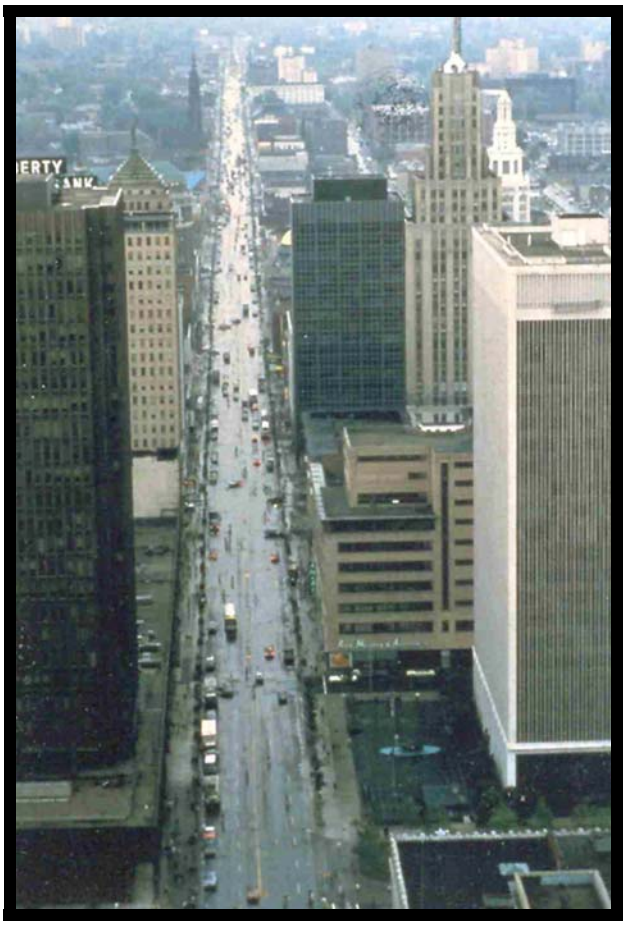

CITY OF BUFFALO MAIN STREET MULTI-MODAL ACCESS AND REVITALIZATION PROJECT

ENVIRONMENTAL ASSESSMENT

June 2009

Sponsored by:
City of Buffalo
NFTA
Buffalo Place
New York DOT

ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	Micrograms per cubic meter
ADA	Americans with Disabilities Act
ADAAG	Americans with Disabilities Act Accessibility Guidelines
ADT	Average daily traffic
APE	Area of Potential Effect
BNMC	Buffalo Niagara Medical Campus
CAA	1970 Clean Air Act
CBD	Central Business District
CE	Categorical Exclusions
CEQ	Council on Environmental Quality
dB	Decibels
dBA	"A" weighted sound levels
DOT	U.S. Department of Transportation
EA	Environmental Assessments
EIS	Environmental Impact Statements
EJ	Environmental Justice
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA FIRM	Federal Emergency Management Agency Flood Insurance Rate Maps
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GBNRTC	Greater Buffalo-Niagara Regional Transportation Council
L_{dn}	Day-night sound level
$L_{eq}(h)$	Hourly equivalent sound level
LOS	Level of service
LRRT	Light Rail Rapid Transit
LRV	Light Rail Vehicle
MOE	Measures of Effectiveness
mph	Miles per hour
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act
NFTA	Niagara Frontier Transportation Authority
NFTC	Niagara Frontier Transportation Committee
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NYNHP	New York Natural Heritage Program
NYOPRHP	New York Office of Parks, Recreation, and Historic Preservation
NYSDEC	NY Department of Environmental Conservation
NYSDOT	Erie County, New York State Department of Transportation
OPRHP	New York State Office of Parks, Recreation, and Historic Preservation
PLOS	Pedestrian Level of Service
PM_{10}	Particulate matter less than 10 microns in diameter
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter
POTW	Publicly-Owned Treatment Works
ppm	Parts per million
SEQRA	New York State Environmental Quality Review Act
SHPA	New York State Historic Preservation Act of 1980
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
TES	Threatened and Endangered Species
TSP	Transit signal priority
USFWS	U. S. Fish and Wildlife Service
VISSIM	Visual Simulation
vpd	Vehicles per day
vph	Vehicles per hour

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EXECUTIVE SUMMARY

A. Introduction and Identification of the Proposed Action

The Federal Transit Administration (FTA), as federal lead agency, and the Federal Highway Administration (FHWA), as a cooperating agency, have prepared this Environmental Assessment (EA) to evaluate the potential environmental effects of restoring vehicular traffic to the Main Street pedestrian-transit mall between Tupper Street and Scott Street in the City of Buffalo, Erie County, New York. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations (40 CFR Part 1500 et seq.), and FTA regulations to implement NEPA (23 CFR 771). During the construction period, there will be temporary, minor impacts to socioeconomics, visual and aesthetic considerations, traffic and transportation, air quality, noise, and water resources; however, these impacts would be mitigated through a phased construction approach and implementation of best management practices.

In 1984, in conjunction with the construction of the light rail rapid transit (LRRT) system, an approximately 1.2-mile section of Main Street (i.e., Tupper Street to South Park Avenue) was closed to vehicular traffic to create a pedestrian-transit mall with widened sidewalks (37.75 feet)[1]. Overall the pedestrian-transit mall has not proven to be an economic success, and may have contributed to the economic decline experienced in downtown Buffalo. The City of Buffalo, Niagara Frontier Transportation Authority (NFTA), New York State Department of Transportation, and Buffalo Place (collectively the Project Sponsors) are proposing to reopen Main Street to vehicular traffic as part of an overall strategy to help revitalize downtown Buffalo and improve multi-modal access. This strategy will involve the reconfiguration of access within the existing Main Street right-of-way and some transit station enhancements to allow vehicular access while maintaining existing at-grade access by LRRT vehicles operated by the NFTA.

The Proposed Action would consist of the following elements:

- Restore two-way traffic by allowing vehicular traffic to share the LRRT trackbed with the light rail trains from Tupper Street to Scott Street;
- Remove the NFTA Theater Station;
- Enhance the aboveground light rail stations by the addition of radiant heat to the station platforms, glazed walls for winter weather protection, audio and visual real time Metro information displays, improved signage, and lighting, and camera monitoring of Main Street operations and security.
- Technological improvements to the Bridge Ramp between the station and the rail car;
- Provide approximately 209 on-street parking spaces and loading spaces abutting the sidewalk along both sides of Main Street;

[1] The American Association of State Highway and Transportation Officials (AASHTO) recommend a minimum sidewalk width on urban streets in commercial areas of 8 feet (AASHTO, 2004).

- Provide dedicated left turn lanes at the southbound Tupper Street intersection;
- Reconnect Eagle Street and Mohawk Street to Main Street (including new traffic signals at these intersections);
- Relocate the existing catenary poles from the LRRT trackbed to the sidewalk and combine with the existing streetlights;
- Provide designated or signed bike lanes in the Theatre District to link future bike lanes in the north to the existing bike system at the Erie Canal Harbor including; a shared, signed, 14-foot-wide travel lane around the portal and a dedicated five-foot-wide bike lane along Main Street from the portal to Chippewa Street;
- Reduce sidewalk width from 37.75 feet to approximately 25.75 feet (the sidewalks will continue to be wider than the 20-foot sidewalks in place prior to the LRRT system construction);
- Provide visibly distinct pedestrian crosswalks at all intersections; and
- Improve paving, landscaping, and street furnishings from Tupper Street to Scott Street.

Construction will be completed in a phased approach beginning at Tupper Street and continuing south to Scott Street: Phase 1 from Tupper Street to Chippewa Street and Exchange Street to Scott Street; Phase 2 from Chippewa Street to Exchange Street; and Phase 3 will be the Scott Street Crossover.

B. Purpose and Need for the Proposed Action

The purpose of the Proposed Action is threefold: to increase multi-modal access options and transit ridership in downtown Buffalo; stimulate economic development; and improve the quality of life for users of downtown Buffalo.

In 1984, approximately 10 blocks of Main Street (from Tupper Street to Scott Street) were closed to vehicular traffic to create a pedestrian-transit mall in conjunction with the construction of an LRRT system. Current (April 1, 2007 to March 31, 2008) annual LRRT ridership is estimated as approximately 5.68 million with an average weekday ridership of 19,743. Overall ridership has declined between 1992 and 2008 by approximately 1.3 million riders. Ridership peaked in 1987, shortly after the LRRT system opened, at approximately 28,000 daily weekday riders. The decline in weekday riders generally corresponds with declines in downtown employment.

Many communities in the United States that constructed downtown pedestrian malls found that these malls did nothing to revitalize their downtown commercial districts, but may, in fact, have accelerated the downtown's decline by shrinking the district's market base from the overall community to just the downtown commercial district itself and shifting the retail focus from *comparison* and *destination* goods/services to *convenience* goods/services. A survey of 72 communities that constructed pedestrian malls found that most (90 percent) of the communities that reintroduced vehicular traffic report significant improvements in occupancy rates, retail sales, property values, and private sector reinvestment in the downtown area.

This evaluation includes consideration of engineering feasibility, environmental effects, cost implications, and consensus building among the general public and key stakeholders for a comprehensive system of multi-modal access along Main Street from Tupper Street to South Park Avenue.

C. Project Alternatives

This EA evaluates the potential environmental effects of the Proposed Action and the No-Action Alternative. The Proposed Action will restore continuous two-way traffic to the pedestrian-transit mall portion (i.e., where the LRRT operates at ground level) of Main Street by allowing vehicular traffic to share the LRRT trackbed with the light rail trains. The Proposed Action will meet the project purpose of revitalizing Main Street by allowing vehicular traffic to share the LRRT trackbed and facilitating multi-modal access along the 1.2-mile segment of Main Street between Tupper Street and Scott Street. The Proposed Action will also maintain wide sidewalks (over 25 feet) to preserve the pedestrian-friendly streetscape, and enhance the existing transit stations. To facilitate the Proposed Action and other on-going redevelopment efforts, the Theater Station will be eliminated.

The No-Action Alternative would retain the existing pedestrian-transit mall and continue to prohibit vehicular traffic. The existing LRRT system would continue to be the main access option for Main Street and operate as under current conditions, including generally declining ridership from historic levels. This alternative would not achieve the project purpose of revitalizing downtown Buffalo, increasing multi-modal access options, or improving the quality of life and serves as a baseline for evaluating the effects of the Proposed Action.

D. Potential Impacts of the Proposed Action

The following section describes the results of the detailed environmental impact evaluation of the Proposed Action in comparison to the effects of the No-Action Alternative described above.

The Proposed Action would have no adverse effects on Land Use, Public Policy, and Social Considerations because it is consistent with local land use planning and will not decrease access for emergency vehicles or endanger public safety.

The analysis indicates that restoring traffic to Main Street will benefit Socioeconomics by increasing employment, building space demand (storefront occupancy), and City tax revenues and improving access to and visibility of businesses along Main Street. This will cause little business disruption during construction because an ample buffer will separate most of the major construction from the storefronts.

The Proposed Action will not alter the Visual and Aesthetic Considerations along Main Street. From a quality of life perspective, the Proposed Action will retain relatively wide sidewalks (at least 25 feet wide[2]) while maintaining a “pedestrian street” where traffic is

[2] AASHTO recommends a minimum sidewalk width on urban streets in commercial areas of 8 feet (AASHTO, 2004).

allowed, but does not dominate the streetscape. The wide sidewalks provide for the dense pedestrian traffic that currently occurs on Main Street and affords the possibility to hold special events, have special programs or activities, and to allow businesses to spill out into the street for dining and special sale events that collectively make a street feel alive and vibrant. Retaining sufficient sidewalk width for pedestrian amenities and street life was recommended by peer cities with experience reintroducing vehicular traffic to pedestrian malls. There was appreciation for the benefits of vehicular traffic but also a suggestion to retain sufficient sidewalk width to also retain the benefits of pedestrian amenities.

The Proposed Action will not damage or alter the existing buildings or contribute to degradation or neglect that would affect the historical character of Main Street. The improved economic conditions should reduce the potential for the inappropriate conversion or demolition of historic buildings along Main Street.

The increase in employment along Main Street that is predicted to result from the Proposed Action will benefit traffic and light rail transit. Transit ridership was related statistically to downtown employment using linear regression techniques. The regression model indicates that the Proposed Action will result in approximately a five percent increase (approximately 352,000) in annual LRRT ridership (see regression analysis, Section 7 (D)). This will help stem a downward trend in transit ridership (1.3 million-rider decrease since 1992) that generally parallels the decrease in downtown employment (loss of 8,746 jobs between 1991 and 2006). In terms of other modes of transportation, the Proposed Action will improve vehicular traffic patterns downtown and help meet the demand for additional on-street parking.

There are concerns, however, about cars sharing the trackbed with LRRT trains. Traffic modeling (including assumptions regarding parking vehicles) indicates that sharing the trackbed will normally cause little delay for the trains (approximately one minute), although car accidents or breakdowns could disrupt normal LRRT operations if the accident occurred in spatial or temporal proximity to the LRRT vehicles. Accidents were not considered to be part of the standard operating conditions on Main Street; however, relocating the catenary poles outside of the trackbed and keeping the center of the road open will facilitate emergency vehicle access for clearing out potential accidents. Additional traffic cameras will be installed to monitor traffic conditions along Main Street and facilitate an emergency vehicle response, when necessary. The City of Buffalo currently can ban parking along city streets during snow emergencies to facilitate snow removal and this practice would also apply to Main Street. The LRRT station enhancements will promote energy efficiency, increase aesthetic appearance, provide enhanced signage, significantly improve weather protection for Metro Rail patrons, and avoid the safety concern of forcing pedestrians or the disabled to cross a travel lane in order to reach the stations.

The noise levels and air quality along Main Street are consistent with a downtown urban environment. Construction equipment and vehicles would slightly increase short-term, localized noise levels and air emissions along Main Street; however, the increase will be negligible when compared to overall pollutant loads and noise levels. All transportation changes associated with these projects were included in the air quality conformity

analysis for the current MPO regional transportation plan, and the plan conforms in accordance with the EPA regulation governing transportation conformity.

The natural environment along Main Street has been heavily disturbed by historic construction of the downtown infrastructure, including the light rail. Ornamental trees provide the only vegetation along Main Street and are not in sufficient quantity or density to constitute a functioning ecological community, although some trees will be temporarily removed to allow construction along the sidewalks. Construction vehicles and equipment will result in short-term increases in stormwater pollutant loading; however, these levels will be negligible when compared to overall stormwater runoff in downtown Buffalo.

The Proposed Action will result in a beneficial socioeconomic impact to Main Street. Therefore, the Proposed Action will provide a benefit to the predominantly minority and low income populations and have no disproportionately high or adverse effects on these populations.

1 PROJECT PURPOSE AND NEED

A. Introduction and Identification of Proposed Action

The Federal Transit Administration (FTA), as federal lead agency, and the Federal Highway Administration (FHWA), as a cooperating agency, have prepared this Environmental Assessment (EA) to evaluate the potential environmental effects of restoring vehicular traffic to the Main Street pedestrian-transit mall between Tupper Street and Scott Street in the City of Buffalo, Erie County, New York. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations (40 CFR Part 1500 et seq.), and FTA regulations to implement NEPA (23 CFR 771).

The City of Buffalo, the Niagara Frontier Transportation Authority (NFTA), New York State Department of Transportation (NYSDOT), and Buffalo Place (collectively the Project Sponsors) propose to reopen Main Street to vehicular traffic as part of an overall strategy to help revitalize downtown Buffalo. This strategy would involve reconfiguration of access within the existing Main Street right-of-way and some transit station enhancements to allow vehicular access while maintaining existing at-grade access by light rail rapid transit (LRRT) vehicles operated by the NFTA. The Proposed Action would consist of the following elements:

- Restore two-way traffic by allowing vehicular traffic to share the LRRT trackbed with the light rail trains from Tupper Street to Scott Street;
- Remove the NFTA Theater Station;
- Enhance the aboveground light rail station by the addition of radiant heat to the station platforms, glazed walls for winter weather protection, audio and visual real time Metro information displays, improved signage, and lighting, and camera monitoring of Main Street operations and security.
- Technological improvements to the Bridge Ramp between the station and the rail car;
- Provide approximately 209 on-street parking spaces and loading spaces abutting the sidewalk along both sides of Main Street;
- Provide dedicated left turn lanes at the southbound Tupper Street intersection;
- Reconnect Eagle Street and Mohawk Street to Main Street (including new traffic signals at these intersections);
- Relocate the existing catenary poles from the LRRT trackbed to the sidewalk and combine with the existing streetlights;
- Provide designated or signed bike lanes in the Theatre District to link future bike lanes in the north to the existing bike system at the Erie Canal Harbor including; a shared, signed, 14-foot-wide travel lane around the portal and a dedicated five-foot-wide bike lane along Main Street from the portal to Chippewa Street;

- Reduce sidewalk width from 37.75 feet to approximately 25.75 feet (the sidewalks will continue to be wider than the 20-foot sidewalks in place prior to the LRRT system construction);
- Provide visibly distinct pedestrian crosswalks at all intersections; and
- Improve paving, landscaping, and street furnishings from Tupper Street to Scott Street.

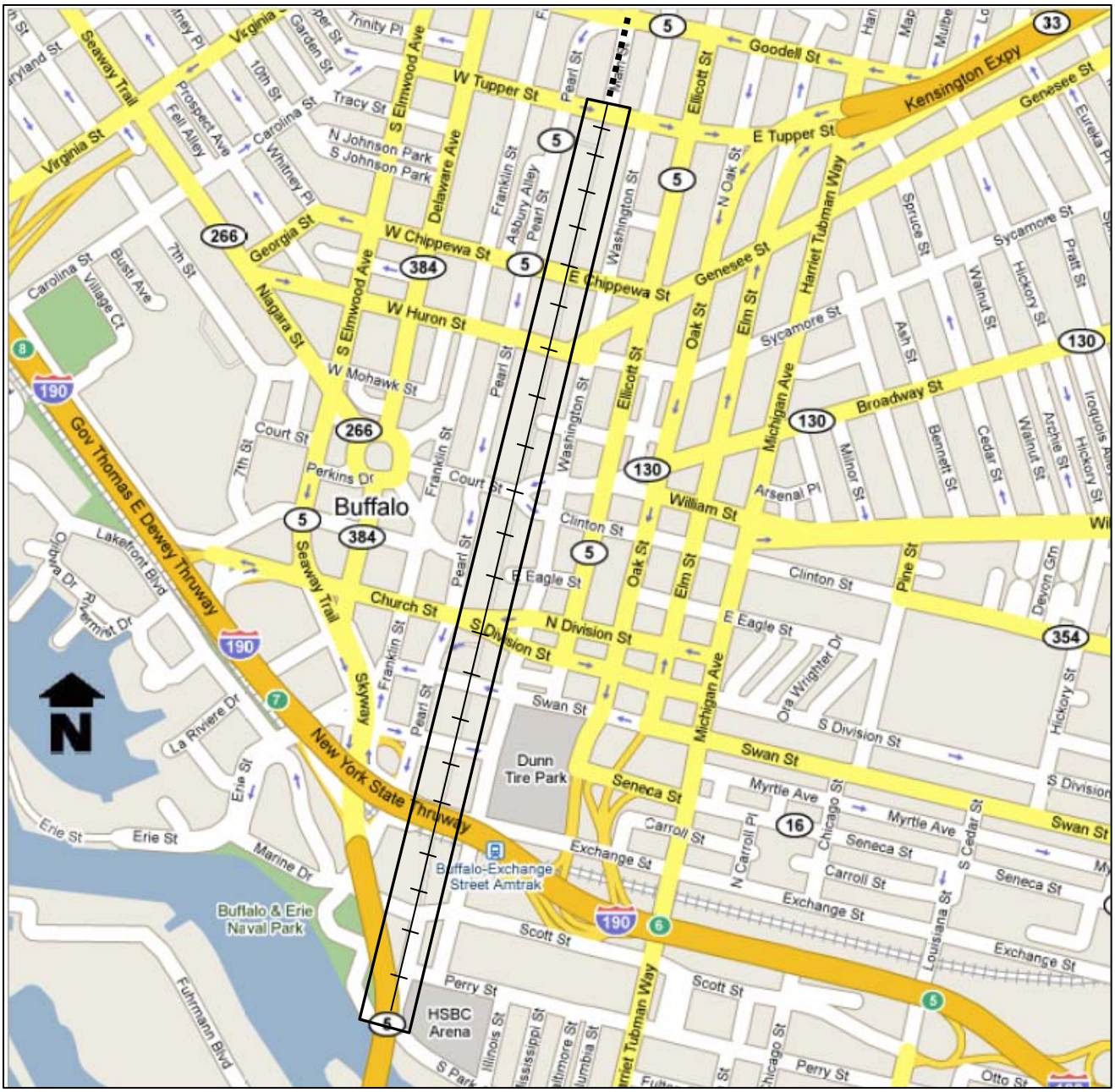
Construction will be completed in a phased approach beginning at Tupper Street and continuing south to Scott Street: Phase 1 from Tupper Street to Chippewa Street and Exchange Street to Scott Street; Phase 2 from Chippewa Street to Exchange Street; and Phase 3 will be the Scott Street Crossover.

Definition of Project Area

The City of Buffalo is the largest city within the metropolitan region in western New York (Figure 1-1) with a population of approximately 300,000. The Project Area defined for this EA encompasses the original 1.2-mile pedestrian-transit mall along Main Street in downtown Buffalo as well as roadway approaches to this segment. From north to south, this Project Area extends along Main Street from the Tupper Street intersection to South Park Avenue. From west to east, the study area extends laterally approximately one-half block on either side of Main Street to include the properties that front upon the current pedestrian-transit mall and roadway approaches to the mall (Figure 1-2).

Figure 1-1 Project Location

Figure 1-2. Pedestrian Transit Mall and Study Corridor



LEGEND

Pedestrian-transit mall

Start of the underground portion of LRRT

Main Street Study Corridor

B. Purpose and Need for the Proposed Action

Overview

In 1984, in conjunction with the construction of the LRRT system, an approximately 1.2-mile section of Main Street (i.e., Tupper Street to South Park Avenue) was closed to vehicular traffic to create a pedestrian-transit mall. Over the past 25 years, the pedestrian-transit mall has not proven to be an economic success, and, in fact, may have contributed to the economic decline experienced in downtown Buffalo by isolating key properties and complicating traffic circulation.

Many communities in the United States constructed downtown pedestrian malls, primarily in the 1960s and 1970s, at least partially in response to the loss of downtown businesses to new suburban shopping malls. According to the National Main Street Center (NMSC, 1998), most communities found that these new pedestrian malls did nothing to revitalize their downtown commercial districts, but may, in fact, have accelerated the downtown's decline by shrinking the district's market base from the overall community to just the downtown commercial district itself and shifting the retail focus from *comparison* and *destination* goods/services to *convenience* goods/services. If the concentration of workers, residents, and visitors downtown is not sufficiently large, vacancies will increase, the image of downtown will deteriorate, and the city will suffer from the presence of the pedestrian mall.

A recent survey of 72 communities that constructed pedestrian malls found that 78 percent of these communities have completely or partially reopened their pedestrian mall to vehicular traffic, and an additional 10 percent are considering such an action. Like Buffalo, Sacramento had a pedestrian-transit mall, which was partially re-opened to traffic in 1998 (Appendix A).

Most (90 percent) of the communities that have reintroduced vehicular traffic report significant improvements in occupancy rates, retail sales, property values, and private sector reinvestment in the downtown area (National Main Street Program, 1998; Hyatt Palma, Inc., 1989; see Appendix A for survey results and documented success stories).

Most cities, including those with populations similar to Buffalo, reported positive socioeconomic effects from reopening pedestrian malls to vehicular traffic. Louisville, KY reported a decrease in its vacancy rate from 80 to 50 percent after traffic was reintroduced. Norfolk, VA reported attracting new restaurants and office space, but less success in attracting retail, attributing this to a nearby enclosed shopping mall. Tacoma, WA also reported new restaurant activity, but less success attracting retail. East Liberty Mall in Pittsburgh experienced an initial increase in retail uses after traffic was reintroduced.

Existing LRRT Trackbed and Stations

The LRRT system consists of a 6.4-mile-long line that extends from an NFTA maintenance facility at the southern end of Main Street in downtown Buffalo to the University Station at the South Campus of the State University of New York at Buffalo. The single line includes a dual track (a northbound and a southbound track) with a 4'8.5" gauge. There is a cross-over immediately north of the Erie Canal Harbor Station that allows cars to switch direction for round trip service.

For the southernmost 1.2 miles in downtown Buffalo, the trains operate at-grade (i.e., at ground level) through a "free-fare zone" that corresponds with the pedestrian-transit mall. Except for emergency vehicles, and some service vehicles with a permit, only the light rail vehicles (LRV) are allowed in the pedestrian-transit mall. There is no fare for riding through the pedestrian-transit mall. The line descends underground through the "portal" at Tupper Street.

The system includes 15 passenger stations, seven in the aboveground portion and eight in the underground section. Seven of the aboveground stations are within the Project Area, including (from south to north):

- Special Events Station
- Erie Canal Harbor Station;
- Seneca Station;
- Church Station;
- Lafayette Square Station;
- Fountain Plaza Station; and
- Theater District Station.

Elderly and disabled riders are accommodated in all underground stations by elevators and can access the train because the floor of the LRV is level with the platform. The aboveground stations include a ramp to an elevated boarding platform that is level with the train floor. Otherwise, access to the LRV at the aboveground stations is via retractable steps.

The LRVs are powered electrically from overhead wires. In the aboveground section, catenary poles are located approximately every 130 feet along Main Street to support the overhead electric wires.

A sophisticated Closed Circuit Television system is a vital part of the LRRT security system, constantly monitoring escalators, elevators, stairs, station platforms, entrances, and exits. Uniformed NFTA Transit Police patrol the entire system.

Light Rail Vehicles

NFTA operates 27 LRVs, which were manufactured by Tokyu Car Corporation of Japan in 1983. The cars are 66'10" long and 8'7" wide. Each car is double-ended, which means that it can be operated from either end. Each car has 51 seats and has a maximum crush-load capacity of 210. There are three sliding doors on each side of the car that are passenger operated by means of pushbuttons in the aboveground section and controlled by the operator in the below ground section.

The train speeds vary to a maximum of 50 miles per hour (mph) underground and a maximum of 15 mph above ground. The LRV have a maximum service acceleration of 2.7 mph/second and a maximum service deceleration of 3.0 mph/second, with a maximum emergency deceleration of 4.7 mph/second. The train crew consists of a single operator.

Purpose and Need for the Proposed Action

The purpose of the Proposed Action is threefold: (1) to increase multi-modal access options and transit ridership in downtown Buffalo; (2) stimulate economic development; and (3) improve the quality of life for users of downtown Buffalo.

INCREASE MULTI-MODAL ACCESS OPTIONS AND TRANSIT RIDERSHIP

A multi-agency study has determined that Main Street currently suffers from limited access options (Buffalo Place et. al., 2001). These limited access options are contributing to the dramatic loss of retail uses along Main Street and the overall reduction in downtown employment. This loss of employment is also affecting light rail ridership, which has been declining as fewer people are working in the downtown area, which is a primary area served by LRRT.

Increasing access options will make it more convenient for more people to access Main Street for work, shopping, and entertainment. More visitors and employees in downtown Buffalo would be expected to result in greater use of transit to access downtown.

STIMULATE ECONOMIC DEVELOPMENT

The City of Buffalo has about 25 years of experience with the pedestrian-transit mall and it has not achieved its revitalization objectives. For example:

- Since 1987, private property values in the Project Area have declined in assessed value by 54 percent, in 2006 dollars, from $593 million to $271 million (Buffalo Place, 2006b).
- From 1987 to 2000, retail occupancy on Main Street dropped by 47 percent and retail employment by 92 percent (Buffalo Place et. al., 2001).
- From 1987 to 2000, total vacancy on Main Street increased by 28 percent (Buffalo Place et. al., 2001).
- The 1998 average annual downtown Buffalo employee expenditure was $493 compared to the national average of approximately $2,000, thereby showing an unmet demand in potential retail spending of approximately 75 percent, or over $75 million (Buffalo Place, 1998).
- Visitors to downtown attractions and the Convention Center repeatedly cite the difficulty of negotiating downtown with Main Street closed to traffic and Pearl Street one-way southbound (The Queen City Hub Plan, 2003).
- Redevelopment has occurred along Chippewa Street and is extending to Franklin Street and Delaware Avenue, but not to Main Street (Buffalo Place et. al., 2001).
- Surveys of downtown, former downtown, and prospective business owners identify poor access and perceived safety concerns as the most negative aspects of downtown Buffalo (Buffalo Place et. al., 2001).
- The design of the pedestrian-transit mall creates obstacles for its economic success. At nearly 1.2 miles, the Buffalo Pedestrian-Transit Mall is one of the longest pedestrian malls in the United States and much longer than the typical pedestrian is willing to walk.

Contribute to Development Momentum

There are several public and private development projects that are either under construction or planned for downtown Buffalo, such as the Erie Canal Harbor project and the "Foot of Main" Project involving a new Bass Pro Shop and the Erie Canal/Great Lakes Transportation Museum. Public investment in revitalizing Main Street will contribute to private sector confidence in the downtown market and make it easier to attract new development. Improved transportation access along Main Street will help strengthen the connections between downtown and both the waterfront to the south and the growing Buffalo Niagara Medical Campus to the north. Improved access to downtown and stronger connections to nearby activity centers will also help make downtown a more attractive location for residential uses.

Increase Business Visibility

Main Street businesses suffer from a lack of visibility. The lack of vehicles prevents motorists from seeing Main Street businesses and even pedestrian views of storefronts are hindered by existing infrastructure. The decrease in business visibility is believed to be a contributing factor to storefront vacancies and to the inability of building owners to attract new retail tenants even in new and renovated storefronts.

Provide Vehicular Access to Adjacent Land Uses

Access to Main Street is currently limited to LRRT riders and pedestrians. The lack of transportation options also hinders access to downtown businesses by the disabled. The lack of short-term, curbside parking and vehicular traffic are viewed by national retailers and lenders supporting local retailers as obstacles to retail success (Buffalo Place et. al., 2001).

Provide Short-Term Parking Spaces

There is a current and projected parking deficit in the downtown core, and the need for parking is the first concern of potential tenants considering a downtown location. Most businesses, especially retail stores, require convenient short-term parking for patrons and visitors. The lack of short-term curbside parking along Main Street requires patrons and visitors to use less convenient and more expensive parking elsewhere in downtown and negates the "user-friendly" image needed to secure business growth and retention (Buffalo Place et. al., 2001).

Improve the Appearance of Downtown

The appearance of downtown is particularly important because it affects not just downtown business growth and retention, but also region-wide efforts to secure new employers. As the "image center" for western New York, the appearance of downtown Buffalo influences decisions by businesses on where to locate new facilities. Main Street needs more animation and vitality to improve the downtown look and to improve the image of the region as well.

IMPROVE THE QUALITY OF LIFE

Simplify Access to Downtown

Surveys indicate that many tourists and visitors to Buffalo find the one-way and closed street pattern downtown very confusing to negotiate. It is critical to its economic success that access to downtown is simple and understandable (City of Buffalo, 2003).

Enhance Aesthetics

Main Street requires streetscape improvements (e.g., landscaping, street furniture, fountains) to restore charm and vitality. An improved streetscape appearance will attract more pedestrians. These streetscape enhancements could also emphasize some of the historically significant structures found along Main Street.

Address Personal Safety Concerns

Personal safety was the number one downtown issue at the first Downtown Summit in 1994, and the subject of the second Summit in 1996 (Buffalo Place et. al., 2001). The scale of Main Street's 38-foot-wide sidewalks contributes to the perception of many entering downtown that it is empty and unsafe, even though documented pedestrian volume is higher on Main Street than elsewhere in downtown. There is a need to make Main Street more animated and lively to make it an attractive destination for visitors as well as downtown employees and residents. More activity on Main Street will make people feel more comfortable and safe walking along Main Street.

SUMMARY

The economic and market data clearly show that downtown Buffalo is struggling (Buffalo Place et. al., 2001). The pedestrian-transit mall has not been successful, and most communities have found that reintroducing vehicular traffic has been successful in reversing the negative economic trends resulting from closed streets.

2 PROJECT ALTERNATIVES

A. Introduction

In cooperation with downtown representatives, advocates, Main Street residents and public interest groups, four alternatives for the reintroduction of vehicular traffic were analyzed in a 2003 New York State Environmental Quality Review Act (SEQRA) Final EA. The Share the Trackbed alternative (hereafter known as the "Proposed Action") was identified as the design to be carried forward. This chapter provides a brief description of the project criteria considered to achieve the Project purpose and describes how the individual elements of the Proposed Action will improve Main Street within the Project Area. As required by NEPA, the No-Action Alternative is also evaluated.

B. Project Criteria

Several criteria were established to insure compatibility with the remainder of the LRRT system, good engineering practice, and consistency with federal regulations. These criteria are listed below:

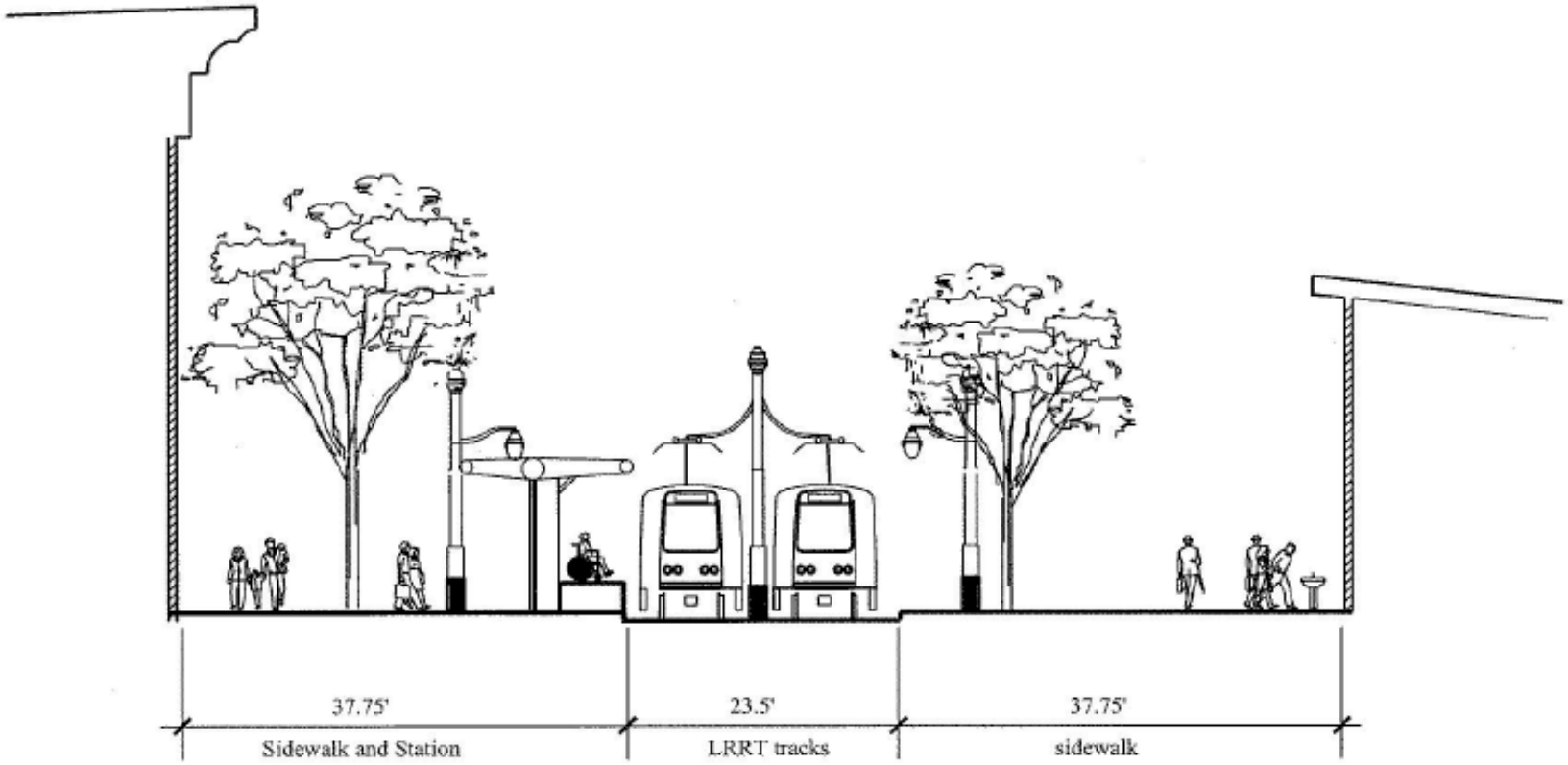
- Four-car Train – The LRRT system uses a maximum four-car train to serve downtown during special events and sporting events. Therefore, the Proposed Action will allow for four-car trains.
- Avoid Shifting the Rails – the trackbed is underlain by a large structural foundation. Shifting the rails from approximately the center of the existing foundation would involve significant and expensive reconstruction of the foundation.
- Disabled Accessibility – The City of Buffalo and NFTA are committed to providing access for the disabled. Further, the Americans with Disabilities Act (ADA) established standards for disabled accessibility. The Proposed Action will comply with the requirements of the ADA as well as the ADA Accessibility Guidelines (ADAAG) including the US DOT adaptations.
- On-street Parking – The City of Buffalo indicated that it will require all on-street parking provided on Main Street to be parallel rather than diagonal in orientation unless adequate space was provided to allow the driver to safely back out without entering the travel lane.
- Prohibit Large Trucks (e.g., tractor trailers) – given the limitation of only one narrow travel lane in each direction and the overhead high power catenary lines, it was determined that large trucks (over three tons) will be inappropriate along Main Street.
- Posted Speed Limit - the intent of the Proposed Action is to create a "pedestrian street" where pedestrian traffic dominates the streetscape despite the presence of vehicular traffic. The average posted speed limit along Main Street will be 15 mph.

C. No-Action Alternative

The No-Action Alternative would retain the existing pedestrian-transit mall and would not restore vehicular traffic to that portion of Main Street. This alternative establishes baseline environmental conditions for comparison with the Proposed Action (Figure 2-1).

Figure 2-1. No-Action Alternative

(Typical Cross Section View)



D. Proposed Action

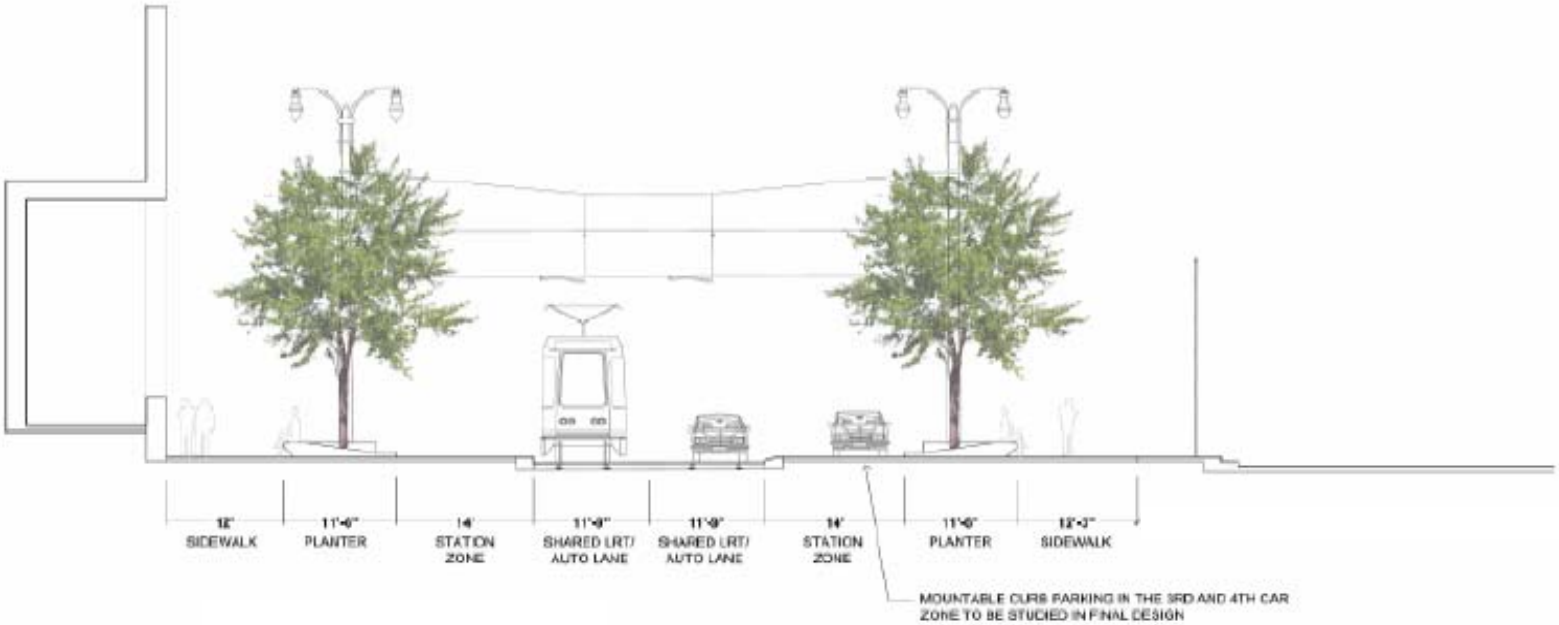
The Proposed Action will restore two-way traffic along the entire length of the Project Area from Tupper Street to Scott Street by allowing vehicles to share the LRRT trackbed. Refer to Figure 2-2 for a typical cross-section.

Vehicular Modifications

The Proposed Action will restore two-way traffic from Tupper Street to Scott Street by allowing vehicular traffic to share the LRRT trackbed with the light rail trains. The travel lanes will be 11.75 feet wide with one lane in each direction. Approximately 209 on-street parking and loading spaces for service vehicles will be provided abutting the sidewalk along the northbound and southbound sides of Main Street (DiDonato, 2006). The resulting additional parking spaces will alleviate the current parking shortage, which will in turn help to stimulate business development along Main Street.

From an operational perspective, left turns off Main Street will be permitted without dedicated turn lanes. However, dedicated left turn lanes will be used at Tupper Street traveling south because of projected traffic volumes (DiDonato, 2006). Eagle Street and Mohawk Street will be reopened to Main Street, which will consist of restriping the streets for two-way travel and the installation of new traffic signals at each intersection with Main Street.

Figure 2-2. Proposed Action
(Typical Cross Section)



LRRT Modifications

The Proposed Action will allow vehicular traffic to share the LRRT trackbed. The existing catenary poles will be relocated to the sidewalk and combined with the existing streetlights to improve vehicular safety, provide wider vehicle lanes (11.75-foot lanes compared to 10.25-foot lanes) by removing obstructions from the trackbed, and improve the aesthetic appearance along Main Street by reducing vertical intrusions to the streetscape.

Enhancements to the above ground transit stations to meet the purpose and need of the Project include the addition of radiant heat to the station platforms, glazed walls for winter weather protection, audio and visual real time Metro information, enhanced signage, improved lighting, and camera monitoring of Main Street operations and security. The Bridge Ramp from the stations to the rail cars will also be improved by incorporating technological improvements developed since the original construction.

New lighting, including dynamic signage, will replace the stations electrical work that has reached the end of its useful life. The lighting will be more reliable, convey more information to passengers, and be substantially more energy efficient, thereby reducing operating costs. The existing station roofs have reached the end of their useful life and will be replaced, allowing for more modern green products to be incorporated. The incorporation of clear panels will improve the transparency of the stations and allow for more natural lighting, which will reduce the need for artificial lighting and the energy usage at each station. The panels will also provide protection against wind and the elements.

The Proposed Action provides the opportunity to cover some of the structural elements with non-structure stainless steel cladding to improve aesthetics and protect the main steel components from vandalism and scratching of the painted surfaces, which can lead to corrosion. Non-structural ornate steel will be replaced with non-structural glass panels, which will increase the transparency of the stations and do not require periodic painting. These enhancements will result in reduced maintenance costs and fewer disruptions to the passengers.

Bicycle Modifications

Bicycles are not currently permitted along the pedestrian-transit mall. Under the Proposed Action, bicycles will continue to be prohibited along the majority of Main Street through the use of signage and local law enforcement. Designated or signed bike lanes will be provided in the Theatre District to link future bike lanes to the existing bike system at the Erie Canal Harbor. There will be a shared, signed, 14-foot-wide travel lane around the portal where space is limited; and a dedicated five-foot-wide bike lane along Main Street on the segment from the portal to Chippewa Street. Shared and designated bike lanes on Chippewa Street and Pearl Street linking to the Erie Canal Harbor are incorporated into a separate project. The LRRT trains will accept bicycles.

Pedestrian Modifications

The Proposed Action will involve several changes to the streetscape. The sidewalk area for pedestrians will be reduced from the current width of 37.75 feet to approximately

25.75 feet. However, it is important to note the sidewalks will continue to be wider than were the original sidewalks (20 feet) prior to the LRRT system construction. The continued existence of wider than original sidewalks will preserve the benefits of the pedestrian-transit mall while simultaneously allowing vehicular access to Main Street. Visibly distinct pedestrian crosswalks will also be added at all intersections, and the streetscape along Main Street will have improved paving, landscaping, and street furnishings.

These changes will serve several functions. A narrower sidewalk will lessen the pedestrian's sense that the area feels desolate — and therefore, unsafe — when pedestrian traffic density is low. The overall changes to the streetscape will also enhance the aesthetic appeal and level of public safety along Main Street.

Construction Approach

The reintroduction of vehicular traffic, LRRT station enhancements, and sidewalk modifications will be completed in a three-phased construction approach. All three phases are necessary to meet the purpose and need for the Proposed Action. Construction will be done in three phases between 2009 and 2011 beginning at Tupper Street and continuing south in the as follows: Phase 1 (2009) - Tupper to Chippewa Street; Phase 2 (2010) - Chippewa Street to Exchange Street; and Phase 3 (2011) – Exchange Street to Scott Street, with some incidental track work south of Scott Street. Each phase would last for one construction season[1] and traffic would be reintroduced on a phase-specific basis following the completion of each phase of construction. Table 2-1 provides a breakdown of the preliminary construction cost estimate by major components for the Proposed Action. Total construction cost for the three phases is estimated to be approximately $50,623,375, excluding soft costs and contingencies. Soft costs and contingencies are expected to be an additional $10,124,675. The total project cost would be approximately $60,748,050.

[1] A construction season consists of the portion of that calendar year in which conditions (weather, workforce availability, etc.) would permit construction to occur.

TABLE 2-1. CARS SHARING MAIN STREET PRELIMINARY CONSTRUCTION COST ESTIMATE
JULY 18, 2006

REHABILITATION APPROACH - MODIFIED SCOPE (MINIMAL TRACKBED WORK)
REVISED SCOPE INVOLVES ELIMINATION OF CHURCH STREET CROSSOVER, ELIMINATION OF LRV SIGNAGE AND THE INCLUSION OF MINIMAL TRACKBED REPAIRS.

PHASE	BLOCK SEGMENT		2007 DOLLARS	2008 DOLLARS	2009 DOLLARS	ADDITIONAL PHASING COSTS (10%)	PHASE TOTAL	FUNDING SOURCE
1A	B	TUPPER TO CHIPPEWA	$4,380,769				$4,380,769	SAFTEA-LU and Transportation Enhancement Grant
	P-1	LRV BRAKE LIGHTS	$300,000				$300,000	
	Q -PH1	INTERSECTION MONITORING SYSTEM (CAMERAS)	$28,080				$28,080	
	PHASE 1A TOTAL		$4,708,849				$4,708,849	
1B	J	EXCHANGE TO SCOTT	$6,482,899				$6,482,899	New York State Legislative Allocation
	PHASE 1B TOTAL		$6,482,899				$6,482,899	
TOTAL PHASE 1A, 1B			$11,191,748				$11,191,748	
2	C	CHIPPEWA TO HURON		$5,335,050			$5,335,050	Reauthorization of SAFETEA-LU
	D	HURON TO MOHAWK		$2,119,783			$2,119,783	
	E	MOHAWK TO COURT		$5,735,682			$5,735,682	
	F	COURT TO CHURCH		$7,171,672			$7,171,672	
	G	CHURCH TO SWAN		$1,636,102			$1,636,102	
	H	SWAN TO SENECA		$5,234,100			$5,234,100	
	I	SENECA TO EXCHANGE		$1,875,935			$1,875,935	
	K	EAGLE		$484,112			$484,112	
	L	MOHAWK		$1,033,012			$1,033,012	
	R	WIND SCREENING ALLOWANCE (LOWER MAIN STREET)		$54,000			$54,000	
	Q -PH2	INTERSECTION MONITORING SYSTEM (CAMERAS)		$87,480			$87,480	
	PHASE 2 TOTAL			$30,766,929		$3,076,693	$33,843,622	
3	N	SCOTT STREET CROSSOVER			$4,256,000		$4,256,000	NY State and Reauthorization of SAFETEA-LU
	PHASE 3 TOTAL				$4,256,000		$4,256,000	
TOTAL PHASES 1, 2, 3							$49,291,370	
CONSTRUCTION COST GRAND TOTAL							$49,291,370	

E. Alternatives Considered but Eliminated

The Erdman Anthony study (1998) and the public identified ten alternatives for restoring traffic to Main Street. These alternatives were considered, but eliminated from further evaluation. The basis for their elimination is described below.

Outside Trackbed Alternative

This alternative would restore two-way traffic from Tupper Street to Scott Street by removing a portion of the existing pedestrian-transit mall and constructing one travel lane in each direction on either side of the trackbed and separated by a curb. The sidewalk area for pedestrians would be reduced from the current 37.75 feet to between 13.75 and 15.75 feet due to the creation of the additional traffic lane and curbside parking spaces. The stations and boarding area would be located on an island between the vehicular travel lane and the trackbed. Mid-block traffic signals would be required for pedestrian crossings to stations. Approximately 200 on-street parking and loading spaces (including disabled parking) would be provided abutting the sidewalk along the length of Main Street.

This alternative was eliminated from consideration because the transit station "islands" raised public safety and disabled accessibility concerns, particularly causing disabled riders to cross traffic lanes and tracks in order to access the stations, and during winter when snow would pile up at the crosswalks preventing ready access to the stations. Additionally, the sidewalks would be too narrow to accommodate the dense pedestrian traffic characteristic of Main Street, or special events such as the farmer's market. This alternative would cause the greatest disruption to local businesses during construction due to the extent of the sidewalk modifications.

Selected Blocks Alternative

This alternative would restore two-way traffic to selected blocks between Tupper Street to Scott Street on travel lanes outside of the LRRT trackbed as under the Outside the Trackbed alternative. Unlike the Outside the Trackbed alternative, this alternative would retain an enhanced pedestrian-transit mall between Division and Huron Streets. Approximately 120 on-street parking and loading spaces (including disabled parking) would be provided abutting the sidewalk along the portion of Main Street that would accommodate traffic and bicycle racks would be provided at convenient locations along Main Street.

The Selected Blocks Alternative was eliminated from further consideration because it would not achieve the full economic benefits offered by the Proposed Action as vehicular traffic would only be allowed along certain portions of Main Street. This alternative would restore vehicular traffic outside of the trackbed and, therefore, retain most of the same issues that apply to the Outside the Trackbed Alternative along those portions of Main Street. Further, it is believed that this alternative would also worsen, rather than improve, traffic patterns in downtown Buffalo.

Underground LRRT Operations

This alternative would involve reconstructing the existing aboveground LRRT system in the Project Area to an underground system and restoring two-way traffic above it along Main Street.

This alternative was considered in the original EIS for the Buffalo LRRT system and eliminated because of the high water table and structurally unstable subsurface soils in this area. Further, it would incur significant costs for utility relocations and underpinning the Marine Midland (renamed HSBC) Tower (USDOT, 1977). These same conditions would still apply today. For these reasons, the alternative of undergrounding the LRRT system through the Project Area was eliminated from further consideration.

Shift LRRT Stations to the Center of the Trackbed

Several participants at the Conceptual Design Workshop suggested conversion to a single center station serving both north- and southbound trains with the track shifting around the station.

Design Assumptions

The following design assumptions were used in evaluating a center station concept:

- Only one track would be shifted rather than both (for cost purposes); the other track would retain its existing alignment.
- The station would have a shared 30-foot-long elevated platform for disabled access.
- In addition to the elevated platform, an additional 270-foot-long boarding area in each direction would be needed to accommodate a four-car train.
- A 120-foot-long transition area is required to shift the tracks around the station and a 150-foot-long section of tracks before and after the station (300 feet total) must be tangent to the station.

- Based on these design assumptions, there would need to be at least a 270-foot-long northbound boarding area, a 30-foot-long station, and a 270-foot-long southbound boarding area, for a total station/boarding length of 570 feet. The station would need to be located near the center of the block to allow sufficient length for boarding areas in each direction.

The center station concept was determined to not be feasible for the following reasons:

- The Seneca and Fountain Plaza station blocks are all less than 570 feet long. A center station in these blocks, when a four-car train is in use, would result in rail cars blocking intersections when the train is at the station, even with the station location shifted to the center of the block. A center station in these blocks is not feasible.
- With the proposed center station, riders would need to cross both a vehicular travel lane and one set of tracks to access the station/boarding area, which would pose increased safety risks.
- The trackbed is underlain by a substantial and expensive foundation. At each station, at least 540 feet of track would need to be realigned (120 feet transition, 150 feet tangent before the station, 150 feet tangent after the station, and another 120 feet transition), which would shift the track to the edge of, or outside of the foundation. In either case, this would require substantial and expensive foundation improvements.
- Unless mid-block crosswalks were provided to access the stations, the entire aboveground portion of the southbound tracks would need to be shifted (not just the 540 feet per station noted above) in order to provide sufficient width between the tracks for pedestrian access from the crosswalks at the intersections. Mid-block crosswalks also pose some additional risks for pedestrians, especially the disabled.

For these reasons, the center station concept was eliminated from further consideration.

Provide One-Way Traffic to Main Street

There are several alternative designs that could provide one-way traffic to Main Street. These include constructing a single travel lane along one side of the trackbed or allowing vehicles to use the existing trackbed except at stations.

The consensus at the traffic workshop held in December 2001 was that providing one-way traffic along Main Street did not offer any tangible benefits over returning two-way traffic to Main Street, and did not as fully achieve the project purpose of enhancing the economic viability of downtown Buffalo. This alternative also raises operational concerns for NFTA. For these reasons, this alternative was eliminated from further consideration.

Remove One Track in Blocks Without Stations

This alternative would remove one set of tracks in the aboveground section in blocks where there are no stations (Mohawk and Huron streets). A two-lane roadway would be constructed adjacent to the remaining track. In blocks with stations, both tracks would be retained so trains could cross paths before entering areas with only a single track.

This alternative was eliminated for several reasons:

- It would create operational problems for NFTA in coordinating incoming and outgoing trains along the single track.
- It would not achieve the project purpose of revitalizing the downtown area if only a single block was opened to traffic.
- Opening only a single block to traffic would not improve traffic conditions and possibly would worsen the confusing network of streets downtown.

Open Blocks Without Stations to Traffic

This alternative would restore two-way traffic to blocks along the Project Area without stations. In contrast to the previous alternative discussed above, this alternative would provide travel lanes separate from the trackbed as opposed to the Proposed Action. This alternative is only feasible for the block between Huron and Mohawk streets.

Similar to the analysis above, this alternative would not achieve the project purpose of revitalizing the downtown area if only a single block was opened to traffic, and opening only a single block to cars would not improve traffic conditions and possibly would worsen the confusing network of streets downtown.

Eliminate LRRT in Downtown Buffalo

This alternative would eliminate the existing LRRT system in downtown Buffalo and would result in constructing a new underground terminal station north of the portal. The aboveground portion of the LRRT system would be removed and Main Street would be rebuilt with travel lanes and parking.

The LRRT system has provided an attractive, convenient, and environmentally clean mode of public transit to approximately 5.68 million annual riders since 2005. Without the LRRT system, many of these passengers would convert to passenger cars, which would increase vehicular emissions and increase air pollution and traffic congestion. For these reasons, elimination of the LRRT in downtown Buffalo as an alternative was eliminated from further consideration.

Terminate All LRRT Operations

This alternative would eliminate all LRRT operations, including both the surface and underground portions of the system. As indicated above, the LRRT system has provided an attractive, convenient, and environmentally clean mode of public transit to approximately 6.4 million riders since 2001. Without the LRRT system, many of these passengers would convert to passenger cars, which would increase vehicular emissions and increase air pollution and traffic congestion. Therefore, termination of all LRRT operations as an alternative was eliminated from further consideration.

Enhance the Existing Pedestrian-Transit Mall

This alternative would retain and enhance the existing pedestrian-transit mall, including improved paving, landscape improvements, and street furnishings. This alternative would not restore vehicular traffic to Main Street and therefore not meet the project purpose of improving multi-modal access to Main Street. Therefore, enhancing the pedestrian-transit mall was eliminated from further consideration.

3 LAND USE, PUBLIC POLICY, AND SOCIAL CONDITIONS

A. Introduction

Land use in downtown Buffalo[1] has changed considerably over the past 50 years. In 1950, Buffalo was the 15th largest city in the United States with a growing population of over 580,000 people. It was a highly centralized city, with most urban activities occurring in the downtown area. It was the regional center for government, retail, entertainment, offices, manufacturing, and housing in western New York State (HHLA et al., 1999; Buffalo News, August 18, 2002). Today, downtown Buffalo only functions in a few of these roles for the region. It is still the major governmental center, serves as a banking and entertainment center, but most of the manufacturing, retail, and housing are gone.

Along Main Street in particular, there has been a decline in retail space since 1994. Restaurant and office space also declined throughout the 1990s. Although there have been increases since 2000, restaurant space is still approximately 7% below 1994 levels; however, office space has increased almost 25% from 1994 (Table 3-1).

Table 3-1 Building Usage on Main Street

Building Type	*1994*	*1999*	*2000*	*2006*	*% Change 1999-2006*	*% Change 1994-2006*
Retail Space (sq. ft.)	891,585	549,368	554,268	425,095	-22.6%	-52.3%
Restaurant Space (sq. ft.)	68,407	54,257	59,614	63,636	17.3%	-6.9%
Office Space (sq. ft.)	3,997,101	3,724,641	3,794,174	4,971,541	33.5%	24.4%

Source: City of Buffalo Special Charge rolls, 2006.

B. Existing Conditions

Land Use

Current land use in downtown Buffalo[1] (which includes the Central Business District (CBD) and the canal harbor area) consists of predominantly governmental and commercial offices and parking facilities interspersed with restaurants, limited retail uses, a few industrial/warehouse buildings, some clusters of entertainment-related uses, and some residential housing (Figure 3-1). Each of these land use sectors is briefly described below.

Office - There is approximately 6.1 million square feet of office space downtown (City of Buffalo, 2006). Major office buildings include the HSBC Center and the M&T Center. Government uses include city, county, state, and federal office buildings and courthouses, and other public facilities.

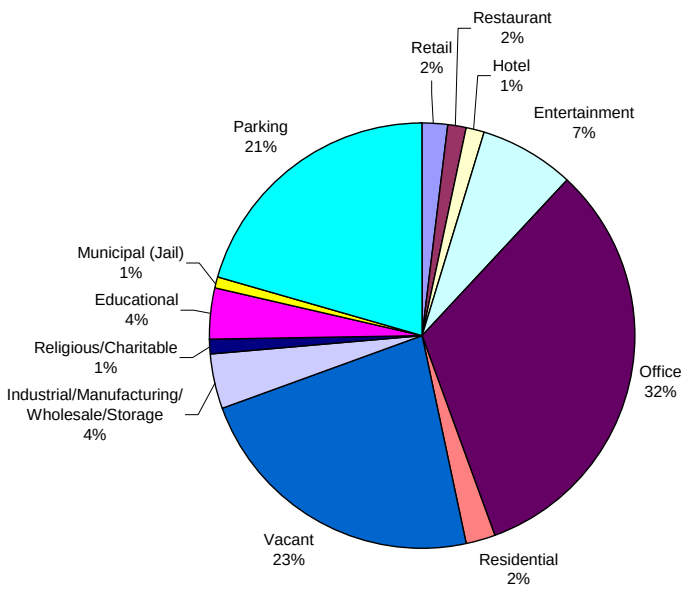
[1] The term "downtown Buffalo" includes, but extends beyond, the Project Area as described in Chapter 1. This is due to the limited availability of historical data specific to the Project Area. Historical land use records were only maintained for downtown Buffalo as a whole.

Parking – There are approximately 26,500 off-street parking spaces in the downtown area, contained in surface lots and structured parking garages. Of these 18,745 spaces are available to the general public and 7,741 are held for exclusive use of the owners, tenants, or clients (DESMAN, 2006).

Retail and restaurants – Major department stores are no longer found downtown. The only significant retail center is the Main Place Mall, with other small clusters or individual retail stores scattered about the downtown area. Only one to two percent of downtown employment is in the retail trade (BEA, 2002).

Industrial – There are still many old industrial and warehouse facilities located in downtown Buffalo, remnants of an earlier thriving industrial base. Many of these buildings have been adaptively converted to other uses or are vacant. Approximately seven percent of downtown employment is in the manufacturing or construction sectors.

Figure 3-1 Current Land Use Inventory in Downtown Buffalo



Source: Buffalo Place, Inc. JR Militello Realty and City of Buffalo, 2006.

Entertainment – The Theater District and Chippewa Street are at the forefront of a revitalized entertainment venue that is again attracting people downtown. Shea's Theater, Studio Arena, and Pfeifer Theater as well as several smaller theaters offer a wide variety of entertainment uses. In addition, the HSBC arena (home to the Buffalo Sabres professional hockey team), Dunn Tire Park (home to the Buffalo Bisons, an AAA baseball franchise), and the ECC Flickinger Athletic Center all offer sports and entertainment events. Annual attendance at downtown entertainment venues, not including bars and restaurants, is over 6.2 million visits per year (Buffalo Place, Inc. July 2008).

Residential – Very few people live in downtown Buffalo. According to the 2000 Census, the current population of the CBD is approximately 2,430 persons, including 1,482 residing in group quarters such as the Erie County Holding Center, leaving 948 CBD residents living in households with an average household size of 1.49 people. There have been several recent small, but promising attempts to provide some infill housing downtown. It is estimated that, since the 2000 Census, approximately 400 units housing approximately 600 people have been added in the CBD. These estimates do not include residents of the Marine Drive Apartments because it is outside the traditional CBD boundary (Buffalo Place, 2008).

Special Events

Numerous special events are currently held along Main Street. As of 2002, over two million people attended special events held in downtown Buffalo in 2001. Some of the major special events held in or near the Main Street area are listed below.

- The Downtown Country Market attracts over 900,000 people each season. It is held every Tuesday and Thursday on Main Street between Lafayette Square and Eagle Street from mid-May to the end of October. Attendance has been documented through pedestrian volume surveys.
- The Taste of Buffalo is held over a weekend in July each year. This event had been held directly on Main Street between Chippewa and Church Streets, but has recently moved to Delaware Avenue. Attendance is estimated at 500,000 each year, based on ticket sales and surveys.
- Thursdays at the Square, the free concert series held in Lafayette Square, attracts over 250,000 concert-goers on Thursdays from mid-May to the end of August. Attendance is estimated from overhead photographs.
- M&T Bank hosts a lunchtime concert series at noon on weekdays during June, July and August at M&T Plaza at Main and Eagle streets. Attendance is estimated at 50,000.
- Christmas Tree Lighting at Fountain Plaza is attended by 2,000 downtown constituents.
- The New Year's Ball Drop at Roosevelt Plaza near Main and Huron streets is attended by 40,000 people each year.
- The Saint Patrick's Day Party at Rotary Rink attracts 1,500 of the 200,000 parade watchers on nearby Delaware Avenue each year.

Local and Regional Plans

The City of Buffalo Comprehensive Plan, *Queen City in the 21st Century* (2004), incorporates by reference the national award-winning *Queen City Hub – A Regional Action Plan for Downtown Buffalo* (2003), a strong vision for downtown, and tracks the status of numerous projects that are implementing the plan. The Queen City Hub plan includes action plans for the future of downtown access, preservation, urban design and

management, green energy, and image, and for development of downtown living, working, shopping and visiting.

The Greater Buffalo-Niagara Regional Transportation Council (GBNRTC) is the designated Metropolitan Planning Organization (MPO) responsible for comprehensive transportation planning in the Buffalo and Niagara area. The GBNRTC adopted a 2030 Long Range Plan for Erie and Niagara Counties in 2001, which was updated in 2007, establishes a regional transportation vision and goals, objectives, policies, and priorities.

Social Conditions

Without traffic on Main Street, pedestrian safety is at its maximum. Nevertheless, there is a common perception, documented by Buffalo Place (Buffalo Place et. al., 2001), that many people feel unsafe along Main Street. Although pedestrian malls can provide a very good, safe environment for pedestrians, a pedestrian mall with a real or perceived low level of pedestrian activity can create a sense of emptiness, inactivity, and insecurity that discourages street activity.

With the exception of the Theater District, most of the businesses along Main Street close after normal business hours, leaving the street vacant in the evening. Compounding this effect are the large and bulky transit stations that create potential hiding places. Regardless of whether police records actually support these fears, the perception that Main Street is unsafe is common (Buffalo Place et. al., 2001).

In response to these concerns, the City and Buffalo Place have established SecureNet Radio System, a radio system that allows various office buildings' security departments to communicate any problems or suspicious activities amongst themselves and with the City Police Department and a Buffalo Place Ranger Escort program.

Emergency services in the downtown area, including Main Street, are provided by the City of Buffalo police and fire departments. The Buffalo Police Department's new District B Headquarters is located within the Project Area at the intersection of Main Street and Tupper Street. The Buffalo Fire Department has several stations located in the downtown area, including Engine 1 and Hook and Ladder 2, which are located at South Division and Ellicott streets; and Engine 32 and Hook and Ladder 5, which are located at Seneca and Swan streets.

Currently, the police and fire departments respond to calls along Main Street using the LRRT trackbed.

C. No-Action Alternative

The No-Action Alternative would retain the existing pedestrian-transit mall and would not restore vehicular traffic to Main Street. Therefore, this alternative would continue the negative effect on land use in the Project Area.

D. Probable Impacts of the Proposed Action

The degree of potential impacts to land use is based on how sensitive the land uses surrounding the Proposed Action are to disturbance. The Proposed Action must not interfere with the surrounding land uses, or create a situation where the current practices

could no longer occur. Sections 3 and 5 of the Urban Mass Transportation Act require that federally funded transit projects be consistent with official plans for the comprehensive development of an area, as well as with a community's goals and objectives. Land use impacts will occur if the Proposed Action:

- Is inconsistent or non-compliant with current land use plans or policies applicable to the area;
- Precludes the viability of existing land use;
- Precludes the continued use or occupation of an area;
- Is incompatible with adjacent or nearby land use to the extent that public health or safety is threatened; or
- Conflicts with planning criteria established to ensure the safety and protection of human life and property.

If a proposed project is fully consistent with existing and proposed land uses and will not be the impetus for new development that would be inconsistent with policies or plans, no further analysis is required.

Compatibility with Local and Regional Plans

This section describes the compatibility of the Proposed Action with the City Comprehensive Plan, the Queen City Hub Plan, and the 2030 Long Range Transportation Plan.

City of Buffalo Comprehensive Plan

The City of Buffalo Comprehensive Plan (2004) was created to "be consistent with the 2025 Long Range Plan" as described below. The comprehensive plan also calls for "the revitalization of neighborhood commercial areas such as Hertel Avenue or Elmwood Avenue, maintenance of special purpose districts like the Buffalo Niagara Medical Campus or East Side rail facilities, and primacy of major corridors such as Main Street…" The Comprehensive Plan supports growth and development along Main Street. Therefore, the Proposed Action is consistent with this plan.

Queen City Hub Plan

The Queen City Hub Plan (2003) was developed to promote the vision of downtown Buffalo as safe, visually appealing, and economically strong. Some of the obstacles to this vision include an overall weak market, limited access, and declining property values. These obstacles identify a strong need for returning vehicular traffic to Main Street to increase accessibility to Main Street storefronts, thereby increasing the consumer base and attractiveness of Main Street as a business location. The "active first floor uses will be supported by improved multi-modal access to Main Street, created by returning vehicular traffic."

The Queen City Hub identifies the Main Street Multi-Modal Access and Revitalization Project as "likely to have a significant impact on all of Downtown" as part of the goal to

"create a balanced and well integrated access and transportation system." The Proposed Action is consistent with this plan.

GBNRTC 2030 Long Range Transportation Plan

The GBNRTC 2030 Long Range Plan (2007) includes the Main Street Multi-Modal Access and Revitalization Project. The Proposed Action meets the goals of the GBNRTC Long Range Plan. These goals include:

- Support Existing and Future Economic Development Activities – Provides a higher priority weighting for transportation projects that improve access in urban core areas to support urban reinvestment and infill development. In addition, priority will be given to improving transportation access in intermodal transportation activity centers to support economic development.
- Improve Transportation and Land Use Connection – Supports smart growth and re-investment in existing developed areas with infrastructure in place.

The 2025 Long Range Plan also allocates funds to various transportation categories in support of the regional vision and goals. The GBNRTC established *Economic Development Projects* as one of the major transportation project categories based on public support to use transportation funds to create a system that is supportive to economic development. The Proposed Action supports the regional vision and goals of developing multi-modal access that is supportive of local and regional economic development.

Compatibility with Existing Land Uses

The Proposed Action will benefit existing uses in the Project Area through:

- Increased visibility for businesses as a result of opening the streets to traffic. This will result from vehicle drivers and passengers being able to drive past businesses and see them, thereby becoming aware of their existence, image, and location. Visibility will also increase as a result of pass-by through traffic.
- Improved access to businesses for visitors and customers. This will result from a simpler and more understandable traffic flow pattern that will make it easier and faster to locate businesses and other destinations. Currently, drivers must find an appropriate place to park off Main Street without being able to first locate their destination. Access will also improve as a result of vehicles being able to drive past the front doors of businesses, and from the availability of metered on-street parking close to businesses.
- Creation of busier and more active streets that improve the pedestrian environment and perception of the downtown area.

Building Displacement

The Proposed Action will not result in the demolition, displacement, or modification of any buildings along Main Street. The Proposed Action will also involve enhancements to the existing aboveground transit stations.

Maintain the Continued Use or Occupation of an Area

The Proposed Action will allow for continued long-term use and occupation of all buildings in the Project Area, as well as allowing many special events (e.g., the Farmers' Market) to occur without having to close Main Street to traffic. The substantial width (approximately 25 feet) of the retained sidewalks will be adequate to accommodate many special events. Other events that have traditionally occurred along the pedestrian-transit mall, for example Thursdays at the Square at Lafayette Square, will still require the current temporary street closures. The survey of other communities that have reopened pedestrian malls to vehicular traffic revealed that many communities use temporary street closures as a means to continue popular and successful events that occurred along the pedestrian mall.

During construction, access to properties along Main Street will be maintained at all times through the use of designated sidewalks on both sides of Main Street so property owners have sufficient space to maintain their daily activities. Additionally, a majority of property owners have access to their properties along Pearl Street (west side) and along Washington Street (east side). At present, deliveries to a majority of the businesses along Main Street are usually made using Pearl or Washington Street; therefore, the construction activities will not interfere with the delivery schedule.

Emergency Response

Impacts to emergency response will occur if the Proposed Action decreased the accessibility of Main Street to service vehicles. However, the impacts will only be considered significant if they decreased accessibility beyond that of a typical urban street.

The Proposed Action will still provide for emergency access along the entire Project Area. Sharing the trackbed will allow other vehicles on the trackbed and emergency vehicles will no longer have unimpeded access along Main Street, but this will not be different than a typical urban street. Police and fire stations are located near the Project Area and acceptable emergency response ties will be maintained.

Personal Safety

The Proposed Action will improve public perception of personal safety in the Project Area by providing vehicular traffic along the entire length of Main Street, enhancing the transit stations, and improving lighting and landscaping to eliminate potential hiding spaces. It will also address the root of the perceived safety concerns in several ways:

- Providing traffic on Main Street will help revitalize downtown by creating new jobs and reducing building vacancy, which will increase the number of pedestrians (see Chapter 4). This is tantamount to safety in numbers.
- Reducing the sidewalk width will increase pedestrian density and better achieve the critical mass necessary for pedestrians to feel safe walking along Main Street.
- Allowing cars on Main Street provides more "eyes on the street" than currently exist. Busy, active streets increase visibility and promote the sense of personal safety for pedestrians.

Mitigation Measures

The Proposed Action will have no impact on land use and therefore no mitigation measures are proposed.

4 SOCIOECONOMIC CONDITIONS

A. Introduction

The City of Buffalo's CBD is an approximately 540-acre rectangular area bounded on the north by Edward and Goodell Streets, on the east by Michigan Avenue, on the south by the Buffalo River, and on the west by Elmwood Avenue and Lower Terrace (Figure 4-1). This CBD is Buffalo's "traditional" downtown. Within the CBD there is a "special charge district" that includes Main, Pearl and Washington Streets from Goodell Street to the Buffalo River. Buffalo Place's downtown programs are partially funded by revenues from this special charge district.

B. Existing Conditions

Population and Employment

Relative to the number of people living in the City of Buffalo, very few (approximately one percent) live within the CBD. As of 2000, the population was 2,430 persons. The City of Buffalo's population in 2000 was approximately 292,600 (Table 4-1). The City has experienced an 18 percent decline in population since 1980, and over a 50 percent decline since 1950 when its population peaked at over 580,000 people. Erie County has also lost population since 1980, but the rate of decline has been less than that experienced by the City of Buffalo.

Table 4-1 Population Change 1980 to 2000 for the CBD, City of Buffalo and Erie County

				Change 1980-2000	
	1980	**1990**	**2000**	**Number**	**Percent**
CBD	1,893	2,010	2,430	537	28.4%
City of Buffalo	357,870	328,123	292,648	-65,222	-18.2%
Erie County	1,015,472	968,532	950,265	-65,207	-6.4%

Sources: US Bureau of the Census, 2001; GBNRTC, 2001.

Employment in Erie County as a whole has grown modestly since 1980, while the number of employees in the CBD has declined. As of 2000, the number of employees in the CBD was 50,046, a decrease of approximately 1,400 since 1980 (Table 4-2). According to Buffalo Place (2001), businesses within the special charge district account for approximately 57 percent of all employment in the CBD, and businesses on Main Street account for 77 percent of this employment (44 percent of all employment in the CBD).

Table 4-2 At-Place Employment (number of jobs) from 1980 to 2000 for the CBD, City of Buffalo and Erie County

	1980	1990	1998	1999	2000
CBD [1]	51,433	52,638	46,698	n/a	55,805[4]
City of Buffalo [2]	234,492	229,455	n/a	n/a	191,851[4]
Erie County [3]	487,561	535,301	545,293	555,075	555,556[4]

Notes and sources:

Comparable data on employment are not available for all levels of geography for all years from all sources. There are also some conflicting data as described in the footnotes.

1 1980 and 1990 data from GBNRTC, 2001. 1998 and 2000 data from Buffalo Place, 2001. The Niagara Frontier Transportation Committee (NFTC) developed employment estimates for the CBD in 1997 but these were disaggregated from Bureau of Economic Analysis employment data for Erie County as a whole and are inconsistent with the 1998 and 2000 survey data from Buffalo Place. Census journey to work data are generally considered unreliable for employment planning purposes (because they are a snapshot survey and also do not capture all types of employment) but, interestingly, these census data for 1990 are closer to Buffalo Place's data than the 1997 NFTC data. As of May 2002, journey to work data from the 2000 Census had not been released.

2 Data from Niagara Frontier Transportation Committee, 1997 and Greater Buffalo-Niagara Regional Transportation Council, 1999. These data were disaggregated from Bureau of Economic Analysis employment data for Erie County as a whole.

3 Bureau of Economic Analysis, 2002.

4 GBNRTC, 2008

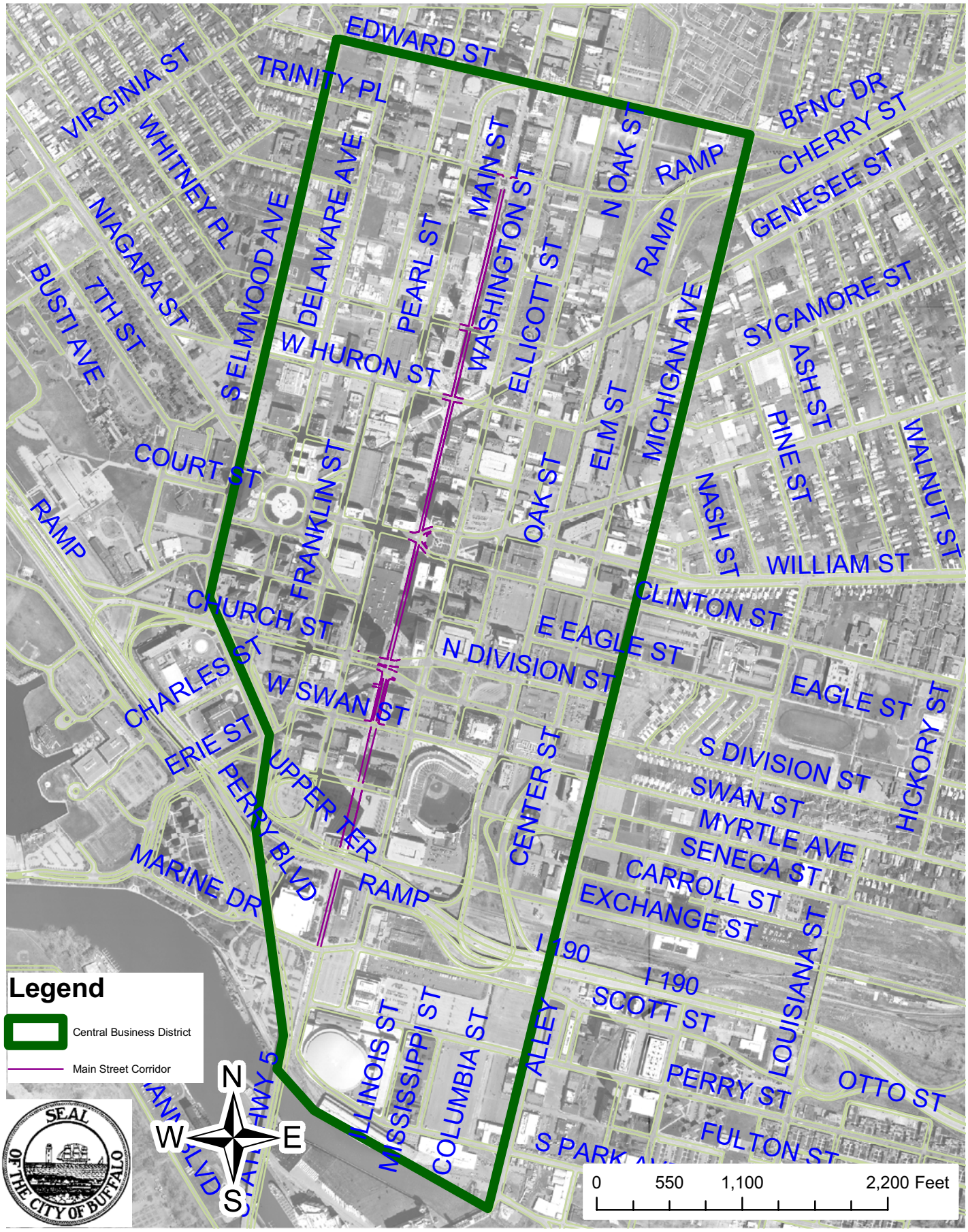
Employment in downtown Buffalo is dominated by government, services and finance, and insurance and real estate, which, combined, account for approximately 81 percent of employment in the CBD (Table 4-3). Compared to Erie County as a whole, employment in retail is very low in the CBD, representing only approximately 500 persons, or one percent, of downtown employment compared to 17 percent for Erie County as a whole. Retail employment in the CBD fell by 50 percent between 1998 and 2001 (Buffalo Place et. al., 2001).

Table 4-3 Employment by Industry, Erie County and Buffalo CBD

	Erie County, 1999		CBD, 2000	
	Number	**Percent**	**Number**	**Percent**
Government	75,060	14%	14,016	28%
Services	184,942	33%	17,520	35%
Finance, insurance and real estate	46,604	8%	9,010	18%
Retail trade	97,057	17%	501	1%
Manufacturing, construction	93,327	17%	3,504	7%
Other	58,085	10%	5,506	11%
Total	**555,075**	**100%**	**50,056**	**100%**

Sources: Bureau of Economic Analysis, 2002; Buffalo Place Inc., 2001.

Figure 4-1. The City of Buffalo's Central Business District (CBD)



Building Space

Buffalo Place collects detailed building space information for the special charge district. Table 4-4 presents some of these data, including, for comparative purposes, a breakdown between the pedestrian-transit mall and the rest of the special charge district. The special charge district contains a total of approximately 17.1 million square feet of building and parking space. Office space is the dominant building use taking up over 6.1 million square feet or 46 percent of the total, followed by parking which accounts for over 3.7 million square feet. Entertainment uses account for almost 1.9 million square feet, but 90 percent of this space is from three large uses: the HSBC Arena, Dunn Tire Park, and the Buffalo Convention Center. Retail uses account for approximately 450,000 square feet or a little over three percent of the total space in the special charge district. Nearly all of this is on Main Street.

Vacant Space

Approximately 18 percent of the total space in the special charge district is vacant (Table 4-4). The amount of vacant space on the pedestrian-transit mall (excluding parking) is 22 percent, compared to approximately 13 percent in the rest of the special charge district. According to a recent analysis by Buffalo Place (2002), the first floor vacancy rate on the pedestrian-transit mall was over 27 percent.

Table 4-4 Building Space in the Buffalo CBD Special Charge District, 2006

	Project Area[1]		Rest of Special Charge District		Total Special Charge District	
	Square Feet	**Percent**	**Square Feet**	**Percent**	**Square Feet**	**Percent**
Retail	421,009	5%	29,836	0.6%	450,845	3%
Restaurant	63,636	1%	74,269	1%	137,905	1%
Office	4,114,255	52%	1,999,933	37%	6,114,188	46%
Hotel	370,644	5%	20,680	0%	391,324	3%
Entertainment	436,512	6%	1,434,042	27%	1,870,554	14%
Industrial, wholesale, and storage	75,771	1%	464,294	9%	540,065	4%
Other (residential, religious, charity, educational)	743,896	9%	654,055	12%	1,397,951	10%
Vacant [2]	1,707,295	22%	714,229	13%	2,421,524	18%
Total	7,933,018	100%	5,391,338	100%	13,324,356	100%
Parking	509,198		3,261,983		3,771,181	
Total including Parking	8,442,216		8,653,321		17,095,537	

[1] Sections of Main Street closed to traffic. [2] Excludes Memorial Auditorium
Source: ERM, data provided by Buffalo Place, 2006.

Property Values

Property values in the Buffalo CBD vary considerably by use and location (Table 4-5). Overall, total and per square foot property values are higher outside the pedestrian-transit mall ($42.45 per square foot) compared to on the pedestrian-transit mall ($29.53 per square foot). However, five properties outside the mall (HSBC Arena, Dunn Tire Park, Buffalo Convention Center, HSBC Center and the Rath Building) account for almost 75 percent of the property value, and if these are excluded from consideration the dollar value per square foot outside the mall falls to $11.41 (Table 4-5). As of 2006, office uses

account for the highest total values on the pedestrian-transit mall, although the two hotels on Main Street (the Hyatt Regency and Comfort Suites) have values per square foot that are approximately twice the value of office space. Retail space on the mall is valued at an average of $27.49 per square foot. Main Place, the largest retail use on the mall, is assessed at approximately $21 per square foot.

Table 4-5 Assessed Value of Property in the Buffalo CBD Special Charge District, 2006

	Study Area		Rest of Special Charge District	
	Total Assessed Value	**Value per square foot**	**Total Assessed Value**	**Value per square foot**
All uses[1]	$273,329,070	$29.53	$383,063,650	$42.45
All uses excluding five properties[2]			$102,890,350	$11.41
Retail	$11,574,354	$27.49	$726,590	$24.35
Restaurant	$1,543,843	$24.26	$1,353,066	$18.22
Office	$112,383,623	$27.32	$91,821,283	$45.91
Office excluding HSBC Center and Rath Building			$22,474,034	$31.28
Hotel	$19,158,569	$51.69	$89,100	$4.31
Entertainment	$5,492,845	$12.58	$147,501,527	$102.86
Industrial, wholesale, and storage	$1,209,763	$15.97	$12,618,608	$27.18

[1] Includes parking, religious, educational.

[2] HSBC Arena, Dunn Tire Park, Buffalo Convention Center, HSBC Center and Rath Building on Franklin Street.

Source: ERM, data provided by Buffalo Place, 2006.

C. No-Action Alternative

The No-Action Alternative would retain the existing pedestrian-transit mall and would not restore vehicular traffic to Main Street. The No-Action Alternative would have an adverse affect on socioeconomics in the Project Area by continuing the relatively low real estate values and high property vacancy rate along Main Street.

D. Probable Impacts of the Proposed Action

Population and expenditure impacts are assessed in terms of their direct effects on the local economy and related effects on other socioeconomic resources (e.g., housing). The magnitude of potential impacts can vary greatly depending on the location of a Proposed Action; for example, implementation of an action that creates 10 employment positions would be unnoticed in an urban area, but would impact a rural region.

The socioeconomic resources that will be affected by the Proposed Action include:

- Effects on downtown employment and building vacancy rates; and
- Effects on local government tax revenues.

Effects on Downtown Employment and Vacancy Rates

The Proposed Action will increase visibility and accessibility along the entire length of Main Street compared to existing conditions. This will make the entire street more active and more attractive for business, and increase the potential to attract new office, restaurant, and retail uses. The Proposed Action will also increase the potential for existing and new businesses to capture some of the current unmet demand for retail spending by downtown workers and visitors.

In assessing the potential impacts of these changes on land use, the most detailed and widely available data are vacancy rates. To gauge the potential changes in vacancy rates from the Proposed Action, we compared the current vacancy rates along the pedestrian-transit mall with the vacancy rates on nearby streets (rest of Special Charge District) that are open to vehicular traffic and with the special charge district as a whole (Table 4-4). We also looked at historic vacancy rates in Buffalo and the experiences of other communities with opening pedestrian malls to traffic.

Approximately 22 percent of the commercial space in the Project Area is vacant. An eight percent decrease in the Main Street vacancy rate as a result of absorption of new office, restaurant, and retail uses will result in the vacancy rates on the mall being approximately at the same level as for the rest of the special charge district as shown in Table 4-4.

Such a decrease in the vacancy rate (eight percent) would actually be fairly conservative compared to the experience of other communities that opened their pedestrian malls to traffic, but seems reasonable for Buffalo given the City's continued overall losses in population and the CBD's overall office absorption rate (1.4 million square feet between 1986 and 2001). Other communities' reductions in vacancy rates range from, at the high end, a 30 to 40 percent decrease (Waco, TX; Louisville, KY) to, at the lower end, a six to 19 percent decrease (Eugene, OR; Oak Park, IL). An eight percent decrease in the vacancy rate will put Main Street below its vacancy rate in 1987 (approximately 18 percent).

Based on a reduction in the vacancy rate of eight percent, we estimate that the Proposed Action will increase the demand for building space by approximately 358,000 to 597,000 square feet (Table 4-6).

Table 4-6 Effects of Proposed Action on New Building Space

Criteria	***Proposed Action***
Retail Space	108,000-179,000 sq.ft.
Restaurants	18,000-30,000 sq.ft.
Office Space	143,000-239,000 sq.ft.
Other	90,000-149,000 sq.ft
Total	**358,000-597,000 sq.ft.**

Based on the ratios of employment by industry to building space on the pedestrian-transit mall (Tables 4-3 and 4-4), we estimate that the Proposed Action will result in an increase in employment of between 890 and 1,480 jobs.

Effects on Local Government Revenues

The City of Buffalo's fiscal year (FY) 2007-2008 commercial property tax rate is $32.76 per thousand dollars of assessed value. Based on current assessed values for property on the pedestrian-transit mall (Table 4-5), the estimated eight percent decrease in the Project Area vacancy rate will increase annual property tax revenues by $326,000 to $543,000. This estimate assumes new building space, whereas in reality most, if not all, of this increased building demand will be absorbed by existing vacant space that is already taxed. Improved economic conditions in downtown Buffalo will, however, result in increased assessed values reflecting the increased value of downtown property. Chapter 1 notes that the assessed value of properties along Main Street has declined by 46 percent since 1987 in constant 2006 dollars.

New York State levies an eight percent sales tax. Revenues from Erie County are shared between the state, county, school districts, cities, towns, and villages based on a formula set by Erie County. In FY 2001-2002 the City received approximately $56.2 million as its share of the sales tax. Sales tax revenues to the City will increase consistent with increases in overall retail sales.

Mitigation Measures

The Proposed Action will have a beneficial effect on socioeconomics and therefore no mitigation measures are proposed.

5 VISUAL AND AESTHETIC CONSIDERATIONS

A. Introduction

This chapter considers the potential effects of the Proposed Action on the urban design and visual character of the Project Area.

B. Existing Conditions

Main Street is an urban corridor beginning along the lakefront, extending through downtown, and continuing to the University of Buffalo area. As such, the street is a prime example of variations along the urban landscape. Its streetscapes range from commercial/industrial waterfront through the central business district, to a more low-density streetscape. Within the Project Area, building architecture varies from historic to modern, including several buildings from Buffalo's building heyday in the 1890s and early 1900s.

The aesthetic conditions of the current pedestrian-transit mall reflect a well-intentioned effort that was not completely implemented. The painted asphalt paving, minimal site furnishings, few healthy street trees, and dark oversized transit stations leave the street feeling dated and cold, rather than active and vibrant. The sidewalks are rarely crowded; it is only during special events and summer lunch time that the pedestrian-transit mall achieves the population densities desired in a downtown public space.

C. No-Action Alternative

The No-Action Alternative would not introduce any changes to the visual or aesthetic environment; therefore, this alternative would have no effect on the aesthetic conditions in the Project Area.

D. Probable Impacts of the Proposed Action

Some types of urban mass transit projects have visual effects on their surrounding environment. FTA Circular 9400/1A, Design and Art in Transit Projects, defines visual sensitivity as the quality and value of the resource based on public perception. The visual sensitivity of an area dictates the impacts to visual resources.

The Proposed Action proposes significant enhancements to the existing streetscape, including new sidewalks, landscaping, street furniture, and enhancements to the existing transit stations. The relocated catenary poles will be integrated with the streetlights and will enhance the linear continuity of the views and create a streetscape more typical of an urban environment. The support wires perpendicular to Main Street will have a minor adverse visual effect, but not unlike many urban streets with various electrical and communication lines that cross streets. These features will add visual interest to the streetscape and create a more aesthetically appealing condition. The use of various streetscape features consistently along the corridor, combined with designs that emphasize points of interest along the street, will make Main Street more interesting, attractive, and visually continuous.

The construction of vehicular travel lanes and on-street parking will re-establish the historic streetscape elements that existed when the buildings along Main Street were built and will not cause an adverse alteration in the existing visual setting.

The Proposed Action will also retain wide sidewalks (approximately 25 feet)[1]. These wide sidewalks will allow retail and restaurant uses to spill out into the street, street performers to entertain, and the creation of art/play space (e.g., small playgrounds, interactive sculptures or water fountains) that create a sense of vitality and will result in an attractive streetscape.

Mitigation Measures

The Proposed Action will not cause any substantial adverse alteration to the existing visual setting. The buildings along the Project Area were designed and constructed with vehicles using Main Street, so the reintroduction of vehicles will not impact aesthetics. The support wires will be similar to most urban streets.

The following proposed measures will mitigate impacts or enhance aesthetic conditions in the Project Area:

- New sidewalks, landscaping, and street furniture;
- Enhancements to the existing transit structures; and
- Integration of relocated catenary poles with streetlights.

[1] AASHTO recommends a minimum sidewalk width on urban streets in commercial areas of 8 feet (AASHTO, 2004).

6 CULTURAL RESOURCES

A. Introduction

This chapter evaluates the potential effects of the Proposed Action on cultural resources, which includes archeological and architectural resources. A *Phase IA Cultural Resources Investigation* (Appendix C) was prepared to identify any previously recorded archaeological or historical resources that may be impacted by the alternatives considered for revitalizing Main Street, and to assess the likelihood that unrecorded resources may be present in the Project Area[1]. The investigation included a site file and literature review, archival and documentary research, a site inspection visit, and photographic documentation of structures along the project corridor.

This investigation was conducted in compliance with NEPA, the *National Historic Preservation Act* (NHPA), the New York State *Historic Preservation Act*, and in accordance with the New York Archaeological Council's Standards for Archaeological Investigations. The Area of Potential Effect (APE) for the Proposed Action is the same as the Project Area and includes all structures facing on either side of Main Street from Tupper Street to South Park Avenue (Figure 6-1).

Regulatory Context

National Historic Preservation Act

Pursuant to Section 106 of the *National Historic Preservation Act*, project applicants must consult with the applicable State Historic Preservation Officer (SHPO) and Indian Tribes on federally initiated, licensed, or permitted projects affecting cultural sites listed or eligible for inclusion on the National Register of Historic Places (National Register). Ordinarily, determinations of eligibility for National Register listing (made in consultation between federal agencies and the SHPO) are used as a means to distinguish properties that possess significance regarding American history, architecture, archaeology, engineering, or culture from those of lesser importance. Properties must possess one of the following criteria to be deemed eligible for listing in the National Register:

A. Are associated with events that have made a significant contribution to the broad patterns of our history;
B. Are associated with the lives of persons significant in our past;
C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant distinguishable entity whose components may lack individual distinction; or
D. Have yielded or may be likely to yield information important in prehistory or history.

[1] As previously described in Chapter 1, the Project Area extends along Main Street from the Tupper Street intersection to South Park Avenue. From west to east, the study area extends laterally approximately one-half block on either side of Main Street to include the properties that front upon the current pedestrian-transit mall and roadway approaches to the mall.

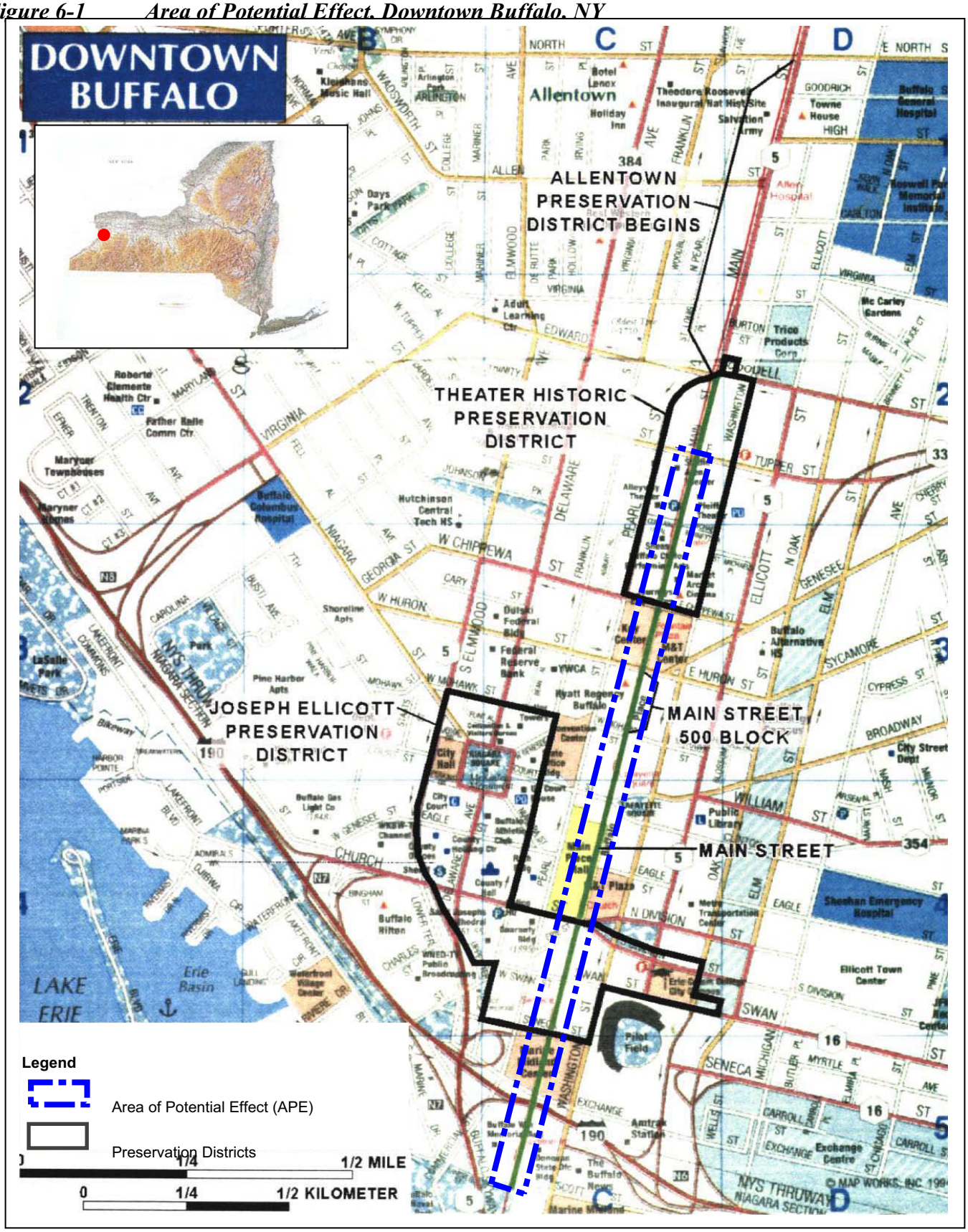
Both direct and indirect impacts are considered in this analysis. Direct impacts are assessed by considering the proximity of the Proposed Action to the cultural resource sites. Indirect impacts result primarily from the effects of project-induced population increases and the resulting need to develop new housing areas, utilities, services, and other support functions necessary to accommodate population growth. These activities and their subsequent use have the potential to affect cultural resources.

Impacts to cultural resources occur if the impacts cause:

- Physical alterations, damage or destruction of all or part of a resource;
- Alteration of the environmental setting of the cultural resource;
- Addition of visual, audible, or atmospheric disturbances that are out of character with the property or its setting; or,
- Neglect of the resource resulting in its destruction or deterioration.

FTA has determined and SHPO has opined in a letter dated October 27, 2006 that the Proposed Action will have “no adverse effect” on cultural resources listed, or eligible for, the State and National Register of Historic Places.

Figure 6-1 Area of Potential Effect, Downtown Buffalo, NY



B. Existing Conditions

Archaeological Resources

The New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) and the New York State Museum archaeological site files[2] identify 24 archaeological sites within one mile of the Project Area: 18 historic period sites, five prehistoric sites, and one unidentified period site (Table 6-1).

Table 6-1. Archaeological Sites within One Mile of the Project Area

OPRHP #	Description	Approximate Distance from Project Location
02940.000015	**Buffalo Plank Road (UB1682).** Log pavement; reported by SUNY at Buffalo and Ecology & Environment.	<1,500' north; or, potentially within
02940.000123	**Buffalo E (UB 168).** Early and Late Woodland; reported by Prake	250' east
02940.000125	**Buffalo I (UB 172).** Reported by Prake.	5,000'+ southeast
02940.004623-DOS	**Erie Canal Grand Canal, Prime Slip and Commercial Slip Areas.** Remains of the canal, associated structures, locks and other features; reported by Earl J. Prahl.	<800' west
02940.019631	**Marine Midland Arena/Miley Site.** Mid-19th century; artifacts include brick, limestone, block foundation, wood plank, cast iron pipes, window glass, nails, whiteware, yelloware, stoneware, bottle glass, container glass, leather, coal and slag; reported by Warren Barbour and Elaine Herold.	1,500' southeast
02940.019632	**Marine Midland Arena Parking Lot Site.** Late 19th century and early 20th century; artifacts include limestone block foundation and limestone grinding stones; reported by Warren Barbour.	2,000' southeast
02940,019633	**Marine Midland Arena/Martin Phillips Site.** Mid-19th century; artifacts include brick, limestone block foundation, wood plank, stoneware pipes, window glass, nails, whiteware, yelloware, stoneware, bottle glass, container glass, clay tobacco pipes, brier tobacco pipes, syringes (rubber and glass), buttons, cloth, leather shoe parts, porcelain miniatures, brass knuckles, coins, nonhuman bone, cutlery and toothbrush; reported by Warren Barbour.	1,500' south
02940.023356	**Wilcox Mansion Well.** 19th or early 20th century; foundation (poured concrete), well (mortared brick oriented bed, radiating outwards, interior coated with parching [similar to mortar]). Few artifacts found; reported by Cynthia J. Jackson.	4,300' northwest
02940.023417	**MFS Link 9, Monitored Area.** Mid- to late 19th century; artifacts include brick and mortar pillar, drain, wall, un-mortared cut stone wall, concentration of mid- to late 19th century artifacts, possible midden, brick and mortar wall resting on cut stone footers; reported by Cynthia J. Jackson.	1,000' east

[2] The NY Museum maintains files of all known historic and archaeological sites in New York State, which are referred to as "site files."

OPRHP #	Description	Approximate Distance from Project Location
02940.023418	**MFS Link 25.** Late 19th early 20th century; yellow sandstone foundation, brick fill under wood layer, with cobblestones scattered throughout, brick and grey sandstone foundation. Artifacts include undercoated porcelain, blue transfer-print whiteware, brick and cut sandstone; reported by Cynthia J. Jackson.	800' east
02940.023440	**Carroll Street Freight House Site.** The former freight house was demolished in 1984. Tracks were razed and lot graded. Fill brought in from the Elm-Oak arterial of the Niagara Section of the New York State Thruway, which is located west of the site. Artifacts recovered from the mounded fill are believed to be associated with this other area; reported by Elaine B. Herold.	1,900' east
02940.023479	**Washington Street Sites (Loci 1-3).** Locus 1 (1851- 1914): fragmented Onondaga limestone wall, approximately 4 ft x 2 ft, below current blacktop street level. Locus 2 (1914-1963): reinforced concrete passenger tunnel with pipe gallery connected on the southern wall. Locus 3 (mid-to late 19 century): Medina sandstone payers, Onondaga Limestone cobbles, iron cut nails, hardwood railroad ties and glass insulator caps uncovered below current blacktop grade; reported by Michael P. Schifferli.	350' east
02940.023480	**Columbia Street**, between South Park Avenue and Perry Street. Cobblestone District, Loci 4: cobblestone street with historic cultural material deposit. Onondaga limestone cobblestone street (ca. 1820-1930); reported by Michael P. Schifferli.	1,400' south
02940.023486	**Site 1, Williams Communications FOL Station 301+65 to 302+75 (Corduroy Road).** Early to mid 19th century; hewn round logs, 213cm long, dry, lain in place without hardware or cementing medium. Artifacts include whiteware ceramic with purple transfer print (ca. 1825) and yelloware ceramic (post-1830) retrieved from the area's general provenance; reported by HAA, Inc.	5,250' east
02940.023487	**Site 2, Williams Communications FOL Station 312+57 (Brick Road).** Late 19th to early 20th century; brick surface below the topsoil is flush with concrete bed below. Bricks were cemented together in place; reported by Darrell C. Pinckney, HAA, Inc.	4,500' east
02940.023488	**Site 3, Williams Communications FOL, Station 309+40 (structure support beam).** Wood beam 15 cm wide and 18 cm long left in place at 75 cm below surface grounds; reported by Darrell C. Pinckney, HAA, Inc.	4,000' east
02940 023493	**Site 8, Williams Communications FOL, Station 399+00 (Brick Drain).** Late 19th to early 20th century; round in overall appearance; bricks held together by mortar. Approximate size of the drain is 40 cm wide by 75 cm long; reported by Darrell C. Pinckney, HAA, Inc.	350' east
02940.023494	**Site 9, Williams Communications FOL, Station 398+78 (Trash midden).** Late 19th to early 20 century; no consistent construction apparent; feature was approximately 210 cm in total length; reported by Darrell C Pinckney HAA Inc	350' east
02940.023495	**Site 10, Williams Communications FOL, Station 399+40 (Brick Drain).** Mid- to late 19th century; yellow brick drain, square, held together with mortar. Bricks were stacked 4 high; reported by Darrell C. Pinckney, HAA, Inc.	600' east

OPRHP #	Description	Approximate Distance from Project Location
02940,023496	**Site 11, Williams Communications FOL, Station 292+00 to 295+00 (Debitage)**. Pre-contact; artifacts include utilized flake scraper, block flake, bifacial thinning flake and handheld bifaces; reported by Darrell C. Pinckney, HAA, Inc.	5,200'+ east
02940.023497	**Site 12, Williams Communications FOL, Station 301+00 (Brick drain)**. Late l9th to early 20th century; round; bricks were mortared together. Approximate size of drain is 40 cm wide and 20 cm long; reported by Darrell C. Pinckney, HAA, Inc.	5,200'+ east
NYSM # 3181	**Camp** reported by Arthur C. Parker, 1922.	4,000' west
NYSM # 3253	**Traces of occupation** reported by Arthur C. Parker, 1922.	5,000' west
NYSM # 7123	**Traces of occupation** reported by Arthur C. Parker. 1922.	Actual location unknown, Main Street intersects eastern part

Source: Panamerican, 2003

No archaeological sites, including Tribal sites, were identified within the APE. Little evidence of prehistoric sites remains within the City of Buffalo because of almost 200 years of construction and urban development. Main Street has been intensely used for residential and commercial purposes since the early-to-mid-19th century. For the most part, 19th century structures were replaced by the construction of larger commercial buildings in the early-to-mid-20th century.

Architectural Resources

There are potentially 42 buildings in downtown Buffalo (Central Business District) that are either listed, or may be eligible for listing, in the National Register of Historic Places (Buffalo Place, 2006). Of these, 14 are within the APE. A full description of these buildings can be found in the Phase 1A Cultural Resources Investigation (Appendix C). Most of the buildings in the APE are significant as contributing buildings to the three National Register eligible historic districts that extend into the APE (Table 6-2 and Figure 6-2):

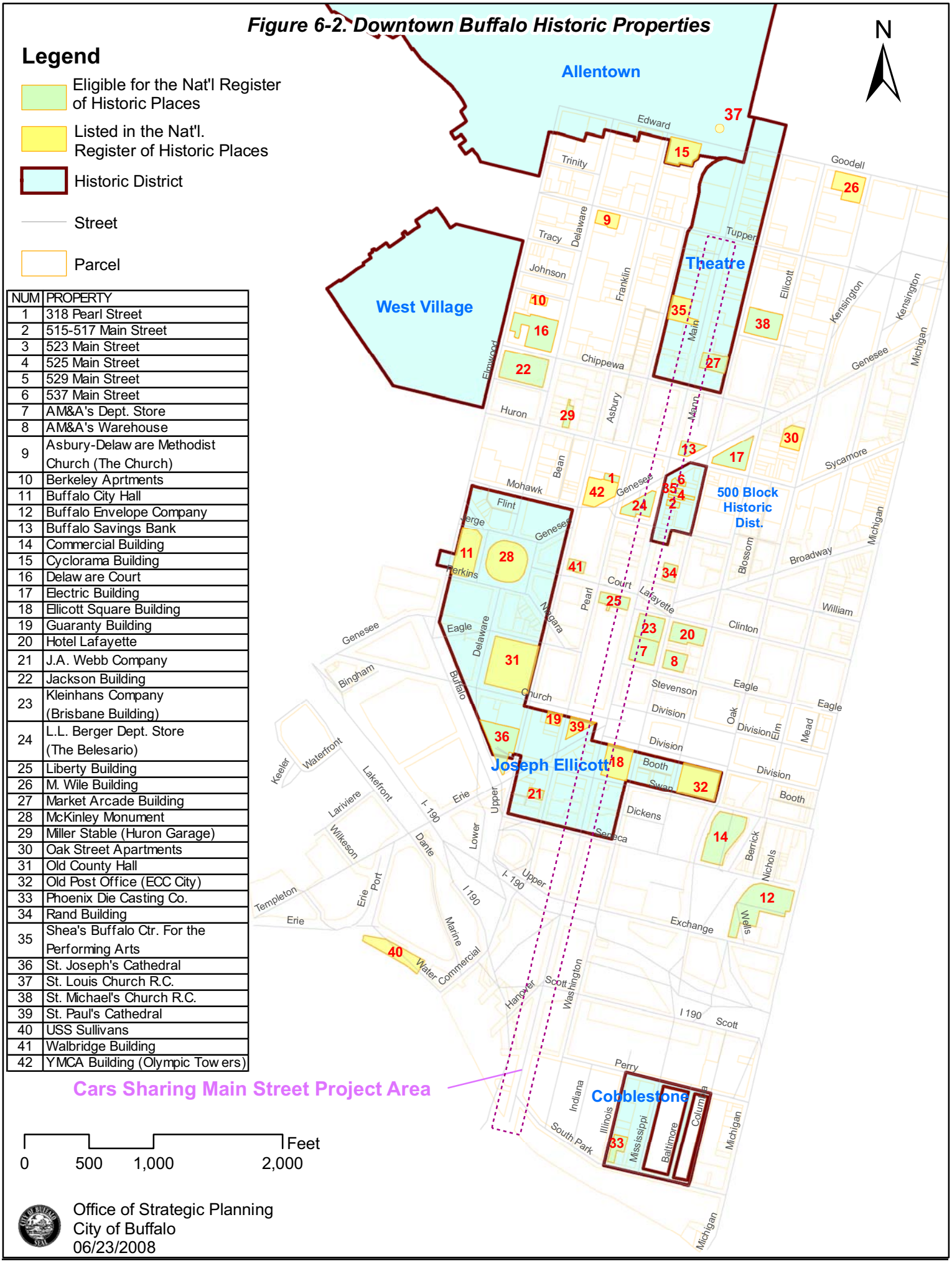
- Joseph Ellicott (Downtown) Historic District;
- 500 Block Historic District (National Register eligible); and
- Theater Historic District.

Table 6-2 Eligible and Listed Historic Properties in Downtown Buffalo

Site Number*	Property Name	Status	Contributing to Historic District
Eligible and Listed Properties on the NRHP within APE			
2	515-517 Main Street	Eligible	500 Block Historic District
3	523 Main Street	Eligible	500 Block Historic District
4	525 Main Street	Eligible	500 Block Historic District
5	529 Main Street	Eligible	500 Block Historic District
6	537 Main Street	Eligible	500 Block Historic District
7	AM&A's Dept. Store	Eligible	N/A
13	Buffalo Savings Bank	Eligible	N/A
18	Ellicott Square Building	Listed	Joseph Ellicott (Downtown)
23	Kleinhans Company (Brisbane Building)	Eligible	N/A
24	L.L. Berger Dept. Store (The Belesario)	Eligible	N/A
25	Liberty Building	Eligible	N/A
27	Market Arcade Building	Eligible	Theater Historic District
35	Shea's Buffalo Ctr. For the Performing Arts	Listed	Theater Historic District
39	St. Paul's Cathedral	Listed	Joseph Ellicott (Downtown)
Eligible and Listed Properties on the NRHP in Downtown Buffalo			
1	318 Pearl Street	Eligible	N/A
8	AM&A's Warehouse	Eligible	N/A
9	Asbury-Delaware Methodist Church (The Church)	Listed	N/A
10	Berkeley Apartments	Listed	N/A
11	Buffalo City Hall	Listed	Joseph Ellicott (Downtown)
12	Buffalo Envelope Company	Eligible	N/A
14	Commercial Building	Eligible	N/A
15	Cyclorama Building	Listed	Allentown
16	Delaware Court	Eligible	N/A
17	Electric Building	Eligible	N/A
19	Guaranty Building	Listed	Joseph Ellicott (Downtown)
20	Hotel Lafayette	Eligible	N/A
21	J.A. Webb Company	Eligible	Joseph Ellicott (Downtown)
22	Jackson Building	Eligible	N/A
26	M. Wile Building	Listed	N/A
28	McKinley Monument	Listed	Joseph Ellicott (Downtown)
29	Miller Stable (Huron Garage)	Eligible	N/A
30	Oak Street Apartments	Listed	N/A
31	Old County Hall	Listed	Joseph Ellicott (Downtown)
32	Old Post Office (ECC City)	Listed	N/A
33	Phoenix Die Casting Co.	Eligible	Cobblestone
34	Rand Building	Eligible	N/A
36	St. Joseph's Cathedral	Eligible	Joseph Ellicott (Downtown)
37	St. Louis Church R.C.	Listed	Allentown
38	St. Michael's Church R.C.	Eligible	N/A
40	USS Sullivans	Listed	N/A
41	Walbridge Building	Eligible	N/A
42	YMCA Building (Olympic Towers)	Listed	N/A

* The site number corresponds to Figure 6-2
N/A – Not part of a Historic District

Figure 6-2. Downtown Buffalo Historic Properties



NUM	PROPERTY
1	318 Pearl Street
2	515-517 Main Street
3	523 Main Street
4	525 Main Street
5	529 Main Street
6	537 Main Street
7	AM&A's Dept. Store
8	AM&A's Warehouse
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39	St. Paul's Cathedral
40	USS Sullivans
41	Walbridge Building
42	YMCA Building (Olympic Towers)

C. No-Action Alternative

The No-Action Alternative would retain the existing pedestrian-transit mall and would not restore vehicular traffic to Main Street. The properties along Main Street would likely continue to suffer from neglect; therefore, the No-Action Alternative would likely have an adverse impact on the historic resources in the Project Area.

D. Probable Impacts of Proposed Action

Archaeological Resources

The extensive disturbance associated with the construction of downtown buildings, as well as the construction of the LRRT system in the 1980's, has largely destroyed any potential for locating intact prehistoric resources, and the probability of discovering intact prehistoric resources is very low. Construction of the LRRT system disturbed soils to depths in excess of 20 feet along most of the Project Area. The Proposed Action would not require disturbance at depths greater than 20 feet throughout the Project Area; however, the Proposed Action would utilize standard construction monitoring procedures in the event of an incidental discovery of intact archeological resources. Therefore, the Proposed Action would have no effect on archaeological resources.

Architectural Resources

The effects of the Proposed Action on architectural resources are evaluated below using the criteria described above.

Physical Alteration, Damage, or Destruction

The Proposed Action would not directly affect (i.e., alter, damage, or destroy) any buildings listed in, or eligible for listing in, the National Register.

Alteration of Environmental Setting

The Proposed Action proposes to remove intrusive elements associated with the original construction of the pedestrian-transit mall, such as the large ornamental arches spanning Main Street near Church Street, which would enhance the historical context of Main Street. The arches are based along the inner edges of the sidewalk. These arches are not connected to the buildings; therefore, their removal would not require alteration of any historic buildings or structures. The Proposed Action would emphasize and reinforce the corridor's historic linear character.

Addition of Visual, Audible, or Atmospheric Disturbance

The Proposed Action would re-introduce vehicles to Main Street and increase noise and vehicular emissions. These effects, however, would not result in a significant adverse impact, but rather restore a historically appropriate streetscape. There is historic precedent for the harmonious and effective coexistence of trolleys, automobiles, and pedestrians on Main Street.

Neglect of the Resource

The restoration of two-way vehicular traffic to Main Street is expected to have a positive effect upon Buffalo's historic resources, especially historically significant buildings

located within the Project Area, as a result of revitalized economic conditions (see Chapter 4). The economic resurgence of Main Street would likely stem the current deterioration of historic structures through neglect.

Section 4(f) of the Federal Department of Transportation Act Evaluation

Under the U.S. Department of Transportation (DOT) Act (23 CFR 771.135; 49 USC 303), the use of land from a significant publicly owned park, recreation area, wildlife/waterfowl refuge, or a historic site (collectively referred to as 4(f) lands), for a DOT funded or approved project is permissible only if no prudent or feasible alternative exists. If Section 4(f) land must be used, DOT must document that all possible planning has been done to minimize harm to the property resulting from such use.

The Proposed Action would not use any land from a publicly owned park, recreation area, wildlife/waterfowl refuge, or historic site. All proposed construction would occur within the existing 99-foot-wide right-of-way along Main Street. The staging areas would be sited such that no disturbance to historic buildings or districts would be required (see Chapter 11(C)).

Impacts and Mitigation Measures

The Proposed Action would have no adverse effect on any cultural resources eligible for the National Register and therefore requires no mitigation.

FTA has determined and SHPO has opined in a letter dated October 27, 2006 that the Proposed Action will have “no adverse effect” on cultural resources listed, or eligible for, the State and National Register of Historic Places.

7 TRAFFIC AND TRANSPORTATION

A. Introduction

This chapter describes the current transportation situation in the Project Area and the potential impacts associated with the Proposed Action.

B. Existing Conditions

Traffic and Parking

Vehicular traffic is prohibited along most of the pedestrian-transit mall with the exceptions of emergency response and service vehicles with Delivery Permits. As noted earlier in this EA, the majority of Main Street between Tupper Street and Scott Street has been closed to vehicular traffic since 1986. A few blocks of Main Street within the Project Area are currently open to vehicular traffic:

- Division to Swan streets (both northbound and southbound traffic);
- Seneca to Exchange streets, under One HSBC Center (both northbound and southbound traffic) – however, this section of Main Street has been closed to vehicular traffic since September 11, 2001; and
- South Park Avenue to Scott Street;

Several side streets intersect Main Street between Tupper and Scott streets. These intersections are controlled with traffic signals. From north to south, the intersecting streets are:

- Tupper Street – one-way eastbound;
- Chippewa Street – two-way;
- Huron Street – two-way;
- Court/Broadway/Clinton Street – two-way;
- Church/Division Street – two-way;
- Swan Street – one-way westbound;
- Seneca Street – one-way eastbound;
- Exchange Street – two-way;
- Scott Street – two-way; and
- Perry Street – two-way.

The two nearest major city streets that parallel Main Street are Pearl Street to the west and Washington Street to the east. Pearl Street is a one-way street in the southbound direction, although the City has plans to convert it to two-way traffic (see Chapter 13). Washington Street was recently converted to a two-way street.

The City of Buffalo is in the process of improving traffic circulation in downtown Buffalo. As part of the improvements, Huron Street, Ellicott Street, and Franklin Street have been converted to two-way traffic.

Parking

An inventory of downtown parking from 2006 (Desman, 2006) found that the downtown Buffalo CBD has 29,065 parking spaces (26,486 off-street and 2,579 on-street). This parking needs assessment study, which considered several future development scenarios, indicates a parking deficit between 1,600 and 2,246 spaces depending on the growth trend and actual future development. The report's findings are based on surveys undertaken between 10:00 a.m. and 2:00 p.m. on weekdays, which had been established in previous GBNRTC surveys to be the peak period of parking activity (Desman, 2006). Given the high concentration of offices in this area, this parking activity can be attributed to lunchtime activity. To illustrate, in Buffalo Place's 1998 survey of the lunchtime activities of employees working downtown, over 50% of respondents indicated that they go out to restaurants during this period (Buffalo Place, 1998b).

Among a number of priority recommendations, the report recommends increasing the supply of on-street parking spaces in downtown by 500 spaces and constructing new or expanded parking ramps in the Retail Core and the Theater District/Main-Genesee Districts, totaling approximately 2,000 additional parking spaces, including disabled parking.

There is currently no designated on-street parking along the pedestrian-transit mall.

Service Vehicles

Service vehicles are necessary to support businesses along Main Street and primarily include delivery trucks, but may also include repair and maintenance vehicles and other miscellaneous vehicles. No vehicles, including service vehicles, are legally allowed on the pedestrian-transit mall unless they have a Delivery Permit issued by Buffalo Place. There are approximately 27 companies that have delivery permits allowing vehicular access to Main Street. These vehicles with delivery permits typically unload on the sidewalk directly in front of their destination.

Most businesses along Main Street also have frontage or legal access to an adjoining street where vehicular traffic is allowed. There are 13 buildings along Main Street, however, that are land-locked with their only vehicular access from Main Street.

Transit

LRRT service is provided along the entire length of the Project Area. The existing LRRT system trackbed, stations, and light rail vehicles are described in Section 2(A). An overview of the LRRT system operations and ridership trends is provided below.

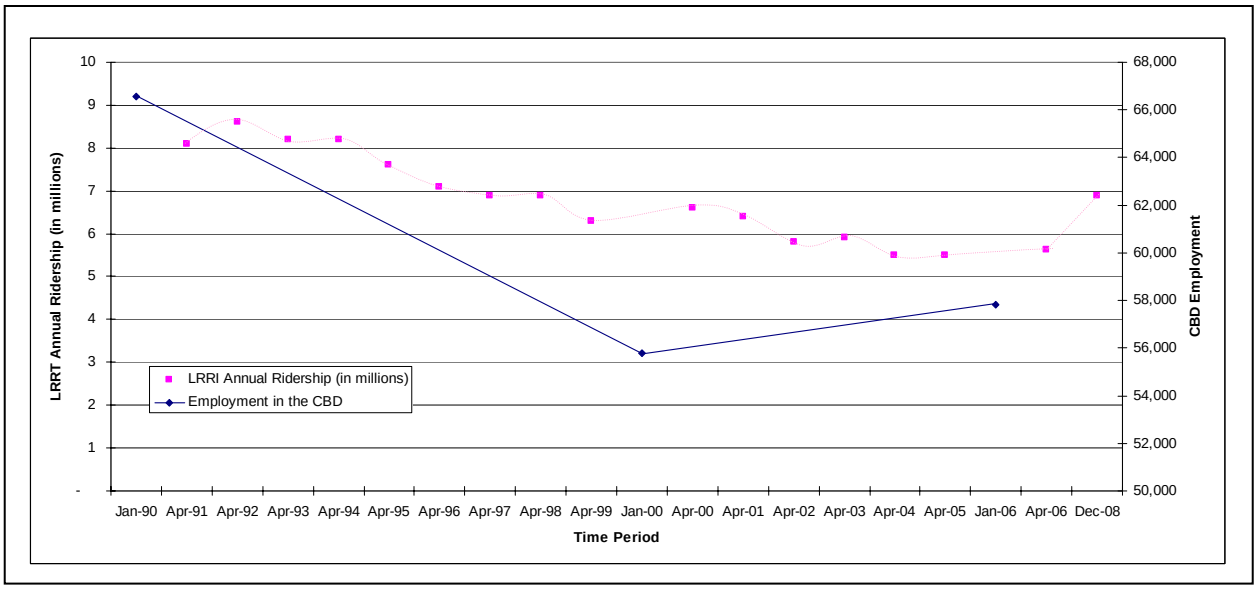
The LRRT system operates from approximately 5:30 am to 1:00 am every day of the year. The number of trains operating varies over the course of the day, ranging from about seven to 12 trains per hour. The trains typically have two cars during off-peak periods, three cars during peak periods, and four cars during special events and downtown sporting events. During peak periods, 23 cars operate with an average

headway of six minutes. It takes approximately 60 minutes for a train to make a round trip from Auditorium Station to University Station and back. The average dwell time at each station is approximately 60 seconds during normal conditions, and is slightly longer during peak periods.

Ridership

Current (April 1, 2007 to March 31, 2008) annual LRRT ridership is estimated as approximately 5.68 million with an average weekday ridership of 19,743. Note that although the data is not a true count of each rider on the LRRT, the NFTA makes these estimates based on a statistical plan and these estimated figures are thus considered official ridership figures. Ridership has declined fairly steadily from 8.1 million in 1991 (Figure 7-1). Ridership peaked in 1987, shortly after the LRRT system opened, at approximately 28,000 daily weekday riders. This decline in weekday riders generally corresponds with declines in downtown employment (Chapter 4).

Figure 7-1 Ridership and CBD Employment from 1990 to Present



Notes and sources:

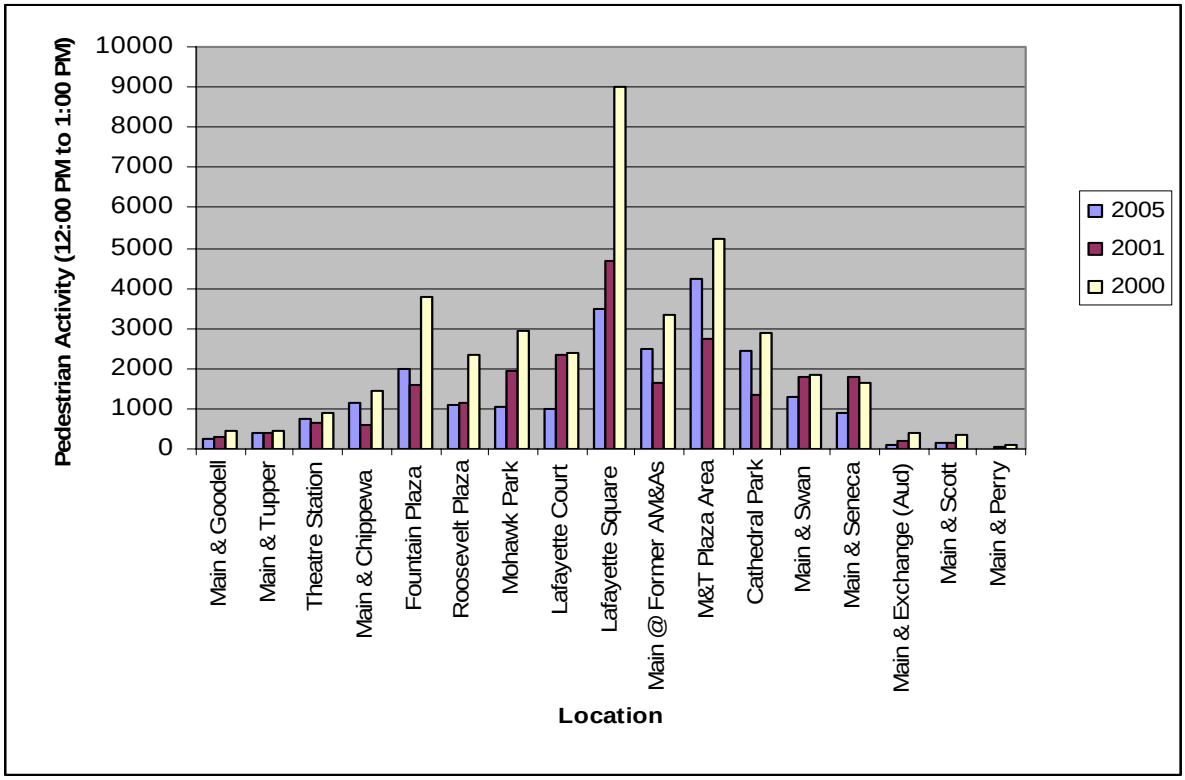
1. Data on CBD employment was obtained from Barbara Courtney, Senior Transportation Analyst, GBNRTC, on August 7, 2006 and is based on U.S. Census data.

Pedestrian Conditions

Photographs of Main Street in Buffalo from the early to mid- 1900s consistently show a large number of pedestrians (PCI, 2002). Buffalo Place has been conducting pedestrian counts periodically from 1987 to 2005. These counts have documented a steadily decreasing number of pedestrians (Figure 7-2). The trend appears to be stabilizing, because the sum of the 2005 lunchtime volumes was only two percent less than the counts at the same stations in 2001. Also, at some stations (e.g., M&T Plaza, Fountain Plaza, and Cathedral Park), lunchtime volumes have increased since 2001. Buffalo Place attributes this overall trend in pedestrian reduction to the significant loss of shopping opportunities along Main Street. Many employees appear to be staying at their offices at

lunchtime, perhaps because there is no longer a critical mass of shopping opportunities to attract them (Email communication with Debra Chernoff, Buffalo Place, February 13, 2002).

Figure 7-2 Main Street Pedestrian Count Trends



Access for the Disabled

The existing aboveground LRRT system provides disabled access to trains at each station. This access includes a ramp from the sidewalk to the light rail boarding platform and a small "lip" that extends from the platform to within approximately 1.0 inch of the LRV door.

Ramps also exist at most intersections and at some mid-block points to allow wheelchair access along and across Main Street.

Bicyclists

Bicycles are not currently allowed on the Main Street pedestrian-transit mall pursuant to Chapter LX – Section 53 as adopted by the Common Council of the City of Buffalo on October 4, 1988.

C. No-Action Alternative

The No-Action Alternative would retain the existing pedestrian-transit mall and would not restore vehicular traffic to Main Street. Therefore, this alternative would have no effect on transportation along the Project Area.

D. Probable Impacts of the Proposed Action

By definition, any proposed transit project will potentially influence elements of the local transportation system, including transit facilities and services, road traffic patterns and volumes, and parking. The magnitude of impacts vary considerably depending on the scale and type of project. Transportation impacts are divided into five categories: transit, traffic, parking, bicyclists; and pedestrians.

Potential impacts on transportation are evaluated for disruption or improvement of current transportation patterns and systems; deterioration or improvement of traffic volume; and changes in existing levels of transportation safety. Impacts may arise from physical changes to circulation (e.g. closing, rerouting, or creating roads); construction activity; introduction of construction-related traffic on local roads; or changes in daily or peak-hour traffic volumes increased by direct or indirect work force and population changes related to facility activities. Impacts on roadway capacities would occur if roads were forced to operate at or above their full design capacity.

Vehicular Traffic

Future traffic volumes for Main Street were developed for the Proposed Action. This analysis considered existing traffic volumes on blocks of Main Street that allow traffic, based on limited information available from GBNRTC (i.e., Synchro computer files – a traffic signal coordination software program), which included traffic counts taken in the City of Buffalo between 2000 and 2002.

The only volumes on Main Street included in the GBNRTC's information were volumes on Main between Tupper and Goodell streets and volumes at the Main/Goodell intersection. These volumes were used, in part, to develop volumes that could be expected on Main Street if it were open to traffic. The GBNRTC information also included existing volumes on Pearl and Washington Streets. These volumes were also used, in part, to develop potential volumes for Main Street. The analysis focused on the evening peak hour, which, based on traffic counts in Buffalo, is higher than the morning peak hour.

The analysis of potential volumes on Main Street was based on the following assumptions:

- Turning movements on Main Street were based on turning movement percentages on Pearl and Washington streets; and
- Washington, Huron, and Mohawk streets will be open to two-way traffic.

Once traffic volumes were estimated for current conditions, future traffic volumes for 2025 were calculated using a growth factor of 0.5 percent per year, which was based on recommendations from GBNRTC. Table 7-1 presents these evening peak hour traffic volumes.

Table 7-1 Projected Peak Hour Traffic Volumes (2025 - pm peak hour)

Blocks along Main Street	***Main Street (Northbound)***	***Main Street (Southbound)***
Scott to Exchange	184 vph	223 vph
Exchange to Seneca	290 vph	295 vph
Seneca to Swan	214 vph	266 vph
Swan to Church/Division	246 vph	183 vph
Church/Division to Court/Broadway/Clinton	321 vph	221 vph
Court/Broadway/Clinton to Mohawk	231 vph	259 vph
Mohawk to Huron	208 vph	173 vph
Huron to Chippewa	194 vph	158 vph
Chippewa to Tupper	172 vph	131 vph

Source: Erdman Anthony Associates
vph = vehicles per hour

Although not specifically calculated, some of these trips are expected to be diverted trips from other streets in downtown Buffalo (primarily Pearl and Washington Streets). This reflects motorists whose primary destinations are along Main Street, but are currently forced to use other streets because Main Street is closed to traffic. The balance of these trips represent new trips resulting from improved economic conditions along Main Street.

Under the Proposed Action, Main Street is not envisioned as a major thoroughfare. With only one travel lane in each direction and cars forced to share the trackbed with LRRT vehicles, travel speeds are expected to be low (less than 15 mph). Therefore, motorists are not expected to use Main Street as a primary commuting route – Pearl and Washington Streets, with more travel lanes and without LRRT, would offer more efficient routes for commuting into and out of downtown Buffalo.

These expectations are reflected in the peak hour traffic volumes indicated in Table 7-1, all of which are less than existing volumes on Pearl or Washington Streets. It is anticipated that motorists will primarily use Main Street to reach specific destinations along Main Street, such as entertainment venues, restaurants, offices, and a revitalized retail sector. These motorists will use the proposed on-street parking spaces and, over time, off-street parking that would be accessible from Main Street. The most efficient route for these motorists as they leave downtown will be to turn off Main Street as quickly as possible and onto Washington Street or Pearl Street.

A general rule of thumb is that peak hour traffic volumes for a typical urban street represent approximately eight percent of average daily traffic (ADT). This equates to approximately 1,600 to 4,400 ADT along the various blocks of Main Street. Main Street, however, will not be a typical urban street and will not be a primary commuting route for the reasons described above. Therefore, we expect that peak hour traffic volumes will represent less than the typical eight percent of ADT and many off-peak hour traffic volumes will actually approach peak hour volumes on Main Street. Assuming that peak hour traffic volumes only represent five percent of ADT, average daily traffic volumes on Main Street could range as high as 5,000 vehicles per day (vpd).

Based on these traffic volumes, the effects of restoring traffic to Main Street are evaluated in terms of the adequacy of the intersections to accommodate the traffic and the effects on overall traffic patterns in downtown Buffalo.

Effects on Traffic Patterns

Traffic patterns in downtown Buffalo have been confusing for motorists, with Main Street essentially closed to vehicular traffic and both Pearl and, until recently, Washington Streets one-way southbound. This road network required motorists to travel many blocks out of their way to reach their downtown destinations. The conversion of Washington Street to two-way traffic and some of the cross-streets to two-way traffic have improved traffic flow downtown.

Although the network of one-way streets is confusing for motorists, a major contributor to this problem are motorists trying to reach destinations along Main Street, who, with Main Street closed to traffic, must rely on these parallel streets. The Proposed Action should further improve traffic patterns downtown by allowing motorists to access all of Main Street in both directions.

Modeling Assumptions

The evaluation of traffic and transit operations along Main Street was completed for existing and future year conditions as part of the Final Preliminary Design Report (DiDonato, 2006). The future year traffic analysis includes automobiles on Main Street. The multi-modal characteristics (e.g., LRRT, autos, pedestrians) found along this street were analyzed using a micro-simulation program called VISSIM. The ability to model the activity at mid-block locations (e.g., transit stops, parking vehicles) is a primary reason for using a micro-simulation model. The primary goal of this analysis is to determine how the re-introduction of automobiles and on-street parking into the Project Area affects intersection operations and LRRT operations along the corridor. Microscopic traffic simulation models like VISSIM treat each vehicle as an individual entity and vehicle trajectories are altered at each time step by factors such as car-following logic, other vehicles, and traffic control devices. Each vehicle in the simulation has a number assigned to it between 1 and 10 that determines how passive or aggressive that vehicle is when interacting with other vehicles. A more aggressive vehicle in the simulation will tend to travel faster, be more likely to change lanes to pass, and accept shorter gap times when completing a turn maneuver. For transit operations, the VISSIM model allows the user to input transit routes, transit stops, and dwell times for transit vehicles at the stops.

The output of the VISSIM model includes a variety of measures of effectiveness (MOE) for both automobile and transit operations including stop and total delay time at intersections; travel time and delay time along a corridor; queue length; emissions data; and average station dwell times.

A traffic model requires a considerable amount of data related to traffic and transit operations. Some of the required data inputs (e.g., traffic volumes) have been discussed in the previous sections. Additional information on modeling assumptions is provided below.

- Street Network – The Main Street model includes the parallel streets of Pearl Street and Washington Street. This was done to gain a better understanding of how vehicle queues on the east-west cross street could affect Main Street intersection operations.

New east-west cross street connections at Eagle Street and Mohawk Street are included in the Main Street model.

- Main Street Geometry – The proposed Main Street design does not include any right-turn lanes.
- Traffic Signal Timing – The existing Main Street traffic signal control is quite unique and would require a computer program to be written for each traffic signal controller along Main Street. For this analysis effort, a form of transit signal priority (TSP) timings was used to give preferential treatment to LRRT vehicles. The TSP timings would either extend Main Street green time to service an approaching LRRT vehicle or truncate the cross street green time to minimize the wait time for LRRT vehicles on Main Street. The same traffic signal control is used for all traffic analyses.
- Theater Station – This station is included in the existing conditions analysis, but is assumed to be combined with the Fountain Plaza station for future year conditions.
- On-street Parking – The latest version of the VISSIM model includes the ability to model on-street parking areas. The Proposed Action will create approximately 209 parking on-street parking spaces (including disabled spaces) and assumed approximately 125 to 150 parking maneuvers per hour.
- Vehicle Mix – It is assumed that cars and delivery trucks (i.e., no large trucks) are the only vehicles allowed on Main Street.
- Right Turn on Red – The right turn on red maneuver is allowed for vehicles turning from Main Street to the cross streets. No right turns on red are allowed for vehicles turning from the cross streets onto Main Street.
- Speed Limits – The assumed speed for Main Street is 15 mph and speeds ranging from 25 to 30 mph were assumed for the other streets in the model.

Traffic Analysis Results

Observations of traffic flows provide an understanding of the general nature of traffic, but are insufficient to indicate either the ability of the street network to carry additional traffic or the quality of service provided by the street system. For this reason, the concept of level of service (LOS) has been developed to correlate numerical traffic volume data to subjective descriptions of traffic performance at intersections. LOS categories range from A (best) to F (worst).

The results of the traffic analysis indicate that all of the Main Street intersections operate at LOS D or better during both peak periods (Table 7-2). There is some delay for both auto and LRRT vehicles on the Main Street approaches to the Church, Huron, and Chippewa Street intersections. Most of the corridor delay along Main Street results from the LRRT vehicles stopped at stations while automobiles queue up behind the LRRT vehicle. Although accidents were not considered to be part of the standard operating conditions on Main Street, relocating the catenary poles outside of the trackbed and keeping the center of the road open will facilitate emergency vehicle access. Occasionally, it was observed that queued vehicles at an intersection will block an LRRT vehicle from reaching the station. The on-street parking maneuvers do result in some corridor delay, but were incorporated into the VISSIM model and do not typically result

in impacts at intersections or LRRT stations. During snow emergencies, the City of Buffalo currently has the authority to ban on-street parking to facilitate snow removal and illegally parked cars are towed. This practice would continue along Main Street following the reintroduction of vehicular traffic under the Proposed Action. The left-turn movements at the Main Street intersections with Court and Church Street seem to cause a little more delay due to the considerable number of pedestrians that reduce the capacity of the turning movements at these intersections. The following summarizes the overall level of service for each of the Main Street intersections for the Proposed Action.

Table 7-2 Level of Service, Year 2025, Cars Sharing Main Street

INTERSECTION	OVERALL INTERSECTION LOS	
	AM PEAK	PM PEAK
Scott Street/Marine Drive	C	D
Exchange Street	B	C
Seneca Street	B	C
Swan Street	B	C
Church Street	C	C
Eagle Street	C	C
Court Street	C	C
Mohawk Street	C	C
Huron Street	C	C
Chippewa Street	B	C
Tupper Street	B	B

Source: DiDonato, 2006.

Parking

There is a documented parking shortage in downtown Buffalo (including the Project Area and the remainder of the CBD). A parking study recommended increasing the supply of on-street parking by approximately 500 spaces (Destination Downtown Buffalo, 2002). Parking shortages occur during peak periods, between 11 am and 2 pm, Monday to Friday. According to the August 2006 Final Preliminary Design Report (Appendix B), the Proposed Action will add approximately 209 spaces (42 percent of predicted shortfall) along Main Street, including disabled parking spaces.

The additional 209 on-street parking spaces will be primarily intended for use by diners, shoppers, visitors, and those attending events. They will have short-term meters (one- to two-hour maximum) to limit their use by downtown employees. Assuming that these spaces turn over as much as eight times a day, they could provide parking for between 1,000 and 1,600 vehicles per day. This level of additional parking will help support retail, entertainment, and restaurant uses along Main Street; however, this project alone is not intended to, nor will it address the entire parking deficit for downtown Buffalo.

Transit

Transit Operations

Based on the VISSIM modeling described above, the Proposed Action will increase overall future travel times for LRRT operations along Main Street by approximately one minute with cars sharing the roadway. Traffic monitoring will be enhanced with

additional cameras throughout to help response times. The LRVs are projected to incur some minor delay at nearly every aboveground station due to the presence of automobiles on Main Street. The current Theater Station conflicts with the proposed location of the additional portal wall and curbing, which will be extended for safety reasons. The extended portal area will allow for trains to pause before entering the tunnel while vehicular traffic proceeds around the portal rather than inadvertently following the train underground.

Transit Ridership

As indicated above, LRRT ridership has been steadily declining over the past 15 years, generally corresponding with employment levels in downtown Buffalo. Transit ridership was related statistically to downtown employment using linear regression techniques. A strong positive correlation was found (R-square of 0.82). This regression equation (y=200.34x-5E+06) was used to predict the effects of the Proposed Action on transit ridership, using the increases in employment estimated in Chapter 4. The regression model indicates that the Proposed Action will result in approximately a five percent increase (approximately 352,000) in annual LRRT ridership.

Approximately 19 percent of downtown employees currently use public transit for their commute to and from work, and many more use the LRRT system during lunch hour and at other times to reach destinations along Main Street. Therefore, we anticipate that any increases in downtown employment resulting from the Proposed Action will translate, at least proportionately, into increased ridership.

It is not anticipated that restoring vehicular traffic to Main Street will cause existing downtown employees who use transit for their commute to switch to private cars because:

- Long-term parking (see above discussion on Parking) will not allow all-day parking; and
- Main Street is not envisioned as a major thoroughfare. With only one travel lane in each direction and cars forced to share the trackbed with LRRT vehicles, travel speeds are expected to be low (less than 15 mph). In fact, Washington and Pearl Streets will remain the preferred commuting routes downtown rather than Main Street (see above discussion on Vehicular Traffic).

Transit Safety

The Transit Cooperative Research Program (1996) researched the experience of ten cities (including Buffalo) that have integrated light rail transit into city streets. Boston, Portland, Sacramento, and San Francisco all have mixed-traffic segments in their LRRT systems similar to that proposed in Buffalo. The Research Program concludes that light rail accidents are rare in these cities. Accidents occur largely as a result of motorists' or pedestrians' lack of attention to, or disobedience of, traffic laws, and confusion regarding the meaning of traffic control devices. The report found that the single most frequent problem (47 percent of all accidents) involves motorists turning left in front of an overtaking light rail train (i.e., a train traveling in the same direction as the vehicle). Because the Proposed Action will have both the light rail transit and motorists sharing a single lane, this situation will not occur.

Transit Enhancements

Some enhancements that will be made to the above ground transit stations to achieve the goals of the Project include improved lighting, enhanced signage, replacement of the transit station roofs, the incorporation of non-structural materials to protect structural elements and reduce maintenance costs, the addition of radiant heat to the station platforms, audio and visual real time Metro information, and camera monitoring of Main Street operations and security.

New lighting, including dynamic signage, will replace the stations electrical work that has reached the end of its useful life. The lighting will be more reliable, convey more information to passengers, and be substantially more energy efficient, which will reduce the operating cost. The existing station roofs have reached the end of their useful life and will be replaced, allowing for more modern green products to be incorporated. The incorporation of clear panels will improve the transparency of the stations and allow for more natural lighting, which will reduce the need for artificial lighting and the energy usage at each station.

The Project provides the opportunity to cover some of the structural elements with non-structure stainless steel cladding to improve aesthetics and protect the main steel components from vandalism and scratching of the painted surfaces, which can lead to corrosion. Non-structural ornate steel will be replaced with non-structural glass panels, which will increase the transparency of the stations and do not require periodic painting. These enhancements will result in reduced maintenance costs and fewer disruptions to the passengers.

Pedestrians

Future (2025) peak hour pedestrian volumes were estimated by escalating existing pedestrian volumes by the same percentage increase as vehicular traffic (0.5 percent annually) through 2025. Although pedestrian volumes have been decreasing recently, it is believed that pedestrian volumes should increase at least the same rate as vehicular traffic. Table 7-3 indicates 2025 peak hour pedestrian volumes at selected locations along Main Street.

Table 7-3 Existing and Future Peak Hour Pedestrian Volume

Main Street Location	*Existing 2000 Volumes*	*Projected 2025 Volumes*
Roosevelt Plaza	2,994	3,391
Main Place Mall	4,146	4,696
Cathedral Place	1,866	2,114

Source: Existing – Buffalo Place, Inc., 2000 Pedestrian Study, February 2001
Projected - ERM

Based on these projected pedestrian volumes, three analyses of the potential effects of the Proposed Action were conducted that measure different aspects of the pedestrian experience:

- Pedestrian Capacity;
- Pedestrian Density; and
- Pedestrian Level of Comfort.

Pedestrian Capacity

Sidewalks must be of sufficient width to accommodate peak hour pedestrian volumes. The criteria for pedestrian capacity are based on space per pedestrian and pedestrian speeds (TRB, 1994). These criteria can be used to calculate a volume to capacity (v/c) ratio, which indicates what percentage of total sidewalk capacity is being used. As with other analyses, a LOS grade is calculated on a 'A' to 'F' scale, with LOS 'A' indicating that pedestrians can walk at their preferred speed and are unaffected by other pedestrians. Conversely, LOS 'F' indicates that even the slowest walkers are forced to slow down and there is a high probability of stopping or breaking their normal walking gait. Table 7-4 describes the criteria and Figure 7-3 graphically presents the various LOS. These values are based on the peak 15 minutes of pedestrian volume, typically during the lunch hour in Buffalo.

Table 7-4 Pedestrian Density Criteria

LOS	*Space (sq ft/ ped)*	*Avg. Speed (ft/min)*	*Volume/Capacity Ratio*
A	≥130	>260	8%
B	≥40	>250	28%
C	≥24	>240	40%
D	≥15	>225	61%
E	≥6	>150	100%
F	<6	<150	>100%

Source: Transportation Research Board, Highway Capacity Manual

Figure 7-3 Various Levels of Service

LEVEL OF SERVICE A

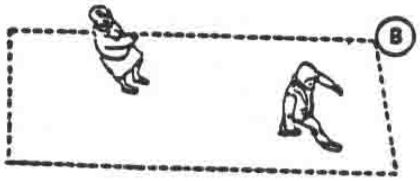
Pedestrian Space: ≥ 130 sq ft/ped Flow Rate: ≤ 2 ped/min/ft

At walkway LOS A, pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.

LEVEL OF SERVICE B

Pedestrian Space: ≥ 40 sq ft/ped Flow Rate: ≤ 7 ped/min/ft

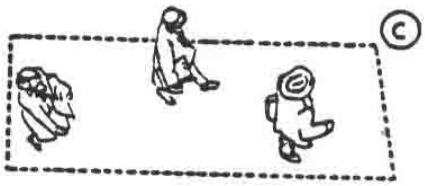
At LOS B, sufficient area is provided to allow pedestrians to freely select walking speeds, to bypass other pedestrians, and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians, and to respond to their presence in the selection of walking path.



LEVEL OF SERVICE C

Pedestrian Space: ≥ 24 sq ft/ped Flow Rate: ≤ 10 ped/min/ft

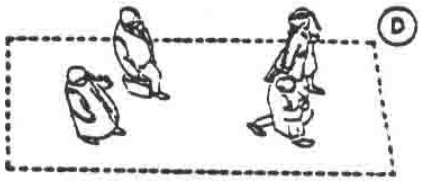
At LOS C, sufficient space is available to select normal walking speeds, and to bypass other pedestrians in primarily unidirectional streams. Where reverse-direction or crossing movements exist, minor conflicts will occur, and speeds and volume will be somewhat lower.



LEVEL OF SERVICE D

Pedestrian Space: ≥ 15 sq ft/ped Flow Rate: ≤ 15 ped/min/ft

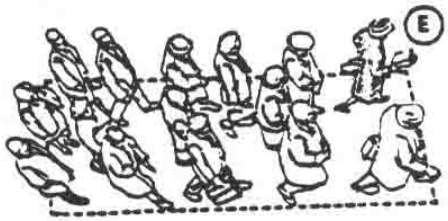
At LOS D, freedom to select individual walking speed and to bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflict is high, and its avoidance requires frequent changes in speed and position. The LOS provides reasonably fluid flow; however, considerable friction and interaction between pedestrians is likely to occur.



LEVEL OF SERVICE E

Pedestrian Space: ≥ 6 sq ft/ped Flow Rate: ≤ 25 ped/min/ft

At LOS E, virtually all pedestrians would have their normal walking speed restricted, requiring frequent adjustment of gait. At the lower range of this LOS, forward movement is possible only by "shuffling." Insufficient space is provided for passing of slower pedestrians. Cross- or reverse-flow movements are possible only with extreme difficulties. Design volumes approach the limit of walkway capacity, with resulting stoppages and interruptions to flow.



LEVEL OF SERVICE F

Pedestrian Space: ≤ 6 sq ft/ped Flow Rate: variable

At LOS F, all walking speeds are severely restricted, and forward progress is made only by "shuffling." There is frequent, unavoidable contact with other pedestrians. Cross- and reverse-flow movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristic of queued pedestrians than of moving pedestrian streams.

Source: Highway Capacity Manual

Pedestrian capacity was calculated for three representative locations (Roosevelt Plaza, Main Place Mall, and Cathedral Place) along Main Street. Since peak 15-minute counts were not available, the peak hour counts were simply divided by four for purposes of this analysis. The results of this analysis indicate that the Proposed Action will have sufficient sidewalk width to adequately accommodate the peak 15 minutes of pedestrian traffic at LOS 'A' at all representative locations.

Pedestrian Density

The second analysis assumes that it is desirable in a downtown setting to have a certain degree of congestion. Walking along an empty street would be efficient, but would be undesirable and perhaps uncomfortable from a personal safety perspective in a downtown setting. Therefore, a v/c ratio of 0.50, which is approximately midway between a LOS 'C' and 'D,' was selected to reflect optimum sidewalk capacity and pedestrian density. Pedestrian Density for the Proposed Action was analyzed at the same representative locations (Roosevelt Plaza, Main Place Mall, and Cathedral Place) as pedestrian capacity. In terms of a percentage of the desired capacity (i.e., 0.50), the analysis indicated that future projected peak pedestrian densities will be well below the optimum density at each location: Roosevelt Plaza, nine percent; Main Place Mall, 12 percent; and Cathedral Place, four percent (based on TRB, 1994).

Pedestrian Level of Service

The Pedestrian Level of Service (PLOS) model is used to show pedestrian suitability or "compatibility" of the Proposed Action. This analysis, which is available in the Final Preliminary Design Report (Appendix B), generally evaluates the level of comfort for the pedestrian walking along Main Street. The model was calibrated from observations by pedestrians who evaluated their level of comfort in real time as they walked along roadway segments with different characteristics. It is based on 1,250 individual observations along 42 directional segments and has an R-squared value of 0.85. The variables used in the model are listed below in Table 7-5, and the actual input variables for the Proposed Action are listed in Table 7-6.

Table 7-5 Pedestrian Level of Service Model Variables

Criteria	*Definition*
Average Daily Traffic (ADT)	The average daily traffic volume on the segment or link.
Number of lanes of traffic (L)	The total number of through traffic lanes of the road segment and its configuration (e.g., D = Divided, U = Undivided, OW = One-Way, S = Center Turning Lane).
Speed (SPD)	The average running speed of motor vehicle traffic.
Width of pavement for the outside lane (W_t)	This width is measured from the center of the road, yellow stripe, or (in the case of a multilane configuration) the lane separation striping to the edge of pavement or to the gutter pan of the curb.
Width of paving between the outside lane strip and the edge of pavement (W_l)	This width is measured from the outside lane stripe to the edge of pavement or to the gutter pan of the curb.
Width of Buffer (W_b)	The width of grass or tree buffer. It is measured from the edge of pavement (including the width of the curb if present) to the beginning edge of the sidewalk. If a sidewalk has trees planted in it, then the horizontal width of the sidewalk occupied by the trees is considered to be a buffer.
Width of Sidewalk (W_s)	The width of the sidewalk, measured from the edge of pavement (including the curb) if a grass buffer is not present. If a grass buffer is present, the width is measured from the edge of the buffer to the backside of the sidewalk.
Sidewalk Percentage	The percentage of sidewalk coverage in each direction.
Tree Spacing in Buffer	The spacing of trees within a buffer, if present, measured from foot on center (width of spacing between trees). Trees can either be in a grass buffer or in a sidewalk.

Source: SCI, 2002

Table 7-6 Pedestrian Level of Service Model Inputs

Criteria	*Proposed Action*	
	Blocks w/ parking	Blocks w/o parking
Volume ADT (vpd)	5,000	5,000
Lanes # of thru lanes Con	 2 U	 2 U
SPD (mph)	15	15
Width of Pavement W_t (ft) W_l (ft)	 12.0 0.0	 21.0 0.0
%OSP	0	75
Buffer Width in feet (W_b)	0.0	0.0
Tree Spacing in Buffer (ft on ctr)	0	0
Sidewalk Width in feet (W_s)	38.0	29.0
% Sidewalk Coverage Left Right	 100 100	 100 100

Source: SCI, 2002

ADT	=	Average daily traffic on the segment or link
L	=	Total number of through lanes
Con	=	Configuration of the road segment; D – Divided, U – Undivided
SPD	=	Average running speed
W_t	=	Total width of outside lane (and shoulder) pavement
W_l	=	Width of paving between the outside lane stripe and the edge of pavement, if any
%OSP	=	Percentage of segment with occupied on-street parking
W_b	=	Distance between edge of travel lane and sidewalk
Tree Spacing	=	Tree spacing (on-center) in the buffer
W_s	=	Width of sidewalk in feet

Separate analyses were conducted for blocks with and without on-street parking. The Proposed Action scored a LOS 'B' for both blocks with parking (1.60) and without parking (1.92). Scores between 1.5 and 2.5 is considered LOS 'B' (SCI, 2002). The Proposed Action will result in minimum pedestrian delays along Main Street; however, the reintroduction of vehicular traffic will prohibit mid-block crossing (i.e., jaywalking) thereby forcing pedestrians to cross at identified pedestrian crosswalks.

Access for the Disabled

The disabled patrons are currently able to access the LRRT system using the ramps to the high boarding platforms. Disabled access is also accommodated at intersections and in some mid-block cross-walks, although mid-block crossing will be prohibited following the reintroduction of vehicular traffic. The Proposed Action will allow the disabled to directly access destinations along Main Street via car as well as by the LRRT, improving overall access for the disabled to Main Street.

An early analysis of wheelchair access to the station was conducted using the original 1991 edition of the ADA Accessibility Guidelines (ADAAG). This analysis did indicate that the project would have no impact on wheelchair access requirements. Early analysis does not indicate any impacts upon the disabled community however a more detailed evaluation will be done during the design phase of the project and will carefully review the revised ADAAG standards (effective date of November 29, 2006). To ensure that the proposed design does not impact the community the City of Buffalo and NFTA will make certain that:

- The new design and construction will meet the new ADAAG requirements (effective date of November 29, 2006).
- The system will continue to operate as it does today. They will also ensure that any station alteration will have sufficient clearance and will not have an adverse impact on the accessibility of each station that would cause it to become noncompliant with DOT ADA regulations.
- The proposed alterations do not adversely affect the ability of persons with disabilities, including wheelchair users, to board and disembark the light rail vehicles independently, requiring only that the operator align the train with the platform and the open door.
- Proper operator training is provided to ensure the spotting of the trains for disabled riders consistently occurs at the new gate location, without any undue delay.

Additional transit station enhancements that will benefit disabled patrons include the addition of radiant heat to the station platforms, audio and visual real time Metro information, enhanced signage, improved lighting, camera monitoring of Main Street operations, and security. The Bridge Ramp from the station to the rail car will also incorporate technological improvements that have been developed since the original construction. The final design and construction of these enhancements and the project will be in accordance with ADA and ADAAG.

Bicyclists

Bicycles are currently not permitted on the Main Street pedestrian-transit mall. Under the Proposed Action, bicycles will continue to not be allowed along the majority of Main Street. There will be no physical barriers preventing cyclists from accessing Main Street; however, signs prohibiting bicycles will be use in addition to local law enforcement to keep cyclists off the majority of Main Street. There will be a shared 14-foot-wide travel lane around the portal where space is limited and a dedicated five-foot-wide bike lane along Main Street on the segment from Tupper Street to Chippewa Street. Improvements along Chippewa Street and Pearl Street to accommodate bicycles will be incorporated into a separate project. Additionally, the LRRT trains will accept bicycles.

Mitigation Measures

Vehicular traffic will be reintroduced upon completion of construction activities; therefore, this project will have no adverse impact on vehicular traffic. The sidewalks will remain wide enough (approximately 25 feet) for pedestrians to continue to be able to access storefronts and walk along Main Street while the construction activities progressed. Parking shortages will be minimized by increasing the supply of on-street parking by 209 spaces, including disabled parking.

The Proposed Action is projected to delay transit operations by approximately one minute, not interrupt pedestrian use of Main Street, and benefit overall traffic patterns and parking in downtown Buffalo. Therefore, no mitigation measures are proposed. Construction-related transportation effects are discussed in Chapter 11.

8 AIR QUALITY

A. Introduction

The Environmental Protection Agency (EPA), under the requirements of the 1970 Clean Air Act (CAA) as amended in 1977 and 1990, has established National Ambient Air Quality Standards (NAAQS) for six air contaminants, referred to as criteria pollutants (40 CFR 50). These are carbon dioxide (CO_2); nitrogen dioxide (NO_x); ozone (O_3); particulate matter less than 10 microns in diameter (PM_{10}); particulate matter less than 2.5 microns in diameter ($PM_{2.5}$); lead (Pb); and sulfur dioxide (SO_2). NYSDEC has adopted the EPA NAAQS as the statewide ambient air quality standards.

The CAA Amendments of 1990 place most of the responsibility on states to achieve compliance with the NAAQS. If an area such as a county violates these standards, the area must show that it has a State Implementation Plan (SIP) in place. The SIP is a compilation of goals, strategies, schedules, and enforcement actions that lead the state into compliance with the NAAQS. To reach attainment, NAAQS may not be exceeded more than once a year.

B. Existing Conditions

The City of Buffalo is located in Erie County. Erie County is presently classified as a non-attainment area (Subpart 1[1]) for the eight-hour ozone standard. However, the county is classified as attainment for all other criteria pollutants. The standard for ozone is an eight-hour average maximum of 0.08 parts per million (ppm). Ozone is a pollutant of concern because it is one of the components of smog. Ground-level ozone is a secondary pollutant since it is not directly emitted, but is formed from hydrocarbons and nitrogen oxides in the presence of sunlight. Automobiles are a major source of combustion byproducts that are necessary for ozone production.

In September 2006, the USEPA strengthened the air quality standards for particle pollution by reducing the 24-hour $PM_{2.5}$ standard from 65 to 35 micrograms per cubic meter (μ/m^3). The current "annual arithmetic mean" standard for $PM_{2.5}$ was retained (i.e., 15 μ/m^3). The effective date of designation for the revised "24-hour average" $PM_{2.5}$ standard is April 2010. States are expected to meet the revised standard by 2015, with a possible extension to 2020, depending on local conditions and the availability of controls (http://epa.gov/pm/naaqsrev2006.html).

Table 8-1 presents the ambient air quality data for the monitoring station in Erie County from 2005 to 2007. Over the past three years, there have been three exceedances of the NAAQS for ozone (eight-hour standard) and one exceedance of the NAAQS for $PM_{2.5}$ at the Erie County monitoring station. Table 8-1 indicates that the average annual and 24-hour $PM_{2.5}$ concentration in Erie County for the last three years (2005, 2006, and 2007) are 12.5 $\mu g/m^3$ and 34.0 $\mu g/m^3$, respectively. These average ambient concentrations are

[1] "Subpart 1" refers to Title I, part D, subpart 1 of the Clean Air Act, which includes general requirements for all designated non-attainment areas.

below the new $PM_{2.5}$ standards (35.0 µg/m^3). The whole of Erie County is currently in attainment for $PM_{2.5}$.

Table 8-1 Local Ambient Air Quality Data for Criteria Pollutants – Maximum Monitoring Reported, Erie County, New York

Pollutant	Year			3-Year Average	Federal/State AAQS
Averaging Time	2005	2006	2007		
CO (ppm)					
1-hour	2.5	4.2	2.1	2.93	35
8-hour	1.6	1.6	1.1	1.43	9
NO_2 (ppm)					
Annual	0.019	0.015	0.016	0.02	0.053
O_3 (ppm)					
1-hour	0.111	0.093	0.094	0.099	0.12
8-hour	**0.09**	**0.083**	**0.086**	0.086	0.08
SO_2 (ppm)					
24-hour	0.035	0.018	0.027	0.027	0.14
Annual	0.006	0.004	0.004	0.005	0.03
$PM_{2.5}$ (µg/m^3)					
24-hour	**40**	27	35	34.0	35
Annual	14.7	10.9	11.9	12.5	15
PM_{10} (µg/m^3)					
24-hour	NR	NR	NR	NR	150
Annual	NR	NR	NR	NR	50
Pb (µg/m^3)					
3-month	NR	NR	NR	NR	1.5

Source: US EPA AirData website (assessed July 16, 2008)

NR = not reported; ppm = parts per million; µg/m^3 = micrograms per cubic meter.

C. No-Action Alternative

The No-Action Alternative would retain the existing pedestrian-transit mall and would not restore vehicular traffic to Main Street. Therefore, this alternative would have no significant adverse effect on air quality in the Project Area.

D. Probable Impacts of the Proposed Action

Air quality impacts from the Proposed Action would occur if the Proposed Action:

- Does not conform to the New York SIP;
- Increases ambient air pollution concentrations above any NAAQS;
- Contributes to an existing violation of any NAAQS;
- Interferes with or delay timely attainment of NAAQS; or
- Impairs visibility within any federally mandated PSD Class I area.

The CAA Amendments of 1990 have placed additional requirements on transportation plans, programs, and projects. These amendments require a "transportation conformity process" to determine whether such actions conform to the purposes of the State Implementation Plan (SIP), which is the attainment of the National Ambient Air Quality Standards (NAAQS). Erie County is in an area designated as a non-attainment area for ozone and an attainment area for all of the other regulated pollutants. Procedures specified in the EPA's "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.

The only activity from the Proposed Action that will have the potential to permanently affect air quality is mobile source emissions. The primary vehicular emissions of concern are VOCs and NO_x, both of which are precursors to ozone formation.

The Proposed Action is included in the GBNRTC's 2030 Long Range Transportation Plan, adopted by the MPO in 2007. The Plan includes the emissions of the Proposed Action in its overall air quality emissions analysis. On October 27, 2006, the FHWA and the FTA, in consultation with the EPA, concluded that the Plan, including the Proposed Action, conformed to the New York SIP for Air Quality. Therefore, the Proposed Action will not increase ambient air pollution concentrations above any NAAQS, contribute to existing violations of any NAAQS, or interfere with or delay attainment of the NAAQS. There are no federally mandated PSD Class I areas in New York State or within 100 kilometers of the Project Area; therefore, the Proposed Action will not impact these resources.

Mitigation Measures

The Proposed Action will be in conformance with the SIP and will not result in effects on air quality; therefore, no mitigation measures are proposed. Construction-related air quality effects and proposed mitigation measures are discussed in Chapter 11.

9 NOISE AND VIBRATION

A. Introduction

This chapter analyzes the effects of the Proposed Action on ambient noise and vibration levels. Noise can be generated by fixed facilities, referred to as "stationary sources," and by moving sources, such as vehicular traffic, referred to as "mobile sources." A quantitative analysis was conducted of the mobile source noise levels and potential for impacts from vibrations that will result from the Proposed Action. Two separate noise models were used to analyze the effect of the Proposed Action on existing noise levels: i) the FTA Transit Noise Model (FTA model) contained in the *"Transit Noise and Vibration Impact Assessment"* manual dated May 2006; and ii) the FHWA Traffic Noise Model, Version 2.5 (FHWA model). Due to the lack of vehicular traffic along Main Street under current conditions, the baseline noise levels (existing conditions) were determined using only the FTA model.

The two noise models were used for the following reasons:

- The FTA model was used to calculate the existing noise levels because the existing noise levels at the Proposed Action location are predominantly due to the daily operation of an LRRT system. The FTA model was also used to estimate noise levels from the future average daily traffic (ADT) volumes (i.e., over a 24-hour period) expected from the Proposed Action.

- The FHWA model was used to estimate noise levels from the future peak hourly traffic volumes expected from the Proposed Action. The FHWA model was also used because the vehicle equations are applicable to speeds typical of freely-flowing traffic on city streets and access roads.

B. Methodology

General Noise Metric

Noise is defined as unwanted sound, and can be any sound that is undesirable because it interferes with communication; has enough intensity to damage hearing; or is otherwise inconsistent with a designated use. Human response to noise varies depending on the type and characteristics of the noise; distance between the noise source and receptor; receptor sensitivity; and time of day.

Sound levels are measured in logarithmic units called decibels (dB), which is a measure of changes in air pressure at one point in time in the range of audible sound. The two primary noise metrics used in estimating noise levels are the *hourly equivalent sound level* ($L_{eq}(h)$) and the *day-night sound level* (L_{dn}). The basic unit for both noise metrics is the A-weighted Sound Level, which describes a receiver's noise at any moment in time. The letter "A" indicates that the sound level has been "A" weighted, which means the sound has been filtered to reduce low frequency and high frequency sounds similar to the way the human ear filters sound frequencies. Without the "A" weighting, the sound levels reported in this report could represent sound levels that people cannot hear.

The $L_{eq}(h)$ describes the noise events averaged over a one-hour period in time. It is more useful to describe average noise conditions over a longer period of time. The L_{dn} describes a noise exposure averaged over a 24-hour period, with noise events between 10 pm and 7 am increased by 10 dB to account for the greater sensitivity to noise when people are sleeping. The L_{dn} is the preferred noise metric of the U.S. Department of Housing and Urban Development, Federal Aviation Administration, Environmental Protection Agency, and Department of Defense. However, the $L_{eq}(h)$ is the preferred noise metric for the FHWA.

FTA Noise Methodology

The FTA recently published a guidance manual for the assessment of noise impacts in transportation projects, *Transit Noise and Vibration Impact Assessment,* (FTA, 2006). The amount the transit project is allowed to change the overall noise environment is reduced with increasing levels of existing noise. The FTA Noise Impact Criteria groups noise sensitive land uses into the following three categories shown in Table 9-1:

Table 9-1 Land Use Categories and Metrics for Transit Noise Impact Criteria

Land Use Category	Noise Metric (dBA)	Description of Land Use Category
1	Outdoor L_{eq} (h)*	Tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, and such land uses as outdoor amphitheaters and concert pavilions, as well as National Historic Landmarks with significant outdoor use. Also included are recording studios and concert halls.
2	Outdoor Ldn	Residences and buildings where people normally sleep. This category includes homes, hospitals and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.
3	Outdoor L_{eq} (h)*	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds and recreational facilities can also be considered to be in this category. Certain historical sites and parks are also included.
* L_{eq} for the noisiest hour of transit-related activity during hours of noise sensitivity.		

Source: FTA Transit Noise and Vibration Impact Assessment (May 2006)

To determine the noise impacts from the Proposed Action, the predicted project sound levels for the Proposed Action are compared to existing sound levels at noise-sensitive locations throughout the corridor. For land uses involving primarily daytime activities (i.e., Category 1 and 3 uses), the descriptor L_{eq} is used. For land uses where nighttime sensitivity is a factor (i.e., Category 2 uses), L_{dn} is used. There are two levels of impact included in the FTA criteria. An interpretation of these two levels of impact is summarized below:

- Severe Impact: Severe noise impacts are considered “significant” as this term is used in the NEPA and its implementing regulations. Noise mitigation will normally be specified for severe impact areas unless there is no practical method of mitigating the noise. Independent of existing noise levels, Severe Impact occurs whenever the

transit L_{dn} equals or exceeds 75 dBA for Category 1 and 2 land uses or equals or exceeds 80 dBA for Category 3 land uses.

- Moderate Impact: In this range, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation. These other factors can include the predicted increase over existing noise levels, the types and number of noise-sensitive land uses affected, existing outdoor-indoor sound insulation, and the cost-effectiveness of mitigating noise to more acceptable levels. Independent of existing noise levels, Moderate Impact occurs whenever the transit L_{dn} equals or exceeds 65 dBA for Category 1 and 2 land uses or equals or exceeds 70 dBA for Category 3 land uses.

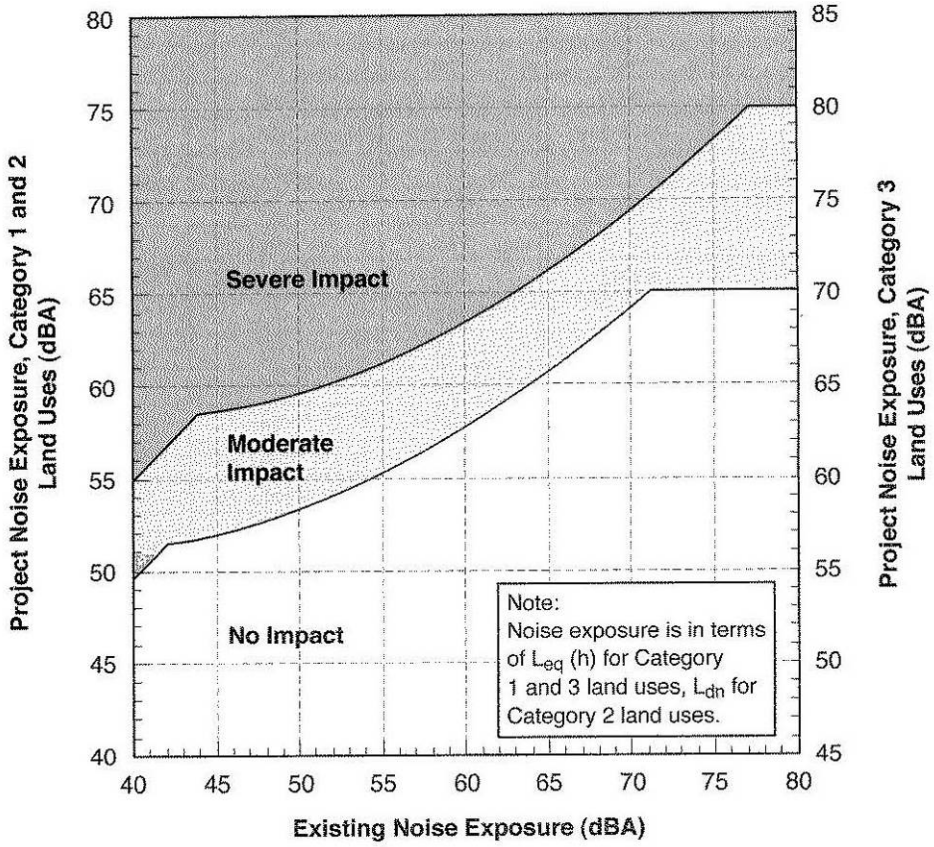
The noise impact criteria for transit operations are summarized in Table 9-2. The first column shows the existing noise exposure and the remaining columns show the additional noise exposure caused by a transit project that is necessary for the two levels of impact. The future noise exposure is the combination of the existing noise exposure and the additional noise exposure caused by the Proposed Action. As the existing noise exposure increases, the allowable increase in the overall noise exposure decreases. The noise impact criteria for transit operations are also summarized in Figure 9-1.

Table 9-2 FTA Noise Impact Criteria: Effect on Cumulative Noise Exposure

L_{dn} or L_{eq} in (dBA) (rounded to nearest whole decibel)			
Existing Noise Exposure	**Allowable Project Noise Exposure**	**Allowable Combined Total Noise Exposure**	**Allowable Noise Exposure Increase**
45	51	52	7
50	53	55	5
55	55	58	3
60	57	62	2
65	60	66	1
70	64	71	1
75	65	75	0

Source: FTA "Transit Noise and Vibration Assessment" Manual, 2006

Figure 9-1 Noise Impact Criteria for Transit Projects



FTA Noise Screening Procedure

The FTA noise screening procedure identifies whether any noise-sensitive receptors are within a distance where impact is likely to occur. Where there is potential for noise impact, further noise analysis is performed to determine the extent and severity of the impact. FTA defines screening distances sufficiently large to encompass all potential impact areas. Where the screening distance for unobstructed access roads like Main Street is 100 feet (ft), the General Noise Assessment is required (FTA, 2006).

FHWA Methodology

FHWA Noise Abatement Procedure

The FHWA noise abatement procedures are codified in the Code of Federal Regulations (23 CFR 772). The procedures were used to effectively determine the noise impact from the proposed roadway/transit corridor project and to show whether noise levels from the future vehicular traffic volume on Main Street dominate noise levels from the existing LRRT system. The L_{eq}(h) is the preferred noise metric for the FHWA.

Table 9-3 presents the FHWA noise abatement criteria (NAC) based on land use activity category.

Table 9-3 Federal Highway Noise Abatement Criteria

Land Use Activity Category	Leq (h) (dBA)	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 purpose.
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, hotels, public meeting rooms, schools, schools, churches, libraries, hospitals, and auditoriums.

Source: FHWA (1995)

A traffic noise impact occurs when either of the following conditions exists:

- The projected traffic noise levels approach or exceed the NAC shown in Table 9-3; or
- The projected traffic noise levels substantially exceed the existing noise levels in an area.

There is no mandated definition for what constitutes a substantial increase over existing noise levels in an area. Most state highway agencies use either a 10 dBA increase or a 15 dBA increase in noise levels to define a "substantial increase" in existing noise levels (FHWA 1995). For the purpose of this noise assessment, a 10 dBA increase in noise level was conservatively used to define "substantial increase".

C. Existing Conditions

The Project Area is in downtown Buffalo, where relatively high noise levels would be expected. Research indicates that background noise levels (L_{dn}) in urban areas range from 60 dBA in quiet urban residential areas to 80 dBA in major metropolitan downtown areas. Research also shows that L_{dn} from transit sources vary from 55 dBA to 77 dBA (FTA, 2006). These L_{dn}s from transit sources depend upon the number of events during day and night as well as upon each event's duration, which is affected by vehicle speed.

Based on the FTA land use category for transit impact criteria (Table 9-1), there are no Category 1 receptors in the vicinity of the Proposed Action: it is a central business district area. In terms of Category 2 receptors, there are two hotels and a youth hostel located along Main Street in the Project Area. Category 3 receptors include some churches and

small parks along Main Street. Three representative noise sensitive receptors identified along Main Street are listed below:

- St. Paul's Episcopal Cathedral Church (Category 3);
- Radisson Hotel (Category 2); and
- Youth Hostel (Category 2).

Based on the FHWA NAC (Table 9-3), all land along the Project Area is considered to fall under Category B land use activity.

There is currently no vehicular traffic (apart from a very few permitted delivery trucks and emergency vehicles) within the proposed Project Area. The existing noise levels at the proposed Project Area are predominantly due to an LRRT system in the vicinity. Therefore, only the FTA model was used to calculate the existing noise levels at the three noise-sensitive receptors along Main Street. The three identified noise receptors are within the screening distance of 100 ft from the Proposed Action's location (i.e., each receptor is approximately 50 ft from the centerline of the trackbed).

Based on the results of the FTA general noise assessment/model, existing noise levels from the LRRT system at these three locations are between 55 dBA (expressed as $L_{eq}(h)$) and 61 dBA (expressed as L_{dn}) for the Category 3 and 2 uses, respectively. These noise levels are in the acceptable range for these types of uses (Table 9-2). The computed values were based on the LRVs operating at 15 mph, which is the maximum train speed in the pedestrian-transit mall.

Detailed analysis of the FTA general noise assessment/model for the existing noise exposure is presented in Appendix E.

D. No-Action Alternative

The No-Action Alternative would not introduce any stationary or mobile noise sources into the Project Area; therefore, this alternative would have no effect on noise levels in the Project Area.

E. Probable Impacts of the Proposed Action

FTA General Noise Assessment/Model

The FTA General Noise Assessment methodology was used to estimate future (2025) noise levels at three noise-sensitive locations along Main Street. Noise from the addition of vehicular traffic (5,000 ADT) was added to the existing background LRRT system noise. Table 9-4 presents the results of the FTA General Noise Assessment as well as the allowable noise increase for the three receptor sites (Church, Radisson Hotel, and Youth Hostel). The detailed analysis of the noise assessment for the Proposed Action is presented in Appendix E. These computed values were based on the LRVs operating 50 feet away from noise sensitive receptors at 15 mph, which is the maximum vehicle speed in the pedestrian-transit mall.

Table 9-4 Noise Effects of the Proposed Action Based on Future Average Daily Traffic Volumes

Criteria	*Proposed Action*		
	Share Trackbed		
Receptor	**Church[1]**	**Radisson[2]**	**Hostel[2]**
Traffic Noise	47.6	49.2	49.2
LRRT Noise	55.0	61.0	61.0
Combined Noise	**56.0**	**61.0**	**61.0**
Noise Increase	1.0	0	0
Allowable Noise Increase[3]	2.0	2.0	2.0
Allowable Combined Total Noise Exposure[3]	58.0	~63.0	~63.0

[1] Noise expressed as L_{eq}(hour) in dBA
[2] Noise expressed as L_{dn} in dBA
[3] See Table 9-2 for the FTA Noise Impact Criteria
Source: ERM calculations based on FTA "Transit Noise and Vibration Impact Assessment" manual, 2006

The results of the noise assessment shown in Table 9-4 indicate that the average daily traffic volumes along Main Street (roughly 5,000[1] vehicles per day) will add little to no additional noise (1 dBA) above that already generated by the existing LRRT trains (55 dBA). Table 9-4 also indicates that the combined noise levels are below the allowable combined total noise exposure levels. These noise levels meet the FTA Noise Impact Criteria and are considered normally acceptable in a downtown commercial area.

FHWA Traffic Noise Model

The FHWA Traffic Noise Model (Version 2.5) was used to estimate future (2025) peak hourly noise levels at three noise-sensitive locations along Main Street. Based on the traffic study conducted along Main Street (see Chapter 7, *Traffic and Transportation*), the average evening[2] peak hour volume going northbound on the proposed paved roadway segment of Main Street (i.e. from Scott Street to Tupper Street, which is about 1.2 miles or 5,836 feet) is approximately 241 vehicles per hour (vph). On the other hand, the average peak hour volume going southbound on the same roadway segment is approximately 211 vph. It is anticipated that 90 percent of these vehicles will be automobiles and 10 percent will be medium/delivery trucks.

According to the traffic analysis performed in Chapter 7 using the VISSIM model, a form of transit signal priority (TSP) timings was used to give preferential treatment to LRRT

[1] The projected average daily traffic is nearly identical to traffic volumes along Main Street prior to the creation of the pedestrian mall; for example, ADT on Main Street in 1976 was approximately 5,000 vehicles per day (USDOT, 1977). As a result, traffic-related noise levels are expected to be similar to historical levels and below FTA's Allowable Noise Exposure Increases.

[2] Based on traffic counts in Buffalo, evening peak hour is higher than morning peak hour (see Chapter 7, *Traffic and Transportation*).

vehicles. The TSP timings would either extend Main Street green time to service an approaching LRRT vehicle or truncate the cross street green time to minimize the wait time for LRRT vehicles on Main Street. As a result, it is anticipated that only 10 percent of the peak hour traffic volumes will be affected by traffic red-light signals. Noise from the additional average peak hour traffic volumes from Scott Street to Tupper Street (northbound and southbound) was added to the existing background LRRT system noise.

Table 9-5 presents the results of the FHWA Traffic Noise Model as well as the allowable noise increase for the three receptor sites (Church, Radisson Hotel, and Youth Hostel). The detailed analysis of the FHWA Traffic Noise Model for the Proposed Action is presented in Appendix F. The noise modeling results are based on the vehicles (automobiles and medium trucks) operating 41 feet away from the noise-sensitive receptors at 15 mph, which is the maximum vehicle speed in the pedestrian-transit mall.

Table 9-5 Noise Effects of the Proposed Action Based on Future Peak Hour Traffic Volumes

Criteria	***Proposed Action***		
	Share Trackbed		
Receptor	**Church[1]**	**Radisson[1]**	**Hostel[1]**
Existing LRRT Noise	55.0	55.0	55.0
Proposed Traffic Noise (including existing LRRT noise)	**59.5**	**59.6**	**59.5**
Noise Increase	4.5	4.6	4.5
Allowable Noise Increase[2]	10.0	10.0	10.0
FHWA Noise Abatement Criteria for Category B Land Use Activity[3]	67.0	67.0	67.0

[1] Noise expressed as L_{eq}(hour) in dBA

[2] Most State highway agencies use either a 10 dBA increase or a 15 dBA increase in noise levels to define a "substantial increase" in existing noise levels (FHWA 1995). For the purpose of this noise assessment, a 10 dBA increase in noise level was conservatively used to define "substantial increase".

[3] See Table 9-3 for the FHWA Noise Abatement Criteria

Source: FHWA Traffic Noise Model, Version 2.5

The results of the FHWA Traffic Noise Model shown in Table 9-5 indicate that the average peak hour traffic volumes along Main Street (roughly 241 vph northbound and 211 vph southbound) will add approximately 4.5 to 4.6 dBA (L_{eq}(h)) above that already generated by the existing LRRT trains (55 dBA). Table 9-5 also indicates that the proposed traffic noise levels (including the existing LRRT noise levels) are below the FHWA NAC for Category B land use activity. These noise levels meet the FHWA NAC and are considered normally acceptable in a downtown commercial area.

F. Vibration

The FTA also has vibration screening procedures to identify projects that have the possibility of creating adverse vibration-related impacts. For projects that involve rubber-tire vehicles, vibration impact is unlikely except in unusual situations (FTA,

2006). Such unusual situations within the project's vicinity include roadway irregularities; vibration-sensitive manufacturing or research buildings where activities like computer chip manufacturing and electron microscope research take place; and operation of vehicles inside or directly underneath buildings that are vibration-sensitive. Because none of these unusual situations apply to the Proposed Action and the Proposed Action involves the reintroduction of rubber-tire vehicles to Main Street, vibration impacts are unlikely to occur within the Project Area.

Mitigation Measures

The Proposed Action will have no adverse effect on noise or vibration and, therefore, no mitigation measures are proposed. Construction-related noise and vibration effects and proposed mitigation are discussed in Chapter 11.

10 NATURAL RESOURCES

A. Geology and Soils

Existing Conditions

The Project Area is relatively flat, with elevations ranging from approximately 550 feet above mean sea level[1] near the southern end to 570 feet near the northern end. The entire site drains naturally to the Buffalo River, but the City storm sewer system collects most of the runoff and redirects it first to stormwater outfalls and the city treatment facilities.

The soils within the Project Area are classified as Urban Land according to the Soil Survey of Erie County (USDA Soil Conservation Service, 1986). Urban Land soils are not mapped in detail: because of commercial, industrial or residential development they have highly disturbed soil formations, artificial fill, and extensive impervious surfaces. Soils in this category are nearly level and range from well-drained to poorly drained. The natural ground surface and soils along Main Street are covered with one to nine feet of fill (Keller et al., 1981). Main Street and LRRT construction disturbed the entire Project Area to a depth of more than 20 feet below existing ground surface, eliminating soil structure and stratification.

The site lies within the Eastern Lakes section of the Central Lowlands hydrographic province (USGS, 1995). The surficial soils in the Project Area are underlain by glacial deposits and the deeper Silurian and Devonian Onondaga limestone bedrock. Borings in the vicinity of Main Street in downtown encountered bedrock at approximately 40 feet below ground surface (Gorton, 2000).

No-Action Alternative

The No-Action Alternative would not require any surficial or subsurface modifications; therefore, this alternative would have no effect on the geology or soils of the Project Area.

Probable Impacts of the Proposed Action

Protection of unique geological features, minimization of soil erosion, and siting of facilities in relation to potential geologic hazards are considered when evaluating impacts of the Proposed Action on geological resources. Impacts to geology and soils would occur if they contributed to the disruption of unique geologic features, caused large-scale soil erosion, or if the project was located in a geological hazard impact area. Impacts can often be avoided or minimized if proper construction techniques, erosion control measures, and structural engineering design are incorporated into project development.

The Proposed Action will require some limited disturbance, regrading, and construction within the Project Area to replace sidewalks and restore vehicular travel lanes. These construction activities, however, will not affect the underlying geology or alter the disturbed urban soils composition. The soils along Main Street have been disturbed to

[1] All elevations referenced in this EA are provided in feet above mean sea level.

depths in excess of 20 feet for various underground utilities and the LRRT system foundations. None of the excavation required will affect the deep natural soils that lie under the fill (greater than 20 feet below the surface). The Proposed Action will not require any soil disturbance at depths greater than 20 feet; have any effect on soils or soil formations; involve subsurface intrusion at or below bedrock levels (40 or more feet deep); or be located in the vicinity of any geologic hazards.

Mitigation Measures

Construction-related activities, which will be discussed in further detail in Chapter 11, will have minor temporary impacts to geology and soils, primarily related to the potential for erosion and sedimentation. During construction a Sediment and Erosion Control Plan, including the use of silt fencing and dust abatement procedures, will be used to minimize the potential for surficial sediments and fill to migrate from the project site.

B. Terrestrial Resources

Existing Conditions

Vegetation

The Project Area is currently sparsely vegetated with a combination of ornamental and native plants. Species currently found in the Project Area include Bradford pear, pine, Washington hawthorn, and ash. Although vegetation is clustered in some locations along the Project Area, the clusters are not large enough or sufficiently stratified to constitute a naturally functioning vegetative community. The trees that occur along the Project Area provide perching, nesting, and loafing habitat for urban adapted bird species, but do not contain the spatially distinct microhabitat units (e.g., canopy, understory, and ground cover) that a naturally occurring vegetative community provides.

Wetlands

The Project Area is in a heavily urbanized area of Buffalo. A field inspection and a review of the National Wetland Inventory maps indicate that no wetlands occur within the Project Area.

Wildlife

The urban character of the Project Area and its lack of microhabitat diversity and complexity limit its suitability as habitat for all but the most urban-adapted species. Urban bird species such as American Robin, Brown-headed Cowbird, Common Grackle, European Starling, Common Pigeon, and House Sparrow are found along the Project Area. The largest trees are also used by gray squirrels.

Threatened and Endangered Species

According to the United States Fish and Wildlife Service (USFWS), no federally listed threatened or endangered species are known to occur in the Project Area (http://www.fws.gov/northeast/nyfo/es/S7.htm). According to the New York Department of Environmental Conservation (NYSDEC), the only state listed species that is known to occur near the Project Area is the peregrine falcon *(Falco peregrinus)*, which is

endangered in New York. The peregrine falcon is known to nest very high on the Statler Building and City Hall in downtown Buffalo and to use other tall buildings in the area to perch and rest. It relies heavily on other urban birds for prey and the Common Pigeon usually constitutes a large proportion of its diet.

Probable Impacts of the Proposed Action

The criteria for assessing impacts to terrestrial resources are based on four major elements:

- The importance of the resource in legal, commercial, recreational, ecological, or scientific terms;
- The proportion of the resource that would be affected, relative to its abundance in the region;
- The sensitivity of the resource to proposed activities; and
- The duration of the ecological consequences.

Specifically, if important species or habitats as considered by state or federal natural resource agencies are adversely affected over relatively large areas; a large proportion of an important species or habitat within a region is adversely affected; or if disturbances cause reductions in population size or distribution of an important species. The duration is also important (i.e., temporary impacts (i.e., noise associated with construction) versus permanent impacts (e.g., land conversion).

Determination of potential impacts on vegetation communities, including wetlands, is based on the functions and values of the particular community or wetland. For example, a wetland analysis evaluates the functions (physical, biological, and chemical processes) and values (processes or attributes valuable to society) of a wetland. Potential physical impacts affecting a wetland's ability to perform its functions and values are evaluated to determine the level of potential impacts.

Wetlands

There are no wetlands within or in the immediate vicinity of the Project Area. The Proposed Action will have no effect on wetlands and will comply with the President's Executive Order 11990 on the Protection of Wetlands.

Vegetation

The Proposed Action will result in short-term losses of vegetation. Under the Proposed Action, some of the existing trees will be removed or disturbed in order to reconstruct the sidewalk or re-establish vehicular travel lanes. The existing trees are not of sufficient number, diversity, or proximity to constitute a naturally functioning vegetative community. More trees will be replanted than will be removed, although the new trees will generally be, at least initially, smaller.

Wildlife

The wildlife community in the Project Area is comprised of bird and mammal species adapted to urban environments. Short-term wildlife displacement will occur during

construction activities; however, re-colonization of the Project Area will likely be rapid once vegetation is re-established and construction activities cease as urban-adapted species are, by definition, tolerant of human activity and able to use disturbed habitats (Ricklefs, 1979). Restoring vehicular traffic to Main Street will increase wildlife-vehicle interactions. The incidence of traffic-related injuries to wildlife, however, will be small because these species are adapted to the urban environment and vehicle speeds will be relatively low. The Proposed Action will not permanently alter the Project Area from an urban condition, and therefore will not change the nature of, or have a long-term net effect on, the wildlife community in the Project Area.

Threatened and Endangered Species (TES)

No federally listed threatened or endangered species are known to occur in Erie County according to the USFWS[2]. The only state-listed species known to occur in the Project Area is the peregrine falcon, which is listed as endangered. No peregrine falcons have been observed nesting at any buildings in the Project Area; however, the species is known to nest in the Statler Towers building west of the Project Area. This species is an aerial predator and is rarely observed on the ground; therefore, re-establishment of vehicular traffic will not affect this species. Wildlife biologists with NYSDEC, in a letter dated August 28, 2006, indicated that because no peregrine falcons are known to use buildings within the Project Area as nest sites and because construction activities will be limited to ground level, the Proposed Action is not likely to affect peregrine falcons (Appendix D).

Mitigation Measures

The Proposed Action will have no adverse effect on wildlife, wetlands, or threatened and endangered species; however, it will impact street trees in the Project Area. The Project Sponsors propose to mitigate this impact by planting more trees than will be removed.

C. Water Resources

Existing Conditions

The Project Area lies within the Buffalo River and Lake Erie watersheds. The Buffalo River drains 817 square miles (NYSDEC, 1998) and the Project Area lies near the mouth of the river where it flows into Lake Erie.

The U.S. Historical Climatology Network Station for Buffalo shows an average of 33.6 inches of annual precipitation for the period between 1885 and 1994 (HCN, 2002). Rainfall is relatively evenly distributed through the year, with a less than two-inch variation in average monthly precipitation. Runoff, however, can vary dramatically through the year, since during the winter months much of the precipitation becomes temporarily sequestered as snow and ice.

[2] This list is available at the USFWS New York Field Office website (http://www.fws.gov/northeast/nyfo/es/S7.htm). Last revision: July 2006.

Floodplains

According to the Federal Emergency Management Agency Flood Insurance Rate Maps (FEMA FIRM), the Project Area lies within flood hazard zone "X". Flood zone "X" includes areas outside the 500-year floodplain with a very low flood risk. The Conrail rail tracks to the south physically separate the Buffalo River and Lake Erie 500-year and higher frequency floodplains from Main Street and the Project Area.

Water Quality

Lake Erie and the Buffalo River are classified by the State of New York as Class C waters, designated for supporting fish and limited contact recreation. Lake Erie and the Buffalo River are on the New York State Clean Water Act Section 303(d) list, which is compiled by NYSDEC and identifies water bodies with impaired water quality that are not supporting their designated uses. The constituent of concern is priority organics, which includes PCBs, dioxins, organic pesticides, and other mostly anthropogenic, organic compounds. NYSDEC currently has fish consumption advisories in place for the Buffalo River, but has identified no ongoing sources. These types of pollutants are usually legacy contaminants and tend to accumulate in delta areas like the mouth of the Buffalo River, where the sediments continue to be a source of contamination without additional inputs from point or non-point sources.

Probable Impacts of the Proposed Action

Water availability, quality, and use; existence of flood plains; and associated regulations form the basis for the significance criteria for water resources. A potential impact to water resources would occur if to the Proposed Action:

- Reduces the availability or supply of water to existing users;
- Creates or contribute to the overdraft of groundwater, or exceed the safe annual yield of water supply sources;
- Adversely affects water quality or endanger public health by creating or worsening health hazard conditions;
- Creates pass-through or interference with a Publicly-Owned Treatment Works (POTW);
- Threatens or damages unique hydrological characteristics;
- Results in new construction in an area with a high probability of flooding; or
- Violates established laws or regulations that protect or manage water resources of an area.

Reduce the availability or supply of water to existing users

The Proposed Action will not involve any water withdrawals, nor will it affect the supply of water to existing users.

Create or contribute to the overdraft of groundwater, or exceed the safe annual yield of water supply sources

The Proposed Action does not require any groundwater withdrawals; therefore, the Proposed Action will not contribute to the overdraft of groundwater, or exceed the safe annual yield of water supply sources.

Adversely affect water quality or endanger public health by creating or worsening health hazard conditions

The Proposed Action may result in a localized (i.e., from Main Street) increase in stormwater pollutant loadings as a result of vehicular emissions. The increase in vehicular use (and its associated emissions) in the Project Area will be negligible when compared with total vehicular use in the Buffalo metropolitan area. Additionally, the drainage pattern along Main Street corridor will not change and all surface water runoff from the Project Area will still discharge into the City of Buffalo combined sewer and stormwater system. Construction activities that discharge to a combined sewer do not require coverage under GP-02-01. Therefore, water quality and water quantity measure requirements under the State Pollutant Discharge Eliminating System (SPDES) permit for stormwater discharges from construction activities (GP-02-01) are not applicable. However, soil erosion and sediment control plans will be prepared for the project construction activities as outlined in NYSDEC's *New York Standards and Specifications for Erosion and Sediment Control*. Therefore, there will be little net increase in pollution loads to the receiving waters (Buffalo River and Lake Erie).

Create pass-through or interference with a Publicly-Owned Treatment Works

The Proposed Action will not create a pass-through or interference with a POTW.

Threaten or damage unique hydrological characteristics

The Proposed Action involves no changes to surface hydrology that could affect the hydrologic characteristics of or inputs to existing streams or rivers.

Result in new construction in an area with a high probability of flooding

The site lies above the 500-year floodplain and the Proposed Action does not involve floodway or floodplain modifications that will affect the site classification or susceptibility to flooding of the Project Area or any other areas. The Proposed Action will comply with the President's Executive Order 11988 on Floodplain Management.

Violate established laws or regulations that protect or manage water resources of an area

The Proposed Action will have no adverse impact on water resources and will comply with all applicable federal, state, and local laws and regulations concerning protection and management of the local water resources.

Summary of Impacts on Water Resources

The Proposed Action will have no adverse impact on water resources as defined by water availability, quality, and use; existence of flood plains; and associated regulations form the basis for the significance criteria for water resources. Operation of construction equipment and vehicles associated with the Proposed Action could slightly increase short-term, localized, stormwater pollutant loading (see Chapter 11). The increase will be negligible when compared to overall pollutant volumes in the area and will have no adverse effect on water quality. There are no floodplains or wetlands within the Project Area; therefore, there will be no construction-related disturbance to these resources. All water shutdowns will be kept to a minimum; however, typical water connections/ interconnections are made within two to four hours and no shutdown shall exceed 8 hours. All properties to be affected by a shutdown shall be notified at least 24 hours in advance. Where water shutdown will cause an undue burden to a business or a property owner, the work will be timed to minimize the impact (off-peak hours) or a temporary service connection will be provided. Work performed in the vicinity of existing restaurants, police stations, municipal buildings, and places of worship shall be performed in the least disruptive time (off-peak hours) and shall be coordinated with the affected establishment and the respective agency prior to work being performed.

Mitigation Measures

Based upon the assessment of the probable impacts, the Proposed Action will have no long-term adverse affect on water resources and therefore no mitigation measures are proposed. Construction-related effects on water resources and proposed mitigation measures are discussed in Chapter 11.

11 CONSTRUCTION IMPACTS

A. Introduction

This chapter describes the construction activities required for the Proposed Action and the environmental impacts that may result from those activities.

B. Description of Construction Activities

No-Action Alternative

The No-Action Alternative would not require any construction activities or other modifications to the Main Street environment; therefore, this alternative would have no construction-related impact on the Project Area.

Proposed Action

As described in Chapter 2, "Project Alternatives," construction of the Proposed Action will be completed in a three-year, three-phase process beginning at Tupper Street and continuing south to Scott Street. Phase 1 (2009) construction will be from Tupper Street to Chippewa Street and Exchange Street to Scott Street; Phase 2 (2010) construction will be from Chippewa Street to Exchange Street; and Phase 3 (2011) construction will be the Scott Street Crossover. Each phase will be completed in one construction season and vehicular traffic will be reintroduced on a block-specific basis following completion of each construction phase; however, the completion of all three phases is necessary to meet the purpose and need of the Proposed Action. The Proposed Action will require the sidewalks to be reconstructed along both sides of Main Street. The old sidewalk will be removed and new sidewalks will be constructed to accommodate the enhancements to the LRRT stations and the creation of on-street parking.

The construction activities will require the use of standard heavy construction equipment such as dump trucks, excavators, concrete mixers, and personal equipment. The construction work will occur on weekdays between approximately 7 am and 6 pm. Some activities may need to be completed on weekends to minimize the duration of construction during each phase; however, these activities will be coordinated to avoid conflicts with special events along Main Street.

C. Construction Impacts of the Proposed Action

Land Use, Public Policy, and Social Conditions

The creation of new sidewalks will potentially disrupt pedestrian traffic along Main Street; however, the construction activities along individual sections of the sidewalk will be short in duration. Service and emergency vehicle traffic will continue outside the trackbed with minimal disruption.

Mitigation Measures

The Project Sponsor will provide for continued pedestrian access to storefronts in the affected areas through the use of temporary walkways. Potential mitigation for service and emergency vehicle access will involve constructing new sidewalks on one side of the street at a time which will leave the other side of the street available for service and emergency vehicles.

Socioeconomic Conditions

Several Main Street businesses have raised concerns regarding the extent of construction-related business disruptions. Although the construction of new sidewalks will be required, these activities will cause minimal business disruption. Temporary sidewalks will be built to provide pedestrians continued access to businesses. Additionally, construction hours will be chosen so they do not overlap with regular or peak business hours.

Mitigation Measures

As described in the Land Use section, temporary walkways will be established during construction as a mitigation measure to allow for pedestrians to continually access businesses throughout the construction period. Additionally, as described in Section B, the construction activities will be phased over three years such that an individual block will only be affected for no more than one construction season to mitigate for the potential disruption to local businesses.

The project will be constructed over three phases that will work from the project's northern boundary southward. All three phases are necessary to meet the purpose and need of the Proposed Action. The first phase, 1A, will include the section between Tupper Street and Chippewa Street. In order to coincide with the anticipated completion of the projects along the lower part of Main Street, it is anticipated that the construction work will then shift to the southern boundary. Phase 1B of the construction will take place between Scott Street and Exchange Street, including the work related to the crossover south of Scott Street. Phase 2 of the construction will incorporate the section between Chippewa Street and Church Street. Finally, Phase 3 will include work between Church Street and Exchange Street (DiDonato, 2006).

Visual and Aesthetic Considerations

Construction activities associated with the Proposed Action will cause a minor, temporary adverse impact on visual and aesthetic conditions. Specifically, the establishment of construction staging areas, overnight equipment storage, and the general disruption associated with construction activities will temporarily detract from the visual interest and appeal of Main Street. However, these construction-related effects will be minimal and temporary in nature, and the long-term beneficial effects on urban design and aesthetics will outweigh the temporary construction-related effects.

Historic Resources

The potential for intact archaeological resources to occur in areas disturbed by proposed construction activities is extremely low. The Proposed Action does not require demolition or modification of buildings or other historic areas along the Main Street

pedestrian corridor. Although the construction activities will require reconstruction of the sidewalks, the construction-related activities will be minimal and temporary in nature and will not affect the foundation, appearance, or structural integrity of any listed or eligible historic buildings along Main Street. The long-term beneficial effects of the Proposed Action on cultural resources will outweigh the temporary construction-related sidewalk disruption (see Section 6 (D)). The construction staging areas will be sited in previously developed, but unoccupied areas of Main Street. No construction or demolition activities will be required to create staging areas such that historic resources will be adversely impacted.

FTA has determined and SHPO has opined in a letter dated October 27, 2006 that the Proposed Action will have "no adverse effect" on cultural resources listed, or eligible for, the State and National Register of Historic Places.

Traffic and Transportation

Construction activities associated with the Proposed Action will cause temporary disruption of transportation in affected areas. The LRRT will incur some delays during sidewalk construction and station enhancement; however, the phased construction approach will limit disruption to one segment of Main Street per construction season. The total delay, and short-term measures to minimize disturbance, will be evaluated once the phasing is finalized (DiDonato, 2006).

Vehicular traffic will be returned to Main Street on a block-specific basis once construction activities for that block were completed; therefore, there will be no vehicular traffic delays on Main Street associated with project construction. Access will be maintained for emergency and service vehicles.

Pedestrian traffic may be temporarily inconvenienced as a result of the construction activities. For example, pedestrians traveling between commercial businesses, LRRT stations, and parking facilities may be required to adjust routes due to the presence of construction equipment and disturbed areas.

Mitigation Measures

In order to minimize the impact of construction on LRRT operations a one-sided trackbed approach could be used, which will allow one track to remain open during construction. Limiting the hours of construction to non-peak commuting hours will also minimize LRRT delays.

Air Quality

The operation of construction equipment associated with the Proposed Action will result in a short-term, minor increase in emissions of CO_2, NO_x, PM_{10}, $PM_{2.5}$, and VOCs. Exhaust from construction vehicles and equipment could also increase odors in the area. The Proposed Action will have negligible construction-related air quality impacts since construction equipment will be minimal. The Proposed Action will follow a Sediment and Erosion Control Plan to minimize fugitive dust emission including watering exposed areas and using dust covers on trucks. In addition, the Proposed Action will require the use of diesel emission controls such as ultra-low sulfur diesel fuel, diesel particle filters, and other reduction technologies for particulate matter. Idling times will also be limited, where applicable. The Project Area is located in a major urban location subject to large,

daily traffic volumes and industrial facilities. Relative to the overall air emissions in the vicinity of the Proposed Action, the short-term impacts from construction will be a negligible addition to the overall urban environment. All transportation changes associated with these projects were included in the air quality conformity analysis for the current MPO regional transportation plan, and the plan conforms in accordance with the EPA regulation governing transportation conformity.

Mitigation Measures

As mitigation for the potential increase in exhaust and odors in the Project Area, appropriate control measures for fugitive dust will be employed, including watering exposed areas and using dust covers on trucks. The staged construction approach will further mitigate potential construction-related air quality impacts as individual blocks will only be impacted for one construction season.

Noise and Vibration

Introduction

This section analyzes the effects of project construction on ambient noise and vibration levels. The proposed construction work will occur mainly during daytime construction hours, particularly within blocks with residences and hotels. Construction activities will include pavement of roadways, parking areas and sidewalks as well as station enhancement. Due to the presence of the LRRT system, some construction activities will require work at night when the LRRT is not in operation. Nighttime work will be limited to low noise-generating activities such as concrete placement and electrical work related to the catenary system.

FTA Standards and Criteria for Construction Noise

Airborne noise and vibration levels associated with the construction of the project are subject to the noise criteria defined by the FTA in its guidance document, *Transit Noise and Vibration Impact Assessment*, 2006. In addition, noise levels from some construction equipment are regulated by the Noise Control Act of 1972, 49 USC 4901 *et seq*. Noise from construction equipment is also regulated by noise emission standards of the U.S. EPA. These federal requirements mandate that: (i) certain types of construction equipment and motor vehicles meet specified noise emission standards; and (ii) construction materials are handled and transported so as not to create unnecessary noise. These regulations will be followed during construction activities for the Proposed Action.

The FTA noise criteria specify noise levels that, if exceeded, may result in adverse community reaction. These criteria are a function of the land use of the affected area near a transit project; day and night one- and eight-hour L_{eq} noise levels; and L_{dn} noise levels. L_{eq} is the constant equivalent sound level of a fluctuating noise source, usually for one hour, while L_{dn} is a descriptor for the cumulative 24-hour day-night noise level that accounts for greater nighttime sensitivity for noise. (For more information on noise metrics, please see Chapter 9, *Noise and Vibration.*). Table 11-1 shows the FTA general assessment impact criteria for construction noise.

Table 11-1 FTA General Assessment Impact Criteria for Construction Noise

Land Use	One-hour L_{eq} (dBA)	
	Day	Night
Residential	90	80
Commercial	100	100
Industrial	100	100

Methodology

Noise from construction activities was estimated following the methodologies for analyzing airborne noise during construction set forth in the FTA guidance manual (FTA 2006). The procedure uses an equation to calculate noise levels from operation of a single piece of construction equipment that accounts for the noise emissions of the construction equipment; the amount of time the equipment is in use; and the distance between the equipment and the receptor. Typical noise levels for construction equipment, measured at a nominal distance of 50 feet from the noise source, are presented in Table 11-2.

The equation used to calculate noise levels is as follows:

$$L_{eq}\text{ (equip)} = \text{E.L.} + 10 \log (\text{U.F.}) - 20 \log (D/50) - 10\, G \log (D/50)$$

Where:

- L_{eq} (equip) is the Leq at a receiver resulting from the operation of a single piece of equipment over a specified time period.
- E.L. is the emissions level of the particular piece of equipment at the reference distance of 50 feet, taken from Table 11-2.
- G is a constant that accounts for topography and ground effects.
- D is the distance from the receiver to the piece of equipment.
- U.F. is a usage factor that accounts for the fraction of time that the equipment is in use over the specified time period.

Table 11-2 Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level (dBA) 50 ft from Source
Air Compressor	81
Backhoe	80
Ballast Equalizer	82
Ballast Tamper	83
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	85
Paver	89
Pile-driver (Impact)	101
Pile-driver (Sonic)	96
Pneumatic Tool	85
Pump	76
Rail Saw	90
Rock Drill	98
Roller	74
Saw	76
Scarifier	83
Scraper	89
Shovel	82
Spike Driver	77
Tie Cutter	84
Tie Handler	80
Tie Inserter	85
Truck	88

Source: FTA's Transit and Vibration Impact Assessment Manual, May 2006

The combination of noise resulting from all pieces of equipment operating during the same time period was obtained by logarithmically adding (i.e., combining) the L_{eq} values for each piece of equipment (Figure E-1 in Appendix E illustrates how noise levels should be combined). The one-hour L_{eq} values were calculated assuming appropriate usage factors for the specified time periods for each element of construction.

The following assumptions were used for a general airborne noise assessment of each phase of construction:

- It is assumed that each construction phase along Main Street corridor has at least a residential (e.g. hotel, hostel, etc.) and commercial (office, business building, etc.) land use (or receiver), but no industrial land use.
- Since locations of site-specific construction activities were not available at this early assessment stage of the proposed project, all pieces of equipment are assumed to operate at the center of the proposed project site. Also, average distance D from the residential and commercial receptor sites to the construction equipment is assumed to be 26 feet.
- Free-field conditions are assumed and ground effects are ignored. Therefore, G = 0.
- Full power operation for a time period of one hour is assumed because most construction equipment operates continuously for periods of one hour or more at some point in the construction period. Therefore, U.F. = 1, and 10 log (U.F) = 0.
- Emission level at 50 feet, E.L., is taken from Table 11-2.
- The estimated construction noise levels include only the two noisiest pieces of equipment expected to be used in each construction phase.

Construction Noise Impacts

Construction activities for the Proposed Action will cause perceptible increases in existing noise levels at locations adjacent to the project site. Project-generated construction noise levels were estimated for each phase of construction, for daytime and nighttime hours, at the residential and commercial land uses or receptors. As shown in Tables 11-3 and 11-4, FTA impact criteria will be temporarily exceeded at residential receptors due to the sidewalk construction activities; however, there are few residential areas along Main Street and these activities will be short in duration (i.e., several days) at any given location. The FTA criteria for commercial areas will not be exceeded. The noise levels include the combination of the two noisiest pieces of equipment expected to be used during daytime (paver and concrete mixer) and nighttime (two concrete vibrators) construction activities in each phase.

An additional analysis was performed to estimate the project-generated construction noise levels during peak truck delivery (mobile sources) hours. It was assumed that truck deliveries will occur only during daytime hours in all construction phases of the proposed project. Due to the constant flow of delivery trucks expected during each construction phase, it was conservatively assumed that two delivery trucks will be operating at full power for at least one hour per day along the Main Street corridor. It was also assumed that the average truck distance, D, to residential and commercial receptor sites will be 26 feet. The results shown in Table 11-5 indicate that FTA criteria will be temporarily exceeded at residential receptors due to the sidewalk construction deliveries; however, there are few residential areas along Main Street and these activities will be short in duration (i.e., several hours) at any given location.

Table 11-3 Maximum 1-Hour L_{eq} Noise Levels During Construction in Daytime Hours (dBA) for the Proposed Action

Receptor Site	Land Use Category[1]	FTA Daytime Criteria[2] $L_{eq(1)}$	Two Noisiest Pieces of Equipment	$L_{eq(1)}$ During Each Construction Phase[3]			
				1A	1B	2	3
1	***Residential***	***90***	Paver	96	96	96	96
			Concrete Mixer	92	92	92	92
			Combined[4]	***97.5***	***97.5***	***97.5***	***97.5***
2	***Commercial***	***100***	Paver	96	96	96	96
			Concrete Mixer	92	92	92	92
			Combined[4]	***97.5***	***97.5***	***97.5***	***97.5***

1. According to the Final Design Report (DiDonato, 2006), the width of the new sidewalks will range from approximately 22 to 38 feet. Therefore, it is assumed that a residential and a commercial receptor site will be located at least 22 feet from the construction equipment during each construction phase.
2. FTA criteria based on affected land use (see Table 11-1).
3. $L_{eq(1)}$ is the predicted hourly-equivalent noise level during the peak construction hour.
4. See Figure E-1 in Appendix E for addition or combination of noise levels.

Table 11-4 Maximum 1-Hour L_{eq} Noise Levels During Construction in Nighttime Hours (dBA) for the Proposed Action

Receptor Site	Land Use Category[1]	FTA Daytime Criteria[2] $L_{eq(1)}$	Two Noisiest Pieces of Equipment	$L_{eq(1)}$ During Each Construction Phase[3]			
				1A	1B	2	3
1	***Residential***	***80***	Concrete Vibrator	83	83	83	83
			Concrete Vibrator	83	83	83	83
			Combined[4]	***86***	***86***	***86***	***86***
2	***Commercial***	***100***	Concrete Vibrator	83	83	83	83
			Concrete Vibrator	83	83	83	83
			Combined[4]	***86***	***86***	***86***	***86***

1. According to the Final Design Report (DiDonato, 2006), the width of the new sidewalks will range from approximately 22 to 38 feet. Therefore, it is assumed that a residential and a commercial receptor site will be located at least 22 feet from the construction equipment during each construction phase.
2. FTA criteria based on affected land use (see Table 11-1).
3. $L_{eq}(1)$ is the predicted hourly-equivalent noise level during the peak construction hour.
4. See Figure E-1 in Appendix E for addition or combination of noise levels.

Table 11-5 Maximum 1-Hour L_{eq} Noise Levels During Truck Delivery in Daytime Hours (dBA) for the Proposed Action

Receptor Site	Land Use Category[1]	FTA Daytime Criteria[2] $L_{eq(1)}$	Two Delivery Trucks	Project Generated Noise Levels $L_{eq(1)}$[3]	FTA Compliance
1	***Residential***	***90***	Truck-1	95	
			Truck-2	95	
			Combined[4]	***98***	***Exceeded***
2	***Commercial***	***100***	Truck-1	95	
			Truck-2	95	
			Combined[5]	***98***	***Meet***

1. According to the Final Design Report (DiDonato, 2006), the width of the new sidewalks will range from approximately 22 to 38 feet. Therefore, it is assumed that a residential and a commercial receptor site will be located at least 22 feet from the construction equipment during each construction phase.
2. FTA criteria based on affected land use (see Table 11-1).
3. Leq(1) is the predicted hourly-equivalent noise level during the peak construction hour.
4. See Figure E-1 in Appendix E for addition or combination of noise levels.

Because the proposed project is in an early assessment stage and equipment rosters and schedules are unavailable, Tables 11-3, 11-4, and 11-5 present a "worst-case" estimate of the expected construction noise levels. Extremely noisy construction equipment such as pile drivers, rail saws, and rock drills will not be used during the construction. Due to the presence of the LRRT system, some construction activities will require work at night when the LRRT is not in operation. The Project Sponsor understands that this could more severely impact the noise environment than activities during the day. As such, those activities likely to be scheduled during the night will be restricted to primarily electrical work associated with the wires for the catenary poles.

Mitigation Measures

The majority of the equipment will be kept at the maximum possible distance from the buildings and construction will be primarily restricted to normal daytime hours. The FTA criteria for commercial areas will not be exceeded. In addition, noise muffling equipment will be used whenever possible to reduce construction noise levels.

The Project Sponsor understands that construction activities will increase noise levels above the typically acceptable levels for a downtown residential area and the majority of construction activities will be timed (7 am to 6 pm) and phased to minimize disruption so one block will be impacted for only one construction season.

FHWA Construction Noise Analysis

According to the FHWA Technical Advisory T6160.2 "Analysis of Highway Construction Noise," calculation of construction noise levels is usually not necessary for traffic noise analyses. It is difficult to predict reliable levels of construction noise at a particular receptor or group of receptors. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. Daily construction normally occurs during daylight hours when occasional loud noises are more tolerable. No one receptor is expected to be exposed to construction noise of long duration (i.e., months); therefore, extended disruption of normal activities is not anticipated. However, provisions will be included in the plans and specifications requiring the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and maintenance of muffler systems.

FTA Standards and Criteria for Vibration

The FTA has set vibration-induced architectural damage limits (or thresholds) at a peak particle velocity (PPV) ranging from 0.12 to 0.5 inches per second (in/sec) for different building categories. Table 11-6 shows FTA's Construction Vibration Damage Criteria for four different building categories.

Table 11-6 FTA's Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
I. Reinforced concrete, steel or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

Source: FTA manual, 2006

The construction activity is expected to include the use of some ground-vibrating construction equipment within the Main Street corridor where some engineered or reinforced-concrete buildings are located. Therefore, a damage assessment was performed in accordance with the FTA methodology using the following equation:

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

Where: PPV (equip) is the peak particle velocity in in/sec of the equipment adjusted for distance PPV (ref) is the reference vibration level in in/sec at 25 feet, taken from the FTA manual; and D is the distance from the equipment to the receiver (i.e., the reinforced or engineered-concrete buildings).

The PPV (ref) at 25 feet provided in the FTA manual for a large bulldozer and loaded trucks were 0.089 and 0.076 in/sec, respectively. For the Proposed Action, an approximate distance, D, of 22 feet from the reinforced/engineered-concrete buildings was assumed. Based on this distance, the PPVs generated for the large bulldozer and loaded trucks were 0.108 and 0.092 in/sec, respectively.

Construction Vibration Impacts

The PPV generated by the ground-vibrating equipment (large bulldozer and loaded trucks) during the construction phases is expected to be less than FTA's construction vibration damage criteria for all building categories (see Table 11-5). Construction activities will result in short-term ground vibrations that spread through the ground and diminish in strength with distance. The construction vibration is not expected to result in prolonged annoyance or building damage. Extremely high ground-vibrating equipment such as pile drivers, clam shovel drops, and hydromills will not be used during any construction phase of the project.

Natural Resources

Geology and Soils

Protection of unique geological features, minimization of soil erosion, and siting of facilities in relation to potential geologic hazards are considered when evaluating impacts of the Proposed Action on geological resources. Impacts to geology and soils would be occur if they contributed to the disruption of unique geologic features, caused large-scale soil erosion, or if the project was located in a geological hazard impact area. Impacts can often be avoided or minimized if proper construction techniques, erosion control measures, and structural engineering design are incorporated into project development.

The Proposed Action will require some limited disturbance, regrading, and construction within the Project Area to replace sidewalks and restore vehicular travel lanes. These construction activities, however, will not affect the underlying geology or alter the disturbed urban soils composition. The soils along Main Street have been disturbed to depths in excess of 20 feet for various underground utilities and the LRRT system foundations. None of the excavation required will affect the deep natural soils that lie under the fill (greater than 20 feet below the surface). The Proposed Action will not require any soil disturbance at depths greater than 20 feet; have any effect on soils or soil formations; involve subsurface intrusion at or below bedrock levels (40 or more feet deep); or be located in the vicinity of any geologic hazards. Construction-related activities will have minor temporary impacts to geology and soils, primarily related to the potential for erosion and sedimentation.

Mitigation Measures

A Sediment and Erosion Control Plan, including the use of silt fencing and dust abatement procedures, will be used to minimize the potential for surficial sediments and fill to migrate from the project site.

Terrestrial Resources

Vegetation

The Proposed Action will result in short-term losses of vegetation. Under the Proposed Action, some of the existing trees will be removed or disturbed in order to reconstruct the sidewalk or re-establish vehicular travel lanes. The existing trees are not of sufficient number, diversity, or proximity to constitute a naturally functioning vegetative

community. More trees will be replanted than will be removed, although the new trees will generally be, at least initially, smaller.

Mitigation Measures

The Proposed Action will impact street trees in the Project Area. The Project Sponsors propose to mitigate this impact by planting more trees than will be removed.

Wildlife

The wildlife community in the Project Area is comprised of bird and mammal species adapted to urban environments. Short-term wildlife displacement will occur during construction activities; however, re-colonization of the Project Area will likely be rapid once vegetation is re-established and construction activities cease as urban-adapted species are, by definition, tolerant of human activity and able to use disturbed habitats (Ricklefs, 1979). Restoring vehicular traffic to Main Street will increase wildlife-vehicle interactions. The incidence of traffic-related injuries to wildlife, however, will be small because these species are adapted to the urban environment and vehicle speeds will be relatively low. The Proposed Action will not permanently alter the Project Area from an urban condition, and will not change the nature of the wildlife community in the Project Area.

Threatened and Endangered Species

No federally listed threatened or endangered species are known to occur in Erie County according to the USFWS[1]. The only state-listed species known to occur in the Project Area is the peregrine falcon, which is listed as endangered. No peregrine falcons have been observed nesting at any buildings in the Project Area; however, the species is known to nest in the Statler Towers building west of the Project Area. This species is an aerial predator and is rarely observed on the ground and wildlife biologists with NYSDEC, in a letter dated August 28, 2006, indicated that because no peregrine falcons are known to use buildings within the Project Area as nest sites and because construction activities will be limited to ground level, the Proposed Action is not likely to affect peregrine falcons (Appendix D).

Water Resources

Operation of construction equipment and vehicles associated with the Proposed Action could slightly increase short-term, localized, stormwater pollutant loading. The increase will be negligible when compared to overall pollutant volumes in the area and will have no adverse effect on water quality. There are no floodplains or wetlands within the Project Area; therefore, there will be no construction-related disturbance to these resources. All water shutdowns will be kept to a minimum; however, typical water connections/interconnections are made within two to four hours and no shutdown shall exceed 8 hours. All properties to be affected by a shutdown shall be notified at least 24

[1] This list is available at the USFWS New York Field Office website (http://www.fws.gov/northeast/nyfo/es/S7.htm). Last revision: July 2006.

hours in advance. Where water shutdown will cause an undue burden to a business or a property owner, the work will be timed to minimize the impact (off-peak hours) or a temporary service connection will be provided. Work performed in the vicinity of existing restaurants, police stations, municipal buildings, and places of worship shall be performed in the least disruptive time (off-peak hours) and shall be coordinated with the affected establishment and the respective agency prior to work being performed.

Conclusions

The Proposed Action will result in construction-related disturbances typical of any construction project in downtown Buffalo. While there may be some inconvenience associated with increased noise, traffic, air emissions, and access limitations related to construction, no conflicts are expected with the surrounding land uses during construction of the project. Most of the land uses immediate to the construction area are offices and commercial uses, which are less sensitive to noise and other disruptions than residences or schools or other such uses.

The phased construction approach will minimize disruption to Main Street during the construction period by limiting activities along any specific block to one construction season. Emergency vehicles will continue to have access to the entirety of Main Street during the construction process, and pedestrian access will be minimally disrupted as the construction activities will be primarily confined to the trackbed.

In conclusion, construction activities under the Proposed Action will generate the types of disturbances typically associated with construction within an urban setting. The magnitude of these disturbances, however, will be less than other similar projects because most of the proposed construction will occur along the existing pedestrian-transit mall

12 ENVIRONMENTAL JUSTICE

A. Introduction

On February 11, 1994, President Clinton issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." This Executive Order is designed to ensure that each federal agency "shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate disproportionately high and adverse human health or environmental impacts of its programs, policies, and activities on minority populations and low-income populations." This chapter describes the population of the area where potential effects could occur as a result of the Proposed Action, and considers whether any disproportionately high and adverse effects will occur to those populations.

Executive Order 12898 also requires federal agencies to work to ensure greater public participation in the decision-making process. To this end, the Proposed Action has a public participation and community outreach program, described in Chapter 14, "Process and Public Participation."

B. Regulatory Context

The federal CEQ, which has oversight of the federal government's compliance with Executive Order 12898 and the NEPA, developed guidance to assist federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed. Federal agencies are permitted to supplement this guidance with more specific procedures tailored to their particular programs or activities, as the USDOT has done.

As set forth in the CEQ's guidance document, *Environmental Justice Guidance under the National Environmental Protection Act*, December 1997, the CEQ's methodology involves collecting demographic information on the area where the project may cause high and adverse effects; identifying low-income and minority populations in that area using census data; and identifying whether the project's high and adverse effects are disproportionately high and adverse on low-income and minority populations in comparison to those on other populations. Any disproportionately high and adverse effects on minority and/or low-income populations should then be one of the factors the federal agency considers in its findings on the project.

The USDOT's *Final Order on Environmental Justice* (April 1997) establishes procedures for the USDOT to use in complying with Executive Order 12898. The order applies to all of USDOT's operating administrations, including the FTA. As set forth in the order, FTA must take several steps to determine whether the project will have disproportionately high and adverse effects on minority and low-income populations. "Disproportionately high and adverse effects" are defined as adverse effects that will be predominately borne by a minority population and/or low-income population or will be suffered by the minority and/or low-income population and will be appreciably more severe or greater in magnitude than the adverse effects that will be suffered by the non-minority or non-low-income population.

In making determinations regarding disproportionately high and adverse effects on minority and low-income populations, mitigation and enhancement measures that will be taken and all offsetting benefits to the affected minority and low-income populations may be taken into account, as well as the design, comparative impacts, and relevant number of similar existing system elements in non-minority and non-low-income areas.

C. Evaluation of Population in Analysis Area

Analysis Area

To evaluate the Project Area for environmental justice (EJ) concerns, an Analysis Area, consisting entirely of Census Tracts and Block Groups, was created. Figure 12-1 shows the Analysis Area and census geography. Although this is geographically larger than the Project Area identified in Figure 1-2, the Analysis Area represents the most reasonable boundary that could be drawn using available census data.

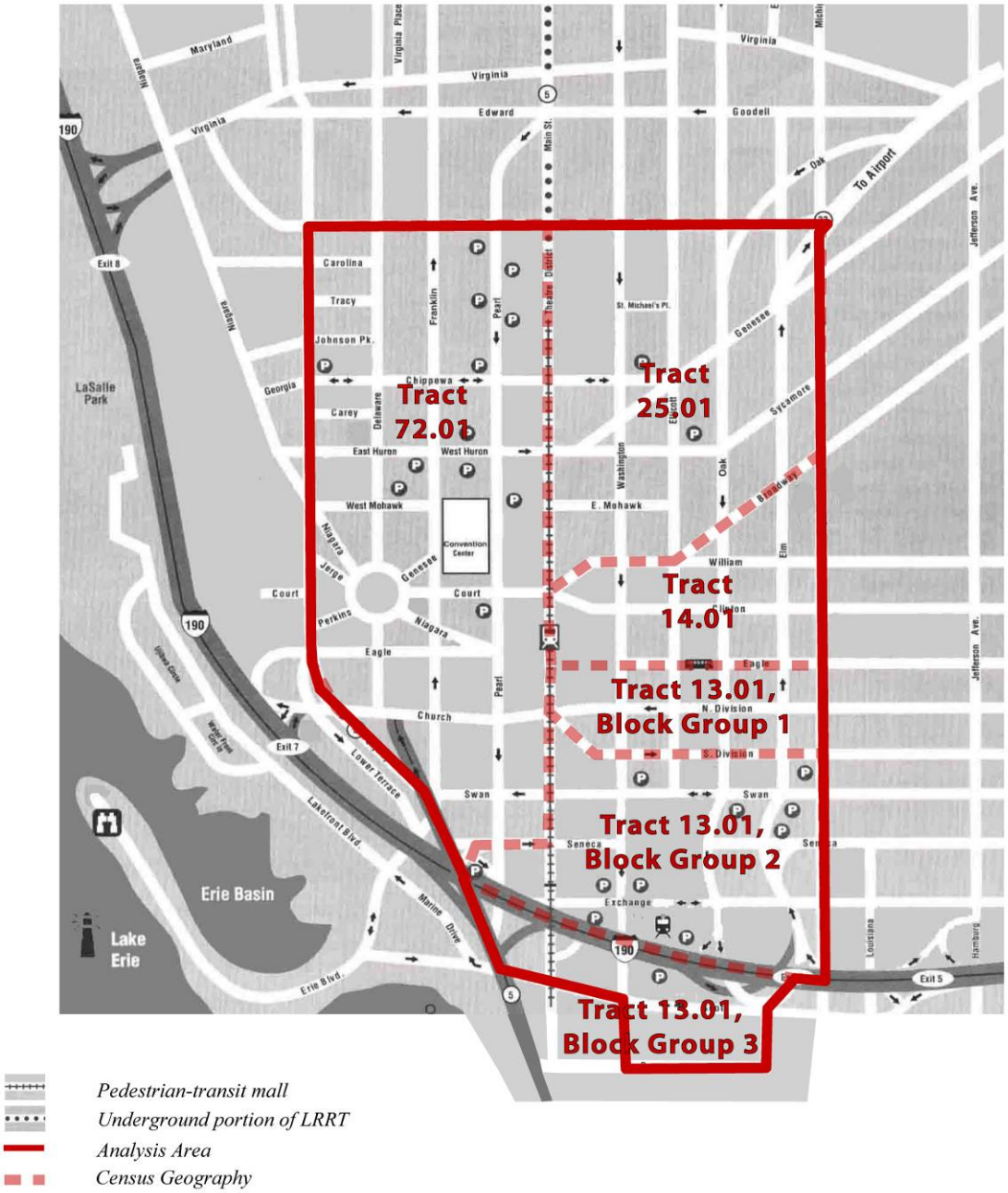
Criteria

The definitions of minority populations and low-income populations are as follows:

- **Minority population:** any readily identifiable groups of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy, or activity. In this case, the City of Buffalo is used as the "geographic proximity" and the Analysis Area is depicted in Figure 12-1.
- **Low-income population:** any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy, or activity. This chapter uses two metrics: low- and very low-income households. The thresholds are defined as 80 percent and 50 percent, respectively, of median household income figures used by federal agencies to determine populations of concern. If the Analysis Area exceeds these thresholds at the City level, then the potential for EJ concerns exists.

In both cases, corresponding state data are provided.

Figure 12-1 Environmental Justice Analysis Area



Findings

Table 12-1 summarizes the EJ findings for race in the Analysis Area, while Table 12-2 summarizes the EJ findings for poverty and income in the Analysis Area. Based on the criteria described above, the Analysis Area does not exceed thresholds for EJ concerns about race. Although just over half of residents of the Analysis Area population are

minority, the 50.1% minority population of the Analysis Area is not meaningfully greater than the City of Buffalo's overall 46.1% minority population share.[1]

Table 12-1 Population and Race

	New York State		City of Buffalo		Analysis Area	
	Number[1]	**Percent of Total**	**Number**	**Percent of Total**	**Number**	**Percent of Total**
Total Population	18,395,996	100%	281,522	100%	585	100%
White	12,529,598	68.1%	151,624	53.9%	292	49.9%
Nonwhite (Minority) [1]	5,866,398	31.9%	129,898	46.1%	293	50.1%
1: Includes all other races as identified by the U.S. Census: Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Other; and Multiple Races.						

Source: US Bureau of the Census, Summary File 1, 2001

Table 12-2 Poverty and Low-Income Status

	New York State	City of Buffalo	Analysis Area
Total Households	7,060,595	122,672	313
Poverty Status			
Total Persons [a]	18,449,899	282,377	458
Persons with income below 1999 poverty level	2,692,202	75,120	203
Percent below poverty level (poverty rate)	**14.6%**	**26.6%**	**44.3%**
Low-Income Status			
Median Household Income in 1999	$43,393	$24,536	$16,400
Low Income Threshold (80 percent of median)	$34,714	$19,629	$19,629
Very Low Income Threshold (50 percent of median)	$21,697	$12,268	$12,268
Number of Low Income Households [b]	2,892,481	51,722	175
Percent of Total Households	41.0%	42.2%	55.9%
Number of Very Low Income Households [c]	1,671,668	39,899	150
Percent of Total Households	23.7%	32.5%	47.9%
a: "Total Persons" are derived from US Census population samples (Summary File 3), rather than 100% population counts (Summary File 1), which are used to calculate the "Total Population" figures shown in Table 16-1. b: Number of households with annual income of $19,999 or less ($34,999 for New York State) c: Number of households with annual income of $14,999 or less ($19,999 for New York State)			

Source: US Bureau of the Census, Summary File 3, 2001

Based on the criteria described above and the data in Table 12-2, the Analysis Area has a disproportionately high low income population relative to the City of Buffalo and the State. The share of Analysis Area persons below the poverty level and the share of Low- and Very Low-Income households are greater than the City of Buffalo's overall averages, although it is important to consider this finding in the context that the Analysis Area's population comprises approximately two-tenths of one percent of the City's overall population.

As discussed in the other chapters of this EA, the Proposed Action is intended to improve the overall socioeconomic condition for the Main Street corridor. During the SEQR

[1] The total population of the Analysis Area is 1,940, of whom 1,355 are in Group Quarters (The Erie County Holding Center). Only the non-Group Quarters population is evaluated.

process completed in 2003, residents within the Project Area were invited to a series of meetings and workshops to facilitate discussion of the Proposed Action. For a further discussion of the public outreach conducted for this project, refer to Chapter 14. Such improvement could benefit the area's EJ population by providing more and higher-paying job opportunities, as well as higher property values for Analysis Area residents who own their homes. Residents who do not own their homes could be negatively impacted if economic revitalization leads to higher rents.

Mitigation Measures

Overall, the Proposed Action will have a beneficial effect on the EJ population identified in this Chapter.

D. Conclusions

The Project Area is home to predominantly minority populations and a low-income population that is proportionately larger than the City of Buffalo's overall low-income population. However, the other chapters of this EA conclude that the Proposed Action will not result in any significant adverse impacts during construction or operation, and could create significant beneficial impacts for the EJ population identified in this chapter. Therefore, the Proposed Action will not result in disproportionately high and adverse effects on minority or low income populations and no additional analysis is warranted.

13 INDIRECT AND CUMULATIVE IMPACTS

A. Introduction

Indirect impacts are those that are "caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable" (40 CFR 1508.8). Generally, these impacts are induced by the Proposed Action. Indirect effects can occur in any of the impact areas, for example changes in land use, economic vitality, neighborhood character, traffic congestion, and their associated effects on air quality and noise, water resources, and other natural resources.

Cumulative impacts result from the incremental consequences of an action (the project) when added to other past and reasonably foreseeable future actions (40 CFR 1508.7). The cumulative effects of an action may be undetectable when viewed in the individual context of direct and even indirect impacts, but when added to other actions can eventually lead to a measurable environmental change.

This chapter summarizes indirect effects of the Proposed Action and addresses cumulative effects of the Proposed Action and other projects that may affect the CBD in the vicinity of the Proposed Action.

The proposed development projects are described below and include:

- the Erie Canal Harbor Project;
- the Inner Harbor Parking Structures;
- the Foot of Main Project or Canal Side Project (including Bass Pro Outdoor World, Market Building, and other future mixed development);
- the Seneca Buffalo Creek Casino;
- the Ellicott Street Project;
- the Conversion of the 700-Block of Main Street to Two-Way Traffic;
- the Conversion of Pearl Street to two-way traffic; and
- a series of private development projects.

Refer to the resource specific analyses in Subsection C for a discussion of the linkages between the Proposed Action and the other ongoing development projects.

Erie Canal Harbor Project

The Erie Canal Harbor Project (ECH) was officially opened to the public on July 2, 2008. It was built by the Erie Canal Harbor Development Corp. (ECHDC),(a subsidiary of the Empire State Development Corporation), and the City of Buffalo. The ECH project created a new harbor with intermodal emphasis, along with marine and landside infrastructure improvements and public access to and along the Buffalo River and parcels for future development. The project is located on an approximate 12.5-acre site along the Buffalo River at the southern terminus of the LRRT system, bounded by Scott Street to the north, Main Street to the east, the Buffalo River to the south, and Marine Drive to the west (FTA, NFTA, and the New York State Urban Development Corporation d/b/a the

Empire State Development Corporation, 2004). In achieving its access and development objectives, this project focuses on preserving and celebrating the area's rich history as the Erie Canal's original "western terminus." In addition, the project conveys the harbor's legacy as a major factor in the growth of both the City of Buffalo and the American Midwest. As part of the Project Master Plan (ESDC, 2004), recommended access improvements include:

- A new "transit plaza" along Scott Street to facilitate bus access to the Project Area and the LRRT system; and
- Road/pathways systems using the site's historic street pattern to connect Main Street and the LRRT Station to the Buffalo River.

Inner Harbor and Waterfront Development Transportation Infrastructure Facilities ("Inner Harbor Parking Structure")

The Erie Canal Harbor Development Corporation and the City of Buffalo have reached a tentative agreement on construction of the dual-purpose ramp located at the corner of Marine Drive and Pearl Street, across from the Marine Drive public housing complex. The Inner Harbor Parking Structure will provide covered parking for Marine Drive Apartment residents and short-term parking for future Bass-Pro Shops customers. It will be directly linked across Pearl Street to the proposed Bass-Pro store. The Inner Harbor Parking Structure is in the design phase; with its completion scheduled for 2010.

Foot of Main Project (Canal Side Project)

The "Foot of Main" project being advanced by the Erie Canal Harbor Development Corporation (ECHDC), a subsidiary of ESDC, involves a comprehensive redevelopment plan for development parcels on the Erie Canal Harbor site and areas surrounding it (e.g., former Memorial Auditorium, Donovan Block, Webster Block, etc.). The Plan, currently in a Pre-Schematic Design Phase, includes the following key components:

- **Bass Pro Outdoor World.** On January 31, 2005, Bass Pro Shops Outdoor World, LLC, announced their intent to locate a Bass Pro Outdoor World at the former Memorial Auditorium site on Main Street in downtown Buffalo. The project would consist of an approximately 150,000-square-foot retail store and a 10,000-square-foot restaurant. The peak traffic volumes for Bass Pro Outdoor World are expected to be during off-peak hours (e.g., after work and weekends). ECHDC is currently coordinating with Bass Pro Shops on the final scope of this development in the overall context of the Foot of Main project. Potential traffic concerns created by the construction of this Project will be mitigated by the Bass Pro Outdoor World Project Proponents. Construction of this project is scheduled for completion by 2010.
- **Market Building.** This facility would involve the construction of a mixed use retail and entertainment facility along Main Street on the Erie Canal Harbor site. It is intended to be designed as an urban, pedestrian-oriented facility to capitalize on the access improvements of the Erie Canal Harbor Project. This project is procuring funding and scheduled for completion in approximately 5 years.

- **Other Future Mixed-Use Development.** While not included in the initial phases of development, the Foot of Main Project includes future plans for mixed use development of the Webster Block (currently a large surface parking lot fronting on Main Street south of Scott Street) as well as heritage-related development (smaller scale retail and hospitality uses) on the remaining development parcels of the Erie Canal Harbor site.

Seneca Buffalo Creek Casino

The Seneca Indian Nation is constructing a $333 million Buffalo Creek Casino and hotel complex near the intersection of South Park and Michigan Avenues. The Seneca Nation Casino is located outside of, and not adjacent to, the Project Area; however, the casino could potentially increase traffic in the vicinity of Main Street. The site is in close proximity to two major roadways (NYS Route 5 and Interstate 90 [the New York State Thruway]); however, the Seneca Buffalo Creek Casino is not intended to direct traffic towards, or promote use of, Main Street. Therefore, given the Casino's proximity to two major roadways as potential access points, traffic is not expected to negatively influence Main Street.

Ellicott Street Project

The Ellicott Street Project is a streetscape/access program included in the Buffalo Niagara Medical Campus (BNMC) Master Plan (2002). The goal of the project is to solidify Ellicott Street as the central north-south axis through the BNMC and a primary focus of multi-modal access. The Ellicott Street Project Area is located approximately two blocks north and two blocks east of the Proposed Action (Figure 13-1). A variety of capital improvements will be implemented including:

- Ellicott Street will be changed to two-way traffic with supporting signage and traffic signals.
- Ellicott Street will be repaved by mill and overlay with placement of a new curb.
- New sidewalks with unique streetscape elements along Ellicott Street.
- Design of Ellicott Park will create a unique 36-foot wide public space. This linear park will be the new spine for the Buffalo Niagara Medical Campus, making use of a 20-foot setback established along the east side of Ellicott Street.
- Ellicott Park will incorporate green landscapes, a unique paving pattern, special low-level lighting, public art, bicycle racks, and custom street furniture. The space will be designed to feel secure and promote activity throughout all seasons, while keeping an eye toward ease of maintenance.

A traffic analysis conducted as part of the Master Plan concluded Ellicott Street could support the projected vehicular flows from two-way travel (BNMC, 2005). The Ellicott Street project is scheduled for completion during 2009.

Conversion of the 700-Block of Main Street to Two-Way Traffic

The conversion of the 700-Block of Main Street is under construction. The 700-Block of Main Street is currently open to one way, northbound traffic. Under this project, the 700-

Block will be reopened to two-way traffic in support of the Proposed Action and a dedicated left turn lane would be constructed for southbound traffic at Tupper Street. Tupper Street will be converted to two-way traffic from Pearl to Ellicott Streets. Other project elements include: new sidewalks, light standards, bicycle lanes, landscaping and plantings, a landscaped median and pedestrian amenities. The 700-Block of Main Street is scheduled for completion during 2009.

This project is located immediately adjacent to the Project Area and will influence traffic volumes along Main Street. The vehicular traffic analysis in the 2006 Final Preliminary Design Report for the Proposed Action included the conversion of the 700-Block to two-way traffic and concluded the conversion will not negatively influence Main Street.

Conversion of Pearl Street to Two-Way Traffic

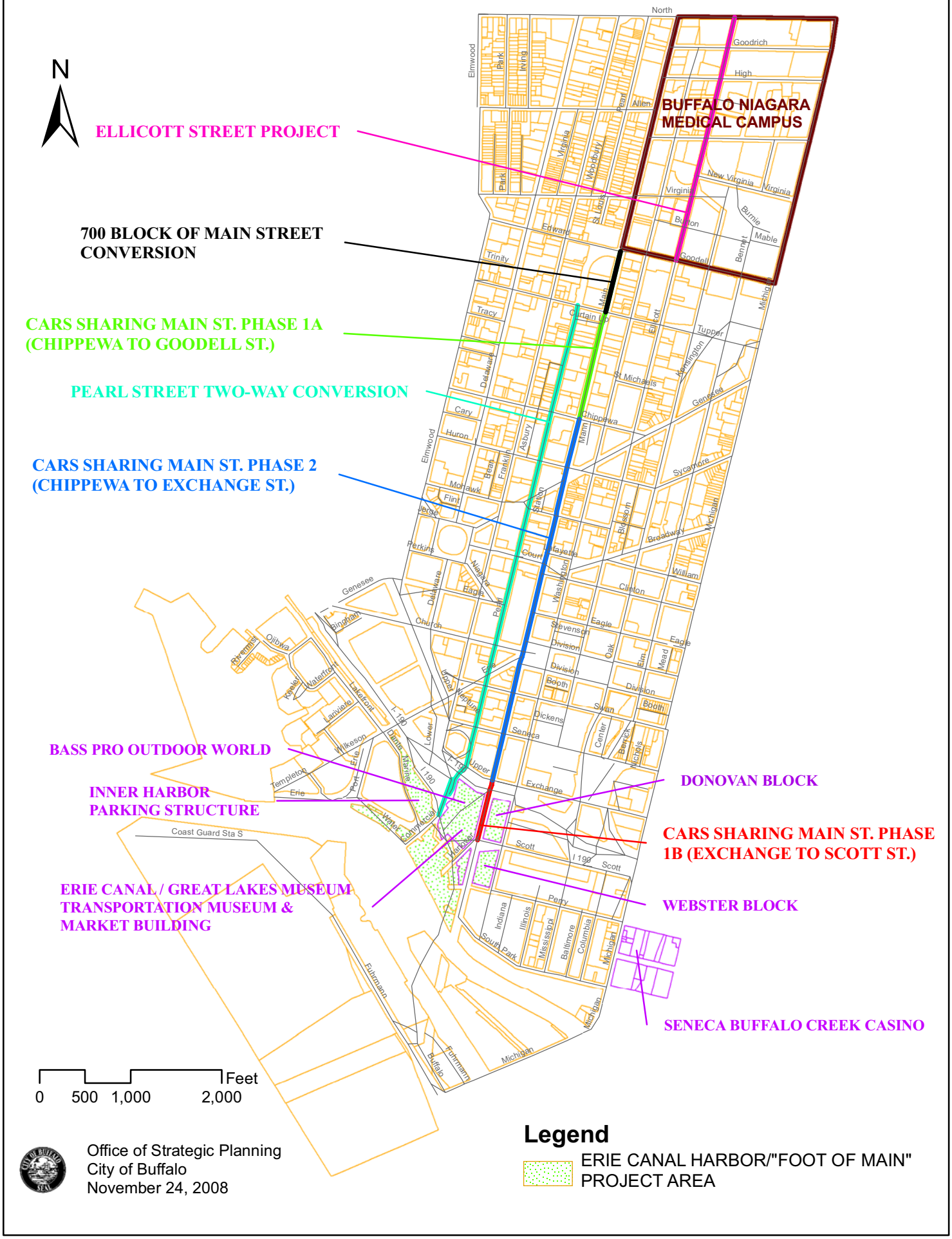
As part of the recommendations from the Queen City Hub Plan (2003), Pearl Street would be converted to two-way traffic. This project would involve remarking the existing roadway for two-way travel and the installation of new traffic signals. As part of this project, bicycle traffic would be routed from Main Street to Pearl Street via Chippewa Street to provide access to the Erie Canal Harbor. The access through Main Street from Tupper Street to Chippewa Street would be through a shared 14-foot-wide travel lane around the portal where space is limited and a dedicated five-foot-wide bike lane on the segment from the portal to Chippewa Street. Bicyclists would be directed west along Chippewa Street using a shared 14-foot lane with “Share the Road” bicycle pavement signs and pavement symbols, which connects with Pearl Street. Bicyclists heading south down Pearl Street would use dedicated five-foot-wide bike lanes from Chippewa to Commercial Street where the route will link to the existing network of bicycle paths near the Erie Canal Harbor.

The City of Buffalo plans to install signed bicycle lanes on Pearl Street as part of a future Pearl Street two-way street conversion scheduled for 2010. These bicycle lanes will connect with future bicycle lanes and other parts of the regional bicycle path network.

Private Development

The Queen City Hub Plan (2003) identifies various private development projects along, and in the vicinity of, the Main Street pedestrian corridor. These projects primarily involve the rehabilitation and renovation of existing buildings for use as apartments, commercial businesses, and office space and are part of the overall revitalization effort in downtown Buffalo. For a full list of private development projects in downtown Buffalo, their construction status, and location relative to the Proposed Action, refer to Appendix F.

Figure 13-1. Development Projects in the Vicinity of Main Street, Downtown Buffalo



B. Cumulative and Indirect Impacts

Land Use, Public Policy and Social Conditions

The Proposed Action, when considered with the other development projects in the region, will help achieve the goal of revitalizing downtown Buffalo. The return of vehicular traffic to Main Street, in combination with the other development projects, will potentially increase use of the Project Area, including restoration and rehabilitation of lands currently not in use. Thus land use will benefit from the cumulative effects of the Proposed Action and other proposed development projects.

Socioeconomics

Main Street will benefit from the cumulative positive socioeconomic effects of the Proposed Action and other proposed development projects in the downtown area. The goal of the Main Street and other development projects in the region is the economic and social revitalization of downtown Buffalo. The Proposed Action and other development will increase consumer traffic along Main Street and support local businesses. Some of the private development projects along Main Street are intended to increase housing opportunities and increase the permanent residential population, which will improve socioeconomic conditions in the area.

Visual and Aesthetics

The goal of the Proposed Action and the other ongoing development projects is the revitalization of downtown Buffalo. These projects will improve the urban landscape and the aesthetic appeal of the Project Area. Cumulatively, urban design and aesthetics will benefit from the Proposed Action and other ongoing development projects in the vicinity.

Historic Resources

The Proposed Action and the ongoing development in the vicinity of Main Street will result in the rehabilitation and improvement of the Project Area. The projects will generally improve the economic viability of downtown Buffalo, including the viability of historic buildings in the area.

Traffic and Transportation

From a cumulative perspective, the Proposed Action and other projects planned for the area will result in an overall benefit in transportation. These projects will provide the Main Street area with an efficient, multi-modal transportation network designed to integrate commuter and inter-city travel. This is a major goal of the GBNRTC 2030 Long Range Plan. The City currently can ban parking in a snow emergency to facilitate plowing and traffic cameras will monitor the street for traffic incidents that would require towing and accident response.

Air Quality

There will be no cumulative, adverse impact on air quality associated with the Proposed Action and other ongoing development projects. All transportation changes associated with these projects were included in the air quality conformity analysis for the current MPO regional transportation plan, and the plan conforms in accordance with the EPA regulation governing transportation conformity.

Noise and Vibration

There will be no cumulative, adverse impact on noise levels associated with the Proposed Action and other ongoing development projects. While noise levels will increase slightly due to the reintroduction of vehicular traffic as well as the traffic volumes associated with the other ongoing development projects, noise levels will not be expected to increase above the levels considered normally acceptable for downtown commercial areas (approximately 70 dB). In addition, construction operations will primarily occur during normal business hours, which will minimize effects on nearby noise sensitive areas.

Geology and Soils

There will be no cumulative impacts to geology and soils associated with the Proposed Action and other ongoing development projects in the vicinity. The return of vehicular traffic to Main Street and the other ongoing development projects will individually result in ground-disturbing activities; however, none of these projects will alter the underlying geologic resources of downtown Buffalo. The Project Area soils have been previously disturbed and the disturbance associated with other development projects will not result in significant incremental or cumulative adverse impacts to soils.

Terrestrial Resources

There will be no cumulative impacts to terrestrial resources associated with the Proposed Action and the ongoing development projects in the vicinity of Main Street. Wildlife in the area is adapted to urban environments and will not be permanently affected by the Proposed Action. The lack of significant adverse impacts to the terrestrial resources associated with the Proposed Action will eliminate the possibility of cumulative impacts from ongoing projects in the vicinity of Main Street.

Water Resources

The release of stormwater pollutants along the Project Area pedestrian corridor will locally increase with the introduction of vehicular traffic; however, pollutants from adjacent streets will decrease due to the redistributed traffic pattern, maintaining a constant net pollutant level. All surface water runoff from the Proposed Action will continue to discharge into the City of Buffalo combined sewer and stormwater system

Although the ongoing development projects individually impact water resources, particularly the Erie Canal Harbor Project, the development projects will occur on previously developed areas (i.e., redevelopment projects) and all runoff will be conveyed to the City's combined sewer/stormwater system for treatment prior to discharge. Redevelopment of abandoned or under-utilized sites in downtown Buffalo will have less impact to water quality that developing greenfield sites.

C. Conclusions

The Proposed Action, in combination with other development projects in the Project Area, will result in cumulative beneficial effects to Land Use, Public Policy, and Social Considerations; Socioeconomics; Visual and Aesthetic Considerations; Historic Resources; and Traffic and Transportation. The Proposed Action and other development projects have the potential to increase employment and economic activity surrounding the Main Street area, supporting the goal of downtown revitalization. Cumulatively, the

development projects will benefit the Proposed Action by increasing multi-modal access (i.e., the Inner Harbor Parking Structures and Conversion of Pearl Street and the 700 Block of Main Street to Two-Way Traffic) and increasing recreation and commercial opportunities along the waterfront (i.e., Erie Canal Harbor Project, Foot of Main Project, and Seneca Buffalo Creek Casino).

Table 13-1 Cumulative Impacts of the Proposed Action and the Concurrent Development Projects in Downtown Buffalo

	Proposed Action	Erie Canal Harbor Project	Inner Harbor Parking Structures	Foot of Main Project	Seneca Buffalo Creek Casino	Ellicott Street Project	Conversion of the 700-Block of Main Street to Two-Way Traffic	Conversion of Pearl Street to Two-Way Traffic	Private Development	Overall Cumulative Effects
Land Use, Public Policy, and Social Considerations	Beneficial Effect	Beneficial Effect	Beneficial Effect	Beneficial Effect	Beneficial Effect	Beneficial Effect	Beneficial Impact	No Impact	Beneficial Effect	Beneficial Impact
Socioeconomics	Beneficial Effect	Beneficial Effect	Beneficial Effect	Beneficial Effect	Beneficial Effect	No Impact	Beneficial Impact	No Impact	Beneficial Effect	Primarily Beneficial Impact
Visual and Aesthetic Considerations	Beneficial Effect	Beneficial Effect	No Impact	No Impact	No Impact	Beneficial Effect	No Impact	No Impact	Beneficial Effect	Beneficial Impact
Historic Resources	Beneficial Effect	Negative Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	Primarily Beneficial Impact
Traffic and Transportation	Beneficial Effect	Negative Impact	Beneficial Effect	No Impact	No Impact	Beneficial Effect	Beneficial Impact	Beneficial Impact	No Impact	Primarily Beneficial Impact
Air Quality	No Impact	Negative Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact
Noise and Vibration	No Impact	No Impact	No Impact	No Impact	No Impact	Negative Impact	No Impact	No Impact	No Impact	No Impact
Natural Resources	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact	No Impact	No Significant Impact	No Significant Impact	No Significant Impact
Construction Impacts	Temporary Adverse Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact
Environmental Justice	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact

14 PROCESS AND PUBLIC PARTICIPATION

A. Introduction

This chapter summarizes the public participation and agency coordination that has been performed to date as part of the SEQRA and NEPA processes for the Main Street Multi-Modal Access and Revitalization Project (referred to as the Proposed Action).

B. SEQRA Public and Agency Participation Program

As part of the SEQRA process, beginning in 2001, the Project Sponsors undertook a significant public involvement process, which was inclusive, participatory, and solution-oriented. The public involvement process began with the establishment of an Advisory Committee and a Technical Committee, which were composed of representatives from state and local governments as well as Buffalo Place, the leading downtown advocacy group. The Technical Committee, which consisted of planners and engineers from various government agencies, was responsible for directing the technical development of this EA to meet NEPA requirements, including the conceptual design of the alternatives considered, and recommending a preferred alternative to the Advisory Committee. The Advisory Committee is composed of a variety of Main Street stakeholders and is responsible for providing general oversight and selecting the preferred alternative. These committees met regularly throughout the project.

The general public was informed about the project and provided opportunities to participate in a variety of formats:

- *Websites* – both the City of Buffalo and Buffalo Place maintained websites that prominently advertised the proposed project. The City of Buffalo provided space on their website (http://www.city-buffalo.com) that included a description of the proposed project and a project schedule, identified the agencies involved, and informed the public about the status of the environmental review. The website also announced public workshops/meetings, posted summaries of these public workshops/meetings, provided information on proposed alternatives, and directed interested persons to submit their comments to the environmental review consultants, ERM. In addition, visitors were provided with links to other websites, including Buffalo Place and other cities that were developing strategies regarding pedestrian malls.

  The Buffalo Place web page (www.buffaloplace.com/planning) was also regularly updated throughout the project as new information or presentations became available.

- *Buffalo Place Newsletter* – Buffalo Place included project updates in their regular newsletter that is distributed to a mailing list of approximately 6,000 and in their weekly Buffalo Place E-Report, which has a circulation of approximately 12,000.

- *Downtown 2002 Newsletter* – This quarterly newsletter, with a circulation of approximately 4,000, provided information on the status of the downtown strategic plan and also included information regarding revitalization of the pedestrian-transit mall.

- *Informational Meetings* - Buffalo Place, the City of Buffalo, and NFTA conducted several informational meetings with directly affected property owners and tenants along Main Street, as well as emergency response personnel, a bicycle interest group, a disabled persons' interest group, the Theater District Association, the New Millennium Group, and Buffalo Place's Planning Committee, Operations Committee, and Board of Directors between November 2001 and August 2006. Over 600 people attended these informational meetings, in which the attendees were informed of the Main Street revitalization process, invited to submit issues of concern, and given the opportunity to provide their opinions on the development of alternative design ideas.
- *Information/Issues Workshop* – a public workshop was held at the Market Arcade Film and Arts Center on Main Street in Buffalo on December 5, 2001 to provide background information on the purpose and need for the study and to identify issues and concerns that would need to be addressed as part of the environmental assessment. This workshop was advertised in the *Buffalo News*, *Business First* (Buffalo's Business Journal), the *Buffalo Rocket*, *Metro Community News*, and several additional neighborhood newspapers. Over 4,000 people also received mail and/or email invitations to the workshop, using various existing email lists (i.e., property owners; downtown tenants; community-based organizations; downtown interest groups; participants in the City Downtown Strategic Plan; the City's Good Neighbors Planning Alliance; the disabled community; local professional groups including planners, architects, and engineers; the LAN users on the City's Intranet System; and a public transit interest group). Approximately 120 people attended the workshop. Drawings illustrating the four action alternatives were available for public review. The workshop was also videotaped and played on local television for approximately one month.
- *Newspaper Article* – following the Information/Issues Workshop, *ArtVoice*, a local weekly newspaper in the Buffalo area, ran a cover story on the workshop and other communities' experiences with pedestrian malls.
- *Conceptual Design Workshop* – a second public workshop was held at the Erie Community College in downtown Buffalo on January 28, 2002 to help develop conceptual designs for the four project alternatives that were developed based on public comment at the first workshop. This workshop was also advertised in several newspapers; all participants from the first workshop received invitations in the mail; and approximately 2,000 other interested persons received notice of the workshop via mail and email. Approximately 130 people attended the workshop. This workshop was also videotaped and featured on the local government television station for approximately one month.
- *Public Information Meeting* – the Project Sponsors held a public information meeting on the Draft New York SEQRA EA (dated October 2002) at the City of Buffalo's downtown library at Lafayette Square on November 12, 2002. The meeting was advertised in local papers and referenced on both the City of Buffalo and Buffalo Place's websites. In addition, all participants in the earlier two project workshops were notified of the hearing by mail. Buffalo Place also notified over 2,000 property, tenant, and neighborhood advocates by mail or email of the meeting. Approximately

100 people attended the meeting, which was covered by the *Buffalo News* and videotaped and played on local television. The agenda for the public meeting included a presentation on the purpose and need for the project and a summary of the evaluation of each alternative. The public was invited to ask questions or provide either written or oral comments. The public record officially remained open for 30 days until December 12, 2002. The Advisory Committee, in making their recommendation on a Preferred Alternative (which became the Proposed Action), considered all comments received by January 10, 2003. Over 40 comments were received, either verbally at the public meeting; by letter or fax to the City of Buffalo; or via email through the project website. A summary of these comments, as well as all additional public comments received, are included in Appendix D. Concepts for station designs and potential streetscape elements and approaches were presented to the public during development of the Draft Design Report by DiDonato Associates in February 2006 (see Appendix B for the design report, public comments on the report, and comment responses).

In response to public concern regarding the proposed elimination of the Theatre Station, the Project Sponsors held a series of meetings and open houses for the public and members of the Theater Station business community to discuss removal of the station. These meetings were held on February 1 and 23, April 25 and 26, August 8, November 16, and December 4, 2006. Additionally, the City Advisory Committee discussed the proposal during its monthly meetings in February, March, April, and November 2006. Attendance at theses meeting varied from 15 to 20 during the advisory committee meetings to over 100 at the public meetings and open houses.

- *Agency Informational Briefings* - the Project Sponsors held informational briefings regarding the proposed project on November 14 and 15, 2002 with the City of Buffalo Common Council; the Buffalo Place Board and various committee members; Buffalo's congressional and State delegation representatives; the Greater Buffalo-Niagara Regional Transportation Council Policy Committee; the Buffalo Development Council, and the Buffalo-Niagara Partnership transportation committee.
- *The New York State Environmental Quality Review Act (SEQRA) Process* – The City of Buffalo completed the SEQRA process for this project in 2003. The City met all the public involvement and public meeting requirements of the Act. Comment letters are provided in Appendix D. Appendix D also includes a summary table highlighting the major concerns of each letter and referencing the sections of the EA that address those concerns.

C. Agency Coordination and Public Outreach for Proposed Action

As part of the NEPA process, Agency Coordination and Public Outreach were conducted in several ways. The USFWS was consulted according to the requirements of Section 7 of the *Endangered Species Act* and the New York SHPO was consulted according to the requirements of Section 106 of the *National Historic Preservation Act*. Please refer to Chapters 10 and 6, respectively, for further discussion of the results of those consultations.

In preparation of the Final EA as part of the ongoing NEPA process, the FTA will consider all public comments regarding the Proposed Action prior to issuing a finding on the EA.

As part of the NEPA process, the FTA published the document for a public comment period, which began on April 6, 2009 and concluded on May 16, 2009. In addition, the Project Sponsors hosted a public meeting on April 27, 2009 to invite members of the public to offer comments and discuss their concerns with Project Sponsors. The meeting was held at the Erie County Public Library and 14 people provided verbal comments. The NFITA also met with the NFTA Advisory Committee on the Disabled on April 30, 2009 and 4 speakers provided verbal comments on the Project. All comments, including those provided during the public meeting, are included in Appendix D. Appendix D also includes a summary highlighting the responses to public concerns.

D. FTA and NFTA Contact

The Federal lead agency contact person is:

James Goveia
Community Planner
Federal Transit Administration, Region 02
One Bowling Green, Suite 429
New York, NY 10004
Phone (212) 668-2325; Fax (212) 668-2136

The Project Sponsor contact person is:

Kim Minkel
Director, Health, Safety, and Environmental Quality
Niagara Frontier Transportation Authority
181 Ellicott Street
Buffalo, New York 14203
Phone (716) 855-7470; Fax (716) 855-6679

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