use is primarily industrial and transportation oriented, with some areas of dense residential development and scattered parks/open space providing public waterfront access. Moving northward along the river, land use becomes more residential and recreational/open space, with intermittent industrial and commercial uses (e.g., Grand Island, Town of Wheatfield, etc). The Greenway becomes more urban and industrial in the Town of Niagara and the City of Niagara

Falls, particularly the lands between the North Grand Island Bridge and the Niagara Falls State Park. Below the Falls toward Lake Ontario, the land use becomes less dense with considerable Open Space and recreational uses and scattered residential development. Land uses in the Villages of Lewiston and Youngstown are more densely developed residential and recreational /open spaces, with the commercial areas tending to be removed from the River frontage.

As indicated in Figure 53, the southern portion of the Greenway is characterized by heavy industrial, commercial, and higher density residential uses. Commercial uses are centered on major roadways in the Cities of Buffalo and Tonawanda, and the Town of Tonawanda. Industrial uses are concentrated in the southern portions of the City of Buffalo, particularly along the waterfront; along the Niagara River in the Town of Tonawanda, and in the northeastern portion of the City of Tonawanda. In the Town of Tonawanda, residential parcels and some recreational uses are concentrated east of Military Road. In the City of Tonawanda, commercial and recreational uses are located further inland. In the City of Buffalo, uses along the River are predominately industrial or commercial (19%); vacant (19%), a category which also includes vacant industrial parcels; and wild, forested, or conservation lands. Water-dependent recreational/entertainment uses such as marinas, boat launches or similar activities account for nearly 10% of uses along the River. In the Town and City of Tonawanda, industrial, commercial, or vacant uses comprise 30% of land uses along the River. An additional 27% of uses are wild, forested or conservation lands. Public services account for 11% of uses.

The central portion of the Greenway along the River traverses the Towns of Grand Island and Wheatfield, and the Cities of North Tonawanda and Niagara Falls. Overall, land use in the Towns consists of low to medium density single family residential units. In Grand Island, land uses along the riverfront consist of open space (44%) and residential areas (23%), with small intermittent areas of commercial use along the east side of the island. The industrial and commercial land use areas are located toward the center of the island clustered along Grand Island Boulevard and Alvin Road. Commercial and industrial uses account for 1% of uses along the Niagara River. Areas along the Niagara River in the City of North Tonawanda are residential (44%), industrial or commercial (16%), or vacant (16%). Recreation/open space accounts for 3% of uses. Land use in Wheatfield is predominately characterized by residential and agricultural uses (50%). Agricultural land use is generally concentrated in the northern part of the Town. Along the River, industrial/commercial and vacant areas account for with 3% and 18% of uses, respectively. Along the River in the City of Niagara Falls, land uses are characterized by a mix of open space (8%), recreation/entertainment (8%), heavy industrial land use, commercial, and vacant areas (29%), residential uses (31%), and community services (11%). Several state parks border the Niagara River in the vicinity of the Niagara Gorge and the upper Niagara River. These parks are described in Section D.6 of this GEIS.

The northern portion of the Greenway traverses the Towns of Lewiston and Porter. Land uses near the river are mainly recreational (5%) and lower density residential (18%), with intermittent industrial and commercial activity. The Towns of Lewiston and Porter are also characterized by agricultural uses (62%). The Tuscarora Indian Reservation is located solely within the Town of Lewiston and east of the Village of Lewiston. The reservation has a total land area of 9.3 square miles and land use is characterized by residential and recreational uses. The Village of Youngstown is located along the Niagara River in the Town of Porter and is characterized by residential (40%), recreational/open space (20%) and uses categorized as vacant.



NIAGARA RIVER GREENWAY

Land Use

Data Sources: New York Power Authority, Erie County Office of Geographic Information Systems, Niagara County Office of Real Property Tax

Land Use

- Tuscarora Indian Reservation
- Data Not Available
- Residential
- Commercial
- Industrial
- Utilities
- Community Services
- Recreation and Entertainment
- Agricultural
- Conservation Lands and Parks
- Vacant

Figure 53

Map Created: March 20, 2007 WD Project # 427001

Approximately 7.5% of parcels along the River and its associated tributaries, totaling nearly 45% of the land acreage, are publicly owned. Owners of these parcels include the various municipalities, the State of New York and the counties of Erie and Niagara.

1A. Impacts to Land Use **-** Impacts to land use will be generally positive across the entire Greenway. The guiding principles set forth in the Plan will have beneficial impacts upon existing land use by enhancing, maintaining and preserving areas of open space; developing areas for active recreational opportunities; and improving water access where such access is currently limited or obstructed. This could be accomplished on parcels that are currently publicly owned, or those that are transferred or acquired through Greenway funds. These beneficial impacts will also have the added indirect effect of increasing land and property values within the Greenway.

Project specific changes in land use may, however, result in some localized land use conflicts. For example, the extension of trails and public access across waterfront lands currently in active industrial use may result in conflicting usage. It is also possible that constructing and operating a new tourism destination may result in a commercial development with associated increase in noise/traffic in an adjacent residential neighborhood. These potentially adverse impacts are not expected to be significant given the geographic scope of the Greenway and can be mitigated. Potential land use impacts can be minimized or avoided by ensuring that development of projects within the Greenway are sited properly and are designed/operated consistent with existing land use plans, zoning ordinances, waterfront/coastal zone regulations, and other local laws.

1B. Mitigation Measures **–** Potential Land use impacts of proposed projects can be mitigated by ensuring adherence to and consistency with local land use/comprehensive plans, zoning ordinances, floodplain regulations, and other applicable ordinances and regulations. The local municipality would be responsible for approving individual projects that are subject to zoning, site plan review, or other local land use plans.

2. Coastal Zone Management and Consistency

The State Waterfront Revitalization of Coastal Areas and Inland Waterways Act includes provisions to assure consistency of state actions, and where appropriate, federal actions, with the policies of the coastal area and inland waterways, and with accepted waterfront revitalization programs of the area defined and addressed by such programs. At the local government level, municipalities with adopted Local Waterfront Revitalization Programs (LWRP) enact similar consistency provisions applicable to their decision-making. These requirements apply to municipal agency decision-making, such as decisions involving zoning changes, subdivisions, site plans, special use permits, municipal construction projects, and funding activities.

In New York State, coastal zone consistency review falls under the purview of the New York State Department of State, Division of Coastal Resources (NYSDOS). As the State's Coastal Zone Management Program Manager, it is the responsibility of NYSDOS to review all projects with State and federal agency involvement for consistency with the State's Coastal Management Plan. To receive NYSDOS concurrence with a consistency certification, a project must demonstrate consistency with all coastal policies, which include the following categories:

- development
- fish and wildlife

- flooding and erosion
- public access
- safeguards
- recreation
- historic and scenic resources
- agricultural lands
- wetlands
- energy and ice management, and
- air and water resources.

Project applicants are required to identify the relevant policies, assess potential impacts, and assess consistency of the project with each policy. The New York State Coastal Zone Management Program authorizes the State to encourage local governments to prepare an approved LWRP that incorporate the state's policies. The LWRPs typically expand upon the state's coastal policies by identifying issues of local importance or priority, and defining a local waterfront revitalization area to encompass locally significant coastal areas, features or habitats. Where a community has approved a LWRP, projects undertaken within the LWRP boundary must demonstrate consistency with each relevant policy identified in the LWRP.

Seven municipalities within the Greenway have approved LWRPs (see Table 2). The LWRP boundaries are shown on Figure 54. As mentioned above, those communities that are not listed require consistency with the State coastal policies.

Table 2: Municipalities with Approved Local Waterfront Revitalization Programs

Municipality	Date Approved
Village of Youngstown	1988
Village of Lewiston	1991
Town of Grand Island	2006
City of North Tonawanda	1988
City of Tonawanda	1987
Town of Tonawanda	1997

Discrete areas which are considered to be most important for their habitat value are designated by the State as "significant coastal fish and wildlife habitats." State Policy 7 applies in communities where one or more Significant Fish and Wildlife Habitats have been designated.

The Coastal Management Program also oversees Scenic Areas of Statewide Significance (SASS). SASS designation helps protect the most scenic coastal areas from potentially adverse federal or State actions by assuring that certain performance standards are met before the action is approved. The CMP consistency provision provides protection at three governmental levels: federal, State and local. To date, all listed communities are on the Hudson River, but Niagara River communities may also be eligible. State Policy 24 applies to those communities where all or a part of a scenic resource of statewide significance has been designated.

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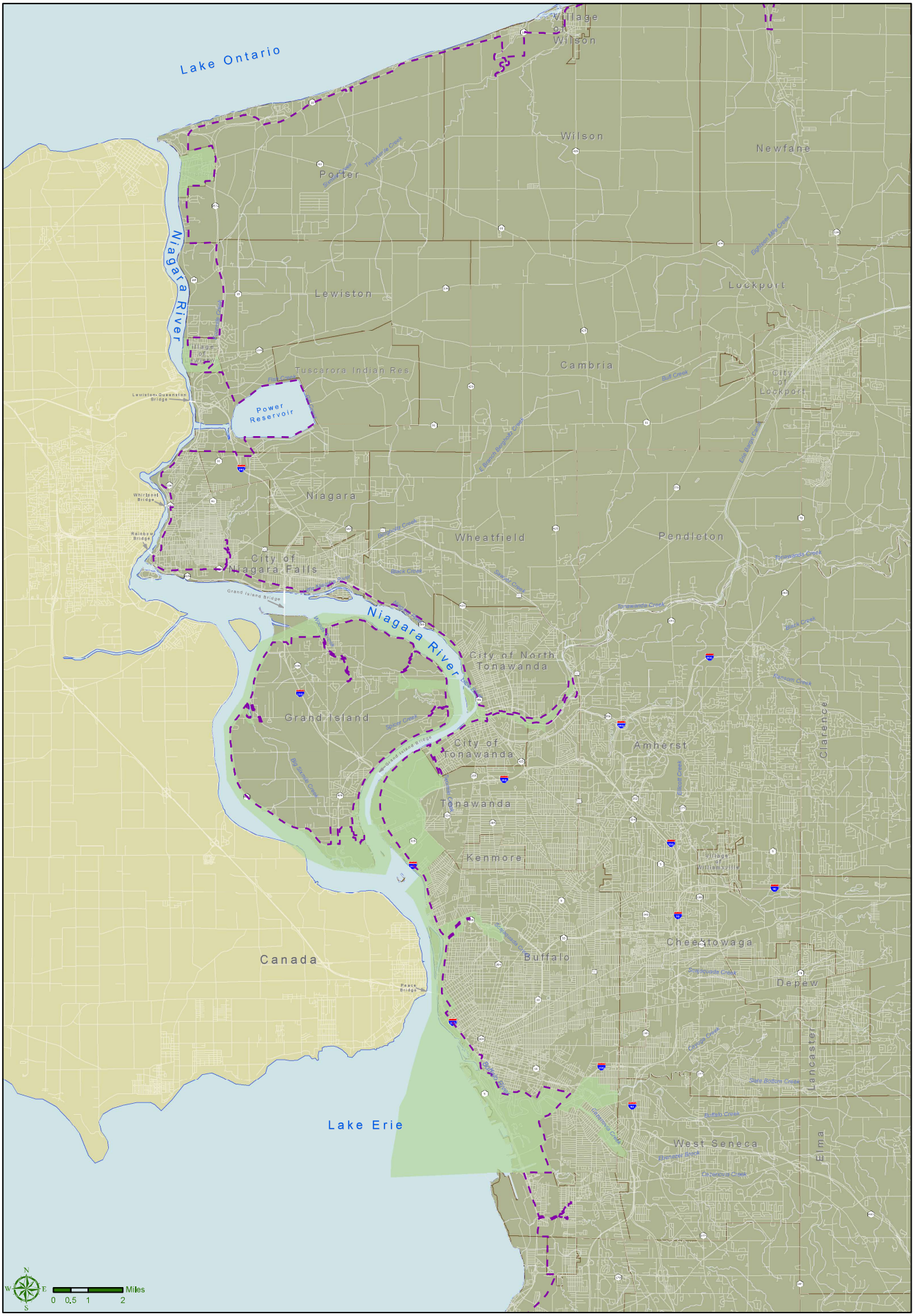


Niagara River Greenway

Local Waterfront Revitalization Program and Coastal Area Boundaries

Coastal Area Boundary

L.W.R.P. Boundary

Stream

Data Sources: New York Power Authority,
Erie County Office of Geographic Information Systems,
Niagara County Office of Real Property Tax
NYS Department of State, Division of Coastal Resources

20 March 2007

Figure 54

2A. Impacts to Coastal Zone Management – As described in Chapter 3 of the Plan, the principles for the Niagara River Greenway promote high-quality, ecologically sensitive and sustainable activities and development. Among these principles are accessibility, sustainability, ecological integrity, restoration. Initial goals of the Greenway include improved access, protection and restoration of environmental systems, and promotion of long-term sustainability. In general, these principles and goals generally are consistent with the goals and vision of New York State's coastal policies and approved LWRPs, which include protection of water-dependent uses; protection and restoration of ecological resources, including significant fish and wildlife habitats, wetlands and rare ecological communities; improvement of public access to and use of public land and waters, among others.

The Plan was developed to be consistent with and advance applicable State coastal policies, and, as approved LWRPs reflect applicable State coastal policies, the Plan was developed to be consistent with and advance the policies and purposes of the approved LWRPs identified in Table 2 above. Implementation of individual projects may impact resources, habitats, and communities within the coastal zone. Each individual project will be required to demonstrate, and will receive an evaluation of its consistency with the state's coastal policies or the approved LWRPs as applicable.

2B. Mitigation Measures - Any potential impacts with the Coastal Zone or potential inconsistencies with approved LWRPs or policies of the NYS Coastal Zone Management Program will be mitigated by requiring that future proposed projects demonstrate consistency with the goals and vision of approved LWRPs or the State Coastal Zone Management Program.

3. Socioeconomics

Demographics - As noted in the 2000 U.S. Census, Niagara and Erie counties have a combined approximate population of 1,117,000. Niagara County and Erie County have population densities of 420 and 910 people per square mile, respectively. Overall, the total population of the Buffalo-Niagara region and Erie and Niagara Counties has declined over the last ten years.

The two largest municipalities within the Greenway in Erie County are the City of Buffalo and the Town of Tonawanda. The largest municipality in Niagara County located within the Greenway is the City of Niagara Falls. The Niagara-Erie region has a median household income of $38,400 and a per capita income just over $20,000, with 12% of the population living below the poverty line. Demographics of the Greenway municipalities are shown in Table 3 below. The table includes data for the Tuscarora Reservation, a tribe of Iroquois, which is located in the town of Lewiston. As shown in the table, most of the municipalities have higher median household incomes than the Niagara-Erie Region. With exception of the City of Buffalo, Niagara Falls, the Tuscarora Reservation, the municipalities have lower poverty rates than the region as a whole.

Table 3: Area Demographics

Municipality	Population	Persons per Square Mile	Median Household Income	Persons Below Poverty
Erie County				
City of Buffalo	292,648	7,205.8	$24,536	14%
Town of Tonawanda	78,155	4,156	$41,453	6.9%
City of Tonawanda	16,136	4252.9	$37,523	7.1%
Town of Grand Island	18,621	653	$60,432	3.0%
Village of Kenmore	16,426	11,733	$42,252	5.2%
Niagara County				
City of Niagara Falls	55,593	3,955	$26,800	19.5%
City of North Tonawanda	33,262	3,293	$39,154	7.2%
Town of Lewiston	16,257	436	$50,819	5.8%
Town of Wheatfield	14,086	504	$51,700	4.2%
Town of Porter	6,920	85.7	$50,425	4.1%
Village of Lewiston	2,781	2,610	$37,598	8.6%
Village of Youngstown	1,957	1,687	$48,333	3.9%
Tuscarora Reservation	1,138	122.8	$32,500	13.0%

Revenues and Expenditures - Municipalities within the Greenway have budgets ranging from $1.1 billion (City of Buffalo) to just over one million dollars for many of the smaller municipalities. As indicated in Table 4, in 2004, revenues are derived from state, federal and other governmental aid, real property and non-property taxes, and other revenue sources. The local tax base of each municipality is derived primarily from real property taxes. Other major contributors to the local tax base are sales taxes, licensing and fees, and intergovernmental transfers. A mix of heavy manufacturing, light industrial and storage/warehousing uses within the Greenway contributes to a stronger tax base in some communities within the Greenway. For example, uses in Tonawanda include Tonawanda Coke, Huntley Coal, General Motors, DuPont, Goodyear-Dunlop, FMC, and NOCO Energy.

A breakdown of each municipality's expenditures is shown in Table 5. In 2004, the municipalities that spent the smallest percentage of total budget on cultural/recreational expenditures were the cities of Buffalo, Niagara Falls, and Tonawanda, and the Village of Kenmore (3.1% to 5.7% of total budget). The towns of Wheatfield, Tonawanda, and Lewiston, and the Village of

Youngstown, spent the highest percentages of total budget on this same expenditure (10.6% to 33.9% of total budget).

Employment and Income - Total employment and total personal income in the Buffalo-Niagara MSA have fluctuated over the past several years. While there has been overall growth in personal income, the number of jobs (total employment) essentially has remained constant (See Table 6). According to statistics on personal income by industry, most individuals derive their income from manufacturing, government jobs, health care and social assistance, professional services and retail trade. The number of full-time employees by industry parallels the personal income industries mentioned above. The top five industries by number of employees in the Buffalo-Niagara Falls, NY MSA area are government, manufacturing, health care and social services, retail trade, and accommodation and food services (Bureau of Economic Analysis 2006).

The region's economy also benefits from a key location and large endowment of natural resource assets. In addition to the economic sectors mentioned above, the Niagara frontier/WNY regional economy is linked to the natural resources of the Niagara River, Niagara Falls, and the Great Lakes; proximity to Canada; historic forts and battle locations; world-renowned architecture; and agriculture (fruits, vegetables and wine).

Tourism is a significant economic factor along the Niagara River Greenway Corridor. Niagara Falls is one of the premier tourist attractions in the State of New York and was ranked as the 30th most popular destination for foreign tourists visiting the United States by the US Department of Commerce, Office of Travel and Tourism's Annual Survey of International Air Travelers. As stated in Section 2.A of the Plan, there are approximately 8 million visitors to Niagara Falls State Park per year. The economic impact of tourism in the Buffalo-Niagara MSA, particularly in Niagara Falls, accounts for more than $2.82 billion in annual spending, and wages of $1.5 billion.

In a study commissioned by the USA Niagara Development Corporation, it was estimated that approximately 9.3 million person trips were made in 2003 to tourist attractions in Niagara Falls, NY. An additional 14.2 million person trips were made to Canadian attractions during the same time period. This influx of tourists injects a large amount of funds into the regional economy. In 2002, an average person visiting the Greater Niagara region spent approximately $83.50 per person per day. Assuming 9.3 million person trips per year this equates to an injection of almost $780 million a year into the city's economy (Economics Research Associates 2004).

Table 4: Total Revenues by Municipality by Major Revenue Sources – 2004

Municipality	Total Revenues						
	Real Property Taxes	Non-Property Taxes	State Aid	Federal Aid	Other Gov't Aid	Other Revenue Sources	Total
Erie County	**157,898,659**	**270,857,748**	**202,739,656**	**185,762,573**	**17,785,918**	**142,008,500**	**977,053,054**
City of Buffalo	85,448,734	76,695,740	114,826,006	15,242,519	5,308,373	84,213,953	381,735,325
Town of Tonawanda	31,894,340	6,301,856	2,427,042	3,047,555	1,927,089	18,368,142	63,966,024
Town of Grand Island	6,009,636	2,169,587	1,050,933	0	161,016	4,196,786	13,587,958
Village of Kenmore	5,864,660	1,454,991	730,195	197,079	254,897	2,781,735	11,028,660
City of Tonawanda	7,613,442	3,748,032	2,692,739	145,764	366,111	3,264,713	17,830,801
Niagara County	**74,048,345**	**50,538,932**	**39,882,066**	**40,073,565**	**26,035,528**	**50,073,489**	**280,651,925**
City of Niagara Falls	27,384,968	15,188,583	12,440,169	8,668,247	2,223,642	11,092,086	76,997,695
City of North Tonawanda	11,815,269	7,558,081	5,391,438	3,964,183	62,783	9,364,199	38,155,953
Town of Lewiston	1,843,135	4,475,024	511,095	0	170,558	3,436,215	10,436,027
Town of Wheatfield	2,681,308	2,740,074	548,851	0	54,025	2,021,825	8,046,083
Town of Porter	443,878	968,946	353,918	0	69,419	1,678,767	3,514,928
Village of Lewiston	598,476	646,807	102,977	0	184,500	804,909	2,337,669
Village of Youngstown	477,478	371,046	59,663	0	51,655	431,286	1,391,128

Source: New York State Comptroller Office - http://www.osc.state.ny.us/localgov/datanstat/findata/index_choice.htm

Table 5: Total Expenditures by Municipality by Major Expenditure Recipient - 2004

Municipality	Total Expenditures										
	General Gov't	Educ.	Police	Fire	Other Public Safety	Health	Transportation	Economic Assistance	Cultural / Recreational	Home and Comm. Services	Total
Erie County	125,216,934	55,966,953	120,213,704	1,854,971	13,928,120	70,308,866	80,338,192	610,694,577	38,762,613	121,884,509	1,239,169,439
City of Buffalo	67,194,850	0	97,312,135	78,844,671	17,421,013	1,397,761	35,131,929	2,181,896	10,754,954	36,533,473	346,772,682
Town of Tonawanda	7,868,716	0	11,726,359	580,558	3,081,578	1,379,949	8,458,920	270,824	11,374,950	28,502,914	73,244,768
Town of Grand Island	2,402,662	0	184,003	709,074	309,980	71,233	2,288,162	296,590	1,158,810	5,962,858	13,383,372
Village of Kenmore	1,231,258	0	2,742,459	586,768	1,095,043	0	1,304,921	20,953	221,280	4,134,669	11,337,351
City of Tonawanda	2,343,088	0	3,411,857	2,907,175	423,999	0	3,152,205	47,108	682,231	4,138,189	17,105,852
Niagara County	46,132,976	18,135,107	33,779,323	178,223	2,344,147	36,599,054	12,670,622	119,809,848	3,466,500	12,125,476	285,241,276
City of North Tonawanda	5,653,737	0	5,433,556	4,228,663	1,161,923	0	4,121,652	214,371	2,393,769	13,217,134	36,424,805
Town of Wheatfield	1,169,532	0	15,428	664,478	338,404	9,886	1,453,060	23,315	713,208	2,350,844	6,738,155
City of Niagara Falls	15,545,455	0	17,498,200	14,691,820	3,569,381	0	6,229,957	1,285,702	4,722,681	19,560,719	83,103,915
Town of Lewiston	1,489,056	0	727,418	738,337	173,723	29,723	2,073,140	186,152	4,414,207	3,199,167	13,030,923
Village of Lewiston	607,603	0	183,032	276,773	17,827	2,137	380,957	96,430	188,407	741,936	2,495,102
Village of Youngstown	375,937	0	86,779	71,787	8,832	0	201,351	5,000	170,348	461,076	1,381,110
Town of Porter	650,416	0	10,441	112,034	46,510	11,917	1,110,453	11,500	255,762	1,242,956	3,451,989

Source: New York State Comptroller Office - http://www.osc.state.ny.us/localgov/datanstat/findata/index_choice.htm

Table 6: Total Industry Employment and Income for Buffalo-Niagara Falls, NY MSA, 2001-2004

	2001	2002	2003	2004	% Change 2001 - 2004
Personal Income	32,306,291	32,951,233	34,135,135	35,773,370	10.7%
Total Employment	639,539	636,221	638,575	644,089	0.7%

Source: Bureau of Economic Analysis 2006

In addition to the obvious economic benefits from Niagara Falls tourism, the local economy benefits from other tourism and recreational activities that are directly associated with the river, such as fishing, recreational boating, and wildlife viewing. Throughout the Greenway, commercial uses such as restaurants, marinas, boat sales/services, and active/passive recreational opportunities such as fishing and hunting contribute to local employment and to spending. For example, in 2001, there were a total of 108,264 fishing license sales in Erie and Niagara counties. This represented approximately 10.4% of the total fishing license sales for the entire state (while Erie and Niagara only represented about 6% of the total State population in 2000). For the same year, according to a report published by the U.S. Department of the Interior, among other agencies, it was estimated that the average angler in New York State spent about $685 per year. Combining these two figures, there was an estimated $74.2 million expending on activities related to fishing in Erie and Niagara counties during the 2001 season. In addition, in western New York, recreational boating account for $159.5 million in trip and non-trip related expenditures, boat purchases, as well as direct, indirect and induced economic impacts. While this figure accounts for boating activities on more bodies of water than just those related to the Niagara River, it does show the significance of these boating activities to the overall economy.

3A. Socioeconomic Impacts - Implementation of the Plan is expected to have significant positive economic impacts such as direct, indirect and induced economic impacts arising from:

- Enhanced recreational opportunities;
- Increased residential property values for parcels within the Greenway and river;
- Increased use of the River ecosystem for tourism and recreational boating;
- Increase in industrial heritage and cultural tourism opportunities;
- Increase in eco-tourism opportunities such as bird watching, kayaking, and diving;
- Increased opportunity to attract hunters and fishermen from outside western New York;
- Returning vacant or underused property and brownfields to productive use and possibly to the local tax rolls;
- Provision of construction and tourism-related jobs arising from development of individual projects; and
- Increased employment in certain commercial, retail, entertainment, food service, and hotel/motel sectors due to influx of visitors and tourists.

The Plan and associated projects are not anticipated to significantly impact area population growth and density, or overall median household income or poverty rates.

Implementation of projects and components of the Plan will entail one-time construction and implementation costs as well as annually recurring operational and maintenance (O&M) costs.

These costs cannot be accurately projected as they will vary depending upon the project and associated annual costs. It is anticipated that some projects will have associated user fees that will fund or offset the annual O&M costs associated with that particular project. These include such items as visitor's centers, nature/heritage centers, museums, youth camps, educational programs, commerce parks, aquariums, and marinas, among others. Proposed projects such as these would ideally be self-sufficient once the capital costs are spent for construction out of the Greenway funds.

Projects that do not have user fees will be expected to prepare an O&M budget that considers the costs of maintenance, programming and events, resource stewardship and enhancement, marketing and promotion, and oversight and coordination. Preference will be given to projects that have a local sponsor or partner such as a municipality, non-profit or volunteer group(s); that leverage/identify matching funds through local, state, federal and private funding sources; and that demonstrate economic viability, i.e., identify potential revenue streams or dedicated funding sources to cover costs.

A more detailed Assessment of the economic and Operations & Maintenance costs is provided in Appendix E of this Plan.

3B. Mitigation Measures – Since the adoption and implementation of the Greenway Plan will not result in any adverse social or economic impacts, no mitigation measures are necessary.

4. Brownfields

New York State Law defines the term "brownfield" as "any real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of hazardous waste, petroleum, pollutant, or contaminant." The US EPA more broadly describes brownfields as abandoned, idled, or under-used industrial and commercial facilities at which expansion or redevelopment is complicated by real or perceived environmental contamination.

The decline in industrial operations in the western New York region has yielded a large number of brownfields throughout the Greenway. The NYSDEC, NYSDOS, and EPA administer funding, technical assistance and pilot programs to facilitate reuse of underutilized sites and help promote the revitalization of communities where brownfield sites have hindered redevelopment. The EPA has awarded over $1,000,000 in grant funding to coordinate community education efforts, and conduct site assessments at various sites in Erie and Niagara Counties. According to the agency, there are approximately 200 petroleum-contaminated brownfields sites throughout Niagara County, with 17 sites (approximately 386 acres) in the City of Niagara Falls. The Brownfield Opportunity Areas (BOA) Program grant funding has provided over $2 million for municipalities and community based organizations to provide an in-depth and thorough description and analysis for properties in proposed BOAs, with an emphasis on the identification and reuse of strategic sites as catalysts for revitalization. The Department of State, Division of Coastal Resources administers the BOA Program that provides funding to non-profit community based organizations for pre-nomination, nomination and assessment of properties that could be suitable for remediation and redevelopment. Current projects include an award of $375,000 to the City of Niagara Falls for the Highland Community to conduct a nomination study for an approximate 560-acre area with 15 potential brownfield sites; an award of $85,900 to the City of Niagara Falls for a pre-nomination study for a 1,100-acre area characterized by 30 to 45

brownfield sites in the Buffalo Avenue corridor; and, several grants of over $700,000 for the City of Buffalo to prepare several BOA plans, including the southern portion of the city and Buffalo River corridor.

The NYSDEC provides various means of support to public and private entities to support the redevelopment of brownfields through a Brownfield Cleanup Program (former Voluntary Cleanup program); the Environmental Restoration Program (former Brownfields program); and the State Superfund Program. The goal of the Brownfield Cleanup Program is to enhance private-sector cleanups of brownfields. Tax credits are available to a taxpayer who remediates a site under the program. Through the Environmental Restoration Program, municipalities are reimbursed for the cost of investigation and remediation activities of municipal-owned properties. Once remediated, the property may be reused for commercial, industrial, residential or public use. The State Superfund program is a cleanup program for inactive hazardous waste disposal sites, and hazardous substance waste disposal sites.

In the municipalities within the Greenway, 115 former industrial or commercial sites (over 2,530 acres) are enrolled in NYSDEC's brownfield programs (see Table 7). While many of these sites are located on parcels that are in active productive use, others are vacant. The sites within the Greenway boundary are shown on Figure 55.

Table 7: NYSDEC Brownfield Programs

Program	Number of Sites	Acreage
Brownfield Cleanup/Volunteer Cleanup Program	10	135
Environmental Restoration/Brownfields Program	16	165
State Superfund	89	2,234

Source: NYSDEC, 2006

The Greenway Plan Implementation Concepts identifies the Niagara Mohawk Cherry Farm Site (Tonawanda) as the type of project which would qualify for Greenway funds for remediation and restoration. The 53.5-acre former landfill site was remediated several years ago and includes an 18-acre wetland, 2,550 feet of shoreline, a restored section of the Erie Canal and a section of the Riverwalk linear park. Future uses are limited to passive recreational activities.

4*A.* ***Impacts to Brownfields*** **-** Implementation of the Greenway Plan will likely have beneficial impacts to brownfields and contaminated sites. The development of individual projects could be used to leverage other sources of state and federal brownfield funding to redevelop underutilized sites along the Niagara River. Cleanup and subsequent development of brownfields within the Greenway can directly and indirectly encourage infill development, attract businesses to suitable sites, provide jobs and increase local property tax revenues.

The extent of positive impacts involving brownfield redevelopment realized within the Greenway will depend upon the future involvement of private sector parties who are willing to work with local agencies and make the investment to appropriately address the real or perceived contamination. The goals, objectives, guidance and funding provided by the Greenway Plan will

be an important economic development tool in brownfield redevelopment in portions of Erie and Niagara counties.

4B. Mitigation Measures – Potential impacts associated with future brownfield redevelopment will be generally positive. In order to minimize or avoid any potential adverse impacts to adjacent landowners and land uses, potential adverse impacts of future brownfield redevelopment projects will be mitigated by ensuring that any "brownfield redevelopment" project will be subject to the appropriate review.

5. Community Services

There are numerous community facilities throughout the Greenway, as depicted on Figures 56 and 57. These include government facilities, police and fire departments, cultural and recreation facilities, religious establishments, healthcare facilities and cemeteries. A variety of educational facilities and services are also present, including public, private and parochial schools, colleges and universities, libraries and other educational facilities. In the northern portion of the Greenway the community services are clustered closer to the riverfront, whereas they are numerous but more widely spread out in the south.

5A. Impacts to Community Service - Adoption and implementation of the Greenway Plan will not result in significant adverse impacts to community services.

5B. Mitigation Measures - Since the adoption and implementation of the Greenway Plan will not result in any adverse impacts to community services, no mitigation measures are necessary.

6. Cultural Resources

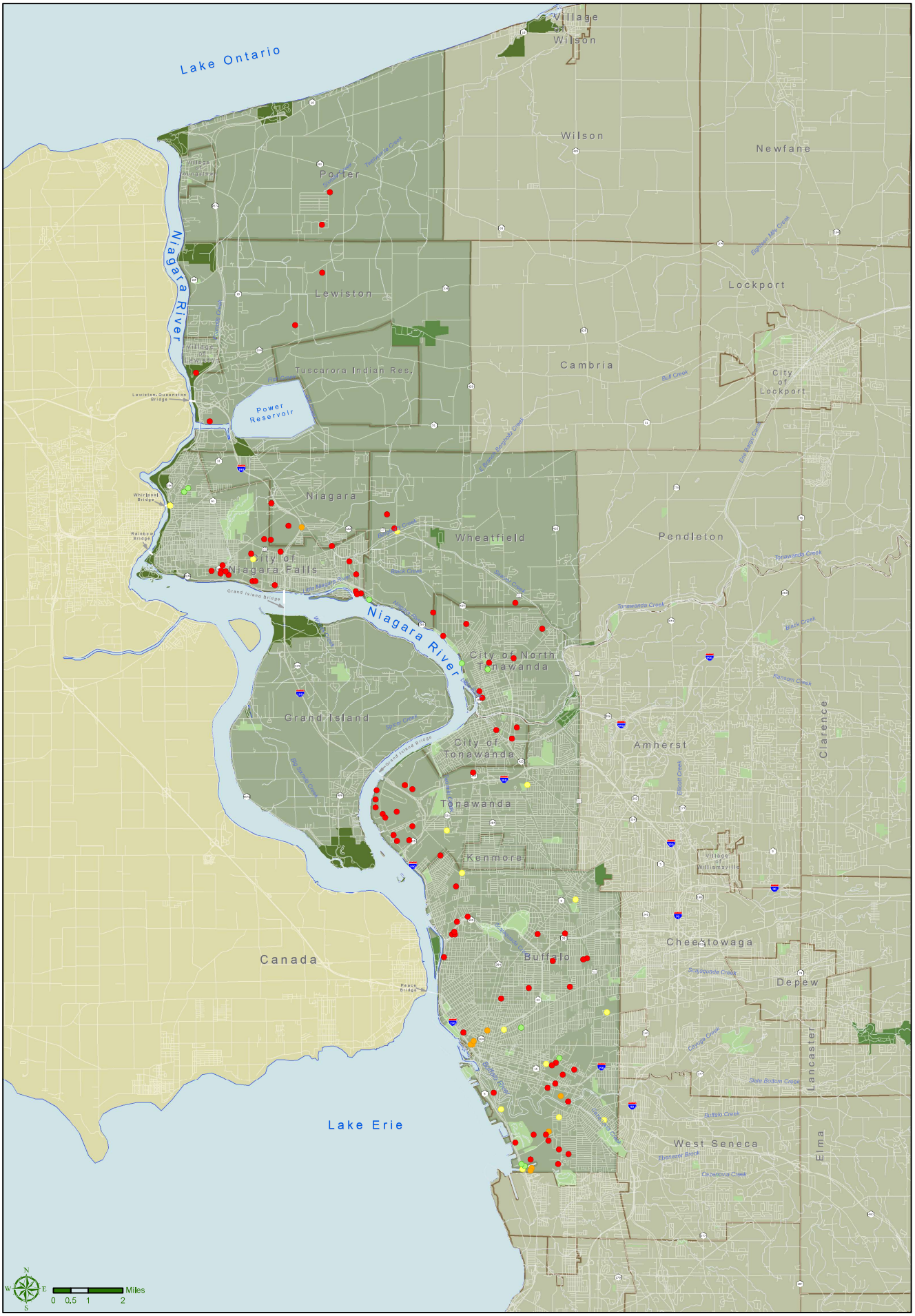
Parks and Public Lands - The Buffalo-Niagara region and Niagara River corridor includes numerous parkland resources (see Figure 2). The most prominent and highly visited park within the Niagara River corridor is Niagara Falls State Park, which encompasses the lands and waters surrounding the Falls. In addition, a chain of State Parks extends along the length of the River, both north and south to the Lake Ontario and Lake Erie shorelines. Figure 2 illustrates the location of parks and parklands throughout the region, and Table 8 identifies state, local and county parks and public lands within the Greenway boundary.

Table 8: Greenway State Parks and Public Lands

State Park/Public Land	Description
Strawberry Island and Motor Island Nature Preserve	Niagara River south of Grand Island: Significant habitats. Not developed as parkland, although informal passive recreational use occurs on Strawberry Island. Some remedial work to halt erosion and restore habitats has been completed; additional remedial work is underway. Strawberry Island is considered part of Beaver Island State Park. Motor Island Nature Preserve is under the jurisdiction of NYS Department of Environmental Conservation.
Beaver Island State Park	Southern end of Grand Island: wide range of active and passive recreational facilities, including a beach, marina, nature trails bicycle/pedestrian paths and golf course.

Table 8: Greenway State Parks and Public Lands

State Park/Public Land	Description
Buckhorn Island State Park	Northern end of Grand Island: marshes, wet meadows, riparian woodlands and upland forests. Passive recreational area with water and land trails and wildlife observation. Additional wetland restoration work and the addition of more trails is planned
Niagara Falls State Park	City of Niagara Falls: Oldest State Park in the United States; originally designed by Frederick Law Olmsted. Major tourism site with numerous scenic overlooks. Access to the Niagara River rapids, the Falls, Goat Island and Prospect Point. Facilities include an interpretive visitor center, Niagara Gorge Discovery Center, Observation Tower, Maid of the Mist and Cave of the Winds tours, trails, and scenic trolley.
Whirlpool State Park	City of Niagara Falls: Overlooks of the Niagara River whirlpool and gorge with passive recreational facilities (picnic areas and playgrounds) on the gorge rim. Stairs provide access from the gorge rim to trails and fishing access points along the rapids of the lower Niagara River.
DeVeaux Woods State Park	City of Niagara Falls: old growth woodland, passive recreation, limited active recreational facilities. Adjacent to Whirlpool State Park.
Devil's Hole State Park	City of Niagara Falls: upstream of the New York Power Authority project. Scenic overlooks of the gorge and the lower Whirlpool rapids. Trails follow the gorge and provide access to popular fishing spots.
Reservoir State Park	Town of Niagara: Active recreation facilities including athletic fields and designated areas for kite flying. Includes an overlook for Robert Moses Power Plant Reservoir, fishing access and other passive recreational facilities.
Earl W. Brydges Artpark State Park	Village of Lewiston: Dramatic and visual arts, classes, workshops and cultural demonstrations. Includes a performing arts theatre, nature trails and the Lower Landing Archeological District (historic site).
Joseph Davis State Park	Town of Lewiston: Passive and some active recreational facilities; handicapped accessible fishing access. Nature trails. Adaptive reuse of former pool complex.
Fort Niagara State Park	Town of Porter: Boat launching facilities, swimming pool, trails, scenic views of mouth of River and Lake Ontario. Mix of active and passive recreational facilities.
Old Fort Niagara State Historic Site	Town of Porter: Adjacent to Fort Niagara State Park. Includes historic Fort Niagara, the old Niagara River Lighthouse and a visitor's center. Future plans include development of a museum at the former Officers Club.
Four Mile Creek State Park	Town of Porter: Campsites (275 sites) including 21 sites on the shore of Lake Ontario. Scenic views, hiking trails, wildlife areas, picnic areas, playground. (Sited on Lake Ontario, not the Niagara River)



Niagara River Greenway

Brownfield Locations

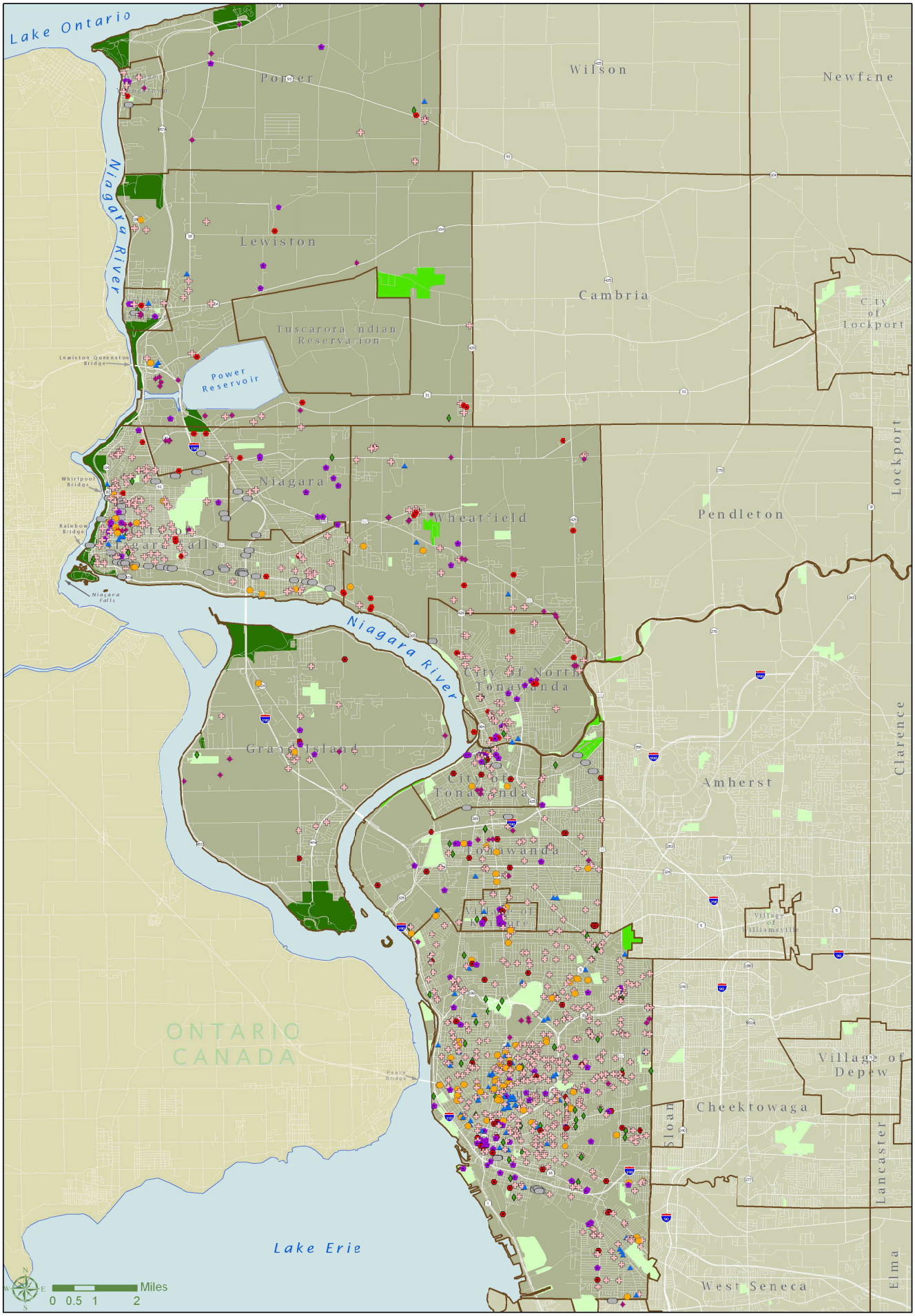
NYSDEC Brownfield Program Sites

- Brownfield Cleanup Program
- Environmental Restoration Program
- State Superfund Program
- Voluntary Cleanup Program
- Stream
- Greenway Boundary

Data Sources: New York Power Authority, Erie County Office of Geographic Information Systems, Niagara County Office of Real Property Tax, NYSDEC.

Figure 55

20 March 2007



NIAGARA RIVER GREENWAY

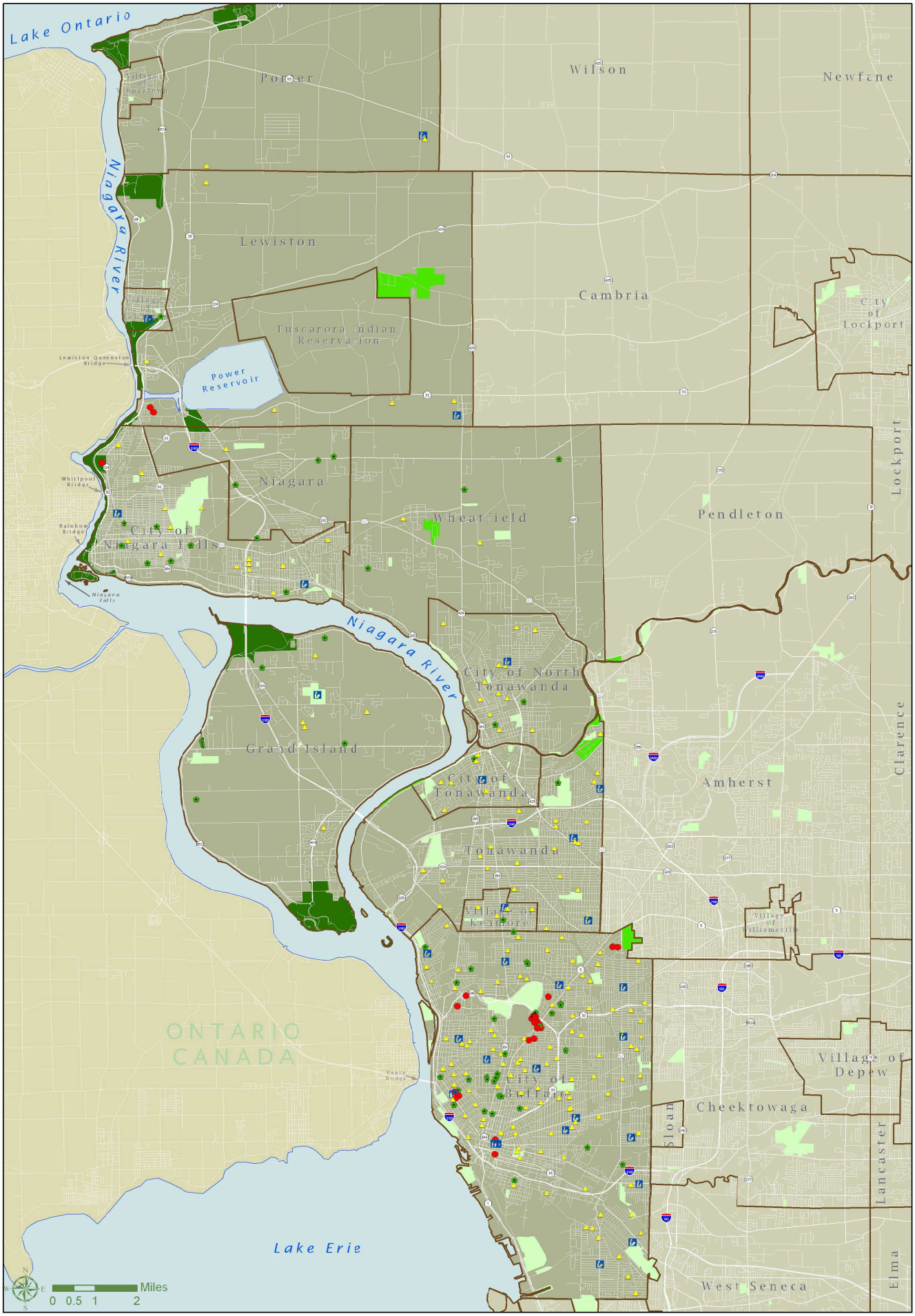
Data Sources: New York Power Authority, Erie County Office of Geographic Information Systems, Niagara County Office of Real Property Tax

Community Services

- Religious
- Miscellaneous Public Services
- Health Facility
- Government Facility
- Police and Fire Departments
- Cultural / Recreational
- Cemeteries
- Roadway

Figure 56

Map Created: March 20, 2007 WD Project # 427001



NIAGARA RIVER GREENWAY

Educational Facilities

Data Sources: New York Power Authority, Erie County Office of Geographic Information Systems, Niagara County Office of Real Property Tax

▲ Schools ● College/University ● Other Educational Facilities ■ Library

Figure 57

Map Created: March 20, 2007 WD Project # 427001

While most of the parks identified on Figure 2 were designed to serve the recreational needs of local residents, many are important resources along the Niagara River and attract visitors from the Western New York region and across the State. These parks include the Tifft Nature Preserve, the Small Boat Harbor, Erie Basin Marina, LaSalle Park, Squaw Island Park, Broderick Park, the Bird Island Pier, Tow Path Park and Riverside Park in the City of Buffalo; Isle View Park in the Town of Tonawanda; Niawanda Park in the City of Tonawanda; Gateway Harbor in the Cities of Tonawanda and North Tonawanda; Fisherman's Park and Gratwick Park in the City of North Tonawanda; and Lewiston Landing in the Village of Lewiston.

The Frederick Law Olmsted parks in the City of Buffalo and the City of Niagara Falls are also a unique resource of this region. In Buffalo, Olmsted Park System includes Riverside Park, Delaware Park, Martin Luther King Jr. Park, Front Park, Cazenovia Park and South Park, as well as a number of connecting parkways and circles. In the City of Niagara Falls, Frederick Law Olmsted was instrumental in the preservation and restoration of the lands that now comprise Niagara Falls State Park, also known as the Niagara Reservation. The New York State Office of Parks, Recreation and Historic Preservation (OPRHP) manages the Olmsted landscapes in Niagara County, while the Buffalo Olmsted Parks Conservancy, a not-for-profit organization, is charged with the oversight of the Buffalo Olmsted Parks. Both groups have or are in the process of developing master plans to preserve these landscapes for their cultural and historic value, as well for their open spaces.

The region also has an extensive network of both land and water trails, which can be considered "linear parkland." Figure 3 depicts the existing trail network through the waterfront region and connecting trail systems. Several new trail systems are in the planning and development stage, including a scenic trail between Lewiston and the City of Niagara Falls, trails in the Town of Tonawanda tying into the Riverwalk, and the Outer Harbor Trails in the City of Buffalo, which will provide waterfront access along previously inaccessible Niagara Frontier Transportation Authority (NFTA) lands. Numerous proposals for completing segments of trails throughout the region are also in the process of obtaining funding. In addition, the Greater Buffalo Niagara Regional Transportation Council (GBNRTC) is leading an effort to implement a "Shoreline Trail" system. The Shoreline Trail will run along the Lake Erie and Niagara River shorelines from the southern end of Erie County in Brant to the mouth of the Niagara River in Porter. Completion of the Niagara River section of the Shoreline Trail is also a priority for the Niagara River Greenway. More information about the existing trails, trail gaps and efforts to complete the network is included as an Implementation Concepts in section 5 of the Plan.

There are also a number of important waterfront access sites along the length of the River. Many of these sites are associated with public parkland. Figure 4 indicates the location of water access, including boat launches, marinas and official fishing access points. There are also many locations along the length of the River and its tributaries where there are informal fishing access spots and locations where paddle powered boats such as canoes and kayaks can be launched.

Heritage Sites - A number of properties in the region are listed on the National Register of Historic Places, which is the nation's official list of significant buildings, sites, properties, archeological and cultural resources. Properties on the National Register have been evaluated according to set criteria and are officially designated by the National Park Service as worthy of preservation due to their architectural, cultural and/or historic significance. Many of these

historic sites are located along the Niagara River. Of these, over a dozen sites in the region are also designated as a National Historic Landmark or National Historic Site, which are the highest designation of historic and/or architectural significance. All but one of these dozen sites is located within the boundary of the Greenway. There are also a number of historic districts, areas where there is such a concentration of historic or architecturally significant structures that the entire neighborhood is designated as historic. In addition, many historic and culturally significant sites and buildings across the region are eligible for listing in the National Register of Historic Places, but have not been officially designated. Figure 7 depicts historic districts, sites that listed or eligible for listing and significant sites that have been identified in local planning documents but that are not officially on the National Register.

6A. Impacts to Cultural Resources - Adoption and implementation of the Greenway Plan will result in significant positive impacts to existing parks and recreational facilities throughout the Corridor. The Plan lays the foundation for the protection, enhancement, preservation, and improvement of parks and associated recreational lands/facilities. The Plan will allow parks to be improved and/or expanded to provide more public waterfront access and improve the quality of services and amenities currently provided at these parks. In addition to state/locally owned parks, other recreational facilities that may benefit from the Plan include bikeways, trails, scenic overlooks, historic/heritage sites, public fishing access points, recreational boating launching facilities, marinas, and disabled access programs.

6B. Mitigation Measures - All properties containing historic and/or cultural resources are subject to the protection provided by the State Historic Preservation Act of 1980. This law requires that all state agencies consider historic resources during project planning. Adoption and implementation of the Greenway Plan will not have adverse impacts on cultural resources, therefore, no mitigation measures are required. Potential adverse impacts to cultural resources resulting from specific projects will be mitigated by consultations with the NYS State Historic Preservation Office (SHPO). As appropriate, the SHPO will determine the appropriate level of site investigation, inventory, documentation, evaluation and mitigation to ensure mitigation of potential adverse impacts to cultural, archaeological, historic and/or heritage resources.

7. Access and Circulation

The Greenway is serviced by a variety of roadways ranging from major limited-access arterials to small minor collector and connector streets. Although the major roadways, including Interstate Routes 90, 190 and 290, provide an efficient means of moving motor vehicles into and out of the region, they are not safe alternatives for use by pedestrians or those utilizing non-motorized means of transport. Many of the major thoroughfares are complemented by multi-use trails and in some cases designated bike lanes (see Figure 3), but even so there are still gaps in this trailway system.

Shoreline and waterside access is also available along the Niagara River shoreline, including marinas, street ends, parks and boat launches (Figure 4). There are many locations that provide access for shoreline fishing and public viewing.

7A. Impacts to Access and Circulation - Implementation of the Plan, particularly through improved connectivity and enhancement of trails, water, and gorge access will result in significant beneficial impacts to users of the Greenway. More effective and consistent signage

and wayfinding tools also will be a beneficial impact resulting from the Plan. Not only will vehicular and pedestrian access be improved and made safer in general, handicapped access opportunities will also be strongly encouraged.

Impacts associated with increased traffic volumes and impaired traffic circulation by future Greenway projects will be addressed on a project-specific basis. Since a primary tenet of the Plan is to encourage pedestrian and bike path access to the Niagara River and points within the Greenway, a significant increase in vehicular traffic will be discouraged. However, it is likely that as development projects become realized and tourism/public use of the Greenway expands, that some increase in traffic and need for parking near destinations or key linkages will result on a localized, site-specific basis (e.g. vehicular access to and parking for an Underground Railroad Museum or at the connection with the Erie Canal Heritage Corridor). It is expected that this increase will not be significant within the Greenway, and can be mitigated through effective project siting and design. Potential increases in traffic volumes, circulation, and parking demand will be a criteria considered in funding and undertaking future projects. While increases in traffic and parking are not the desired outcome of the plan, this would be an indicator that the Plan is being effective at promoting and realizing public use/access/enjoyment of the Niagara River and that direct/indirect economic benefits are also being realized within the Greenway.

7B. Mitigation Measures – Potential impacts to traffic and pedestrian flow and circulation will be mitigated on a project-specific basis based on consultation and input from involved agencies such as NYSDOT, State Parks, County Department of Public Works officials, public safety officials, and local municipalities. The Greenway Commission will consider impacts to flow and circulation in their evaluation of proposed projects, and may request input from appropriate traffic and transportation officials. Adherence to standard designs and specifications for roads, trails, pedestrian facilities, and parking lots will be required for all proposed projects.

8. Geology, Soils and Topography

Geology

Geologic Formations - The Niagara Greenway is located within a very large geologic region which extends from Lake Michigan to Georgian Bay. The areas south of Lewiston are comprised of Silurian and Devonian middle Paleozoic rock south of Lewiston, and areas north of Lewiston contain Ordovician upper Paleozoic rock. This rock formation, along with the functions of pressure, heat and erosion, has largely led to the creation of the Niagara Escarpment. Layers of hard rock were deposited on layers of soft rock and were not horizontally aligned. Over time, the softer layers have eroded, but are protected by the harder upper layer, which causes cliff erosion. The result of this erosion is the formation of escarpments and other natural cliffs including Niagara Falls.

Bedrock - The bedrock found throughout the area is stratified limestone, dolomite and shale of the Silurian and Devonian age. The hard nature of this material has contributed to the creation of the natural features in the area including the Niagara Gorge and Niagara Falls. Other bedrock formations in the area include Onondaga limestone which extends from the City of Buffalo to Tonawanda. Akron Dolomite and Bertie Limestone formations are also found in a narrow strip just north of the Onondaga limestone. Camillus shale, Syracuse formation and Vernon shale are other bedrock types found from the Town of Tonawanda to the Town of Wheatfield, including

Grand Island. Lockport Dolomite is found from the City of Niagara Falls to Lewiston and is the hard bedrock material that forms the Niagara Escarpment.

Surficial Deposits - The surficial deposits throughout the Buffalo and Niagara Falls region can be classified according to the physiographic province of the area. This area includes the Erie Lowlands, which border and are part of the Lake Erie basin at its lowest elevations; and the Ontario Lowlands, which occupy the area south of the Lake Ontario basin.

The Erie lowlands consist of both glacially-derived deposits, such as glacial till (as terminal moraines and ground moraines), granular deposits (as kames, glacial outwash and beach ridges) and glaciolacustrine deposits (as varved silt, clay and fine sand deposits), as well as recent deposits consisting of river and stream alluvium, and recent lake and beach deposits. The majority of the Erie Lowlands are underlain by glaciolacustrine (lake) deposits comprised of silt and clay. A persistent, linear beach ridge is also present as the southeast border of the lake deposits and represents the ancient shorelines of glacial lakes which formerly occupied the Lake Erie basin. This southwest-northeast trending ridge actually consists of two parallel ridges from the State line northeast to Cattaraugus County. At this point, the two ridges coalesce to become one ridge that continues on to the northeast and "inland" all the way to the vicinity of Alden in Erie County. Bedrock is exposed within some of the major southeast to northwest flowing streams that discharge into Lake Erie, such as along Cattaraugus Creek, Silver Creek, Chautauqua Creek and Twenty Mile Creek, as well as in bordering or flanking upland areas near Irving and Silver Creek extending into southern Erie County.

The Ontario Lowlands consist primarily of glaciolacustrine lake silts, clays and fine sands, with major areas overlain by glacial till or ground moraines. The province also contains several notable east-west oriented linear surficial deposits consisting of either moraines (glacial ice-front deposits) or beach ridge deposits. One prominent terminal moraine runs across the Western Region, from the Niagara River near Lewiston Heights, eastward to Lockport and into Orleans County. Similarly, a prominent beach ridge runs east, from a point opposite Queenston in Canada, to the eastern end of Orleans County.

Minor deposits of sand and gravel are found in localized, glacially-related ice contact and outwash deposits. Recent sand and gravel deposits are found as alluvium in many major stream valleys.

Soils

The soil composition along the Niagara River consists of a variety of soil types, some of which exhibit hydric or partially hydric properties. The northern portion of the Greenway area from Lewiston to Niagara Falls consists of soils in the Hudson-Rhinbeck Collamer series. Heading further south to the City of Niagara Falls, Wheatfield and the Tonawandas, the area consists of soils in the Urban Land category as well as units of the Howard, Niagara, Niagara-Canandaigua and Collamer soil series. The Erie County portion of the Greenway from Buffalo to the Town of Tonawanda consists of a variety of Urban Land soil complexes. Smooth gravel fill is found along the riverfront in these areas. Several locations along the Niagara River have been filled and graded and currently contain manmade fill. Smooth gravel fill (Udorthents) is present along the entire Niagara River shoreline of the City of Tonawanda. The majority of this fill is located at the

northern tip of the City at the mouth of Tonawanda Creek. The south tip of Squaw Island, the northern tip of Grand Island in Buckhorn Island State Park and the portions of Beaver Island State Park located at the southern end of Grand Island also contain gravel deposits, although the majority of soil on the island consists of various poorly drained clay soils exhibiting hydric properties. The soils found near the river on Grand Island are more varied. The most abundant soils in this area are Raynham silt loam and Schoharie silt loam.

Many of the soils in the inland areas not immediately adjacent to Lake Erie or the Niagara River tend to be well drained with slopes ranging from 0 to 25 percent and a depth to bedrock of greater than 60 inches. Soils directly adjacent to Lake Erie and the Niagara River tend to exhibit different properties and have moderate to high susceptibility to water erosion and low susceptibility to wind erosion. These soils also tend to have a higher potential for surface runoff. On Grand Island, soil complexes vary in susceptibility to erosion. None of the soils identified in Niagara and Erie Counties are subject to wind erosion due to the coarse fragments on the surface or because of surface wetness.

Topography

The topography of the land adjacent to the Niagara River is relatively flat, except for the Niagara Gorge and the Niagara Escarpment. The flat land corresponds to the urban land use pattern that is present along the upper Niagara River from Buffalo through the City of North Tonawanda and the City of Niagara Falls. The steepest slopes are found from Niagara Falls to Lewiston along the Niagara Gorge and edges of the Lower Niagara River. The Niagara Escarpment forms an area of steep slopes south of the Village of Lewiston, and reduces in elevation to northern Lewiston and Porter, where the topography returns to a relatively flat expanse.

Lake Erie's ordinary high water elevation is 573.4 feet based on the International Great Lakes Datum (IGLD). Lake Erie drains into the Niagara River which falls 14 feet in elevation before it reaches the brink of Niagara Falls. At Niagara Falls, the Niagara River descends 212 feet in elevation where it travels northward toward Lake Ontario via the deeply incised rock channel of the Niagara Gorge. From the base of Niagara Falls, the lower Niagara River descends another 95 feet before reaching Lake Ontario. Lake Ontario is at an elevation of 247.3 feet, IGLD.

8A. Impacts to Geology, Soils and Topography - Implementation of the Greenway Plan will not result in any impacts to geologic resources, soils or topography in the project area. Minor soil erosion may occur during construction of projects and activities funded under the direction of the Greenway Plan (i.e. trails, wetland enhancements, etc), however these impacts are considered temporary and minor, and can be avoided or mitigated via typical soil erosion and sedimentation control measures during ground disturbance and construction activities. Implementation of those portions of the plan that target corrective measures for erodible shorelines will reduce erosion, sedimentation and turbidity providing incremental improvements in overall water quality and habitat value.

8B. Mitigation Measures - Since the adoption and implementation of the Greenway Plan will not result in significant adverse impacts to soils, geology or topography, no mitigation measures are necessary. For individual projects, Best Management Practices will be followed for all construction and ground disturbing activities in order to avoid or minimize soil erosion.

Mitigation of short term construction impacts would be accomplished through adherence to DEC's stormwater management and erosion and sediment controls.

9. Water Resources

The Niagara River is the main outlet for Lake Erie and four other Great Lakes. The river flows roughly 37 miles before entering Lake Ontario. The Niagara River has an average flow of 212,300 cubic feet/second, providing 83% of Lake Ontario's tributary flow. Flow rate ranges from 4 to 8 miles per hour (FERC 2006). Although water resources in the Niagara River are influenced by drainage and surface water discharges from both the US and Canadian side of the border, this Generic EIS focuses on water resources on the US side of the border.

In the United States, the federal and state government separates various watersheds into Hydrologic Unit Codes (HUCs). These HUCs provide a geographic categorization of various water resources into hydrologic units. The main HUC for the river, Lake Erie, drains an area of approximately 263,700 square miles. The other HUCs that drain into the Niagara River from the US side of the border include Buffalo-Eighteenmile and the Niagara (Tonawanda Creek and surrounding tributaries). The Buffalo-Eighteenmile HUC drains the land areas in New York State in the vicinity of the city of Buffalo (Buffalo River) and southern Erie County (Eighteenmile Creek). The major tributaries include Buffalo River and its major tributaries, Cazenovia and Cayuga Creeks, Smokes Creek (south of the Buffalo Outer Harbor) and Scajaquada Creek (in the northern portion of the HUC). The Niagara HUC drains the city of Niagara Falls and the surrounding areas, and includes the following major tributaries: Tonawanda Creek/Erie Canal, Cayuga Creek, Gill Creek, and Fish Creek.

Groundwater

The principal aquifer that is located along the Niagara River is the New York and New England carbonate rock aquifer. This aquifer exists within the boundaries of the City of Buffalo and extends from the Town of Wheatfield to southern Lewiston. The three bedrock aquifers located within the principal aquifer are the limestone aquifer occurring in the Onondaga Limestone, the Akron Dolomite, and the Bertie Limestone; Camillus aquifer occurring in the Camillus Shale formation, the Syracuse Formation, and the Vernon Shale; and the Lockport aquifer occurring in the Lockport Dolomite. In general these aquifers only yield small to moderate quantities of water, and are not used for significant water withdrawals, particularly within the Greenway boundary, since the Niagara River provides an abundant surface supply.

Surface Water

As mentioned above, there are three main watersheds (hydrologic units) included in the Greenway. Surface waters within the project area include flowing and non-flowing systems. Primary surface water resources include Lake Erie, the Niagara River, the Black Rock Canal which is the receiving water body for drainage from Scajaquada Creek, Buffalo River, Tonawanda Creek, Lake Ontario and intermittent drainages (see Figure 5).

NYSDEC classifies all larger surface waters of the state to assist in water quality management. This classification scheme is based on physical, chemical, and biological characteristics that take into account economic and social considerations (NYSDEC 2004). The main classifications of

waters in the Greenway include: Class A waters (waters that serve as a source of water supply for drinking or food processing purposes, contact recreation, and fishing), Class B waters (waters that serve as contact recreation and fishing), and Class C waters (waters that serve as a location fish and have the potential for some contact recreation). In addition, if waters support various species of trout, or support trout reproduction, they are given an additional t or ts, respectively, in their classification.

In addition, to satisfy Clean Water Act (CWA) requirements, the NYSDEC Division of Water released a 2004 summary of the public health of waters in New York State (NYSDEC 2004). This report provides a list of the waters that are on the Priority Waterbodies List in the Niagara River/Lake Erie Basin. About one-fourth of the waters are listed as either not supporting intended-uses or having minor impacts or threats to water quality and 16% are considered *Impaired*, which frequently do not support appropriate uses. The majority of the shorelines of Lake Erie, Lake Ontario and the Niagara River located within the Greenway are considered *Impaired*, due to toxic/contaminated sediments. There are no waters within the Greenway that are considered *Precluded*, which are waters which do not support appropriate uses. In some instances, there is insufficient data to characterize the impairments of a waterbody; in those instances, the waterbody is listed as needs verification.

There are 24 permitted stormwater discharge points along the Niagara River, Little Niagara River (the Niagara River portion on the north side of Cayuga Island) and the Cayuga Creek. These discharges often contain outflows that are a combination of stormwater and raw sewage overflow that may or not be functioning under the terms and conditions of a discharge permit. Seventeen discharge points are associated with the City of Niagara Falls.

Major surface water bodies and streams along the US side of the Niagara River include:

- **Lewiston Power Reservoir -** The Lewiston Power Reservoir is an artificial reservoir located in the Town of Lewiston. The reservoir is supplied by two water intakes located in the City of Niagara Falls on the upper Niagara River. The water enters the Lewiston Pump Generating Plant and is released into the Forebay that feeds the Robert Moses Niagara Power Plant. The Robert Moses Niagara Power Plant uses the water to generate power and is returned to the lower Niagara River, 4.5 miles downriver from Niagara Falls.

- **Ellicott Creek** - Ellicott Creek is tributary to Tonawanda Creek and then the Niagara River. It originates in Genesee County and flows through northern Erie County. The creek joins Tonawanda Creek and the Erie Canal and empties into the upper Niagara River forming the boundary between Erie and Niagara Counties. The lower reach of Ellicott Creek is classified as Class B waters, by the NYSDEC, at the mouth where it enters Tonawanda Creek. The NYSDEC has designated the lower portion of Ellicott creek as *Impaired* waters, which are those that frequently do not support appropriate uses. The upper reach of Ellicott creek is classified as Class C waters and the water quality is being verified by the NYSDEC.

- **Niagara River/Black Rock Canal -** The Niagara River conveys flow from Lake Erie to Lake Ontario and is approximately 37 miles in length. The Black Rock Canal was built along the east bank (right descending bank) of the Niagara River for the purpose of providing safe navigation around the rapid near the present day Peace Bridge, and extends from the Buffalo

Outer Harbor for 3.5 miles to the northern end of Squaw Island. The canal is defined by the eastern shoreline of the Niagara River and a break wall, which runs roughly parallel to the shoreline. The northern terminus of the Black Rock Canal ends at the Black Rock Lock which is operated and maintained by the US Army Corps of Engineers. The canal receives inflow from the Buffalo River, numerous stormwater outfalls and all of the drainage from Scajaquada Creek. This Class C waterbody is listed as impaired for metals, but is listed as being verified by the NYSDEC (NYSDEC 2004).

- **Buffalo River** - The Buffalo River empties into Lake Erie at the head of the Niagara River. Its watershed drains an area of 446 square miles in the counties of Erie, Genesee, and Wyoming. The main stem of the river is approximately 8.5 miles in length and extends from the mouth of Cayuga Creek to the confluence with Lake Erie. Water from the Buffalo River directly enters the Niagara River and the Black Rock Canal. The Buffalo River is classified as Class C waters, by the NYSDEC. Based on the magnitude of the flow of the Niagara River, the discharge from the Buffalo River is insignificant. However, the Buffalo River is a source of contaminants. The lower 6 miles of the river, including the City Ship Canal and the lower portion of Cazenovia Creek are classified by the USEPA as one of the 43 Great Lakes Areas of Concern (AOC); areas that are severely degraded geographic areas in the Great Lakes Basin (USEPA 2006). The NYSDEC also rates the Buffalo River as an Impaired waterway, that frequently does not support appropriate uses. The Buffalo River and its sediments have been impaired by inputs from inactive hazardous waste sites, combined sewer overflows (CSOs) and other point and nonpoint sources of pollution. The major sources of contamination in the Buffalo River AOC include contaminated bottom sediments and non-point source pollution (Niagara Riverkeeper 2006); contaminants of concern include: PCBs, PAHs, heavy metals, and industrial organics.

- **Tonawanda Creek** - Tonawanda Creek is a major tributary of the Niagara River. The creek meanders for over 90 miles and drains nearly 650 square miles of land in five counties. It is classified as Class C waters, by the NYSDEC, where it enters the Niagara River. The waters of this creek are considered best suited for fishing and supporting recreational uses, fish propagation and survival, but other factors limit their use for these purposes. The NYSDEC has determined that the lower reach of the Tonawanda Creek is considered Impaired and frequently does not support appropriate uses. The lower middle segment of the creek has only minor impacts to water quality. However, the upper reaches of Tonawanda Creek located in Genesee County are also considered Impaired.

- **Niagara River -** The Niagara River, approximately 37 miles in length, and consists of an upper river segment and a lower river segment divided by Niagara Falls. The upper Niagara River extends 22.5 miles before reaching Niagara Falls. The section between Lake Erie and Grand Island is deep exhibiting depths greater than 20 feet and a substantial current. At Grand Island the river divides into two channels before reuniting at the Chippewa-Grass Island Pool located at the north end of Grand Island that leads to Niagara Falls. The lower river extends from the Niagara Falls to Lake Ontario, a distance of approximately 15 miles. The Niagara Gorge portion of the lower river is a mix of rapids and turbulent pools which range in depth from 35 to 200 feet (FERC 2006). From the Robert Moses Power Project to Lake Ontario the river varies in depth from less than 20 feet to a range of 30 to 150 feet in the center of the channel. The NYSDEC has determined that the entire length of the Niagara

River is considered Impaired, due to chemical contamination. PCB and dioxin contamination is reported to be the cause of the majority of the contamination in this reach; however additional chemicals such as Mirex and chlordane are also contributing factors.

The main channel portion of the Niagara River does not contain substantial deposits of the fine-grained sediments, since the high water velocities and water volumes result in a predominately scoured channel of bedrock and boulders, and gravels in slower velocity areas. The majority of the fine sediments (and locations of contaminated sediments) exist in localized sediment pockets at certain tributary mouths and nearshore areas, where slow water conditions exist and fine sediments accumulate. There is a known presence of contaminated sediment pockets which are contributing to a degradation of benthos use impairment at these areas. The USEPA and NYSDEC have identified contaminated sediments in three embayment areas namely the mouth of the Pettit Flume, 102nd Street embayment and the mouth of Gill Creek (USEPA 2006). In addition, sediment from Buffalo Harbor, the Black Rock Canal, the Riverside nearshore area, Tonawanda Channel nearshore area, Wheatfield nearshore area and the Lower Niagara River nearshore are known to contain a wide variety of organic and inorganic contaminants.

Major surface water bodies and streams along the Canadian side of the border include Lyons Creek, Ussher's Creek, Black Creek, and Frenchman's Creek.

Floodplains

Flooding is common along many of the region's rivers and streams. The100-year floodplain has been mapped for every river and stream in the region and can be found along the courses of tributaries at the northern and southern tips of Grand Island, and where the Buffalo River and Tonawanda Creek flow into Lake Erie. Large areas along the eastern segment of Tonawanda Creek are particularly prone to flooding. The existence of fluctuating water levels can be beneficial for preservation of riparian corridors, wetlands and sensitive habitats since they pose a significant constraint to development. Excessive rates of surface stormwater runoff, sediment from agriculture and construction, and the loss of vegetation pose additional threats for increased river and stream bank erosion, as well as downstream flooding potential. Figure 58 shows areas that are located within and outside of the 100-year and 500-year floodplains.

9A. Impacts to Water Resources - Implementation of the Greenway Plan will not result in any impacts to groundwater resources. Beneficial impacts to surface water resources and quality along the Niagara River are expected to result from implementation of the Greenway Plan. Funding that will be used to correct Combined Sewer Overflow (CSO) problems, eliminate or minimize point source discharges of contaminants, address issues of non-point source runoff into Niagara River or its tributaries, or that enhance the function and value of wetlands and wetland complexes would all have beneficial impacts to surface water resources. Beneficial impacts of any individual project may vary and will be dependent upon the magnitude of the problem and achieving the desired result. However, cumulative impacts of multiple projects over several years will result in significant positive impacts to water resources and quality.

Implementation of the Greenway Plan is not expected to have significant adverse impacts to floodplains. Individual projects may be located in floodplains due to the nature of the waterfront

area; however uses such as passive recreation will have no significant impact on the function of floodplain systems. In many cases active floodplains may be targeted for preservation since there continued existence with shield downstream properties from excessive damage due to flooding. If structures are necessary within floodplain areas conventional flood proofing measures will be incorporated into projects to protect property and to ensure continued function of the floodplain. The optimal approach is to ensure that permanent structures are not placed within designated 100-year floodplains of the Niagara River or its tributaries.

9B. Mitigation Measures - Since the adoption and implementation of the Greenway Plan will not result in any significant adverse to water resources, no mitigation measures are necessary. However, mitigation of short term impacts due to site-specific construction and potential project-related erosion, would be accomplished through adherence to Best Management Practices and adherence to such guidelines as DEC's stormwater management and erosion and sediment controls.

10. Wetlands

Wetlands are defined as lands where the saturation with water dictates the nature of the soil development and types of plant and animal communities on its surface (Cowardin 1979). Wetlands in New York State are regulated by the United States Army Corps of Engineers (USACE) and NYSDEC, depending upon the size and conditions of the specific wetland (see below for additional discussion). Wetlands are important to the environment because they improve water quality to surface (and ground) waters; maintain a more natural water quantity/hydrology relationship in watersheds; and provide a variety of wildlife habitats. Water quality improvements occur in wetlands as water passes through wetlands or is temporarily stored there, and sediments, nutrients, and potentially contaminants are removed from surface flow. Wetlands also provide a more natural hydrologic cycle by reducing peak flows during storm events, potentially decreasing downstream erosion, and providing for groundwater recharge in areas with favorable geology. In addition, wetlands provide a wide range of fish and wildlife habitats, and in some instances provide habitat for threatened or endangered plant or animal species.

Wetlands in the Niagara River corridor are subject to regulation by the USACE pursuant to Section 404 of the Clean Water Act and the NYSDEC under Article 24 of New York State Conservation Law. All wetlands regardless of size are regulated at the federal level. Federal wetlands are defined on the basis of three criteria namely vegetation, soils, and hydrology. When all three of these parameters are met the wetland is subject to federal regulation. New York State uses the same criteria as the federal process, but only regulates wetlands that are greater than 12.4 acres in size or are of significance in their local setting.

Several sources were used to assess the potential for wetland occurrence within the Greenway. including National Wetland Inventory (NWI) maps, NYSDEC Freshwater Wetlands maps (see Figure 5), hydric soil maps for Erie and Niagara Counties (see Figure 59), and aerial photographs of the Greenway.

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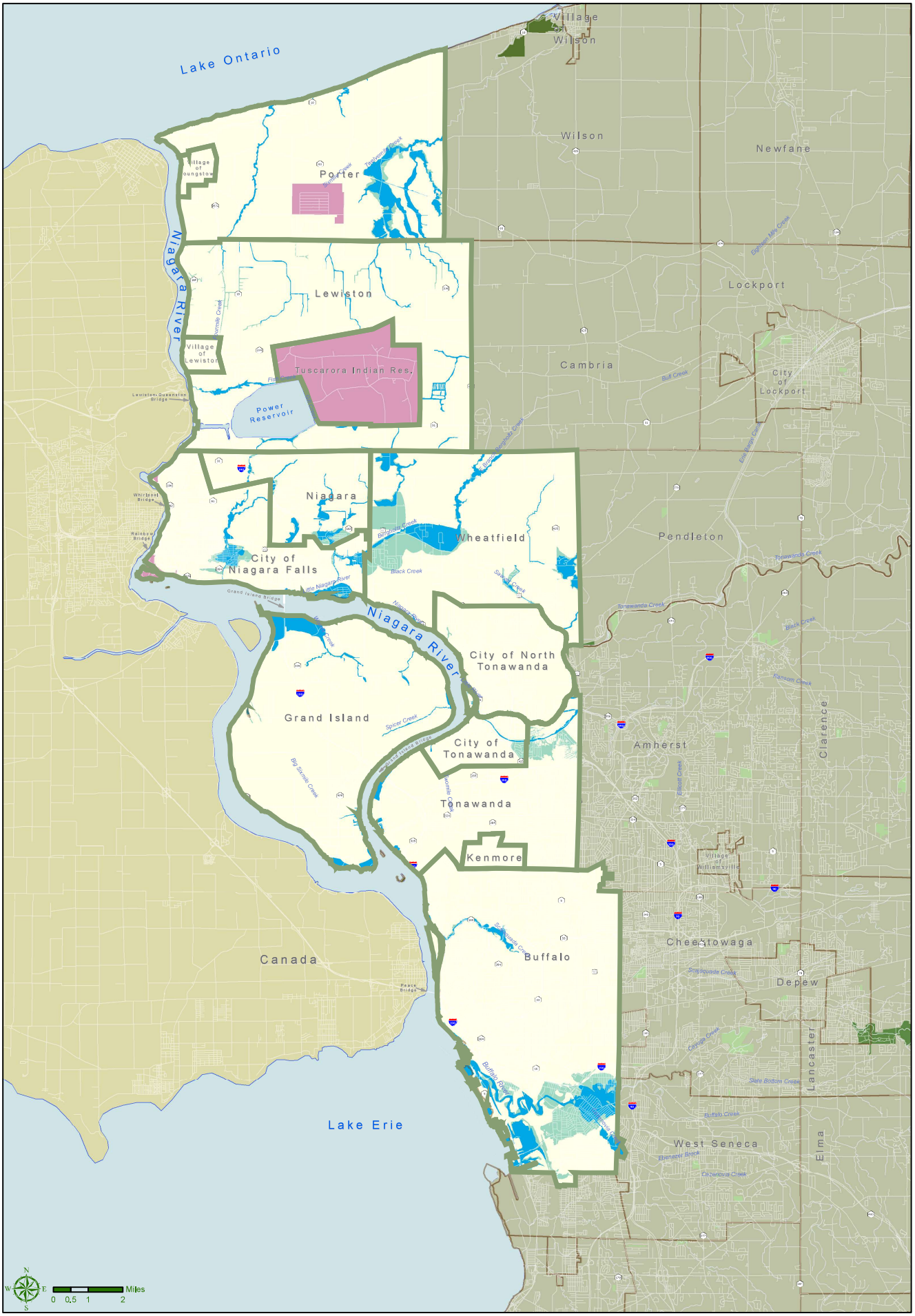

Niagara River Greenway

FEMA Floodplains

Greenway Boundary

Area Not Mapped

Flood Zone

Areas Outside 100 & 500-Year Floodplain

100-Year Floodplain

500-Year Floodplain

Data Sources: New York Power Authority, Erie County Office of Geographic Information Systems, Niagara County Office of Real Property Tax Federal Emergency Management Agency

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Figure 58

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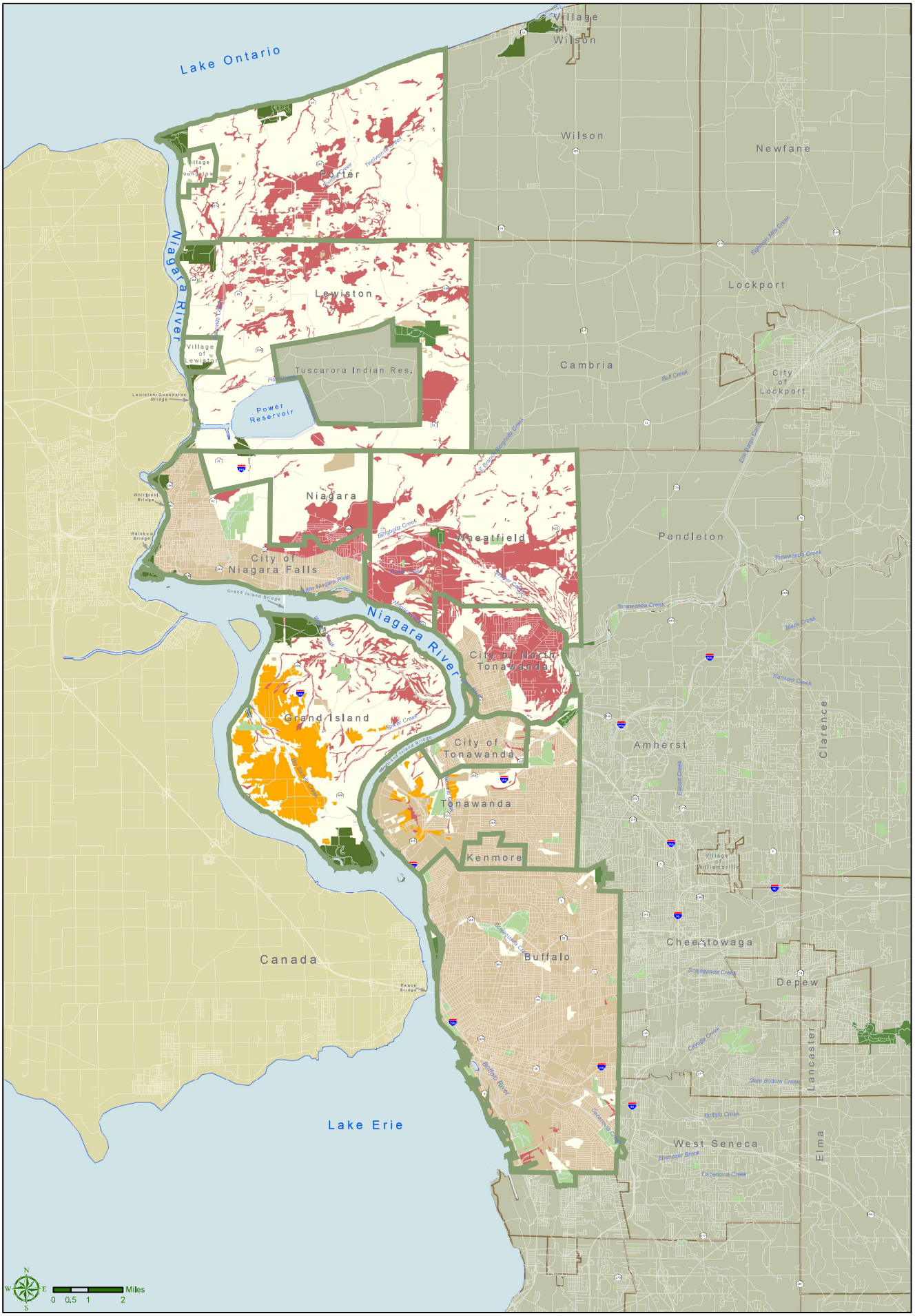

Niagara River Greenway

Hydric Soils

Greenway Boundary
Stream
All hydric
Not hydric
Partially hydric
Unknown

Data Sources: New York Power Authority, Erie County Office of Geographic Information Systems, Niagara County Office of Real Property Tax U.S. Department of Agriculture

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Figure 59

Federally Regulated Wetlands

NWI maps are often used as a tool for the preliminary screening of wetland sites. However, this mapping system cannot be used to precisely locate the limits of wetlands that are subject to regulation by the U.S. Army Corps of Engineers (COE). . The majority of mapped NWI wetlands occurs along and adjacent to the Niagara River waterfront. The river shoreline in Erie County and southern Niagara County has undergone considerable modification as a result of suburban and urban land uses, development of transportation infrastructure and the filling and bulkheading of riverfront property. While historically abundant, wetland resources within the Niagara River corridor have diminished significantly. A total of 107 wetland types were identified within the Greenway and include a mixture of palustrine emergent marshland, forested wetland, and scrub-shrub habitat. The forested/scrub-shrub wetlands habitat type was identified as being the most abundant wetland type within the Niagara River corridor. In addition, the NWI also identified 39 types of freshwater ponds, riverine, lake and wetland areas within the corridor.

To determine the location of federally regulated wetlands, a site-specific delineation must be conducted. Under this procedure, plant cover, soils and hydrologic characteristics are assessed and from these data a boundary line is drawn. The placement of dredged or fill material in wetlands cannot take place without authorization by the COE. The COE must apply specific guidelines and conduct a public interest review to determine if a permit should be issued for the filling of wetlands. In most cases developers are compelled to reduce or eliminate wetland impacts and in some cases permit requests are denied.

New York State Regulated Wetlands

The NYSDEC designates wetlands as Class I, II, or III. Class I wetlands merit the highest level of protection. Class II wetlands provide important wetland benefits, the loss of which is acceptable only in very limited circumstances. Class III wetlands supply wetland benefits, the loss of which is acceptable only after the exercise of caution and discernment. Impacts on these wetlands are permitted 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 or Class III wetland. Class II and III wetlands act as pollution or flood buffers and may provide habitat for endangered, threatened, or vulnerable species.

The NYSDEC Freshwater Wetlands maps depict the regulated wetlands within the Town of Grand Island, Town of Tonawanda, City of Tonawanda and the Town of Wheatfield. These wetlands are designated as Class I, II and III, of which Class II wetlands are the most abundant.

Unmapped Wetlands

Another way to identify potential wetland sites is to use the soils maps contained in the County Soil Surveys published by the Natural Resource Conservation Service. Since wetlands are often defined by the presence of saturated or hydric soils and related plant communities and hydrology are often associated with these soils, it is reasonable to use mapped hydric soils as a screening tool for regulated wetlands at the Federal and State levels. However, this method is not all encompassing and wetlands can occur in areas outside the mapped hydric soil units. Wetlands can also occur in areas not mapped as such by the NWI or the NYSDEC.

The soils maps indicate that the majority of the hydric soils present in the Greenway are located in the Town of Wheatfield, Town of Grand Island and the northern portion of the City of North Tonawanda. Areas further away from the river corridor in the City of Niagara Falls, Town of Lewiston and Town of Porter also contain scattered areas of hydric soil. A majority of the Greenway in Erie County and southern Niagara County is underlain by urban land that is defined as land in which 60 to 80% or greater of the surface is covered by asphalt, concrete, buildings, or other structures thus limiting the areas where hydric soils could occur.

Unique Wetland Areas

- **Riverfront Park** - Riverfront Park is located on the Niagara River in the Town of Tonawanda, just north of the Grand Island Bridge. The park's shoreline is 2,200 feet in length, extending from the foot of the South Grand Island Bridge to the industrial property just south of Isle View Park. The park consists of 19.7 acres of riparian habitat that includes a mixture of forested wetlands and floodplain forest habitat and historically was a part of the Erie Barge Canal. The Erie County Riverwalk linear park follows the eastern perimeter of this parcel and includes a spur that gives the public direct access to the Niagara River waterfront.

- **Spicer Creek -** A tributary of the Niagara River, Spicer Creek empties into the east channel of the Niagara River on the east side of Grand Island. The creek is slow and meandering with depths less than 6 feet and a heavily silted and debris laden bottom. The upper reaches of the creek are ephemeral while perennial stream conditions persist in the lower reach that empties into the Niagara River. At the creek outlet there is an extensive emergent wetland and forested wetland complex. A portion of this area comprising about 16 acres has been acquired by the New York State Department of Environmental Conservation while a larger adjacent tract just downstream is owned by the Town of Grand Island. Historically, wetlands in this area extended well into the Niagara River, but erosion caused by fluctuating water levels and boat traffic has significantly reduced their size. The shallows just offshore of the mouth of Spicer Creek are littered with the remains of old wharves and barges; and the river bottom sediments in this area are in a constant state of suspension precluding the establishment of stabilizing submerged aquatic plant beds that are typical elsewhere in the upper river.

- **Cherry Farm Park -** Cherry Farm Park is located on the Niagara River in the Town of Tonawanda, south of the Grand Island Bridge. The park consists of 53.5 acres of land including an 18-acre wetland, 2,550 feet of shoreline, a restored section of the Erie Canal and a section of the Riverwalk linear park. This parcel is a former landfill that was remediated several years ago. Wastes on the site were consolidated and capped and drainage from this area is collected and treated in accordance with regulatory requirements. Due to the need to protect the landfill cap, future use of the site will be limited to passive recreational activities.

- **Grand Island Tributaries -** The Grand Island Tributaries include portions of four major tributary streams and their associated wetlands on Grand Island. The Grand Island tributary streams on Grand Island and their associated wetlands include Woods Creek, Gun Creek, and Big Sixmile Creek. All of these watercourses are slow, meandering, and less than 6 feet in

depth, with heavily silted and debris-strewn bottoms. Portions of these tributaries are intermittent while the lower reaches exhibit flow rates that are nearly undetectable except during periods of heavy runoff.

- **Beaver Island Wetlands -** This site is located at the southernmost tip of Grand Island at the west channel of the Niagara River. This area comprises about 10 acres and is located wholly within Beaver Island State Park. The wetland contains some high quality aquatic beds and a species of iris that is not common to the western New York area. A narrow corridor of riparian habitat exists along the northern border of this wetland that has been enhanced by the addition of wildlife plantings and the use of environmentally compatible mowing practices. However, grass is mowed nearly to the water's edge along the south side of this area reducing its value to some degree. The adjacent upland to the south of this site is a designated Habitat Improvement Project that will be funded as a result of the Relicensing settlement with the New York Power Authority.

- **Buckhorn Island -** Buckhorn Island wetlands are located in Buckhorn Island State Park, at the northern end of the Town of Grand Island. The Buckhorn Island Wetlands area comprises the largest coastal wetland complex in western New York. This 500-acre area is comprised of emergent marsh and deciduous forested wetlands, associated with Burnt Ship Creek and Woods Creek. A large, shoal area containing beds of submergent and emergent aquatic vegetation lies offshore of the mouth of Woods Creek.

  Burnt Ship Creek is a very shallow backwater channel of the Niagara River, bordered by a dense stand of cattail. Woods Creek, the largest tributary on Grand Island, is a relatively broad, deep channel, exhibiting slow to moderate flows. The creek is bordered by a broad area of sedges, rushes, and grasses. Also included in the habitat unit is a relatively large, shoal area containing beds of submergent aquatic vegetation that lies between Burnt Ship Creek and Navy Island. Buckhorn Island Wetlands is located in Buckhorn Island State Park, at the northern end of the Town of Grand Island. The Buckhorn Island Wetlands area comprises the largest coastal wetland complex in western New York. This 500-acre area is comprised of emergent marsh and deciduous forested wetlands, associated with Burnt Ship Creek and Woods Creek. A large, shoal area containing beds of submergent and emergent aquatic vegetation lies offshore of the mouth of Woods Creek.

- **Strawberry Island and Motor Island** - This island complex is located in the upper Niagara River, near the southern tip of Grand Island and includes approximately 400 acres of riverbottom that supports a diverse system of submergent aquatic plant life. The shoal areas around the islands contain areas of emergent and submergent vegetation. Strawberry Island is a horseshoe-shaped island approximately 20 acres in size that contains a mixture of woodlands, emergent marshes and submerged plant beds. Strawberry Island-Motor Island is a state-designated Significant Coastal Fish and Wildlife Habitat. The area is discussed in additional detail later in this Section.

10A. Impacts to Wetlands - Implementation of the Greenway Plan is anticipated to beneficially impact wetlands, both on a system-wide basis throughout the Niagara River and on specific sites that can achieve their full biological potential with the application of enhancement or restoration measures using Greenway funding. Many wetlands have been impaired, filled or

have declined in value as a result of human intrusion and/or encroachment. The use of Greenway funds to protect, preserve, or restore impaired wetlands will restore their functions and values to their full potential and in turn will result in significant long-term beneficial impacts.

Although the actual amount of wetland area to be protected or restored under the Greenway Plan is not known with certainty at this time, it is clear that the opportunity exists to realize some dramatic and significant improvements in wetland resources along the entire Niagara River. Wetlands that will benefit from this program include those along the Niagara River itself, as well as those found along tributary corridors. The extent of positive impact also will be determined by the level of wetland degradation that has occurred, and the effectiveness and sustainability of proposed rehabilitation and restoration measures.

It is possible that site-specific and relatively minor adverse impacts may occur in wetlands areas along the Niagara River as a result of the construction and operation of some facilities relating to other aspects of the Greenway Plan. For example, completion of a trail linkage connecting two trails may require that a small area of wetland be impacted. Or, remediation of a brownfield area may result in grading or soil removal in areas currently classified as wetland. All such instances are expected to be minor and localized, and could easily be mitigated.

10B. Mitigation Measures - Potential adverse impacts to wetland resources will be evaluated on a project-specific basis and will be mitigated by appropriate delineations, avoidance or mitigation as negotiated in the NYSDEC/USACE permitting process. In addition, mitigation of short term impacts due to site-specific construction and potential project-related erosion would be accomplished through adherence to Best Management Practices and adherence to such guidelines as DEC's stormwater management and erosion and sediment controls.

11. Terrestrial and Aquatic Ecology

The ecological resources described in this section include the terrestrial and aquatic environments of the Niagara River Greenway. Vegetation and wildlife resources in this area are characteristic of the Erie-Ontario Lake Plain Ecoregion. The Niagara Region is largely formed of glacial till, which affects the development of existing biological resources, as well as the influence of human settlement in the area.

Terrestrial Environment

The terrestrial environment of the Niagara River Greenway comprises a variety of ecological communities characteristic of northern successional systems. During the terrestrial habitat mapping work associated with the relicensing of the Niagara Power Project, a total of 23 ecological communities within four subsystems were identified, including: open uplands, barrens and woodlands, forested uplands, and terrestrial cultural lands (FERC 2006). The majority of the undeveloped lands are the open upland and forested upland, characterized by successional communities. Some of the most unique terrestrial communities consist of the limestone woodland, calcareous cliff, and talus slope communities of the Niagara River Gorge along the Lower Niagara River.

As discussed, the majority of the land use in Upper Niagara River is characterized by urban, transportation, or industrial development. Consequently, the remnant undeveloped areas have

been influenced by past disturbance and typically have successional vegetation communities. In some areas there are patches of more undisturbed habitats, including beach maple mesic forests and oak hickory communities. Wildlife that inhabit these areas include whitetail deer, Eastern cottontail rabbit, grey squirrel, woodchuck, and wild turkey. In addition, based on the location and physical conditions of the Niagara River, other wildlife species include water-dependent bird species which use the Niagara River as a migratory corridor and/or staging area, a breeding area, or a wintering area.

The Niagara River corridor has been designated as a globally significant, binational Important Bird Area (IBA). The IBA program is a global initiative coordinated by BirdLife International to identify and conserve sites important to bird species worldwide. The IBA program is implemented at the provincial level in Canada and by the National Audubon Society in the United States.

The Niagara River Corridor IBA encompasses the majority of the Greenway, extending 37 miles throughout the length of the Upper and Lower Niagara River and inland, east and west of the Niagara River. A primary use zone (areas within 3.5 miles of either side of the Niagara River) has been identified by the IBA working group as having significant concentrations of use by the IBA species at and near the river. A secondary use zone includes areas of additional use and/or influence areas, which may extend for many miles on either side of the river and include areas such as sanitary landfills or possible roosting and/or nesting sites. The Niagara River corridor is recognized as important primarily for the large concentrations of gulls and waterfowl that stage in the area during migration and as a wintering site. The four species that are found in this IBA in globally significant numbers include: Bonaparte's gull, herring gull, canvasback, and common merganser. Numerous other water-dependent bird species, including colonial waterbirds, primarily herons and egrets, are found along the Niagara River corridor; and other avian species utilize the river as a migration corridor. In addition, a significant heron rookery is located on Motor Island, which provides a large wooded island habitat in the river for herons and it contains the only great egret nesting colony in upstate New York.

Several state- or provincially-listed threatened and endangered bird species are identified in the Greenway area. These include the pied-billed grebe, least bittern, black tern, common tern, bald eagle, peregrine falcon, northern harrier, and sedge wren. Bald eagles have been regularly observed along the Niagara River during winter months for a number of years and a pair nested on Navy Island in 2005 and 2006. Peregrine falcons have bred near Niagara Falls nearly annually since 1998. These birds were the first naturally established pair to breed in southern Ontario in over 50 years (Niagara River Corridor IBA Working Group 2002).

Table 9 below identifies the type of bird species found throughout the Niagara River Corridor, as provided by NYSDEC. The location of and types of bird species are described further in the discussion of Significant Coastal Fish and Wildlife Habitats.

Table 9: Sensitive Bird Areas along Niagara River Corridor

Location	Type of Bird Species
Buffalo Harbor: Donnelly's Wall, South Breakwall and Short Breakwall	Approx. 1,300 pairs of common tern
Former Bethlehem Steel Site	Gulls: Ring-billed, Herring, Great Black Backed
Motor Island	Great Egret, Black-crowned Night Heron, Great-blue Heron, Double-crested cormorant
Strawberry Island	Cormorant and Great-blue Heron
Tonawanda and N. Tonawanda Water Intake	12-75 pairs of terns
Buckhorn Weir	Historical tern colony, abandoned c. 1988. Ring-billed and Herring gulls, Double-crested cormorants
Near Crib/Far Crib (NYPA-owned parcels)	2-80 pr. Terns
Tower Island	Historical tern colonies, abandoned c. 1998
Goat Island	Ring-billed gulls, Herring gulls, Double-crested cormorants, peregrine falcon nest

Source: NYSDEC, 2006

Aquatic Environment

The Niagara River watershed encompasses the Great Lakes region upstream and including Lake Erie, and accounts for approximately 83% of the flow into Lake Ontario. The location of the Niagara River and its tributaries in the Great Lakes ecosystem influences the availability and distribution of aquatic species within the Niagara River Greenway. Both the upper and lower Niagara River and some of their tributaries support self-sustaining warmwater and coolwater fisheries (e.g. fish that reside in warm water areas or cool water areas). A total of 92 fish species have been recorded from the Niagara River (FERC 2006). Typical fish species include: smallmouth bass, walleye, white bass, yellow perch, white sucker, muskellunge, northern pike, carp, various shiners, brown bullhead, bluegill, and rainbow smelt.

When discussing the aquatic environment, the mainstem Niagara River is typically separated into the Upper Niagara River and the Lower Niagara River, as the Niagara Falls represents a significant barrier to fish and other aquatic biota distribution. Accordingly, there are some noticeable differences in the fish community in the upstream and downstream sections of the river, most notably the presence of coldwater fish (e.g. trout or salmon). A put-and-take cold-water fishery exists in Lake Erie through stocking efforts in Lake Erie tributaries by the NYSDEC. None of these fish are stocked in the Upper Niagara River, but stocked individuals have the potential to drift or migrate into portions of the river. The NYSDEC stocks a variety of coldwater fish into the Lower Niagara River and the western basin of Lake Ontario, including steelhead, brown trout, chinook salmon, and coho salmon. These stocking efforts result in large migrations of these cold water fish into the Lower Niagara River during various times of the year.

These fishery resources are an important component to the recreational nature of the Niagara River.

While there are no federally listed species in the Niagara River, several state listed species occur throughout the river and have the potential to occur in some of the Niagara River tributaries. These include the state endangered silver chub; the state threatened lake sturgeon and the mooneye; and state species of special concern including the black redhorse sucker and the redfin shiner.

Numerous benthic macroinvertebrates are found in the river, with a range of species indicative of large river systems. Studies by the NYSDEC indicate that the species diversity and assemblage has increased since the 1970s indicating improved water quality (NYSDEC 1997). Native mussels are rare in the mainstem river, which may result from the presence of non-native zebra mussels and quagga mussels (FERC 2006). There are a few remnant populations of native mussels in a Grand Island tributary and in Buckhorn Island State Park that are state listed sensitive species (FERC 2006).

New York State Significant Coastal Fish and Wildlife Habitats

The New York State Department of State Division of Coastal Resources has designated significant coastal fish and wildlife habitats (SCFWH) throughout the State's coastal areas. These areas have been identified as providing habitat diversity, a unique habitat type or support a concentration of wildlife species at certain times of year. There are 250 of these habitats throughout New York State, eleven of which are located within the Niagara River Greenway (see Figure 6). Each of the areas is listed below from south to north with a description of the location and associated unique features. A habitat narrative and map for all of the SCFWH areas follows.

- **Tifft Nature Preserve -** The Tifft Nature Preserve is located approximately three miles south of downtown Buffalo, in Erie County. It is a 264-acre nature preserve with an environmental education center, which contains a diversity of fish and wildlife habitats. Within the preserve area there is a 75-acre cattail marsh, several small freshwater ponds, remnants of an old canal, old fields, forested wetlands, and a shrub-sapling successional area. The wetlands in this area are relatively undisturbed even though they occupy lands that were extensively disturbed historically. This urban wetland is the largest of its kind along the Lake Erie shoreline. Active and vacant industrial facilities and railroad properties surround the preserve.

  The area is used as a stopover during spring and fall migrations by many species of waterfowl, shorebirds, herons, osprey, and passerine birds. Other wildlife use the preserve year round, including: muskrat, mink, raccoon, eastern cottontail, red fox, gray fox, meadow vole, common garter snake, northern water snake, snapping and painted turtles, bullfrog, green frog, northern leopard frog, and Jefferson salamander. Tifft also contains a population of burrowing crayfish one of only three known localities for this species in New York State. The freshwater ponds in the preserve contain many warm water fish species including black crappie, yellow perch, rock bass, pumpkinseed sunfish, bluegill, bullhead, carp, largemouth bass, gizzard shad, freshwater drum, northern pike, and longnose gar.

- **Times Beach Nature Preserve (Diked Disposal Site) -** Times Beach is located within the City of Buffalo just south of the Buffalo River, on the Buffalo Harbor waterfront. This approximate 55-acre area is a man-made, partially filled and diked dredge spoil disposal area that is a currently designated wildlife preserve. Times Beach contains several distinct physical zones, including: a deep water zone, a low-lying mud or silt flat zone, a gradually sloping shallow water zone and an upland zone. The lake side is surrounded by porous stone dikes, while the upland a portion of the habitat is bordered by the U.S. Coast Guard base, a marina, abandoned industrial developments, the ice boom storage area, port facilities and the Furhman Boulevard bicycle and pedestrian trail.

  The Times Beach dredged material diked disposal site is one of the few sizeable wetland areas along the New York shoreline of Lake Erie. In addition to its location on an important migratory flyway it is a significant fish and wildlife habitat. Times Beach is an important resting and feeding area for gulls, terns, shorebirds, dabbling and diving waterfowl, marsh birds, and passerines during spring and fall migrations. Many birds use this area during the breeding season including: mallard, American wigeon, ring-billed gull, common tern, least bittern, Virginia rail, sora, common moorhen, ring-necked pheasant, killdeer, spotted sandpiper, belted kingfisher, and red-winged blackbird. Many uncommon and rare birds have been observed at this location. Other wildlife found in the area include: the muskrat, raccoon, eastern cottontail, several smaller mammals, common garter snake and bullfrog.

- **Small Boat Harbor – Buffalo** - The Small Boat Harbor is located on the shoreline of Lake Erie in City of Buffalo, Erie County. This approximate 165-acre fish and wildlife habitat is located in a relatively shallow water area of Buffalo Harbor that is protected by a rock rubble mound breakwater and the perimeter of an old dredged material disposal site. The area has undergone extensive disturbance as a result of past waterfront industrial uses. The west side of the small boat harbor is open to the waters of the Buffalo Outer Harbor that includes a maintained deep draft navigation channel. Heavily used, the small craft harbor includes docks, launch ramps, and other marina support services. During the winter months this area is frequented by ice fishermen.

  The Small Boat Harbor is one of the most important fish and wildlife habitat areas in the Buffalo metropolitan region because it provides substantial protection from wave action for fish, wildlife, and supports an extensive bed of aquatic vegetation. As a result, the harbor supports a highly productive and diverse littoral community. The major adult fish found in the area include: pumpkinseed, yellow perch, brown bullhead, largemouth bass, muskellunge, carp, and freshwater drum. This is also a spawning location for centrarchids, shiners, yellow perch, carp and drum. In addition, the harbor supports a productive macrobenthic community, dominated by snails and clams. The Small Boat Harbor attracts concentrations of waterfowl and migratory birds during spring and fall migrations. The most abundant birds observed here during these periods are the diving ducks, including canvasback, scaups, mergansers, common goldeneye, bufflehead, along with mallard, Canada goose, loons, grebes, and gulls.

- **North Buffalo Harbor -** North Buffalo Harbor is located in the northeast corner of Lake Erie, at the head of the Niagara River, in the City of Buffalo, Erie County. The North Buffalo Harbor fish and wildlife habitat comprises an approximate 800-acre area of open water within the lake and upper river channel, extending roughly from the mouth of the Buffalo River to

the Peace Bridge. The eastern border of the North Buffalo Harbor fish and wildlife habitat is the Black Rock Canal, and immediately west are the Canadian waters of Lake Erie. North Buffalo Harbor supports some valuable fish and wildlife resources, despite the loss of fish and wildlife habitats in this area as a result of land development, dredging, storm protection projects, discharges of domestic and industrial wastes, and inflow of polluted upland runoff.

North Buffalo Harbor is one of the three major nesting areas of gulls and terns in western New York State. Gulls and terns nest in the cracks in concrete structures along the break walls and piers. The open water areas of the harbor are important for feeding and nesting terns, as well as wintering waterfowl. Waterfowl use this area during winter because the installation of the Lake Erie ice boom up river allows a large part of this area to remain free of ice. Concentrations of many waterfowl species, along with loons, grebes, gulls, and terns, occur in the North Buffalo Harbor during the spring and fall migration periods.

North Buffalo Harbor also supports a major urban fishery or regional significance. Predominant fish species occurring include rock bass, white bass, smallmouth bass, yellow perch, walleye, northern pike, muskellunge, brown trout and rainbow trout. No critical spawning or nursery areas have been documented in this area (NYSDOS 2004).

- **Strawberry Island and Motor Island Shallows -** This area is located in the upper Niagara River and is roughly bounded by Strawberry Island, Motor Island, and the southern tip of Grand Island. This approximate 400-acre area is located in the Town of Grand Island and Tonawanda, Erie County. This fish and wildlife habitat contains an extensive shallow shoal area that supports beds of submergent aquatic vegetation, and patches of emergent wetland vegetation in shoreline areas.

  Strawberry Island - Motor Island Shallows is the largest area of riverine littoral zone in the Niagara River. Riverine littoral zones, which are rare in the Great Lakes plain ecological region, are extremely valuable fish and wildlife habitat. The shallows are one of the most productive fish spawning areas in the upper Niagara River for small mouth bass, yellow perch and various other resident freshwater fish species. One of two principal spawning grounds for muskellunge in the river is located within the shallows.

  The Strawberry Island and Motor Island Shallows area is considered to be one of the most important waterfowl wintering areas in the northeastern United States. This area also serves as a major feeding and resting area for diving ducks, including, common mergansers, red-breasted mergansers, common goldeneye, canvasbacks, scaup, and bufflehead. Waterfowl use of the area during winter varies each year based on the extent of ice cover throughout the region. Concentrations of waterfowl also occur in the area during spring and fall migrations. Summer use of the area by wildlife is not known to be as significant.

- **Buckhorn Island Tern Colony** - Buckhorn Island Tern Colony is located at the northern tip of Grand Island, Erie County, and in the City of Niagara Falls, Niagara County. This fish and wildlife habitat consists of several man-made structures located within the Tonawanda Channel of the Niagara River, which consist of an approximate one-quarter mile long rock and boulder dike, and two transmission tower footings. These structures are isolated from the mainland, and are flat and gravelly, with little vegetation.

The Buckhorn Island Tern Colony encompasses a small group of man-made channel structures that do not represent an unusual ecosystem type, but provide valuable habitats for terns and gulls. These structures serve as a major nesting site for common terns, ring-billed gulls, and herring gulls. The gull and tern colonies present here are one of only three active gull and tern colonies in western New York. There are no significant human use activities associated with the Buckhorn Island Tern Colony (NYSDOS 2004).

- **Buckhorn Island Wetlands** - This fish and wildlife habitat is located in Buckhorn Island State Park, at the northern end of the Town of Grand Island, Erie County. Covering approximately 500 acres, the area consists of emergent forested wetlands associated with Burnt Ship Creek and Woods Creek; and a large, shoal area containing beds of submergent aquatic vegetation. The land adjacent to this habitat consists of undeveloped forestland and fields in various stages of ecological succession.

  The Buckhorn Island Wetlands area is the largest coastal wetland complex in western New York. The habitat includes the only undeveloped marsh of significance located on the river and a major riverine littoral zone (NYSDOS 2004). These wetlands serve as feeding, resting and breeding areas for ducks, herons, coots, moorhens, and rails. During spring and fall migrations considerable numbers of waterfowl also occur in the area. Other wildlife species in the Buckhorn Island Wetlands and Woods Creek and, to a lesser extent, Burnt Ship Creek, include muskrat, mink, raccoon, and white-tailed deer.

  The creeks within this area provide extensive and valuable littoral habitat that is used by warmwater fish species of the Niagara River. Woods Creek contains significant concentrations of spawning northern pike from February through April, with many remaining until July. The littoral area between Burnt Ship Creek and Navy Island is a principal spawning ground for northern pike and muskellunge, and also one of the most productive smallmouth bass spawning areas in the upper Niagara River. Other warmwater fish present in the creeks include the yellow perch, black crappie, bullhead, rock bass, white sucker, and carp.

- **Grand Island Tributaries** - The Grand Island Tributaries extend from the Tonawanda and Chippawa channels of the Niagara River into the Town of Grand Island, Erie County. Portions of four major tributary streams and their associated wetlands on Grand Island make up this fish and wildlife habitat. These streams include Woods Creek, Gun Creek, Spicer Creek, and Big Sixmile Creek, which are slow, meandering, and less than 6 feet deep, with heavily silted and debris-strewn bottoms. Also included in this habitat is a 10-acre wetland in Beaver Island State Park which opens directly into the Niagara River.

  The Grand Island Tributaries are similar to the majority of Niagara County stream ecosystems, but are the least developed of those which drain into the Upper Niagara River. The five areas which comprise this habitat are an integral part of the upper Niagara River ecosystem and provide important spawning and nursery areas for warmwater fish species, especially northern pike. Locally significant use of these areas may occur, including nesting by mallard and wood ducks, feeding or resting by migrant waterfowl, and year-round habitation by muskrat and raccoon.

- **Buckhorn Island and Goat Island Rapids** - This zone is located between Grand Island and Goat Island, in the City of Niagara Falls, Niagara County, and the Town of Grand Island, Erie County. This 850-acre area is a wide, fast-moving, and relatively shallow section of the upper Niagara River, which extends from the Buckhorn Island water diversion structures to the Goat Island Bridge and Three Sisters Islands, including Tower Island north of the Ontario Hydroelectric project in Ontario, Canada.

  The Upper Niagara River is a unique ecosystem in the western Great Lakes region of New York State containing extensive areas of undisturbed natural habitat. The Buckhorn Island-Goat Island Rapids is part of one of the most important waterfowl over wintering areas in the northeastern United States, especially for diving ducks and other waterfowl. The Buckhorn Island and Goat Island Rapids serves as a major feeding and resting area for common and red-breasted mergansers, goldeneye, scaup, mallard, and bufflehead among other waterfowl species. During the spring and fall migration seasons a variety of waterfowl use this area. Common terns and ring-billed gulls nest near Buckhorn Island, and there is a known colony of common terns located on Tower Island. The rocky shoals and swift currents of the Buckhorn Island - Goat Island Rapids also provides a favorable habitat for fish populations, which includes spawning by smallmouth bass.

- **Lower Niagara River Rapids** - This area is located below Niagara Falls in the Niagara Gorge, between the Whirlpool Rapids Bridge and the Village of Lewiston, the City of Niagara Falls and Town of Lewiston, Niagara County. This fish and wildlife habitat is an approximately four and one-half mile segment of river channel, situated in the Niagara Gorge. The Niagara Gorge is generally characterized by steep cliffs and wooded slopes, rising over 200 feet above the river. This section of the river is very narrow, deep and fast-moving. Maximum depths range from 50-160 feet.

  The Lower Niagara River Rapids provide some unusual habitat conditions due to its natural physical environment and the effects of hydroelectric power projects on the area. The rapids support a productive coldwater fishery. The concentrations of steelhead that occur in the Lower Niagara River rapids are among the largest in New York State. Substantial numbers of coho salmon, chinook salmon, and brown trout also occur in the area during the spring and fall spawning periods.

  Development of the Niagara Falls area, including hydroelectric power projects, generally limits resident wildlife populations to only the most commonly occurring species such as red-tailed hawk, rock pigeon, downy woodpecker, blue jay, American crow, gray catbird, American robin, common grackle, song sparrow, eastern cottontail, and raccoon. In addition, however, the Lower Niagara River rapids have one of the largest winter concentrations of gulls in western New York with the hydroelectric stations in the gorge. A variety of waterfowl species also feed in the Lower Niagara River rapids during migration periods and winter, but concentrations are limited due to the lack of resting areas. Diving ducks, such as mergansers, scaup, old squaw, and common golden eye are numerous in this area.

11A. Impacts to Terrestrial and Aquatic Ecology - Implementation of the Greenway Plan is anticipated to have significant beneficial impacts on terrestrial and aquatic resources over a system-wide basis along the Niagara River, and on specific habitats and sensitive areas that will

be enhanced or improved via Greenway funding. Many ecologically sensitive areas have been lost, or have been detrimentally impacted by human activity. Use of Greenway funds to protect, preserve, or restore impaired terrestrial and aquatic resources will have a significant and long-term beneficial impact on the environment and local economy.

Although the amount of fish and wildlife habitat and resources to be enhanced or restored under the Greenway Plan is not known at this time, it is clear that the opportunity exists to realize some dramatic and significant improvements in terrestrial and aquatic resources along the entire Niagara River. The extent of positive impacts will also be determined by the degree of resource degradation and the effectiveness of proposed restoration and enhancement measures.

Beneficial impacts to restoring impaired sensitive fish or wildlife habitats include environmental, social and economic impacts. The natural environment will benefit by having improved habitat for resident and migratory birds, fish and other species. Improved natural habitats will provide for improved feeding and nesting opportunities for rare, threatened and endangered species and will improve conditions for other species that reside in the region year-round. Terrestrial and aquatic enhancements will result in beneficial social impacts as they add value to aesthetic, recreational and educational opportunities available within local communities. From an economic standpoint, habitat improvement projects will result in increased property values along the waterfront, and increased use and enjoyment of the resource by birdwatchers, fisherman, and sportsmen alike.

Many individual habitat improvement initiatives and projects intended to improve terrestrial, aquatic and sensitive ecological resources have been identified by the public and interested groups during the Greenway Planning process. Individually, these projects will result in site specific impacts that are, in general, positive. Some temporary adverse impacts may result due to construction activities and localized disturbance, but these impacts will be temporary and can be mitigated or avoided during sensitive parts of the year through the use of resource sensitive construction techniques and the scheduling of work activities to avoid spawning and migration.

11B. Mitigation Measures - As adoption and implementation of the Plan itself will not result in any significant adverse impacts to terrestrial and aquatic ecology, no mitigation measures are necessary. However, adverse impacts may result from construction activities and localized disturbance to terrestrial and aquatic habitats and ecology, but these impacts will be temporary and can be mitigated or avoided during sensitive parts of the year through the use of resource sensitive construction techniques and the scheduling of work activities to avoid spawning and migration. Mitigation of short-term impacts due to site-specific construction and potential project-related erosion would be accomplished through adherence to Best Management Practices and adherence to such guidelines as DEC's stormwater management and erosion and sediment controls.

In order to protect and preserve a significant habitat, land and water uses or development shall not be undertaken if such actions would either destroy the habitat, or significantly impair the viability of a habitat. Development of projects within the Greenway that are located in or near a Significant Coastal Fish and Wildlife Habitat are required to address potential impacts of a project on the habitat– if a federal agency permit or approval is required for the project– through the NYSDOS coastal consistency review process

E. Cumulative Impacts

A cumulative impact is one that could result from the incremental impact of a proposed action on the environment when added to other past, present or reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions that take place over time. Potentially, cumulative impacts associated with the proposed Niagara River Greenway plan include beneficial economic and tourism impacts, preservation and restoration of ecologically significant or unique areas, and enhanced access to and enjoyment of natural resources via linkages and trails. The net impact of these resources is expected to be positive in the context of past, ongoing and future projects, which may or may not be supported by Greenway funds.

Numerous planned or potential projects identified by various interest groups to date would result in social, economic and environmental impacts at varying levels both individually and cumulatively. Project specific impacts may include improved waterfront access. However cumulative impacts may result not only in benefits such as better trail linkages that provide improved waterfront access and a continuous lake to lake connection, but also provide linkages to ecologically significant fish and wildlife habitats as well as connections to cultural tourism destinations.

Following the criteria established in this Plan, Greenway-funded projects will be expected to be compatible with existing and future land uses and local development objectives. Given the annual and long-term nature of the funding and project approval process, individual projects will be scheduled or phased so that cumulative adverse impacts are minimized.

F. Irreversible and Irretrievable Commitment of Resources

Proposed projects will require the irreversible and irretrievable commitments of certain human, material, and financial resources. As described in Section 1 of the Plan, projects will involve the commitment of New York Power Authority relicensing settlement and other funds that will not necessarily be recouped over the long-term operation, maintenance and funding of the Greenway through job creation and retention. The commitment and expenditure of various resources will advance project goals; preserve, restore and enhance environmentally, locally and culturally significant areas within the Greenway; support and increase tourism/eco-tourism; support local economic development objectives; and contribute to an improved quality of life for residents within the Greenway and in the Buffalo-Niagara Region.

G. Unavoidable Adverse Effects

Unavoidable adverse impacts are defined as those that meet the following two criteria:

- There are no reasonable practicable mitigation measures available that would eliminate the impact; and
- There are no reasonable alternatives to the project that would meet the purpose and need of the action, eliminate the impact, and not cause other or similar significant or adverse impacts.

No significant unavoidable adverse impacts are expected to result from adoption and implementation of the Niagara River Greenway Plan.

Depending on the scope and location of a particular project its construction or continued operation may potentially result in localized, minor and unavoidable adverse impacts on air quality, noise, visual resources, sensitive environmental resources, and traffic and transportation. These impacts would be short-term and localized to the vicinity of the particular project, and would not be expected to impact use and quality of the Greenway as a whole. The physical alteration of sites for park, trail, greenway and/or waterway access development may cause some temporary erosion, turbidity, and sedimentation problems. These problems are generally negligible and short term especially with the systematic use of appropriate control measures and best management practice. With the expected increase in Greenway use by the public, there may be impacts such as littering, noise, and increased traffic. Appropriate mitigation measures will be employed to protect sensitive habitats and environmental resources from increased human intrusion.

Where potentially significant adverse impacts are anticipated based on the scope or location of a specific project not currently envisioned or proposed, impacts would be minimized by adherence to environmentally sound construction practices and conformance to all applicable federal, state and local regulations and guidelines. Individual projects may be expected to comply with the requirements of the State Environmental Quality Review Act, and, depending on the scope and magnitude of these projects, the National Environmental Policy Act.

H. Effects on the Use and Conservation of Energy

Depending on the nature and scope of the proposal, projects approved by the Greenway Commission will likely have minor impacts on the use of energy during construction. Construction will require the use of nonrenewable sources of energy, mostly in the form of gasoline, diesel fuel, and lubricating oils. These energy resources will be used where necessary for grading, excavation, demolition, or other activities associated with construction, operation or project maintenance.

The use of energy for project operation is negligible, and would likely remain consistent with current use. While some projects will result in energy conservation by increasing access to passive recreational opportunities (walking, jogging, hiking along newly linked paths, thereby reducing automobile use), others may result in indirect energy use. Employees, visitors, and boaters would utilize gasoline for travel and recreation; or a visitor center could require the use of natural gas and electricity for the heating and cooling of buildings. Any estimates for the energy resources or uses described above would be speculative, however they would not be considered significant based on the types of projects that have been identified to date for potential funding.

I. Growth Inducing Aspects of the Proposed Action

Funding of specific projects may induce localized growth associated with a particular destination or industry. This growth is considered positive and consistent with the economic development goal that is inherent within the Greenway Plan, and was one of the intents of the Governor/State Legislature in drafting and passing the legislation which mandated that this Plan be prepared.

It is expected that the Plan will induce growth in the tourism and related service industries, although much of the growth will be seasonal in nature. Seasonal growth would be expected in the areas including, but not limited to, eco-tourism (bird watching), cultural/heritage tourism, hunting/fishing opportunities, recreational boating, and dining/entertainment at establishments

located along the Niagara River. As the Plan is implemented and the use and viability of these destination-induced activities increases, seasonal growth would also be realized directly and indirectly via purchasing/spending of out-of the-area visitors in the areas of lodging, car rental, restaurants, and other commercial/retail and related service and entertainment industries (i.e. visiting retail outlet malls, amusement parks, casino, etc) within the Greenway communities.

Increased use/visitation within the Greenway resulting from this Plan may also result in induced seasonal growth outside of the Greenway communities. For example, visitors to attractions/destinations within the Greenway may also stay in the Erie/Niagara county area for non-Greenway activities such as to attend a professional sporting event; see a play or musical in downtown Buffalo; visit architectural gems such the Frank Lloyd Wright's Graycliff estate or the Roycroft Campus; attend the Ellicottville Jazz Festival; or follow the Wine Trail in Niagara County.

Implementation of the Greenway Plan will not result in increased residential growth in the affected municipalities. The Plan will not result in extensions of roadway, water or sewer infrastructure into previously undeveloped areas. This project will neither increase nor influence the flow of trade, goods, services or vehicles crossing any of the international bridges that traverse the Niagara River.

J. Future Environmental Reviews

There are two types of possible future environmental reviews. First, projects that are undertaken, approved or funded by a state agency or municipality are required to demonstrate compliance with the State Environmental Quality Review Act (SEQR). The site specific impacts and mitigation of these projects will be assessed individually by the designated lead agency under SEQR. The lead agencies will use the information in this Plan/GEIS as an aid in their assessment of impacts under SEQR. Such projects may be found to be consistent with the information and Findings of this Plan/GEIS and this can be so stated in the lead agency's environmental review. In the end, however, the lead agency will be responsible for compliance with SEQR and issuance of a SEQR Determination of Significance.

The second possible type of environmental review is a review that supplements this Plan/GEIS. This Plan/GEIS addresses among other items the 15 elements specified by the legislation creating the Greenway Commission. Should there, in the future, be additional elements added or significant modifications made to the elements addressed in this Plan/GEIS, an assessment would be required to determine if such change may result in a significant adverse impact under SEQR. If this is the case, a supplemental review under SEQR would be required. If the changes to the Plan/GEIS would not result in such impacts, the Commission can either issue a determination of consistency with the Plan/GEIS or prepare an environmental assessment. If the Findings from such an assessment demonstrate the absence of any significant adverse impacts, a Negative Declaration could be issued in compliance with SEQR.