

DRAFT

Technical Memorandum

ECONOMIC AND FISCAL IMPACT ANALYSIS FOR IMPLEMENTATION OF THE NIAGARA RIVER GREENWAY PLAN

PREPARED FOR THE NIAGARA RIVER GREENWAY COMMISSION

NOVEMBER 2006

Prepared by Ecology and Environment, Inc.

Table of Contents

1.0	Introduction	1
2.0	Existing Environment	1
2.1	Regional and Local Economic Characteristics	2
2.2	Fiscal Characteristics	5
3.0	Sources of Funding	5
4.0	Economic Benefit of Greenway “Implementation Concepts”	9
4.1	Description of Implementation Concepts	9
4.2	Economic Valuation.....	10
4.2.1	Macroeconomic Analysis.....	11
4.2.2	Microeconomic Analysis	13
5.0	Implementation, Operation, and Maintenance.....	18
6.0	Conclusions	24
7.0	References.....	24

List of Tables

1	Area Demographics	2
2	Total Industry Employment and Income for Buffalo-Niagara Falls, NY MSA, 2001-2004	3
3	Total Expenditures by Municipality by Major Expenditure Recipient - 2004	6
4	Cultural and Recreational Expenditures by Municipality.....	7
5	Total Revenues by Municipality by Major Revenue Sources - 2004	8
6	Niagara River Greenway Related Funds – July 2006.....	9
7	Annual User Expenditures for Seven Representative Trails/Greenways	12
8	Statistics on Values per Person per Day by Activity for the Northeast Region	16
9	Per Capita Park Expenditures by County (Erie and Niagara Counties for 2006 Budget).....	19
10	Benchmark Cities Comparison	20
11	Total Maintenance Hours per Mile by Category and Month Required the Schuylkill River Trail, PA in 2000	20

List of Figures

1	Economic Effects of Greenway Construction Expenditures	12
2	Total Economic Value Framework Including Ecological Services	14
3	Home Buyers Survey – Importance of Community Amenities: percent checking “Important” to “Very Important”	17

1.0 Introduction

The Niagara Power Project Relicensing is expected to have a significant positive impact on the economy, culture, and environment in all of Erie and Niagara counties, with the most significant impacts occurring in communities located directly along the Niagara River. As a result of the relicensing process, approximately \$450 million in funds will be available to host communities and government agencies over the next 50 years for use on various recreational improvements and environmental restoration projects. A myriad of economic, environmental and cultural benefits can be realized through effective allocation and utilization of these funds. However, the long-term operation and maintenance of the facilities constructed with these funds will have some fiscal implications for the municipalities and organizations responsible for their upkeep.

This Technical Memorandum will attempt to identify, and to the extent practicable, quantify the economic benefits and the fiscal costs associated with implementing the proposed Niagara River Greenway Plan (Greenway Plan). As part of this analysis, the Technical Memorandum will generally describe the economic and fiscal characteristics of the host counties and municipalities; discuss current funding estimates; analyze the anticipated direct and indirect economic benefits of the project; and provide an estimate of the net fiscal implications of the proposed project.

Due to the conceptual nature of the Greenway Plan, a detailed economic and fiscal analysis for specific projects will not be presented at this time. However, whenever possible, literature studies have been completed to identify level of magnitude estimates for the economic and fiscal impacts expected to occur as a result of implementation of specific demonstration concepts. As individual projects are selected, further analysis should be completed.

This Technical Memorandum is not a position paper on what is viewed as the “best” allocation of funds, but will use information and data gathered from similar established projects to document the kinds of and level of magnitude of economic benefits related to these plans.

2.0 Existing Environment

The Niagara Corridor, which follows the Niagara River running south to north from Lake Erie to Lake Ontario, traverses Erie and Niagara counties; the City of Buffalo and the City of Niagara Falls; the Tuscarora Reservation; and nine other municipalities on the American side of the river. Both counties and 11 municipalities are a part of the Buffalo-Niagara Metropolitan Statistical Area.

As noted in the 2000 U.S. Census, Niagara and Erie counties have a combined population of approximately 1,117,000 residents. 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 regional median household income was \$38,400 and per capita income was just over \$20,000. Approximately 12% of the population was identified as living below the poverty line. Demographics of the Greenway municipalities are shown in Table 1 below. The table includes data for the Tuscarora Reservation, which is located in the Town of Lewiston. As shown in the

table, most of the municipalities have higher median household incomes than the regional average.

Table 1 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%

2.1 Regional and Local Economic Characteristics

Historically, the Buffalo-Niagara regional economy was characterized by a combination of heavy industry, manufacturing, and shipping that was originally established due to its geographic location on the Great Lakes waterway and the Niagara River. The ease of transporting goods by ship via Lake Erie and the Erie Canal established the Buffalo-Niagara region as a premier industrial shipping port for the movement of the raw materials, crops and supplies from the Midwest to East Coast markets. In addition, later in the nineteenth century, the abundance of cheap hydroelectric power from power plants using the Niagara River gave energy-intensive manufacturing a competitive advantage to locate in the area.

The historical importance of shipping, heavy industry, and manufacturing to the regional economy has declined since end of the Second World War. Great Lakes transport through the Erie Canal experienced a marked decline with the construction of the St. Lawrence Seaway. Manufacturing and other heavy industries experienced a sharp decline in the Buffalo-Niagara region in the 1970's when there were industry-wide changes in the steel and petrochemical firms due to increase input costs and foreign competition.

For example, total manufacturing employment in the Buffalo-Niagara MSA declined from a high in 1970 of approximately 170,200 workers to a just under 88,140 workers in 2000 (U.S. Bureau of Economic Statistics 2006). While more recent data are not yet published, manufacturing employment in the MSA has continued to decline through the decade as a result of reorganization of the U.S. automobile industry and its suppliers.

Manufacturing activity has continued to decline in favor of service and retail trade industries. In 1970, services and retail trade industries employed approximately 92,000 and 93,000 workers, respectively. In contrast, by 2000, service industries employed 211,000 workers and the retail trade sector had 115,000 employees.

Total employment and total personal income in the Buffalo-Niagara MSA has fluctuated over the past several years, and is presented below. From 2001 to 2004 there has been an overall growth in personal income; however, during the same time total employment has remained essentially constant.

Table 2 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

According to U.S. Department of Commerce statistics on personal income by industry, the top five industry sectors where most individuals derive their income in the Buffalo-Niagara Falls, NY MSA are manufacturing, government jobs, health care and social assistance, professional services and retail trade (Bureau of Economic Analysis 2006).

Similarly, 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).

Tourism is a significant economic factor within the Niagara River Greenway. 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 U.S. Department of Commerce, Office of Travel and Tourism's Annual Survey of International Air Travelers. As stated in Section 2.A of the Plan, approximately 8 million visitors visit the 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).

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.

The region's key location and large endowment of natural resource assets benefits tourism, in particular eco-tourism and visitation based on historic cultural amenities. In addition to Niagara Falls, tourism in the region is also impacted favorably by:

- The natural resources of the Great Lakes/Niagara Falls/Niagara River,
- Proximity to Canada,
- Historic, world-renowned architecture and cultural amenities (buildings designed by Wright, Olmsted, and Sullivan);
- Historic forts and battle locations from the French & Indian War, and the War of 1812; and
- Agriculture and related eco-tourism in Niagara and Erie and farming (wine tours, etc.)

Tourism and recreational activities such as fishing, recreational boating, and wildlife viewing are also very important in the region and are specifically related to the natural resources of the Great Lakes/Niagara River. The September 2006 issue of *Outdoor Life* magazine touted the Buffalo, NY area as the number one destination for fall fishing in the country.

"Few places in America measure up to the waters around Buffalo, N.Y., for variety and quality of fishing. Within a few minutes' drive of the bustling downtown, fishermen can work the sprawling Lake Erie waterfront for smallmouth bass and walleyes; fish in the picturesque Niagara River for smallies, walleyes, trout and salmon; or tap nearby Lake Ontario for the same species. The proximity of these three diverse waterways affords Buffalo-area anglers the opportunity to catch fish in virtually any weather 12 months of the year. (Outdoor Life, September 2006)"

The local economic benefits from these industries are significant. In 2001, there were a total of 108,264 fishing licenses sold in Erie and Niagara counties. This figure 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 expended on activities related to fishing in Erie and Niagara counties during the 2001 season.

In addition to fishing, recreational boating and wildlife viewing/watching are important and directly benefit from Lake Erie, Lake Ontario, and the Niagara River. According to a 2003 report, "Recreational Boating Expenditures in 2003 in New York State and Their Economic Impacts," the Western New York area, which includes Niagara, Erie, Chautauqua, Cattaraugus, and Allegheny Counties, had an overall economic impact from recreational boating of \$159.5 million. This figure includes 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 corridor, it shows the significance of these boating activities to the overall economy.

2.2 Fiscal Characteristics

There are large variations in the size and make up of municipalities located within the Greenway. Some municipalities such as the City of Buffalo are large urban communities that have corresponding large municipal budgets. Others such as the Town of Porter are relatively small rural communities.

As shown on Table 3, municipalities within the Greenway have annual expenditures ranging from \$1.1 billion (City of Buffalo) in 2004 to just over one million dollars for many of the smaller municipalities.

Spending for recreational/cultural purposes in all cases is a relatively small portion of the municipalities' total expenditures. As with the overall expenditures, total cultural and recreational expenditures also vary greatly. 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).

How each of these municipalities chose to spend their cultural and recreational funds also varied greatly. Some municipalities chose to spend the majority of their total recreational expenditures on equipment and capital outlays while others chose to focus their spending on contractual services or personal costs. See Table 4 for a detailed breakdown on cultural and recreational expenditures by municipality for 2004.

Table 5 provides a breakdown of 2004 revenues by municipality. As shown on the table, the majority of revenue is derived from state, federal and other governmental and real property taxes. Real property taxes provide the majority of local portion of revenues. Sales tax revenue is the next largest local revenue source for most municipalities.

3.0 Sources of Funding

The settlement agreement with the NYPA stipulates a total award of \$9 million per year over a 50 year time frame to the Niagara River Greenway Fund and other related funds earmarked for projects located along the Niagara River. This equates to total outlay of \$450 million over 50 years, with a Net Present Value (NPV) of \$145,916,802. The following table breaks down the specific allocation of money into appropriate funds.

It should be noted that these funds, specifically awarded by NYPA to support the Greenway, are not the only funds from NYPA available for local projects. Other NYPA awards (e.g., Tuscarora Settlement and others) could also be used for local economic, environmental and recreational projects. The funds specifically allocated to support the Greenway should be primarily utilized for projects that are unable to be funded through the other settlement awards.

Table 3 Total Expenditures by Municipality by Major Expenditure Recipient - 2004

Municipality	Total Expenditures										Total
	General Gov't	Education	Police	Fire	Other Public Safety	Health	Transportation	Economic Assistance	Cultural/Recreational	Home and Comm. Services	
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 4 Cultural and Recreational Expenditures by Municipality

Municipality	Population	Total Cultural and Recreational Expenditures			
		Personal Services and Allocated Fringes	Contractual Services	Equipment and Capital Outlay	Total
Erie County	950,265	6,592,218	18,684,184	13,486,211	38,762,613
City of Buffalo	292,648	5,699,042	448,491	4,607,421	10,754,954
Town of Tonawanda	78,155	8,249,637	2,637,573	487,740	11,374,950
Town of Grand Island	18,621	560,282	164,166	434,362	1,158,810
Village of Kenmore	16,426	187,045	34,106	129	221,280
City of Tonawanda	16,136	483,170	162,180	36,881	682,231
Niagara County	219,846	1,445,428	1,846,578	174,494	3,466,500
City of Niagara Falls	55,593	3,298,509	1,396,138	28,034	4,722,681
City of North Tonawanda	33,262	1,577,501	477,303	338,965	2,393,769
Town of Lewiston	16,257	157,997	539,607	3,716,603	4,414,207
Town of Wheatfield	14,086	418,313	256,842	38,053	713,208
Town of Porter	6,920	82,897	172,865	0	255,762
Village of Lewiston	2,781	118,604	65,785	4,018	188,407
Village of Youngstown	1,957	81,674	64,428	24,246	170,348

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

Table 5 Total Revenues by Municipality by Major Revenue Sources - 2004

Municipality	Total Revenues						
	Real Property Taxes	Non-Property Taxes			Other Gov't Aid	Other Revenue Sources	Total
			State Aid	Federal Aid			
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 6 Niagara River Greenway Related Funds – July 2006

Package	Terms	Standing Committee	Primary Use
Niagara River Greenway Ecological Fund	\$1 million per year for 50 years NPV: \$16,179,645	NYPA DEC USFWS Nations (3) NREC/Riverkeeper NYS DOS	Ecological restoration
State Parks Greenway Fund	\$3 million per year for 50 years NPV: \$48,638,934	NYPA OPRHP	Recreational improvements and ecological restoration at state parks
Niagara County Greenway Fund	\$3 million per year for 50 years NPV: \$48,638,934	NYPA Power Coalition	Greenway development
Erie / Buffalo Greenway Fund	\$2 million per year for 50 years NPV: \$32,359,920	NYPA Buffalo Erie County Olmstead	Greenway development

Source: Summary of Greenway & Non-Greenway Settlement Agreements As Compiled by The Niagara River Greenway Commission

For the purpose of this Technical Memorandum, only expenditures from the funds identified in the table above have been used in the analysis of economic and fiscal impacts. However, it should be noted that to be most effective, local communities and groups should use the Greenway funds as seed money to tap many of the other federal, state, local, corporate, and charitable funding sources available for their specific projects. A more detailed discussion of these alternative sources is included in the Niagara River Greenway Plan.

4.0 Economic Benefit of Greenway “Implementation Concepts”

The impetus for the NYPA Greenway Funding is that there is a negative environmental and economic impact associated with having the NYPA power plant operating on the Niagara River. Some of the environmental and ecological impacts include negative effects of erosion, water quality, and water level fluctuation. Over the course of many years, this has impacted the Niagara River resource and the surrounding areas. The proposed projects, funded by NYPA settlement funds, serve to address environmental and economic/financial concerns. Through the proper planning and implementation of these funded projects, the Niagara River corridor (including its tributaries) will continue to be a valuable asset to the community and environment.

4.1 Description of Implementation Concepts

In an effort to better identify the economic and fiscal impacts of projects implemented through the Greenway Plan, five implementation concepts have been evaluated. Section 4.G of the Greenway Plan discusses these Implementation Concepts in greater detail. These concepts describe typical projects that would be implemented with the funds allocated through the NYPA Relicensing. These concepts are conceptual in nature and the information associated with each is only theoretical. The merits of actual projects will have to be reviewed on an individual basis at a later date.

1. Gateway Identification

This concept would involve such items as border crossings and connecting various municipalities to the greenway corridor. Gateways will be developed as entrances into the Greenway and as transitions through the Greenway. The gateways will communicate various themes through distinctive graphics, landscapes, plantings, architectural treatment, signage, lighting, color schemes or other methods. The implementation of a full gateway network would be coordinated with other system-wide programs including signage and graphics, interpretation and the development of multi-modal access to the Greenway, including trails, bridges, bikeways and roads.

2. Accessing, Experiencing and Connecting to the River

This concept would involve such items as clearing obstructions to the River, establishing vehicle, pedestrian, and boat access points to the River, and generally providing means for more people to enjoy the River. Currently there are several gaps in the current trail system as identified on the multi-use trail map. As this map demonstrates there is a need to further develop and take advantage of the many opportunities to access, experience and connect to the river whether by multi-use trail, canoe and kayak or merely offering an opportunity to experience the countless view sheds along the Niagara River corridor from Lake Erie to Lake Ontario.

3. Protecting, Preserving and Restoring Important Ecological Resources

This concept would involve such items as restoration of Motor Island, Strawberry Island, and Frog Island, and other environmental related restoration projects (i.e., Beaver Island Wetland Restoration). These projects would serve to improve the overall environmental quality of the Niagara River and resources associated with the waterway, and would attract more visitors to utilize these resources.

4. Linking Special Places and Destinations- “Telling the Story”

This concept would involve such items as signage and way-finding in the form of public relations and establishing a source of knowledge and information on the area. Methods utilized may include websites, advertisements, spoken word, bulletins and handouts, and landscape design such as paving surfaces, lighting fixtures, street furniture, and planting materials.

5. Heritage Tourism and Economic Revitalization

This concept would involve such items as establishing “centers” (e.g., urban hubs, ecological hubs, cultural and heritage centers, fish hatchery, Great Lakes Center, Birds of Prey Center, etc.), which would help attract, educate and inform visitors on the values of the corridor and how to respect and enjoy this resource.

4.2 Economic Valuation

Implementation of the Greenway Plan will positively impact the local and regional economy in numerous ways. These impacts will be both tangible and intangible and include the impact of construction expenditures on the local economy; the increase in tourism related to the completed Greenway; the improved recreational opportunities along the Niagara River; the expected increased housing values along the corridor; and improvements in quality of life and environmental quality in the region. Some of these impacts are easily identified and quantified, others particularly at this stage of the planning process are much more nebulous and difficult to define, but no less important.

4.2.1 Macroeconomic Analysis

Construction Expenditures

The first, most easily-quantified economic impact will result from the direct expenditure of funds in the regional economy. An increase in the regional economic output will occur as materials and services are purchased to complete projects approved by the Greenway Commission. Given the relatively common type of projects being proposed, it is assumed that the majority of the materials and labor needed to construct these projects are not highly specialized and will be purchased or hired from the regional economy. Therefore, implementation of the proposed plan would have a direct impact of increasing regional output by \$450 million over 50 years. This direct spending could be any activity from building a new parking lot, to planting trees, to efforts to control erosion, to hiring planning/architectural firms to complete the design of a bike trail. These projects will all encompass some level of spending in the local economy, pay wages to local workers, and purchase goods from local retailers and suppliers.

In addition to the direct regional economic benefits, the increase in construction/design expenditures will have a multiplicative impact on jobs, wages, and regional industrial output. As local construction firms and local suppliers are hired to complete these projects, they will need to hire more workers and/or purchase more materials. This increase in demand for additional workers and more materials would then, in turn, have a positive impact on demand for a second level of suppliers. Eventually the initial injection of funds from the construction expenditures would cycle through the economy and create a “multiplier effect” on the economy.

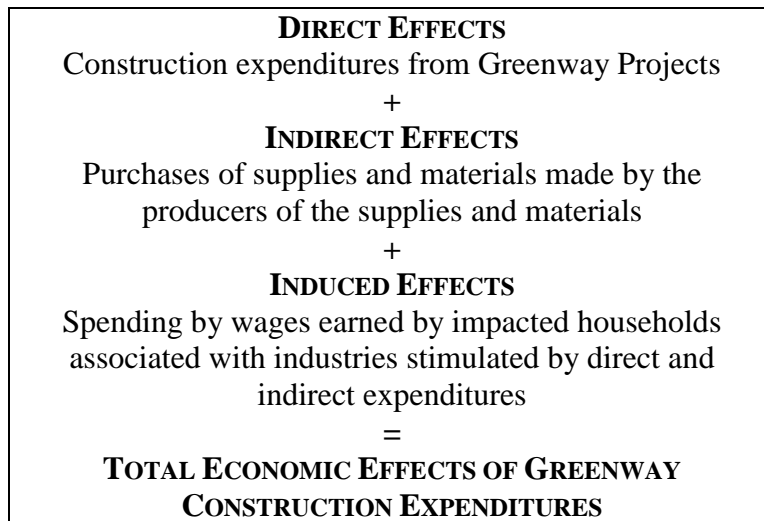
The initial economic impact of expenditures for projects within the Greenway can be summarized into the basic formula depicted in the figure below (*Direct Effects + Indirect Effects + Induced Effects = Total Economic Effects of Greenway Expenditures*). In this formula, construction expenditures would be considered the direct effects. Impacts on the secondary suppliers would be the indirect effects, and impacts from affected wage earners would be the induced effects. The total of these three categories would equate to the total economic effects on the regional economy from Niagara River Greenway fund expenditures.

Using structural multipliers from a regional input-output model developed by Rutgers University for the Buffalo-Niagara MSA, the total economic impact including the direct, indirect, and induced economic impact of the initial Niagara Greenway spending would roughly equate to \$712 million over 50 years, or \$15 million per year. The annual expenditure of \$9 million dollars would support approximately 162 jobs in the region and increase regional income by approximately \$13 million per year.

Tourism Expenditures

In addition to the direct economic benefits associated with construction discussed above, planned environmental, recreational, and aesthetic improvements will also have the positive economic impact of increasing tourism expenditures in the area. As the Niagara River is made more attractive, tourists visiting the region’s other attractions may extend their stays and additional tourists may visit the area.

Figure 1 Economic Effects of Greenway Construction Expenditures



The tourism potentially alone that would result from the proposed greenway development is significant. For example, a major National Park Service study of three rail-trails found that greenway/trail use pumped between \$1.2 million and \$1.9 million (as expressed in 1992 dollars) into the economies of nearby communities per year (New York Parks & Conservation Association, N.D.). The results of additional economic studies on seven other trails and greenways are shown on Table 7.

Table 7 Annual User Expenditures for Seven Representative Trails/Greenways

Trail Name & Location	Length (miles)	Total Annual Visitors	Expenditures by Visitor Per Trip	Annual Expenditures by Users
Heritage Trail Dubuque, IA	26	135,000	\$11.64	\$1,571,400
St. Mark's Trail Tallahassee, FL	16	170,000	\$13.93	\$2,368,100
Lafayette/Moraga Trail Berkeley Hills, CA	8	400,000	\$5.02	\$2,008,000
Little Miami Trail Warren Co., OH	27	162,000	\$14.00	\$2,268,000
Northern Central Rail Trail Baltimore Co., MD	20	450,000	\$8.95	\$4,027,930
Elroy-Sparta Trail Western Wisconsin	32	60,000	\$36.39	\$2,183,432
Katy Trail Missouri	225	250,000	\$14.30	\$3,575,087

Source: The Canalway Trail Partnership 2002.

Assuming that the Niagara River Greenway will create a similar tourism draw, implementation of the proposed plan is expected to increase spending in the tourism sector between \$1 million and \$4 million annually.

As with the construction expenditures, the expenditures made by the increase in tourism will cycle through the regional economy, resulting in even greater increases in the overall income and job creation. The direct increases in expenditure will be multiplied as the Greenway users' expenditures are cycled through the economy generating indirect and induced effects similar to those described in construction expenditure section.

4.2.2 Microeconomic Analysis

Implementation of the Greenway Plan will also have an economic impact on the region in ways that cannot be valued by changes in earnings, output or employment. These economic benefits are on less of a macroeconomic level and must be valued on a more microeconomic basis. In other words, to evaluate and quantify these benefits, one must look at individuals to assess the improvement in their quality of life that will result from implementing the Greenway Plan and then aggregate these findings for the entire affected population.

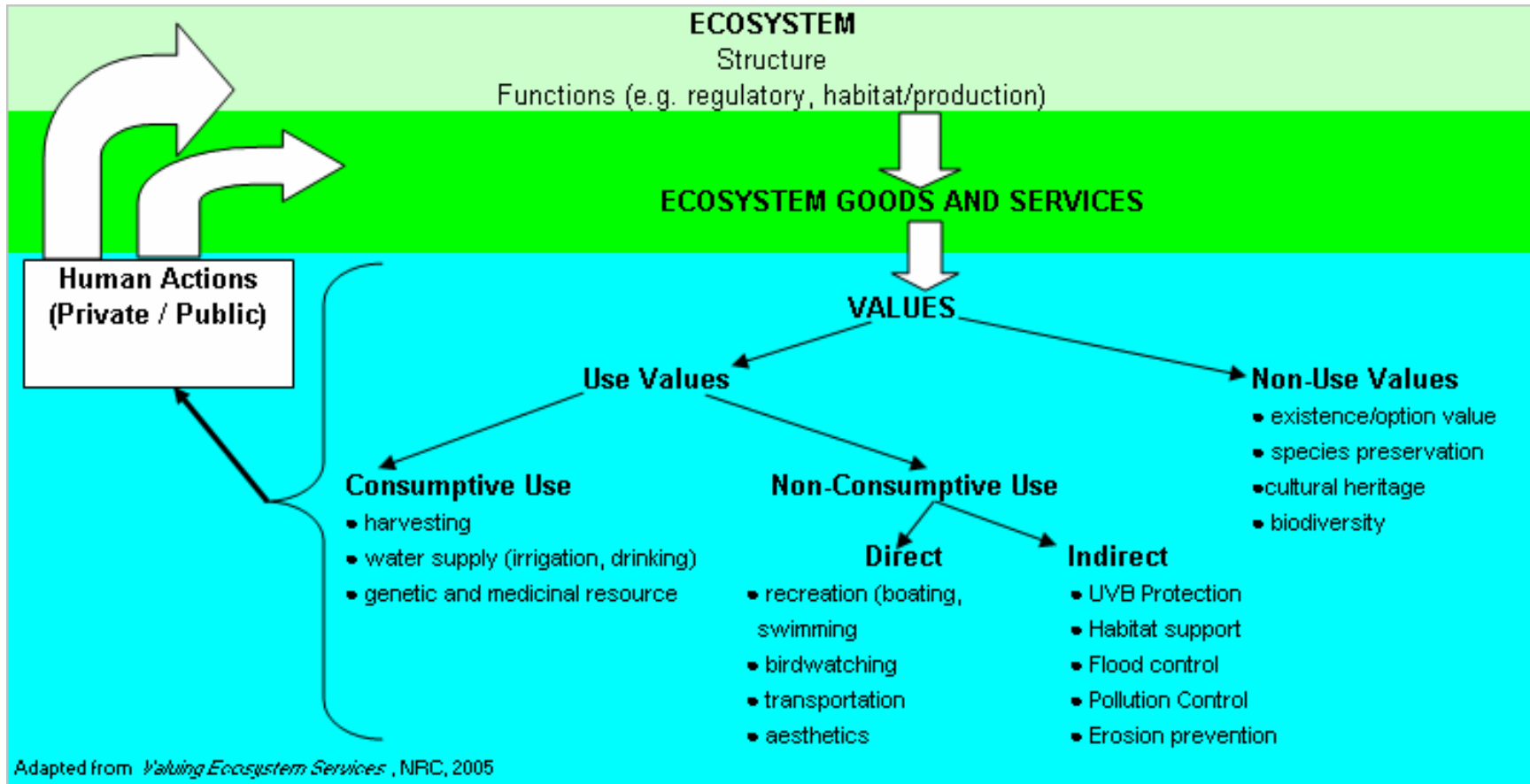
One of the methods economists use to value an ecosystem or an environmental improvement is through the Total Economic Value (TEV) Framework. This framework is a useful tool in quantifying or enumerating the value of a natural resource. The TEV framework considers the role of the environment, particularly the role of the host ecosystem structure and functions in creating goods and services that are valued by humans. The environment (ecosystem structure or asset base) represents the natural resource endowment that is vital to sustaining the eco-tourism and quality of life in the Buffalo-Niagara region.

Figure 2 shows that the environment is intertwined with human actions. While the ecosystem structure provides recurring service flows (e.g. such as breeding grounds for fisheries), these same assets can be compromised by inferior water quality/pollution, over fishing (consumptive uses) and improper stewardship (i.e. breaking up a green corridor with impervious surface).

Under TEV framework, each of the values of the ecosystems can be quantified and included in more traditional economic and financial decision-making processes. Use of the TEV framework ensures the true values of an ecosystem are explicitly considered in natural resource management decisions and the eco-systems' importance to long-term sustainability is addressed.

Economists define the total value of a natural resource area as the sum across individuals of the "use value" and "non-use values" that they attach to it. 'Use value' is the value that individuals derive from the use of an area for hiking, boating, hunting, bird watching, hiking, etc. 'Non-use values' are not associated with the actual use, or even the opportunity to use, a natural resource area. Instead non-use values are the values that individuals derive from knowing that a natural resource area exists and that it will be available for future generations to enjoy.

Figure 2* Total Economic Value Framework Including Ecological Services



*Figure is adapted from the National Research Council's report on Valuing Ecosystem Services (NRC 2005).

An entire discipline in economics is dedicated to identifying and quantifying these use and non-use values. Numerous methodologies and techniques have been developed for various situations and scenarios. Some of the most common techniques are travel cost methods which determine the value people place on a recreational resource; hedonic pricing which typically determines the value of an aesthetic improvement through analyzing changes in the housing market; and contingent valuation which is used to quantify non-use values.

While it is not necessary to quantify and value all of the use and non-use values shown in Figure 2, often just identifying the most valuable benefit stream is revealing and shows that the public return from maintaining the corridor's open space resources can be a large multiple of any future funding obligation to sustain these resources.

Figure 2 aids in identifying potential benefits that would be generated by the implementation concepts. Quantifying and monetizing these values at this stage of the planning process is a challenge. However, by merely outlining the potential use and non-use values, it is clear that the Greenway Plan represents a long-term investment in the environmental and economic sustainability of the region.

A distinguishing feature of the TEV approach to economic impact analysis relates to the appreciation of how green space can impact both quality of life issues and the fiscal performance of host municipalities and agencies charged with developing and maintaining these spaces. While there are straightforward budget implications from developing green infrastructure, the analysis also considers some of the intangible benefits from providing these amenities to resident taxpayers and visitors.

The investments within the Greenway can be expected to benefit the region by providing:

- Greater amount of open, contiguous linked space and quality of life amenities;
- Ecological improvements and greater values in ecological service flows that make the environment more productive, (e.g. improved water quality, habitat, wetlands restoration);
- Improvements in environmental quality and natural resources that attract visitors from outside the region and improve the quality of life. Examples of projects include improvements to Tiff Farm Nature Preserve, fish species spawning areas, and habitat protection/restoration for resident and migratory birds, wetland restoration, and park enhancement that will protect the local environment and bring additional tourists to the area to experience the natural resources protected through these actions;
- Enhancements to the natural resource-based recreational aspect of the western New York economy. For example, improvements to the waterways and marinas around the Niagara River region (including the Erie Canal, Tonawanda Creek, Buffalo Creek and Lake Erie and Lake Ontario) would attract additional tourists and boaters that would infuse additional monies into the local economy. These individuals would enjoy and patron local eating and drinking establishments that are created in relation to the Greenway; and
- Improvements in both commercial and resident property values for adjacent areas.

Recreational Improvements

Although access to natural resource areas, such as a park or a trail, obviously has value to individuals using the recreational area, typically those individuals incur only a nominal cost or the experience is free. Hence the amount that individuals actually pay to visit such areas does not capture the full value that they place upon these areas. This additional value beyond what individuals actually pay is known as consumer surplus. When consumer surplus is combined with any entrance fees necessary to access the resource, the true value people place on the resource for recreational use can be found. Economists have most often used the survey methods such as the travel cost and contingent value methods to estimate this consumer surplus.

The U.S. Forestry Service compiled estimates on visitors use values from various published travel cost and contingent valuation studies. The publication focused on the value per person, per day for various activities at natural resource areas. Table 8 shows the results of this study for properties in the Northeastern United States.

Table 8 Statistics on Values per Person per Day by Activity for the Northeast Region

Activity	Number of Estimates	2004 Dollars			
		Mean	Standard Error	Minimum	Maximum
Bird-watching	3	34.86	22.20	5.80	78.46
Camping	10	33.11	6.32	6.73	66.44
Cross-country skiing	3	34.60	2.82	29.70	39.49
Fishing	69	32.60	5.46	2.08	253.13
Float-boating/rafting/canoeing	6	88.32	22.93	20.08	143.50
General recreation	5	16.87	8.08	1.97	46.69
Going to the beach	22	42.60	7.03	3.78	117.82
Hiking	3	75.18	12.83	49.80	91.10
Hunting	87	47.45	4.03	4.16	250.90
Motor-boating	3	29.68	25.21	3.78	80.10
Mountain biking	1	40.93		40.93	40.93
Picnicking	2	56.45	47.51	8.94	103.96
Pleasure driving	1	21.35		21.35	21.35
Rock climbing	1	102.89		102.89	102.89
Scuba diving	14	17.92	3.43	2.81	45.00
Sightseeing	2	121.43	88.36	33.07	209.77
Swimming	7	22.21	6.14	2.20	50.10
Visiting education centers	1	6.01		6.01	3.01
Waterskiing	1	15.13		15.13	15.13
Wildlife viewing	65	31.30	2.18	2.40	96.30
Total	306	-	-	-	-

Source: Table 3, *updated Outdoor Recreation Use Values on National Forests and Other Public Lands*, US Forest Service, General Technical Report PNW-GTR-658, October 2005

As evidenced in the table, there is more value associated with many of these activities than the actual cost of participating in the activity. For example, a bird-watcher values their day watching birds at an average of \$34.86 (in 2004 dollars), even though that value is higher than what they

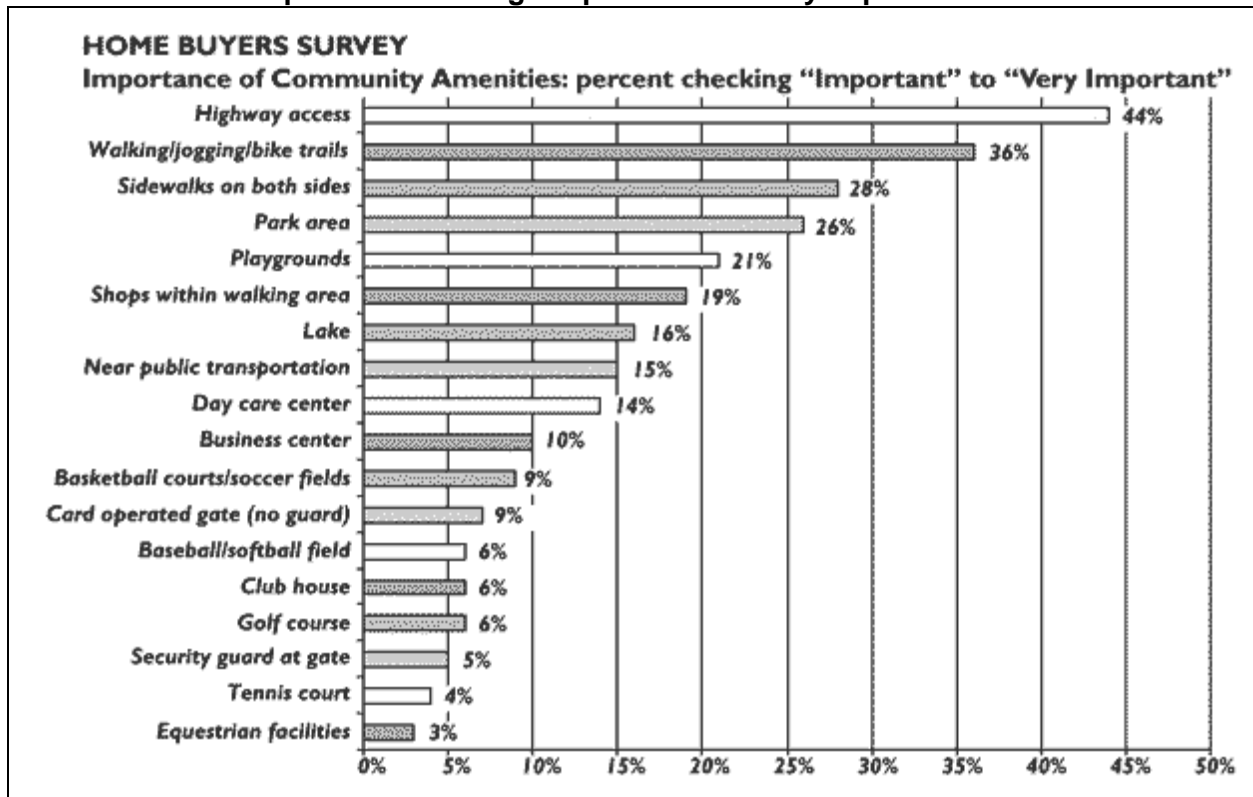
would actually need to pay in order to participate in the activity. This example can be applied to the Greenway, which is located in a globally significant Important Bird Area. As such, habitat improvements in the Greenway may not require users to spend significant dollars, but the improved recreational opportunities will greatly enhance their quality-of-life.

Property Values

A diverse mix of land uses exist along the Niagara River, including commercial, industrial, residential and recreational parcels. Most of these properties will benefit in some way from implementation of the Greenway Plan. Improvements in aesthetics, recreational resources, water quality, and flooding and erosion control will have a positive impact on the property values.

Although it is impossible to estimate the magnitude of change in value at this time, the effect is expected to be significant, particularly for residential and commercial lands. According to a 2002 survey by the National Association of Home Builders and the National Association of Realtors, the presence of walking/jogging/bike trails was one of the most significant items of a list of “importance of community amenities.” The bar chart below depicts the top rated amenities chosen during this survey

Figure 3 Home Buyers Survey – Importance of Community Amenities: percent checking “Important” to “Very Important”



Source: (<http://www.americantrails.org/resources/benefits/homebuyers02.html>).

The greater the number of these amenities is developed, the greater the increase in property value is expected. The above survey results support the assertion that improvements such as erosion control, water quality improvements, connection of biking and biking trails, and other proposed projects can lead to an increase in residential property values within the Greenway.

Quality of Life and Environmental Improvements

Environmental improvement projects within the Greenway will also have an associated non-use or intrinsic value. Even if local residents do not do anything to experience the improved environmental quality of the river, their quality of life will be improved knowing that river habitat is more pristine.

Economists divide up these non-use or intrinsic values into three main headings: option values, existence values, and bequest values. These components of non-use values are defined as the value an individual places on a natural resource that they do not directly use.

- Option value – the value of knowing that future access to the resource is guaranteed;
- Existence value – the value of knowing that a resource has been preserved, even if no use is contemplated; and
- Bequest value – the value of knowing that the resource is preserved for future generations.

While by definition these intrinsic or non-use values are difficult to monetize, some attempts have been made to place a dollar figure on these values. A study by Walsh, Sanders, and Loomis that evaluated the number of rivers in Colorado that should be protected under the Federal Wild and Scenic designation found that the use values such as recreational enjoyment accounted for only 20% of the total value placed on river preservation, while 80% of the value of the river system was as a result of the non-use values. If this study holds true in other cases, then the preservation values of an environmental improvement project can be expected to be nearly four times the values derived its recreational value.

5.0 Implementation, Operation, and Maintenance

Cost of O&M

Implementing and sustaining Greenway-related projects will entail one-time construction and implementation costs as well as annually recurring operational and maintenance (O&M) costs. The term O&M refers to the day-to-day upkeep as well as the smooth and safe functioning of the Greenway. These tangible O & M costs will be offset by economic benefits derived from the Greenway and associated development and by increased the quality of life for residents and visitors to the region. Since the proposed Greenway-related projects are only conceptual in nature at this point, it is difficult to perform a detailed analysis of the annualized O&M costs.

In place of an analysis using actual O&M costs, a “level-of-magnitude” analysis is provided to measure typical recurring costs that would be expected to occur as a result of implementation of the demonstration concepts. When actual projects are identified and reviewed, a more detailed analysis on the O & M costs should be required.

The following discussion of O & M costs is organized around the implementation concepts as identified and discussed separately in this Plan. Given the wide range of potential projects that could be funded under the Greenway Plan even under each implementation concept, basic examples will be discussed.

Implementation Concept #1 – Gateway Identification. The overall O&M costs associated with the gateway identification concept will be relatively small. This concept primarily ensures that a unifying theme is used throughout the Greenway. Once the initial design phase is completed, relatively little costs will be required to continue the use of the planned color schemes, graphics, and signage. Similarly, the design and use of a unifying architectural treatment, landscapes and plantings will also have limited long-term costs.

If, however, landscape and horticultural projects are included under this implementation concept, additional O & M costs will be required to maintain these areas. While these costs are not anticipated to significant, they would need to be evaluated on a project-specific basis.

According to the 2006 budgets for Erie and Niagara Counties, the following table presents the total amount budgeted towards operations and maintenance of public parks and green space. In both counties, the total amount spend on park O&M costs represented less than 0.5% of the total county operating budget.

Table 9 Per Capita Park Expenditures by County (Erie and Niagara Counties for 2006 Budget)

	2006 Budget for Park O&M	Total Population (2005)	Per capita spending on parks in 2006
Erie County			
Parks	2,652,303	-	-
Parks – City of Buffalo	2,670,671	-	-
Total Erie County	5,322,974	898,981	\$5.92
Niagara County	753,975	212,573	\$3.55

Source: Erie and Niagara County CAFR 2005

For Erie and Niagara Counties, \$5.92 and \$3.55 were collected and spent for operations and maintenance of the parks in each respective county per person. With the addition of the Greenway funded projects in each county, the incremental increase per person for O&M costs related to these projects will be minimal. If residents are only required to pay \$5.92 per person to currently run all the parks in Erie County, any additional resulting from the funded Greenway projects would be minimal.

It should also be noted that this per capita spending is at the very low end of spending for O&M on parks when compared with other “benchmark” cities. See the table below for other cities and their spending on park related maintenance.

Implementation Concept #2 – Assessing, Experiencing and Connecting to the Rive. The implementation of projects under this concept is expected to result in potentially substantial O & M costs to local, county, and state agencies. The majority of the projects expected to be completed under this concept are related to providing and maintaining river access and recreational trail development. Given the lack of details about the exact location and length of these trails or connections, precise O & M estimates are not possible to project at this time. However, estimates developed by the American Trails Association show that annual operation and maintenance costs per mile for an urban trail system run between \$2,500 and \$10,000 per year (American Trails 2005). A variety of factors such as climate, facilities, and complexity of the system all impact the annual costs.

Table 10 Benchmark Cities Comparison

City	Total Parks	Total Acres	Operating Budget	Capital Budget	Total Budget	Per Capita Income	Population	Per Capita spending on Parks
Chattanooga, TN	57	1,495	\$10,445,220	\$3,753,000	\$14,198,220	\$12,332	159,000	\$89
Jackson, MS	52	1,250	\$5,600,000	\$1,725,000	\$7,325,000	\$12,216	180,600	\$41
Louisville, KY	276	10,274	\$22,633,000	\$11,967,500	\$34,600,500	\$11,527	269,000	\$129
Minneapolis, MN	133	5,694	\$44,200,000	\$10,000,000	\$54,200,000	\$14,830	353,000	\$154
Norfolk, VA	42	NA	\$10,500,000	\$0	\$10,500,000	\$11,643	225,000	\$47
Salt Lake City, UT	126	1,914	\$5,700,000	\$1,500,000	\$7,200,000	\$13,482	171,000	\$42

Source: Little Rock, Parks Master Plan - <http://www.littlerock.org/ParksRecreation/masterplanmap.aspx>

Note:

* Per capita incomes taken from the 1990 census; 2000 numbers were not available at the time of comparison

To further breakdown the expected O & M costs associated with trail management the following table has been included. This table shows the total maintenance hours per mile of trail required to maintain the Schuylkill River Trail in Pennsylvania during 2000. The trail is a macadam trail that is 11.5 miles long with widths that range from 12 to 16 feet. As shown on the table trimming/pruning and safety/security were the two most labor intensive categories.

Table 11 Total Maintenance Hours per Mile by Category and Month Required the Schuylkill River Trail, PA in 2000

Maintenance Categories	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Mowing	0.0	0.0	0.0	3.1	6.8	3.6	3.9	5.6	3.3	2.5	0.0	0.0	28.8
Trimming/Pruning	1.8	0.0	8.2	5.6	17.0	8.3	7.1	14.2	8.0	7.1	2.6	0.3	80.0
Safety/Security	0.6	0.5	0.6	5.4	3.4	3.0	4.2	6.7	1.4	2.4	5.3	0.2	33.6
Trash Removal	0.6	0.7	1.6	3.7	1.3	1.7	1.8	1.3	2.0	1.8	1.6	0.8	18.8
Erosion/Stabilization	0.7	0.6	1.8	2.0	1.0	0.0	1.0	1.5	5.6	6.4	2.3	1.2	24.1
Storm Damage	1.5	7.4	3.0	2.4	0.9	2.4	0.8	0.7	1.4	0.5	0.5	0.3	21.9
Miscellaneous	1.8	1.3	3.0	2.7	2.1	2.1	1.8	2.5	1.7	4.3	1.5	0.5	25.2
Total	6.9	10.5	18.2	24.9	32.5	21.0	20.6	32.5	23.4	24.9	13.9	3.3	232.4

Source: American Trails 2006.

Note: Totals may not add due to rounding errors.

It should be noted that while the costs of trail maintenance identified above are significant, they do not all need to be borne solely by a single community. Many of the successful greenways and trails developed throughout the region have community groups that provide at least a portion of the required manpower to properly maintain their trails. Also these trails will have a region-wide impact on the economy and quality of life, therefore some of these costs could be borne by the community at large.

Implementation Concept #3 – Protecting, Preserving, and Restoring Important Ecological Resources. The majority of the total costs associated with projects under this concept would tend to be the initial up-front capital and construction costs. However, some on-going monitoring and O&M costs may be required. For projects such as wetlands restoration, on-going costs would include monitoring to ensure the effectiveness of the restoration; and maintenance to remove any invasive species that may grow in the newly restored wetland. For projects that

improve and create terrestrial or aquatic habitat areas, seasonal monitoring would be required to ensure that the project is effective and to ensure that it is not damaged by storms or other causes (e.g. terrestrial areas or by driftwood and debris flowing down the river in the case of aquatic areas).

Acquisition of conservation easements and land banking projects would have virtually no direct long term operation and maintenance costs associated with them. All maintenance costs occurring on these properties would remain the responsibility of the landowner or operator. Since it is not anticipated that large tracts of lands would be transferred to non-taxable entities, the local fiscal impacts of these projects would be negligible.

The O & M costs associated with various brownfield remediation programs and the restoration of former landfills could be significant. Routine on-going monitoring and ongoing sampling may be required to ensure that there is no migration of contamination from the proposed project areas. These monitoring costs, however, should not be additional costs since contaminant monitoring should already be occurring regardless of the greenway implications.

Finally, projects such as the correction of combined sewer overflows, repair of malfunctioning culverts to restore natural drainage and the removal of vacant commercial or industrial uses should have little or no long term O&M costs assuming the initial work was designed and constructed effectively.

Implementation Concept #4 – Linking Special Places and Destinations – “Telling the Story.” Similar to the Gateway Identification concept, many of the project costs related to this concept will be one-time in nature and involve initial design and construction. For example, landscape design, as well as the design of lighting fixtures, street furniture, and planting materials would all be upfront capital expenditures.

However, other aspects of projects that would fall under this concept would tend to be ongoing in nature. For example, implementation of outreach/education activities, such as websites, would involve ongoing costs associated with ensuring that the information on the site was still accurate and up-to-date. Advertisements, handouts, and bulletins would have to be paid for on a continuous basis. It should be noted that these costs are not typically considered maintenance costs, which are associated with built facilities or structures.

Implementation Concept #5 – Heritage Tourism and Economic Revitalization. Projects such as the development of cultural and heritage centers and interpretive centers would all fall under this concept. Operation and maintenance costs associated with these facilities could be significant as driven by a project-specific basis. However, most of these proposed facilities would have to develop a separate revenue stream to cover the large O & M costs. Entrance fees and other sources would have to be identified during the planning and design stages. Given the large nature of these projects, any future government support would be analyzed before the funding was supplied so that local representatives could make an informed decision as to the overall fiscal impact of the projects.

O&M Recommendations

Because Greenway funding is ear-marked for capital cost improvements, an implementation plan for the O&M costs associated with each project should be established. For example, 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 a visitor's center, nature/heritage centers, museums, youth camps, educational programs, commerce parks, aquariums, and marinas. Proposed projects such as these should be sustainable once the capital costs are spent for construction out of the Greenway funds. Projects that do not have user fees will be expected to meet the criteria set forth in the Greenway Plan and to be as sustainable as practical. For example, 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 feasibility, i.e., identify potential revenue streams or dedicated funding sources to cover costs.

In developing a framework for measuring and evaluating the potential, long-term O&M costs from the proposed projects, several limitations were encountered. These limitations primarily included the difficulty in applying typical 'rules of thumb' to the annual cost of these projects, because the specific details of the project, such as area of development, the combination of projects, overall size and construction costs, are unknown at this time.

To address this uncertainty, a conceptual framework of O&M costs are presented herein for evaluating typical projects proposed for the Greenway funding. Project applicants should prepare an O&M budget that considers the following costs:

- Maintenance: Routine and Remedial
- User Safety and Risk Management
- Programming and Events
- Resource Stewardship and Enhancement
- Marketing and Promotion
- Oversight and Coordination

Maintenance. For developed parkland, the sponsor or partnering organization should project an average of \$3,000 per year for a maintenance budget per acre (<http://www.littlerock.org/ParksRecreation/masterplanmap.aspx>). If a park is 10 acres and is 60% developed, this assumes that 6 acres would require maintenance at a price of \$18,000 annually. Utilizing the funding mechanisms described above, the sponsoring agency or partnering organization will administer the proper funds to maintain the long-term sustainability of the park.

Similarly, according to an article on the American Trails website *Trail Maintenance and Management*, an urban trail system can experience O&M costs of between \$2,500 and \$10,000 per mile, but can vary greatly due to conditions, climate and complexity (there are some quotes of only \$300-500 per mile for more primitive trails). If a 20-mile trail system is established through the Greenway funds, this would result in an estimated \$50,000 and \$200,000 annually for O&M. This is an example where it would be prudent for municipalities and organizations to develop partnerships and cooperative public-private ventures that would ease the financial

burden of funding these O&M costs. Since a 20-mile trail system would most likely cross multiple municipal borders, there should be a coordinated effort in maintaining the trail by local governments within all of the host municipalities.

Again, there are multiple local, state, and federal funding agencies that would aid in covering O&M costs associated with these projects. The sustainability of any particular project will be dependent on no single municipality being burdened with excessive annual O&M costs.

User Safety and Risk Management. For projects requiring safety precautions and basic patrolling and risk management, the sponsoring agency (in most cases the municipality) should consider adopting and outlining a safety program to this new feature of their community. This could include patrolling a new stretch of a bike trail or a park, or the enforcement of fishing regulations in certain areas along the Niagara River. Some agreement should be in place to ensure that public safety services will be provided, by whom and how these costs will be covered.

Programming and Events. Projects that involve ongoing programming and multiple events are in most cases those that would charge a user or entry fee to experience the event. The cost of O&M related to programming and events should be absorbed by these associated fees and should not impact the local municipality. Examples of programming and events include special presentations at visitor or nature centers.

Resource Stewardship and Enhancement. Resource stewardship is the long-term care and oversight of the natural or ecological resource. This, along with enhancement of the resource, would be under the management of a local sponsor or partner. Ensuring the ongoing stewardship of a natural resource would become the responsibility of the applicant (or their designee) to monitor, to ensure the longevity of the resource, and to monitor the resource following the project construction. Additional O&M funding for these projects would be available through local, state, federal, and other grant programs.

Marketing and Promotion. Marketing and promotion are essential components of the success of a project and are a part of the O&M associated with a resource. Agencies such as local, county, or state Parks Departments, Convention and Visitors Bureaus, local Chamber of Commerce organizations, and economic development entities generally provide funding for the purpose of informing and attracting people to an area or project to experience the amenities an attraction(s) has to offer. Partnership or sponsorship programs with these types of organizations in applying for Greenway fund should be strongly encouraged.

Oversight and Coordination. Similar to maintenance and stewardship, oversight and coordination will be important to the effective ongoing management of Greenway-funded projects such as trails, parks, or other waterfront facility or attractions. Achieving long-term project-specific goals and partnerships with other organizations and agencies can provide the framework for the ongoing effectiveness of Greenway implementation that will be valued by the community.

6.0 Conclusions

As described in this Technical Memorandum, implementation of Greenway-funded projects will result in tangible and intangible impacts on the local economy, including increased construction expenditures; increased in tourism related to the Greenway; improved recreational opportunities along the Niagara River; expected increased housing values along the corridor; and improved quality of life and environmental quality in the region. The long-term operation and maintenance of Greenway-funded projects will have some fiscal implications for the municipalities and organizations responsible for their upkeep. These fiscal impacts can be offset by development of sustainable projects and proper planning/analysis of individual projects. Local communities and groups should use the Greenway funds as seed money to a tap many of the other federal, state, local, corporate, and charitable funding sources available for their specific projects. Overall, implementation of Greenway-funded projects is expected to have a significant positive impact on the economy, culture, and environment within the Greenway and Buffalo and Niagara Counties.

7.0 References

American Trails. 2006. Accessed 2006. www.americantrails.org

Canalway Trail Partnership. 2002. "Saratoga County, NY: Champlain Canal Trail Concept Plan". Albany, NY.

City of Little Rock, AR. 2006. Accessed 2006.
www.littlerock.org/ParksRecreation/masterplanmap.aspx

Economic Research Associates. August 2004. Market Analysis for Tourist Attractions Niagara Falls, NY. Los Angeles, CA.

Erie County, NY. 2006. Comprehensive Annual Fiscal Reports (CAFR) for 2005.

Gaming & Resort development, Inc. June 2005. Seneca Niagara Casino Fiscal & Economic Impact on Niagara Falls, NY. Rochester, NY.

National Park Service, Rivers, Trails and Conservation Assistance Program. 1995. "Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors."

National Research Council. 2005. "Valuing Ecosystem Services."

New York Sea Grant. N.D. "The Economic Contribution of the Sport Fishing, Commercial Fishing, and Seafood Industries to New York State. Prepared by Techlaw, Inc.

New York State, Office of the Comptroller. 2006. Access 2006.
www.osc.state.ny.us/localgov/datanstat/findata/index_choice.htm

New York State Parks & Conservation Association. N.D. "Greenways & Trails: Bringing Economic Benefits to New York.

Niagara County, NY. 2006. Comprehensive Annual Fiscal Reports (CAFR) for 2005.

Outdoor Life. September 2006.

Recreational Boating Expenditures in 2003 in New York State and Their Economic Impacts.

University of Rutgers. N.D. R/Econ Economic Input-Output Model.

U.S. Department of Agriculture, National Forestry Service. 2005. "Updated Outdoor Recreation Use Values on National Forests and Other Public Lands."

U.S. Department of the Census. 2006. Accessed 2006. www.census.gov

U.S. Department of Commerce, Bureau of Economic Analysis. 2006. Accessed 2006. www.bea.gov