

CHAPTER 4: SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSIDERATIONS

Under FHWA regulations at 23 CFR 771.115, the proposed action is a National Environmental Policy Act (NEPA) “Class I” action. Class I actions may have a significant social, economic, or environmental effect and require the preparation of an Environmental Impact Statement (EIS). In addition, under NYSDOT regulations to implement the requirements of the New York State Environmental Quality Review Act (SEQRA) at 17 NYCRR Part 15, the proposed action is classified as “Non-Type II (EIS)”. These types of actions are likely to have a significant effect on the human environment and are not specifically listed on the NYSDOT SEQRA Type II list.¹

This document is a single EIS to satisfy both federal (i.e., FHWA) and New York State (i.e., NYSDOT) environmental review requirements. The EIS process involves evaluating a reasonable range of alternatives to a proposed action, and results in a recommendation for an alternative that best addresses the objectives of the project while minimizing impacts. In the development of an EIS under FHWA requirements, a DR/DEIS is prepared and circulated for a minimum 45-day public review and comment period. A Public Hearing is normally conducted during this period. At the hearing, the project alternatives are presented and explained in terms of their relative social, economic, or environmental effects compared to future “Null Alternative” conditions (i.e., future conditions without the proposed action). Verbal and written comments on the DR/DEIS are then received and recorded at the hearing.

Upon completion of the public hearing and comment period, a final EIS is prepared that presents the substantive comments received from the public; provides a review of all alternatives; identifies the ‘Preferred Alternative’; and further identifies anticipated positive and negative environmental, social, and economic impacts as a result of implementation of the Build Alternatives.

This Chapter describes the social, economic, and environmental considerations and consequences associated with implementation of the Build Alternatives presented in Chapter 3 which include the following:

- **The “Null” Alternative**, involves implementing only currently planned and committed transportation projects within the project area (see Section 3.2.1);

¹ SEQRA “Type II” actions involve projects or programs that have been predetermined not to typically result in significant social, economic, or environmental impacts. NYSDOT maintains a list of Type II actions under 17 NYCRR Part 15.14.



- **Three Project “Build” Alternatives:**

The Modified Improvement Alternative (Preferred Alternative), involves making improvements to the existing Route 5/Fuhrmann Boulevard complex while maintaining the two roads as separate facilities between the touchdown of the Buffalo Skyway Bridge and the Union Ship Canal, where the alignment then will merge into a single six-lane alignment with streetscape and pedestrian/bicycle improvements to Milestrip Road.

The Boulevard Alternative, involves full reconstruction of the Route 5/Fuhrmann Boulevard complex to convert it into a single, six-lane boulevard to serve both through traffic and local access from the Skyway to Ridge Road, with improvements south of Ridge Road similar to the Modified Improvement Alternative;

The Hybrid Alternative, involves a combination of alignments used in the Modified Improvement Alternative (north of Ohio Street) and Boulevard Alternative (south of Ohio Street); and

- **Additional Project Components in All Project “Build” Alternatives:**

- **Ohio Street Improvements** - involves a full-depth reconstruction of Ohio Street from Michigan Avenue to Route 5 as a three-lane road (two travel lanes and a center turn lane), including the localized realignment of the roadway south of Ganson Street to remove a nonstandard curve feature, to provide traffic calming and better multi-modal access between downtown Buffalo and the Lake Erie waterfront;
- **New I-190/Tifft Street Arterial** - involves the construction of a new four-lane (or two-lane expandable to four-lane) at-grade arterial road connecting I-190 to Tifft Street and the construction of new on/off ramps at the existing Seneca Street interchange on I-190; and
- **Multi-Modal Improvements** - involves an overall system of pedestrian, bicycle, and bus access facilities associated with improvements on roadways noted above, including an Industrial Heritage Trail.

Following a description of the affected built and natural environment, this chapter includes individual discussions of potential social, economic, and environmental consequences of each alternative. For purposes of length, discussions of impacts that are similar among more than one alternative are presented via reference.



4.1 Affected Environment

4.1.1 Social Conditions

This section describes existing social and demographic conditions associated with the STC/BOH Project (see **Appendix L: Economic Impact Analysis**). For purposes of comparison, these descriptions are presented at the following levels:

- The Buffalo Metropolitan Statistical Area (MSA), including Erie and Niagara Counties;
- The project area, an area generally bounded on the north by I-190, on the east by I-90, on the south by Milestrip Road, and on the west by Lake Erie; and
- Three affected sub-areas within the project area in order to identify characteristics in the immediate neighborhoods around proposed transportation improvements:
 - **Ohio Street**, located in the northeast corner of the project area, bounded by I-190, Lake Erie, the northern boundary of Tifft Nature Preserve, and a CSX Rail corridor.
 - **I-190/Tifft Street Arterial**, an area bounded by I-190, the CSX Rail corridor, the northern boundary of Tifft Nature Preserve, Lake Erie, the southern boundary of the Union Ship Canal Redevelopment Area, and South Park Avenue.
 - **Lackawanna-Hamburg**, an area south of Buffalo city line encompassing the Bethlehem Park neighborhood the Woodlawn section of Hamburg, bounded by the southern boundary of the Union Ship Canal Redevelopment Area, Lake Erie, Milestrip Road, and the mainline CSX Rail corridor.

Figure 4.1-1 shows the boundaries of the demographic sub-areas. **Table 4.1-1** summarizes selected social and demographic characteristics. In general, the social and demographic data indicate that the three sub-areas are poorer, older, and in steeper decline than the MSA or even the overall project area, that encompasses them. Descriptions of social and demographic characteristics demonstrating this relationship are presented in the following sections.



Table 4.1-1 Selected Demographic Characteristics of the Region (MSA), Project Area, and Project Sub-areas

Characteristic	MSA	Project Area	Sub-Areas		
			Ohio St	I-190/Tiftt Arterial	Lackawanna/Hamburg
Population					
1990	1,189,288	79,271	6,390	11,131	5,284
2000	1,170,111	72,685	5,519	9,928	5,031
2002 (est.)	1,156,308	71,407	5,408	9,805	4,995
2007 (est.)	1,126,289	68,434	5,160	9,544	4,930
Population Changes					
% Change 1990-2000	-1.6%	-8.3%	-13.6%	-10.8%	-4.8%
% Change 2000-2002	-1.2%	-1.8%	-2.0%	-1.2%	-0.7%
% Change 2002-2007	-2.6%	-4.2%	-4.6%	-2.7%	-1.3%
Social Characteristics					
% White	83%	91%	75%	91%	53%
% African-American	12%	4%	17%	2%	32%
% Hispanic	3%	5%	13%	9%	9%
% High school graduates	33%	35%	29%	37%	32%
% College degree or better	28%	18%	9%	13%	11%
% Over 65	16%	17%	15%	11%	13%
Households					
No. households 2000	468,719	30,272	2,555	3,918	1,895
Average size	2.4	2.35	2.2	2.50	2.64
% 1-person	31%	35%	44%	32%	32%
% Single female	18%	20%	25%	18%	17%
Incomes					
Avg. household 2002	\$55,588	\$40,558	\$31,332	\$35,531	\$32,733
Median 2002	\$44,394	\$33,026	\$22,674	\$30,064	\$26,301
Per capita 2002	\$23,029	\$17,622	\$14,596	\$14,298	\$12,427
% Below \$15,000	15%	22%	36%	24%	35%
% unemployed	4%	4.6%	8.3%	6.5%	5.9%
Housing					
Owner-occupants	66%	59%	36%	58%	49%
Renter-occupants	34%	41%	64%	42%	51%
% Vacant	8%	9.5%	23%	11%	11%
Median value owners	\$93,249	\$68,167	\$35,333	\$57,173	\$47,422

Source: Claritas, Inc. 2003; FXM Associates 2003



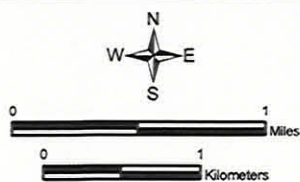
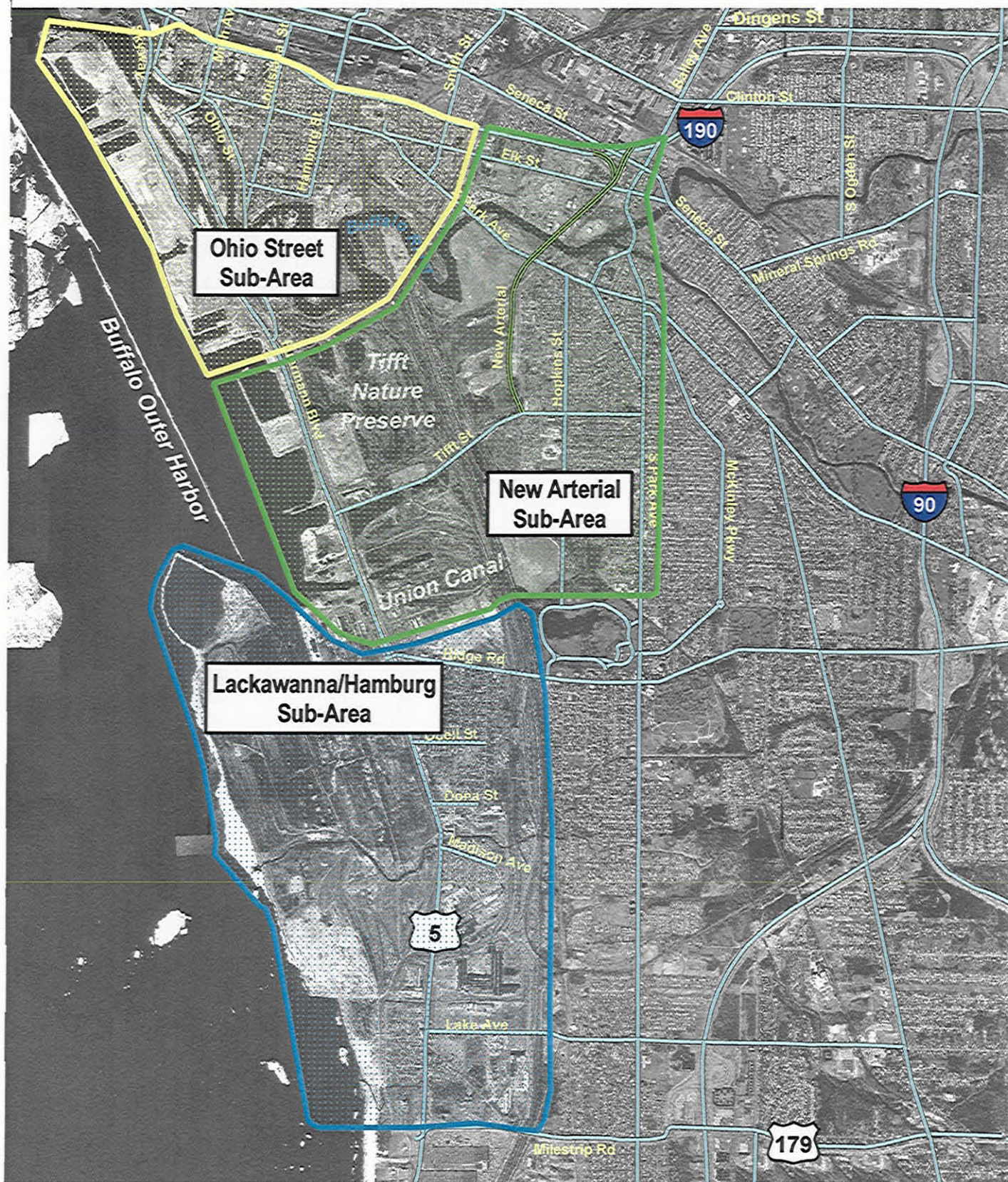


FIGURE 4.1-1
Demographic Sub-Areas

Southtowns Connector/Buffalo Outer Harbor Project

4.1.1.1 Social and Demographic Characteristics of Buffalo MSA

The MSA has a 2002 population of 1,170,111, according to the U.S. Census. This represents a loss of 1.6% over the 1990 population of 1,189,288. This loss of population is projected to continue, reaching an estimated 2.6% loss by 2007, when the population is estimated to reach 1,126,289. Although the number of households increased by 1.5% between 1990 and 2000, projections for 2002 and 2007 indicate the number of households is expected to decrease during that period by 1.3%, or about half the rate of population decrease. Average household size is estimated at 2.41 persons in 2002. An estimated 31% of households are single-person, and 18% are single female householders.

The MSA is 83% white, 12% African American, and 3% Hispanic. Fifty-two percent is female, and 48% is male. Sixteen percent are 65 or over.

Estimated average household income in the MSA was \$55,588 in 2002, with the median at \$44,394 and per capita at \$23,029. An estimated 15% of households have incomes below \$15,000.

4.1.1.2 Social and Demographic Characteristics of the Project Area

In contrast to the MSA, the picture that emerges of the project area is that of an older, poorer area that is declining in population more rapidly. In comparison to the larger metropolitan area, the project area has a greater proportion of minority and low-income populations (see also Section 4.2.6)

The 2000 Census shows population at 72,685, an 8.3% decline from 1990. A further decline of 4.2% is projected for 2007 from 2002. The number of households is also declining, though more slowly: -3.85% between 1990 and 2000, and -2.28% between 2002 and 2007. Estimated average household size was 2.35 in 2002, slightly smaller than the MSA. An estimated 35% of households are single-person, and 20% are single female householders. Both these characteristics are indicators of lower-income households, and they are present in the project area in larger proportions than in the MSA.

The population of the overall project area is more homogeneous than that of the MSA: 91% white, 4% African American, and 5% Hispanic. Fifty-three percent are females, 47% male. Seventeen percent are 65 or older; 24% are under age 18. Thirty-two percent of those 25 and older have not completed high school; 18% have some type of college degree.

Estimated average household income in 2002 is \$40,558, and the median is \$33,026. Each of these estimates are considerably lower than the MSA's average of \$55,588 and median of \$44,394. Almost 22% of households in the project area have incomes under \$15,000, compared to 15% in the MSA.

Housing characteristics vary markedly from MSA figures. Homeownership is lower: in 2002, an estimated 59% of households in the project area owned the homes they occupied, compared to



66% in the MSA; 41% rented. Ten percent are vacant, compared to 8% in the MSA. The estimated median value of owner-occupied dwellings is \$68,167. Forty-five percent of the housing units in the project area are single unit dwellings, whereas 59% of units in the MSA are single-family. Project area housing stock is also older than in the MSA; slightly over half of the units have build dates since 1950. In the project area, over half the units have build dates of 1939 or earlier and only 13% have build dates since 1950.

4.1.1.3 Social and Demographic Characteristics of Project Sub-Areas

Ohio Street

Approximately 5,500 residents live in the Ohio Street sub-area. It is losing population more rapidly than the larger project area: between 1990 and 2000, population loss was 14%, compared to an 8% loss in the project area. The population in this sub-area is also more diverse, with 17% African American compared to 4% in the project area, and 13% Hispanic compared to 5% in the project area. The median age of residents is estimated at 37.2 in 2002, and 15% are age 65 or older. Twenty-six percent are under 18. Of the population aged 25 and older, 48% have not completed high school, and only 9.5% have some type of college degree.

The sub-area contains an estimated 2,519 households in 2002, a decline of 8.6% from 1990. Household size is small (2.15 persons) relative to the project area, which averages 2.35 persons. Forty-four percent are one-person households, and 24% are single female households. Approximately 27% of households have children under 18. Twice as many households in the sub-area as in the project area do not own a motor vehicle: 42% compared to 21%.

Household incomes in 2002 are an estimated average of \$31,332, with the median considerably lower at \$22,674. The sub-area has a high unemployment rate: 8.3%, more than double that in the rest of the project area. Of those employed, 31% are in technical/sales/administrative support jobs; 27% are operators, fabricators, and laborers; and 22% are service industry-employed. Only 12% are employed in managerial or professional jobs, and 8% in precision/production/craft/ and repair. As in the larger project area, the great majority, over 80%, commute less than 30 minutes to work.

Housing characteristics differ markedly from the overall project area. Fully 64% of households in the Ohio Street sub-area are renters, compared to 41% in the project area. Twenty-three percent of the units in the sub-area are vacant, the highest of all areas and sub-areas studied. The estimated median value of owner-occupied units is only \$35,333 in the sub-area, whereas in the project area it is slightly over \$68,000. Multi-unit dwellings are also more prevalent in the Ohio Street sub-area: 73% of units are in multi-unit structures, compared to only 55% in the project area. Overall, the housing stock tends to be older, with over half the units built before 1939, but the sub-area has a somewhat larger proportion of older dwellings: 91% date before 1959, compared to 87% in the project area.



I-190/Tifft Street Arterial

There are 3,903 households in the sub-area, a decline of 6.2% over 1990. Average household size is 2.51 persons. Eighteen percent of households are single females and 32% are one-person households. Fully 25% do not own a motor vehicle. Average household income is \$35,531, and median is \$30,064. These amounts are slightly lower than incomes in the project area overall, but higher than those in the Ohio Street Sub-Area.

Housing units in the sub-area are 58% owner-occupied, 42% renter-occupied and 11% vacant. The median value of owner-occupied units is an estimated \$57,173 in 2002. Forty-one percent are single-family units. One half are in two-unit structures. Almost 68% of the units have build dates before 1939, compared to 53% in the project area.

Lackawanna-Hamburg

The 2000 U.S. Census recorded 5,031 persons living within this sub-area, down 4.8% from 1990. Estimated population in 2002 was 4,995 and projected population in 2007 is 4,930. Ethnic composition in 2002 is an estimated 53% white and 32% black. Latino population is an estimated 9% of the total. There were slightly more females than males; 52% to 48%, respectively. Median age is 31.28, with 33% under age 18 and 13% over age 65. Nearly half (45%) of the area population aged 25 and over did not finish high school, and only 11% have Associate, Bachelor or other college degrees.

The number of households in this sub-area has decreased 2.2% from 1,938 in 1990 to 1,895 in 2000, and 0.7% to an estimated 1,882 in 2002. The estimated household size in 2002 is 2.64 persons, largest of the project area and larger than the MSA average.

The estimated median household income in 2002 in this sub-area is \$26,301 or \$12,427 per capita. An estimated 35% of these households have incomes of less than \$15,000; none have incomes over \$150,000 and only 8% have incomes over \$75,000.

The estimated 1,882 dwelling units in this sub-area are nearly equally divided between owner-occupied (49%) and renter-occupied (51%). Eleven percent are vacant. The median value of owner-occupied housing in 2002 was \$47,422. An estimated 49% of the housing units in this sub-area in 2002 were single-family houses, and 48% were in buildings of two to 19 units. The housing stock is relatively old: 44% of the units have build dates before 1939, and only 9% since 1960.

4.1.1.4 Local and Regional Plans, Programs, and Policies

Local comprehensive plans, economic development strategy reports, and other policy documents describe a range of multi-jurisdictional efforts related to redevelopment in the project area. The following synopses of these policy documents present elements of these plans with particular relevance to the STC/BOH Project.



Federal Enterprise Community (FEC)

The City of Buffalo within the project area is part of the U.S. HUD Federal Enterprise Community program that offers tax incentives, loans and performance grants to designated communities in the interest of job creation, business opportunity expansion and unemployment reduction.

EPA Brownfields Assessment Pilot Program

In 2002, the U.S. Environmental Protection Agency (EPA) selected the City of Lackawanna for its pilot program targeting brownfield remediation and reuse in economically disadvantaged communities. The City proposed to conduct site assessments of the 1.2-hectare (3-acre) former incinerator site, vacant Willett Road site and properties adjacent to the Seneca Railroad. The overall project objective is to identify, screen and select sites that will support Lackawanna's overall economic development strategy.

New York State Empire Zone Program

The Empire Zone Program intends to stimulate economic growth and development in targeted areas of the state. The southwest area of the South Buffalo Planning Community (including the Union Ship Canal Redevelopment Area) and the City of Lackawanna (including former Bethlehem Steel lands) both contain New York State Empire Zones, which are designated for tax credits, reduced utility rates, low-interest loans and state agency aid to encourage expansion of existing businesses and to attract new businesses.

Woodlawn Beach Redevelopment Plan (1999)

In 1999, the New York State Office of Parks, Recreation, and Historic Preservation prepared a master plan for the 43-hectare (106-acre) property and proposed developing the site as a multi-use, urban waterfront park. The opening and operations of a public swimming beach, a park facility, and a parking lot were identified as key components of the plan. Through its adoption, the plan also is intended to preserve and protect several scenic and natural resources in the area, including a 9.7-hectare (24-acre) natural sand beach, vegetated sand dunes, wetlands, and scenic views.

Seaway Trail Action Plan (1996)

The New York State Seaway Trail is a 730-kilometer (454-mile) designated National Scenic Byway paralleling Lake Erie, the Niagara River, Lake Ontario and the St. Lawrence River (i.e., running along Route 5 in the project area). Seaway Trail, Inc. was created in 1978 to promote the trail as a tourist destination and to encourage regional economic development through tourism and promoting recreational amenities along the corridor.

GBNRTC 2025 Long-Range Plan for Erie and Niagara Counties (2001)

The 2025 Long-Range Plan for Erie and Niagara Counties establishes goals and objectives to be achieved over the next twenty-plus years for a "safe, efficient, balanced, and an environmentally sound transportation system for the movement of people, goods, and services" all of which may



“enhance the attractiveness and economic competitiveness of the area.” The STC/BOH Project (i.e., referred to as the “Outer Harbor Access Project”) is on the long-range plan. Site-specific details on the intended design and characteristics of the project are not identified.

GBNRTC Transportation Improvement Program (2004-2006)

The Transportation Improvement Program (TIP), adopted by the GBNRTC is the capital-programming component of the overall regional transportation process. This program consists of a listing of federally funded highway and transit projects being considered over a five-year period. Improvements on the TIP within the project area are limited to smaller service roads for economic development, in kind bridge replacement, and new recreational trails.

Peace Bridge Expansion/Plaza Improvement Plan (not yet complete)

The Buffalo and Fort Erie Public Bridge Authority (PBA) has undertaken planning efforts to expand the capacity of the Peace Bridge and the US Plaza to meet the demand of growing traffic, which is a result of increased trade between the US and Canada. The purpose of the expansion project is to improve transportation services and to increase the efficiency of the Niagara River crossing. In particular, enhancing the roadway network and its subsequent traffic flow patterns as well as improving the plaza configuration would eliminate the bottlenecking within this international transportation system. Although not complete, the 2030 Null Conditions assume additional capacity at this crossing location as part of the regional road network.

NYS Route 5 Local Traffic Impact Study Final Concept Plan (1999)

Prepared for Erie County’s Department of Environment and Planning, this concept plan focuses on the demands and needs of the Hamburg Turnpike (Route 5) within the City of Lackawanna and the Town of Hamburg. The study investigated the feasibility of developing the Route 5 corridor as a greenway entrance into the City of Buffalo. The plan proposes several improvements to the corridor that aptly addresses the access needs of the corridor. The components recommended under this study served as the basis for improvements proposed under all Build Alternatives for Route 5 from Ridge Road to Route 179.

Erie County Park System Master Plan (2002)

Through a broad-based public process, the Erie County Park System Master Plan established goals, policies and priorities for a multi-faceted 20-year improvement plan. The first phase has proposed development costs of over \$20 million. The Master Plan outlines a strategy for waterfront parks and greenway systems that will advance economic renewal, public accessibility, recreation opportunities and environmental conservation. It also creates a Regional Waterfront Trail System along 142 kilometers (88 miles) of individual segments connecting parks, waterfront areas, businesses and neighborhoods. The plan gives priority status to ensuring visibility and connectivity of this Waterfront Trail System in all redevelopment and upgrading of public property. A key economic objective articulated in the plan is to promote the park system, collectively, as a unique and marketable experience for County residents and for visitors as a tourist destination.



NFTA Outer Harbor Development Plan (1987)

The Outer Harbor Development Plan focuses on the former port properties owned by the NFTA. The plan identifies the following as its primary goals:

- Improve the image of the City of Buffalo with an enhanced physical environment that encourages public access to the waterfront;
- Support the City's redevelopment efforts along the waterfront and increase economic development activity throughout the downtown area; and
- Enhance NFTA revenues from its properties by mobilizing private sector investments and increasing the number of base-sector jobs in the Buffalo-area.

The plan examined a series of mixed recreation, commercial, and entertainment uses of the property. In 2003, NFTA officials announced that they would be pursuing redevelopment proposals for a 32.5-hectare (80-acre) portion of the NFTA's former port lands on the Buffalo Outer Harbor and selected a preferred development team in December 2004. The New York State Department of Environmental Conservation (NYSDEC) issued a Record of Decision (ROD) for a remediation plan that addressed this Brownfield site. The ROD allowed for future redevelopment of the land. The remediation plan provides measures for specific portions of the site as defined by the nature and degree of contamination and potential for exposure, and as a function of the potential land use of each area. The remediation plan does not preclude any specific uses for development at the site, but rather regulates clean-up/development requirements according to a land use/remediation matrix made a part of the property deed(s).

City of Buffalo Draft Comprehensive Plan (2004-2005)

The Buffalo Office of Strategic Planning is currently conducting a comprehensive update of the 1975 *Buffalo City Plan*, incorporating the land use, demographic, policy, and institutional changes that have occurred since adoption of the current plan. The plan is intended to guide the physical development of the city to the year 2020; its goals and policies set the basis for the City's zoning and subdivision regulations, redevelopment policies, and capital improvements. The redesign of Route 5 is listed as a Transportation Action Item and redevelopment of brownfields and promoting parks and cultural resources are Economic Development Action Items. Other Action Items include preparing comprehensive parks, recreation, and open space plan; a comprehensive bicycle and trail plan; a historic preservation plan; and citywide urban design guidelines.

Union Ship Canal Generic EIS (1998)

The City of Buffalo is currently implementing the initial phases of a redevelopment for a vacant industrial site in South Buffalo near the Union Ship Canal. A City of Buffalo zoning modification established the first portion of this area -- the Union Ship Canal District, containing 110 hectares (275 acres) of land located along the Lake Erie waterfront in South Buffalo. The



proposed mixed-use reuse plan includes open space and recreational uses along the canal (10 hectares [25 acres]); office, light industrial and manufacturing uses (24 hectares [60 acres]); and large-scale, light industrial and distribution uses with rail siding access near the periphery (40 hectares [100 acres]). The six-phase development project will occur over a ten-year period. The first phase costs are an estimated \$7.5 million for testing, site preparation, and access road construction for 32.5 hectares (80 acres) of the site.

Remaking Downtown Buffalo's Waterfront (1996)

In 1996, the Buffalo Common Council adopted Remaking Buffalo's Downtown Waterfront: Final Draft Master Plan as a conceptual plan for redevelopment of the Buffalo waterfront. The following particular elements of the plan would be within the project area:

- Construction of a new, moveable bridge ("Gateway Bridge") connecting Erie Street of the Inner Harbor with Fuhrmann Boulevard of the Outer Harbor;
- Development of several mixed-use, residential/retail neighborhoods on the Outer Harbor (north of the NFTA Outer Harbor lands); and
- Creation of various attractions, such as public parks, trails, and marinas that would improve public access to the waterfront, especially along the Outer Harbor.

Erie Canal Harbor Project (1999; in redesign)

The Erie Canal Harbor Project is a major waterfront reconstruction project in downtown Buffalo that will reconfigure the Buffalo River bulkhead and redevelop a portion of the Waterfront Development Project Urban Renewal Area, which is owned by the City of Buffalo. This area is to be redeveloped into a new multi-purpose harbor with intermodal transportation components at the foot of Main Street. The project is currently being implemented with a portion of the bulkhead reconfiguration nearing completion. However, historical interpretation of the site has delayed a significant portion of the project and has prompted a redesign of the area. Full completion of the project is estimated to occur in 2007.

City of Buffalo Waterfront Greenways Ordinance (2001)

The Waterfront Greenways Ordinance, adopted by the Buffalo Common Council, establishes design criteria and a review procedure for the establishment of a continuous waterfront trail network along the City's main waterfront corridors including Lake Erie, the Buffalo River, Cazenovia Creek, and Scajaquada Creek. It also establishes standards for the creation of on-street connections for bikeway access to various parks and recreational facilities in the system.

City of Lackawanna Comprehensive Plan (2000)

The City of Lackawanna Comprehensive Plan is a thorough document that outlines a coordinated vision for the City. Adopted in 2000, the plan contains extensive analyses of current and forecasted data and trends that were used to develop policy statements for the City and its residents. In particular, the document will guide development within the City, assist elected



officials and board members with their decision-making, and inform residents of resources within the community.

Town of Hamburg 2010 Comprehensive Plan (1997)

The Town of Hamburg 2010 Comprehensive Plan (adopted 1997) is an update to the town's 2010 Master Plan Update (adopted 1983) and is intended to provide the Town with an evaluation of the prior master planning document and the status of the Town. Specifically, the document evaluates progress of the Town, identifies problem areas to address, and provides recommendations for guiding the Town towards its desired future. Although the Town of Hamburg has approximately 14.5 kilometers (nine miles) of waterfront land on the shores of Lake Erie, much of it is only accessible through privately owned land. Town officials consider improving overall access to waterfront recreation, scenic vistas, and other activities to be one of the most important ingredients for redevelopment plans. A key feature of the plan proposed that Lake Shore Road (Route 5) include pedestrian and bicycle access on the existing roadway near the waterfront and provide additional scenic overlooks for a "Waterfront Boulevard" image.

Bethlehem Steel Redevelopment Plan (1999)

In 1999, Bethlehem Steel completed a Land Redevelopment Plan for approximately 465 hectares (1,150 acres) of their property, which is located to the west of Route 5 in the City of Lackawanna. The plan identifies expansion of economic development near the Lackawanna's 1st Ward community as its primary objective. To obtain this goal, the study proposes the incorporation of mutually supporting and complementary land uses within the redevelopment area, which has been tentatively named the "North American Business Center." Erie County is currently facilitating actions to realize redevelopment of the first phase of this plan, involving the creation of a series of parcels for new business uses along the Route 5 frontage of the property, just south of the Ridge Road entrance to the property.

Industrial Heritage Trail Plan (1997)

Advanced by the Industrial Heritage Committee, a not-for-profit organization that promotes preservation and educational goals regarding the City's industrial history, the Industrial Heritage Trail Plan involves the creation of a thematic trail network along the Buffalo River through the City of Buffalo's Old First Ward neighborhood and terminating near the Erie Canal Harbor Project site. The trail is intended to promote access and knowledge of the City's industrial history as a major grain and transshipment facility. The trail is planned to traverse various points along both sides of the Buffalo River, particularly to key historic industrial sites including the City's collection of historic grain elevators. The proposed Greenways ordinance also identifies the trail on its proposed network. The Ohio Street and Ganson Street corridors are identified as a location for a portion of the Industrial Heritage trail system.



4.1.2 Economic Conditions

Appendix L: Economic Impact Analysis characterizes economic conditions in terms of number of business establishments, number of employees, and total sales. The foremost concern of residents and community officials in the region and the project area in particular is economic development. Job opportunities, property values, and public services have not fully recovered from the economic impact and community dislocation that resulted from closure of the Bethlehem Steel, Republic Steel, and related metal production and processing facilities. Population continues to decline and few businesses have moved to the area despite the availability of inexpensive land, plentiful labor and excess rail, waterfront and road capacity.

Concerns for the project area expressed by business owners and public officials interviewed as part of the economic assessment extend to employment. Unemployment rates in the study area have been relatively stable in recent years; however, they remain higher than averages for the region. Skilled labor is declining as older workers retire and younger workers move to other areas. Local companies report difficulties recruiting people for positions that require high levels of skill or education essential to modern manufacturing and processing industries, while at the same time, there are not enough entry-level and low-skill positions to fully employ the existing pool of unskilled labor (FXM Associates 2003).

With the closing of the major industries along the project corridor, there remains a surplus of housing and reduced property tax base along with vacant industrial sites. These “remnants” of industry have created an image of depression that has proven difficult to overcome. Residential neighborhoods in the project area tended to cluster around the industries that formerly dominated the area. Some of these neighborhoods, such as Buffalo’s Old First Ward/Valley neighborhoods, Lackawanna’s 1st Ward and Bethlehem Park neighborhoods, and Hamburg’s Woodlawn community still exist and retain strong identities. Others have been largely abandoned and become decayed. Lackawanna and Hamburg officials have been actively encouraging redevelopment of neighborhood commercial centers and renovation of housing in these areas to preserve property values and a sense of community. Similar initiatives have not yet appeared in Buffalo, yet recent planning documents such as the City’s new Comprehensive Plan anticipate such efforts (FXM Associates 2003).

Table 4.1-2 presents information on the existing economic base within the Buffalo MSA, the overall project area, and the three identified project sub-areas.



**Table 4.1-2 Summary of Characteristics of Businesses in the Region (MSA),
Project Area, and Project Sub-Areas**

Business SIC	Description	Total Establishments	%	Total Employees	%	Sales (\$ Millions)	%
MSA	Total	41,232		612,233		60,272	
Division A	Agriculture	588	1%	3,356	1%	155	0%
Division B	Mining	30	0%	336	0%	34	0%
Division C	Construction	2,423	6%	22,554	4%	4,073	7%
Division D	Manufacturing	2,601	6%	96,833	16%	7,388	12%
Division E	Transportation	1,387	3%	29,922	5%	2,716	5%
Division F	Wholesale	2,112	5%	29,647	5%	5,047	8%
Division G	Retail	9,175	22%	114,119	19%	13,280	22%
Division H	FIRE	2,604	6%	32,973	5%	6,922	11%
Division I	Services	17,399	42%	233,187	38%	20,658	34%
Division J	Public admin.	1,533	4%	37,703	6%	0	0%
Division K	Nonclassifiable	1,380	3%	11,603	2%	0	0%
Project Area	Total	1,953		26,102		2,429	
Division A	Agriculture	9	0%	32	0%	2	0%
Division B	Mining	1	0%	1	0%	0	0%
Division C	Construction	107	5%	866	3%	169	7%
Division D	Manufacturing	162	8%	7,235	28%	567	23%
Division E	Transportation	81	4%	1,119	4%	94	4%
Division F	Wholesale	115	6%	1,118	4%	195	8%
Division G	Retail	454	23%	4,152	16%	433	18%
Division H	FIRE	75	4%	620	2%	119	5%
Division I	Services	802	41%	8,583	33%	851	35%
Division J	Public Admin.	84	4%	1,809	7%	0	0%
Division K	Non-classifiable	63	8%	567	2%	0	0%
Ohio St Sub-Area	Total	279		5,754		552	
Division A	Agriculture	0	0%	0	0%	0	0%
Division B	Mining	0	0%	0	0%	0	0%
Division C	Construction	14	5%	133	2%	22	4%
Division D	Manufacturing	43	15%	1,612	28%	141	26%
Division E	Transportation	21	8%	436	8%	43	8%
Division F	Wholesale	29	10%	343	6%	59	11%
Division G	Retail	48	17%	507	9%	45	8%
Division H	FIRE	13	5%	160	3%	25	5%
Division I	Services	67	24%	1,544	27%	218	39%
Division J	Public Admin.	27	10%	892	16%	0	0%
Division K	Non-classifiable	17	6%	127	2%	0	0%



Table 4.1-2 Summary of Characteristics of Businesses in the Region (MSA), Project Area, and Project Sub-Areas

Business SIC	Description	Total Establishments	%	Total Employees	%	Sales (\$ Millions)	%
I-190/Tifft Art. Sub-Area	Total	367		4,844		494	
Division A	Agriculture	1	0%	1	0%	0	0%
Division B	Mining	0	0%	0	0%	0	0%
Division C	Construction	31	8%	288	6%	68	14%
Division D	Manufacturing	47	13%	1,434	30%	106	21%
Division E	Transportation	17	5%	211	4%	15	3%
Division F	Wholesale	27	7%	533	11%	90	18%
Division G	Retail	100	27%	920	19%	94	19%
Division H	FIRE	3	1%	35	1%	10	2%
Division I	Services	126	34%	1,194	25%	111	22%
Division J	Public Admin.	5	1%	149	3%	0	0%
Division K	Non-classifiable	10	3%	79	2%	0	0%
Lackawanna-Hamburg	Total	207		5,054		432	
Division A	Agriculture	0	0%	0	0%	0	0%
Division B	Mining	0	0%	0	0%	0	0%
Division C	Construction	10	5%	125	2%	20	5%
Division D	Manufacturing	26	13%	3,393	67%	234	54%
Division E	Transportation	23	11%	215	4%	19	4%
Division F	Wholesale	24	12%	225	4%	42	10%
Division G	Retail	33	16%	226	4%	47	11%
Division H	FIRE	6	3%	127	3%	20	5%
Division I	Services	68	33%	548	11%	50	12%
Division J	Public Admin.	4	2%	41	1%	0	0%
Division K	Non-classifiable	13	6%	154	3%	0	0%

Source: Claritas, Inc., 2003; FXM Associates 2003

4.1.2.1 Economic Conditions in the Buffalo MSA

The services sector clearly dominates the MSA's economy in terms of number of business establishments, number of employees, and total sales. This sector generates over \$20 billion in annual sales and employs over 227,000 people, or 37% of the MSA employment. Within the services sector, health services is the leading sub-sector. Retail is the second largest sector, with Eating and Drinking Places the largest sub-sector. Manufacturing is the third largest sector contributing 16% of MSA employment and generation of 12% business sales. Within Manufacturing, the two largest sub-sectors are Transportation Equipment (14% of MSA manufacturing) and Fabricated Metal (12% of MSA manufacturing).



4.1.2.2 Economic Conditions in the Project Area

The project area differs slightly from the MSA in its industrial profile. The service sector is similar to the MSA in total contribution to employment and sales (33% and 35 %, respectively). Educational and social services, however, are more important employers and revenue producers than are health services. Further, the project area is more dependent on manufacturing than the MSA. 28% of employed individuals in the project area are in manufacturing. This business sector generates 23% of sales, or \$566.5 million. Of manufacturing, fabricated metal is the dominant sub-sector (37%) and Food and Kindred Products ranked as second (22% of sector). Retailing ranked third place in the project area with 16% of employment, and 18% of sales. Within retailing, Eating and Drinking Places employ the most people and produce the most revenues in both MSA and the project area.

4.1.2.3 Economic Conditions in the Project Sub-Areas

Ohio Street

The Ohio Street sub-area contains 279 businesses, employing 5,754 people and generating \$552 million in sales. Services and manufacturing are the dominant industries in terms of both employment and sales, with retail running a distant third. Manufacturing accounts for 28% of total employment and 26% of total sales in the sub-area. Within the manufacturing sector, food and related products account for 60% of employment and almost half of sales. Fabricated metal products are second, with 14% of both jobs and sales. The services industry employs 27% of total employees and generates 39% of total sales. The most important sub sectors are business services, educational services, and legal services. Retail activity is almost exclusively food-related: eating and drinking establishments and food stores account for almost 70% of retail activity, followed by gas stations with 16%.

I-190/Tift Street Arterial

The I-190/Tift Street Arterial sub-area contains 367 businesses, employing 4,844 people and generating \$494 million in sales. The industrial profile of the sub-area is similar to that of the Ohio Street sub-area; manufacturing and service industries dominate. The manufacturing sector generates \$105.8 million in sales and employs 1,434 people, or almost 30% of sub-area employment. The services sector generates \$110.7 million in sales and employs 1,186. Retailing is third, employing 18% of this area.

Lackawanna-Hamburg

There are 207 business establishments with 5,054 employees in the Lackawanna-Hamburg Sub-Area. By far the largest sector, in terms of both employment (67%) and sales (54%), is manufacturing. Twenty-six manufacturers employ 3,393 people and generate \$234 million in sales. The sector is dominated by five businesses employing 2,065 workers in fabricated metal products and six businesses employing 904 workers in primary metals industries. These industries also dominated manufacturing income with sales of \$130.5 million and \$61.5 million respectively. In addition, the nearby Ford Stamping Plant employs 1,800 workers, making it by



far the largest employer in the neighborhood. The services sector is a distant second, with 68 mostly small establishments providing 11% of employment and 12% of sales in the sub-area. Within the services sector, engineering, accounting, research, and management-related service businesses employed the most people (126) and generated the most sales (\$15.8 million).

Other sectors contribute less than 5% of total employment and sales. Retail sales amounted to \$46.9 million, a little over 4% of the sub-area's total. Of the retailers, automobile dealers and gas service stations were responsible for the most jobs (111) and sales (\$33 million).

4.1.2.4 Unemployment Rates

Table 4.1-3 presents unemployment rates in 2003 for the Buffalo MSA, project area as a whole, and the three sub-areas. These figures have a similar relationship as other economic data; unemployment in the project sub-areas has been considerably higher than both the project area and MSA. The Ohio Street sub-area has the highest level of unemployment, experiencing a rate more than double that of the overall project area and the MSA.

Table 4.1-3 Unemployment Rates	
Area	Rate
Buffalo MSA	4.0%
Overall Project Area	4.6%
Project Sub-Areas:	
Ohio Street	8.3%
I-190/Tift Street Arterial	6.5%
Lackawanna-Hamburg	6.0%

Source: New York State Department of Labor 2003

4.1.2.5 Current Economic Development Activities in Project Area

There have been a number of recent or proposed investments that may affect and/or be affected by the STC/BOH Project. Public investments made or planned to date total over \$130 million, including the following projects.

- Gallagher Beach Phase I and II (boardwalk, trails, lighting), for which \$2 million has been expended for site improvements.
- Proposed State Park at Gallagher Beach and the NFTA Small Boat Harbor (i.e., "Buffalo Boat Harbor" State Park), estimated at \$5-10 million.
- Erie Canal Harbor Project (former referred to as the Buffalo Inner Harbor Development Project). First phase completed in July 2003; second phase in redesign, planned completion in May 2007. Total cost \$46.3 million.
- New Inner Harbor Parking Ramp, \$16.3 million.



- Buffalo Intermodal Transportation Center, Phase I, \$8.1 million; Phase II, \$20 million.
- Union Ship Canal Redevelopment Project (Buffalo Lakeside Commerce Park), Phase I: clean up and access road, \$3 million spent on site preparation and \$4.5 million budgeted for access road/infrastructure improvements to 32.5 hectares (80 acres) of the site.
- LTV/Republic Steel voluntary cleanup and site preparation for new commercial development, approximately \$18 million.
- Woodlawn Beach State Park acquisition costs, \$6.3 million; nature trail, \$650,000; sewer remediation, \$1.14 million; new bathhouse and nature center, \$2.11 million.
- NFTA Outer Harbor Greenbelt – Phase I shoreline stabilization/remediation project (now in construction), funded at \$2.7 million.
- NFTA/Erie County Outer Harbor Multi-Purpose Trail System (first phase complete) funded at \$1.8 million.

4.1.2.6 Employment Projections

Employment projection data in the overall project area was derived from the GBNRTC demographic database for its Long Range Plan and Travel Demand Forecasting Model (see **Table 4.1-4**). Projected employment is divided into four categories: manufacturing, retail, wholesale, and all other employment.

These employment projections aptly account for existing development and on-going economic development efforts within the project area (e.g., redevelopment of the Union Ship Canal area, LTV/Republic Steel site, Bethlehem Steel Site, etc.). As is shown, they indicate that current economic development efforts would result in recapturing a significant portion of employment lost in the project area since 1980. The forecasts also suggest a continued shift away from manufacturing to wholesale and service-based (i.e., “other” category) as the primary sources of projected new employment.

4.1.2.7 Highway-Related Businesses and Established Business Districts

Highway-related businesses involve establishments or services that are typically targeted at pass-by traffic along an arterial highway or at interchanges of an expressway. An established business district includes a cluster of commercial and retail establishments that is generally recognized by a community as a single identifiable area for goods and services.



Table 4.1-4 Employment Projections			
Period	Buffalo MSA	Project Area¹	Project Area Portion of MSA
1980 Total Employment	583,504	42,494	7.28%
1990 Total Employment²	638,068	28,610	4.48%
<i>Manufacturing</i>	100,459	5,799	5.77%
<i>Retail</i>	121,895	4,481	3.68%
<i>Wholesale</i>	31,173	1,890	6.06%
<i>All Other</i>	384,541	16,440	4.28%
2025 Projected Total Employment	692,000	35,458	5.12%
<i>Manufacturing</i>	92,330	6,101	6.61%
<i>Retail</i>	143,842	4,957	3.45%
<i>Wholesale</i>	35,225	2,764	7.85%
<i>All Other</i>	420,603	21,636	5.14%

Notes:

¹ Derived from tabulating data for all Traffic Assessment Zones (TAZs) in the area encompassed by I-190, I-90, Route 179, and Lake Erie.

² Latest data available at TAZ level from GBNRTC.

Source: GBNRTC 2003

Given the localized nature of these types of land uses, discussions of highway-related businesses and established business districts are presented in the following sections only for the three identified project sub-areas. **Figures 4.1-2, 4.1-3, 4.1-4, and 4.1-5** depict land use characteristics and locations of business establishments along each of the roadways in the project area that are targeted for improvements.

Ohio Street

There are no highway-related businesses or established community business districts in the Ohio Street corridor in the vicinity of proposed road improvements. Businesses primarily involve manufacturing, production, and storage facilities. The following businesses are located immediately along the Ohio Street corridor:

- NFTA Small Boat Harbor (Fuhrmann Boulevard and Ohio Street);
- Freezer Queen Foods (Fuhrmann Boulevard and Ohio Street);
- NFTA Buffalo Port Terminal (Fuhrmann Boulevard and Ohio Street);
- Sonwil Distribution (Fuhrmann Boulevard and Ohio Street);
- Pierce & Stevens;
- Rigidized Metals;
- Lafarge Corp.;



- Bison City Rod and Gun Club;
- Great Lakes Paper Fiber;
- Buffalo Motor Generator Corp.;
- Swannie House Bar and Restaurant;
- Buffalo Industrial Diving Company (BIDCO) (Ganson Street);
- Archer Daniels Midland Corporation – Great Northern Elevator (Ganson Street);
- St. Mary’s Cement (Ganson Street); and
- General Mills Corporation (Michigan and Ganson Streets).

I-190/Tift Street Arterial

There are no significant clusters of highway-related businesses in the vicinity of the proposed alignment of the New I-190/Tift Street Arterial. There is a portion of one established business district along Seneca Street (the Seneca-Babcock Business District) that intersects the northern section of the proposed New Arterial route that would utilize the existing right-of-way of Keating Street. Businesses at the proposed intersections along the proposed I-190/Tift Street Arterial include the following.

- Seneca Street (at Keating Street)
 - Temptation Video
 - Lenco Lumber (six sites)
 - Hutchins Automotive
- Elk Street
 - Natural Environment Debris Processing
 - Penn Detroit Diesel
 - Exxon-Mobil
 - GroGreen
 - Brute Spring
- South Park Avenue
 - Village Farms (hydroponics tomato-growing facility – now closed)
 - Clinton Disposal Service
 - The Old Triangle Bar
- Tift Street
 - Skyway Auto Parts
 - Charley Frontier Service (truck repair)
 - L.A. Wooley Electric
 - Hood Industries

Lackawanna-Hamburg

There exists a fairly well defined cluster of highway-related businesses associated with an established business district along Route 5 in this sub-area, between Ridge Road and Route 179.



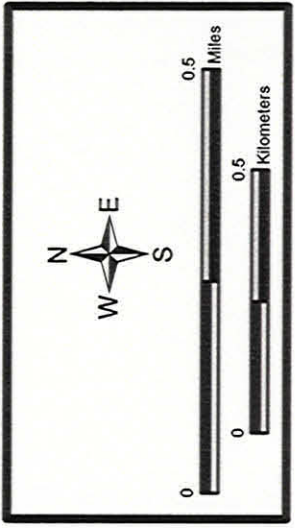
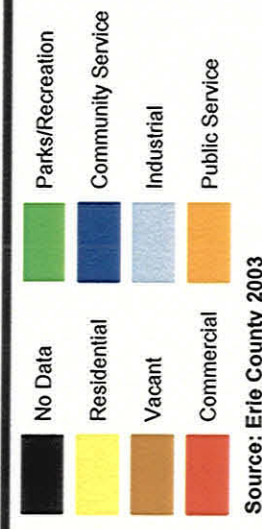
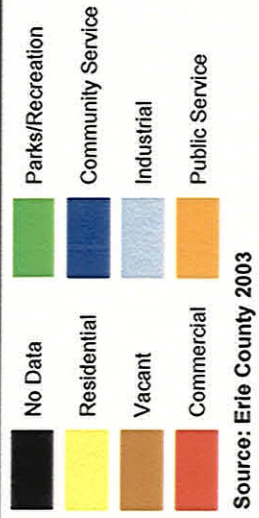
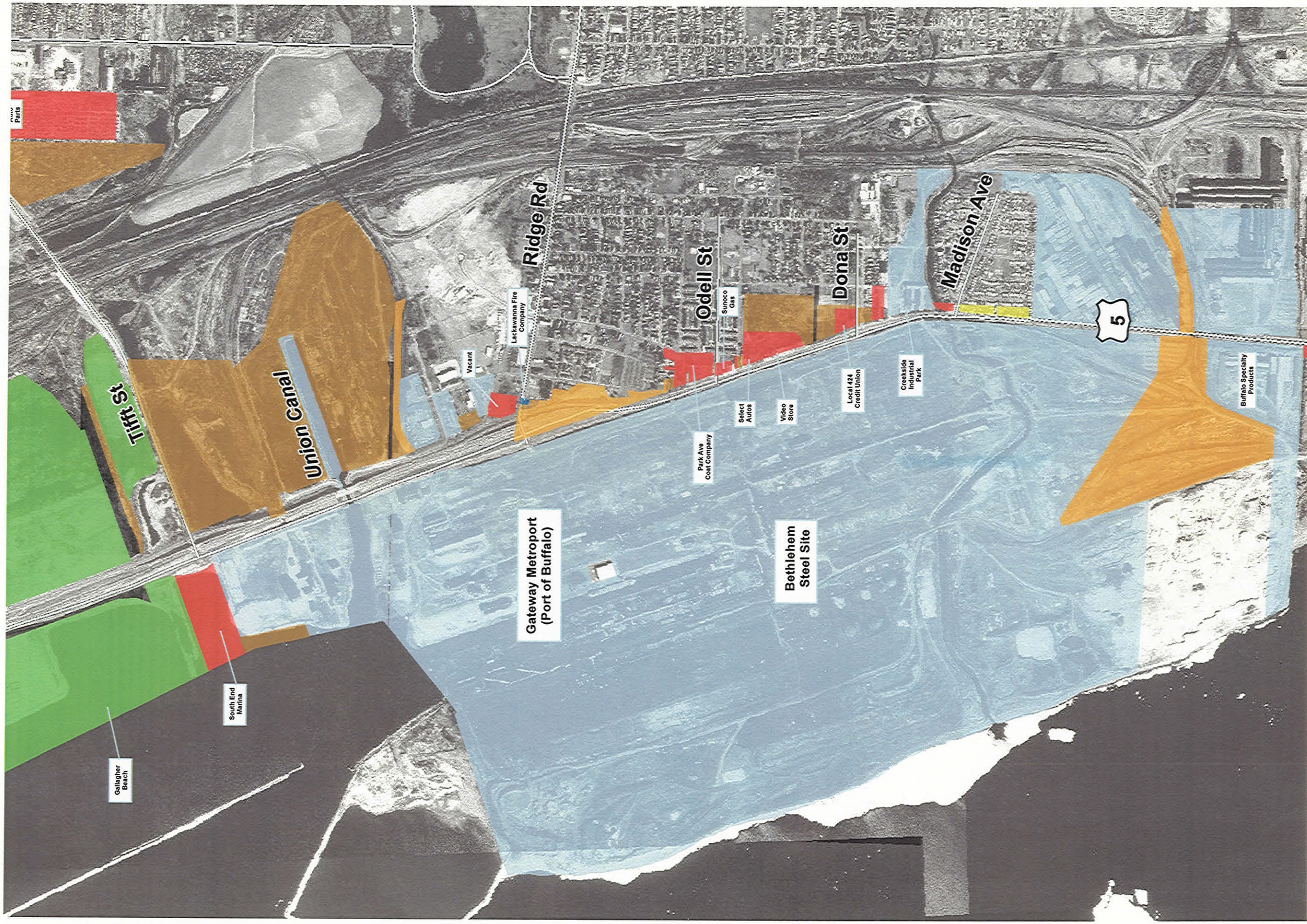


FIGURE 4.1-2
Selected Land Use
North of Tift Street
Southtowns Connector/Bufalo Outer Harbor Project



Source: Erie County 2003



FIGURE 4.1-3
Selected Land Use
South of Tift Street

Southtowns Connector/Bufalo Outer Harbor Project



Source: Erie County 2003

Scale:

0 0.2 Miles

0 0.2 Kilometers

Compass:

N
W E
S

FIGURE 4.1-4
Selected Land Use
Woodlawn Section of Hamburg
Southtowns Connector/Bufalo Outer Harbor Project

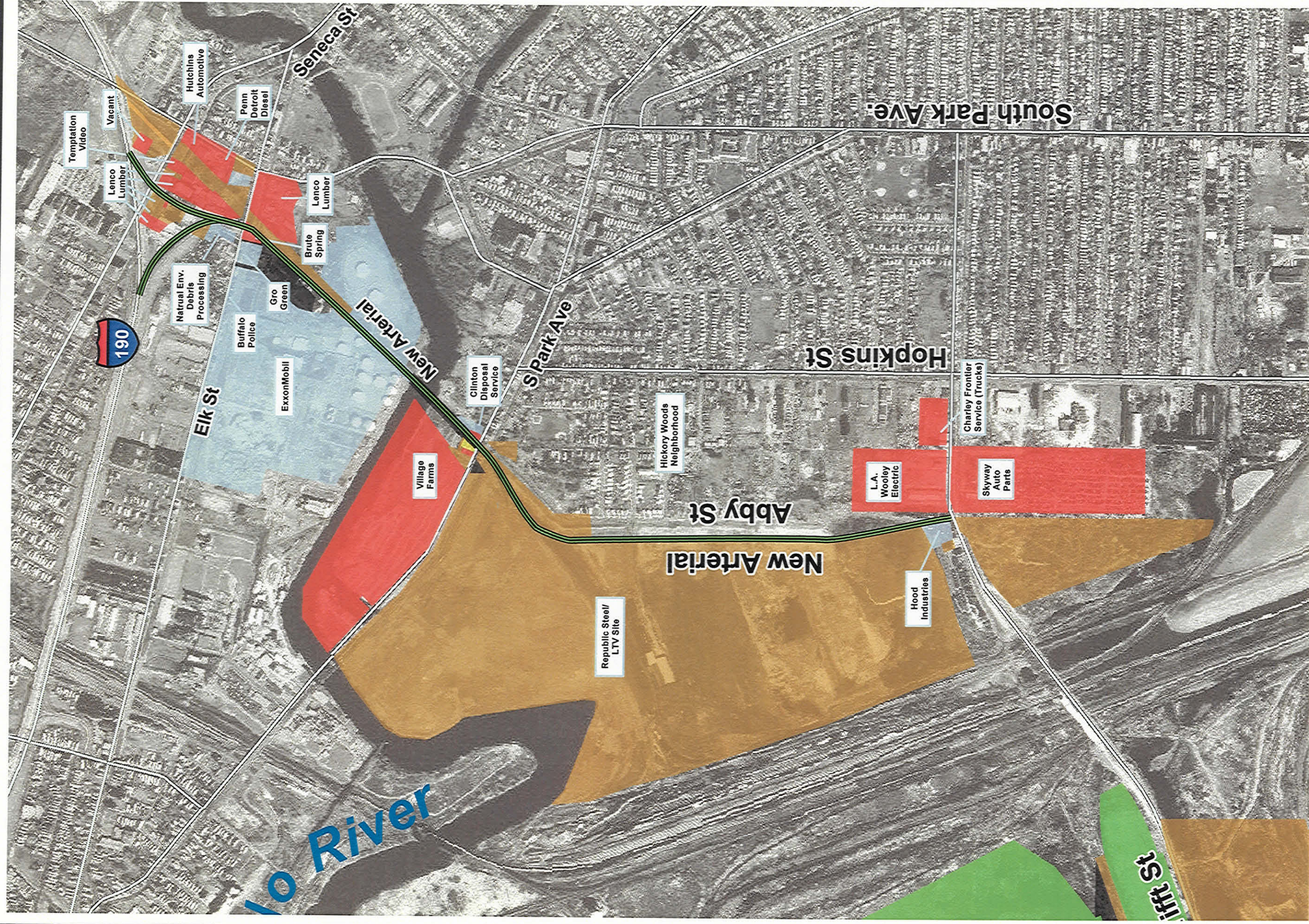


FIGURE 4.1-5
Selected Land Use
I-190/Tift Street Arterial Corridor

Southtowns Connector/Bufalo Outer Harbor Project

Business establishments are more scattered within the City of Lackawanna within the Bethlehem Park neighborhood and are more concentrated within the Woodlawn section of Hamburg. Businesses within the immediate Route 5 corridor in this area include the following.

- Lackawanna Fire Company
- Park Ave Coat Company
- Sunoco Gas
- Select Autos
- Video Store
- Local 424 Credit Union
- Creekside Industrial Park
- Elspeth Bakery
- Lam's Chinese Restaurant
- Gazebo's Bar/Restaurant
- Woodlawn Hotel
- Woodlawn Fire Company
- Woodlawn Deli
- Woodlawn Diner
- Julie's Bar
- Credit Union
- Mobil Gas Station
- S&J Motors
- Lakeshore Tile
- U-Haul
- Restaurant/Bar
- Direct TV Retailer
- Curt's Drive-In Restaurant
- Sprint Collision
- Gateway Office Building

4.1.3 Environmental Conditions

4.1.3.1 General Description

The project area is primarily urban in character with level topography except in areas where closed landfills exist (e.g., at Tifft Nature Preserve). Land uses consist primarily of existing and former industrial areas along the waterfront including the former Bethlehem Steel, Hanna Furnace, and Republic Steel plants. Interwoven throughout the project area are several emerging park and recreation facilities (e.g., Woodlawn Beach State Park, Gallagher Beach, NFTA Boat Harbor, South Park, etc.), as well as older residential communities, pockets of commercial development, large areas of vacant land, and a major rail corridor running directly through its center.



4.1.3.2 Key Environmental Areas

Figure 4.1-6 depicts locations associated with key environmental considerations within the project area. The Buffalo River is a major waterway that traverses across the project area. While industrial shipping on the Buffalo River has declined over the past 30 years, access along its channel remains regulated by the USACE. USACE maintains a vertical clearance requirement of 30.5 meters (100 feet) above the high water level for non-moveable structures crossing the channel, to allow safe clearance for lake freighters². Industrial uses along the river requiring periodic shipping include milling facilities such as General Mills, grain and cement storage facilities, and the ExxonMobil terminal facility. In addition, recreational fishing and boating access to Lake Erie is from the Buffalo River via the public access points and marina on the Inner and Outer Harbors.

Two smaller waterbodies, Smokes Creek and Rush Creek, also cross the project area. These creeks are culverts and sometimes channeled as they pass under Route 5 to their mouths at Lake Erie, whereas in suburban and rural lands the creeks follow natural courses dictated by the topography.

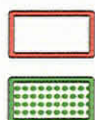
Three NYSDEC Freshwater wetland complexes exist adjacent to the central portion of the site (see **Appendix E, Wetlands and Waterbodies**). Several smaller wetland areas are scattered throughout the project area, indicative of the once extensive Lake Erie marsh system. Today, much of the native soils and former marsh system are urban (Ud) soils.

The project area is contained within the Elm-Red Maple-Northern Hardwood forest zone (de Laubenfels 1975). This forest growth reflects recent conditions where poorly drained areas are widespread, the natural forest removed, and better-drained areas utilized for agriculture. The climatic conditions of this zone comprise cooler summers and a shorter growing season (de Laubenfels 1975).

Large areas impacted by human activities typify the project area's urban character. The area was once heavily industrialized and contained an extensive network of railroad facilities. Thus, most of these sites are characterized as "brownfields," or sites that exhibit some level of contamination that tends to impede private redevelopment. For example, the LTV/Republic Steel and Bethlehem Steel sites contained former manufacturing facilities with large disposal areas containing lead, coke waste, slag, and/or other wastes associated with basic steel making. Most of the former industrial sites in the project area were investigated by NYSDEC for past releases of hazardous waste. Each are assigned a NYSDEC Site number and have been classified as "Class 2" with exception to Donner Hanna Coke (a portion of the LTV/Republic Steel site), which is a Class 3 site. Class 2 sites are those that exhibit contamination that may be dangerous to human health and the environment and therefore warrant cleanup. Class 3 sites are those that

² It should be noted that there would be no new structures (i.e. fixed, bascule, or lift bridges) proposed within this channel limit as part of any of the Build Alternatives. The proposed new Buffalo River bridge as part of the I-190/Tift Street Arterial would be beyond the limits of the navigation channel.





Brownfield/
Hazardous Waste Sites

Recreational Site

Waterways

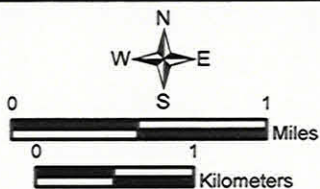


Figure 4-1-6
Key Environmental Areas

Southtowns Connector/Buffalo Outer Harbor Project

have undergone some form of remediation to remove imminent threats to the environment and human health, however may require further remediation and would likely have land use controls imposed. Currently, the former LTV/Republic Steel site is undergoing implementation of a voluntary cleanup program including excavation of the topsoil layer, consolidation in an on-site landfill cell, and replacement of excavated areas with clean fill.

Several recreational areas are under development in the project area. Tifft Nature Preserve is situated to the east of Route 5 between the Buffalo River (north) and Tifft Street (south). Once a brownfield site (developed over a closed solid waste landfill), the preserve is managed by the Buffalo Museum of Science and consists of an educational center, Lake Kirsty (for recreational fishing and pond education) and various hiking trails. It is home to a series of wildlife species that migrate or occupy the territory, including whitetail deer, raccoons, rabbits, beavers, birds, and several types of fish and amphibians. The closed landfill itself is now vegetated and used for hiking trails and for snowshoeing in the winter.

Times Beach, located at the project terminus and parallel to the Buffalo River as it enters Lake Erie, is a portion of the waterfront that is undergoing remediation associated with its prior use as a USACE dredge disposal facility. Since its closure, the site has become a haven for several species of shore birds; following the completion of the remediation program, the site will be designated as a nature preserve, likely to be managed by the Buffalo Museum of Science in conjunction with its Tifft Nature Preserve operations.

Gallagher Beach and the NFTA Boat Harbor, two NFTA-owned facilities, exist along the project corridor to the west of Fuhrmann Boulevard between Ohio and Tifft Streets. Improvements to this tract of land are presently on going and include a bicycle/pedestrian trail, boat-launching facilities, park/picnic facilities with access to the lakeshore, and locations for vehicles frequenting this area. The New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) is currently undertaking actions to acquire these properties from the NFTA and designate the area as a new state park. This will also include further development of recreational amenities, such as a visitor center/bathhouse facility.



4.2 Social Consequences

4.2.1 Community Cohesion

Community cohesion relates to the extent that the STC/BOH Project would affect interaction and relationships among persons, groups, and perceptions regarding community identity and operations. This becomes an issue when a proposed action would divide a community or neighborhood, change access patterns, isolate or otherwise affect social relationships between the divided sections of the community. NYSDOT received input on the development of the project alternatives from public officials and residents in affected municipalities, including the City of Buffalo, City of Lackawanna, and Town of Hamburg. Their suggestions and concerns were incorporated into the Build Alternatives to minimize negative impacts and maximize connectivity among communities and consistency with local/regional plans and policies.

4.2.1.1 Null Alternative

Elements contributing to community cohesion would not change in any substantial ways under the Null Alternative. Existing transportation patterns would be unchanged and normal development patterns would continue. The Route 5/Fuhrmann Boulevard complex would continue to be perceived as a confusing system in providing local access to the Lake Erie waterfront. While planned additions of multi-purpose trails would somewhat enhance access for pedestrians and bicyclers, the physical presence of the Route 5 embankment would still serve as a major dividing element between inland areas such as Tifft Nature Preserve from waterfront uses such as Gallagher Beach. Such multi-modal access improvements would not extend south of the Ridge Road – thus Route 5 would continue to be perceived as more of a vehicles-only arterial highway along segments in Lackawanna and Woodlawn.

Under the Null Alternative, with the exception of limited trail improvements, Ohio Street would continue to have a wide pavement section encouraging higher average traffic speeds as well as a largely undefined streetscape consisting of overhead utilities, discontinuous sidewalks, and limited lighting. In turn, residential areas in South Buffalo around the former LTV/Republic Steel site (e.g., Bailey Avenue, Hopkins Street, South Park Avenue, Smith Street, etc.) would continue to experience periodic use by truck traffic accessing I-190. Such patterns would likely expand as brownfield sites are redeveloped for multi-tenanted uses.

4.2.1.2 Modified Improvement Alternative (Preferred Alternative)

This alternative would enhance community cohesion by creating better local multi-modal access and visual enhancements to the Lake Erie waterfront, Times Beach, Tifft Nature Preserve, and the Gallagher Beach and NFTA Small Boat Harbor areas. Simple, non-circuitous local access to NFTA Outer Harbor parcels and recreational facilities would augment the quality of life of local residents who frequent the waterfront by providing a simpler method of accessing this area. While the extent of the total paved areas associated with Route 5 and Fuhrmann Boulevard



would be reduced between the Buffalo Skyway Bridge and Ridge Road, the two roadways would remain as separate facilities with new pedestrian and bicycle improvements along a two-way Fuhrmann Boulevard. Route 5 would still somewhat visually separate inland areas from the waterfront (particularly between Tifft Nature Preserve and Gallagher Beach).

Removal of the Route 5 Ridge Road overpass under the Modified Improvement Alternative would open new areas at this intersection for development to create a node of activity to link Lackawanna's Bethlehem Park and 1st Ward neighborhoods, most likely through the development of community retail uses. It would also improve visibility of the Bethlehem Steel site and allow for a direct connection from Route 5 and Buffalo Lakeside Commerce Park Area, tying these future developments into the fabric of their respective communities.

From Ridge Road to Milestrip Road, proposed components under the Modified Improvement Alternative would enhance community cohesion by easing peak hour traffic flows and enhancing the quality of the streetscape and access by pedestrians and bicyclers. The addition of a westbound lane from Ridge Road to the South Buffalo Railroad Bridge would eliminate periodic bottlenecks that occur during the PM peak commuting/through movements. The addition of a planted median, more defined crosswalks, and bike lanes combined with maintaining existing parking for businesses that front on Route 5 would lend an improved perception of the Bethlehem Park and Woodlawn communities.

Proposed improvements to Ohio Street would enhance Buffalo's Old First Ward neighborhood by providing a sense of cohesion amongst residential areas along this corridor. Configuration of Ohio Street to three lanes (one in each direction with a center left-turn lane) would calm traffic speeds and addition of streetscape improvements (underground utilities, period lighting, sidewalks, enhanced crosswalks, etc.) would create an excellent setting for sensitive reuse and infill development that would essentially grow out of the development character being advanced in the Cobblestone Historic District. Improvements to the Conway Park frontage and the NYSDEC Buffalo River Access point would further enhance these parks as gathering places for seasonal events and recreational activities. In turn, development of the Industrial Heritage Trail would provide a recreational/historic interpretation component that would contribute to both a neighborhood and regional sense of pride.

The addition of the I-190/Tifft Street Arterial through abandoned industrial lands to I-190 would provide a secondary access route for truck traffic destined for I-90. The arterial would run through the LTV/Republic Steel site and a former rail corridor with a 300' buffer between the roadway and Hickory Woods. Given that the former uses of the proposed right-of-way were defining elements of the neighborhood, the arterial would not isolate any existing communities. In addition, traffic forecasting presented in Chapter 2 suggest that the new arterial would attract a portion of vehicular and truck traffic currently using neighborhood streets to access I-190 (e.g., South Park Avenue, Hopkins Street, Bailey Avenue).



The Modified Improvement Alternative would require the acquisition of portions of two commercial parcels on Ohio Street along the east side of the roadway south of Ganson Street. This acquisition would displace two commercial structures owned by Rigidized Metals Corporation. Both structures are currently abandoned.

Construction of the I-190/Tifft Street Arterial would displace an operating business, Brute Spring, located where the proposed alignment meets Elk Street at the intersection of Keating Street. Further, the new arterial would potentially displace three residential properties and one mixed commercial/residential property located at the proposed new intersection with South Park. Unlike Brute Spring, the proposed right-of-way does not directly require the taking of these properties; however, it would place these properties directly between the roadway and an existing industrial use.

The implications of these displacements are presented in **Appendix O: Conceptual Stage Relocation Plan**. The displacement of all properties would be done in accordance with the guidelines established by Public Law 91-646, 84 Statute, 1894, *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*. Sufficient residential and commercial properties exist within South Buffalo that could serve as replacement facilities for these displaced residents and users.

4.2.1.3 Boulevard Alternative

Under the Boulevard Alternative, the Route 5/Fuhrmann Boulevard complex would be entirely replaced with a single six-lane roadway to serve both local and through movements. Like the Modified Improvement Alternative, this would enhance community cohesion by creating better local multi-modal access and visual enhancements to the Lake Erie waterfront. However, this alternative would totally change the nature of the corridor by eliminating all overpasses at adjoining streets, replace them with signalized intersections, and reduce the operating speed of the roadway. Thus, the visual separation created by Route 5 between inland and waterfront areas would be eliminated under the Boulevard Alternative. This would be particularly dramatic in the Tifft Nature Preserve/Gallagher Beach/NFTA Boat Harbor area where these recreation areas on either side of Route 5 would essentially be perceived as a single large park and natural area.

However, areas north of the Buffalo Skyway Bridge (i.e., Times Beach) and future development areas on the NFTA's Outer Harbor Lands would be still be somewhat separated with the rest of the City of Buffalo. This is because the Boulevard Alternative would require the implementation of somewhat circuitous access pattern around the Skyway (i.e., slip ramps tying to West Michigan Avenue). In turn, given that NYSDOT access management procedures would limit the number of intersections and curb cuts onto a Route 5 Boulevard, this alternative would assume an independent internal roadway network on the NFTA Outer Harbor Lands, with access to the Skyway Bridge provided via U-turn movements through periodic breaks in the landscape median. Thus, areas north of Ohio Street would be perceived as a more of an enclave that is separated from the rest of the city.



Community cohesion effects to areas along Route 5 between Ridge and Milestrip Roads, Ohio Street, and the proposed I-190/Tifft Street Arterial, as well as potential displacement impacts would be similar to those discussed under the Modified Improvement Alternative.

4.2.1.4 Hybrid Alternative

The Hybrid Alternative would consist of the components of the Modified Improvement Alternative from the Skyway to Ohio Street and the components of the Boulevard Alternative from Ohio Street to the project terminus at Milestrip Road. Thus, it would result in the same level of enhancement of community cohesiveness in the Tifft Nature Preserve/Gallagher Beach/NFTA Boat Harbor area as the Boulevard Alternative. It would also allow for more flexible access patterns to the NFTA Outer Harbor Lands and uses north of the Buffalo Skyway Bridge by preserving a continuous two-way Fuhrmann Boulevard for local access, tying these areas to the rest of the City of Buffalo.

Community cohesion effects to areas along Route 5 between Ridge Road and , Ohio Street, and the proposed I-190/Tifft Street Arterial, as well as potential displacement impacts would be similar to those discussed under the Modified Improvement Alternative.

4.2.2 Changes in Travel Patterns or Accessibility

4.2.2.1 Null Alternative

Under the Null Alternative, the current pattern of Route 5 as a primary commuting corridor is projected to increase in conjunction with continued suburbanization of Southtowns communities. Daily traffic along Route 5 between Fuhrmann Boulevard and I-190 is projected to increase to 48,000-55,000 vehicles by 2030 under Null conditions. According to future travel forecasts conducted in conjunction with the GBNRTC (See Chapter 2, Section 2.3.1.9), this would result in future capacity issues along the Route 5 corridor, specifically associated with at-grade intersections within Woodlawn as well as the expressway segments of Route 5 north of Ohio Street.

With regard to other modes of travel, the Null Alternative would result in only limited improvements to pedestrian and bicycle access, associated with on-going plans for multi-purpose trail improvements along Fuhrmann Boulevard, Ohio Street, and Tifft Street. The system of one-way frontage roads around Route 5 tends to encourage higher vehicle speeds; this would generally conflict with pedestrian/bicycle access. Anticipated traffic growth in the corridor would continue to conflict with pedestrian and bicycle access in certain locations (e.g., interchanges, slip ramps). Further, under the Null Alternative no system of pedestrian and bicycle access would extend to Woodlawn Beach State Park.

4.2.2.2 Modified Improvement Alternative (Preferred Alternative)

Under this alternative, the overall components of the regional road network would remain the same as under the Null Alternative, in terms of overall configuration of the regional expressway



and arterial highway segments. Accordingly, the regional accessibility implications would be similar to the Null Alternative. As discussed in Chapter 3, Section 3.3.3.2, the 2030 traffic analysis for the this alternative indicates that Route 5 would continue to serve as a major commuting route, with daily traffic volumes reaching similar levels to the Null Alternative. Therefore, arterial and expressway segments of Route 5 would experience capacity issues by 2030.

However, in contrast to the Null Alternative, the Modified Improvement Alternative would significantly simplify local road access around Route 5 by consolidating access to three interchanges and creating two-way Fuhrmann Boulevard on the west side of Route 5. This would improve local traffic flow and access to sites such as Times Beach, NFTA Outer Harbor Lands, NFTA Boat Harbor, and Gallagher Beach. The conversion of a portion of Fuhrmann Boulevard North to a dedicated driveway to Tifft Nature Preserve would also improve physical access and intuitive wayfinding to the preserve (i.e., by creating a “Tifft Street” address).

The Modified Improvement Alternative would provide a direct connection from Route 5 to the Buffalo Lakeside Commerce Park, as well as simplify movements at Ridge Road by elimination of the overpass in lieu of a standard intersection. South of Ridge Road, the addition of a new lane to Route 5 Westbound would better facilitate traffic flows in the evening peak hour. Further, the addition of a center median and streetscape improvements would create safer refuge points for pedestrians and transit patrons. However, the proposed at-grade intersection at Route 5 at Ridge Road, designed to support local land use plans, is anticipated to reach congestion in 2030.

The I-190/Tifft Street Arterial would provide moderate changes to the current travel patterns on certain local roads in South Buffalo associated with access to I-190. Traffic forecasting indicated that the new arterial could provide more direct access to I-190, slightly reducing projected traffic flows on South Park Avenue, Bailey Avenue, and Hopkins Street.

This alternative would involve a complete system of new pedestrian/bicycle access, involving both off-road multipurpose trails along Fuhrmann Boulevard and dedicated bike lanes within the Woodlawn business district (connecting to Woodlawn Beach State Park). The Ohio Street Improvements would also significantly increase pedestrian and bicycle safety through traffic calming measures, and establishment of sidewalks and dedicated bike lanes. In turn, the I-190/Tifft Street Arterial would include a trail facility, extending the system of dedicated bicycle pedestrian trails along the waterfront to the Buffalo River and the Seneca-Babcock neighborhood.

4.2.2.3 Boulevard Alternative

The Boulevard Alternative would involve full reconstruction of the Route 5/Fuhrmann Boulevard complex to convert it to a single, six-lane boulevard. As discussed in Chapter 3, Section 3.3.3.2, the 2030 traffic analysis for the Boulevard Alternative indicates that changes to the configuration and travel speeds on Route 5 would result in a significant change in regional



travel behavior. While daily traffic on Route 5 would remain relatively constant with current levels (between 38,000 and 40,000 AADT on various segments), a large portion of commuter traffic would divert to the interstate system (I-90 and I-190) for access to/from downtown Buffalo. The implications of these changes would involve no capacity issues along Route 5 for its entire length in 2030. However, coupled with background growth, the diverted traffic would create capacity issues along all segments of I-90 and I-190 that abut the project area. Essentially, the Boulevard Alternative would involve a public policy decision to focus all projected net growth in commuting traffic to the interstate system.

Similar to the Modified Improvement Alternative, the Boulevard Alternative would involve creating an integrated system with pedestrian/bicycle access along the Lake Erie waterfront. It would differ somewhat since it would be generally located on land opened through the elimination of the existing Fuhrmann Boulevard pavement.

The travel pattern and access implications of the Route 5 Improvements at the Union Ship Canal and south of Ridge Road; along Ohio Street; and associated with the proposed I-190/Tifft Street Arterial would be similar to those described for the Modified Improvement Alternative.

4.2.2.4 Hybrid Alternative

The Hybrid Alternative would include components of the Modified Improvement and Boulevard Alternatives – Route 5 and Fuhrmann Boulevard would be maintained as separate facilities north of Ohio Street. South of Ohio Street, the complex would be converted to a single 6-lane boulevard. As discussed in Chapter 3, Section 3.3.3.2, the 2030 traffic analysis indicates that this would also result in changes to regional travel behavior, but not to an extent as forecasted under the Boulevard Alternative. Daily traffic on Route 5 would somewhat increase from current levels (to between 38,000 and 50,000 AADT on various segments) with less of a projected diversion of commuter traffic to the interstate system. Thus in 2030, intersections and expressway segments on Route 5 would have no capacity issues, and fewer segments of I-190 would reach capacity as compared to the Boulevard Alternative.

The travel pattern and access implications of the Route 5 Improvements at the Union Ship Canal and south of Ridge Road; along Ohio Street; and associated with the proposed I-190/Tifft Street Arterial would be similar to those described for the Modified Improvement Alternative.

4.2.3 Impacts on School Districts, Recreation Areas, and Places of Religious Worship

4.2.3.1 School Districts

Portions of three school districts exist in the project area: City of Buffalo School District (including a portion of the Ellicott, Fillmore, and South Wards); Lackawanna City School District (including a portion of the Frontier Central School District); and the Town and Village of Hamburg Public School System. The following public and private schools exist within the project area.



- Southside ES
- Hillary Park Academy
- Triangle Academy
- South Park HS
- Public School 70; Indian Park Academy
- Lorraine Academy
- Frederick Law Olmsted School
- Public School 4
- Baker Hall School
- Franklin ES
- Our Lady of Victory High School
- Washington ES
- Lackawanna HS
- Lackawanna MS
- McKinley ES
- Our Mother of Good Counsel School
- Our Lady of the Sacred Heart School

Null Alternative

There would be no impacts to school districts under the Null Alternative. Travel along the project corridors by school buses would continue in the same fashion as today and would not experience any potential roadway detours and/or delays due to construction. Traffic volumes would increase over time, as forecasted, which may induce limited congestion along Route 5 at points where congestion currently is experienced today during peak travel times.

Modified Improvement Alternative (Preferred Alternative)

Under this alternative, short-term impacts during the construction phase would occur along project corridor roadways to create minor delays during morning and afternoon commute hours, however all roadways are anticipated to remain partially open as part of planned maintenance and protection of traffic measures. If temporary detours are established (as may occur with bridge reconstruction/removal), detour information would be distributed to all school districts in efforts to familiarize bus drivers and to alert school children and parents of potential delays in pick-up and drop-off times at set bus stop locations.

Construction activities associated with the Modified Improvement Alternative are not expected to have a significant impact on school bus routes. Upon completion and implementation of the elements of the Modified Improvement Alternative, there would be no negative impacts on the school districts.



Boulevard Alternative

Impacts to school districts under the Boulevard Alternative would be the same as described for the Modified Improvement Alternative.

Hybrid Alternative

Impacts to school districts under the Hybrid Alternative would be the same as described for the Modified Improvement Alternative.

4.2.3.2 Recreation Areas

One of the major goals of the proposed project is to gain easier access and make improvements to existing waterfront recreational and parkland facilities. Under the Null Alternative, there would be no access improvements to link existing and planned park and recreational facilities, thus foregoing an opportunity to enhance recreational uses along the waterfront.

All of the Build Alternatives would improve connectivity among existing park and public recreational areas, including Times Beach, Gallagher Beach, NFTA Boat Harbor, Woodlawn Beach, Tifft Nature Preserve, Conway Park, and designated recreational and fishing access areas along the Buffalo River. Likewise, continued access during the seasonal months of June through September will be maintained to assure proper ingress and egress at these locations during the summer and fall seasons. None of the Build Alternatives would require the taking of any property from recreational areas.

4.2.3.3 Places of Religious Worship

One church exists on roadways proposed for improvements in the project area – Our Lady of Grace Church located at 3319 Lake Shore Road (Route 5) within the Woodlawn section of Hamburg. Under the Null Alternative, there would be no pedestrian access improvements to Route 5 in Woodlawn. Under all the Build Alternatives, streetscape and pedestrian improvements planned for Route 5 would involve the construction of a center, landscaped median as well as new sidewalks, and better-defined pedestrian crossings at signalized intersections. In the context of overall pedestrian safety and security in Woodlawn, such improvements would serve as an asset to the operations of this church. During construction, coordination with church representatives would be conducted to ensure safe access/parking during this period.

Although not within the project study area, and thus not directly impacted, Our Lady of Victory Basilica (located on the corner of Ridge Road and South Park in Lackawanna) is a local destination frequented by many that may be indirectly impacted by the project during highway construction. Mitigation measures to ensure proper traffic flow in and around this facility may include temporary road signs and/or detours to guide the traffic to the facility with little to no disruption or time delay. Representatives at the Basilica will be notified in advance of any construction activities that may impact scheduled services via traffic reroutes.



4.2.4 Impacts on Police, Fire Protection, and Ambulance Access

Access for police protection and enforcement, fire protection and response, and emergency medical services, is managed along the elevated portion of Route 5 between I-190 and Ridge Road through ramps to/from Fuhrmann Boulevard, Tift Street, and Ridge Road as well as from the downtown area, including streets leading onto the skyway and the I-190. Controlled access is also present along Milestrip Road between Route 5 and South Park Avenue. Uncontrolled access exists along Route 5 in Woodlawn where at grade intersections allow for access by emergency, fire and police protection with relative ease.

Police protection within the project area is provided by the Buffalo Police Department (on Route 5 from the Skyway to the Buffalo/Lackawanna city line; along Tift Street; on Ohio and adjoining streets; and along the proposed I-190/Tift Street Arterial). The Lackawanna Police Department provides enforcement protection along Route 5 from the Buffalo/Lackawanna city line to the South Buffalo Rail Bridge. The Hamburg Police Department enforces areas along Route 5 in Woodlawn. In addition, the New York State Police and Erie County Sheriff Department patrol the interstate system (I-90/I-190) and Route 5.

Three fire districts within Erie County provide protection to the project area. The Buffalo Fire Department provides fire protection and emergency medical response in the City of Buffalo; its Engine 10 is located at 40 Ganson Street. The Lackawanna Fire Department's Engine 1 is located at 1630 Abbott Road. Within Hamburg, the Woodlawn Volunteer Fire Company, located at 3281 Lake Shore Road (Route 5), is the facility that provides service to the southern portion of the project area. The Woodlawn Volunteer Fire Company also provides emergency medical and ambulance services through privately run companies.

4.2.4.1 Null Alternative

There would be no direct impact on emergency access. However, projected area-wide traffic growth would increase congestion and delays, potentially negatively affecting response times for police, fire, and ambulance services. Further, maintaining the circuitous ramps from Route 5 for access to the waterfront, Ohio Street, Tift Street, and points further east would also negatively affect response times, primarily at points along the waterfront.

4.2.4.2 Modified Improvement Alternative (Preferred Alternative)

This alternative would not significantly affect emergency access by police, fire, and ambulance services. During construction phases, measures would be taken to ensure continued access through implementation of maintenance and protection of traffic procedures. Once completed, the elements of the road network would provide more simplified access by emergency vehicles to properties along Route 5. In turn, implementation of the I-190/Tift Street Arterial will open a new access route through the project area.



4.2.4.3 Boulevard Alternative

As with the Modified Improvement Alternative, the Boulevard Alternative would not significantly impede access for police, fire, and ambulance services either during construction or upon implementation of the components of this alternative.

4.2.4.4 Hybrid Alternative

As with the Modified Improvement Alternative, the Hybrid Alternative would not significantly impede access for police, fire, and ambulance services either during construction or upon implementation of the components of this alternative.

4.2.5 Impacts on Highway Safety, Traffic Safety, and Overall Public Safety and Health

Highway and traffic safety issues are discussed in Chapter 2, Section 2.3.1.11 and in **Appendix C, Traffic and Accident Report**, which evaluates accidents over the past 3 years on the project corridors, specifically Route 5, Fuhrman Boulevard, Ohio Street, Tifft Street, I-190 near the proposed new arterial, and along South Park.

4.2.5.1 Null Alternative

The Null Alternative does not include any specific future highway improvements other than those identified in the GBNRTC TIP. Any project area-wide traffic growth would reduce vehicular and pedestrian safety, which is already poor along Route 5 in the community of Woodlawn. Likewise, portions of Ohio Street exhibit conditions that would impede pedestrian safety, given its configuration that encourages higher speeds and lack of sidewalks or other safety features.

One of NYSDOT's policies, however, is to identify safety deficient highways and construct improvements when needed to maintain acceptable levels of safety. It is likely that segments in the project area would be identified for periodic safety improvements as incidents arose.

4.2.5.2 Modified Improvement Alternative (Preferred Alternative)

This alternative would address many of the factors contributing to accidents today along Route 5 and Fuhrmann Boulevard. All major substandard geometric features of the existing highway, which may be contributing to accidents, would be improved in accordance with AASHTO and NYSDOT standards. Improvements to Ohio Street would include intersection realignment at Miami and Chicago Streets, and at Louisiana/St. Clair Streets to facilitate the creation of safer "T" intersections. Further, all road segments would include appropriate features to provide adequate pedestrian safety.



4.2.5.3 Boulevard Alternative

The Boulevard Alternative would provide overall highway, traffic, and public health safety as indicated in the Modified Improvement Alternative. It would differ in terms of creating a transition along Route 5 from expressway segments on I-190 and the Skyway Bridge to a slower moving boulevard segment immediately south of the bridge.

This change would have the potential for creating safety issues for Route 5 westbound traffic, particularly associated with rear-end collision accidents in the vicinity of the planned signalized intersection to serve the NFTA Outer Harbor Lands. This is because traffic in this location would be moving along the down slope off the Skyway Bridge and have limited reaction time to transition to a 65 kph (40 mph) speed limit and a traffic signal. In order to mitigate these issues, warning signs to inform motorists would need to be installed along Route 5 westbound on ramps from I-190 and along the Skyway Bridge itself (e.g., “Expressway Ends”; “Speed Zone”; “Signal Ahead” “Intersections Next 5 Miles”; etc.) and/or signs informing bus or truck operators to reduce speeds on the down slope of the Skyway Bridge (e.g., “Use Low Gear”).

4.2.5.4 Hybrid Alternative

The Hybrid Alternative would also provide overall highway, traffic, and public health safety as indicated in the Improvement and Boulevard Alternatives. Like the Boulevard Alternative, it would also create a transition along Route 5 from an expressway to a slower boulevard. However, this change would occur further south along the corridor at Ohio Street rather than at the touchdown of the Skyway Bridge. This would allow for a greater distance (i.e., 2 kilometers [1.2 miles]) and more level area for vehicles to transition to a slower speed. Like the Boulevard Alternative, warning signs to inform motorists would need to be installed along Route 5 to inform motorists of the end of the Route 5 expressway segment.

4.2.6 General Social Groups Benefited or Harmed

4.2.6.1 Effects on Elderly and Disabled Persons

All of the Build Alternatives would result in improvements to pedestrian access, particularly for elderly persons and those with disabilities. All proposed improvements would be developed in final design to be consistent with the requirements of the federal Americans with Disabilities Act. Specific improvements under each alternative are presented in Chapter 3, Section 3.3.3.14.

4.2.6.2 Environmental Justice – Effects on Minority and Low Income Populations

Executive Order (EO) 12898 (February 11, 1994) requires that Federal Agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low income populations. The EO established an Interagency Working Group (IWG) on Environmental Justice to provide guidance for making environmental justice determinations. Within its guidance, the IWG explains that a minority or low-income population may be present if the percentage of the affected area is



“meaningfully greater” than the percentage in the general population or other “appropriate unit of geographic analysis” (USEPA, 1998). For the STC/BOH Project, unit used for comparison is Erie County.

An analysis of census tracts characteristics was conducted for areas targeted for improvements under each of the Build Alternatives (see **Figure 4.2-1** and **Table 4.2-1**). As is shown, the project areas exhibit higher proportions of minority (i.e., Hispanic only) and low income populations than the county as a whole.

Table 4.2-1 Comparison of Minority and Low Income Populations Project Area and Erie County					
Tract	2000 Population	Race/Ethnicity			Poverty
		Caucasian	Non- Caucasian	Hispanic¹	Total Persons Below the Poverty Level
1.00	2,177	2,021	156	221	310
2.00	4,411	4,083	328	347	751
3.00	925	715	210	139	192
4.00	515	493	22	38	135
5.00	2,478	2,271	207	211	632
12.00	2,448	1,344	1,104	401	640
13.01	4	4	0	0	0
13.02	951	180	771	306	458
18.00	1,104	1,002	102	106	320
20.00	1,528	1,396	132	61	384
121.00	994	220	774	153	454
122.00	3,134	1,544	1,590	319	866
123.00	3,462	3,247	215	198	513
124.00	2,483	2,409	74	65	339
128.00	2,718	2,631	87	94	174
130.01	3,513	3,438	75	82	255
Total Project Area	32,845	26,998	5,847	2,741	6,423
% Of Project Area	100%	82%	18%	8%	20%
Erie County	950,265	768,476	181,789	30,760	112,358
% Of County	100%	81%	19%	3%	12%

¹Hispanics can be members of any race.

The impacts associated with each of the Build Alternatives would not cause disproportionately high and adverse human health or environmental effects on minority and low-income populations. Conversely, the impacts associated with the project are of a positive nature –



providing easy and safe access for pedestrians, bicyclists, and motor vehicles to the waterfront in a less confusing manner and creating an improved streetscape setting to contribute to community well-being.

4.2.7 Consistency with Local and Regional Plans, Programs, and Policies

Table 4.2-2 presents a summary of the consistency of each of the Build Alternatives to local and regional plans, programs, and policies. As part of the alternative development process, NYSDOT conducted coordination with public officials and stakeholders on the Project Steering Committee and Citizen’s Advisory Committee to identify currently adopted plans and programs and incorporate project elements that are consistent with these policies.

4.2.7.1 Null Alternative

The Null Alternative would generally be consistent with established plans, programs, and policies, insofar as it would generally represent existing conditions. However, it would not realize or significantly facilitate the achieving of several goals and objectives set forth in these plans or programs.

4.2.7.2 Modified Improvement Alternative (Preferred Alternative)

Components of this alternative would be consistent, have no effect, and/or implement proposed policies within local and regional plans and programs.

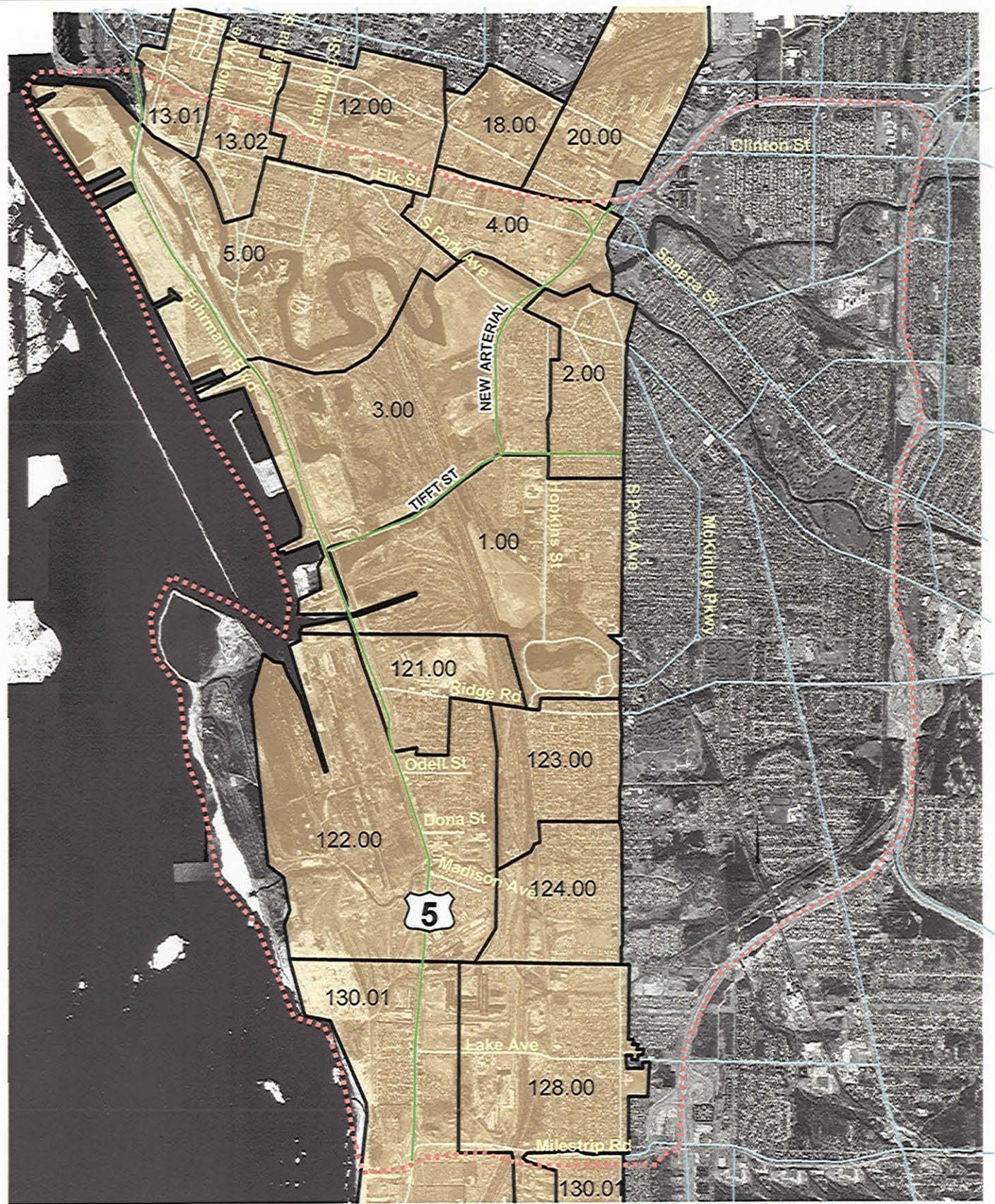
4.2.7.3 Boulevard Alternative

The Boulevard Alternative is potentially inconsistent with one established plan. Specifically, this would involve the Boulevard Alternative’s proposed Route 5 alignment between the touchdown of the Buffalo Skyway and Ohio Street and the segment’s relationship to the NFTA’s Outer Harbor Development Plan, which calls for mixed-use redevelopment of the site for commercial, recreational, and residential development. The Boulevard Alternative would provide access to the property via a single signalized intersection that leads into what is assumed to be an internal service road. Depending on the ultimate site design for this parcel, the Boulevard Alternative may be inconsistent with plans to develop this site.

4.2.7.4 Hybrid Alternative

Components of the Hybrid Alternative would be consistent, have no effect, and/or implement proposed policies within local and regional plans and programs.





..... Study Area Boundary
 Affected Census Tracts

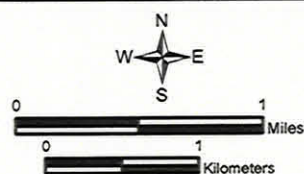


FIGURE 4.2-1
 Census Tracts of Areas with
 Project Improvements

Southtowns Connector/Outer Harbor Project

Table 4.2-2 Relationship of STC/BOH Improvements to Existing Plans, Programs, and Policies

Table 4.2-2 Relationship of STC/BOH Improvements to Existing Plans, Programs, and Policies				
Plan/Program/Policy	Null	Relationship to STC/BOH Alternatives ^{1,2}		
		Modified Improvement	Boulevard	Hybrid
Federal/State				
Federal Enterprise Community	No Effect.	No Effect.	No Effect.	No Effect.
EPA Brownfields Assessment Pilot Program	Inconsistent – would not provide access improvements.	Consistent – provides better visibility and increased capacity on Route 5 adjacent to the Bethlehem Site.	Consistent – Same as Modified Improvement Alternative.	Consistent– Same as Modified Improvement Alternative.
New York State Empire Zone Program	Inconsistent – would not provide access improvements.	Consistent – provides better visibility and access to brownfields sites in zone.	Consistent – Same as Modified Improvement Alternative.	Consistent– Same as Modified Improvement Alternative.
Woodlawn Beach Redevelopment Plan	No Effect.	Consistent – provides better pedestrian and bicycle linkages to park’s internal system.	Consistent – Same as Modified Improvement Alternative.	Consistent – Same as Modified Improvement Alternative.
Seaway Trail Action Plan	Inconsistent – would not realize waterfront access goals.	Consistent – provides enhanced waterfront access and linkages between waterfront parks and recreational areas along Scenic Byway.	Consistent – Same as Modified Improvement Alternative.	Consistent – Same as Modified Improvement Alternative.
Regional/County				
GBNRTC 2025 Long-Range Plan for Erie and Niagara Counties	Inconsistent – would not provide access improvements.	Implements – Realizes Southtowns Access Project.	Implements – Same as Modified Improvement Alternative.	Implements – Same as Modified Improvement Alternative.
GBNRTC Transportation Improvement Program	No Effect.	TBD – To be considered after FDR/FEIS process complete.	TBD – To be considered after FDR/FEIS process complete.	TBD – To be considered after FDR/FEIS process complete.
Peace Bridge Expansion/Plaza Improvement Plan	No Effect.	No Effect.	No Effect.	No Effect.
NYS Route 5 Local Traffic Impact Study Final Concept Plan	Inconsistent – would not provide access improvements.	Implements – Realizes improvements between Ridge Road and Route 179.	Implements – Same as Modified Improvement Alternative.	Implements – Same as Modified Improvement Alternative.
Erie County Park System Master Plan	Inconsistent – would not realize waterfront access goals.	Consistent – provides enhanced waterfront access and linkages between waterfront parks and recreational areas.	Consistent – Same as Modified Improvement Alternative.	Consistent – Same as Modified Improvement Alternative.
Niagara Brownfields Strategic Waterfront Plan	TBD – Plan not yet complete.	TBD – Plan not yet complete.	TBD – Plan not yet complete.	TBD – Plan not yet complete.



**Table 4.2-2 Relationship of STC/BOH Improvements
to Existing Plans, Programs, and Policies**

Plan/Program/Policy	Null	Relationship to STC/BOH Alternatives ^{1,2}		
		Modified Improvement	Boulevard	Hybrid
NFTA Outer Harbor Development Plan ²	Inconsistent – Route 5/Fuhrmann Blvd. complex would continue to impede access to the site.	Consistent – Would eliminate one-way circuitous route along site frontage and create simplified diamond interchange to access Fuhrmann Boulevard.	Potentially Inconsistent – would assume internal road system to access internal locations to link to a single signalized intersection with Route 5. Depending on ultimate development plan, access management restrictions (i.e. limits on curb cuts to Route 5) could impede access to site.	Consistent – Same as Modified Improvement Alternative.
Municipal				
City of Buffalo Draft Comprehensive Plan	Inconsistent – would not realize waterfront access goals.	Consistent – facilitates goals set forth for Buffalo River and South Buffalo Planning Communities.	Consistent – Same as Modified Improvement Alternative.	Consistent – Same as Modified Improvement Alternative.
South Buffalo Redevelopment Plan/Union Ship Canal GEIS	Inconsistent – would not realize direct Route 5 access to the site	Consistent/Implements – Would provide more direct access from Route 5 to Union Ship Canal area and New Arterial would provide new access through former Republic Steel/LTV site to the interstate system.	Consistent/Implements – Same as Modified Improvement Alternative.	Consistent/Implements – Same as Modified Improvement Alternative.
Remaking Downtown Buffalo's Waterfront	No Effect.	Consistent – Preserves opportunities for local bridge between Outer and Inner Harbor and Fuhrmann Boulevard improvements (north of the touchdown of Buffalo Skyway) would facilitate redevelopment of Outer Harbor lands.	Consistent – Same as Modified Improvement Alternative.	Consistent – Same as Modified Improvement Alternative.
Erie Canal Harbor Project	No Effect.	Consistent – Ohio Street reconstruction would facilitate redevelopment corridor along Buffalo River from Erie Canal Harbor site and Cobblestone District.	Consistent – Same as Modified Improvement Alternative.	Consistent – Same as Modified Improvement Alternative.
City of Buffalo Waterfront Greenways Ordinance	Inconsistent – would not realize waterfront access goals.	Consistent – creates new greenway linkages and provides opportunities for Buffalo River access at new bridge for I-190/Tift Street Arterial.	Consistent – Same as Modified Improvement Alternative.	Consistent – Same as Modified Improvement Alternative.



Table 4.2-2 Relationship of STC/BOH Improvements to Existing Plans, Programs, and Policies

Plan/Program/Policy	Null	Relationship to STC/BOH Alternatives ^{1,2}		
		Modified Improvement	Boulevard	Hybrid
City of Lackawanna Comprehensive Plan	Inconsistent – Route 5 would continue to constrain development in Bethlehem Park	Consistent – Rte 5 improvements south of Ridge Road would facilitate new development in Bethlehem Park area.	Consistent – Same as Modified Improvement Alternative.	Consistent – Same as Modified Improvement Alternative.
City of Lackawanna Zoning Ordinance	No Effect.	Consistent – Rte 5 improvements south of Ridge Road would facilitate new development in Bethlehem Park area.	Consistent – Same as Modified Improvement Alternative.	Consistent – Same as Modified Improvement Alternative.
Lackawanna Local Waterfront Revitalization Program	No Effect.	Consistent – Would create enhanced multi-modal access to water-dependent and water enhanced uses.	Consistent – Same as Modified Improvement Alternative.	Consistent – Same as Modified Improvement Alternative.
Town of Hamburg 2010 Comprehensive Plan	No Effect.	Consistent – Would create enhanced streetscape environment in Woodlawn.	Consistent – Same as Modified Improvement Alternative.	Consistent – Same as Modified Improvement Alternative.
Private				
Bethlehem Steel Redevelopment Plan	Inconsistent – would not provide access improvements.	Consistent – Would improve southbound capacity by adding new travel lane along Bethlehem frontage and improve visibility of site area through removal of Ridge Road overpass.	Consistent – Same as Modified Improvement Alternative.	Consistent – Same as Modified Improvement Alternative.
Industrial Heritage Trail Plan	Inconsistent – would not realize Trail.	Implements – Industrial Heritage Trail improvements would be included in Ohio Street reconstruction.	Implements – Same as Modified Improvement Alternative.	Implements – Same as Modified Improvement Alternative.
Notes: ¹ Key to terms used: No Effect: Policies are not directly applicable to improvements under any of the Build Alternatives. Consistent: Anticipated improvements would be generally compatible with the statements contained within the subject plan/program/policy. Implements: An anticipated improvement under the Build Alternatives would specifically realize or implement project/action specified within the subject plan/program/policy. Inconsistent: An anticipated improvement under the Build Alternatives would specifically run contrary or prevent action specified within the subject plan/program/policy. TBD: To be determined. ² Shaded areas indicate varying relationships among STC/BOH alternatives to plan/program/policy.				



4.3 Economic Consequences

4.3.1 Methodology

The economic consequences of transportation investments under the Build Alternatives are addressed in **Appendix L: Economic Impact Assessment**. The proposed transportation investments associated with the STC/BOH Project are summarized in this section for their possible effects in facilitating, on a broader public and private investment strategy, the transformation of the Lake Erie waterfront into a signature regional resource, and to improve prospects for social and economic development in the project area within Buffalo, Lackawanna, and Hamburg.

Most of the sources used for this analysis included extensive interviews with knowledgeable public and private sector officials within and outside the project area. Further, a review of all known and available documents on local and regional economic development plans pertinent to the project area and analysis of relevant secondary source data, such as U.S. Census, U.S. and Canadian market statistics and professional publications, was conducted.

In addition, exhaustive efforts were made to identify potentially comparable situations and to obtain relevant quantitative estimates of social and economic effects from project documents and the economic development and transportation literature. The changes in appearance and ease of access intended by the Build Alternatives are replicated in other contexts, but there is little in the way of quantitative estimates of their effects beyond direct visitations at site-specific attractions. An inability to quantify the broader consequences does not obviate the logical inferences from experiences in other cities that certain social and economic effects are reasonably foreseeable and attributable, in context, to the Proposed Action.

4.3.2 Changes in the Context of the Southtowns Connector/Buffalo Outer Harbor Project

The existing configuration of Route 5 and the Buffalo Skyway Bridge have been regarded for at least two decades as obstacles to realizing redevelopment potential of the Lake Erie waterfront in Buffalo, Lackawanna, and Hamburg. In fact, this perception was the basis for the original 1990 *Southtowns Connector Feasibility Study* and subsequent 1998 MIS. The feasibility study and the MIS found that substantial regional transportation benefits could have been achieved by diverting traffic from the NYS Thruway (I-90 and I-190) to a new highway through the project area. It further identified that accessibility improvements within the project area could be a catalyst to redevelopment – not only along the waterfront, but at other major vacant and underutilized sites within the project area (FXM Associates 2003).

However, the regional and international economic context regarding opportunities once envisioned for the project area has changed since 1990. For example, at the time of initial analyses for the feasibility study, many investors and prospectors from Toronto and Hamilton



projected a potential spillover from what was then a “superheated” Toronto area economy. There were significant cost differences between the Buffalo and Toronto areas for prime office, commercial, and industrial space. Today (2003), the nominal dollar differences in cost are marginal, and when allowing for the relative value of U.S. compared to Canadian dollars, Buffalo no longer has a competitive cost advantage (except in residential home prices) and commercial/industrial vacancy rates are also comparable. In 1989, the effects of a near ten-year recessionary price deflation in Canada were not foreseen, and changes that could benefit the Buffalo area as a location for Canadian investments are not now foreseeable (FXM Associates 2003).

While efforts to attract wholesaling and light manufacturing uses within the project area will continue and are expected to produce results at selected redevelopment sites (e.g., Union Ship Canal, former Bethlehem Steel site), the economic development objectives have evolved to place a greater emphasis on the local and regional benefits of a continuous public waterfront along Lake Erie. A public investment that can help change the nature of the project area from that of a disinvested industrial region to one reflective of 21st century social and economic opportunities is much needed (FXM Associates 2003).

A further rationale for public investments in the project area relates to the relatively low income of its resident population and low value of property. The project area has arguably suffered even more than the rest of the Buffalo MSA from disinvestment trends over the past decades. Given the restructuring of the manufacturing sector regionally, nationally, and internationally, there is little chance that traditional sources of high paying blue-collar jobs will offer project area residents much in the way of employment and income.

4.3.3 Impacts on Regional and Local Economies

4.3.3.1 Regional/Project Area Effects

Continuous public waterfronts, such as Chicago’s Lakefront, the Art Deco District in Miami, portions of Manhattan, San Francisco, Pittsburgh, Boston, Charleston, San Antonio, and dozens of other large and small cities, provide a welcoming public realm that not only draws residents and visitors, but also affects in a far reaching way perceptions of a city’s and region’s quality of life. Community and regional quality-of-life indicators have ranked in the top two or three criteria for household and business location and investment decisions for at least the past thirty years. As the service economy continues to dominate job production; as differences in land, labor, and distribution costs between localities are less pronounced; and as most jobs (including manufacturing) require a better-educated work force, a region’s recreational and cultural offerings will become even more important to household and business location decisions (FXM Associates 2003).

Though difficult to measure, perceptions of regional quality of life are substantial factors in drawing new residents and investors, as well as in retaining extant and future generations of people and jobs. While no known research quantifies direct and secondary effects of the



Chicago Lakefront, for example, few would argue its influence on the investments made by residents and businesses in the local and regional economy. Knowing that a high quality recreational experience is available makes a difference and the effect is greater than can be measured by its actual use.

Efforts to improve portions of urban waterfronts through reconfiguration of highway facilities to meet regional quality-of-life objectives have or are presently occurring in similarly sized metropolitan areas as the Buffalo-Niagara Region. For example, Portland, Oregon eliminated a portion of the limited access Harbor Drive highway to build a 15-hectare (37-acre) waterfront park along the Willamette River in 1974. Further, in 2002 officials began to implement a plan to remove a portion of Park East Freeway in Milwaukee along the Milwaukee River to improve local waterfront access and recapture waterfront land for mixed-use development (FXM Associates 2003).

Buffalo and Erie County are now beyond the beginning stages of reclaiming the Lake Erie waterfront as a signature public realm of regional and national scope. Proposed improvements under any of the Build Alternatives would enhance physical access to the Buffalo Outer Harbor for use as a recreational area, especially from downtown Buffalo. The improvements will further alter the appearance of the roadways in ways that will make connections to and within the project area more intuitive and desirable. Traveler safety for all modes of transport at selected intersections will be realized with the proposed improvements and connections between the diverse recreational and cultural resources in the project area will be adequately facilitated.

From an economic development perspective, the public realm/water-oriented recreation approach to the Lake Erie waterfront is capable of generating benefits to the local and regional economy in a relatively short period of time, and with modest levels of investments. Immediate benefits and manageable costs are practical goals that in this instance are also likely to contribute in a substantial positive way to broader improvements in the local and regional economy for succeeding generations. This has been the case in Chicago, where reclamation of an industrial and polluted waterfront began over 80 years ago and continues with mandated public acquisitions of private waterfront property whenever it becomes available. The cost to cities such as Chicago, Milwaukee, Portland, Boston, Pittsburgh, and many others, to reclaim the waterfront public realm and access to it has been far greater than that required in Buffalo.

Regardless of the particular configurations under each of the Build Alternatives, investments in the proposed roadway projects would be part of this larger reclamation and redevelopment effort. These investments will be visible signs of progress in changing the character of the Lake Erie waterfront from an obsolete and blighted “former” high intensity industrial area. The psychological value to residents and prospective investors of such physical changes in character may be far more important than the accessibility changes brought about by the reconfigured roadways. In all other cities where reclamation of waterfronts has been successful, reconfigured roadways, with features to fit the context of the new surroundings, have been a central part of the public investments made.



4.3.3.2 Effects within Project Sub-Areas

Ohio Street Sub-Area

The proposed STC/BOH Project presents an opportunity to redefine this neglected neighborhood in a positive way. All three Build Alternatives reconstruct Ohio Street, largely within the existing right-of-way, from Michigan Avenue to Route 5. Streetscape improvements include upgrades to street lighting and sidewalks, along with safety improvements at key intersections. Construction of a portion of the Industrial Heritage Trail along Ohio and Ganson Streets, with wide sidewalks and locations for interpretive stations, is also part of each alternative. These improvements in site visibility and setting enhance opportunities for reuse of existing structures and for new small-scale development on vacant sites along the street and further improve the quality of life for residents as well as for businesses oriented to residents.

Beyond the benefits described above, a synergy created by the combination of relatively small-scale improvements on this neighborhood can be realized. The investment in visual improvements to this blighted area can produce a major return by changing the way residents and businesspeople in the area as well as in the city, view the neighborhood. Experience in other declining urban neighborhoods has shown that more attention to small streetscape details such as lighting and crosswalks can produce major benefits to residents and local businesses just by improving safety. These improvements (part of all Build Alternative) do not raise incomes and standards of living in the Ohio Street neighborhood, individually, rather each improvement helps to set the stage for other small scale developments that can realize larger impacts (FXM Associates 2003).

I-190/Tifft Street Arterial Sub-Area

The proposed I-190/Tifft Street Arterial would create a highly functional and visible junction between Route 5 and South Park Avenue. The new intersection at South Park Avenue would provide access to the main entrance of the LTV/Republic Steel site, a waterfront 'greenway' connection, and indirectly to the Union Ship Canal site just east of Route 5. The new arterial street will incorporate an off-street pedestrian/bicycle trail, which would help connect and expand the Buffalo-Niagara and Erie County bicycle trail systems and advances the regional goal of a 'seamless' parkland, waterfront trail, and open space system (FXM Associates 2003).

This street could also divert truck traffic generated by existing and future light industrial, warehousing and distribution companies from South Park Avenue allowing for improved local circulation to this important commercial thoroughfare.



Lackawanna-Hamburg Sub-Area

The Lackawanna-Hamburg sub-area around Route 5 includes two isolated residential neighborhoods in Lackawanna and the similarly isolated residential and commercial Woodlawn neighborhood in Hamburg. Originally built to house mill workers and their families, all three neighborhoods are stable and show signs of revitalization. The sub-area is characterized by an unusual mix of heavy industrial facilities, neighborhood businesses and private residences. It is marked by vast tracts of vacant or underutilized former heavy industrial sites. Most of the former steel manufacturing plants have closed and been removed, but several processing facilities remain. The steel mills no longer dominate the area, but their legacy of disinvestment remains visible.

The Woodlawn neighborhood retains its residential character, but the heavy commuter traffic on Hamburg Turnpike and Lake Shore Road (Route 5) has made access from side streets often dangerous, and may be impairing the revitalization of this established business district. The proposed improvements to this segment of Route 5 under all of the Build Alternatives would increase vehicular and pedestrian safety in the Woodlawn area (FXM Associates 2003).

Elimination of the Route 5/Ridge Road interchange in Lackawanna for an at-grade intersection would open an area that would be an appropriate location for a supermarket and/or related retail use to serve the surrounding neighborhood. Similarly, improvements to Route 5 in the area of the Bethlehem Park neighborhood could reduce this area's isolated appearance and better integrate it with Lackawanna to the north and Woodlawn to the south (FXM Associates 2003).

4.3.4 Travel Time Effects

Fundamental to the economics of a transportation investment are the direct impacts on the transportation system, its users, and those who may experience external costs associated with changes to a transportation network. While the STC/BOH Project Scoping Report identified enhancement of economic development activities as a primary goal of the proposed action, it also set forth an objective of preserving reasonable access for commuting and goods movement in the project area. The methodology to estimate user (i.e., travel time) cost effects that would result from each of the Build Alternatives involved application of unit costs to the calculated travel parameters, specifically vehicle hours traveled (VHT).

Table 4.3-1 presents projected changes in VHT in the project area under each of the Build Alternatives and their vehicle operating and travel time cost implications.

4.3.4.1 Null Alternative

Under the Null Alternative, there would be no effects to user costs in the project area.



4.3.4.2 Modified Improvement Alternative (Preferred Alternative)

This alternative would result in no appreciable changes to travel times compared to the future Null conditions, given that overall network characteristics of the Route 5 corridor would remain the same. Thus, it would result in no changes to VHT or associated user costs compared to 2030 Null Alternative conditions.

Table 4.3-1 Changes in Vehicle Hours Traveled (VHT) Compared to the Null Alternative Conditions – Year 2030						
Road Segment	Modified Improvement Alternative		Boulevard Alternative		Hybrid Alternative	
	Daily	Annual¹	Daily	Annual¹	Daily	Annual¹
Route 5 (Lake Street to I-190)	7,134	1,783,554	5,937	1,484,354	5,634	1,408,534
I-90 (NYS 75 – I-190)	14,155	3,538,646	15,353	3,838,335	14,675	3,668,832
I-190 (I-90 – Route 5/Skyway)	7,209	1,802,369	8,135	2,033,663	7,800	1,950,008
Ohio St (Route 5 – Michigan Ave.)	401	100,217	380	94,950	499	124,658
Tifft Street (Route 5 – South Park Ave.)	817	204,158	624	155,975	734	183,467
New Arterial (Tifft St. – I-190)	246	61,483	276	69,033	292	72,950
System Total	29,962	7,490,427	30,705	7,676,310	29,634	7,408,449
Total VHT Change from Null Alternative	0	0	+744	+185,884	-328	-81,978
Passenger Vehicle Travel Cost Change from Null Alternative ²	\$0	\$0	+\$10,808	+\$2,701,987	-\$4,766	-\$1,191,623
Commercial Vehicle Travel Cost Change from Null Alternative ³	\$0	\$0	+\$13,931	+\$780,712	-\$1,377	-\$344,307
Total Travel Cost Change Compared to Null Alternative⁴	\$0	\$0	+\$24,749	+\$3,482,699	-\$6,144	-\$1,535,931

Notes:

¹ Based upon 250 days of weekday traffic per year.

² Based upon an average 93% VHT attributable to passenger vehicles, at \$15.63 per VHT (derived from NYSDOT Planning & Strategy Group, Cost Calculator [COCA]).

³ Based upon an average 7% VHT attributable to commercial vehicles, at \$60.00 per VHT (derived from NYSDOT Planning & Strategy Group, COCA).

⁴ Detail amounts may not sum to totals due to rounding.

Source: FXM Associates 2003; Parsons Brinckerhoff 2003; Bergmann Associates 2003.



4.3.4.3 Boulevard Alternative

Under the Boulevard Alternative, which would involve conversion of Route 5 to a single, six-lane, 65 kph (40 mph) road with signalized intersections, total travel times on roads in the project area would increase by over three minutes in peak periods and by over a minute in off-peak periods. This would primarily be attributable to longer travel times on Route 5 and the interstate system (because traffic would tend to divert to I-90 and I-190 in lieu of using Route 5). This would result in increases in 2030 VHT, representing increases in annual travel costs of almost \$3.5 million, compared to the 2030 Null conditions.

4.3.4.4 Hybrid Alternative

The Hybrid Alternative, which would have a similar Route 5 alignment as the Modified Improvement Alternative from the Skyway to Ohio Street then converting to an alignment similar to the Boulevard Alternative, would result in somewhat lesser travel time increases – just over two minutes in peak periods and less than half a minute in off-peak periods. This would result in some diversion of traffic from Route 5 as compared to the Null Alternative, but to a lesser extent than the Boulevard Alternative. It would realize a slight reduction of 2030 VHT in the project area, representing an annual travel cost savings of just over \$1.5 million.

4.3.5 Impacts on Highway Related Businesses and Established Business Districts

As discussed in Section 4.1.3, there exists a fairly well defined cluster of highway related businesses associated with an established business district along Route 5 between Ridge Road and Route 179. No significant clusters of highway-related businesses or established business districts are located in other segments of Route 5, along Ohio Street, or in the area of the proposed I-190/Tift Street Arterial.

4.3.5.1 Null Alternative

The Null Alternative would have no effects to highway related businesses and established business districts.

4.3.5.2 Modified Improvement Alternative (Preferred Alternative)

The proposed improvements to Route 5 from Ridge Road to Route 179 would increase vehicular, pedestrian, and bicycle safety. Upgraded sidewalks, parking, and streetscape improvements (planted median and traffic signals) would limit the number of access points to Route 5 from side streets, thereby reducing the number of accidents, and consequently increase the sense of community. This could lead to revitalization of the commercial businesses along the street frontage, increased employment in the neighborhood, and subsequent upgrading of the residential uses on the side streets.



Anticipated strip takings in this segment of Route 5, to allow for the addition of the new lane to Route 5 Westbound, would primarily affect underutilized portions of the former Bethlehem Steel site (see **Appendix O – Conceptual Stage Relocation Plan, Attachment 1**), although strip taking would occur on selected commercial parcels in the City of Lackawanna and the Hamlet of Woodlawn. These takings would not render any of these properties unusable for their current land uses.

During implementation of any of the Build Alternatives, this Route 5 business district would experience periodic disruption associated with staging and construction activities. These affects would be mitigated to the extent practicable through the implementation of Maintenance and Protection of Traffic procedures, which would be coordinated with property owners and businesses during final design. This would include identifying a staging plan for construction, as well as maintaining or coordinating alternate parking/access to properties during the construction period. This effort would also include coordination with CN Rail to minimize disruptions of rail access to their South Buffalo Distribution Center, associated with replacement/widening of the South Buffalo Railroad Bridge over Route 5.

4.3.5.3 Boulevard Alternative

The impacts on highway related businesses and established business districts would be similar to the Modified Improvement Alternative.

4.3.5.4 Hybrid Alternative

The impacts on highway related businesses and established business districts would be similar to the Modified Improvement Alternative.

4.3.6 Relocation Impacts

A **Conceptual Stage Relocation Plan** has been prepared and is included as **Appendix O**. The Plan provides details pertaining to the parcels to be acquired for advancement of the Build Alternatives, including the total land area and type of building (commercial, residential, other). The following sections discuss proposed land acquisition and displacement of properties that are necessary for implementation of the Null and Build Alternatives. **Table 4.3-2** summarizes anticipated property acquisition and displacement effects of each of the Build Alternatives.

4.3.6.1 Null Alternative

Under the Null Alternative, there would be no acquisition of properties or displacement of uses.

4.3.6.2 Modified Improvement Alternative (Preferred Alternative)

This alternative requires land acquisition totaling 10.14 hectares (25.05 acres). Of this total, seven properties would be displaced as follows: two industrial structures on Ohio Street for curve realignment; and three residential properties, a mixed commercial/residential property, and one operating commercial establishment along the proposed right-of-way of the I-190/Tift



Street Arterial. Construction of the I-190/Tifft Street Arterial would displace an operating business, Brute Spring, located where the proposed alignment meets Elk Street at the intersection of Keating Street. Further, the new arterial would potentially displace three residential properties and one mixed commercial/residential property located at the proposed new intersection with South Park. Unlike Brute Spring, the proposed right-of-way does not directly require the taking of these properties; however, it would place these properties directly between the roadway and an existing industrial use (i.e., the Village Farms hydroponics greenhouse). Further, these properties may be declared “Uneconomic Remainders” (as determined by NYSDOT appraisal reviewer) and as such would be treated as acquisitions.

Implications of these displacements are discussed in **Appendix O: Conceptual Stage Relocation Plan**. Mitigation procedures associated with the displacement of all properties would be done in accordance with the guidelines established by the Public Law 91-646, 84 Statute, 1894, *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*. Sufficient residential and commercial properties exist within South Buffalo that could serve as replacement facilities for residents and users of these displaced properties.

Table 4.3-2 Projected Right-of-Way Acquisition & Displacement – Build Alternatives

Road	Modified Improvement Alternative	Boulevard Alternative	Hybrid Alternative
Fuhrmann Boulevard			
Land Acquired – hectares (acres)	2.20 (5.43) Take 0.41 (1.00) Easement	0 (0)	1.38 (3.41)
Commercial Establishments Displaced	0	0	0
Residential Properties Displaced	0	0	0
Route 5			
Land Acquired – hectares (acres)	1.01 (2.51) Take	2.56 (6.33)	2.56 (6.33)
Commercial Establishments Displaced	0	0	0
Residential Properties Displaced	0	0	0
Ohio Street			
Land Acquired – hectares (acres)	0.43 (1.07) Take 0.02 (0.05) Easement	0.35 (0.86)	0.35 (0.86)
Commercial Establishments Displaced ¹	2	2	2
Residential Properties Displaced	0	0	0
I-190/Tifft Street Arterial			
Land Acquired – hectares (acres) ²	6.07 (14.99) Take	6.26 (15.47)	6.26 (15.47)
Commercial Establishments Displaced	1	1	1
Residential Properties Displaced	3	3	3
Mixed Commercial/Residential Properties Displaced	1	1	1
Project Area Totals			



Table 4.3-2 Projected Right-of-Way Acquisition & Displacement – Build Alternatives

Road	Modified Improvement Alternative	Boulevard Alternative	Hybrid Alternative
Land Acquired – hectares (acres)	10.14 (25.05) Total 9.71 (23.99) Take 0.43 (1.06) Easement	9.17 (22.66)	10.55 (26.07)
Commercial Establishments Displaced	3	3	3
Residential Properties Displaced	3	3	3
Mixed Commercial/Residential Properties Displaced	1	1	1
Total Parcels Affected/Required	77	74	77

Notes: ¹ Commercial structures on property to be acquired are currently not in use.

² Does not include portions of several dedicated “paper” rights-of-way owned by the City of Buffalo that would be used for portion of the I-190/Tift Street Arterial alignment.

4.3.6.3 Boulevard Alternative

The Boulevard Alternative would require the least amount of land acquisition of the three Build Alternatives, totaling 9.17 hectares (22.66 acres). Acquisition that would involve displacement of uses would be the same as that for the Modified Improvement Alternative.

4.3.6.4 Hybrid Alternative

The Hybrid Alternative would require land acquisition totaling 10.55 hectares (26.07 acres). Acquisition that would involve displacement of uses would be the same as that for the Modified Improvement Alternative.

4.3.7 Consistency with Current Economic Development Projects in the Project Area

Table 4.3-3 presents on-going redevelopment efforts and their relationship to the proposed improvements under each of the Build Alternatives. Each of the alternatives facilitates redevelopment efforts equally, with the exception of proposed treatments of the Route 5 alignment in the vicinity of the NFTA Outer Harbor lands and along the frontages of Gallagher Beach and Tift Nature Preserve.



**Table 4.3-3 Relationship of STC/BOH Improvements
to On-going Economic Development Activities**

Project/Sponsor	Public Investment	Relationship to STC/BOH Alternatives ¹		
		Modified Improvement	Boulevard	Hybrid
Multi-Modal, Public Access, and Recreational Projects				
Erie County Parks Master Plan	\$20 Million	Contributes to County’s proposal of an expanded system of waterfront trails on the Outer Harbor, linking existing recreation areas.	Same as Modified Improvement Alternative.	Same as Modified Improvement Alternative.
Woodlawn Beach Redevelopment NYS Office of Parks, Recreation, and Historic Preservation (OPRHP)	\$10.2 Million (Completed)	Provides streetscape improvements along Route 5 in Woodlawn neighborhood and a link to existing multi-purpose trail connecting to Woodlawn Beach.	Same as Modified Improvement Alternative.	Same as Modified Improvement Alternative.
Gallagher Beach (Buffalo Beach) Improvements (NFTA/NYS OPRHP)	Phase I: \$1 Million (Completed) Phase II: \$1 Million (Complete Fall 2003) Conversion to State Park: \$5-10 Million	Eliminates slip ramps and one-way, circuitous traffic pattern around Route 5 to create two-way access on Fuhrmann Boulevard with multi-purpose trail along beach frontage; and create new pedestrian bridge between nature preserve and beach/boat harbor.	Eliminates Fuhrmann Boulevard in lieu of a single six-lane at-grade Route 5 boulevard with multi-purpose trail along beach frontage and create new pedestrian bridge between nature preserve and beach/boat harbor.	Same as Boulevard Alternative.
NFTA Outer Harbor Lands: Greenbelt – Shoreline stabilization/remediation Multi-Purpose Trail (NFTA/Erie County)	 \$2.7 million (in design) \$3.1 Million (in design)	Builds upon NFTA/Erie County trail project by creating a permanent network of multi-purpose trails throughout Outer Harbor, linking with in-land areas (i.e., via Ohio Street and New Arterial).	Same as Modified Improvement Alternative.	Same as Modified Improvement Alternative.
Redevelopment of NFTA Outer Harbor Lands (Public/Private – NFTA Soliciting Proposals for Redevelopment)	TBD	Eliminates slip ramps and one-way circuitous traffic pattern on Fuhrmann around Route 5 to create a simplified diamond interchange accessing a two-way Fuhrmann Boulevard along the property frontage.	Assumes internal road system to access internal locations on NFTA Outer Harbor lands to link to a single signalized intersection with Route 5.	Same as Modified Improvement Alternative.



Table 4.3-3 Relationship of STC/BOH Improvements to On-going Economic Development Activities

Project/Sponsor	Public Investment	Relationship to STC/BOH Alternatives ¹		
		Modified Improvement	Boulevard	Hybrid
Time Beach Restoration (Erie County/US Army Corps of Engineers)	\$1 Million	Improves Fuhrmann Boulevard north of the touchdown of Buffalo Skyway.	Same as Modified Improvement Alternative.	Same as Modified Improvement Alternative.
Erie Canal Harbor Project (Federal Transit Administration, Empire State Development, NYS Thruway Authority, Erie County, City of Buffalo)	\$46 Million (Phase I Completed)	Ohio Street reconstruction facilitates linkage to Outer Harbor.	Same as Modified Improvement Alternative.	Same as Modified Improvement Alternative.
Inner Harbor Parking Structure (City of Buffalo)	\$16.3 Million	Ohio Street reconstruction facilitates linkage to Outer Harbor.	Same as Modified Improvement Alternative.	Same as Modified Improvement Alternative.
Buffalo Intermodal Transportation Center	\$8.1 Million	Ohio Street reconstruction facilitates linkage to Outer Harbor.	Same as Modified Improvement Alternative.	Same as Modified Improvement Alternative.
Industrial Redevelopment Projects				
Union Ship Canal Redevelopment (City of Buffalo)	Site Prep: \$3 Million (Completed) Infrastructure: \$4.5 Million	Provides more direct access from Route 5 to Union Ship Canal area by creating new intersection with Commerce Drive.	Same as Modified Improvement Alternative.	Same as Modified Improvement Alternative.
Former LTV/Republic Steel Site Redevelopment (Steelfields Inc.)	\$18 Million (Under Construction)	New Arterial provides new access through former LTV/ Republic Steel site to the interstate system.	Same as Modified Improvement Alternative.	Same as Modified Improvement Alternative.
Bethlehem Steel Redevelopment/North American Business Center (Erie County, City of Lackawanna)	TBD	Improves southbound capacity along Bethlehem frontage and improves visibility of site area through removal of Ridge Road overpass.	Same as Modified Improvement Alternative.	Same as Modified Improvement Alternative.

Notes:

¹ Shaded areas indicate varying relationships among STC/BOH Build Alternatives to specific redevelopment project/effort.

Source: FXM Associates 2003; Parsons Brinckerhoff 2003.

4.3.7.1 Null Alternative

The Null Alternative would not facilitate any of the on-going redevelopment efforts in the project area.



4.3.7.2 Modified Improvement Alternative (Preferred Alternative)

This alternative would allow for greater flexibility in the redevelopment of the NFTA Outer Harbor Lands by maintaining Fuhrmann Boulevard as a two-way local road along the property's frontage. While it would improve pedestrian and bicycle connections between Gallagher Beach and Tiff Nature Preserve, Route 5 would remain as a separate expressway facility. Thus, it would not fully take advantage of opportunities of better visually linking the two recreational facilities as part of a planned state park.

4.3.7.3 Boulevard Alternative

The Boulevard Alternative would provide for better visual linkages between Gallagher Beach and Tiff Nature Preserve to support plans for a new state park. However, it could potentially impede future development of the NFTA Outer Harbor Lands, given that it would assume the construction of an internal access road system by others to allow for phased development of the site.

4.3.7.4 Hybrid Alternative

The Hybrid Alternative has components of the Modified Improvement Alternative north of Ohio Street and the Boulevard Alternative south of Ohio Street. Therefore, it could facilitate flexibility in the redevelopment of the NFTA Outer Harbor Lands as well as result in better physical and visual connections between Gallagher Beach and Tiff Nature Preserve to support efforts to establish a new state park.

4.3.8 Economic Effects of Construction Expenditures

Within the Buffalo-Niagara region, construction of the build alternatives will stimulate business output (sales less materials and services purchased from outside the region), jobs (person years of employment), household income, and taxes. Total direct, indirect, and induced effects on the regional economy are shown in Tables 4.3-4 (Modified Improvement Alternative), 4.3-5 (Boulevard Alternative), and 4.3-6 (Hybrid Alternative). The widely used and documented R/ECON Input-Output Model (formerly PCIO, developed by the Regional Science Research Institute, 1980-1999; maintained and updated by Rutgers University since 2000) was used to assess the indirect and induced effects of direct construction expenditures. The effects of construction expenditures are based on a January 2006 cost estimate. The R/ECON model adjusts for the types of construction expenditures noted in Appendix B for each alternative, which are reflected in the slightly different multipliers shown in each table.

As shown by data in **Table 4.3-4**, expenditures for construction of the **Modified Improvement Alternative** are estimated to stimulate approximately \$100 million in output by businesses located within the region, provides the equivalent of 755 person years of employment and \$44 million in income to households within the Buffalo-Niagara region. Local governments are expected to realize nearly \$1 million in net new taxes because of construction expenditures for the Modified Improvement Alternative.



Expenditures for construction of the **Boulevard Alternative (Table 4.3-5)** are estimated to stimulate approximately \$130 million in output by businesses located within the region, provides the equivalent of 1,100 person years of employment and \$61.4 million in income to households. Local governments are expected to realize about \$1.3 million in net new taxes as a consequence of construction expenditures for the Boulevard Alternative.

Construction expenditures for the **Hybrid Alternative (Table 4.3-6)** are estimated to stimulate approximately \$138 million in output by businesses, provides the equivalent of 1,155 person years of employment and \$65.5 million in income to households within the Buffalo-Niagara region. Local governments are expected to realize about \$1.4 million in net new taxes as a consequence of construction expenditures for the Hybrid Alternative.

As shown in the division level industry breakdown in each table, all sectors of the regional economy will realize gains in output, employment and income as a consequence of direct construction expenditures, including indirect effects (goods and services needed to support direct economic effects) and induced effects (goods and services purchased by households that provide the direct and indirect labor). For example, as shown by data in Tables 4.3-4, 4.3-5, and 4.3-6, about half the jobs attributable to expenditures for the build alternatives are in the construction sector and half in other sectors, notably services and manufacturing. Changes in regional output, employment, income, and taxes shown in the tables are one time effects during the construction period, and do not recur annually.



**Table 4.3-4
Economic and Tax Impacts on the Buffalo-Niagara Region
of the Southtowns Connector
(Modified Improvement Alternative)**

	Economic Component			
	Output	Employment	Income	Gross Domestic
	(000 \$)	(jobs)	(000\$)	Product (000\$)
I. TOTAL EFFECTS (Direct and Indirect/Induced)*				
Private				
1. Agriculture	47.4	0	5.4	31.8
2. Agri. Serv., Forestry, & Fish	756.6	7	398.8	175.3
3. Mining	2,964.6	18	1,044.8	1,750.4
4. Construction	37,196.8	296	21,138.2	24,595.1
5. Manufacturing	22,284.9	100	5,965.0	10,914.9
6. Transport. & Public Utilities	4,501.0	39	1,430.0	2,506.8
7. Wholesale	4,386.2	27	1,783.7	1,963.0
8. Retail Trade	1,177.8	21	437.1	715.7
9. Finance, Ins., & Real Estate	2,449.7	20	661.0	1,496.1
10. Services	23,047.2	226	10,924.7	10,674.9
Private Subtotal	98,812.3	754	43,788.6	54,824.1
Public				
11. Government	200.7	1	60.7	94.6
Total Effects (Private and Public)	99,012.9	755	43,849.3	54,918.7
II. DISTRIBUTION OF EFFECTS/MULTIPLIER				
1. Direct Effects	77,217.0	572	36,483.2	43,932.4
2. Indirect and Induced Effects	21,796.0	183	7,366.1	10,986.3
3. Total Effects	99,012.9	755	43,849.3	54,918.7
4. Multipliers (3/1)	1.282	1.320	1.202	1.250
III. COMPOSITION OF GROSS STATE PRODUCT				
1. Wages--Net of Taxes				41,031.4
2. Taxes				3,044.1
a. Local				923.1
b. State				669.9
c. Federal				1,451.1
General				1,224.9
Social Security				226.2
3. Profits, dividends, rents, and other				10,843.3
4. Total Gross State Product (1+2+3)				54,918.7



Table 4.3-4
Economic and Tax Impacts on the Buffalo-Niagara Region
of the Southtowns Connector
(Modified Improvement Alternative)

IV. TAX ACCOUNTS				
		Business	Household	Total
1. Income --Net of Taxes		41,031.4	2,109.4	-----
2. Taxes		3,044.1	478.4	3,522.5
a. Local		923.1	79.2	1,002.3
b. State		669.9	74.1	744.0
c. Federal		1,451.1	325.1	1,776.2
General		1,224.9	325.1	1,550.1
Social Security		226.2	0.0	226.2
EFFECTS PER MILLION DOLLARS OF INITIAL EXPENDITURE				
Employment (Jobs)				7.8
Income				455,728.6
State Taxes				7,732.9
Local Taxes				10,416.7
Gross State Product				570,773.8
INITIAL EXPENDITURE IN DOLLARS				96,218,000

Note: Detail may not sum to totals due to rounding.

*Terms:

- *Direct Effects* --the proportion of direct spending on goods and services produced in the specified region.
- *Indirect Effects*--the value of goods and services needed to support the provision of those direct economic effects.
- *Induced Effects*--the value of goods and services needed by households that provide the direct and indirect labor.

Source: R/Econ I/O Model and FXM Associates



**Table 4.3-5
Economic and Tax Impacts on the Buffalo-Niagara Region
of the Southtowns Connector
(Boulevard Alternative)**

	Economic Component			
	Output	Employment	Income	Gross Domestic
	(000 \$)	(jobs)	(000\$)	Product (000\$)
I. TOTAL EFFECTS (Direct and Indirect/Induced)*				
Private				
1. Agriculture	192.4	1	31.4	159.0
2. Agri. Serv., Forestry, & Fish	785.5	7	410.2	181.6
3. Mining	3,112.1	19	1,095.3	1,836.5
4. Construction	58,837.6	554	35,732.3	40,832.2
5. Manufacturing	25,070.6	117	6,762.0	12,092.8
6. Transport. & Public Utilities	5,367.8	46	1,713.9	2,994.1
7. Wholesale	5,341.5	33	2,172.1	2,390.6
8. Retail Trade	1,647.3	30	613.8	1,006.5
9. Finance, Ins., & Real Estate	3,322.2	28	913.3	2,027.5
10. Services	25,572.0	249	11,902.6	11,897.0
Private Subtotal	129,248.9	1,083	61,347.0	75,417.6
Public				
11. Government	258.1	2	78.0	121.5
Total Effects (Private and Public)	129,507.0	1,085	61,425.0	75,539.1
II. DISTRIBUTION OF EFFECTS/MULTIPLIER				
1. Direct Effects	101,703.3	850	52,094.0	61,568.9
2. Indirect and Induced Effects	27,803.7	234	9,331.1	13,970.2
3. Total Effects	129,507.0	1,085	61,425.0	75,539.1
4. Multipliers (3/1)	1.273	1.276	1.179	1.227
III. COMPOSITION OF GROSS STATE PRODUCT				
1. Wages--Net of Taxes				57,530.2
2. Taxes				4,197.9
a. Local				1,211.9
b. State				887.0
c. Federal				2,098.9
General				1,795.9
Social Security				303.0
3. Profits, dividends, rents, and other				13,811.1
4. Total Gross State Product (1+2+3)				75,539.1



**Table 4.3-5
Economic and Tax Impacts on the Buffalo-Niagara Region
of the Southtowns Connector
(Boulevard Alternative)**

IV. TAX ACCOUNTS				
		Business	Household	Total
1. Income --Net of Taxes		57,530.2	2,826.1	-----
2. Taxes		4,197.9	641.0	4,838.9
a. Local		1,211.9	106.1	1,318.0
b. State		887.0	99.3	986.4
c. Federal		2,098.9	435.6	2,534.4
General		1,795.9	435.6	2,231.4
Social Security		303.0	0.0	303.0
EFFECTS PER MILLION DOLLARS OF INITIAL EXPENDITURE				
Employment (Jobs)				8.7
Income				494,868.3
State Taxes				7,946.8
Local Taxes				10,618.7
Gross State Product				608,577.8
INITIAL EXPENDITURE IN DOLLARS				124,124,000

Note: Detail may not sum to totals due to rounding.

*Terms:

Direct Effects --the proportion of direct spending on goods and services produced in the specified region.

Indirect Effects--the value of goods and services needed to support the provision of those direct economic effects.

Induced Effects--the value of goods and services needed by households that provide the direct and indirect labor.

Source: R/Econ I-O Model and FXM Associates



**Table 4.3-6
Economic and Tax Impacts on the Buffalo-Niagara Region
of the Southtowns Connector
(Hybrid Alternative)**

	Economic Component			
	Output	Employment	Income	Gross Domestic Product
	(000 \$)	(jobs)	(000\$)	(000\$)
I. TOTAL EFFECTS (Direct and Indirect/Induced)*				
Private				
1. Agriculture	195.8	1	31.8	161.1
2. Agri. Serv., Forestry, & Fish	830.9	7	434.0	192.1
3. Mining	3,282.8	20	1,155.4	1,937.2
4. Construction	62,976.9	594	38,314.0	43,760.7
5. Manufacturing	26,438.4	123	7,129.3	12,754.8
6. Transport. & Public Utilities	5,673.1	49	1,812.3	3,164.6
7. Wholesale	5,642.8	35	2,294.7	2,525.4
8. Retail Trade	1,751.9	32	652.6	1,070.5
9. Finance, Ins., & Real Estate	3,537.9	29	973.0	2,159.0
10. Services	27,064.0	264	12,586.7	12,593.7
Private Subtotal	137,394.6	1,153	65,383.8	80,319.2
Public				
11. Government	274.1	2	82.9	129.0
Total Effects (Private and Public)	137,668.7	1,155	65,466.7	80,448.2
II. DISTRIBUTION OF EFFECTS/MULTIPLIER				
1. Direct Effects	108,122.0	906	55,552.3	65,600.7
2. Indirect and Induced Effects	29,546.7	249	9,914.4	14,847.5
3. Total Effects	137,668.7	1,155	65,466.7	80,448.2
4. Multipliers (3/1)	1.273	1.275	1.178	1.226
III. COMPOSITION OF GROSS STATE PRODUCT				
1. Wages--Net of Taxes				61,319.8
2. Taxes				4,468.6
a. Local				1,287.6
b. State				942.6
c. Federal				2,238.4
General				1,916.7
Social Security				321.7
3. Profits, dividends, rents, and other				14,659.7
4. Total Gross State Product (1+2+3)				80,448.2



**Table 4.3-6
Economic and Tax Impacts on the Buffalo-Niagara Region
of the Southtowns Connector
(Hybrid Alternative)**

IV. TAX ACCOUNTS				
		Business	Household	Total
1. Income --Net of Taxes		61,319.8	3,000.8	-----
2. Taxes		4,468.6	680.6	5,149.3
a. Local		1,287.6	112.6	1,400.3
b. State		942.6	105.5	1,048.0
c. Federal		2,238.4	462.5	2,700.9
General		1,916.7	462.5	2,379.2
Social Security		321.7	0.0	321.7
EFFECTS PER MILLION DOLLARS OF INITIAL EXPENDITURE				
Employment (Jobs)				8.8
Income				497,354.1
State Taxes				7,962.1
Local Taxes				10,637.9
Gross State Product				611,169.1
INITIAL EXPENDITURE IN DOLLARS				131,630,000.0

Note: Detail may not sum to totals due to rounding.

*Terms:

Direct Effects --the proportion of direct spending on goods and services produced in the specified region.

Indirect Effects--the value of goods and services needed to support the provision of those direct economic effects.

Induced Effects--the value of goods and services needed by households that provide the direct and indirect labor.

Source: R/Econ I-O Model and FXM Associates

4.4 Environmental Impacts

4.4.1 Wetlands/Surface Water Bodies

Wetlands are those areas which are inundated or saturated by surface water or groundwater at a frequency and duration to support, and that under normal conditions do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands possess three characteristics: 1) hydrophytic vegetation, 2) hydric soils, and 3) wetlands hydrology in normal conditions. Atypical situational wetlands, which occur on disturbed sites, are determined primarily by the presence of hydrology.

NYSDEC regulates activities in wetland complexes that are larger than 5 hectares (12 acres) in size (or smaller if deemed to be of unusual local importance). The regulatory authority extends to include a 30-meter (100-foot) buffer zone around the wetland. The New York Freshwater Wetland Act defines wetlands as any or all of the following:



- Lands and submerged lands commonly called marshes, swamps, sloughs, bogs, and flats supporting aquatic and semi-aquatic vegetation;
- Lands and submerged lands containing remnants of any vegetation that is not aquatic or semiaquatic that has died because of wet conditions over a sufficiently long period, provided wet conditions do not exceed a maximum seasonal water depth of six feet...and can be expected to persist indefinitely, barring human intervention;
- Lands and waters substantially enclosed by aquatic and semiaquatic vegetation as set forth in paragraph (a)...and (b)[,]the regulation of which is necessary to protect and preserve...[them]; and
- The waters overlying the areas set forth in (a) and (b) and the lands underlying (c).

The USACE regulates activities in wetlands of any size. Unlike NYSDEC, USACE authority does not extend beyond the edges of the wetland. The USACE defines wetlands as:

- Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands typically include swamps, marshes, bogs, and similar areas.

4.4.1.1 Methodology

The *NYSDOT Environmental Procedures Manual, Chapter 4E (COE Section 10 and 404 permits)* and *Chapter 4G (State Freshwater Wetlands Permits)* were referred to as guidance for the wetland evaluation. Existing data (i.e., Erie County Soil Survey, aerial photographs, appropriate U.S. Geological Survey (USGS) Quadrangles, New York State Department of Environmental Conservation (NYSDEC) wetlands maps and National Wetlands Inventory (NWI) wetlands maps) were first reviewed to determine the general location, extent and character of the wetlands expected to occur on the site. The wetlands of the subject project area were delineated in accordance with the methodology described in the USACE *Wetlands Delineation Manual* (1987). In addition, because of NYSDEC Wetlands encountered, procedures were also in accordance with the *1996 New York State Wetlands Delineation Manual*. **Appendix E** presents the full **Wetlands/Water Bodies Report**.

Subsequent to the data review, site inspections were conducted to analyze the vegetation, soils and hydrologic conditions. Areas that contained these three parameters or sufficient hydrology in atypical situations were identified in the field with consecutively numbered flags that delimit the boundaries of the wetlands identified. These boundaries were surveyed by a licensed surveyor, and are depicted on the site plans in **Attachment D** of **Appendix E**.

The general characteristics of the delineated wetlands are provided within this subsection. Site location maps (USGS Quads), NYSDEC wetland maps, NWI wetland maps, previously



delineated wetland maps and soil survey maps of the area are included in **Appendix E**. These maps present an overview of the site. Site photographs were also taken to illustrate the general characteristics of the site and are included in the appendix.

Field data sheets, included in **Appendix E**, that present descriptions of the on-site vegetation, soil, and hydrologic conditions, including soil samples illustrating the soil profile and depth to saturation, have been taken at appropriate locations to establish the wetland/upland boundaries.

4.4.1.2 Existing Wetlands

The dominant hydrologic features and their tributaries dictate the type and extent of wetlands within the project study area. The Buffalo River, Union Ship Canal, Rush Creek, and Smokes Creek all drain to Lake Erie to the west of Route 5. The central portion of the project area lies in an area that once was the vast Lake Erie marsh system and thus today is the location of three mapped wetland areas.

The vast majority of the soils within the proposed project area are Upland Urban Land consisting of urban fill, nearly level and having at least 80% of the soil service covered with impervious surfaces (e.g. pavement, buildings, concrete). Soils located east of Route 5 are less impervious with 60% containing impervious soil surfaces. These soils are seasonably wet with a perched water table. A small portion of soil located along the south and west part of Route 5, is non-urbanized soil that is typically deep and moderately well drained. The majority of the streams and drainages contain Wayland series (Wd) soils that are usually poorly drained, silty alluvium, found on the lowest parts of floodplains. Southwest of the rail corridor are soils typical of freshwater marshes and natural depressions. These soils are very poorly drained. Other parts of the project study area exhibit soils common to slight depressions and nearly flat areas; somewhat poorly drained with a seasonal high water table and hydric conditions.

National Wetland Inventory (NWI) maps show the following types of wetlands occurring in the project area:

- Lacustrine limnetic;
- Palustrine scrub/shrub; and
- Palustrine emergent wetlands.

In addition, three mapped NYSDEC freshwater wetland complexes (BU-7, BU-15, and BU-1) exist in the central portion of the project area, to the west of proposed I-190/Tifft Street Arterial route along the CSX rail corridor.

Numerous open water crossings and potential encroachments have ‘created’ wetland areas in the project area. The following have been identified and/or mapped in the vicinity of the project area as a result of these features:



- Three (3) river/canal segments;
- Three (3) perennial stream wetlands;
- Seventeen (17) non-isolated wetlands;
- Six (6) isolated wetlands;
- Five (5) vegetated man-made ditches and swales;
- Two (2) non-vegetated man-made ditches; and
- One (1) open water pond/lake.

In the project study area, a total of twenty-seven (27) potential wetland/water areas were identified. Of these, sixteen were determined to be wetlands and surveyed/delineated. The delineated wetland areas exist as palustrine scrub/shrub, palustrine emergent and open water wetlands. The location and extent of these wetlands are shown on **Figures 4.4-1** and **4.4-2**. These wetlands exist adjacent to Route 5 and Tifft Street.

4.4.1.3 Wetland Impacts

Null Alternative

The Null Alternative would result in no impacts to wetlands. No roadway improvements or new roadway construction would occur.

Modified Improvement Alternative (Preferred Alternative)

Due to the elimination of Wetland “JJJ” as discussed in Appendix E – Wetlands & Waterbodies Assessment, the Modified Improvement Alternative (Preferred Alternative) will have no impacts to wetlands as a result of its construction.

4.4.1.4 Wetland Mitigation

In accordance with Executive Order 11990 – “Protection of Wetlands” all federal actions must include efforts to minimize the destruction, loss or degradation of wetlands. If impacts are unavoidable, practicable measures are to be considered to minimize harm.





— Delineated Wetland
Areas/Waters

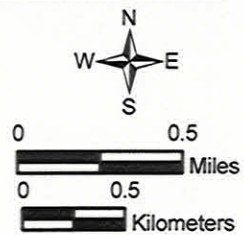


FIGURE 4.4-1
Delineated Wetland Areas - North
Southtowns Connector/Buffalo Outer Harbor Project



— Delineated Wetland
Areas/Waters

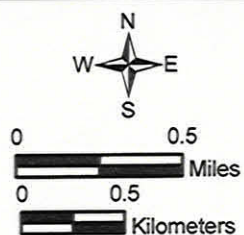


FIGURE 4.4-2
Delineated Wetland Areas - South
Southtowns Connector/Buffalo Outer Harbor Project

4.4.2 Water Quality

4.4.2.1 Methodology

Water quality within the project area was evaluated by reviewing available data, performing infield surveys, and assessing the functions and quality of the associated water sources. Information regarding groundwater and aquifers was obtained from the *NYS DOT Environmental Procedures Manual*, Chapter 4. Water bodies were assessed by reviewing United States Geological Survey 7.5-Minute Series topographic maps, U.S. Fish and Wildlife Service National Wetland Inventory maps, the Erie County soil survey, as well as secondary data contained in prior water quality assessments and policy documents.

4.4.2.2 Surface Water Bodies

Watersheds

Two major watersheds exist within the project area – Lake Erie and the Buffalo River. These water bodies lie within the Niagara River/Lake Erie Basin, which drains approximately 5,600 square kilometers (2,300 square miles) inhabited by approximately 1.3 million persons. The Buffalo and Niagara Falls metropolitan areas account for most of the basin's population and contain the largest concentration of heavy industry in the state. As the distance from these major metropolitan areas increases, the rest of the basin tends to be suburban residential and then becomes predominately rural and agricultural (NYSDEC 2000).

Within the project study area, the Buffalo River drains west into Lake Erie. Tributaries to Lake Erie include Smokes Creek and Rush Creek. The Union Ship Canal is fed by Lake Erie. The proposed project corridor crosses each of these waterways with the exception of Lake Erie.

The Buffalo River flows into Lake Erie at a point just northwest of the Buffalo Skyway. It meanders south along the east side of Route 5 until it reaches the rail corridor north of Tifft Nature Preserve, where it then continues east traversing the LTV/Republic Steel site, away from Route 5, and towards Ohio Street, where the roadway crosses the river.

Smokes Creek and Union Ship Canal are traversed by Route 5 at locations south of Tifft Street, with Union Ship crossed first, Smokes Creek second, and Rush Creek third – located closest to Route 179 in Woodlawn.

The NYSDEC stream classification to the aforementioned waterways is Class C. Best usage goals for Class C fresh surface waters include fishing. These waters are suitable for fish propagation and survival and for primary and secondary contact recreation, although other factors (i.e. known contamination of sediments; industrial or municipal discharge) may limit the use for these purposes.



The primary water quality issues in the Niagara River-Lake Erie Drainage Basin are associated with Niagara River and Buffalo River Areas of Concern (AOC)⁵. Remedial Action Plans (RAPs) for these AOCs are currently under development and implementation to restore and protect the beneficial uses of these waterbodies.

Buffalo River Remedial Action Plan (RAP)

The Buffalo River RAP, completed in November 1989, is used as a management document to guide and coordinate remedial actions. The document focuses on six major areas: stream water quality monitoring; river bottom sediments; inactive hazardous waste sites; municipal and industrial wastewater treatment facilities; combined sewer overflows; and fish and wildlife habitat.

Ongoing assessment activities include the evaluation of remedial options through the modeling of scour and deposition characteristics. Needs include further sampling, treatment assessment, and sediment criteria guidance development to assist the decision making process in addressing contaminated sediments. Three habitat improvement projects have been constructed to address habitat impairments with funding provided through USEPA. Habitat project plans were developed by Erie County in cooperation with the City of Buffalo, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and NYSDEC. These habitat projects have been completed. The Buffalo Sewer Authority has received New York State Bond Act funding to address combined sewer overflows.

Lake Erie Management Plan (LaMP)

The Great Lakes Water Quality Agreement and its amendments also call for the development and implementation of Lake-wide Management Plans (LaMPs), including one for Lake Erie. A binational Management Committee, co-chaired by USEPA Region 5 and Environment Canada, oversees the development and implementation of Lake Erie LaMP activities. The goal of the Lake Erie LaMP is to restore and protect beneficial uses of the lake. Like the RAPs, the Lake Erie LaMP applies the ecosystem approach and involves the public through the Binational Public Forum to address water quality and natural resources management issues. The LaMP applies the 14 use impairment indicators with a focus on critical pollutants and the ecosystem in both near shore and open lake water considerations.

A comprehensive Lake Erie LaMP 2000 report was recently published which sets forth the current status of the use impairment indications and remedial actions. A Work Group and five subcommittees are working on implementation of the following: Ecosystems Objectives; Sources and Loads; Beneficial Use Impairment Assessments; Human Health; and, Public Involvement.

⁵ *New York State Water Quality 2000 – October 2000; submitted pursuant to Section 305(b) of the Federal Clean Water Act; Appendix C – New York State Water Quality Classifications*



Other Issues

Toxic pollutants are a significant concern in the basin. Fish consumption advisories are in effect for several major waterbodies including the Buffalo River. The 1996 Priority Waterbodies List (PWL) identified stream bank erosion as a major source of water quality impairment in the tributaries to Lake Erie and Buffalo River sub-basins. Contaminated sediments and on-site systems were the major sources in the Niagara River and Tonawanda Creek sub-basins, respectively. **Table 4.4-1** provides information on the waterbodies within the project study area that are on the PWL list.

Table 4.4-1 Characteristics of Priority Water Bodies in the Project Area							
Segment Name	Segment ID	Segment Size	Stream Class	Primary Use Affected	Problem Severity	Primary Pollutant Cause & Severity	
Smokes Creek	0101-0007	3.2 km (2 miles)	C	Aquatic Life	Stressed	Aesthetics (floatable material)	Industrial
Buffalo River	0103-0001	13 km (8 miles)	C	Fish consumption	Impaired	Priority Organics	Toxic/contaminated sediments

Source: NYSDEC 2003.

4.4.2.3 Groundwater

Groundwater, which occurs within overburden and bedrock aquifers, is not the primary source of drinking water within the project area. The City of Buffalo, City of Lackawanna, and Town of Hamburg all receive potable water via public water systems tapping into Lake Erie. There are no designated sole source aquifers or groundwater wells located within the project area.

4.4.2.4 Water Quality Impacts

Potential impacts on water quality and can occur from highway construction through erosion and sedimentation of water bodies within proximity to construction activities. Following construction, impacts to water quality could involve pollutants from highway maintenance and vehicular traffic that can enter and degrade adjacent waters particularly from deicing activities.

Surface Water Quality Impacts

Under each Build Alternative, the proposed improvements would not increase the amount of paved surface. Conversely, a portion of Fuhrmann Boulevard would be removed along the east side of Route 5 between the Skyway touchdown and Ridge Road. With the reduction of paved



surface areas, runoff of vehicular pollutants to adjacent water bodies associated with the roadway improvements would be similar or less than that under the Null Alternative.

Between Ridge Road and the South Buffalo Railroad Bridge, the addition of an addition lane would result in minor increases in surface runoff; however, this would be captured as part of the existing closed drainage system serving this portion of the Route 5 corridor.

Further south along the Route 5 corridor, special emphasis will be given in final design to the existing culvert under Route 5 that carries the North and South Branch of Blasdell Creek. Limited road widening is anticipated near this culvert that could affect the frequency of periodic flooding unless it is increased in capacity. The culvert is part of a NYSDEC flood control project; NYSDOT will coordinate with NYSDEC on final design/permitting of improvements in this area to ensure that the system remains functional. Finally, no significant impacts are anticipated to Rush Creek in the southernmost section of the corridor. Improvements in this area would be limited to installation of pedestrian and traffic safety features (center planted median, sidewalks, mill and overlay, etc.); no widening or capacity increases are planned.

The I-190/Tifft Street Arterial would increase runoff that could eventually migrate to the Buffalo River. Because this new roadway would cross areas that have had past releases of hazardous wastes (see Section 4.4.10), it would also have the potential for additional runoff and migration of contaminated materials to the river. Whereas this would be less of an issue where the proposed right-of-way crosses the LTV/Republic Steel site (which is currently being remediated), areas further north in vicinity of the ExxonMobil facility have been subject to past petroleum spills.

Surface Water Impacts from Deicing Salt – Toler Analysis

The *Toler Analysis* (IPDG No. 15, NYSDOT 1995) was used to estimate the potential chloride concentrations from highway deicing salts captured by surrounding water bodies in proximity to project area roadways. The Toler Analysis begins with identifying receiving waters in proximity to a road improvement; the area of the drainage basin for the receiving water; lane miles of paved surfaces associated with the project (Note: the Toler Method uses English units); and the salt loading rate per length of roadway. It then calculates a concentration at the receiving water. The existing background chloride concentration should not exceed 250 micrograms/liter (mg/L), the maximum allowable chloride concentration in drinking water set by NYSDEC. For purposes of this analysis, two localized sub-basins were identified for proposed STC/BOH improvements, given drainage patterns in the area:⁶

- The upper portions of the Buffalo River, which would be the likely primary receiving water for surface drainage from the proposed I-190/Tifft Street Arterial; and

⁶ Please note that considering Lake Erie and the Buffalo River as a single major basin, then projecting runoff implications from the slight increase in lane miles resulted in chloride levels at roughly two orders of magnitude lower, given the large area of the Lake Erie/Niagara River basin.



- Lake Erie, which would be the likely primary receiving water for surface drainage from the proposed Route 5 improvements.

Toler calculations for the proposed I-190/Tifft Street Arterial and for Route 5 are presented in **Tables 4.4-2 and 4.4-3**. As is shown, projected chloride in runoff to the Buffalo River for the new arterial would be negligible. For segments along Route 5, each of the Build Alternatives would result in an overall decrease in paved areas as compared to the Null Alternative. Therefore, chloride concentrations associated with deicing activities would decrease; the greatest decrease would occur with the Boulevard Alternative, followed by the Hybrid and Modified Improvement Alternatives.



Table 4.4-2 Toler Analysis for Projected Chloride Concentrations in Runoff to Buffalo River I-190/Tifft Street Arterial (All Build Alternatives)

<p><i>Toler Formula:</i> $C = \frac{T \times M}{I \times A} \times K$</p>		
Input	Null Alternative	New I-190/Tifft Street Arterial
Lane Miles (M)	0	6.44
Salt Application Loads (T) (in tons per lane mile)	10	10
Average Runoff (I) (Annual Inches of Rainfall x 0.4)	16.2	16.2
Area of Drainage Basin (A) (in square miles)	3	3
Constant (K)	8.37	8.37
Typical chloride concentration (C) (in micrograms/liter [mg/l])	0	11.09
Shock Load (typical loads x 2.0)	0	22.18

Table 4.4-3 Toler Analysis for Projected Chloride Concentrations in Runoff to Lake Erie Route 5 Corridor

Input	Null Alternative	Modified Improvement Alternative	Boulevard Alternative	Hybrid Alternative
Lane Miles (M)	42.57	36.62	36.34	37.16
Salt Application Loads (T) (in tons per lane mile)	10	10	10	10
Average Runoff (I) (Annual Inches of Rainfall x 0.4)	16.2	16.2	16.2	16.2
Area of Drainage Basin (A) (in square miles)	15	15	15	15
Constant (K)	8.37	8.37	8.37	8.37
Typical chloride concentration (C) (in micrograms/liter [mg/l])	14.66	12.61	12.52	12.80
Shock Load (typical loads x 2.0)	29.33	25.23	25.03	25.60



Groundwater Impacts

Implementation of the Build Alternatives would potentially affect groundwater resources, but these impacts are expected to be negligible. Groundwater quantity impacts would be due to cut-and-fill operations and the addition of impervious road surfaces that could affect the water table in that area. Groundwater quality impacts include those due to increased vehicular pollutants, and construction activities. The City of Buffalo, City of Lackawanna, and Town of Hamburg are on public water and therefore not reliant upon groundwater reserves. Nonetheless, impact to the groundwater due to the construction activities should be minimized, and if possible, prevented.

The primary location with potential groundwater implications would be associated with the proposed I-190/Tifft Street Arterial under all of the Build Alternatives, given that it would cross the LTV/Republic Steel site. As part of voluntary cleanup activities, a pump and treat system for groundwater remediation is being implemented. NYSDOT has conducted preliminary coordination with the project sponsors to ensure that the proposed right-of-way would not affect the operation of this system; these issues would be finalized in the final design process.

4.4.2.5 Erosion and Sedimentation Impacts

Erosion and sedimentation impacts associated with roadway improvements are caused primarily by construction activities, where large areas of soils are stripped of vegetation and subjected to wind and water erosion.

Overall, each of the Build Alternatives would result in the potential for soil erosion and sedimentation during construction. Waterbodies and wetland areas near the edge of rights-of-way under construction would be most susceptible to erosion and sedimentation impacts (e.g., Lake Kristy and adjacent wetlands within Tifft Nature Preserve).

Sedimentation and erosion impacts from construction activities would be a particular issue associated with the construction of a new bridge over the Buffalo River associated with the proposed I-190/Tifft Street Arterial. Piers and abutments exist in this location from a former rail bridge crossing; these components would be examined for potential reuse during the final design process. If warranted, these former components would be removed and replaced with new piers and abutments. Construction activities in the riverbed and on its banks would have the potential to disturb contaminated sediments, as well as result in water quality effects from migration of exposed soils.

4.4.2.6 Mitigation of Water Quality Impacts

Surface Water

The potential for surface water impacts are expected to be primarily associated with the construction of the I-190/Tifft Street Arterial, where impervious surfaces would be introduced to an area that is entirely covered with vegetation. Stormwater management measures including ditches, culverts, and closed drainage systems would be incorporated to mitigate impacts to



surface waters from peak flow, first flush, and pollutant loading. A Stormwater Pollution Prevention Plan (SWPPP) will be prepared as a component of the State Pollutant Discharge Elimination System (SPDES) Phase II General Permit for the project, given that each of the Build Alternatives would disturb roughly 105 hectares (261 acres) of land, which would be greater than the one-acre threshold for a General Permit. Further, all design and construction methods would be coordinated with NYSDEC, to ensure compliance with the policies of the Buffalo River RAP and Lake Erie LaMP.

Mitigation of Erosion and Sedimentation Impacts

Impacts associated with erosion and sedimentation would be effectively mitigated by the development and application of Sediment and Erosion Control Plans, developed in accordance with the *New York Standards and Specifications for Erosion and Sediment Control*. These plans would be developed during the final design process to effectively avoid or minimize discharges of pollutants, including sedimentation, both during and following construction. They employ a variety of standard methodologies and designs (e.g. silt fences, straw bale filters, grassed waterways, and sedimentation basins). Selection of the appropriate methodology and design would be based on the topography, soil type, drainage area, and other physical characteristics. This determination would be made during the final design process.

If construction would be required within the riverbed associated with construction of a new Buffalo River bridge, site-specific plans will be prepared to control soil erosion and sedimentation impacts. This would likely involve the use of cofferdams and silt curtains around areas of disturbance to prevent migration of contaminated river sediments. This work would be regulated in conjunction with Section 401 and 404 permits (see Section 4.4.14).

4.4.2.7 Floodplain Management

Portions of the project study area are located within the 100- and 500 - year floodplain. **Figure 4.4-3** shows the locations of floodplains within the study area. These areas predominantly exist immediately adjacent to the Buffalo River, City Ship Canal, Buffalo Outer Harbor, Gallagher Beach, Tifft Nature Preserve (Lake Kristy), Union Ship Canal, and areas south of Ridge Road. No buildings or structures are being built as part of the Build Alternatives and thus there would be no increase in the floodwater elevations or encroachment upon the floodplains. Roadway improvements and realignments and reconstructed bridges would be designed such to maintain existing drainage patterns and minimize impacts to floodplains. NYSDOT standard design criteria for bridges to provide a 600 mm freeboard for 50-year flood protection, would be adhered to in the construction of the new bridge over the Buffalo River that is associated with the I-190/Tifft Street new arterial.

Null Alternative

Under this alternative, the existing roadway alignments of Route 5, Fuhrman Boulevard, and Ohio Street would be maintained and would have no effect on the hydraulic capacity or floodplains. Further, no new arterial would be constructed through a vegetated area located east



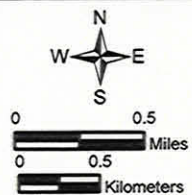
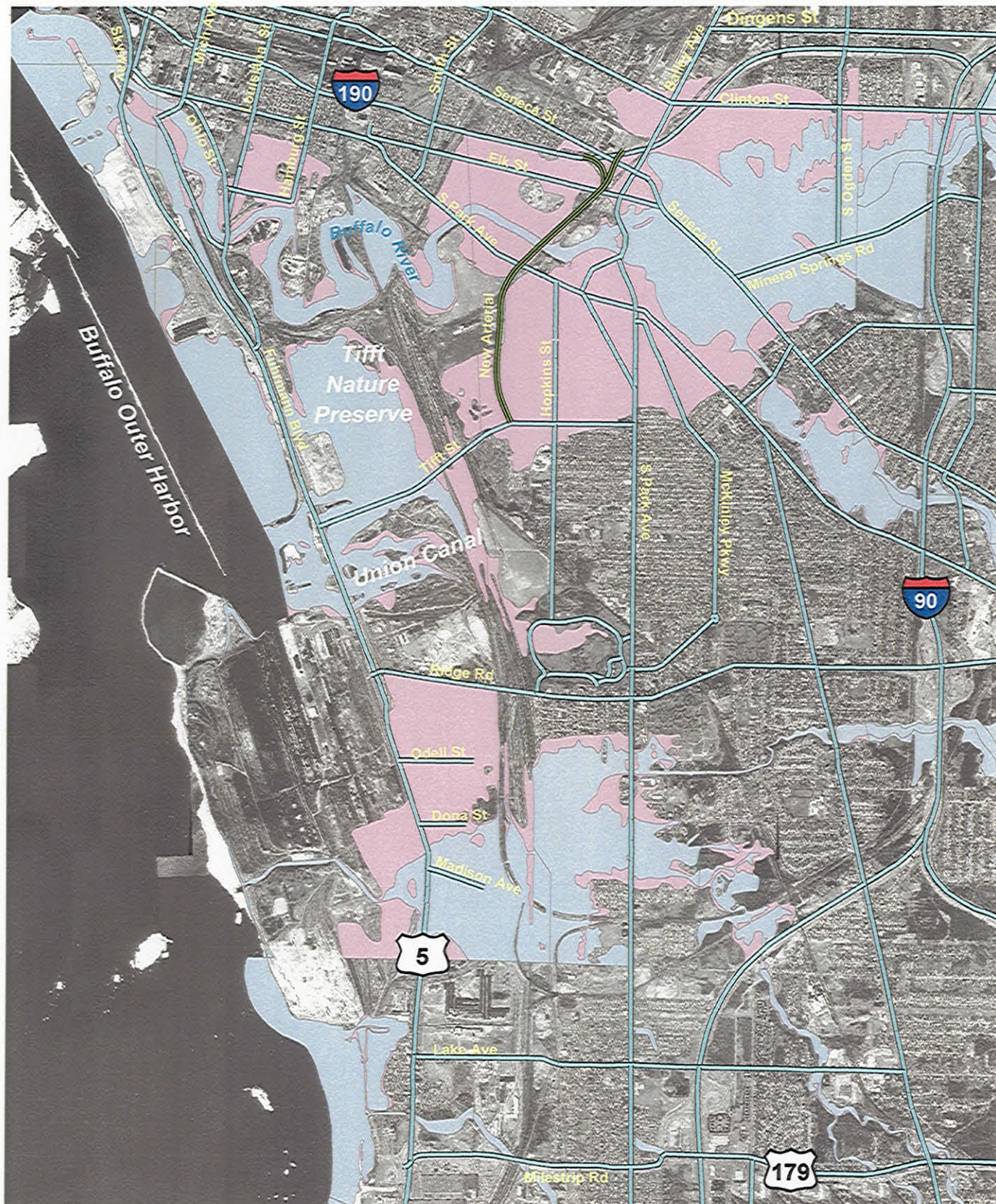


FIGURE 4.4-3
 100 and 500 Year Flood Plain
Southtowns Connector/Buffalo Outer Harbor Project

of the LTV/Republic Steel site thus existing vegetation would not be altered and the floodwater elevations would not change.

Modified Improvement Alternative (Preferred Alternative)

Under this alternative, improvements to the current configuration of Route 5 and Fuhrman Boulevard, Ohio Street, and construction of a bicycle and pedestrian pathway system would occur proximate to the current location of these roadways. The majority of the project study area occurs within the 100- and 500-year floodplain and thus, construction and mitigation measures that were previously employed during the initial construction of the roadways would be employed during implementation of this alternative. No construction that would increase the floodwater elevations is planned and encroachments upon the floodplains would not occur.

The proposed I-190/Tifft Street Arterial would be located in a 500-year floodplain for the majority of the length of the roadway, and in a 100-year floodplain where the arterial would cross the Buffalo River. A portion of where the arterial would be constructed is adjacent to a residential neighborhood; built within the 500-year floodplain. The arterial would be constructed following the NYSDOT design standards for construction within a floodplain and would be done such that existing drainage patterns would be retained thereby minimizing impacts to floodplains.

Boulevard Alternative

Floodplain management practices under the Boulevard Alternative would be the same as those discussed under the Modified Improvement Alternative and thus no increase in floodwater elevations or encroachments upon floodplains would occur.

Hybrid Alternative

Floodplain management practices under this alternative would be the same as those discussed under the Modified Improvement and Boulevard Alternatives.

4.4.3 General Ecology and Wildlife

4.4.3.1 Methodology

General ecology and wildlife within the project area was evaluated by reviewing available data, performing infield surveys, and assessing the functions and quality of the resources. Key ecological features were identified by reviewing United States Geological Survey 7.5-Minute Series topographic maps; and through contact/correspondence with the U.S. Fish and Wildlife Service, NYSDEC, and Tifft Nature Preserve officials, as well as from secondary data contained in prior assessments and policy documents.



4.4.3.2 Existing Environment

This project area exists within a heavily industrialized, commercially developed area of the City of Buffalo. In previously developed areas now abandoned, pioneer species are returning to the landscape. Eastern cottonwood, tree-of-heaven, staghorn sumac, Japanese knotweed, goldenrod and brier dominate the abandoned industrial sites. The vegetation of the project study area is predominantly old field and scrub/shrub landscape. A list of the plant species observed in the project study area is included in **Appendix E – Wetlands and Waterbodies**.

The dominant vegetative upland community consists of a combination of old fields, scrub/shrub lands and early successional deciduous woodlands. The upland deciduous woodlands exist along with secondary succession/shrublands in the interface between the woodlands and open fields.

The lowland community, adjacent to drainages, is palustrine emergent palustrine/scrub/shrub wetlands. Palustrine emergent/scrub/shrub wetlands exist in depressions and poorly drained areas in former rail bed portions of the project area. The vegetation associated with emergent wetlands is typically common reed, purple loosestrife, and cattail; the vegetation associated with scrub/shrub wetlands are primarily eastern cottonwood, red-osier dogwood, willow and buttonbush.

The past uses of the project area have diminished most of the indigenous plant species and subsequently diminished the presence of wildlife. The non-indigenous vegetation that has prolonged the industrial nature of the area is of minimal value to wildlife. Species using the project area more tolerant of these highly disturbed areas are those adjusted to human activities, require small habitats for their life requisites, and/or are highly mobile. Such species include birds and small mammals.

Common birds of prey (e.g., Red Tailed Hawk, Coopers Hawk, and Kestrel) may visit the project area but would find limited food sources, with exception to the maintained Tifft Nature Preserve. In addition, the existing habitat of the project area presents no significant value to species of migratory songbirds or waterfowl that use the Niagara River and Lake Erie shoreline that has been identified as a seasonal migratory route.

The Tifft Nature Preserve is the largest open-space wildlife habitat located in the project area. The preserve contains a diversity of habitats, including a 75-acre cattail marsh, small freshwater ponds, old fields, forested swamps, woods, and shrublands. A large diversity of wetland animal species exists in and around the marshes at the preserve, including the least bittern and Jefferson's salamander (both species of special concern) and Osprey (on the New York threatened species list). The preserve provides valuable habitat for many migratory and non-migratory birds.

In addition to varying species of birds and waterfowl, Tifft Nature Preserve is home to whitetail deer. Deer are the largest mammal commonly found throughout Western New York. Although there are no specific deer wintering areas along the project area roadways, deer frequent the



nature preserve on a routine basis and may congregate or take shelter at the preserve during harsh winter conditions. The proximity to Buffalo River and Lake Erie compliment the natural habitat provided by Tifft Nature Preserve, and thus, deer frequent this area often. According to the NYSDEC Fish, Wildlife, and Marine Resources, Bureau of Wildlife, no portion of the project area lies within a designated wildlife management unit or area.

4.4.3.3 Threatened and Endangered Species

No federally listed or proposed endangered or threatened (T & E) species are known to exist in the project area, except for occasional transient species (USFWS 1999), including the possible presence of the Piping Plover, which exists in the Great Lakes watershed.

Existing habitat in the project study area does not present any specific value to pigeons and waterfowl that are the preferred prey to the larger species, the Peregrine Falcon, which had once nested at the Statler Towers in Downtown Buffalo. Based upon a review of aerial photographs, habitat for potential threatened or endangered species is limited for the project study area. This past industrial area is primarily asphalt-covered with demolished structures and fill material. The area contains little if any native soils. The wetland areas provide wildlife habitat and there is evidence of travel corridors across the rail lines to and from the Tifft Nature Preserve.

Information on the potential presence of state-listed species was requested from the Natural Heritage Program. The following plant species were listed as “historically occurring” within the City of Buffalo with no recent field information available to determine present existence: Blue-hearts; Sartwell’s Sedge; Compact Hawthorn; Lesser Fringed Gentian; and Golden Dock. Of these plant species, Sartwell’s Sedge is categorized as threatened. The remaining plant species are categorized as endangered. Because the dates listed for the last observed presence of these plant species are the early 1900s, it is not anticipated that these plant species are occurring in the project study area.

Further, updated information indicates that the area between the Tifft Nature Preserve and the railroad tracks contains vertebrate animal species listed as threatened and endangered. Additional species exist within Lake Erie west of Michigan Avenue and in portions of the lake west of Union Ship Canal. The following T & E species are potentially occurring along Route 5, from I-190 to the Buffalo south city line.

Threatened:

Birds: *Ixobrychus exilis*/Least Bittern (Tifft Nature Preserve marsh)

Podilymbus podiceps/Pied-billed Grebe (Tifft Nature Preserve marsh)

Fish: *Acipenser fulvescens*/Lake Sturgeon (Lake Erie)



Endangered:

Vascular Plant: Rumex maritimus/Golden Dock (City of Buffalo)

The Preferred Alternative does not infringe upon the areas where the aforementioned T & E species have been noted. Nonetheless, best management practices will be implemented during construction to prevent impacts to these areas.

4.4.3.4 Environmental Consequences to General Ecology and Wildlife

Null Alternative

No impacts to ecological communities would result from the Null Alternative because no new lands would be disturbed. Small mammal loss to road kills would be similar to existing conditions.

Modified Improvement Alternative (Preferred Alternative)

Under this alternative, ecological communities would not be significantly impacted since roadway alignments would remain essentially the same for the majority of the corridor.

Where the route for the I-190/Tifft Street Arterial crosses a vegetated area within the LTV/Republic Steel site east of Tifft Nature Preserve, impacts to ecological communities would occur. However, the current diminished state of indigenous plant species and consequently a lack of wildlife species would render the impacts as insignificant. Any displacement of small mammals would be temporary as other sources of habitat and food would be sought. It can be surmised that the relocated species would migrate to Tifft Nature Preserve where ample space and compatible communities exist. Existing vegetation would be replaced by paved areas and planted vegetation indigenous to the surrounding area. These temporary impacts should also be reviewed in the context that the LTV/Republic Steel site is in the process of being redeveloped as part of a voluntary cleanup agreement. This redevelopment will remove the majority of vegetated areas along the arterial route for reuse for commercial purposes.

Larger mammals (deer) that may frequent the project area (primarily within proximity to Tifft Nature Preserve) may experience loss of habitat and source of food; however this would occur on a temporary basis. The deer would likely seek other food sources and other nesting areas during roadway construction and thus any losses would be short-lived.

Boulevard Alternative

Under the Boulevard Alternative, impacts to the general ecology and wildlife within the project area would be similar to that for the Modified Improvement Alternative. Existing vegetation would be replaced with planted medians and treed shoulders; and small and large mammals would be temporarily displaced during construction. Because this alternative calls for the removal of Fuhrman Boulevard, the potential for less impact to vegetated areas exists, and consequently displacement of small mammals would be reduced.



Reconstructing Route 5 as an at-grade roadway could pose a potential for increased risk of animal strikes, particularly along the Tifft Nature Preserve frontage. However, with the alignment adjustments, signalized at-grade intersections, increased roadside lighting, and traffic calming via reduced posted speed limits along the entire length of the project corridor, it can be expected that road kills of small and large mammals would be minimized. In addition, the proposed improvements would enhance driver reaction time to mammal crossings, further minimizing contact with oncoming traffic. Fencing is currently installed along a portion of the preserve's frontage along Fuhrmann Boulevard North to prevent animal migration into the roadway. During final design, an assessment would be conducted in conjunction with Buffalo Museum of Science officials on the need to augment this fencing system to minimize risks of animal strikes/road kills associated with the ultimate alignment of Route 5. If necessary, final design of the road alignment in this portion of the corridor would include new fencing that would serve to mitigate any potential impact to wildlife in the preserve.

Hybrid Alternative

Anticipated impacts to the general ecology and wildlife that inhabit the project area under the Hybrid Alternative would be the same as described for the Modified Improvement and Boulevard Alternatives. Because the Hybrid Alternative includes a plan for an at-grade boulevard alignment for Route 5 south of Ohio Street, methods to mitigate the potential for increased risks of animal strikes near the Tifft Nature Preserve would be the same as that presented for the Boulevard Alternative.

4.4.4 Historical and Cultural Resources

A Phase 1A cultural resource investigation of the project corridors consisted of an archaeological and architectural reconnaissance survey in the area of potential effect (APE) associated with the project. For purposes of the assessment, the APE for archaeological resources is defined as 30 meters (100 feet) on either side of rights-of-way for proposed roadway improvements, to account for projected areas of disturbance and for slight refinements to alignments. For architectural resources, the APE included structures on all properties that abut the rights-of-way for proposed roadway improvements.

The archaeological investigation determined the presence of known prehistoric and historic archaeological sites in or adjacent to the area of the APE. It also determined the sensitivity for encountering archaeological resources within the APE. The investigation included a site file review, documentary research, environmental setting considerations, field reconnaissance, and limited subsurface testing. The architectural investigation identified historic properties and/or districts located within the APE that may be eligible for listing on the State and National Registers of Historic Places (NRHP). It included background research and a field reconnaissance investigation. The full cultural resources assessment is included as **Appendix K**.



4.4.4.1 Methodology

For analytical purposes, the cultural resources investigation divided the APE into four locations (see **Figure 4.4-4**):

- **Study Area A**, consisting of roughly 4 kilometers (2.44 miles) along Ohio Street from Michigan Avenue to Tifft Street;
- **Study Area B**, consisting of 4.4 kilometers (2.74 miles) along Route 5 and Fuhrmann Boulevard from Times Beach to Tifft Street;
- **Study Area C**, consisting of the 2.7-kilometer (1.7-mile) right-of-way for the proposed I-190/Tifft Street Arterial, as well as a 1.9-kilometer (1.17-mile) segment of Tifft Street between its intersections with Route 5 and the proposed new arterial; and
- **Study Area D**, consisting of 4.8 kilometers (3 miles) of Route 5 from Tifft Street to Milestrip Road.

The archaeological surveys included a walkover reconnaissance survey of these areas to identify any visible resources and to set the criteria used in combination with background research results to assess archaeological sensitivity (e.g. disturbance, drainage). Following the field walkover, limited shovel testing was performed to determine soil disturbances not immediately apparent on the surface.

The architectural analysis procedure included field investigation and photo-documentation of all structures in or abutting the APE, landscape features, and general streetscapes and viewsheds to determine potential eligibility of properties for inclusion on the NRHP. Information on previously inventoried properties within or adjacent to the APE was also reviewed. In addition, relevant local and county histories and historic maps were carefully examined for pertinent information relating to structures identified by the survey as potentially significant.

The State Historic Preservation Officer (SHPO) of the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) reviewed the draft cultural resources investigation. Following consultation, all SHPO comments were incorporated into a final cultural resources investigation – which was used as the basis for the SHPO NRHP-eligibility determinations and effect determination/findings for the project.

4.4.4.2 Archaeological Resources

The cultural resource investigation assessed the proposed locations of roadway improvements including intersections, access ramps, new roads, and alternate road configurations. Detailed discussions about each study area are included in **Appendix K: Cultural Resource Assessment** (Chapter 4). The following is a summary of the findings of the archaeological survey.

Areas/alignments in the APE that are proposed for improvement cross a heavily industrialized area previously impacted by human activities, including an extensive network of railroad



facilities that was formerly more widespread; the former LTV/Republic Steel site; and, the ExxonMobil tank farm. Nearly all of the proposed alignments for improvements involve the use of existing disturbed roads and rights-of-way. While the I-190/Tift Street Arterial does not follow the path of existing roads (other than Keating Street), it does follow a heavily disturbed former railroad corridor and crosses previously impacted industrial sites. Shovel tests taken in each of the Study Areas noted above yielded fill materials, rubbish, and other evidence of modern disturbance, which minimizes the potential for archaeological features in the APE.

None of the Build Alternatives proposed for the Southtowns Connector/Buffalo Outer Harbor Project would affect archaeological resources. Proposed improvements will only affect previously disturbed ground. No further archaeological investigations were recommended in the APE; SHPO concurred with this finding in correspondence to NYSDOT on December 3, 2004.

4.4.4.3 Architectural Resources

As with the archaeological survey, an architectural survey of four distinct study areas that encompassed the overall project area was performed. A complete description of each study area in the context of architectural character is presented in **Appendix K: Cultural Resource Assessment** (Chapter 5). The discussion to follow is a summary of the architectural findings for each study area and recommendations for further investigation and/or mitigation measures where warranted.

Investigation of the APE revealed the location to be urban and industrial with a diverse mixture of industrial, commercial, and residential architecture. Approximately 150 standing structures within or adjacent to the APE were examined during the course of the reconnaissance survey, including roughly 30 buildings that were determined to be at least 50 years old and of potential historical significance. In addition, 14 existing bridges were examined, as well as two former bridge locations containing extant abutments and/or piers.

Historic Inventory Forms were prepared for 12 buildings/structures that were determined to be potentially eligible for inclusion in the NRHP. On December 15, 2004, the SHPO conducted an infield meeting with NYSDOT representatives within the APE, to review information on the architectural assessment. On January 12, 2005 (and supplemented on January 13, 2005), SHPO transmitted a listing to NYSDOT of all architectural resources (i.e., buildings and structures) in the APE that are on or eligible for inclusion on the NRHP (see **Figure 4.4-5**). This listing was based upon information provided in the Cultural Resource Assessment (see **Appendix K**), the infield meeting, and review of SHPO files.

Table 4.4-4 presents the anticipated impact of each of the project alternatives on identified historic properties in the APE. Of the 15 NRHP-listed and eligible properties in the APE, a structure located at 630 Ohio Street would be adversely affected by the proposed reconstruction of Ohio Street (i.e., under all Build Alternatives). The current alignment of Ohio Street includes an abrupt curve in the vicinity of this structure. The curve exceeds the minimum radius specified by NYSDOT for a minor arterial road (i.e., the functional classification of Ohio Street). The



minimum radius of 189 meters (620 feet) is required for the curvature of the roadway to meet design standards. The current radius of the curve is 100 meters (328 feet). Realignment of the curve to meet the radius standard requires the removal or relocation of the truck/train transfer station because at its current location, it would be located in the proposed right-of-way.

Under Section 4(f) Department of Transportation Act of 1966, FHWA must avoid the taking of historic resources (among other types of uses) for transportation projects, unless there are no alternatives to avoid such a taking. In light of the proposed effect to 630 Ohio Street, a draft Section 4(f) evaluation was prepared as part of this FDR/FEIS/4(f) (see **Chapter 6**).





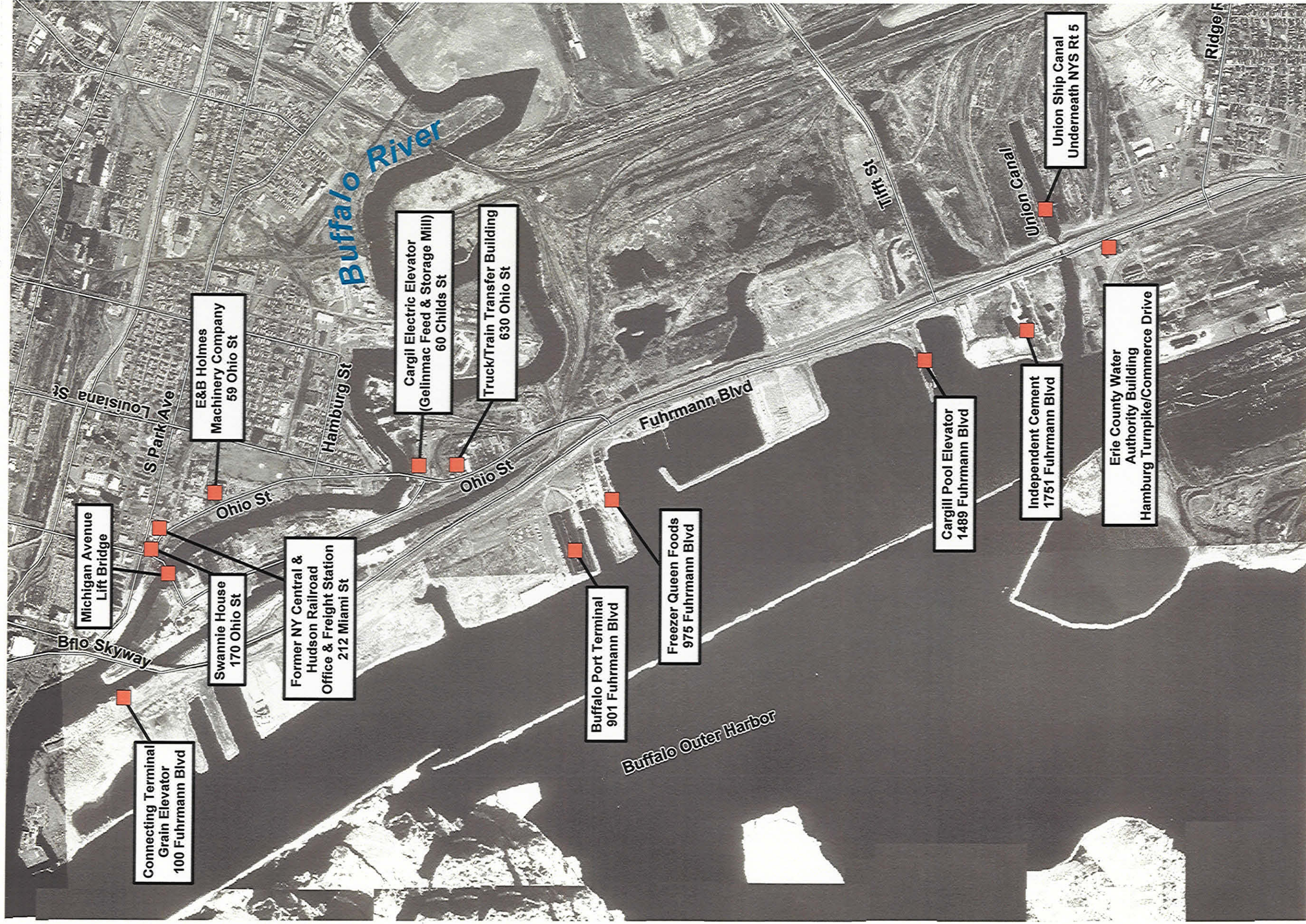
— Project Area

Ⓐ Study Area



0 1 Miles
0 1 Kilometers

Figure 4.4-4
Cultural Resource Study Areas
Southtowns Connector/Buffalo Outer Harbor Project



NRHP Eligible Property



FIGURE 4.4-5
NRHP Eligible Properties

Southtowns Connector/Buffalo Outer Harbor Project

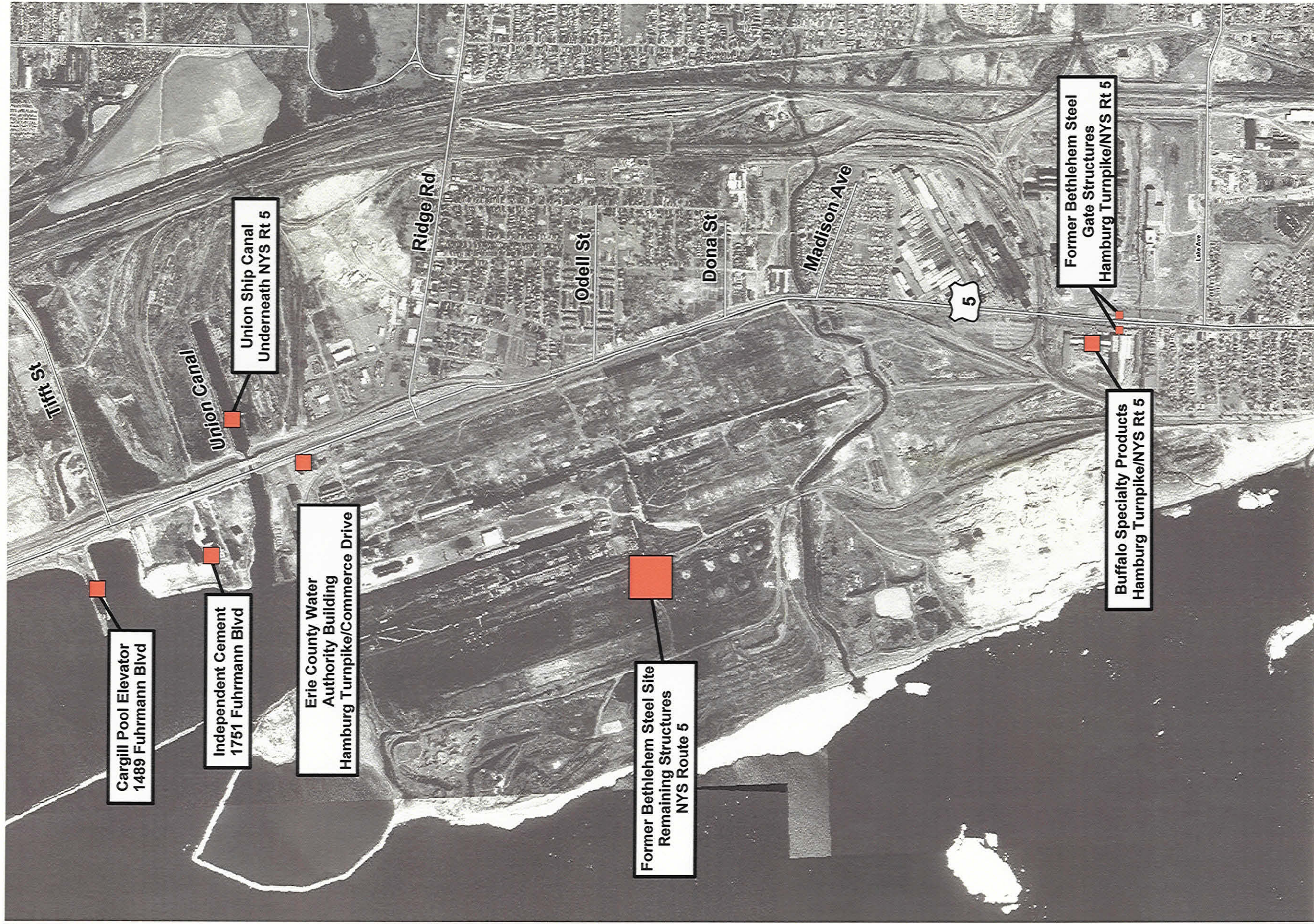


Table 4.4-4: Evaluation of Project Impacts on Properties on or Eligible for the National Register of Historic Places (NRHP)

Property Name	Address	Property Characteristics that Qualify it for Inclusion on the NRHP	Proposed Changes to the Property and Setting Resulting from the Project ¹
NRHP-Listed and NRHP-Eligible Properties on NYS Rte 5 – US Coast Guard Station to NYS Rte 79 (north to south)			
Connecting Terminal	100 Fuhrmann Blvd. Buffalo, NY	<p>The elevator was built in two sections, the first in 1915 and the second in 1954. It is the last grain storage facility to be built in Buffalo. It is associated with the collection of grain elevators related to Buffalo's role as a transshipment point on the Great Lakes in the 19th and early 20th centuries.</p> <p>The setting is primarily shaped by the structure's positioning on the Buffalo River; when originally built, property could only be accessed via the river or adjacent rail.</p>	<p>No changes proposed that would directly affect the property or adversely affect its setting under any of the Build Alternatives. The building is situated approximately 75 meters (492 feet) from Fuhrmann Blvd. right-of-way.</p> <p>Proposed changes under any of the Build Alternatives would involve in-kind reconstruction of right-of-way (Fuhrmann Blvd.) on property frontage to the rear of the structure (see Drawing Nos. I-1, B-1, and H-1).</p>
Buffalo Port Terminal Building (Former Ford Motor Co.)	901 Fuhrmann Blvd. Buffalo, NY	<p>Built in 1930/31 as the Ford Motor Co. assembly plant; the design is an industrial style with subtle influences of the Art Moderne style. It is associated with the early history of automobile manufacturing in Buffalo.</p> <p>The setting of property is primary influenced by the building's positioning on adjacent Ford Slip and rail lines on Buffalo Outer Harbor.</p>	<p>No changes proposed that would directly affect the property or adversely affect its setting under any of the Build Alternatives. The building is situated approximately 150 meters (492 feet) from Fuhrmann Blvd./Rte 5 right-of-way.</p> <p>Proposed changes under each Build Alternative would involve the following:</p> <ul style="list-style-type: none"> • Modified Improvement and Hybrid Alternatives: Reconstruction of Fuhrmann Blvd. and Rte 5 as separate facilities while reducing their visual prominence (see Drawing Nos. I-4 and H-4). • Boulevard Alternative: Consolidation of roadways into a single, at-grade 6-lane facility (see Drawing No. B-4).



Table 4.4-4: Evaluation of Project Impacts on Properties on or Eligible for the National Register of Historic Places (NRHP)

Property Name	Address	Property Characteristics that Qualify it for Inclusion on the NRHP	Proposed Changes to the Property and Setting Resulting from the Project ¹
Freezer Queen Foods	975 Fuhrmann Blvd. Buffalo, NY	Constructed in 1927; former warehouse and terminal for the Merchants Refrigerating Company. The building is an example of International Style of architecture, prominent in early 20th-century industrial design. The setting of property is primary influenced by the building's positioning on adjacent deep-water slip on Buffalo Outer Harbor.	No changes proposed that would directly affect the property or adversely affect its setting under any of the Build Alternatives. The building is situated approximately 55 meters (180 feet) from Fuhrmann/Rte 5 right-of-way. Proposed changes would under each Build Alternative would involve the following: <ul style="list-style-type: none"> • Modified Improvement and Hybrid Alternatives: Reconstruction of Fuhrmann Blvd. and Rte 5 as separate facilities (see Drawing Nos. I-5 and H-5). • Boulevard Alternative: Consolidation of Rte 5 and Fuhrmann Blvd into a single, at-grade 6-lane facility (see Drawing No. B-5).
Cargill Pool Elevator	1489 Fuhrmann Blvd. Buffalo, NY	Built in 1925 and expanded in 1926 as the Canadian Pool Elevator; associated with later periods in Buffalo's role as a transshipment point on the Great Lakes in the 19th and 20th centuries. Setting of property primary influenced by the building's position on a man-made peninsula with adjacent deep-water slips on Buffalo Outer Harbor.	No changes proposed that would directly affect the property or adversely affect its setting under any of the Build Alternatives. The building is situated approximately 175 meters (246 feet) from Fuhrmann Blvd. right-of-way. Proposed changes under each Build Alternative would involve the following: <ul style="list-style-type: none"> • Modified Improvement and Hybrid Alternatives: Reconstruction of Fuhrmann Blvd. and Rte 5 as separate facilities (see Drawing Nos. I-7 and H-7). • Boulevard Alternative: Consolidation of roadways into a single, at-grade 6-lane facility (see Drawing No. B-7).



Table 4.4-4: Evaluation of Project Impacts on Properties on or Eligible for the National Register of Historic Places (NRHP)

Property Name	Address	Property Characteristics that Qualify it for Inclusion on the NRHP	Proposed Changes to the Property and Setting Resulting from the Project ¹
Independent Cement	1751 Fuhrmann Blvd. Buffalo, NY	Built of reinforced concrete in 1926, it was able to serve both truck and rail transshipments. The structure is associated with the later period of Buffalo's role as a transshipment point on the Great Lakes in the 19th and early 20th centuries. The structure is sited along the Lake Erie shore; the existing alignments of Fuhrmann Blvd/Rte 5 do not contribute to the property's NRHP eligibility.	No changes proposed that would directly affect the property or adversely affect its setting under any of the Build Alternatives. Building is situated over 200 meters (656 feet) from Fuhrmann Blvd. right-of-way. Proposed changes under all Build Alternatives involve in-kind reconstruction of segment Fuhrmann Blvd. along property frontage and removal of dilapidated bridge over rail spur into property (see Drawing Nos. I-7, B-7, and H-7). Please note that rail spur to property discontinued by CSX and bridge structure is not eligible for NRHP.
Union Ship Canal	Under NYS Rte 5 Buffalo, NY	Originally built in 1905 as the "Goodyear Slip" to provide industrial marine access to the Buffalo & Susquehanna Iron & Coal Co. (later used by Hanna Furnace Co.); associated with the large-scale development of basic steel manufacturing and industrial development in the region. The setting of property was primarily shaped by the canal's relationship to the remains of the Hanna Furnace property along the southern edge of the Canal; these remains have been removed and property has been redeveloped. Setting of Canal was changed in 1991 with the removal of the former high-level Father Baker Bridge, which involved reducing the overall width of the channel to construct a new low-level crossing.	Proposed changes under each Build Alternative would involve the following: <ul style="list-style-type: none">• Modified Improvement Alternative: No changes proposed to Canal or its setting (see Drawing No. I-8).• Boulevard and Hybrid Alternative: Changes would involve widening of the low-level Father Baker Bridge above the previously disturbed portion of the Union Ship Canal (see Drawing Nos. B-8 and H-8).



Table 4.4-4: Evaluation of Project Impacts on Properties on or Eligible for the National Register of Historic Places (NRHP)

Property Name	Address	Property Characteristics that Qualify it for Inclusion on the NRHP	Proposed Changes to the Property and Setting Resulting from the Project ¹
Former Bethlehem Steel Corp. Complex (See below):	See below:	The complex is associated with the early 20 th -century development of basic steel manufacturing and industrial development in the region and the early development of the City of Lackawanna.	See below:
Former Lackawanna Steel Company Office Building	Rte 5/Hamburg Turnpike/ Commerce St., Lackawanna, NY	Constructed in ca. 1901; excellent example of Beaux Arts architectural style. The building marked the northeast corner of the Bethlehem Steel complex. The setting of the property has significantly evolved over its history. The property originally fronted upon Hamburg Turnpike, while access was via interior roadways. In 1955, the high-level Father Baker Bridge was constructed over the Union Ship Canal, visually blocking the property. In 1991, the setting changed when the high-level bridge was demolished and replaced with a low-level bridge immediately east of the former span.	Proposed changes under each Build Alternative would involve the following: <ul style="list-style-type: none"> • Modified Improvement Alternative: No direct changes would occur to the property (see Drawing No. I-8). The setting would change only with respect to narrowing pavement section of the former approach to the now-demolished high-level Father Baker Bridge. • Boulevard and Hybrid Alternative: No direct changes would occur to the property (see Drawing Nos. B-8 and H-8). The setting would change only with respect to removing pavement section of the former approach to the now-demolished high-level Father Baker Bridge in lieu of improvements to the road network internal to the complex.
Other Surviving buildings of former Bethlehem Steel Complex	NYS Rte 5, Lackawanna, NY	All other surviving buildings are approximately 150 meters (492 feet) or greater from segments of Rte 5.	Proposed changes under all alternatives would involve widening along the Complex frontage to create six-travel lanes. The project would not affect the setting in light of the scale of the Complex compared to the limited expansion of the roadway (see Drawing Nos. I-9 to I-12; B-9 to B-12; and H-9 to H-12).
Buffalo Specialty Products (former Bethlehem Steel Complex Structures)	NYS Rte 5, Hamburg, NY	Buildings directly front upon Rte 5 and are accessed via former Bethlehem Steel Gate 5.	No proposed changes to structures or setting –improvements under all alternatives would be limited to a center planted median to address safety issues and in-kind replacement of sidewalks and other streetscape features (see Drawing Nos. I-13, B-13, and H-13).



Table 4.4-4: Evaluation of Project Impacts on Properties on or Eligible for the National Register of Historic Places (NRHP)

Property Name	Address	Property Characteristics that Qualify it for Inclusion on the NRHP	Proposed Changes to the Property and Setting Resulting from the Project¹
Bethlehem Steel Gates 5 & 6	NYS Rte 5, Hamburg, NY	Gate structures directly front upon and provide access for former Complex to/from Rte 5.	No proposed changes to Gate Structures or setting –improvements in this area would be limited to a center planted median to address safety issues and in-kind replacement of sidewalks and other streetscape features (see Drawing Nos. Drawing Nos. I-13, B-13, and H-13).
NRHP-Listed and NRHP-Eligible Properties on Ohio Street Corridor – Michigan Avenue to NYS Rte 5 (north to south)			
Swannie House	170 Ohio St. Buffalo, NY	One of the last remaining tavern structures related to the “saloon boss system” in the Buffalo Harbor associated with bar owners trading access to work for “drinks, food and lodging”.	No changes to property/setting – in-kind reconstruction of Ohio Street right-of-way along property frontage and replacement of streetscape features (lighting, sidewalks, etc.) consistent in design with improvements in adjacent Cobblestone District (see Drawing No. O-1).
Former New York Central and Hudson Railroad Office and Freight Station (former Buffalo, Rochester, and Pittsburgh Railroad)	212 Miami St. Buffalo, NY	Two-story neoclassical structure constructed ca. 1880, formerly used as an office associated with the former railroad. The structure is associated with transition from canal shipment to railroads in the mid- to late-19th century. Original property setting involved long rectangular freight house fronting on Moore Street between South Park and Miami Streets, with a multi-track switching yard located to the east of this structure. Switching yard now removed and building exhibits several large modern prefabricated-metal additions in former rail yard.	Proposed reconstruction would involve slight realignment of Miami Street to create “T” intersection with Ohio and in-kind replacement of streetscape features (lighting, sidewalks, etc.), consistent in design with improvements in adjacent Cobblestone District (see Drawing No. O-1).



Table 4.4-4: Evaluation of Project Impacts on Properties on or Eligible for the National Register of Historic Places (NRHP)

Property Name	Address	Property Characteristics that Qualify it for Inclusion on the NRHP	Proposed Changes to the Property and Setting Resulting from the Project ¹
E&B Holmes Machinery Co.	59 Chicago St. Buffalo, NY	Importance related to early industrial development of Buffalo and association with Edward and Britain Holmes, English immigrants that became prominent industrialists and innovators. Property setting involves typical industrial structure fronting upon urban street – does not contribute to the property’s NRHP-eligibility.	No changes to property/setting – in-kind reconstruction of adjacent Ohio Street right-of-way (see Drawing No. O-1).
Cargill Electric Elevator	60 Childs St. Buffalo, NY	Built in 1897—remains (storage bins) now constitute Gelinmac Feed and Storage; last remaining components of first all-electric grain elevator in Buffalo and possibly the world. The setting primarily shaped by the elevator’s positioning on the Buffalo River; is part of “elevator alley” grouping of structures along the river.	No changes to property/setting – in-kind reconstruction of adjacent Ohio Street right-of-way (see Drawing No. O-3).
Truck/Train Transfer Building	630 Ohio St. Buffalo, NY	Built in 1926; small utilitarian industrial/railroad depot structure with slight influences of Art Deco architectural style. The structure is associated with early industrial/railroad development in Buffalo. The property’s setting originally related to rail sidings between which the structure spanned/fronted; these rail spurs have been removed.	Project would result in realignment of roadway to eliminate abrupt curve that is a non-standard roadway design feature. Would require removal or relocation of structure to allow for realignment (see Drawing No. O-3).



Table 4.4-4: Evaluation of Project Impacts on Properties on or Eligible for the National Register of Historic Places (NRHP)

Property Name	Address	Property Characteristics that Qualify it for Inclusion on the NRHP	Proposed Changes to the Property and Setting Resulting from the Project ¹
NRHP-Listed and NRHP-Eligible Properties on Proposed Right-of-Way for I-190/Tifft Street Arterial			
None Identified.	N/A	N/A	N/A
Notes: ¹ Drawing Numbers refer to map set contained in Appendix A: Plans and Profiles , as follows: <ul style="list-style-type: none"> • Modified Improvement Alternative – Tab Entitled, “Route 5 – Modified Improvement Alternative”: Drawing Nos. I-1 through I-14. • Boulevard Alternative – Tab Entitled, “Route 5 – Boulevard Alternative”: Drawing Nos. B-1 through B-14. • Hybrid Alternative - Tab Entitled, “Route 5 – Hybrid Alternative”: Drawing Nos. H-1 through H-14. • Ohio Street Reconstruction (Included under the Modified Improvement, Boulevard, and Hybrid Alternatives noted above) – Tab Entitled, “Ohio Street Reconstruction”: Drawing Nos. O-1 through O-3. • I-190/Tifft Street Arterial (Included under the Modified Improvement, Boulevard, and Hybrid Alternatives noted above) – Tab Entitled, “190/Tifft Street Arterial”: Drawing Nos. A-1 through A-5. 			



4.4.4.4 Architectural Resources Mitigation

A series of measures to avoid, minimize, or mitigate the adverse impact to the truck/train transfer station at 630 Ohio Street were reviewed for feasibility (see **Chapter 6**). In consultation with the SHPO, NYSDOT has determined that the impact to the structure cannot be avoided and will undertake specific measures to mitigate this adverse effect as part of the final design and implementation of the Ohio Street reconstruction. NYSDOT, FHWA, and the SHPO have entered into a Memorandum of Agreement (MOA) to facilitate the undertaking of the mitigation measures.

The mitigation measures involve subsequent documentation efforts and the incorporation of project elements to enhance the overall interpretation of the industrial heritage of the City of Buffalo and specifically historic features along the Buffalo River in the Old First Ward.

- Historic American Building Survey (HABS)/Historic American Engineering Record (HAER) recordation of the Truck/Train Transfer Building at 630 Ohio Street must be performed prior to its removal for the realignment of Ohio Street.
- Coordination with the SHPO, City of Buffalo, and the Industrial Heritage Committee, Inc. to implement a portion of the interpretative program associated with the proposed Industrial Heritage Trail.⁷ This would involve development and installation of up to five interpretative stations along Ohio Street and/or Ganson Street providing information on features along the trail and trailblazing signage along portions of the proposed trail coinciding with road segments proposed for improvements.

The implementation of these mitigation measures through the proposed MOA is intended to result in sufficient documentation of 630 Ohio Street for future historic reference/research. It is also intended to facilitate a larger program of historic interpretation along the Ohio Street corridor, realizing a long-planned feature to contribute to the overall revitalization of areas along the Buffalo River.

4.4.5 Visual Resources

A visual resource assessment was performed of the project study area to identify and characterize the existing visual environment and evaluate the impacts of the Build Alternatives as compared to the Null Alternative. The full visual impact assessment is in **Appendix D**.

4.4.5.1 Methodology

The visual impact assessment included the following activities in relation to the proposed improvements:

⁷ Please note that the current project scope for the reconstruction of Ohio Street described in Chapter 3 includes only infrastructure features of the Industrial Heritage Trail.



- Characterization of the visual environment of the corridor;
- Identification of sensitive viewer groups;
- Review of public comments during the scoping process to identify interests and concerns;
- Evaluation of the reactions of identified viewer groups to the Build Alternatives at key locations; and
- Identification of mitigation approaches to reduce any visual impacts and enhance the visual quality of the project or its surrounding environment.

4.4.5.2 Viewer Groups

Viewer groups include those who would view the surrounding environment from the roadway corridor as well as the roadway corridor from the surrounding environment. Three viewer groups are created for the project study area, as follows:

- **Group One**, including drivers/commuters in the corridor (along Route 5; Ohio Street; I-190/Tifft Street Arterial;
- **Group Two**, including pedestrians and bicyclists using the adjacent walks and roadway edges; and
- **Group Three**, including workers, residents, and customers of adjacent neighborhood homes and businesses, as well as travelers to recreational facilities and those who will see the corridor at intersecting roadways.

4.4.5.3 Visual Districts

The visual environment of the project area was divided into ten (10) visual districts to facilitate analysis of impacts to existing conditions and understand the changing character of the surrounding areas. The visual districts (“districts”) are segments of the project that share similar visual character and composition. The districts have been identified by locating key intersections, stream and river crossings, and railroad or pedestrian bridges along the roadway that serve to limit continuous viewing and separate zones of differing land use patterns. The visual districts are identified as follows:

- Project limit to the intersection of Ohio Street and Route 5 (Visual District #1);
- The Route 5 and Ohio Street intersection to Route 5/Tifft Street intersection (Visual District #2);
- The Route 5 and Tifft Street intersection to the Route 5 bridge over Smokes Creek (Visual District 3);

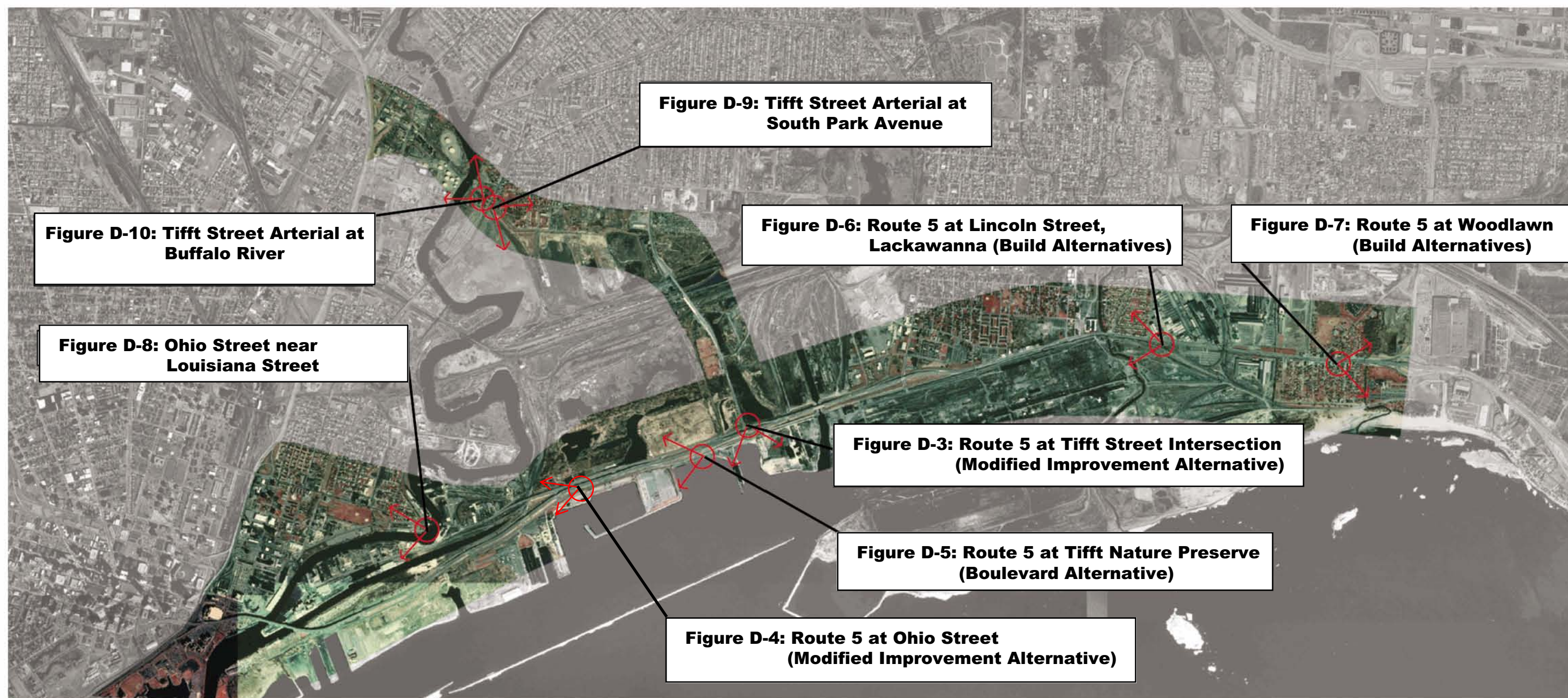


- The Smokes Creek bridge to South Buffalo Railroad Bridge over Route 5 (Visual District 4);
- The South Buffalo Railroad bridge to the pedestrian bridge across Route 5 (Visual District 5);
- Along Ohio Street from Route 5 to the lift bridge over the Buffalo River (Visual District #6);
- Along Ohio Street from the lift bridge to intersection with Michigan Avenue (Visual District #7);
- Along Tifft Street from its intersection with Route 5 to the intersection of the proposed I-190/Tifft Street Arterial (Visual District #8);
- Along the proposed arterial corridor to its intersection with South Park Avenue (Visual District #9); and
- Along the proposed arterial corridor from the intersection with South Park Avenue to the intersection with Seneca Street (Visual District #10).

The districts each have distinctive visual character due to their visual separation and/or differences in visual form, line, landscape diversity, or continuity. **Table 4.4-5** shows the visual district, character, and land use within each unit, and the significant features visible within each unit. Features are categorized as to whether they are positive (+) or negative (-) to the project corridor/visual district.

Seven key views were selected to evaluate the project's impact on the visual environment. The views were chosen for their ability to convey representative existing conditions and to illustrate the impacts of the proposed roadway improvement alternatives on the visual environment in a range of typical locations. **Table 4.4-6** lists the view number, the view direction and visual district, as well as a summary of the most significant visual effects to the surrounding areas. **Figure 4.4-6** provides a key view locator for each of the views and **Figure 4.4-7 (numbers 1 through 8)** show each view.







PLAN LOCATION



EXISTING CONDITION Route 5 Corridor at Tift Street looking west-
Improvement Alternative

Route 5 continues to pass over this intersection while Furhmann Boulevard beyond is upgraded to provide 2-way traffic. Access to the Tift Nature Preserve is maintained and extensive plantings are added to visually define this important node.



PROPOSED IMPROVEMENT - IMPROVEMENT ALTERNATIVE



PLAN LOCATION



EXISTING CONDITION Route 5 Corridor at Ohio Street looking north

Route 5 continues to pass over this intersection via a new pre-cast structure with decorative concrete finish, and access to Ohio Street is maintained from Furhmann Boulevard . Furhmann Boulevard is upgraded to provide 2-way traffic via a four-lane roadway with a dividing median.



PROPOSED IMPROVEMENT



PLAN LOCATION



EXISTING CONDITION Route 5 looking north at Tift Nature Preserve - Boulevard Alternative

Looking north, the widened configuration separates the north and southbound roadways with a 60' wide planted median. Between the southbound lanes and the water, a bicycle/pedestrian path will extend the full length of the corridor. A new pedestrian bridge will allow access to and from the Tift Nature Preserve.



PROPOSED IMPROVEMENT - BOULEVARD ALTERNATIVE



PLAN LOCATION



EXISTING CONDITION Route 5 looking north at Lincoln Street

The reconstruction of Route 5 at Lincoln Street widens the roadway in order to provide a 25' planted median, sidewalks on both sides and tree plantings along the roadway edges.



PROPOSED IMPROVEMENT



PLAN LOCATION



EXISTING CONDITION Route 5 southbound at Woodlawn

In the Woodlawn section of the corridor, the roadway is widened to provide a 20' planted center median, widened sidewalks, tree plantings along the roadway edge, and a combined parking and bicycle lane on each side.

PROPOSED IMPROVEMENT





PLAN LOCATION



EXISTING CONDITION Ohio and Louisiana Streets

Running from Michigan Avenue to Route 5 through Buffalo's First Ward, this project enhancement will involve the full reconstruction of Ohio street to provide better local access between downtown Buffalo and the Lake Erie waterfront. The alignment will include three lanes (two travel lanes and a center turn lane) within the existing curb to curb width of the roadway and streetscape improvements to provide safe pedestrian, bicycle, and transit access. The adjacent segment of the Industrial Heritage Trail will be constructed as part of this project.

PROPOSED IMPROVEMENT





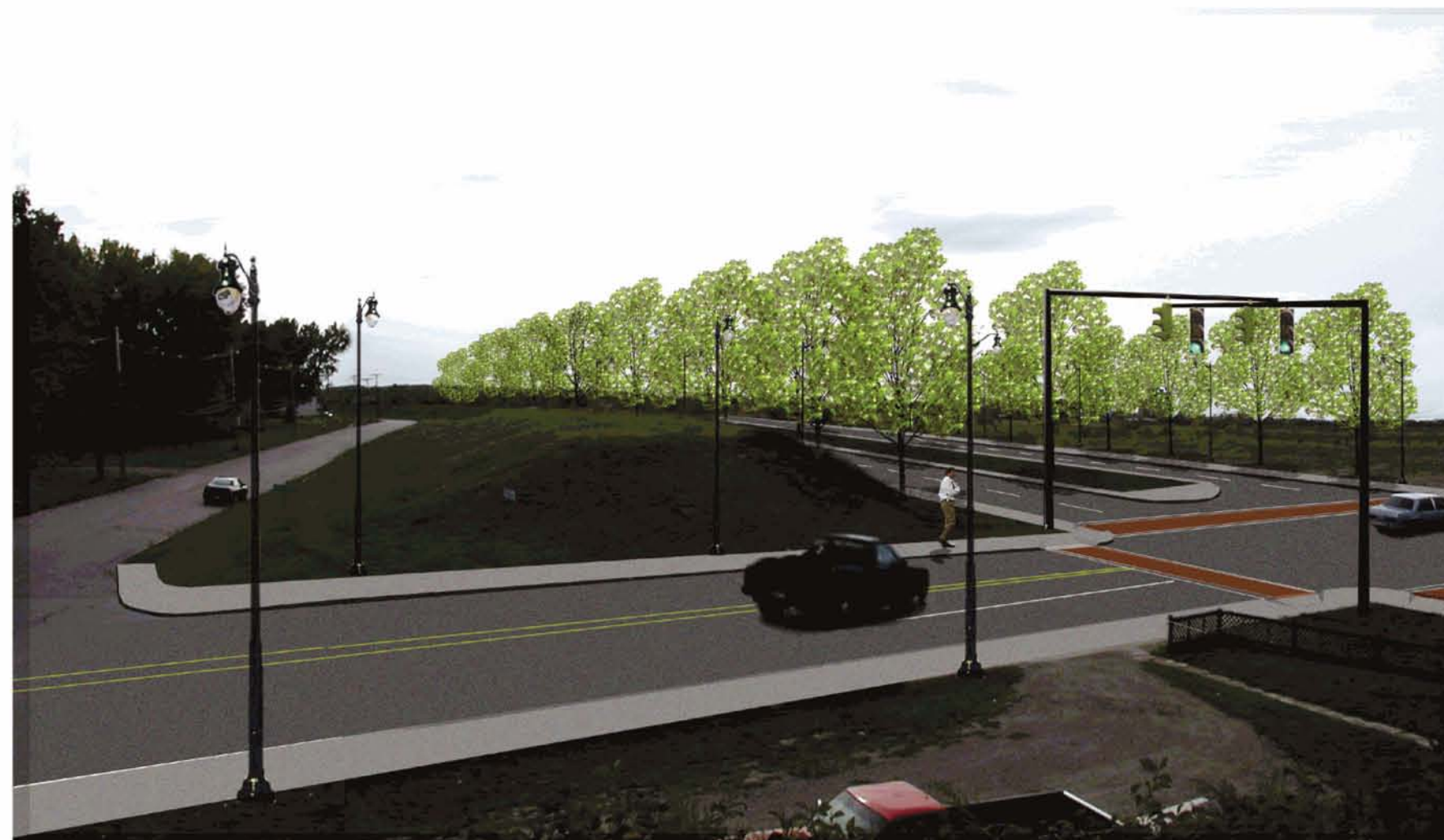
PLAN LOCATION



EXISTING CONDITION Proposed Arterial route looking south at South Park Street

The corridor will utilize open land within the eastern portion of the LTV/Republic site to provide a connection between I-190 and the Route 5 corridor. A 20' wide planted median and tree-lined edges will define the roadway. A new pedestrian/bicycle trail will be constructed along the length of the entire corridor.

PROPOSED IMPROVEMENT





PLAN LOCATION



EXISTING CONDITION Proposed Arterial route location looking north at the Buffalo River

As part of the connection of Tifft Street to I-190, a new bridge will be constructed over the Buffalo River. A bicycle/ pedestrian lane on each side will provide a safe, separated crossing.



PROPOSED IMPROVEMENT

Table 4.4-5: Visual Districts and Notable Features

Visual District	Visual Character & Land Use	Visual Features (+/-)
Route 5 Corridor		
One Project Limit or touchdown point to intersection of Ohio Street and Route 5	The roadway curves gently through this area, with some segments elevated to cross access roads to the adjacent industrial areas and rail yards on the east and the vacant land, waterfront restaurant, and large-scale, commercial and industrial buildings to the west. Fuhrmann Boulevard runs at grade parallel to Route 5 corridor on both sides of the roadway, providing access to the boat yards, marina and Coast Guard Station along the lake side.	(+) Water views to the east include new boardwalk & pier with lighthouse beyond (+) Historic grain elevators (-) Billboards along Fuhrmann Boulevard (-) Overhead utility wires on at-grade roads
Two Route 5 and Ohio Street intersection to Tiftt Street intersection	The straight roadway is elevated through much of this district to allow intersecting roadways to pass underneath. The Tiftt Nature Preserve is located along the east side, featuring trees near the road, wetlands vegetation and an elevated area with grass and pines planted over the old landfill site. The NFTA Boat Harbor marina and parking areas are to the west of the road, as is the Gallagher Beach state park.	(+) Open grasslands in Tiftt Nature Preserve (+) Occasional views of Lake Erie and pond at Tiftt Preserve on each side of roadway
Three Route 5 and Tiftt Street intersection to the bridge over Smokes Creek	The roadway continues in a straight alignment with both at-grade intersecting streets and elevated portions above local streets. The land use to the east includes vacant and active industrial sites as well as small-scale commercial frontage. The west side is dominated by the now vacant industrial site of the Bethlehem Steel plant.	(+) Historic Bethlehem Steel Headquarters Buildings (+) Canal Crossing (-) Overhead utility wires on at-grade roads
Four Bridge over Smokes Creek to Railroad Bridge	After bending somewhat to the west, the roadway is straight in this area with at-grade intersections. The land use to the east includes the Lackawanna residential neighborhood and the active industrial site of Bethlehem Steel. The western edge of the roadway is flanked by a rail corridor with vacant industrial land beyond.	(+) Historic Bethlehem Steel gatehouses (-) High electrical transmission towers (-) Overhead utility wires on at-grade roads
Five Railroad Bridge to Pedestrian Bridge across Route 5	Straight roadway with a number of at-grade intersections with local streets. Land use in the northern portion of this district includes active industrial on both sides of the roadway. South of that area, the Woodlawn residential neighborhood is on both sides of the road, with some limited frontage commercial use on the west side. The state park beach beyond the neighborhood is not visible from the roadway.	(-) Pedestrian overpass (-) Railroad bridge across roadway



Table 4.4-5: Visual Districts and Notable Features

Visual District	Visual Character & Land Use	Visual Features (+/-)
Ohio Street Corridor		
Six Ohio Street and Route 5 Intersection to Lift Bridge over the Buffalo River	Ohio Street is elevated to cross the rail corridor and comes back to grade before crossing the Buffalo River at the lift bridge. The eastern edge includes heavy industrial uses in 1-2-story buildings. The western side includes the rail yards, the Buffalo Canal and the historic grain storage elevators.	(+) Lift Bridge (+) Grain storage elevators
Seven Ohio Street from the Lift Bridge to intersection with Michigan Avenue	From the Lift Bridge, Ohio Street continues at grade parallel to the river. The land use to the east includes the First Ward residential neighborhood and the property of the Bison City Rod and Gun club is to the west. The west side also includes inactive low-rise industrial buildings.	(+) Views of the downtown and riverfront from the Lift Bridge
I-190/Tift Street Arterial Corridor		
Eight Tift Street intersection with Route 5 to the beginning of the new Arterial corridor	To the north of this street is the southern edge of the Tift Farm Nature Preserve and ball fields along the frontage. As the street passes over the rail yards, the land use changes to low rise industrial. The south side of the street is edged by vacant land, including wetlands and the rail yards.	(-) Rail yards (-) Overhead transmission wires on north side of street (+) Wetland vegetation edge (Nature Preserve) (+) Views of grain elevators & City skyline
Nine Beginning of new Arterial corridor route to intersection with South Park Ave.	The route for the arterial includes a grassed berm at the eastern road edge with residential uses behind it and vacant land to the west as it passes through a portion of the former LTV/Republic Steel industrial site.	(+) Views of river at bridge site
Ten I-190/Tift Street Arterial route from the intersection with South Park Avenue to the intersection with Seneca Street	The grassed berm continues along the western side of the route with a large complex of greenhouses behind it and then low-rise industrial uses. The eastern side consists of a series of industrial uses, including a trash yard.	(-) Fuel tanks (+) Buffalo River crossing provides views



Table 4.4-6: Key Visual Effects by View Number & District

View Number	Facing	Visual District	View Description (Alternative & Components)	Key Visual Effect
Route 5 Corridor				
D-3	West	Two / Three	RT. 5/Tift Street Grade-separated roadway. Modified Improvement Alternative	Grade-separated roadway; new sidewalk, proposed planted median, enhanced view corridor to waterfront
D-4	North	Two	Rt. 5/Ohio Street two-way traffic on Fuhrmann Blvd. Modified Improvement Alternative	Divided two-way boulevard; new sidewalk; landscaping; context sensitive bridge design
D-5	North-East	Two	RT. 5 Road realignment: Boulevard Alternative	Removal of Fuhrmann Blvd. access road; addition of boulevard and planted median, addition of multi-use trail on lake side; addition of pedestrian bridge from Tift Nature Preserve to waterfront
D-6	North	Four	Road widening at neighborhood section	Addition of planted median; new sidewalks, street tree plantings, and street lights
D-7	South	Five	Road widening at neighborhood section	Addition of planted median; addition of street trees; relocated walks, new street lighting and signalization
Ohio Street Corridor				
D-8	North - East	Seven	Reconstruction of Ohio Street intersection redevelopment	Addition of street trees and lawn; new street lighting; addition of nature / history walk / bike path; addition of seating and informational signage; new signalization; new sidewalks, Industrial Heritage Trail segment improvements
I-190/Tift Street Arterial Corridor				
D-9	South-West	Nine / Ten	New roadway in vacant land is separated from the neighborhood to the east by an existing berm	Addition of new roadway, street lighting, planted median, tree-lined edges, pedestrian pathway
D-10	North-East	Ten	New roadway and bridge across Buffalo River	Addition of new roadway, new bridge, street lighting, and pedestrian/bicycle crossing in area of abandoned bridge; Addition of planted median in road beyond the bridge



4.4.5.4 Characterization of Existing Roadway Corridor and General Site Description

The project area passes through a portion of Downtown Buffalo, South Buffalo, City of Lackawanna, Town of Hamburg, and the Village of Blasdell. The visual character of the expressway portion of Route 5 is characterized by highway-scale lighting fixtures, overhead signage, and guard rails at the edge of the viaduct. Traveling north, the character of the corridor consists of views from the roadway of the high and mid-rise buildings of Downtown Buffalo in the distance across the industrial areas and rail yards to the east and largely vacant lake front sites to the west. Traveling south, views of remaining industrial facilities on both the lakeside waterfront and along the Buffalo River are still prominent due most in part to the large scale of the structures and the flat topography of the adjacent land.

The elevated portion of Route 5 includes views of adjacent railroads, parking areas for waterfront industrial and marine facilities to the west, and water body and vegetation of the Tifft Nature Preserve to the east. Highway scale lighting fixtures, overhead sign structures and safety barriers continue to define the edge of the roadway. Along the at-grade Fuhrmann Boulevard roadway, the visual character is more readily visible due primarily to the posted lower speeds at which the motorists travel. Various plantings, landforms and views of the lakeshore are predominant along this stretch of roadway. Most of the buildings in this area are set back far from the roadways and their parking areas are often the most prominent features.

Where Route 5 becomes an at-grade roadway south of Ridge Road, the visual character defined by the roadway edge conditions includes light poles with overhead wires. Commercial and residential uses are intermixed throughout this portion of the study area with local access provided via roadway curb cuts. The setback of adjacent buildings varies considerably along the corridor. There is no strong sense of unity or harmony to the visual environment in this area, due to diversity in building types, materials and scales, and varying densities of development.

The visual character of Ohio Street consists of a mixture of commercial, industrial, and residential land uses, however with an inconsistent presence of sidewalks and occupied or vacant lots. The Old First Ward neighborhood provides some consistency of scale and materials of buildings, and as Ohio Street passes over the Buffalo River, views of the grain elevators and other waterfront industrial facilities exist to both sides. Other elements of Buffalo's industrial heritage include the canals and the lift bridges that cross them to the west. There are areas of open land adjacent to the Buffalo River that provide visual and boat launching access to the water's edge, however entry into this area is not well defined.

The route of the proposed I-190/Tifft Street Arterial occurs in an area of low density industrial and commercial development with vacant vegetated land consisting of primarily grasses, shrubs, and scrub trees, all leading up to the Buffalo River. A berm exists to the east for the majority of the length of the proposed arterial providing a natural buffer for the South Park residential neighborhood.



4.4.5.5 Visual Quality Evaluation

As defined by the FHWA guidelines for Visual Impact Assessments, the three most important criteria for visual quality are *vividness* or the tendency to be memorable; *intactness* or integrity of visual pattern and order; and *unity*, or evidence of a coherent and harmonious pattern.

The most vivid or memorable visual feature within the corridor includes the historic grain elevator structures that remain along both sides of the roadway and the open views of Lake Erie to the west. The large industrial complexes of the former Bethlehem Steel Plant are also dominant structures, but the overall deterioration in condition of the buildings detracts from their visual quality. Overall, the Route 5 project corridor lacks the characteristics of intactness and unity, due partly to the removal of many buildings over time and the great range of building size and land use type found adjacent to the roadway.

The visual environment of Ohio Street, while slightly more cohesive than Route 5, has limited integrity due to the number of vacant lots and demolished structures, reducing any sense of a continuous street edge. The only memorable features along this corridor come from the occasional views of the river, City Ship canal, and adjacent industrial structures.

The route for the proposed I-190/Tifft Street Arterial has little in the way of visual interest or character. The proposed location lies in an area of largely flat topography accented by a grassed berm following a former railroad right of way. The most prominent features include transmission towers, overhead wires, and a water tower. Views of two lift bridges and some of the City's monumental grain elevators can be seen where the proposed arterial route intersects with South Park Avenue. The adjacent industrial development along portions of the corridor is of varying building type and scale, with no consistent relationship of buildings to the roadway.

4.4.5.6 Viewer Response, Visual Impacts, and Mitigation Measures

This section describes what the viewer groups identified would experience under the Null Alternative and the Modified Improvement Alternative (Preferred Alternative) and suggestions for mitigation measures to enhance the visual quality of the project corridors.

Null Alternative

With the Null Alternative there would be no significant changes to the project area. Route 5 and Fuhrman Boulevard would remain in their current configurations of circuitous on and off ramps. There would be no improvements to the visual character of the project area and thus views of the waterfront would remain as currently seen today.

Modified Improvement Alternative (Preferred Alternative)

Viewers identified in Group One (motorists in Route 5 corridor) would experience little change in their visual experience with exception to simplification of ramp and interchange structures and an occasional general awareness of new plantings, landforms, and lighting associated with the improvements to Route 5 and the reconstructed Fuhrman Boulevard.



Group Two viewers (pedestrians and bicyclists) would be relatively more aware of changes to the visual environment as they will have greatly enhanced access to the lakeside of the corridor via new walkways and bike trails. These viewers would also be more generally aware of roadway edges, including lighting, signage and new plantings, given their travel through the project area at much slower travel speeds.

Group Three viewers (area residents and workers commuting) would be most aware of the improvements to Route 5 and reconfiguring Fuhrman Boulevard into a 2-way frontage road on the west side of Route 5. This alternative would provide continuous views of the lake for the northbound and southbound travelers, where previously northbound travelers were separated from the lake by the elevated roadway. This group would also be more generally aware of the new plantings, pathways, and lighting along the roadways.

The experience of viewers traveling the project corridor and local roadways would include maintaining views of the lake in the distance for travelers on Tifft Street with the current access to Tifft Nature Preserve enhanced with plantings to help define the entry point. A more unified character will be established through plantings along the roadway, new lighting, and a pedestrian/bicycle pathway. This would be most noticeable to local drivers on the at-grade roadways and to the pedestrians and cyclists traveling at slower speeds than the through traffic on Route 5.

Boulevard Alternative

Viewers in Group One (motorists in Route 5 corridor) would experience a change in their visual environment with respect to proximity to the lakefront and the removal of barriers and railings currently necessary for the elevated highway structure. An at-grade Boulevard, however, would provide motorists with fewer long views of the lake because they would be less able to see over the remaining lakeside buildings and structures. A posted speed limit of 64 kph (40 mph) would allow for more awareness of changes in the surroundings along the roadway, which would include new plantings in the boulevard's median and on each side of the roadway. A more consistent visual character to the corridor would be achieved through the new plantings and lighting along the roadway, and would allow for variations in design treatment to acknowledge focal points and changes in development and land use intensity. Median and roadside plantings and landforms would be designed not to interfere with views of the lake.

Group Two viewers (pedestrians and bicyclists) would have the same advantage of continuous access to a new pathway system as in the Modified Improvement Alternative, but they would not be impacted by an adjacent Route 5 highway facility. Access to the lakeside would be at signalized, intersections of the boulevard with local streets. This system likely would result in an increase in users in this viewer group and the slower speeds would allow them to take greater notice of the improvements within the corridor.

Group Three viewers (area residents and workers) would also experience the removal of the visual barrier created by the current elevated Route 5 roadway, making the views less



interrupted. Westbound movements by this user group would be afforded direct views of the lakeshore at the at-grade signalized intersections. However, travel speeds by this group would increase over existing conditions (i.e., this user group currently uses Fuhrmann Boulevard, a 48 kph [30 mph] roadway), thereby making this viewer group less aware of the landscaping details.

The combination of median landscaping and roadside plantings would create a more unified visual character to Route 5. By eliminating the separation of the elevated Route 5 facility from the at-grade Fuhrman Boulevard access road, the visual environment would be much more unified and begin to function as a more intact system.

Hybrid Alternative

The reactions of the viewer groups described in the Modified Improvement and Boulevard alternatives would apply to this alternative as features of each are included. Likewise, the views described under the Modified Improvement and Boulevard alternatives would be the same for the Hybrid Alternative.

Route 5 South of Tift Street to NY 179 (All Build Alternatives)

Viewer Groups One and Two would have similar reactions to the modifications of this portion of Route 5. Travel speeds would be the same and stopping at signalized intersections would occur for both viewer groups. The residents and workers who typically spend more time in the corridor are more likely to be sensitive to the detail and quality of the streetscape improvements closest to their homes and places of business. The pedestrians, cyclists and transit users would all notice on a daily basis the enhanced sidewalks, bicycle trails and transit vehicle accommodations.

In the City of Lackawanna the addition of planted central medians, sidewalks on each side of the roadway, new lighting fixtures, and consistent tree plantings would provide a more unified character of Route 5 in this community as well as in Woodlawn. The removal of overhead wires and installation of consistent roadway edge treatments would create a more harmonious environment for these mixed commercial and residential areas. Pedestrians would experience a more enhanced visual environment with the planting of roadside trees that would serve as a buffer from vehicular traffic.

I-190/Tift Street Arterial (All Build Alternatives)

All viewer groups would gain a new visual experience with the introduction of the new arterial in an area currently occupied with vacant land and remnants of past industry. The bridge that would carry the new arterial over the Buffalo River would offer a view of riverbank vegetation and waterfront industry. A safe and attractive urban street would be created with new lights and roadside plantings, and integration of bicycle trails and sidewalks.

The cohesive landscape and streetscape treatment would create a unified visual environment for users of the new arterial that does not currently exist.



Ohio Street (All Build Alternatives)

Area residents and workers, including those traveling through the corridor, given the posted speed of 48 kph (30 mph), would easily appreciate new streetscape treatments. Local residents would be most sensitive to the changes closest to their homes and places of business. With the addition of a pedestrian and bicyclist facilities, frequent walkers and bike riders would be most cognizant of the improved accommodations. An added attraction would be the interpretive features of the Industrial Heritage Trail that passes through the corridor.

Improvements in the Old First Ward neighborhood would include the reconfiguration of a poorly defined traffic pattern at the intersection of Ohio, Louisiana, and St. Clair Streets. This reconfiguration would create a distinctive gateway feature to the neighborhood. New roadway plantings, underground utilities, and street lighting would provide a better-defined edge to the roadway and create a more cohesive character for the district than the existing scattered light poles and attached overhead wires. A more distinctive character of this neighborhood would occur from the installation of more memorable entry features and the interpretive medallions of the Industrial Heritage Trail. There would also be a stronger visual continuity created with downtown Buffalo, particularly between the Ohio Street corridor and the Erie Canal Harbor/Cobblestone District areas, where similar streetscape improvements/materials (e.g., pavement types, lighting, landscaping, street furniture, etc.) have been or are planned to be used.

4.4.5.7 Summary of Visual Effects

Most of the improvements under each of the Build Alternatives would result in an increase in the quality of the visual experience of all viewer groups in the corridor. Enhancement of the roadways with new streetscape improvements, landscape treatments and appropriate roadway lighting would aid in attracting desired types of new development to the area and would increase the unity and integrity of the visual environment for the community. **Table 4.4-7** indicates the overall projected level of impact for each Build Alternative and associated views. Referenced views and figures are in **Appendix D: Visual Impact Assessment**.



Table 4.4-7 Projected Level of Visual Impact By Alternative				
Key Views/Location	Projected Level of Impact (Positive)			Comments
	None	Moderate	Significant	
Route 5: North of Ridge Road				
Figures D-3, D-4 and D-5				
Modified Improvement Alternative (Preferred Alternative)		◆		Consolidated lakeside Fuhrmann Boulevard, grade separated intersections remain, new landscaping and lighting, view corridors improved.
Boulevard Alternative			◆	Creation of new at-grade roadway with landscaped median, signalized at-grade intersections, new lighting, enhanced viewsheds.
Hybrid Alternative		◆		Includes aspects of both Modified Improvement and Boulevard Alternatives.
Route 5: South of Ridge Road (All Build Alternatives)				
Figures D-6 and D-7		◆		Addition of planted median, street trees and new lighting, removal of overhead wires.
Ohio Street Corridor (All Build Alternatives)				
Figure D-8		◆		Streetscape improvements include trees, sidewalks, new lighting, and removal of overhead wires.
I-190/Tift Street Arterial Corridor (All Build Alternatives)				
Figures D-9 and D-10			◆	New roadway corridor created in vacant land, new bridge crossing, addition of sidewalks, lights, landscaped median, and roadside planting.

4.4.6 Parks and Recreational Facilities

One of the major goals of the proposed project is to gain easier access and make improvements to existing waterfront recreational and parkland facilities. All of the Build Alternatives would improve connectivity among existing park and public recreational areas, including Times Beach, Gallagher Beach, NFTA Boat Harbor (Buffalo Boat Harbor State Park), Woodlawn Beach, Tift Nature Preserve, Conway Park, and recreational/fishing access areas along the Buffalo River.



None of the Build Alternatives would require the taking of any property from parks and/or recreational areas.

4.4.7 Farmlands

Farmlands and/or designated Agricultural Districts do not exist within the project area.

4.4.8 Air Quality

An air quality analysis was performed to assess the potential for impacts from the Null and Build Alternatives. The analysis followed the procedures and methodologies provided in the *NYSDOT Environmental Procedures Manual (EPM)*. A detailed description of the analysis methodology and results is presented in **Appendix I – Air Quality Assessment**.

4.4.8.1 Regulatory Considerations

The *Clean Air Act Amendments of 1990 (CAAA90)* have placed additional requirements on Transportation Plans, Programs, and Projects. The purpose of the new conformity process is to assess Federal Transportation Plans, Programs, and Projects to determine if they conform to the purposes of the State Implementation Plan (SIP), which is the attainment of the National Ambient Air Quality Standards (NAAQS). This project is located in Erie County in an area that is designated as a non-attainment area for ozone and an attainment area for all of the other regulated pollutants. Procedures specified in the United States Environmental Protection Agency's (USEPA) "Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Funded, Developed, or Approved under Title 23 U.S.C. of the Federal Transit Laws" (40 CFR Parts 51 and 93), are used to make this determination. In addition, NYSDOT has developed procedures for conducting air quality analyses for roadway projects, which are provided in the EPM.

Following requirements of both the conformity rule and NYSDOT's EPM, two analyses were conducted:

- A localized (microscale) analysis to determine whether the project would cause or exacerbate a violation of an air quality standard; and
- A project area (mesoscale) analysis to determine whether the project would impede the area from expeditiously attaining air quality standards.

The results of these analyses indicate that the Build Alternatives would not cause or exacerbate a violation of an air quality standard, and minimally affect regional emission rates.



4.4.8.2 Microscale Analysis

Methodology

The proposed project alternatives, which would reconfigure major roadway interchanges along Route 5 and improve local street patterns, would affect traffic conditions on many roadways in the study area. Local air quality levels would be affected by these changes. The purpose of this microscale analysis is to identify the potential for the project to cause or exacerbate a localized violation of an ambient air quality standard near any of the affected roadways.

Following the criteria provided in Chapter 1.1 of the NYSDOT EPM (“Criteria for Determining Which Projects Require An Air Quality Analysis”), a Level I microscale air quality analysis (based on peak hour traffic conditions) was conducted to estimate the potential impacts of the project alternatives (NYSDOT 2001).

Emission factors were estimated using the latest version of the USEPA MOBILE 6 mobile emission factor algorithm – MOBILE 6.2. This version includes the effects of the new vehicle standards, and covers model years 1952 to 2051.

Carbon monoxide (CO), which is generated in the urban environment primarily by the incomplete combustion of fossil fuels in motor vehicles, was the pollutant considered in this analysis. The National Ambient Air Quality Standards (NAAQS) for CO are a one-hour average concentration of 35 parts per million (ppm), which cannot be exceeded more than once per year, and an eight-hour average concentration of 9 ppm, which also cannot be exceeded more than once per year.

Locations where the changes in traffic conditions have the potential to significantly affect air quality levels were considered as potential air quality analysis sites. Signalized intersections that were considered for evaluation were those that could be affected by the Build Alternatives and exhibit a traffic level of service (LOS) of D, E or F under any of the build conditions. Sites were also considered for analysis where there would be a 10 percent or greater increase in traffic volumes between the Null Alternative and Build conditions, a 10 percent or greater decrease in source-receptor distance, and where additional queued travel lanes are anticipated. Not all of the intersections within the project area are affected by each alternative. The sites selected for analysis are listed in **Table 4.4-8** and shown on **Figure 4.4-8**.



Table 4.4-8: Air Quality Analysis Sites	
Analysis Site	Location (Intersection)
1	Route 5 and Ohio Street
2	Route 5 and Ridge Street
3	Route 5 and Tifft Street
4	Route 5 and Madison Street
5	Route 5 and Lake Avenue
6	Louisiana and Ohio Street
7	South Park Avenue and Michigan Street
8	New Arterial and Seneca Street

Traffic data, including volumes, free-flow speeds, vehicle classifications, and intersection capacities, were developed based on traffic survey data. These data, which are provided in Appendix C, were then projected for the project's estimated time of completion (ETC) in 2010, ETC+10 (2020), and ETC+20 (2030). Emissions from queuing vehicles at signalized intersections were also included.

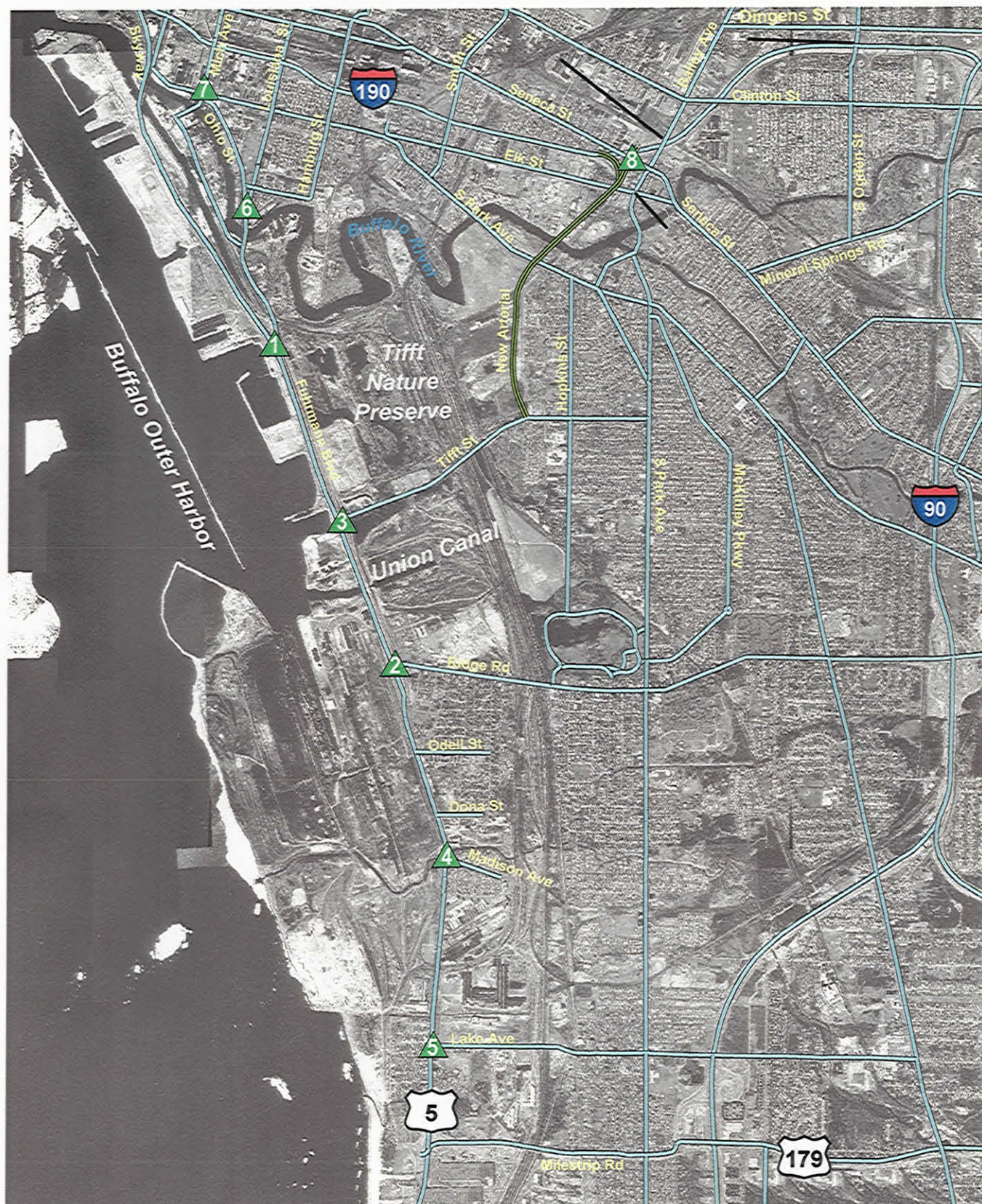
Mobile source dispersion models are the basic analytical tools used to estimate CO concentrations expected under given conditions of traffic, roadway geometry, and meteorology. Most of the results obtained using dispersion models tend to be conservative. CO levels near affected roadway intersections were estimated using the CAL3QHC (Version 2.0) air quality dispersion model (EPA-404/12-92-006) and an assumed worst-case set of meteorological conditions.

Following NYSDOT EPM guidelines for a project located in a CO attainment area, a microscale analysis was conducted for one analysis year, referred to as the critical year. An analysis that considered emission rates, travel speeds and vehicle miles traveled (see **Appendix I**) determined that 2010 should be the critical year.

The locations at which pollutant concentrations are estimated are known as "receptors". As a general rule, following guidelines established by the USEPA, receptors are to be located where the maximum projected total concentration is likely to occur and where the general public (or any significant segment thereof) is likely to have access.

For this analysis, receptors were placed according to USEPA and EPM intersection modeling guidelines. The receptors were placed in the middle of sidewalks along all approaches to signalized intersections, and along proposed pedestrian paths and property lines. Approximately 20 receptors were selected near each analysis site.





Air Monitoring
Receptor Location



0 1 Miles

0 1 Kilometers

FIGURE 4.4-8
Air Quality Analysis Sites

Southtowns Connector/Buffalo Outer Harbor Project

Results of the Microscale Analysis

The maximum estimated 1-hour and 8-hour average CO concentrations at the analysis sites under the Null and three Build Alternatives are provided in **Tables 4.4-9, 4.4-10, 4.4-11, and 4.4-12**. Under the Null Alternative for 2010, the maximum estimated 1-hour and 8-hour concentrations during either the AM peak or PM peak periods are 6.8 ppm and 4.6 ppm, respectively. These values are predicted at Analysis Site 4 – the intersection of Route 5 and Madison Avenue. The maximum estimated 1-hour and 8-hour concentrations during either the AM or PM peak periods under any of the Build Alternatives are 8.6 ppm and 5.9 ppm, respectively. These values are predicted at Analysis Site 8 -- the intersection of the New Arterial and Seneca Street (This intersection does not currently exist.).

All estimated concentrations comply with the one and eight hour NAAQS for CO. The result of this analysis, therefore, is that none of the proposed Build Alternatives will have a significant localized air quality impact.

Table 4.4-9: Maximum 2010 CO Concentrations under the Null Alternative

Site No.	Location	1-hour CO AM Period (ppm)	8-hour CO AM Period (ppm)	1-hour CO PM Period (ppm)	8-hour CO PM Period (ppm)
1	Route 5/Ohio St.	4.7	3.2	4.8	3.3
2	Route 5/Ridge St.	4.7	3.2	4.8	3.3
3	Route 5/Tift St.	4.4	3.0	4.9	3.4
4	Route 5/Madison St.	6.8	4.6	6.0	4.1
5	Route 5/Lake Ave.	6.0	4.1	5.8	4.0
6	Louisiana/Ohio St.	4.2	2.9	4.0	2.7
7	So. Park Ave./Michigan St.	4.6	3.2	4.4	3.0

Note: 1-hour CO background concentration = 3.2 ppm; 8-hour CO background concentration = 2.2 ppm.

Table 4.4-10: Maximum 2010 CO Concentrations under the Modified Improvement Alternative (Preferred Alternative)

Site No.	Location	1-hour CO AM Period (ppm)	8-hour CO AM Period (ppm)	1-hour CO PM Period (ppm)	8-hour CO PM Period (ppm)
1	Route 5/Ohio St.	5.8	4.0	5.5	3.8
2	Route 5/Ridge St.	5.3	3.6	5.1	3.5
3	Route 5/Tift St.	4.2	2.9	4.7	3.2
4	Route 5/Madison St.	6.1	4.2	5.3	3.6
5	Route 5/Lake Ave.	5.6	3.8	5.7	3.9
6	Louisiana/Ohio St.	4.4	3.0	4.2	2.9
7	So. Park Ave./Michigan St.	4.6	3.2	4.6	3.2

Note: 1-hour CO background concentration = 3.2 ppm; 8-hour CO background concentration = 2.2 ppm.



Table 4.4-11: Maximum 2010 CO Concentrations under the Boulevard Alternative

Site No.	Location	1-hour CO AM Period (ppm)	8-hour CO AM Period (ppm)	1-hour CO PM Period (ppm)	8-hour CO PM Period (ppm)
1	Route 5/Ohio St.	5.2	3.6	4.9	3.4
2	Route 5/Ridge St.	6.0	4.1	5.5	3.8
3	Route 5/Tifft St.	5.3	3.6	6.0	4.1
4	Route 5/Madison St.	5.9	4.0	5.3	3.6
5	Route 5/Lake Ave.	5.3	3.6	5.3	3.6
6	Louisiana/Ohio St.	4.8	3.3	4.1	2.8
7	So. Park Ave./Michigan St.	4.5	3.1	4.6	3.2
8	New Arterial/Seneca St.	8.6	5.9	8.6	5.9

Note: 1-hour CO background concentration = 3.2 ppm; 8-hour CO background concentration = 2.2 ppm.

Table 4.4-12: Maximum 2010 CO Concentrations under the Hybrid Alternative

Site No.	Location	1-hour CO AM Period (ppm)	8-hour CO AM Period (ppm)	1-hour CO PM Period (ppm)	8-hour CO PM Period (ppm)
1	Route 5/Ohio St.	4.7	3.2	5.0	3.4
2	Route 5/Ridge St.	5.8	4.0	5.4	3.7
3	Route 5/Tifft St.	5.4	3.7	5.6	3.8
4	Route 5/Madison St.	5.8	4.0	5.3	3.6
5	Route 5/Lake Ave.	5.4	3.7	5.4	3.7
6	Louisiana/Ohio St.	4.5	3.1	4.2	2.9
7	So. Park Ave./Michigan St.	4.9	3.4	5.0	3.4

Note: 1-hour CO background concentration = 3.2 ppm; 8-hour CO background concentration = 2.2 ppm

4.4.8.3 Mesoscale Analysis

Methodology

An emissions analysis of the project area was conducted, in accordance with guidance provided in Chapter 1.1 of the NYSDOT EPM, to estimate the potential affects that the proposed project would have on the amount of mobile source-related air pollutants generated in the study corridor. The results of this analysis provides an indication of the relative affect of the proposed STC/BOH alternatives on air quality levels in the project area.

Emission rates were calculated for the Null Alternative, and the three Build Alternatives. The analysis was performed for volatile organic compounds (VOC), carbon monoxide (CO) and nitrogen oxides (NOx). Emissions were based on average daily estimates of VMT and vehicle hours traveled (VHT) in the study area for the project's ETC (2010), ETC + 10 (2020), and ETC + 20 (2030). The USEPA MOBILE5B 6.2 emission factor algorithm was used to estimate VOC,



CO and NOx emission factors for use in the study area analysis as specified in the MOBILE6.2 emissions factor tables for “Regional Mesoscale and CMAQ Project Emission Calculations” for Erie and Niagara Counties.

Results of the Area Wide (Mesoscale) Analysis

Total study area emissions of the CO, VOC, and NOx estimated under the Null Alternative, the Modified Improvement Alternative (preferred), and the other two Build Alternatives, under average daily traffic, are provided in **Table 4.4-13**. Changes in regional emissions as a result of changes in traffic conditions under Build Alternatives compared to the Null Alternative are minimal. CO and NOx emission burdens will decrease under the Modified Improvement Alternative compared to the Null Alternative for all future analysis years. VOC emissions will decrease under the Modified Improvement Alternative for future analysis years 2010 and 2030. For future analysis year 2020 however, VOC emissions experience a slight increase under the Modified Improvement Alternative, increasing by 0.0008 tons per day. Project-related changes in CO, VOC and NOx emissions under the Boulevard and Hybrid Alternatives are similarly minimal.



Table 4.4-13: Air Emissions Under Null and Build Alternatives

Year	Alternative	VMT ¹	VHT ²	Speed	CO Emissions		VOC Emissions		NOx Emissions	
					Average Daily	Change ³	Average Daily	Change ³	Average Daily	Change ³
					(tons/day)	tons/day	(tons/day)	tons/day	(tons/day)	tons/day
2010	Null	1,329,476	24,558	54.1	23.18		0.75		0.813	
	Mod. Impr.	1,293,069	24,492	52.8	22.36	-0.81	0.74	-0.013	0.802	-0.011
	Boulevard	1,313,450	24,695	53.2	22.77	-0.41	0.75	--0.003	0.805	-0.008
	Hybrid	1,329,631	24,641	54.0	23.15	-0.02	0.75	0.001	0.811	-0.0012
2020	Null	1,431,401	26,739	53.5	18.14		0.39		0.294	
	Mod. Impr.	1,434,426	27,072	53.0	18.11	-0.02	0.39	0.0008	0.292	-0.002
	Boulevard	1,423,092	26,975	52.8	17.95	-0.19	0.39	-0.002	0.291	-0.003
	Hybrid	1,467,253	27,471	53.4	18.58	0.44	0.40	0.0099	0.294	-0.0004
2030	Null	1,583,702	29,716	53.3	19.35		0.34		0.166	
	Mod. Impr.	1,574,842	29,632	53.2	19.23	-0.12	0.34	-0.0015	0.166	-0.0002
	Boulevard	1,599,885	30,429	52.6	19.47	0.12	0.34	0.0059	0.165	-0.00141
	Hybrid	1,556,796	29,342	53.1	19.00	-0.35	0.33	-0.0051	0.166	-0.0004

Notes:

¹ Average Daily Vehicle Miles of Travel in the study area.

² Average Daily Vehicle Hours of Travel in the study area.

³ Estimated emissions under a Build Alternative minus emissions under the Null alternative.

4.4.8.4 Transportation Conformity Determination

The Interagency Consultation Group (ICG), at its March 16, 2006 meeting, concurred that the Southtowns Connector/Bufalo Outer Harbor project as coded and analyzed for the most recent Conformity Determination was not materially different from that described in the Southtowns Connector/Bufalo Outer Harbor project FDR/FEIS. Therefore, the Southtowns Connector project was modeled for its regional air quality impacts in the 2025 Plan and 2006-2010 TIP.

The regional test showed that the 2025 Plan and 2006-2010 TIP, including the Southtowns Connector project, conform to the New York State Implementation Plan for Air Quality. FHWA and FTA issued a finding of conformity on June 14, 2005 in coordination with the Environmental Protection Agency.

4.4.9 Noise Assessment

A Noise Analysis was performed of the project corridor to identify and determine areas within the project study area that may be affected by the alternatives under consideration. A noise study is required by FHWA regulations identified under 23 CFR 772 for determining when traffic noise impacts would occur. The full noise assessment is presented in **Appendix J**.

4.4.9.1 Methodology

The basic unit employed to describe noise levels is the A-weighted decibel (dBA). Measured by a noise meter, the dBA provides a measure of the noisiness of sound as subjectively heard by humans. Using this descriptor, a 3 dBA change in noise level can barely be perceived, while a 10 dBA change corresponds to doubling or halving of loudness. For reference and orientation to the decibel scale, representative environmental noises and their respective dBA levels are shown in **Table 4.4-14**, where 70 dBA is the approximate noise level of highway traffic at a distance of approximately 15 meters (50 feet) from a roadway. Noise levels that differ by 3 dBA to 5 dBA are not substantial but can be perceived to be by some people. Levels that differ by 6 dBA to 10 dBA are noticeable and substantial; and differences of 10 dBA are considered to be subjectively heard as approximately a doubling (or halving) of loudness.



Table 4.4-14 Common Noise Levels and Typical Reactions

Sound Source	Noise Level (dBA)	Apparent Loudness	Typical Reaction	Activities
Military jet, Air raid siren	135		Painfully loud	
Amplified rock music	130	64 times as loud as base	Limit amplified speech	
Jet takeoff at 500 meters	110	16 times as loud as base	Maximum vocal effort	
Train horn at 30 meters	100	8 times as loud as base		
Freight train at 15 meters	95			
Heavy truck at 15 meters	90	4 times as loud as base	Very annoying	
Busy city street	80	2 times as loud as base	Annoying	Highway construction sites
Loud shout	70	Base reference	Telephone use difficult	Roadside traffic
Busy traffic intersection	60	1/2 as loud as base reference	Intrusive	
Highway traffic at 15 meters				
Train horn at 500 meters				
Noisy restaurant				
Predominantly industrial areas				
Light car traffic at 15 meters				Outdoor recreation
City or commercial areas				
Residential areas close to industry				
Noisy office				
Quiet office	50	1/4 as loud as base reference	Beginning of speech interference	
Suburban areas with medium-density transportation				Kitchens/bathrooms
Public library	40	1/8 as loud as base	Quiet	Living/dining/bedrooms
		1/16 as loud as base		
Soft whisper at 5 meters	30	base	Very quiet	
	10	1/64 as loud as base	Just audible	
Threshold of hearing	0			

Note: The minimum difference in noise level noticeable to the human listener is 3 dBA. A 10 dBA increase in level appears to double the loudness, while a 10 dBA decrease halves the apparent loudness.



4.4.9.2 Noise Standards and Criteria

The noise impacts for the Southtowns Connector/Buffalo Outer Harbor (STC/BOH) Project have been assessed in accordance with Federal Highway Administration (FHWA) procedures published in 23 CFR 772 for determining when traffic noise impacts will occur. The STC/BOH Project is considered a Type I project since it involves all of the elements of a Type I project as defined by the FHWA, including:

- Establishment of a new corridor rather than a new alignment for an existing route;
- Implementation of significant changes to horizontal and vertical alignments; and
- Addition of through traffic lanes.

NYSDOT uses FHWA procedures for impact assessment. These procedures involve the following steps:

- Identify existing land uses and activities, developed lands, and undeveloped lands for which development is planned, designed, and programmed that may be affected by traffic-related noise in the study area;
- Determine existing (2001) noise levels in the study area;
- Predict future design year (2030) noise levels which would occur under the Null Alternative and three Build Alternatives;
- Compare future noise levels with existing noise levels and with FHWA Noise Abatement Criteria (NAC) to identify traffic noise impacts and the need for abatement; and
- Identify areas at which noise impacts would be anticipated.

For the STC/BOH Project, the noise impacts at outdoor locations have been assessed in accordance with FHWA NAC applicable to Activity Category “B” sites which are 67dBA Leq (1 hour) and to Activity Category “C” which is 71 dBA Leq (1 hour) (see **Table 4.4-15**). If for a given activity, the design year noise levels “approach or equals the NAC”, then the activity is impacted and a series of abatement measures must be considered. The State Noise Abatement Policy’s “approach” criterion is one decibel less than the NAC. A second criterion for assessing impact is provided in the Criteria. The State policy defines an increase of 6 dBA or more as a “substantial increase” that justifies consideration of noise abatement measures. FHWA and NYSDOT define an impact against both existing noise levels and the NAC discussed above. The final decision to recommend abatement measures will take into account the feasibility of the design and the construction cost per protected receptor weighed against benefit to the impacted property.



**Table 4.4-15 Federal Highway Administration
Noise Abatement Criteria (NAC)**

Activity Category	L _{eq} for Noisiest Traffic Hour	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purposes.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands.
E	52 (Interior)	Residences, motels, public meetings rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: *Highway Traffic Noise in the United States*, USDOT, FHWA, April 1986.

4.4.9.3 Factors Affecting Traffic Noise Levels

Traffic noise levels at a particular location depend on four factors: site geometry and the volume, types, and speed of vehicles traveling on roadways in the vicinity. Site geometry is best described as the type of surface that exists between the roadway and the receptor. The rate at which noise levels diminish varies with the hardness or softness of the surface between the roadway and the receptor site. The volume, types, and speed of vehicles are factors in determining noise impacts, described as follows: volume, or number, of cars/trucks affects noise levels, however, a doubling of traffic volume over a given period of time produces a 3 dBA increase in noise level, which is barely perceptible. Types of vehicles dictate noise levels, for example, a medium-sized truck is sixteen times noisier than an automobile, while a heavy truck is approximately 47 times noisier. Lastly, the speed at which a vehicle travels can increase noise levels. For example, as the speed increases from 48 kilometers per hour (kph) (30 mph) to 72 kph (45 mph) the noise level will increase from approximately 5 to 6 dBA.

4.4.9.4 Noise Measurements

Noise measurements were taken on weekdays in October and November 2001 to provide an estimate of existing noise levels in the project study area and to obtain data that can be used to model existing and future noise levels. Noise measurement locations were selected to provide broad geographic coverage and to be representative of existing and future land uses in the project study area. All measurements were taken at locations where development currently exists or where development has been planned and may be affected by noise from the proposed project.



Sixteen locations were selected as representative of land uses within the project study area (see **Table 4.4-16** and **Figure 4.4-9**).

Noise measurements at the noted time periods were taken in conformance with procedures described in the NYSDOT manual *Field Measurement of Existing Noise Levels*. Noise measurements were taken using a calibrated set of Bruel and Kjaer (B&K) noise measuring equipment including a Type 2231 sound level meter fitted with a B&K Type 5155 condenser microphone and windshield. All measurements were performed under acceptable climatic and street surface conditions (i.e., dry road surface and wind speeds less than 20 km/hr).

4.4.9.5 Impact Assessment

Assessment of traffic noise impact requires the following three comparisons:

- The noise levels under existing conditions must be compared to those under build conditions. This comparison shows the noise level that will occur between the present time and the design year.
- The noise levels under the null alternative must be compared to those under Build Alternative conditions. This comparison shows how much of the change in levels can actually be attributed to the proposed study.
- The noise levels under the build conditions must be compared to the applicable NAC. This comparison determines the applicability of noise levels under current as well as proposed land uses.

Using the NYSDOT and FHWA NAC activity categories to assess impacts to various land uses within the STC/BOH project study area, it was determined that impacts would occur within land uses that fall under FHWA NAC Activity Categories B and C.



**Table 4.4-16 Noise Monitoring Locations
and Measured Existing Noise Levels ¹**

Site #	Site Description	Land Use	Date	Time	L _{eq} ²
1	NFTA Outer Harbor Lands	Vacant Land	10/30/01	4:15 PM	72
2	Maternity Clinic and Child Care Facility	Medical	11/01/01	7:35 AM	73
3	Conway Park	Playground	10/30/01	5:35 PM	55
4	450 Ohio Street	Residential	10/30/01	5:10 PM	70
5	65 Louisiana Street	Residential	11/01/01	7:05 AM	70
6	1523 Seneca Street	Residential	11/01/01	8:05 AM	72
7	1515 South Park Avenue (Triangle Academy)	School	11/01/01	8:25 AM	69
8	297 Abby Street (Hickory Woods)	Residential	10/31/01	7:40 AM	53
9	Tifft Nature Preserve, Ohio St. (Service Road) North Bound Side of Rte 5	Nature Preserve	10/30/01	4:45 PM	66
10	New Fishing Pier (Gallagher Beach) – South Bound Side of Rte 5	Recreation Area	10/31/01	4:00 PM	69
11	739 Tifft Street (near Hopkins)	Residence	10/31/01	8:05 AM	72
13	George J. Hartman Playfield, Tifft Street	Playground/ Park	10/31/01	8:55 AM	65
14	50 Ridge Road, Law Office	Commercial	10/31/01	4:35 PM	68
15	208 Ridge Road (Our Lady of Victory)	Church	10/31/01	5:05 PM	68
17	2722 Adam Street (Bethlehem Park)	Residence	11/01/01	5:30 PM	71
18	3614 Lake Avenue (Woodlawn)	Residence	11/01/01	4:05 PM	72

Notes:

¹ Sites 12 and 16 (both along South Park Avenue in Blasdel and in South Buffalo) were found to be outside the area of potential traffic impacts of alternatives considered.

² Noise measurements were recorded for 15 to 20 minutes duration per reading.

Predicted 2030 noise levels for each project alternative, compared to existing (2001) noise levels at the 16 monitoring locations is presented in **Table 4.4-17**. **Table 4.4-18** presents noise levels for each alternative that approach or exceed NYSDOT/FHWA NAC and the dBA change between existing and 2030 conditions. The following sections outline the noise implications of each alternative at the monitoring locations.

Null Alternative

Under the Null Alternative, noise levels would be that described in **Table 4.4-16** (above) for existing conditions at the 16 monitored locations. The existing roadways would be maintained, however, future noise levels are anticipated to increase with the projected increase in traffic volumes.





In-Field Noise
Monitoring Location

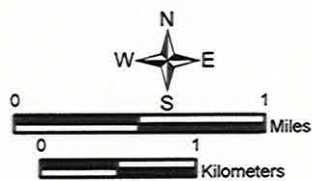


FIGURE 4.4-9
Noise Monitoring Receptors

Southtowns Connector/Buffalo Outer Harbor Project

Table 4.4-17 Predicted Noise Levels at the Monitoring Locations

Receptor Site #	Predicted Noise Levels (L_{eq})									
	Existing Year 2001		Year 2030							
			Null Alternative		Modified Improvement Alternative		Boulevard Alternative		Hybrid Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	72	74	71	72	74	73	70	71	70	70
2	72	72	72	72	71	70	71	71	71	71
3	58	59	60	58	61	59	62	59	62	58
4	70	67	74	68	79	78	79	77	78	76
5	70	68	71	69	71	71	71	70	70	69
6	72	72	72	72	73	72	72	72	72	73
7	70	72	69	74	68	72	61	71	64	69
8	56	56	55	56	53	54	54	55	54	55
9	69	67	67	67	66	66	63	63	63	64
10	69	70	68	69	64	63	61	61	62	62
11	71	72	72	73	64	64	63	62	64	62
13	66	63	66	67	66	67	67	68	67	69
14	69	68	69	68	69	70	67	67	66	69
15	69	68	69	68	70	71	69	69	69	69
17	73	72	71	71	73	74	72	72	73	75
18	72	72	71	72	72	73	71	72	72	73



Table 4.4-18 Predicted Noise Levels Against Criteria at Monitoring Locations

Site No.	Activity Category (Land Use)	Approach or Exceed FHWA/NYS DOT NAC						Build Condition Noise Level Minus Existing Noise Level (Year 2001) (= to or > 6 dBA Over Existing is an Impact)					
		Modified Improvement		Boulevard		Hybrid		Modified Improvement		Boulevard		Hybrid	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	C (Vacant Land)	Yes	Yes	Yes	Yes	Yes	Yes	2/No	-1/No	-2/No	-3/No	-2/No	-4/No
2	B (Medical)	Yes	Yes	Yes	Yes	Yes	Yes	-1/No	-2/No	-1/No	-1/No	-1/No	-1/No
3	B (Playground)	No	No	No	No	No	No	3/No	0/No	4/No	0/No	4/No	-1/No
4	B (Residential)	Yes	Yes	Yes	Yes	Yes	Yes	9/Yes	12/Yes	9/Yes	10/Yes	8/Yes	9/Yes
5	B (Residential)	Yes	Yes	Yes	Yes	Yes	Yes	1/No	3/No	1/No	2/No	0/No	1/No
6	B (Residential)	Yes	Yes	Yes	Yes	Yes	Yes	1/No	0/No	0/No	0/No	0/No	1/No
7	B (School)	Yes	Yes	No	Yes	No	Yes	-2/No	0/No	-9/No	-1/No	-6/No	-3/No
8	B (Residential)	No	No	No	No	No	No	-3/No	-2/No	-2/No	-1/No	-2/No	-1/No
9	B (Urban Nature Preserve)	Yes	Yes	No	No	No	No	-3/No	-1/No	-6/No	-4/No	-6/No	-3/No
10	B (Recreation Area)	No	No	No	No	No	No	-5/No	-7/No	-8/No	-9/No	-7/No	-7/No
11	B (Residence)	No	No	No	No	No	No	-7/No	-8/No	-8/No	-10/No	-7/No	-10/No
13	B (Playground/Park)	Yes	Yes	Yes	Yes	Yes	Yes	-0/No	4/No	1/No	5/No	1/No	6/Yes
14	C (Commercial)	No	No	No	No	No	No	0/No	2/No	-2/No	-1/No	-3/No	1/No
15	B (Church)	Yes	Yes	Yes	Yes	Yes	Yes	1/No	3/No	0/No	1/No	0/No	1/No
17	B (Residential)	Yes	Yes	Yes	Yes	Yes	Yes	0/No	2/No	-1/No	0/No	0/No	3/No
18	B (Residential)	Yes	Yes	Yes	Yes	Yes	Yes	0/No	1/No	-1/No	0/No	0/No	1/No



Modified Improvement Alternative (Preferred Alternative)

Predicted noise levels under the Modified Improvement Alternative were at or above the “approach” level of 66 dBA at 11 of the 16 monitoring locations in the AM period and at the same 11 locations in the PM period. One site (site 4), along the Ohio Street corridor, had predicted noise levels that would be more than 6 dBA higher than existing levels (i.e., a “substantial” increase in noise levels). This site is a residence fronting on Ohio Street.

The Modified Improvement Alternative would also result in perceptible decreases in noise levels at key locations. These include Gallagher Beach (Location 10), which would decrease 5 dBA in the AM period and 7dBA in the PM period and locations within South Buffalo neighborhoods (e.g., Locations 7 and 11), attributable to redistribution of traffic to the proposed new I-190/Tiffit Street arterial. The new arterial itself would have little or no impact on the Hickory Woods neighborhood.

Boulevard Alternative

Predicted noise levels under the Boulevard Alternative were at or above the 66 dBA “approach” level at nine monitoring sites in the AM period and 10 sites in the PM period. Like the Modified Improvement Alternative, it would have “substantial” impacts at two locations along Ohio Street.

The Boulevard Alternative would result in decreases in noise levels at key monitoring locations including Gallagher Beach (decrease of 9 dBA) and South Buffalo residential neighborhoods. This is generally attributable to the theory that making Route 5 an at-grade arterial with at-grade intersections; uniform posted speed limits; and greater access to the waterfront, would result in the diversion of traffic from Route 5 to the Interstate system (I-190 and I-90), rather than passing through the project study area.

Hybrid Alternative

Predicted noise levels under the Hybrid Alternative were at or above the “approach” level at nine monitoring locations in the AM period and 10 locations in the PM period. As with the Improvement and Boulevard Alternatives, this alternative would result in substantial impacts at two locations along the Ohio Street corridor.

The Hybrid Alternative would also result in noise decreases (at key locations) of between <5dBA (as predicted under the Modified Improvement Alternative) and <9 dBA (as predicted under the Boulevard Alternative).

4.4.9.6 Summary of Corridor-Wide Impacts

In addition to the detailed assessment at the 16 monitoring sites, a corridor-wide assessment of noise impacts was conducted. This was based on inspection of 353 receptors that were classified under different land uses. An approximate count was made of the total number of sensitive receptors that would experience traffic noise impacts from the proposed STC/BOH Project alternatives. For each alternative, the total corridor-wide count was separated into number of



residences, non-residences (e.g. commercial and industrial land uses), and ‘other’ land use type (e.g., schools, churches, parks, playgrounds) that would experience traffic noise impacts as defined by the FHWA and NYSDOT NAC for the respective land use/activity categories. **Table 4.4-19** provides a summary of the number of receptor locations that are projected to experience a traffic noise impact.

Table 4.4-19 Summary of Noise Impact Occurrences

Land Use Type	2003 Existing		2030 Null Alternative		2030 Modified Improvement Alternative		2030 Boulevard Alternative		2030 Hybrid Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Residential	98	105	98	102	116	132	94	91	89	112
Non-Residential ¹	24	25	26	22	45	54	35	35	37	39
Other ²	13	11	10	9	10	10	7	7	8	10
Total locations that would “substantially exceed” existing levels ³	N/A	N/A	0	0	22	23	23	13	19	14
Residential	N/A	N/A	0	0	13	11	11	10	8	9
Non-Residential ¹	N/A	N/A	0	0	9	11	12	3	11	6
Other ²	N/A	N/A	0	0	0	1	0	0	0	1

¹ Includes commercial and industrial land uses.

² Includes schools, churches, parks, playgrounds and other recreation land uses.

³ Locations with a 6 dBA or more increase from existing conditions, per Chapter 3.2 of NYSDOT EPM, “Noise Analysis Policy”, Section IV. 4.

A complete summary of all 353 receptor locations (i.e., 16 monitoring sites and 337 modeled receptor locations) and the noise levels modeled during the AM and PM periods at each of the locations are presented in **Appendix J, Attachments B and C**.

The above criteria for assessing noise impacts were applied project-wide to noise levels at 337 additional front row receptors along the project corridor. Actual field measurements (e.g. monitoring) were not completed at the 337 additional locations; however noise levels were predicted using the FHWA TNM Version 2.1.

The overall results of the noise analysis indicated that the Boulevard Alternative was better than the existing conditions, the Null Alternative, the Modified Improvement Alternative and the Hybrid Alternative (see **Table 4.4-19**). Under the Boulevard Alternative, the number of impacts at residential sites was less during both AM and PM periods. Also, the number of impacts at each of the land use categories for the Boulevard Alternative was nearly equal with each other for the AM and PM periods.



4.4.9.7 Potential for Noise Abatement Measures

NYSDOT Statewide Noise Analysis Policy indicates that if a traffic noise impact is identified the following abatement measures must be considered:

1. Traffic management measures such as traffic control devices and signing for prohibition of certain vehicle types; modified speed limits, and exclusive lane designations;
2. Alteration of horizontal and vertical alignments;
3. Acquisition of property rights for construction of noise barriers;
4. Construction of noise barriers;
5. Acquisition of real property or interests therein (on predominantly unimproved property) to serve as a buffer zone to pre-empt development which would be adversely affected by traffic noise (Type I projects only); and
6. Noise insulation of publicly owned schools that are off the highway right-of-way in connection with NYSDOT projects being undertaken with Federal aid.

The following sections discuss the potential for implementing such noise abatement measures along road corridors where improvements are planned as part of the STC/BOH Project. These are based upon predicted noise levels at monitoring sites and at corridor-wide locations summarized in Section 4.1.4 and fully presented in **Appendix J - Attachments A, B and C**.

Route 5

The Boulevard and Hybrid Alternatives involve changes (in varying degrees) in the vertical alignment of Route 5 between the Buffalo Skyway Bridge and Ridge Road. The objective of these changes would be to reduce the overall visual impediment that the current elevated alignment exhibits. Under the Modified Improvement and Hybrid Alternatives, the road elevation would be raised in the northern portion of the corridor to allow for a simplified diamond interchange to access the Buffalo Outer Harbor lands. Under the Boulevard Alternative, the vertical alignment south of Ohio Street would be lowered to enhance views to the water (particularly in the vicinity of Tiff Nature Preserve and the Gallagher Beach/NFTA Boat Harbor area. This would vary under the Modified Improvement Alternative (where grade separation would be maintained at cross street locations) from the Boulevard and Hybrid Alternatives (where all grade separation would be eliminated in lieu of signalized intersections). Projected noise impacts at receptor locations along these portions of Route 5 indicate a reduction in projected noise levels in most cases, however, levels would still be at or above the 66 dBA “approach” level.



Consideration of potential abatement measures is presented as follows:

- **Traffic management.** Under both the Boulevard and Hybrid Alternatives, speed limits would be reduced (either totally or in segments south of Ohio Street) to 65 kph (40 mph). This is not included under the Modified Improvement Alternative, given that its approach essentially involves maintaining and simplifying the current access system. Given that Route 5 would remain a significant commuting corridor under any of the Build Alternatives, further reduction in speed limits is not feasible. In turn, given that Route 5 is a federally-designated truck access route (to service various industrial establishments), the potential for vehicle restrictions is not feasible.
- **Alteration of horizontal and vertical alignments.** Changes to horizontal alignments would not be feasible or effective, given that any change would place some receptors closer to the roadway. Potential changes to vertical alignments, given the project objective to reduce the visual prominence of Route 5 on the Lake Erie waterfront, would be limited to partially or fully depressing the roadway alignment. This type of alignment was suggested early in the development of conceptual alternatives and was quickly removed from consideration as a result of local officials indicating it as being undesirable and inconsistent with future projects/land use plans.
- **Acquisition of property rights for construction of noise barriers.** Implementation of an effective system of noise barriers would run contrary to the objective of reducing the prominence of Route 5 along the Lake Erie waterfront.
- **Acquisition for buffer zone.** Land acquisition for buffer zones are not considered feasible, given they would impede redevelopment efforts. Further, portions of the corridor would already be retained as permanent open space (e.g., Tiff Nature Preserve, Gallagher Beach, etc.).
- **Noise insulation for schools on right-of-way.** This measure is not applicable; no schools are located on the Route 5 corridor.

Ohio Street

Improvements to Ohio Street are limited to streetscape and traffic calming measures intended to create an attractive community setting to foster redevelopment and to serve as an alternative local road connection between downtown Buffalo and the Lake Erie waterfront. In most cases, existing noise levels at receptor locations along Ohio Street corridor currently exceed noise abatement criteria. Levels are projected to increase under each of the Build Alternative, primarily a result of the assumed maintenance of the future truck access on the roadway.



Consideration of potential abatement measures is presented as follows:

- **Traffic Management.** Ohio Street is currently a federally-designated truck route between Route 5 and Ganson Street (given its industrial character). The balance of the roadway is permitted by the City of Buffalo for truck access. Given the STC/BOH Project objectives to enhance the streetscape setting, potential future City of Buffalo restrictions on truck access would be feasible as redevelopment occurs along the corridor.
- **Alteration of horizontal and vertical alignments.** This measure is not feasible, given that Ohio Street is an urban, at-grade street.
- **Acquisition of property rights for construction of noise barriers.** Because of the urbanized nature of land uses along Ohio Street, noise barriers would be generally ineffective, given the number of breaks in the barriers that would be required to provide local land access. In addition, a system of noise barriers would represent a physical element that would be inconsistent with the neighborhood scale of Ohio Street.
- **Acquisition for buffer zone.** This measure would not be feasible given the lack of space for an appropriate buffer area.
- **Noise insulation for schools on right-of-way.** This measure is not applicable; no schools are located on the Ohio Street corridor.

New I-190/Tifft Street Arterial

Projected noise levels along the proposed alignment of the I-190/Tifft Street Arterial would not exceed established noise criteria, particularly in the existing Hickory Woods neighborhood. Nevertheless, given that this would represent a new road facility on new alignment, the preliminary design includes maintenance of the existing earthen berm to serve as a buffer between the new road and this neighborhood.

4.4.9.8 Construction Noise

Generally, annoyance effects can be expected during construction at locations that are within 200 to 250 feet of the construction activity. Actual distances at which noise impacts would occur will depend on a number of factors including the type and number of construction equipment and their usage frequency.

Construction activities within the STC/BOH project corridor would have short-term noise effects on receptors in the immediate vicinity of the construction site due primarily to the construction equipment and materials delivery vehicles. The level of noise effect would depend on the type of equipment, type and phase of construction, construction schedule, and the distance from receptors. At a typical receptor, the noise levels would be highest during the early phases of construction, when excavation and heavy daily truck traffic would occur.



Typical noise levels from construction equipment, which may be employed during the construction period, are presented in **Table 4.4-20**. Noise levels measured at 15 meters (50 feet) from the construction equipment range from 78 dBA for generators to 101 dBA for pile drivers. The total hourly energy average dBA noise level, L_{eq} (1 hour), at a distance of 15 meters (50 feet) from the construction site boundary, is typically around 80 dBA. Noise levels at receptors located at known distances from the construction site boundary are estimated by assuming a 6-decibel drop off per doubling of distance from construction equipment and by combining the noise contributions from each piece of construction equipment.

Table 4.4-20 Typical Roadway Construction Equipment Noise Levels (dBA)			
Equipment	Average Noise Level at 50 feet	Usage Factor	L_{eq} During Work Period
Pile Driver	101	0.1	91
Crane	83	0.16	75
Compressor	81	1.0	81
Wheel Loader	79	0.3	74
Dump Truck	88	0.4	84
Compactor	80	0.5	77
Bulldozer	87	0.4	83
Grader	85	0.2	78
Water Truck	88	0.4	84
Flat Truck	88	0.4	84
Finisher	89	0.5	86
Paver	89	0.5	86
Pump	82	0.4	78
Boring Machine	98	0.1	88
Generator	78	1.0	78
Concrete Truck	88	0.4	84
Pavement Breaker	88	0.5	85

Source: USEPA, 1974

Construction noise generated by the proposed project would be similar to the noise generated by other construction projects in urban areas. Increases in noise levels due to operation of delivery trucks and other construction vehicles would be limited to locations near defined truck routes and in the immediate vicinity of the construction site. Construction noise effects would be partially masked by traffic noise along roads in the project vicinity. In general, construction would be limited to daytime hours during weekdays and would be limited to a maximum daytime L_{eq} of 80 dBA. Construction equipment noise levels should be limited to a maximum level of 86 dBA at 15 meters (50 feet) from the construction equipment.



Construction noise is regulated by local ordinances, EPA emission standards for construction equipment, and FHWA regulations. The local and EPA requirements mandate that certain classifications of construction equipment and motor vehicles meet specified noise emission standards; and that construction material be handled and transported in such a manner as to not create unnecessary noise.

FHWA regulates construction noise through the following process.

- Identify land uses and activities that may be affected during construction of the project
- Determine the measures, which are needed to minimize or eliminate adverse construction-noise effects on the community
- Incorporate the needed abatement measures in the project plans and specifications

Project specific construction noise abatement measures that can be utilized to minimize, to the greatest extent possible, the noise impact zone in areas outside the construction site boundary, include the following.

- Keep the public informed when work is going to be done
- Keep telephone log of complaints
- Limit the number and duration of idling equipment on site
- Provide mufflers or silencers to construction equipment operated by internal combustion engines and maintain all construction equipment in good repair
- Where possible reduce noise from all stationary site equipment and facilities by utilizing suitable enclosures
- When possible minimize the use of back-up alarms during nighttime hours
- Truck loading, unloading, and handling operations would be scheduled to minimize construction site noise

During final design, more information will be available regarding construction methods and the actual type and number of on-site equipment. A detailed assessment of construction noise would be performed and appropriate mitigation measures would be identified.

4.4.10 Hazardous Waste/Contaminated Materials Assessment

A Hazardous Waste/Contaminated Materials Assessment was performed to identify areas of potential environmental concern within the project study area. The full Hazardous Waste/Contaminated Materials Assessment is included as **Appendix F**.



4.4.10.1 Methodology

The Hazardous Waste/Contaminated Materials Assessment conforms to the procedures recommended in the *NYSDOT 1995 Environmental Procedures Manual (including updates)*, Section 5.1. Areas of potential concern were identified through investigation of previous activities and current land uses, reviewing published databases and government records, conducting a field survey, and interviewing local residents, employees, government personnel, and other knowledgeable individuals. Areas of concern were screened to identify those sites that would potentially present construction impacts and/or require further mitigation than normally expected for this type of project, i.e., soils management plan.

Hazardous materials are hazardous substances as defined by the Comprehensive Environmental Response Compensation Liability Act (*CERCLA*; 40 CFR Part 300.6). No known hazardous materials were visually identified during the field survey.

4.4.10.2 Background Search and Overall Findings

Current and previous land uses and activities within the project area were identified by reviewing the following sources of information: available aerial photographs; Sanborn Fire Insurance maps; tax maps; city directories; NYSDEC and USEPA databases (inactive waste sites; spills; NPL/RCRA/CERCLA sites); and numerous previous reports documenting past investigation of known inactive waste sites and past industry (see **Chapter 2 of Appendix F** for complete listing of reviewed reports).

A review of the USGS topographic map confirmed the location of past industrial and commercial development. Route 5, Fuhrman Boulevard, Ohio Street, and the proposed location of the new Tifft Street/I-190 arterial are located in areas that demonstrate long periods (>50 years) of industrial and commercial development and are crossed by and/or abut numerous active and inactive rail lines and rail yards. Additionally, the Union Ship Canal, Buffalo River, and Smokes Creek are prominent within the project area. The USGS map displays the major structures associated with Bethlehem Steel, Hanna Furnace, Shenango Steel Mold, Donner-Hanna Coke/Republic Steel, and Mobil Oil/Sacony Vacuum Oil sites.

A review of aerial photos spanning 80 years revealed that extensive industrial development occupied the project study area in the early 1920's and that the entire area has been fully developed for the past 50 years. Although specific environmental concern areas were not discernable from the aerial photos, the petroleum storage tanks of Mobil Oil are discernable, as are signs of excavation and/or filling in the areas of the Outer Harbor, Mobil Oil, Bethlehem Steel, Donner-Hanna Coke and Republic Steel. The proposed new arterial is the only highway corridor that appears to be located in an area of former industrial activity, specifically the area of the former Donner-Hanna Coke Plant and Yard.



A review of the USEPA database disclosed the location of five CERCLA sites and eight RCRA large quantity generators located in proximity to the project corridors. **Figure 4.4-10** shows the location of the CERCLA sites including other areas of environmental concern, as discussed above. A listing of the large quantity generators is included in **Appendix F, Chapter 3**.

Ten (10) NYS Inactive Hazardous Waste Sites are located adjacent to or in close proximity to the project corridors. A review of the April 2003 Inactive Hazardous Waste Site Registry indicates that these sites remain on the list of inactive sites, however at various classifications and at various stages of remediation. Each of these sites is discussed separately and in detail as it relates to this project, in **Appendix F, Chapter 3**.

A review of the NYSDEC petroleum and chemical bulk storage (P/CBS) tank databases indicates there are 28 PBS facilities and 10 CBS facilities located within the project study area that are registered with the NYSDEC for the presence of aboveground and/or underground storage tanks. A facility must register with NYSDEC if it has a combined storage capacity of petroleum product equal to or greater than 1,100 gallons. If a facility contains an AST holding a hazardous substance with a capacity of 185 gallons or greater; an UST of any capacity; or a non-stationary tank holding 2,200 lbs or more of a hazardous substance, it is required to be registered with NYSDEC.

In addition to the aforementioned items, a review of spills of petroleum products and/or hazardous materials/waste was performed that involved accessing the NYSDEC database. From the period of 1985 (when the tracking of spill reports began) to 2000 (latest set of available data), there were approximately 300 spills, primarily along Route 5 and Fuhrman Boulevard (approximately 200). Spills were also recorded at the Exxon Mobil Oil Buffalo Terminal and Petroleum Sales and Service, a gas service station located on Ohio Street. Of the 300 spills, three were listed as active, indicating that some form of remediation was occurring at the time the information was entered into the database. Because there are no exact locations of where the spills occurred, they are under remediation, and have occurred approximately three years ago, these spills are not considered to be an environmental concern with respect to the proposed project along Route 5 and Fuhrman Boulevard.

Three major oil storage facilities (MOSF) are located along the proposed project corridor as follows.

- Donner-Hanna Coke Corporation
- Buffalo Product Terminal
- ExxonMobil Oil Corporation

Of these, only the ExxonMobil Oil location (Elk Street) is of active status with a combined tank storage total of approximately 22 million gallons. The other two facilities are no longer active and the tanks were removed.



A review of the Erie County Solid Waste Landfill Sites database indicates that 6 sites are located along the proposed project corridor. Of these 6 sites, all pose little or no impact to the proposed project and are situated far enough away from the proposed area of construction to pose any residual impact (see **Appendix F**, Section 3.1.12).

Historic Sanborn Maps for a period spanning 50 years indicated that the proposed project corridor housed many gasoline service stations, as evident from the notation of tanks on the maps.

4.4.10.3 Project Study Areas – Findings and Recommendations

The hazardous waste/contaminated materials assessment presented the anticipated impacts associated with the proposed project according to highway as follows: Route 5/Fuhrmann Boulevard; Ohio Street; and I-190/Tifft Street Arterial. This section, therefore, presents the findings according to anticipated impacts associated with the Build Alternatives by highway location instead of by alternative. The Hazardous Waste/Contaminated Materials Assessment (**Appendix F**) provides a detailed description of each inactive hazardous waste site, the contaminants of concern, and the status of investigation and/or remediation. The sites are summarized below for purposes of identifying what, if any, impacts these sites may have on the proposed project.

Route 5/Fuhrmann Boulevard

Six inactive hazardous waste sites are located in proximity to Route 5/Fuhrman Boulevard along the length of the project study area. Each site has undergone some level of investigation for purposes of determining relative threat to the environment and the public.

Bethlehem Steel Corporation. Located along the Lake Erie shoreline in the City of Lackawanna, this site is approximately 160 hectares (400 acres) in size. The facility was in operation from 1922 to 1983 and generated hazardous waste consisting of coal tar sludge, ammonia still lime sludge, and spent pickle liquor. The NYSDEC April 2003 Registry indicates that additional monitoring and a hydrogeological study is occurring to determine environmental problems associated with the existing soils and groundwater. Significant groundwater contamination has been confirmed and the potential for exposure by direct contact with contaminated on-site soil exists. There is a further concern that contaminated groundwater from this site is impacting Lake Erie and additional investigations and hydrogeological studies are underway to assist NYSDOH in identifying other potential health concerns. Past investigations of this property performed in conjunction with other NYSDOT design projects revealed that the soil conditions along Route 5 on the east side from Lincoln Avenue to Dona Street were deemed non-hazardous based on analytical test results, however, any reuse of the soils should indicate them as being tainted, and not as clean fill. Additional studies of the soil conditions from Lincoln Avenue to Second Street along the west side of Route 5 revealed that the soils were not hazardous, however, many samples indicated the presence of slightly elevated concentrations of polynuclear aromatic hydrocarbons (PAHs).



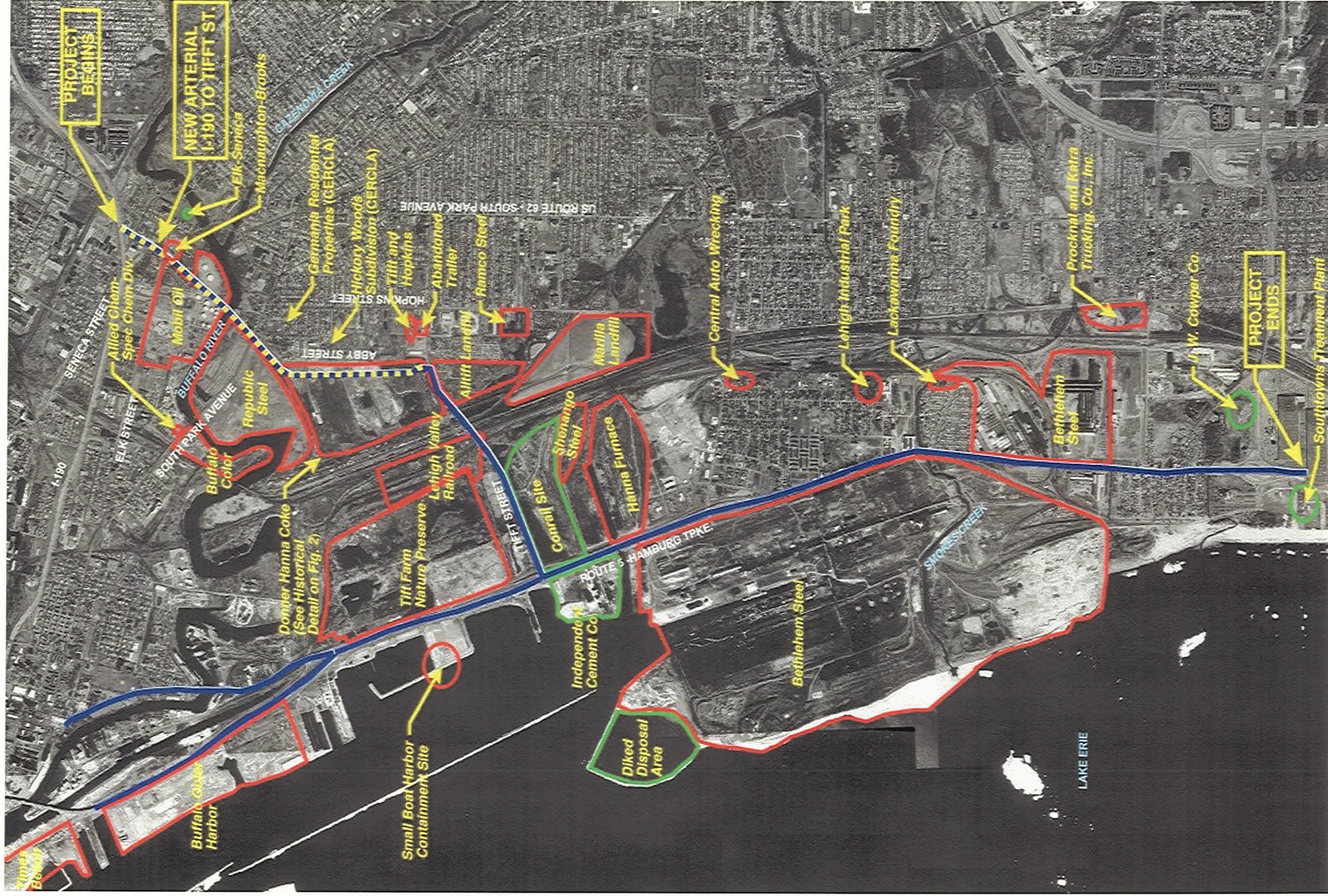


Figure Not To Scale

- Approx. State or Federal Superfund Boundaries
- Approx. Erie County Solid Waste Sites List Boundaries

Source: Watts Engineers

FIGURE 4.4-10
Hazardous Waste Sites

Southtowns Connector/Bufalo Outer Harbor Project

The proposed project includes the realignment of Route 5 west of its current right-of-way from Ridge Road to Route 179. It is likely that the soils in this area have a similar composition to the soils north of this area. It is recommended that the soils be characterized prior to the start of the project to determine if the soil can be used as backfill. If the analysis indicates levels of contamination that would warrant proper disposal measures, a soils management plan is necessary to guide the proper reuse and/or staging of soils during construction of the expanded roadway.

Hanna Furnace Corporation. This 47-hectare (115-acre) site located along NY Route 5 at the southern and eastern edge of the Union Ship Canal, includes a former railroad yard, manufacturing area, property surrounding the Union Ship Canal, and former filter cake/flue ash disposal area. The property was used for the disposal of furnace construction debris, slag, and flute dust from 1900 to 1982. Soil sampling indicated localized elevated concentrations of metals and oil and grease. Metals and polycyclic aromatic hydrocarbons (PAHs) were detected at concentrations exceeding NYSDEC soil cleanup guidelines found in NYSDEC TAGM 4046. Soils and groundwater were also found to exhibit high pH levels in the range of 10 to 11.95 in many locations that were tested including those locations on the western side of this property adjacent to the eastern section of Fuhrmann Boulevard. Remediation of portions of the site includes capping (placement of urban fill over clay) to eliminate potential exposure risks associated with direct contact with the site fill material. The site was delisted from the NYSDEC Registry on September 13, 1997, however, construction activities for the proposed project may uncover fill materials adjacent to the roadway since over the years Fuhmann Boulevard was extended in this location to accommodate the construction of NY Route 5.

Buffalo Outer Harbor (former Port of Buffalo). Located along the Lake Erie shoreline, this 45-hectare (110-acre) site extends from Times Beach to the NFTA Boat Harbor (north of Tiff Nature Preserve). This area was formed during multiple episodes of fill placement during the past 100 years. Activities that involved filling the original Lake Erie shoreline extended over a period of over 100 years starting as early as 1874, and ending in 1986. Some of the activities included construction of the Michigan Avenue Pier; Port Terminal A Pier; filling in at the foot of Michigan Avenue; construction of the Skyway; dredge spoil filling; and miscellaneous filling and bulk storage. During the mid-1900's the Outer Harbor was used as a dumping ground for ashes, noncombustible trash, and incinerator residue. Dredged spoil was placed in the southern portion of the site during the 1960's, and from 1965 to 1979 the Army Corp conducted additional filling operations with construction excavation material.

Investigation of this area resulted in the issuance of a Record of Decision (ROD) in March 2002 by NYSDEC for a portion of the Outer Harbor consisting of 24 hectares (60 acres) located north of the Bell Slip. The selected remedy included capping of the entire area and implementation of deed restrictions for future development. In addition, NYSDEC recommended excavation of the gravel parking lot located east of an existing paved road bisecting the parcel. Excavation to a depth of 4.5 meters (15 feet) was recommended as a remedial measure for this area. It was also indicated that uncontrolled or inappropriate site development would likely result in unacceptable



levels of exposure to occupants and/or site workers. The Build Alternatives involve reconstruction in the area along Fuhrman Boulevard between the Michigan Avenue Pier and the Bell Slip. The features of the Outer Harbor and areas previously investigated are shown on Figures 3-5 and 3-6 of **Appendix F**.

Land located south of the Bell Slip (radio tower) is contaminated with elevated levels of PAHs, lead, and zinc. In January 2003 NYSDEC issued a modification to the 1999 ROD, indicating that only a small portion of the site actually contained significant quantities of hazardous waste within the shallow subsurface soils. The revised ROD indicated that the selected remedy would be to treat the soils in-place, providing a greater degree of protection to the public. The Build Alternatives involve reconstruction of Fuhrmann Boulevard in this area as a two-way frontage access road. Although the radio tower area would not be impacted by the construction activities, the remaining area south of the Bell Slip should be considered as moderately contaminated.

Lehigh Valley Railroad. This 2-hectare (5-acre) site is located north of Tifft Street on the east side of Tifft Nature Preserve. A past spill caused contamination to surrounding soils and groundwater. An investigation determined the contents of the tank to be hazardous and the soils and groundwater collected for analysis were deemed hazardous waste. Some of the waste and soils have since been removed, however, there is the possibility that stained and oil-soaked soils may remain on site. The Build Alternatives do not involve improvements to Tifft Street and thus would not encounter this site; therefore, it is not an environmental concern to the proposed project.

Tifft Nature Preserve. Historically, this area was a railroad terminal consisting of small canals and docks. From 1955 to 1972, the area received disposal of slag, fly ash, and other miscellaneous trash. In 1975, acid sludge from a GM plant was disposed on-site. During the early 1980's drums, containing hazardous compounds, were found and subsequently removed in 1983. The site is classified in the April 2003 Registry as a Class 5 site indicating that it has been properly closed and no further action is required.

Ohio Street

There are no hazardous waste sites located along Ohio Street in the project area. Historically, the businesses along Ohio Street consisted of industry, manufacturing, and gasoline service stations. It is unlikely that contamination of subsurface soils, if present and resultant of historical operations, remains today at levels that would warrant investigation.

New I-190/Tifft Street Arterial

Four inactive hazardous waste sites are located in proximity to the proposed location of the new I-190/Tifft Street Arterial.

Donner-Hanna Coke/Republic (LTV) Steel. Located west of Abby and Mystic Streets, north of Tifft Street and south of South Park, this 89-hectare (219-acre) site would be encountered during



construction of the new arterial. However, the arterial parallels a CSX/NFTA railroad ROW. For 75 years, this was the location of steel manufacturing which involved the use of petroleum products resulting in spills to the soil. A manufactured gas plant and coke manufacturing facility resulted in the generation of coal, coke, coal tar, sludges, and other residual wastes that were subsequently deposited to the surrounding soils. This resulted in contamination by PAHs and complex hydrocarbons. During a period of tens years (1980-1990), the site was decommissioned. Elevated levels of inorganic compounds (heavy metals) existed on the property. Currently, the site is undergoing remediation including soil excavation. It is likely that the remedial efforts underway will be completed prior to the construction of the proposed project.

The new arterial is proposed to pass in proximity to the soil berm located at Abby and Baraga Streets. Soils in this area may be contaminated, however past investigations of this site have not included this area. With the current remedial efforts underway, coordination between NYSDOT and Steelfields, LLC (current holders of the title of the property) will be necessary prior to construction of the arterial. Groundwater capture and treatment systems for the former coke plant area may pose a problem with respect to placement of underground utilities associated with the new arterial.

ExxonMobil Oil Corporation. ExxonMobil Oil is located on 30 hectares (75 acres) of land along the Buffalo River on the east and west sides of the former Erie-Lackawanna Railroad ROW. The facility has operated as a petroleum storage and distribution terminal and oil refinery since 1951 (date of aerial photo showing facility). Portions of the property were once used by the City of Buffalo for the disposal of waste from construction projects and from the clean-out of sewers. Contamination of the property consists of lead and organics typical of a petroleum storage, distribution, and oil refinery.

Several remedial systems have been in-place since 1971 on the west portion of the parcel in attempts to contain and recover spilled oil in soils and groundwater. Previous soil sampling confirmed the presence of contamination along the east of the railroad ROW. The proposed new arterial would be aligned in proximity to the railroad ROW, along the east portion of the parcel where two ASTs currently exist.

4.4.10.4 Geotechnical and Environmental Investigation

A geotechnical and environmental investigation of the project corridor was performed by URS Consultants during the period of April 26 to June 21, 2005. The purpose of the investigation was to obtain information pertaining to the soil and bedrock conditions and to collect environmental soil and groundwater samples for laboratory analysis (organic compounds and heavy metals) (**Appendix F - Attachment G** contains the entire letter report). Boreholes were advanced at 36 locations along Route 5 and Ohio Street within the boundaries of the proposed project. Thirty-seven (37) environmental samples were collected and submitted for chemical analysis. The soils were analyzed for the entire target compound list (TCL) of analytes.



Results from the samples indicated that the soils located within the proposed corridor contained levels of semi-volatile organic compounds and heavy metals that exceed the recommended NYSDEC soil clean-up criteria. The compounds detected are indicative of industry, e.g., benzo(a)pyrene, benzo(a)anthracene, naphthalene, arsenic, cadmium, chromium, lead, mercury, and nickel. None of the soil samples collected from the boreholes met the definition of a Resource Conservation and Recovery Act (RCRA) characteristic hazardous waste, however the soils do meet the definition of a non-hazardous, contaminated solid waste and therefore warrant appropriate handling and disposal methods during construction activities. The full analytical report is included in **Appendix F**.

URS provided recommendations for soil stockpile management practices to be implemented during the construction activities. The recommendations essentially indicated that all soil removed from the proposed construction site be managed in an appropriate and safe manner in accordance with applicable federal, state and local environmental solid waste laws (6NYCRR Part 360-365). Further, URS recommended that stockpiled soil be sampled and analyzed for purposes of determining proper disposal methods. For groundwater encountered during construction activities, it was recommended that the groundwater be containerized pending analysis and off-site disposal.

4.4.10.5 Recommended Actions Prior To and During Roadway Construction

Information collected from past investigations at the afore-mentioned sites indicates that the soil and groundwater at these locations is contaminated, and with similar compounds (i.e. PAHs, metals, PCBs) found at each site. The discussions that follow present the recommendations for management of excavated soils as determined from past investigations and chemical analysis (exclusive of the more recent investigation by URS conducted during the period of April through June 2005).

Confirmatory Testing – Areas of Shenango Steel and South of Bell Slip/Buffalo Outer Harbor

Lead exists at both sites in elevated concentrations and PCBs were detected in the soil at concentrations greater than 500 ppm at Shenango Steel. TCE and PCE were detected in the soils at Shenango Steel Mold at levels identified as toxic-and flashpoint-characteristic hazardous. Elevated concentrations of nitrobenzene were also recorded in the soils at the Bell Slip.

It is recommended that, in addition to implementation of health and safety controls for site workers during construction (see below), confirmatory sampling be performed in the areas to be excavated that are parallel to these sites within the proposed ROW. Confirmatory sampling could be performed on staged, excavated soils prior to a decision on the re-use of the soils as backfill. Given that analytical testing of the soils in this area indicated contaminants exist at levels that are hazardous by RCRA definition and/or NYSDEC TAGM 4046 guideline levels, it is necessary that the excavated soils be analyzed to clarify or disprove the occurrence of contaminants in the soil at hazardous levels. The soils should be tested for hazardous waste characteristics (TCLP, ignitability, corrosivity, and reactivity) and for total petroleum



hydrocarbons. This information will then determine the reusability of the soils within the project corridor and will further dictate the management of excess excavated soils that are not reused.

Re-Use of Excavated Soils – Route 5 in Proximity to Bethlehem Steel; Tiff Nature Preserve; Ohio Street; Hanna Furnace; and Buffalo Outer Harbor

The soil at sites in proximity to Route 5 and Ohio Street have been extensively sampled and analyzed over a period of years and series of past investigations. Known contamination consisting of metals (primarily lead, chromium, cadmium, arsenic) and semi-volatile organics consisting of polycyclic aromatic hydrocarbons (PAHs - common in past industrial areas) are present in the soils in proximity to Route 5 and the frontage along Ohio Street near Tiff Nature Preserve where past industrial sites were located. The occurrence of the contamination in the soil is sporadic along the corridor given the nature of past filling and dumping activities of dredged river, canal, and docking area spoils, and general waste material from past industrial activities. Because of the sporadic occurrence of the contamination within the soil, conducting extensive sampling in the areas of the sites along the project corridor may provide false indications of overall soil conditions within the area. Likewise, soil samples collected from soil borings are limited in the ability to depict a spatial range and depth of the contaminants unless a multitude of borings is collected which would prove time consuming and not cost-effective, especially in light of known contamination along Route 5 and Ohio Street.

Therefore, since it is known that sporadic contamination of soils does exist at levels that are non-hazardous, it is recommended that a beneficial use determination (BUD) be sought from the NYSDEC for the re-use of the soils within the confines of the proposed ROW. For excess excavated soils, a staging area will be established within the project corridor vicinity for the collection of confirmatory samples for analysis to determine the final disposition of the excess soils. Further, during excavation activities, the soils will be visually screened for any obvious signs of leaking tanks (i.e stained/discolored soils) or material that appears suspicious. Based on the results of the analysis, the proper disposal method(s) will be determined and soils managed accordingly. With reference to 6NYCRR Part 360, Solid Waste Regulations, “if contaminated, non-hazardous soil is excavated, it can be reused as backfill at the project location site and excess soil must be managed as a solid, non-hazardous waste.”

NYSDEC will be consulted regarding the re-use of excavated, contaminated, non-hazardous, soils as backfill material for the same excavation area or those areas containing similar contaminants (type; concentrations) at the site. Per 6NYCRR Part 360 Solid Waste Regulations, a BUD could be established for the excavated soils if the soils meet one of the 16 pre-determined BUDs (or uses) in a manner as noted in Part 360-1.15(b). The excavated soils would then not be considered a solid waste and thus not regulated by Part 360.

In instances where USTs may be anticipated at parcels that are designated for acquisition, it may be necessary to collect soil samples of the parcel along the periphery in proximity to the roadway reconstruction ROW, in efforts to determine if the tanks are leaking or have leaked product into the soil. This information would then dictate the ability to reuse the excavated soils as fill/sub-



base for the new roadway, and would further indicate whether a need exists for tank removal. In addition to the periphery soil sampling for chemical analysis, ground penetrating radar (GPR) surveys would provide information as to whether a UST is present at the parcel.

Specific details pertaining to the proposed sampling method and type of chemical analysis for areas along Route 5 and Ohio Street will be provided in a Field Sampling Plan. The Filed Sampling Plan will be prepared prior to any construction work at the project corridor and before sampling of soils and GPR surveys commence (see **Appendix F – Chapter 4**, for further details).

Health and Safety Measures

Based on the known information pertaining to the soils, a project-specific Health and Safety Plan (HASP) will be required of the selected roadway construction contractor. Likewise, a Health and Safety Plan will be required of the sampling team. The components of the HASP will consist of ample information and guidance measures for workers that will be working in and around contaminated soils. Specifically, the following items will be included in the HASP: an identification of the known contaminant constituents; the recommended field procedures to be employed if in an area is characterized as containing hazardous waste and/or contaminated soils; the procedure for encountering unknown items and/or USTs during excavation activities; the elements of the beneficial reuse determination (BUD); steps to follow for excess excavated soils; and worker levels of protection that will be required in varying degrees (primarily Level C and D), prior to entry into an area containing contamination. Additional information that will be included consists of specific worker-safety measures along the Ohio Street Corridor where concern is for petroleum hydrocarbons.

4.4.11 Asbestos Assessment

An Asbestos Assessment was performed to identify suspect asbestos containing materials (ACM) within the project study area and to estimate the costs for abatement. The full Asbestos Assessment is included as **Appendix G**.

4.4.11.1 Methodology

The assessment followed the procedures outlined in the New York State Department of Labor (NYSDOL) Industrial Code Rule 56, and NYSDOT Environmental Procedures Manual, Chapter 1.3, Asbestos Management, August 1996 (updated December 2002). The procedures included:

- A review of NYSDOT bridge and roadway record plans;
- A review of the South Buffalo Railway Company plans;
- A search of local directories and contacts with city and county government for utility information and subsequent contacting of the utility companies; and



- A field walkover of the previously identified ten bridges; and curbside inspection of eight primary residential/commercial structures and associated outbuildings.

Sample collection of ACM was not performed, however. Cost estimates for sample collection and analysis will be necessary before design phases can be complete.

4.4.11.2 Findings and Recommendations

Suspect ACM was identified on bridges and was assumed present in buildings dated early to mid-twentieth century and on utilities along the project corridors. These determinations were made by field walkovers (bridges), corridor windshield surveys (buildings), and a review of record plans (bridges and utilities). Materials that may contain ACM on a bridge or culvert include caulking, bituminous material, bearing pads, joint filler and sheet packing. Residential and commercial buildings often contain ACM in thermal system insulation (TSI), spray-on insulation, vinyl asbestos floor tile, linoleum, floor tile mastic, ceiling and wall tiles, ceiling and wall plaster, electric insulation, window caulk and glaze, cement stacks, cement siding, roofing tar, flashing felt and paper, and waterproofing.

Based on the visual observations made curb-side, it was determined that five of the buildings are early to mid-twentieth century occupied or vacant residential homes, and three are small commercial buildings, of which one is presently occupied.

Based on a field inspection and review of record plans, ten bridges located on Route 5 were assessed for the presence of ACM and included the following:

- BIN 1001569 (Service Road “D”);
- BIN 1001559 (Beach line Railroad);
- BIN 1001549 (Ohio Street Bridge);
- BIN 1001539 (Service Road “C”);
- BIN 1074280 (Tifft Street);
- BIN 1074270 (CSX span over spur to Independent Cement);
- BIN 1001520 (Union Ship Canal); and
- BIN 1074260 (Ridge Road).

Four of the bridges, constructed in 1965, were subsequently rehabilitated in the early 1990’s. The other four bridges were constructed in 1991 and subsequently rehabilitated in the late 1990’s. Record plans were also reviewed for the two bridges that are owned by the South Buffalo Railway Company.



Table 4.4-21 lists the bridges that were accessible and are suspect of ACM and those that were inaccessible, however through a record plan review were identified as being suspect of ACM. The description of the suspect ACM material is included in the table. Photographs of each material item are presented in **Appendix G, Attachment C**.

4.4.11.3 Buildings

For each of the Build Alternatives, four commercial properties would be acquired. Two properties are located on Ohio Street and are currently vacant (commercial warehouse and adjoining railroad platform at 630-640 Ohio), one is on South Park and is a mixed commercial/residential structure, and one is located at 717 Elk Street (Brute Spring), where the new I-190/Tifft Street Arterial would be located. An external inspection of these buildings was performed for purposes of estimating probable ACM based on building size, visible exterior construction materials, approximate age of structure, and professional knowledge and experience with similar structures. The types and estimated quantities of ACM present at these locations could not be determined and likewise costs for asbestos abatement could not be determined.

Table 4.4-21 Suspect ACM Findings	
Bridge Identification Number (BIN) and Location	Material Description
1001569 Route 5 over Service Road "D"	<ul style="list-style-type: none"> • White paint on abutment walls. • Expansion joint between abutments and wing walls. • Bearing pads underneath the piers and on top of the abutments. • Beige paint on the piers. • Expansion joint between bridge and bridge approach.
1001559 Route 5 over Beach line RR	<ul style="list-style-type: none"> • Bearing pads underneath the piers and on top of the abutments. • Paper wrapping around the drain pipe. • Black tar on the seams of the guardrail and sidewalk. • Expansion joint between bridge and bridge approach. • Beige paint on the piers.



Table 4.4-21 Suspect ACM Findings

Bridge Identification Number (BIN) and Location	Material Description
1001549 Route 5 over Ohio Street	<ul style="list-style-type: none"> • Beige paint on the piers. • Bearing pads underneath the piers and on top of the abutment. • Black pad between the metal sections of the pier supports.
1001539 Route 5 over Service Road "C"	<ul style="list-style-type: none"> • Beige paint on the piers. • Bearing pads underneath the piers and on top of the abutments.
1074280 Route 5 over Tifft Street	<ul style="list-style-type: none"> • Caulk between the abutments and the wing walls.
1074270 Route 5 over CSX Spur to Independent Cement	<ul style="list-style-type: none"> • Caulk around the bases of the guardrail protection.
1001520 Route 5 over Union Ship Canal (Father Baker Bridge)	<ul style="list-style-type: none"> • Bearing pads underneath the piers and on top of the abutments. • Expansion joint between the abutment and wing walls.
1074260 Route 5 over Ridge Road	<ul style="list-style-type: none"> • Black caulk between edge of the concrete and the asphalt pavement.
7001461 and 7001462 South Buffalo Railroad over Route 5	<ul style="list-style-type: none"> • Black paint on bottom and sides of bridges. • Caulk between the abutments and the wing walls.
1001569 Route 5 over Service Road "D"	<ul style="list-style-type: none"> • 1" joint filler. • Preformed 1" expansion joint filler. • Pre-molded bituminous joint material • 1" x 1" caulking compound • Epoxy protective coating for concrete. • Compressed asbestos sheet packing. (Record plans indicate sheet packing was removed, however, Watts Engineers has been unable to confirm)
1001559 Route 5 over Beach line RR 1001549 Route 5 over Ohio Street	<ul style="list-style-type: none"> • Preformed expansion joint filler. • Compressed asbestos sheet packing. • Pre-molded bituminous joint material. • Epoxy protective coating for concrete.
1001539 Route 5 over Service Road "C"	<ul style="list-style-type: none"> • Bituminous penetration shoulder. • Preformed expansion joint filler. • Pre-molded bituminous joint material. • Compressed asbestos sheet packing. • 15 lb. asphalt roofing felt. • Epoxy protective coating on concrete.



Table 4.4-21 Suspect ACM Findings

Bridge Identification Number (BIN) and Location	Material Description
1074280 – Route 5 over Tiff Street 1074270 – Route 5 over CSX Spur to Independent Cement 1001520 – Route 5 over Union Ship Canal (Father Baker Bridge) 1074260 – Route 5 over Ridge Road	<ul style="list-style-type: none"> • Pre-molded bituminous joint filler.

4.4.12 Coastal Zone Management

Consistency with the U.S. Coastal Zone Management Act of 1972 (16 U.S.C. SS1451-1464), as amended, was reviewed in relation to elements of the proposed project. The full Coastal Zone Management Consistency Report is included as **Appendix H**.

4.4.12.1 Methodology

The purpose of the Coastal Zone Management Act is to “preserve, protect, develop, and, where possible, to restore or enhance, the resources of the nation’s coastal zone” The primary means of achieving this end is through coastal zone management programs adopted by the states and designed to regulate land use activities that could affect coastal waters. The Act states that federal actions must be consistent to “the maximum extent practicable” with the approved state coastal management program (CMP).

New York State has a federally-approved CMP administered through the New York State Department of State. The CMP includes 44 policies intended to support the Act’s goal of promoting a balance between economic development and coastal resource preservation and optimization. The City of Lackawanna and the Town of Hamburg have approved Local Waterfront Revitalization Plans (LWRPs) for their respective coastal areas. The City of Buffalo has not yet adopted a LWRP in accordance with Department of State procedures, but will do so in conjunction with its current update of the City’s master plan.

The Build Alternatives for the STC/BOH Project would reconfigure a portion of the waterfront area designated in the approved New York State CMP. Because the project would involve federal, state, and local funding, both federal and state reviews of consistency with the New York State CMP were required. However, these state and federal consistency determinations use identical policies and therefore, the review was accomplished as a single process.

The ultimate consistency determination will be made by DOS as part of public agency review of the document. To facilitate this assessment/determination, a review of each of the Build Alternatives with the applicable policies embodied in New York State’s CMP (see **Appendix H**,



Coastal Zone Consistency Assessment). A summary of the policies and their relationship to the Build Alternatives is presented in the following sections.

4.4.12.2 Development Policies

Policies 1 through 6 pertain to overall development and redevelopment of the waterfront areas. Specifically, the policies address:

- The need for restoration, revitalization, and redevelopment of deteriorated and underutilized waterfront areas;
- Encouragement and enhancement of traditional waterfront uses and activities along with development in areas where public services and facilities essential to such uses are adequate;
- Development of major port areas;
- Siting of water-dependent uses and facilities on or adjacent to coastal waters; and
- Expedited permit procedures to facilitate the siting of development activities.

Each of the Build Alternatives would improve access to a neglected portion of the Buffalo Outer Harbor, open up critical viewsheds of Lake Erie, add value to properties, and provide more visible and easier access to the NFTA Boat Harbor. In addition, adequate capacity is available to provide for the infrastructure needs of each Build Alternative. With respect to the City of Lackawanna specifically, the proposed project would improve access to the underutilized former Bethlehem Steel Plant site while not affecting the waterborne transportation of cargo or people into, or out of, the Gateway Metroport.

4.4.12.3 Fish and Wildlife Policies

Policies 7 through 10 pertain to the following:

- The protection of a significant presence of coastal fish and wildlife habitats as to maintain their viability as habitats;
- To protect from the introduction of hazardous wastes and other pollutants that bio-accumulate;
- To expand recreational use of fish and wildlife resources in coastal areas by increasing access, supplementing existing stocks, and developing new resources; and
- To further develop commercial fish in the coastal area by encouraging the construction of new or improvement of existing on-shore commercial fishing facilities, increasing adequate stocks and expanding aquatic facilities.

The proposed project area does not contain significant coastal fish and wildlife habitats. The Build Alternatives would not adversely affect recreational use of fish and wildlife resources along the project corridor (where present) and would in fact expand recreational usage of these



resources by improving access to the lakeshore. Further, the Build Alternatives would not affect commercial fishing that does occur within these waters by private citizens. During construction of any of the Build Alternatives, appropriate measures to protect local fish and wildlife habitats proximate to Smokes Creek would be undertaken as necessary.

4.4.12.4 Flooding and Erosion Policies

Policies 11 through 17 pertain to the siting of buildings and structures in a manner that would cause the least amount of damage to property and the endangering of human lives caused by flooding and erosion. Further, these policies provide for the proper construction of erosion protection structures and require the use of non-structural measures to minimize damage to natural resources and property from flooding and erosion.

The Build Alternatives do not affect the natural resources of the lakeshore nor require erosion protection structures. Further, none of the Build Alternatives would result in a measurable increase in erosion or flooding of nearby waterways. Natural lakeshore processes would not be affected by any of the Build Alternatives in that the actual work zone is well removed from the lakeshore. Also, more soft surfaces that would assist with flood prevention via infiltration is a component of each Build Alternative, thereby adhering to the policy of utilizing non-structural measures for flood prevention to minimize damage to natural resources.

4.4.12.5 Public Access and Recreation Policies

Policies 18 through 22 pertain to the economic, social, and environmental interests of the state and its citizens in reviewing proposed actions that occur within coastal resource areas. The policies also provide for the protection, maintenance, and increase in access to public water-related recreation resources and facilities.

Each of the Build Alternatives has as its primary goal, easy and ample access to the waterfront for the support and development of water-related activities. Incorporation of a pedestrian and bicycle trail system would further enhance access to the waterfront areas along Lake Erie and the Buffalo River. Along Smokes Creek, the Build Alternatives would yield priority to water-related uses with secondary priority given to supportive commercial uses.

4.4.12.6 Historic and Scenic Resources Policies

The protection, enhancement, and restoration of structures, districts, areas or sites of archaeological, architectural, and historical significance that contributed to the overall scenic quality of the coastal area are addressed in policies 23, 24, and 25. Subsections of these policies address specificities associated with the City of Lackawanna (preservation of the Route 5 corridor as a gateway) and Bethlehem Steel (North) office building (restoration and protection of historical and architectural qualities).



The Build Alternatives, to varying degrees, would significantly enhance the scenic quality of the project corridor by adding vegetation to screen unattractive elements and by improving Route 5 throughout the Woodlawn community, as a gateway to the City of Lackawanna. Overall, the project area does not contain historic structures that would be affected by the Build Alternatives, nor is it in a historical or cultural-sensitive district or area, and thus the policy pertaining to the protection, enhancement, and restoration of structures or districts does not apply. Further, there are no designated scenic resources of statewide significance located within the City of Lackawanna. Nonetheless, scenic views of Lake Erie would be enhanced and “re-opened” with the components of the Build Alternatives.

4.4.12.7 Energy/Power Facilities

Policies 26 through 29 pertain to management policies for projects near energy and/or power facilities in the coastal zone. These do not apply to any of the Build Alternatives.

4.4.12.8 Water and Air Resources Policies

Policies 30 through 44 cover all elements of water and air quality as it relates to proposed development within a coastal area. The policies in summary address the following:

- The need for conformance to state and national water and air quality standards;
- Approval of the proposed project by waterfront revitalization programs;
- Use of best management practices to control storm water runoff;
- Proper transport, storage, and treatment of solid wastes within coastal areas; and
- Preservation of wetland areas.

Water and air resources were reviewed in conjunction with each alternative to determine the affect of the proposed project on the quality of these existing resources. Implementation of the proposed project would not create discharge of any municipal, industrial, or commercial pollutants thus would not affect the water quality of the nearby water bodies. Appropriate construction mitigation measures would be employed to eliminate the possibility of erosion/sediments in adjacent and crossed waterways. Also, none of the Build Alternatives would involve dredging of or filling in coastal waters. With respect to hazardous materials and petroleum products, none of the alternatives involve the shipment or storage of these materials.

Groundwater is not used for public water supply in the City of Buffalo, Lackawanna, or Hamburg, and surface water resources used for public drinking water would not be affected by any of the Build Alternatives. Additionally, the surface water resources undergo pretreatment prior to public consumption and thus any disturbance to the surface waters through construction activities would be mitigated through best management practices and the water treatment processes.



During construction of the roadway improvements, soil removal may require the identification, transport, and disposal of hazardous wastes. Applicable federal, state, and local regulations pertaining to the proper handling, characterization, and ultimate disposal of these wastes would prevent impacts to the lakeshore resources and adjacent recreational areas.

The Air Quality analysis projects that none of the Build Alternatives would violate federal or state air quality standards in that there would be no significant change in regional emissions as a result of the Build Alternatives. This would need to be formalized as part of a conformity determination once one of the Build Alternatives is selected and placed on the TIP.

4.4.13 Energy

An Energy Analysis was performed for the Southtowns Connector/Buffalo Outer Harbor (STC/BOH) project as a secondary component of the air quality assessment. This analysis was prepared in support of the Final Design Report/Final Environmental Impact Statement (FDR/FEIS) and consequently portrays the direct and indirect energy consumption forecasted for the future design build year (ETC plus 20), Year 2030, for each of the three build alternatives including: Null/Modified Improvement, Boulevard, and Hybrid. The analysis conducted encompassed the entire project study area including portions of the New York State Thruway I-190 and I-90.

The purpose of the Energy Analysis is to determine the expenditure of energy (direct and indirect) in relation to the project alternatives under future build conditions (Year 2030) as compared with existing conditions (Year 2001). The analysis is further conducted to determine which alternative may have less impact on energy resources as identified through total Btu's consumed per vehicle miles traveled (direct) and total lane miles per roadway segment maintained (indirect). Further, the Energy Analysis determines the level of greenhouse gases (specifically carbon dioxide) emitted under each of the build alternatives as it relates to the direct energy consumed from each alternative.

Methodology

The Energy Analysis followed the guidelines presented in the NYSDOT "Draft Energy Analysis Guidelines for Project-Level Analysis and Draft Greenhouse Gases (CO₂) Emissions Estimates Guidelines for Project-Level Analysis", June 21, 2002. The analysis consisted of computations of vehicle miles traveled (VMT) per roadway segment within the project study area that was then applied to a standard fuel consumption rate in mile/gallon as it relates to vehicle type, to determine the fuel economy for a given roadway and mix of vehicle types. The result of this calculation is divided into the total vehicle miles traveled for that specific roadway, to determine the energy consumed in gallons per VMT. This result is converted to Btu's for actual energy consumed by the associated energy reporting measurement unit.

Indirect energy consumption is the result of the total VMT per roadway segment multiplied by a set annual energy consumption value for roadway maintenance as it relates to the type of



roadway pavement to be applied to the proposed project corridor/study area. Two pavement types are analyzed: Portland Cement Concrete, and Asphalt Concrete. Each is further divided into rural or urban conditions. The direct and indirect energy analysis was performed for each Build Alternative as it relates to the Null/Modified Improvement Alternative for the design year, 2030. Roadway segments including Route 5, Ohio Street, Tifft Street, New Arterial, and New York State Thruway Interstate I-190 and I-90 constituted the factored elements for each Build Alternative.

Direct Energy

Direct energy, the energy consumed by the vehicles using the facility, was analyzed by applying the VMT Fuel Consumption Method. This method was used given the larger, sub-regional aspects of the project study area. The procedure for calculating the direct energy using the VMT Fuel Consumption Method followed the steps outlined in the Caltrans' Energy and Transportation Systems manual, July 1983. Required data inputs included future year VMT for the roadway segments and existing vehicle mix. The following calculation was applied using data compiled from the traffic study:

$$\text{VMT} \div \text{Fuel economy (miles/gallon)} = \text{Total future year direct energy consumption (gallons)}$$

To determine the direct energy consumption for the future design build year (2030) per mode of transportation (or vehicle type), the following equation was applied to determine the total energy consumed by vehicle classification:

$$\text{Energy Intensity (Btu)} \times \text{VMT} = \text{Total Direct Energy Consumption (Btu)} \\ \text{\{per vehicle type throughout entire project study area\}}$$

Indirect Energy

Indirect energy, the remaining energy consumed to run a transportation system (including that required to construct and maintain the facility), is broken down into two components: roadway maintenance and construction. Maintenance energy includes the energy expended during routine maintenance. Roadway construction energy includes all the energy expended during the construction of the transportation system.

Roadway Construction

Based on the methodology outlined in Caltrans' Energy and Transportation Systems, two basic methods are used for calculating roadway construction energy: Process Analysis Approach, and, Input/Output Approach. A third approach, Lane-Mile Approach, is used if the level of detail for the Process Analysis Approach is not available. A review of each of these processes was performed, and based on the details of the STC/BOH project, it was determined that the Input/Output Approach would most directly apply since there are different types of improvements (urban conventional highway construction; bridge construction; landscape plantings) associated with the design alternatives. The input/output approach assigns an energy-to-dollar ratio to various roadway construction activities. The cost estimates for each type of



facility are reduced to a base-year equivalent and then multiplied by the appropriate Btu/\$ ratio. The following equations were used to determine the total construction energy and the annualized total construction energy per alternative:

Cost of Construction (construction year \$) ÷ cost index factor (construction year \$)/cost index factor (base year \$) = Cost in Base Year (base year \$)

Project Energy Factor (Btu/base year \$) x Cost in Base Year = Total Construction Energy (Btu)

The total construction energy was then divided by the 'Project Horizon (years)' to determine the annualized total construction energy. Project Horizon relates to the number of years forecasted for the completion of construction activities associated with the proposed project. The following equation was used to compute the annualized total construction energy.

Total Construction Energy (Btu) ÷ Project Horizon (years) = Annualized Total Construction Energy

Roadway Maintenance

Roadway maintenance energy includes the energy expended during routine maintenance. This includes patching, crack sealing, lighting, landscape maintenance, etc. In determining the maintenance energy for the STC/BOH project alternatives, the first step was to input an established roadway maintenance energy consumption variable based on pavement type (Portland cement; Asphalt concrete). Values were presented in the Caltrans manual (Table 6 of the manual) and included: 1.634 x 10⁸ for Portland cement concrete in urban settings; and 1.776 x 10⁸ for asphalt concrete in urban settings. These values (measured in Btu/lane mile) were then multiplied by total lane miles per alternative per pavement type proposed to ultimately calculate the total annual maintenance energy consumption rate measured as Btu's.

Greenhouse Gas Emissions

Greenhouse gas emissions estimates were also calculated for the STC/BOH project Build Alternatives. Estimates of carbon dioxide emissions were determined in relation to the direct energy consumption (total) for each of the Build Alternatives including the Null. Carbon emission coefficients for motor vehicle fuel were obtained from the Caltrans' manual (Table 1). This coefficient value was then multiplied by the total direct energy (Btu) for the STC/BOH project (all roadways combined) to determine the metric tons carbon emitted (assuming 100% oxidation). Because not all carbon is oxidized during the combustion of fossil fuels, the actual fraction of carbon that does oxidize after combustion (approximately 1%) is input as a variable to the equation that calculates the metric tons of carbon emitted into the atmosphere based on the direct energy consumed by the roadway project. The following equation is used:

Metric Tons of C Emitted (assuming 100% oxidation) x 0.99 = Total Metric Tons of C Emitted



Finally, the metric tons of carbon is converted to tons of carbon (1 metric ton = 1,102 tons) as follows.

$$\text{Total Metric Tons of C Emitted} \times 1.102 = \text{Total Tons of C Emitted}$$

To determine the carbon dioxide emission estimates from indirect energy consumption, the same approach to calculating this quantity for direct energy was followed. However, because the indirect energy is a result of activities associated with construction and maintenance, the energy consumed is assumed to be a result of the combustion of diesel fuel, rather than motor vehicle fuel. Therefore, carbon emission coefficients for diesel fuel, as provided in Table 1 of the Caltrans Manual, were used in the aforementioned equations

4.4.13.1 Results of the Energy Analysis

Table 4.4-22 shows the results of the direct energy consumption per alternative in relation to the Null Alternative. For purposes of energy consumption, the Null Alternative is the same as the Modified Improvement Alternative, and thus computations of energy consumed for the Null are portrayed by the Modified Improvement Alternative. Overall, the total direct energy consumption for each alternative in comparison to the Null Alternative differs from a decrease of 0.23% for the Hybrid Alternative to an increase of 0.44% for the Boulevard Alternative. However, different roadway segments within each alternative show differences as presented in Table 4.4-22 below.

Table 4.4-22 Direct Energy Consumption Per Alternative (2030)					
	Existing (2001)	Modified Improvement/ Null Alternative	Boulevard Alternative	Hybrid Alternative	% Change per Alternative¹
Project Roadway Segment					
Route 5 – NB & SB (Between Fuhrmann Boulevard/I-190 & Milestrip Road; 6.54 miles)					
Total VMT	256,162	341,834	250,923	286,984	Mod. Imp: N/C Blvd: -26.60%↓ Hyb: -16.05%↓
Vehicle Mix ² (% Light Duty; Medium Duty; Heavy Duty)	82% 13% 5%	82% 13% 5%	82% 13% 5%	82% 13% 5%	---
Fuel Economy (reported as mpg per total vehicle mix)	17.61	19.01	19.01	19.01	7.95%
Energy Consumed (in gallons per total VMT)	14,544	17,985	13,202	15,097	Mod. Imp: N/C Blvd: -26.60%↓ Hyb: -16.05%↓
Energy Consumed (in Btu)	1.82 x 10 ⁹	2.25 x 10 ⁹	1.65 x 10 ⁹	1.89 x 10 ⁹	(same as above)



Table 4.4-22 Direct Energy Consumption Per Alternative (2030)

	Existing (2001)	Modified Improvement/ Null Alternative	Boulevard Alternative	Hybrid Alternative	% Change per Alternative¹
Project Roadway Segment					
Ohio Street – NB & SB (Between Michigan Avenue & Fuhrmann Boulevard/Louisiana Street; 1.47 miles)					
Total VMT	8,631	12,026	13,293	16,926	Mod. Imp: N/C Blvd: 10.54 %↑ Hyb: 40.75%↑
Vehicle Mix ² (% Light Duty; Medium Duty; Heavy Duty)	79% 14% 7%	79% 14% 7%	79% 14% 7%	79% 14% 7%	---
Fuel Economy (reported as mpg per total vehicle mix)	17.21	18.57	18.57	18.57	7.90% (positive change)
Energy Consumed (in gallons per total VMT)	501	648	716	911	Mod. Imp: N/C Blvd: 10.54%↑ Hyb: 40.75%↑
Energy Consumed (in Btu)	6.27 x 10 ⁷	8.09 x 10 ⁷	8.95 x 10 ⁷	1.14 x 10 ⁸	(same as above)
Tiftt Street – EB & WB (Between Fuhrmann Boulevard SB/New Arterial & Hopkins Street/South Park Avenue; 1.85 miles)					
Total VMT	21,332	24,499	18,717	22,016	Mod. Imp: N/C Blvd: -23.60%↓ Hyb: -10.14%↓
Vehicle Mix ² (% Light Duty; Medium Duty; Heavy Duty)	80% 16% 4%	80% 16% 4%	80% 16% 4%	80% 16% 4%	---
Fuel Economy (reported as mpg per total vehicle mix)	17.41	18.78	18.78	18.78	7.87% (positive change)
Energy Consumed (in gallons per total VMT)	1,225	1,305	997	1,173	Mod. Imp: N/C Blvd: -23.60%↓ Hyb: -10.14%↓
Energy Consumed (in Btu)	1.53 x 10 ⁸	1.63 x 10 ⁸	1.25 x 10 ⁸	1.47 x 10 ⁸	(same as above)



Table 4.4-22 Direct Energy Consumption Per Alternative (2030)

	Existing (2001)	Modified Improvement/ Null Alternative	Boulevard Alternative	Hybrid Alternative	% Change per Alternative ¹
Project Roadway Segment					
I-190 (From I-90 Junction to between Elm/Oak Street and Skyway; 4.63 miles)					
Total VMT	323,939	377,166	424,001	404,042	Mod. Imp: N/C Blvd: 12.42%↑ Hyb: 7.13%↑
Vehicle Mix ² (% Light Duty; Medium Duty; Heavy Duty)	84% 9% 7%	84% 9% 7%	84% 9% 7%	84% 9% 7%	---
Fuel Economy (reported as mpg per total vehicle mix)	17.79	19.21	19.21	19.21	7.98%↑ (positive change)
Energy Consumed (in gallons per total VMT)	18,211	19,632	22,070	21,031	Mod. Imp: N/C Blvd: 12.42%↑ Hyb: 7.13%↑
Energy Consumed (in Btu)	2.28 x 10 ⁹	2.45 x 10 ⁹	2.76 x 10 ⁹	2.63 x 10 ⁹	(same as above)
I-90 (Between Route 75/Milestrip Road and I-190 Junction; 10.09 miles)					
Total VMT	669,982	852,331	906,269	872,355	Mod. Imp: N/C Blvd: 6.33%↑ Hyb: 2.35%↑
Vehicle Mix ² (% Light Duty; Medium Duty; Heavy Duty)	79% 11% 10%	79% 11% 10%	79% 11% 10%	79% 11% 10%	---
Fuel Economy (reported as mpg per total vehicle mix)	17.13	18.49	18.49	18.49	7.94% (positive change)
Energy Consumed (in gallons per total VMT)	39,117	46,087	49,003	47,170	Mod. Imp: N/C Blvd: 6.33%↑ Hyb: 2.35%↑
Energy Consumed (in Btu)	4.89 x 10 ⁹	5.76 x 10 ⁹	6.13 x 10 ⁹	5.90 x 10 ⁹	(same as above)



Table 4.4-22 Direct Energy Consumption Per Alternative (2030)

	Existing (2001)	Modified Improvement/ Null Alternative	Boulevard Alternative	Hybrid Alternative	% Change per Alternative¹
Project Roadway Segment					
New Arterial – NB & SB (Between Elk Street/Buffalo River & Baraga Street/Tifft Street; 1.38 miles)					
Total VMT	N/A	7,378	8,284	8,754	Mod. Imp: N/C Blvd: 12.28%↑ Hyb: 18.65%↑
Vehicle Mix ^{2,3} (% Light Duty; Medium Duty; Heavy Duty)	N/A	81% 13% 6%	81% 13% 6%	81% 13% 6%	---
Fuel Economy (reported as mpg per total vehicle mix)	N/A	18.85	18.85	18.85	N/A
Energy Consumed (in gallons per total VMT)	N/A	391	439	464	Mod. Imp: N/C Blvd: 12.28%↑ Hyb: 18.65%↑
Energy Consumed (in Btu)	N/A	4.89 x 10 ⁷	5.49 x 10 ⁷	5.80 x 10 ⁷	(same as above)
PROJECT TOTALS & AVERAGES					
Total VMT (total of all segments)	1,280,046	1,615,234	1,621,487	1,611,047	Mod. Imp: N/C Blvd: 0.39%↑ Hyb: -0.26%↓
Average Vehicle Mix ^{2,3} (% Light Duty; Medium Duty; Heavy Duty)	81% 13% 7%	81% 13% 6%	81% 13% 6%	81% 13% 6%	81% 13% 6%
Average Fuel Economy (reported as mpg per total vehicle mix)	17.39	18.77	18.76	18.77	7.88% (positive change)
Total Energy Consumed (in gallons per total VMT)(total project area)	73,598	86,048	86,427	85,847	Mod. Imp: N/C Blvd: 0.44 %↑ Hyb: -0.23% ↓



Table 4.4-22 Direct Energy Consumption Per Alternative (2030)

	Existing (2001)	Modified Improvement/ Null Alternative	Boulevard Alternative	Hybrid Alternative	% Change per Alternative ¹
Total Energy Consumed (in Btu)(total project area)	9.200×10^9	1.076×10^{10}	1.080×10^{10}	1.073×10^{10}	(same as above)

N/A – Not Available –or-unable to calculate due to unknown variable/data

N/C – No Change

¹ As compared with 2030 Null conditions; ‘Fuel Economy’ comparison is % change between existing (2001) conditions and future (2030) conditions since mpg is same for Null/ Modified Improvement, Boulevard, and Hybrid conditions.

² Vehicle Mix is assumed constant for existing conditions and Null/Modified Improvement, Boulevard, and Hybrid Alternatives (for future year 2030 conditions).

³ Average of all roadway segments within project corridor.

Energy consumption was also calculated for the project study area by mode of transportation. Three vehicle type categories were used to define the traffic that exists in the project study area as follows.

- Light vehicles (automobiles)
- Medium vehicles (personal trucks/SUVs)
- Heavy vehicles (buses; tractor trailers)

An established energy intensity factor (obtained from Caltrans manual) was used to calculate the forecasted energy consumed by each vehicle type during the design build year (Year 2030) in relation to the total VMT of the project area. It was calculated that light vehicles would consume 5,830 Btu/mile traveled; medium vehicles would consume 14,468 Btu/mile; and heavy vehicles would consume 20,627 Btu/mile on average in 2030. **Table 4.4-23** shows the total direct energy consumption in Btu’s for each vehicle classification by alternative in relation to the total daily VMT.



**Table 4.4-23 Direct Energy Consumption
Per Vehicle Type Per Alternative (2030)**

Vehicle Classification	Modified Improvement/Null		Boulevard		Hybrid	
	VTM	Direct Energy Btu	VTM	Direct Energy Btu	VTM	Direct Energy Btu
Light Vehicle	1,303,569	7.60×10^9	1,317,698	7.68×10^9	1,311,322	7.65×10^9
Medium Vehicle	178,491	2.58×10^9	177,602	2.57×10^9	178,056	2.58×10^9
Heavy Vehicle	130,827	2.70×10^9	136,179	2.81×10^9	133,642	2.76×10^9

Conclusions that can be drawn from this analysis that are specific to the STC/BOH project include the following.

- Although the light vehicle classification has the smallest energy intensity value, it consumes the most energy due to the large light vehicle VMT for the overall project.
- Although the heavy vehicle classification has the least amount of VMT, it expends a large amount of energy, and more than that of the medium vehicle classification (having a greater amount of VMT), most likely due to the heavy vehicle classification having the largest energy intensity value of the three vehicle categories.

These conclusions, although specific to this project, could be applied to other transportation projects where vehicular travel is dominated by the automobile. Typically, more automobiles than public transit (buses) and tractor trailers frequent urban streets in urban areas similar to Buffalo. Most people reside outside of areas serviced by public transit and are dependent on their personal vehicle for travel to and from place of employment and for errands, and leisure.



4.4.14 Construction Impacts

Short-term environmental impacts can be expected from construction activities associated with the Build Alternatives. These impacts would be controlled to the greatest possible extent. There are no long-term construction impacts with any of the Build Alternatives. The impacts anticipated will be temporary and consist of the generation of dust and noise from the construction equipment. This would be abated by requiring contractors to utilize effective dust suppression methods and provide adequate mufflers on all equipment. Some of the construction activities may induce surface runoff that could cause a temporary increase in silt loads and affect surface water quality. Through the use of erosion prevention and control systems this would be mitigated such that the surface water quality of adjacent waterways (Buffalo River, Smokes Creek, and Lake Erie) would not be adversely impacted. Other construction impacts include traffic delays through construction work zones and along highway detours. Maintenance and Protection of Traffic Plans, contract pay items and other contract requirements would be used to keep delays as short as possible. Access to all businesses along the project corridors would be maintained during construction. Additional details are provided in the following sections:

- Section 3.2.2.8 Maintenance and Protection of Traffic;
- Section 4.2 Social Consequences;
- Section 4.4.9 Noise Assessment (or **Appendix J**);
- Section 4.4.8 Air Quality (or **Appendix I**); and
- Section 4.4.1 Wetlands and Water Bodies Assessment.

4.4.15 Anticipated Permits and Approvals

The following permits and approvals typically apply to projects of this type. For those that are not required, the reasons are noted.

Section 404 Nationwide Permit – This permit, issued by the USACE, is to regulate discharges of dredged material into the waters of the United States. For the new bridge over the Buffalo River as part of the new arterial, a Section 404 permit is anticipated for proposed bridge work.

Section 401 Permit – This is a Water Quality Certification administered by NYSDEC for the disposal of dredged material into the waters of the United States and adjacent wetlands. It is likely that this permit would be required for the new bridge over the Buffalo River as part of the I-190/Tifft Street Arterial.

Section 10 Permit – This permit, issued by the USACE, is to regulate construction material within water bodies under federal jurisdiction under the Harbors and Rivers Act. Because the new bridge as part of the I-190/Tifft Street Arterial would be located at the western edge of the navigation channel of the Buffalo River, it is likely that this permit would be required.



Section 9 Permit – This permit, issued by the US Coast Guard, is to regulate navigation within water bodies under federal jurisdiction under the Harbors and Rivers Act. Because the new bridge over the Buffalo River (as part of the I-190/Tifft Street Arterial) would be located outside, but near the western edge of the navigation channel, it is possible that this permit would be required.

State Pollution Discharge Elimination System (SPDES) General Permit – This permit is issued by the NYSDEC for storm water discharges from construction activity. This will be required for the construction of the new arterial, including the bridge over the Buffalo River, as well as for construction of the Route 5 improvements.

Coastal Area Consistency Determination – This program and associated policies are administered through the New York State Department of State. The project lies within a coastal zone; however, as discussed in Section 4.4.15 of this Chapter, consistency with the applicable policies would be achieved with any of the Build Alternatives.

State Historic Preservation Office Consultation – Under Section 106 of the National Historic Preservation Act and Section 14.03 of the New York State Historic Preservation Act, federal and state agencies are required to consult with the State Historic Preservation Office (SHPO) to assess potential impacts of an action upon resources on or eligible for inclusion on the State and National Registers of Historic Places. As part of this FDR/FEIS/4(f), a Phase IA Cultural Resources Assessment was prepared and concluded that no significant resources would be affected by any of the Build Alternatives. This will be submitted to the New York State Office of Parks, Recreation and Historic Preservation (the designated SHPO in New York State) for Section 106/14.03 consultation and concurrence.

4.5 Indirect/Secondary and Cumulative Impacts

4.5.1 Indirect/Secondary Impacts

Indirect/secondary impacts are those that are likely to occur because of implementation of the STC/BOH Project (i.e., future development and economic growth). With implementation of any of the three Build Alternatives, a primary secondary impact would be new commercial development within targeted redevelopment areas and business districts of City of Lackawanna and the Town of Hamburg. In addition, recreational development along the waterfront in the form of parks, beaches, and marinas would be facilitated. Commercial and residential growth is also possible along Ohio Street, where streetscape design, roadway improvements, and bicycle/pedestrian pathways would be implemented. **Appendix L, Economic Assessment** provides details pertaining to the secondary impacts associated with economic growth anticipated with the project.



Overall, these secondary impacts are considered positive, in the context of recapturing the Lake Erie waterfront and former industrial sites for new uses intended to contribute to the region's economic well-being and quality of life in the 21st century. From an environmental perspective, such secondary development would result in:

- Effects to inactive hazardous waste sites;
- Localized effects to land use patterns and community character; and
- Impacts to natural resource areas (wetlands, wooded areas, streams) that have emerged from past industrial uses, although these resources are somewhat impaired.

These impacts would be mitigated through the administration and implementation of review processes and regulations (both in place and being developed) to ensure that new uses would not result in significant effects to the built and natural environment. For example, the GEIS for the Union Ship Canal Redevelopment resulted in the voluntary cleanup of contaminated soils from past industrial uses to allow for redevelopment of commercial uses. As part of the plan, the Buffalo Common Council adopted site-specific zoning ordinance and urban design standards to ensure that new development fits into the desired scale and urban design characteristics and created designated waterfront access and recreational areas. Similarly, the remedial plan for cleanup of the NFTA Outer Harbor included the adoption of standards based upon the specific end use of the property – for example, residential uses would require a greater level of environmental mitigation than commercial uses. Regardless of the end use(s), the redevelopment plan includes creation of permanent access to the water's edge. Further, affected communities in the project area have already or are close to adopting Local Waterfront Revitalization Programs (LWRPs) that include specific standards related to improving access to waterfront areas and mitigating potential negative impacts of new development.

Further, it is not anticipated that the construction of the new I-190/Tifft Street Arterial would result in negative or unanticipated indirect or secondary impacts. The alignment selected passes through former industrial areas, specifically targeted for redevelopment. It would not open up new lands for uncontrolled growth or sprawl. In fact, the former LTV/Republic Steel site is the only sizable parcel directly along the proposed right-of-way that could realize significant redevelopment. Planned intersections at South Park, Elk and Seneca all exhibit little vacant land or lands that could be developed for new uses.

4.5.2 Cumulative Impacts

Cumulative impacts consist of the social, economic, and environmental impacts which result from the incremental impact of the project when added to other past, present, and reasonably foreseeable future actions regardless of what agency or private entity undertakes such other actions. This analysis identifies redevelopment projects that have either occurred or are planned for the near future within the project corridor and/or within the surrounding area. A



number of recent or proposed projects that may affect and/or be affected by the STC/BOH Project that total over \$130 million, include the following:

- Gallagher Beach Phase I and II (including boardwalk, trails, lighting);
- Proposed State Park at Gallagher Beach and the NFTA Boat Harbor (“Buffalo Boat Harbor” State Park);
- Erie Canal Harbor Project (formerly referred to as the “Buffalo Inner Harbor Development Project”). First phase completed in July 2003; second phase in redesign; planned completion in May 2007;
- New Inner Harbor Parking Ramp;
- Buffalo Lakeside Commerce Park (Union Ship Canal Redevelopment Project) Phase I: clean up and access road/infrastructure improvements to 32.5 hectares (80 acres);
- LTV/Republic Steel voluntary cleanup and site preparation for new commercial development;
- Woodlawn Beach State Park nature trail, sewer remediation, new bathhouse, and nature center;
- NFTA Outer Harbor Greenbelt – Phase I shoreline stabilization/remediation project (now in construction); and
- NFTA/Erie County Outer Harbor Multi-Purpose Trail System (first phase complete).

These proposed projects are all meant to provide the area with a resurgence of life via an economic boost, and be supported by the proposed improvements to the existing roadways, inclusive of the Southtowns Connector. All of these proposed projects are seen as positive components of an area that has experienced well-over 30 years of blighted living and economic conditions resultant from the post-industrial era.

Along with the proposed development there is an anticipated increase in traffic volume and the potential for inhabitation of this area and immediate surrounding area. Further, with the progressive economic development of the area, the potential for enticing tourists to visit and frequent the area is a real possibility, thereby offering a secondary source of revenue that could help fuel spin-off businesses. This “snowball” effect is perceived as a cumulative impact, however a positive one that is most-needed for this portion of the city to regain its footing as a viable post-industrial community.

Overall transportation effects of implementation of the Preferred Alternative (Modified Improvement Alternative) in conjunction with projected traffic growth due to on-going redevelopment projects and overall population growth in the area is considered as a cumulative impact. These potential traffic impacts have been thoroughly analyzed by the conduct of a



traffic impact analysis that addressed the impacts of improvements to a major transportation system network between the City of Buffalo, City of Lackawanna, and Town of Hamburg that links the downtown area with Southtowns communities, while making access to the waterfront itself, easier for vehicles, pedestrians, bicyclers, and transit users. In assessing overall transportation effects of the Modified Improvement Alternative and the other two Build Alternatives, particular effort was made to ensure that regional traffic growth and impacts of on-going redevelopment efforts were included in the analyses. This involved the use of GBNRTC regional travel demand model and demographic assumptions that were used in the approved Long Range Plan. Detailed review of GBNRTC future demographics was conducted at the Traffic Assessment Zone (TAZ) level to ensure that these projections included sufficient growth to account for new jobs and households expected as part of economic development activities. For example, the future Null Alternative and Build Alternatives assume employment and population growth in the corridor through 2030 associated with:

- Full build-out of the Union Ship Canal Development Area;
- Redevelopment of the Bethlehem Steel site;
- Mixed-use development of the NFTA Outer Harbor Lands; and
- Clean-up and redevelopment of the former LTV/Republic Steel site.

In addition, the GBNRTC Model assumes completion of certain road network components by design year (2030). The most prominent of these being the completion of three additional travel lanes of capacity at the Peace Bridge crossing (regardless of the ultimate design of a new and/or expanded crossing).

4.6 Relationship between Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

This section discusses the balance between short-term and long-term effects of the project. The STC/BOH Project is consistent with overall local and regional planning and economic development objectives, which have considered the need to redefine the Route 5 corridor to facilitate redevelopment of brownfields and creation of improved access to emerging recreational areas along the Lake Erie waterfront to enhance regional quality-of-life.

The project would have some short-term effects, of which would be controlled or mitigated, including:

- Each of the Build Alternatives would have short-term impacts on surface water quality due to construction activities in or around water bodies (Buffalo River; Smokes Creek) although no changes to natural drainage patterns are anticipated.



- Each of the Build Alternatives would temporarily disrupt area traffic during construction, primarily during peak commuter hours in the morning and late afternoon. Disruptions are expected to be minor with each Build Alternative.
- Construction of the Build Alternatives would temporarily increase business for area suppliers of construction materials and increase area construction employment (increase in business would be uniform for each Build Alternative since overall costs are about equal for each alternative).

Substantial long-term project effects on the maintenance and enhancement of man's productivity include:

- Each of the Build Alternatives would improve physical access to target redevelopment sites in the project area.
- Each of the Build Alternatives would be an impetus for measurable economic impacts in Erie County and the Buffalo area (Buffalo MSA).
- The project meets a number of objectives set forth in regional, state-wide and national transportation plans, including the 1991 *Intermodal Surface Transportation Efficiency Act (ISTEA)*, the *New York Statewide Master Plan for Transportation* and other plans listed previously.
- The project would improve multi-modal access to the lakeshore and areas east of Route 5 (Tifft Nature Preserve; Ohio Street; City of Lackawanna and Town of Hamburg business districts).
- Bicycle, pedestrian, and transit user safety would be improved along all of the project area corridors.
- The project would improve business opportunities along Ohio Street in Buffalo and Route 5 in Lackawanna and Hamburg.

In summary, the project:

- Provides long-term benefits in terms of economic development, job creation, transportation service, accessibility, market expansion for existing businesses, and spurs further interest in the region's quality-of-life assets associated with it Lake Erie waterfront and industrial heritage; and
- Mitigates or controls the impact of most potential short-term impacts.



4.7 Irreversible and Irretrievable Commitments of Resources

The project will require the commitment of natural, physical, human, and fiscal resources:

- Land – each of the Build Alternatives, although they follow the existing roadway footprints, would require a minor amount of irretrievable commitment of land for right-of-way for Route 5 where it would be realigned west of the current right-of-way.
- Displacements – each of the Build Alternatives will displace of three commercial uses, three residential uses, and one mixed commercial/residential use.
- Material – each of the Build Alternatives would require construction materials, including gravel, concrete, asphalt, and steel.
- Energy – each of the Build Alternatives would expend energy resources to manufacture and place build materials associated with the proposed reconstructed bridges, roadways, and walkways.
- Habitat – each of the Build Alternatives would temporarily displace existing wildlife (small mammal) from current habitat, however, this commitment to transportation uses would be minor and accommodated “in-kind” at another location nearby (i.e., Tifft Nature Preserve).
- Highway Maintenance Costs – implementation of any of the Build Alternatives would irreversibly commit State and local spending for additional long-term maintenance of the roadways.
- Induced Development – each of the Build Alternatives would induce limited economic development primarily in already established business districts, however, requiring additional land, materials, and energy.
- Agency Resources – Induced private development would require reviews by local, State, and possibly Federal agencies for various future projects.

4.8 Adverse Environmental Impacts that Cannot be Avoided or Adequately Mitigated

The following environmental impacts would occur regardless of the mitigation measures employed:

Null Alternative

- Traffic congestion and delays would increase as would traffic noise and air quality impacts.
- Accident rates and costs would increase.



- Access to the waterfront would be impeded resulting in reduced number of visitors and ultimate revenue for the affected municipalities.

Build Alternatives

- Right-of-Way Acquisition – each of the Build Alternatives would require land and building acquisition for additional right-of-way. Fair-market-value compensation for the right-of-way would be made to its owners, but there would be inconvenience impacts nonetheless.
- Commercial Parcels/Businesses – each of the Build Alternatives would require the acquisition of seven properties. Compensation for buildings, property, and (if applicable) relocation costs would be provided, however, inconvenience impacts would exist.
- Removal of existing roads - Fuhrman Boulevard would be removed along the east side of Route 5 and become a 2-way frontage road along the west side of Route 5 from the Skyway up to the Union Ship Canal property; access to Louisiana and Ohio streets from St. Clair is eliminated.
- Noise on Ohio Street – Potential abatement measures appear to not be practical (see Appendix J) on Ohio Street. The City of Buffalo may consider future truck access restrictions along Ohio Street in areas north of Ganson Street as an option.
- Construction effects on noise, air quality, water quality – with pollution controls in-place, each of the Build Alternatives would still create some increased levels of noise, air pollution (dust, exhaust) and water pollution (erosion) during construction.

4.9 Growth Inducing Aspects of the Project

Growth inducing aspects of the project include the following:

- The project area is one of the more economically depressed areas of the Buffalo MSA, due primarily to the past industrial nature of the communities coupled with lack of development along the waterfront. Each of the Build Alternatives would provide needed easy access to the waterfront; transportation improvements to the major highway corridors providing ease of traffic flow and associated vehicle and pedestrian safety; and implementation of a pedestrian and bicycle pathway system. These major elements would collectively foster economic potential for the area. The Economic Impact Analysis (**Appendix L**) determined that there would be positive investment psychology associated with the Build Alternatives that would consequently alter the image of the existing undervalued commercial and residential neighborhoods.
- Commercial Development – all of the Build Alternatives would enhance commercial corridors and potential development sites for new private investment.



- Population – the economic impact potential, in terms of jobs created as a result of each Build Alternative, while not quantifiable, can be expected to add quality-of-life elements that could spur redevelopment of the area, provide a sense of community pride, and consequently retain and/or increase existing employment and subsequent residential attractiveness.
- Truck Traffic Diversion – all of the Build Alternatives would divert truck traffic to commercial corridors from residential areas (e.g. New Tifft Arterial from Hopkins Street). This improves accessibility to commercial sites and improves quality of life in residential areas.
- Existing and Proposed Redevelopment – all of the Build Alternatives would enhance existing and planned redevelopment of the area.



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