Appendix D
Wetland Maps

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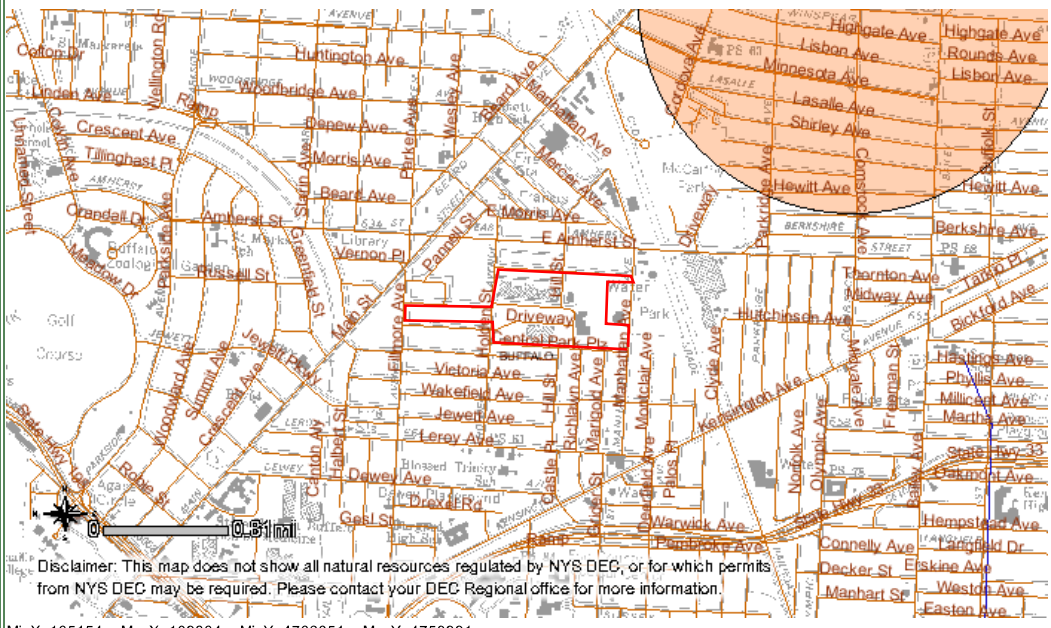
Please set your printer orientation to "Landscape".

Central Park Plaza



MinX: 185154, MaxX: 189304, MinY: 4762051, MaxY: 4759991

Visible Layers

- Classified Streams
- Classified Ponds
- State-Regulated Freshwater Wetlands
- Wetland Checkzone
- State-Regulated Freshwater Wetlands
- Rare Plants and Rare Animals
- Significant Natural Communities Buffered
- Natural Communities Nearby
- Significant Natural Communities
- Interstate Highways
- Adirondack Park Boundary
- Counties

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The Coordinates of the point you clicked on are:

UTM 18	E : 187220	Longitude/Latitude	W : 78.833
	N : 4760889		N : 42.936

Regulated MS4s

UA 2000	UA Name	Municipality	SWIS	Regulated
11350	Buffalo	BUFFALO	140200	Automatic

Towns

SWIS	Municipality	County	DEC Region	Area (Mile^2)
140200	BUFFALO	ERIE	9	40.39

U.S. Fish and Wildlife Service
National Wetlands Inventory

Central Park Plaza

Dec 9, 2014

Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

Riparian Status

- Digital Data

User Remarks:

Appendix E
Cultural Resources Maps

December 17, 2014

Disclaimer: This map was prepared by the New York State Parks, Recreation and Historic Preservation National Register Listing Internet Application. The information was compiled using the most current data available. It is deemed accurate, but is not guaranteed.

Aerial image of former quarry on project site 1925.

Appendix F
Air Quality

City of Buffalo, NY
Wednesday, December 10, 2014

Chapter 66. AIR POLLUTION

Part 1. General Standards; Fuel- or Refuse-Burning Plants and Devices

Article I. General Standards

§ 66-1. Enforcement.

[Amended 12-9-2003, effective 12-19-2003]
The head of the Division of Fuel Devices is hereby charged with the duty of investigating, preventing and abating air pollution and the emission of dense smoke within the City and enforcing the provisions of this Part 1. Subject to the direction of the Chief Combustion Inspector, said duties may be performed by such other assistants and employees as may be assigned to such work.

§ 66-2. Definitions.

The following words, when used in this Part 1, shall have the following meanings:

APPURTENANCE
A lesser part or component that is an appendage or accessory to a whole system, and whose function is incidental or accessory to the system to which it is connected.
[Added 7-20-2004, effective 8-2-2004]

CHART
The Ringelmann Chart, with instructions for use, as now published by the United States Bureau of Mines.

DENSE SMOKE
Smoke of a density equal to or in excess of Number 3 of said chart.

DUST AND CINDERS
Gasborne particles larger than one micron in mean diameter.

FACTORY-CERTIFIED SERVICE TECHNICIAN
A person employed by a factory or plant which manufactures equipment, devices, fixtures, components, assemblies, controls, and other similar parts for the electrical, elevators, fuel devices or plumbing trades, who has the working knowledge of the trade manufactured for and of the equipment, etc., manufactured by such factory, and has been trained and certified by such manufacturer as being knowledgeable and capable of installing and servicing the equipment and components, etc., in the field wherever it is installed.
[Added 7-20-2004, effective 8-2-2004]

FUEL

Combustible materials, solid, liquid or gaseous, used primarily either to kindle or sustain fire or produce heat, including refuse to be consumed in refuse-burning equipment.

FUEL- OR REFUSE-BURNING PLANT, EQUIPMENT OR DEVICE

Any furnace, incinerator, engine, boiler, vessel, steam roller, derrick, pile driver, dredge, tar kettle, apparatus, device, mechanism, stack or structure used in the process of burning fuel.

FUMES, GASES OR NOXIOUS ACIDS

Gases or vapors that are of such character as to create an uncleanly, destructive, offensive or unhealthful condition or a nuisance.

FURNACE VOLUME

The volume of the chamber in which combustion occurs, including the space occupied by the fuel bed and all space up to the point where the products of combustion first enter the flues or ducts through the heating surface.

MAINTENANCE PERSONNEL

For a commercial building, one of the following categories:
[Added 7-20-2004, effective 8-2-2004]

A. The individual property owner (or owners), who is capable and has a working knowledge of repairs and replacements in-kind in the fields of work called for in properly maintaining his/her building and site.

B. Any employee(s) in the direct employ of the owner(s), not as a contractor or subcontractor, but as an actual employee, whose job it is to maintain the property and who is capable and has a working knowledge of repairs and replacements in-kind in the fields of work called for in properly maintaining the building and site that he/she has been employed by the owner to maintain.

PERSON

An individual, a partnership, a corporation, a receiver, an association, an executor, an administrator, a trustee, a guardian or an agent.

RECONSTRUCTION

Any work which requires heating or power equipment to be dismantled, changes the design thereof or results in a rebuilding of a major portion thereof or in the construction of a new or different heating or power plant.

SOOT AND FLY ASH

Agglomerated particles consisting essentially of carbonaceous material.

STACK

A chimney, open fire, smokestack, structure or opening of any kind for purposes of discharging or which does discharge smoke, dust, soot, cinders, fly ash, noxious acids, fumes or gases into the open air; and during the time a locomotive is standing under a roundhouse smokestack, such "stack" shall be deemed a part of such locomotive.

§ 66-3. Dense smoke restricted.

The production or emission of dense smoke within the City is prohibited. The following exceptions to the provisions of this section shall be permitted:

A. In the event of upset fire conditions or breakdown of equipment which are unavoidable and beyond the ordinary control of the person operating a fuel- or refuse-burning device, dense smoke shall be

permitted for one period of not more than five minutes during any one hour.

B. When a firebox is being cleaned out or a new fire being built therein, dense smoke shall be permitted for one period of not more than 10 minutes in any one calendar day or for two periods of not more than six minutes in any one calendar day.

C. After a locomotive fueled with coal is in service or ready for service, dense smoke shall be permitted for a period of one minute at any one time but for not more than 10 such one-minute periods in any consecutive period of 60 minutes. This provision shall apply to any locomotive in service or being prepared for service in transfer yards or a roundhouse or engaged in switching operations.

§ 66-4. Dangerous emissions.

The emission from any stack or premises within the City into the open air of such quantities of dust, soot, cinders, fly ash, noxious acids, fumes or gases so as to cause injury or detriment to persons or to the public or to endanger the comfort, health or safety of any person or the public or in such manner as to cause injury or damage to business or property is prohibited. The emission of injurious quantities of dust, soot, cinders, fly ash, noxious acids, fumes or gases from any stack or premises is hereby declared to be a nuisance and may be abated in the manner provided by law.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Buffalo/Niagara Falls Metropolitan Area Classification and Boundary Determination

In establishing the nonattainment area boundaries for the Buffalo and Niagara Falls metropolitan statistical area, the environmental characteristics of Erie and Niagara counties were evaluated in light of EPA's nine factors to determine the attainment status of this area as well as the potential influence of this area on other jurisdictions. Together, these two counties comprise the Buffalo/Niagara Falls Metropolitan Statistical Area (MSA). This area is shown in Figure 7 below.

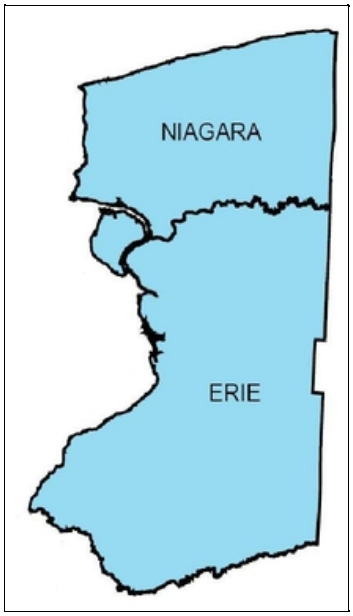

Figure 7 - The Buffalo/Niagara Falls MAS Monattainment Area

1. Air Quality

An area with a monitor that records a violation of the PM2.5 NAAQS must be designated nonattainment. As can be seen in Table 2 above, the design values for the Buffalo/Niagara Falls area met the 24-hour standard only in 2004-2006, and only by a small margin. Data for the 2002-2004 and 2003-2005 periods exceeded the 24-hour standard at the Buffalo and Lackawanna monitors. The data for 2004-2006 may be an anomaly based on the 2006 data which was one of the three years averaged together to obtain the 2004-2006 average. The 24-hour values for the Buffalo, Niagara Falls and Lackawanna monitors for 2006 are 25-35% less than the values for 2005. The 2005 values are, in turn, significantly higher than the 2004 values. Given the wide variation in the figures from year to year and the lack of a clear trend in the data either upward or down, no definitive conclusion can be reached on the attainment status of these areas when viewed in light of the monitoring data. This is a strong factor that clearly justifies the Department's recommendation that the area be designated as unclassifiable, which is appropriate for areas either meeting the standard or having insufficient data to determine air quality, and not contributing to nearby nonattainment.

2. Meteorological Influences

To assess the influence of weather patterns on observed PM2.5 mass concentration in the Buffalo/Niagara Falls area, the meteorological conditions associated with the days on which the highest 5% of PM2.5 readings occurred were examined for the 2004-2006 period of interest. These events occurred throughout the year, though they were more prevalent in the May through October period.

The result of this assessment indicates that on most days in which high PM2.5 levels were measured, wind flows originated from the WSW, SW and S of the Buffalo and Niagara Falls areas. Although there is always a local contribution, the stable conditions and steady winds from these directions are strongly suggestive that the contributions to the particulate concentrations were from the directions of Pittsburgh and Erie, Pennsylvania, and the Cleveland, Ohio areas. Additionally, on several of the days in which the highest 24-hour PM2.5 values were recorded in the Buffalo/Niagara Falls area, high values were also recorded at the Westfield monitor in Chautauqua County at which the concentrations being measured are indicative of the quality of the air entering New York State. Thus, the conclusion to be reached is that, on high PM2.5 days, there is a significant impact due to transport from upwind states.

In addition to conducting an assessment of the meteorology for the days of highest PM2.5, speciation data for the days on which the highest PM2.5 concentrations occurred (where the dates concurred) were also assessed to determine if there was an indication of whether local or transported pollution would have been a primary source. As can be seen by Figure 8, approximately half of the mass of the PM2.5 collected was composed of sulfates on a typical day of high PM2.5. Sulfates are formed after sulfur oxides are emitted and react in the atmosphere during transport to form sulfates. Time is required for this transformation. The large fraction of sulfate is strongly suggestive that the PM2.5 measured in those days was transported into the area from the direction of Ohio and Pennsylvania, as well as other of the southern and Midwest states, and that combustion sources such as the large power plants located outside on New York were the sources of the sulfate. This further supports the conclusion that PM2.5 is transported from outside of New York State. Before the PM2.5 concentrations in the Buffalo/Niagara Falls area can be reduced, emission reductions to the west, southwest and south must be achieved.

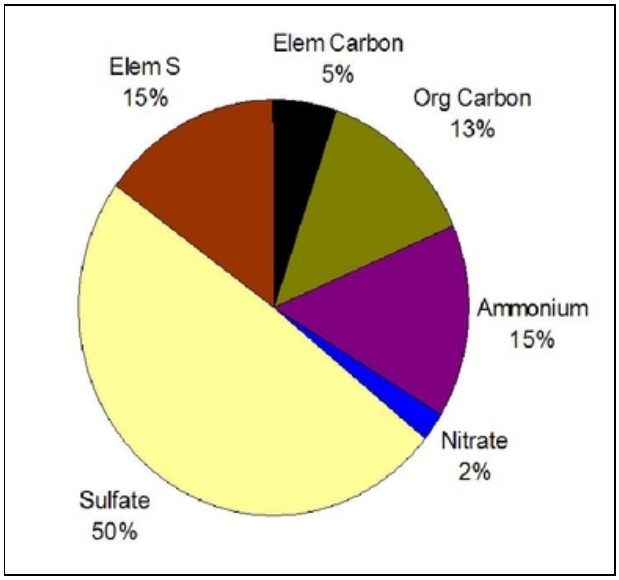

Figure 8: Typical Speciation for a High PM2.5 Day (9-13-2005) Buffalo CAM

3. Population Density and Degree of Urbanization including Commercial Development

To address the population density and degree of urbanization factors, various demographics and economic indicators were examined for the Buffalo/Niagara Falls area. Figure 4, which depicts the population density of the entire state, indicates that the Buffalo/Niagara Falls area is one of the more densely populated regions of the state. Likewise, data from the New York State Department of Labor[1] indicates that employment will increase as well in the Western New York area, averaging 5% for the 2004 to 2014 period,

suggesting that commercial development will continue to increase as well, though more modestly than in the New York CMSA.

4. Traffic and Commuting Patterns

The Buffalo/Niagara Falls area is primarily urban in nature, though it is not as heavily populated or industrialized as the New York City area as a whole. A number of major transportation corridors are located in the area, including the New York State Thruway which passes through the area. Additionally, the Buffalo/Niagara Falls area is one of the main thoroughfares for traffic between the United States and Canada via four bridges. Travel also takes place on many other local highways and intermediate roads.

The breakdown of commuting options according to the United State Census Bureau[2] for the Buffalo/Niagara Falls area is summarized below in Table 7. Compared to the New York metropolitan area, a far smaller fraction of commuters use public transportation, with the overwhelming majority of commuting taking place in single-occupant vehicles.

Table 7 - Commuting Methods for the Buffalo/Niagara Falls MSA

Commuting Mode	Number of Commuters	Percent
Car, truck, or van – drove alone	418,526	82.0
Car, truck, or van – car pooled	45,682	9.0
Public Transportation	18,751	3.7
Walked	13,618	2.7
Other means	1,948	0.4
Work at home	11,025	2.2
Total Commuters	509,550	100
Mean travel time to work	19.4 minutes	–

According to the Greater Buffalo-Niagara Regional Transportation Council (GBNRTC), the annual vehicle mile traveled has been increasing, contributing to the potential for increased motor vehicle emissions, though this will likely be somewhat offset by fewer emissions from individual vehicles as older vehicles are removed from service and are replaced by newer ones. Rail transportation is not as prevalent as it is in the New York Metropolitan area, with less commuting taking place by rail and other mass transit. Other contributions from mobile sources include buses and marine vessels operating in ports at the east end of Lake Erie.

An examination of the Vehicle Miles Traveled (VMT) for the Buffalo/Niagara Falls MSA counties for 2005 was also done. As can be seen in Table 8 below, the VMT in Erie County is significantly higher than that in Niagara County, likely reflecting the high traffic rate in the I-90 corridor, the "drive alone" commuter traffic indicated in Table 7 above, and the routine commercial traffic in the Buffalo urban area. Erie County's VMT is comparable to that in several of the core New York metropolitan area counties (see Table 4 above).

Table 8 - Buffalo/Niagara Falls MSA 2005 Vehicle Miles Traveled[3]

2005 Vehicle Miles Traveled (VMT)	
County	VMT (Millions)
Erie	9248
Niagara	1695

5. Expected Growth

The population of the Buffalo and Niagara Falls area has experienced a downturn in recent years. Population projections out to 2015 indicate that the population will continue to decrease. This trend is opposite to the expected trend for employment and commercial growth discussed in Section II.3 above. The cause of the population shift is likely the movement of populations from central city locations to suburbs where the perception is that better educational resources for children, better housing and a desire to be near employment that is available in outside of the cities.[4]

Table 9 - Population Projections for the Buffalo/Niagara Falls MSA[5]

Projected Population by County, 2000 to 2015						
County	2000	2005	2010	2015	Change 2000-2015	
					Number	Percent
Erie	950,265	929,506	906,480	883,909	-66,356	-6.98
Niagara	219,846	217,316	213,695	209,519	-10,327	-4.70

6. Emissions

Fine particulate consists of both primary and secondary particles. Primary particles are generally directly emitted into the atmosphere from motor vehicles, power generation facilities, industrial facilities, residential wood and forest product burning sources. Secondary particles are formed from precursor gases reacting in the atmosphere from the combination of various pollutants: oxides of sulfur (SOx), oxides of nitrogen (NOx), volatile organic compounds (VOCs), and ammonia (NH3). These pollutants are emitted from many of the same emission sources as precursors of ozone.

Emission sources of particulate matter in the Buffalo/Niagara Falls area vary. Combustion processes are the main source of primary and secondary PM. Sources include fossil fuel combustion in heating as well as mobile sources such as trucks, cars and buses. A number of large electric utility plants presently operate in the Buffalo/Niagara Falls areas, including the Somerset, Dunkirk and Huntley power generation facilities

as well as several cogeneration plants. VOC emissions from industrial and commercial operations, and gasoline use, also contribute. Industrial operations include the 3M, Dupont Yerkes, Goodyear, General Motors and Tonawanda Coke facilities. Emissions from mobile sources, both on-road and non-road, contribute significantly as well, as do gasoline fueling and transfer operations.

Table 10a below presents the 2005 emissions for VOC, CO, NOx, SOx and total PM for the counties in the New York CMSA. Table 10b shows the percent contribution for each county by pollutant.

Table 10a - 2005 Emissions of Particulate Matter and its Precursors for the Buffalo/Niagara Falls MSA Counties[6]

County	VOC	NOx	SOx	NH3	PM2_5	OC	EC	PMFINE (Crustal)
Erie	47172	33057	30867	3161	5107	1071	557	3113
Niagara	15133	11361	6991	954	2068	392	138	1419
Area Totals	62305	44418	37858	4115	7175	1463	695	4532

Table 10b - 2002 Emission Percent contributions of Particulate Matter and its Precursors for the Buffalo/Niagara Falls MSA Counties

County	VOC	NOx	SOx	NH3	PM2_5	OC	EC	PMFINE (Crustal)
Erie	75.71	74.42	81.53	76.82	71.18	73.21	80.14	68.69
Niagara	24.29	25.58	18.47	23.18	28.82	26.79	19.86	31.31
Area Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

The Department is currently assessing its stationary, point, mobile and area source PM2.5 emission inventory preparation plans since the inventory will be a necessary component of its PM2.5 State Implementation Plan submission in April of 2008. Projections are not presently available for all of these pollutants. In general, emissions of particulate matter and its precursors can be expected to decrease as a result of programs such as the Clean Air Interstate Rule (CAIR) and Acid Deposition Reduction Program (ADRP) that affect large emitters in both New York State and downwind states. Improvements in mobile emissions are also expected due to New York's Low Emission Vehicle (LEV), and Inspection and Maintenance (I/M) programs. Other efforts, such as the 8-hour ozone and Haze SIPs, will reduce the emission of particulates and precursors.

7. Geography and Topography

The Buffalo and Niagara Falls areas are in a location in the state where topography plays no role. Without the presence of any significant terrain, topography is unlikely to be a factor in the attainment status.

From a geographic perspective, the most significant physical features influencing air quality are Lakes Erie and Ontario, which affect the weather, climate, humidity and precipitation. Additionally, the close proximity of Canada and the Ohio Valley affects the air quality, given the emission of PM2.5 precursors from power plants in these regions as well as those south of Buffalo/Niagara Falls. These emissions are likely the primary source of PM2.5 on many days in the Buffalo/Niagara Falls area, especially on the days with high PM2.5 levels as discussed under Section II.2. above. Emission reductions in these other states and in Canada would be needed to maximally reduce the PM2.5 levels in the ambient air.

Finally, neither of the counties are severely disproportionate in their dimensions (north-south vs. east-west, for example) in a manner that would magnify or otherwise affect the other factors that influence air quality and transport.

8. Jurisdictional Boundaries

There are no jurisdictional boundary issues affecting attainment status. The two counties involved are equally affected by both the state and federal air quality programs presently in effect, and are subject to the same requirements as surrounding New York State counties. They are also both a part of the Greater Buffalo-Niagara Regional Transportation Council (GBNRTC), which has served as the interagency group for transportation planning in Erie and Niagara Counties since 1975, and has addressed the needs of these counties related to mobile sources and transportation, and the associated emissions.

9. Level of Current Emission Controls

The Buffalo/Niagara Falls area has been regulated under both the state and federal air quality programs for over 30 years. Throughout this time, controls have been required on a wide variety of sources under New York's Reasonably Available Control Technology (RACT) and Prevention of Significant Deterioration (PSD) programs as well

as requirements applying to a wide variety of other sources. Both the New York State air permitting program and the federal Title V program have provided a vehicle to require emission reductions to take place in the Buffalo/Niagara Falls area as well as across the state. Past requirements will continue to apply so that no "backsliding" on controls already in place will occur.

The Buffalo/Niagara Falls area is presently a nonattainment area for 8-hour ozone. A SIP is under development that will result in the control of several of the pollutants that are precursors of PM2.5. Additionally, a regional haze SIP must be submitted to EPA that will require the reduction of precursors from several major facilities in the state through the application of Best Available Retrofit Technology requirements and general measures intended to reduce haze, including reduced fuel sulfur limits. Finally, a PM2.5 SIP for the annual PM2.5 standard promulgated in 1997 is due to EPA in April of 2008 which will propose controls for several sources of PM2.5 and its precursors.

Conclusions for the Buffalo/Niagara Falls MSA:

After considering the nine factors required by EPA guidance, the Department recommends that the entire two county Buffalo/Niagara Falls MSA be designated as an "unclassifiable" area for the 24-hour PM2.5 standard. This recommendation is based on the insufficient margin between the

monitored values and the 24-hour PM2.5 standard to support a definitive conclusion that the attainment that was monitored in the 2004-2006 period will persist. The annual 24-hour values are also inconsistent, exhibiting no downward trend in the data. This is likely due, at least in part, to weather differences from year to year, and the variation in PM2.5 transported into the areas from out-of-state. Additionally, the result of the application of the nine factors required by EPA taken together does not weight this recommendation toward a clear conclusion that the area should be either attainment or nonattainment.

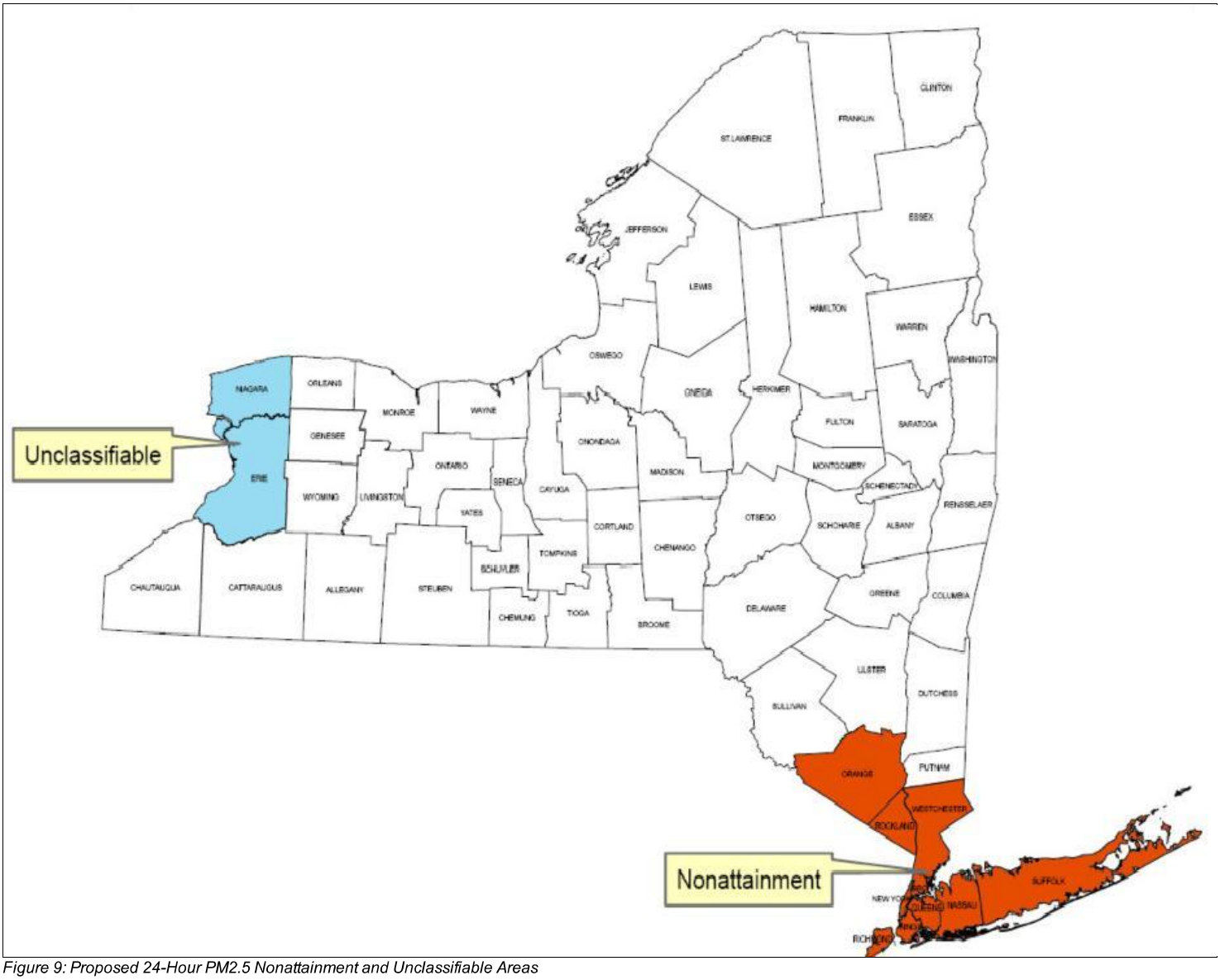

Figure 9: Proposed 24-Hour PM2.5 Nonattainment and Unclassifiable Areas

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[1] http://www.labor.state.ny.us/workforceindustrydata/apps.asp?reg=wny&app=projections

[2] http://www.census.gov/acs/www/Products/Profiles/Single/2003/ACS/Tabular/380/38000US12803.htm

[3] http://www.epa.gov/ttn/naaqs/pm/docs/2005_vmt_county_level.xls

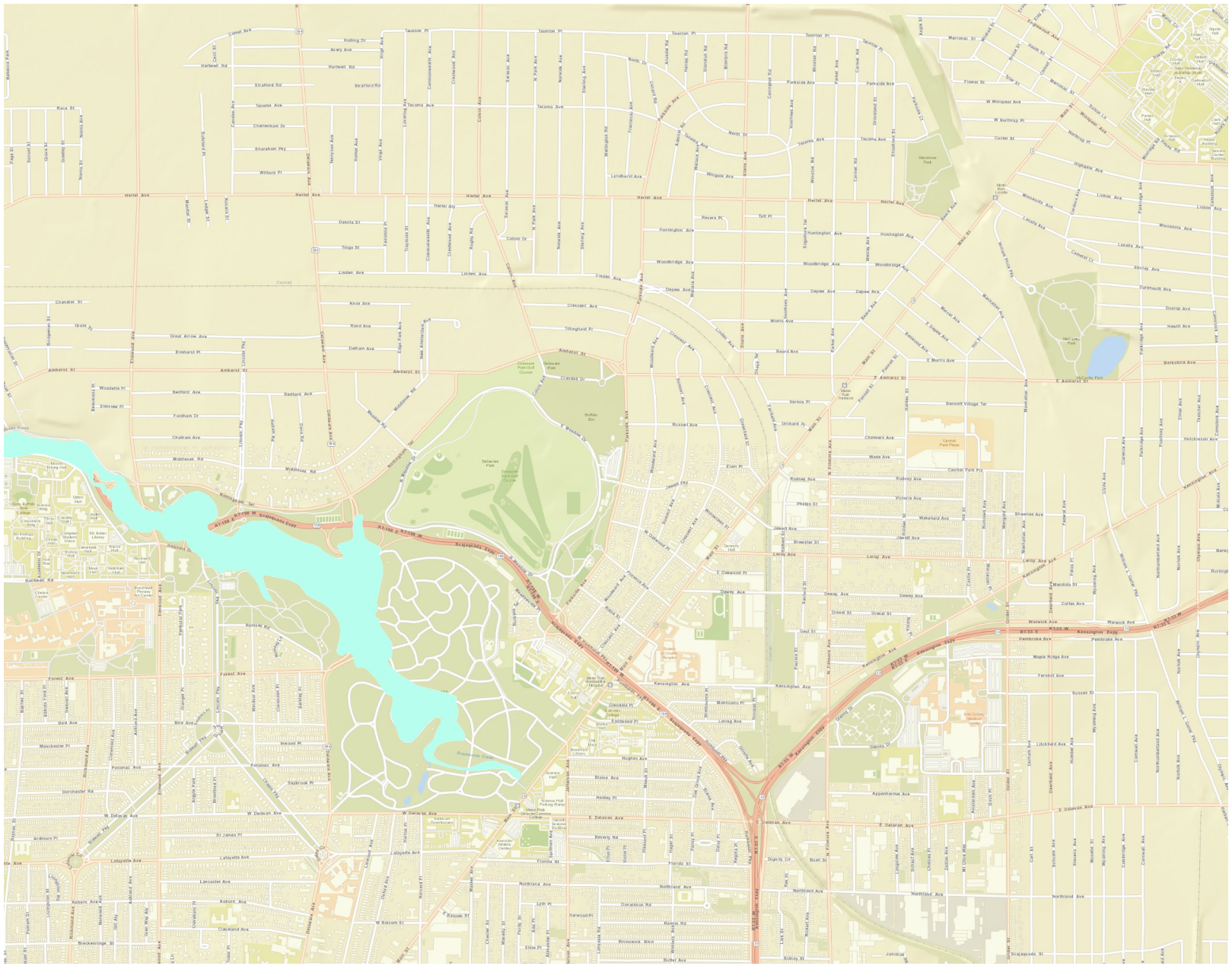
[4] http://www.ci.buffalo.ny.us/files/1_2_1/Mayor/COB_Comprehensive_Plan/section_2459139390.html

[5] http://www.aging.state.ny.us/explore/project2015/projections/index.htm

[6] http://www.epa.gov/ttn/naaqs/pm/docs/2005_ei_new_york.xls. It should be noted that these emissions were produced by EPA, and may change when the Department's final 2005 inventory is prepared. However, the Department does not expect that the conclusions reached in this analysis will be affected.

Appendix G
Floodplain Mapping

Erie County On-Line Mapping Application



Legend

- FEMA Floodplains
- Municipal Boundaries

0 3,009.33 6,018.7 Feet

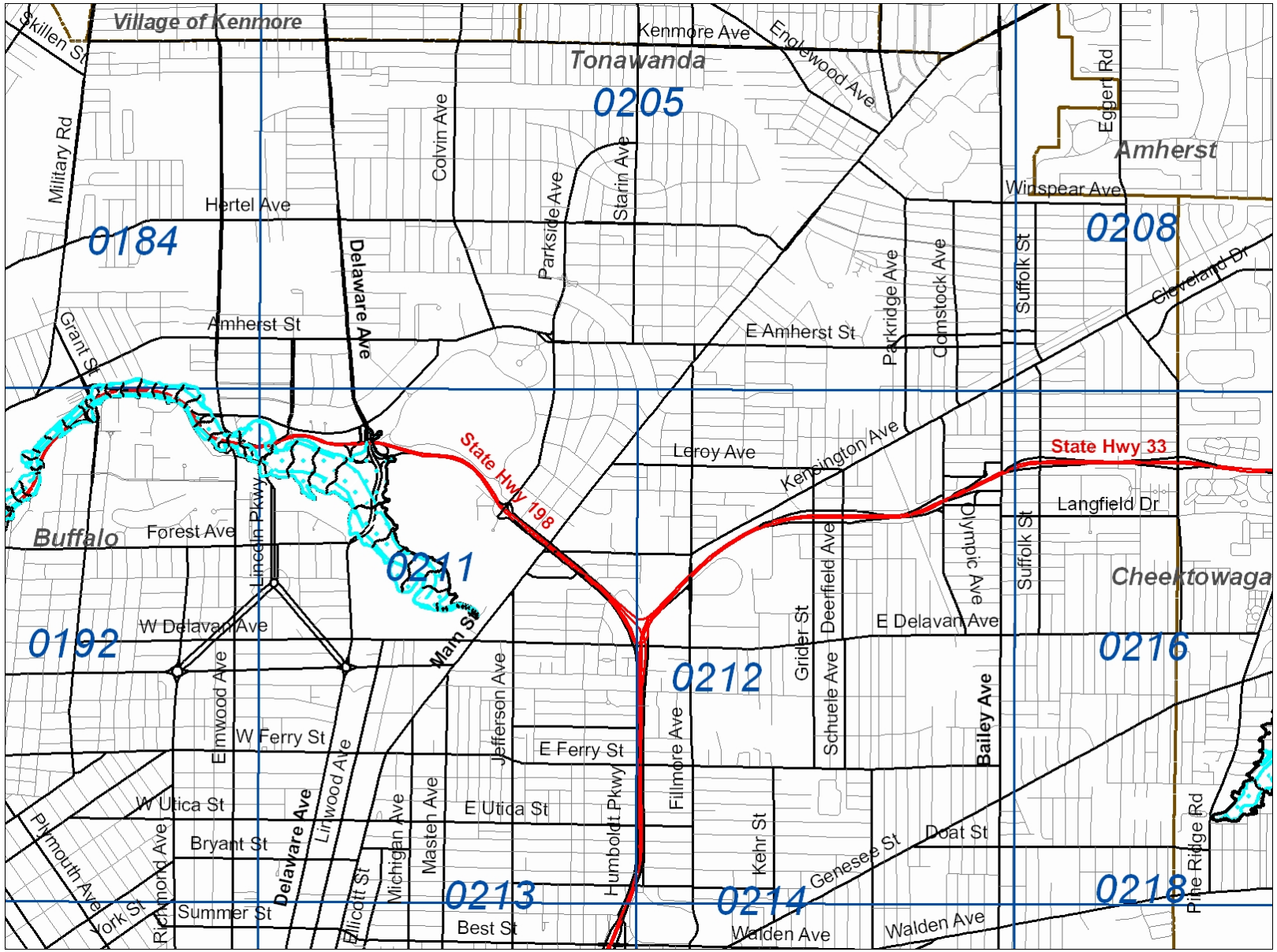
WGS_1984_Web_Mercator_Auxiliary_Sphere
THIS MAP IS NOT TO BE USED FOR NAVIGATION

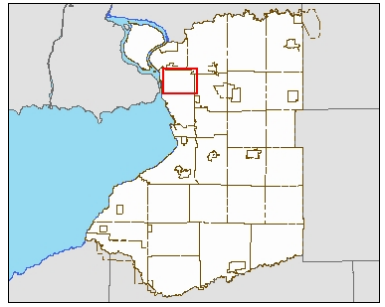
ERIE COUNTY
DEPARTMENT OF ENVIRONMENT & PLANNING
OFFICE OF GIS

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

1: 36,112

Erie County On-Line Mapping System





Legend

Base Flood Elevation

Flood Hazard Lines

- <all other values>
- 0.2 PCT ANNUAL CHANCE FLOO
- 0.2 PCT ANNUAL CHANCE FLOO
- 1 PCT ANNUAL CHANCE FLOOD
- 1 PCT ANNUAL CHNACE FLOOD
- APPARENT LIMIT
- AREA NOT INCLUDED
- END OF SPATIAL EXTENT
- FLOODWAY
- ZONE BREAK/ FLOODWAY
- FLOWAGE EASEMENT BOUNDAI
- LIMIT OF DETAILED STUDY
- LIMIT OF DETAILED STUDY/ ZON
- LIMIT OF FLOODWAY
- LIMIT OF FLOODWAY/ ZONE BRE
- LIMIT OF STUDY
- SOURCE BOUNDARY
- STATE ENCROACHEMENT LINE
- ZONE BREAK
- ZONE D
- Not Printed / ZONE D

FIRM Panels

Flood Hazard Areas

- 0.2 PCT Chance
- Zone A
- Zone AE
- Zone AE, Floodway
- Zone AH
- Zone AO

1: 40,203

Notes

Enter Map Description

1.3 0 0.63 1.3 Miles

ERIE COUNTY, NEW YORK
DEPARTMENT OF ENVIRONMENT & PLANNING
OFFICE OF GEOGRAPHIC INFORMATION SERVICES

Appendix H
Traffic Impact Study

December 2014

LP CIMINELLI
HIGHLAND PARK

TRAFFIC IMPACT STUDY

City of Buffalo

Erie County

wendel

List of Figures

List of Appendices

Introduction and Project Description

Introduction

The Highland Park Redevelopment Project will transform land that was occupied by the former Central Park Plaza into transit oriented residential development ("Project"). The former plaza was comprised of approximately 275,000 square-feet single story retail buildings. These buildings have been demolished to make way for the new development. Accordingly, traffic associated with the former Plaza no longer uses the adjacent street network.

The purpose of this study is to identify potential traffic impacts associated with redevelopment of the former Central Park Plaza ("Site"). The Highland Park Redevelopment Project will be built in phases with the anticipated completion of all phases in 2022.

The Highland Park Redevelopment Traffic Impact Study (TIS) has been prepared in support of the assessment of the project under New York's State Environmental Quality Review Act (SEQRA). This TIS evaluates existing and future traffic operations on the street network in the vicinity of the Site and identifies potential traffic impacts resulting from the build out of the Highland Park Development project.

Project Description

Highland Park is being advanced as a transit oriented development. Highland Park will provide housing choices for residents that rely on public transit as their primary transportation mode. Highland Park is located in close proximity to the NFTA Metro Station at Amherst Street and several Metro Bus Lines. Highland Park will incorporate pedestrian and bicycle features to provide convenient and safe transit access for residents.

The proposed project is illustrated in Figure 1 and will include construction of several new City streets as well as modifications to the street network. New City streets will connect adjoining streets through the development to create neighborhood blocks. The development will incorporate walkable/bikeable features throughout the site providing connections to these new streets. New streets include the following:

- Wade Avenue from Holden Street to Manhattan Avenue with one travel lane in each direction.
- Chalmers Avenue from Holden Street to Richlawn Avenue. Chalmers Avenue will be a boulevard with one travel lane in each direction separated by a landscaped median. A roundabout will be placed at the intersection with Hill Street.
- Rockwood Street from Holden Street to Richlawn Avenue with one travel lane in each direction.
- Hill Street from Central Park Avenue to the northern terminus of Hill Street near Amherst Street with one travel lane in each direction.
- Richlawn Avenue from Central Park Avenue to Rockwood Street with one travel lane in each direction.
- Marigold Avenue from Central Park Avenue to Wade Avenue with one travel lane in each direction.

Existing sidewalks and cub on the east side of Holden Street from Central Park Avenue to the northern site boundary would be replaced as part of the development. These modifications would be implemented as part of phased project development.

Site Location

Site Location

The Project Site is located in the Fillmore-Leroy neighborhood of the City of Buffalo. The site is bounded by Holden Street on the west, Manhattan Avenue on the east, Central Park Avenue on the south and Bennett Village on the north. The Site currently consists of the former Central Park Plaza. The former plaza was comprised of approximately 275,000 square-feet single story retail buildings. These buildings have been demolished to make way for the new development. Accordingly, traffic associated with the former Plaza no longer uses the adjacent street network.

The location of the Project Site and study area is depicted in Figure 1.

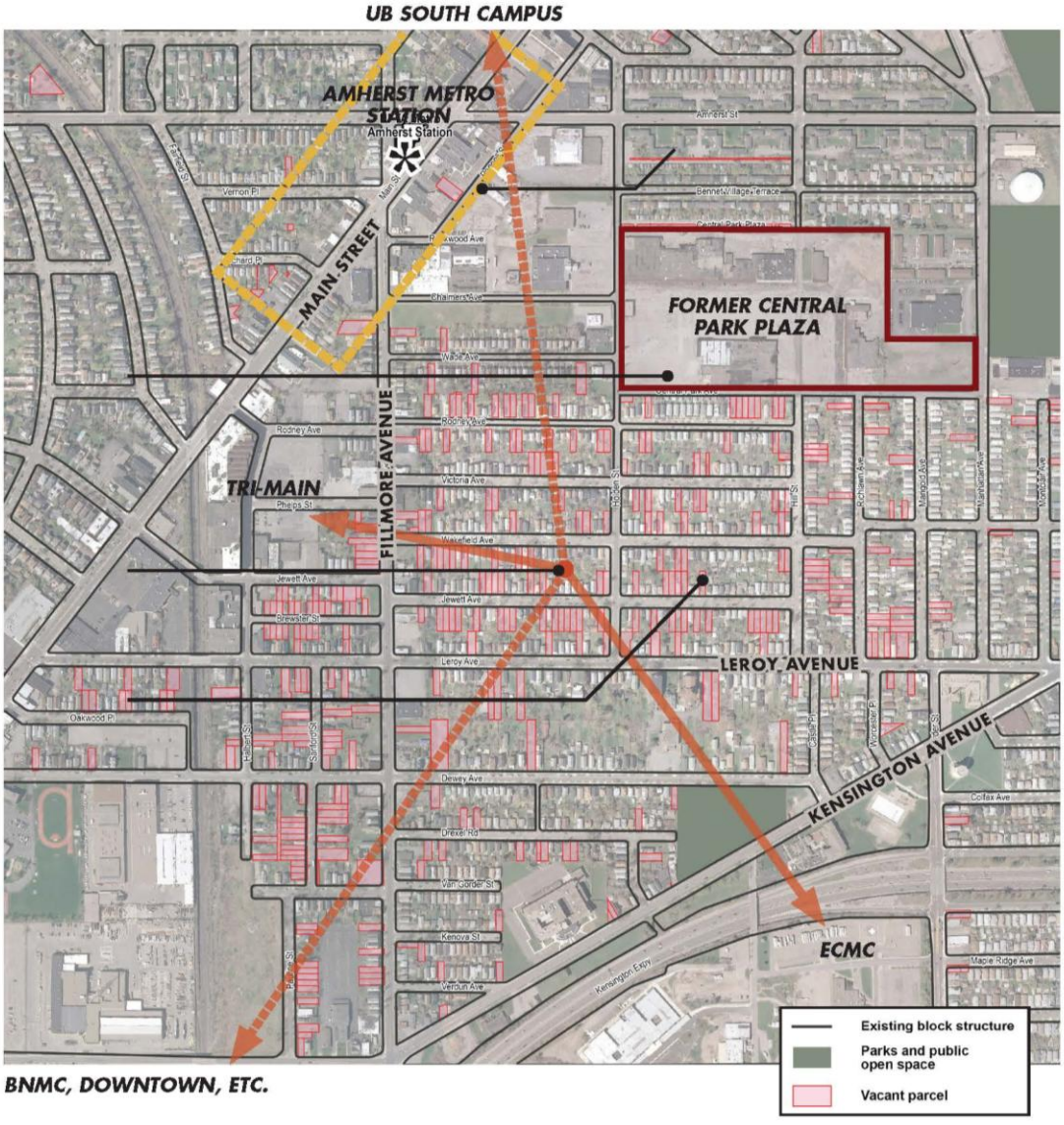


Figure 1: Highland Park Redevelopment Project Location

Existing Roadway System

Existing Roadway System

Major thoroughfares that provide access to the site include Main Street, Fillmore Avenue and East Amherst Street. With concurrence from the City of Buffalo Department of Public Works, the following intersections were selected for inclusion in this Traffic Impact Study. These intersections were selected for study due to existing traffic volumes, the presence of signalized intersections to facilitate turning movements and the trip distribution pattern attributable to the Highland Park Development. As shown in Figure 2, the study area includes Main Street intersections with Rodney Street, Fillmore Avenue, and East Amherst Street. In addition, Amherst Street intersections with Parker Avenue and Manhattan Avenue are included in the Study. These intersections are under the jurisdiction of the City of Buffalo.

Figure 2: Study Area Traffic Study Locations

The street sections can be described as follows.

- Main Street - the street consists of approximately 57 feet of pavement with two (2) travel lanes in each direction with a dedicated left turn lane. In general, parking and standing are prohibited in this segment. The posted speed limit is 30 MPH.

- Fillmore Avenue - the street consists of approximately 40 feet of pavement with a single travel lane in both directions and parking lanes. Time restricted parking and standing are allowed in this segment. The posted speed limit is 30 MPH.

- East Amherst Street – east of Main Street, the street consists of approximately 40 feet of pavement with a single travel lane in each direction and parking lanes. Time restricted parking and standing are allowed in this segment. The posted speed limit is 30 MPH.

- Amherst Street – west of Main Street, the street consists of approximately 38 feet of pavement with a single travel lane in the westbound direction and separate travel lane and dedicated left turn lane in the eastbound direction. Parking and standing not is allowed in this segment. The posted speed limit is 30 MPH.

- Parker Avenue - the street consists of approximately 32 feet of pavement with a single travel lane in each direction. Parking and standing not is allowed in this segment. The posted speed limit is 30 MPH. South of Amherst Street, Parker Avenue is used by the NFTA to stage bus transfers to the Amherst Street Metro Station.

- Rodney Street - the street consists of approximately 30 feet of pavement with a single travel lane in each direction. Alternating side parking is allowed in this segment. The posted speed limit is 30 MPH.

Six intersections were analyzed a part of the Traffic Impact Study:

- Main Street and Amherst Street - this signalized intersection consists of four legs. The eastbound and westbound Amherst Street approaches consist of a dedicated left turn and shared thru/right turn lanes. Northbound and southbound Main Street approaches consist of three lanes, with one thru lane, one lane for shared thru/right lane and a dedicated left turn lane. All left turns have protected phases. The intersection incorporates pedestrian crossing facilities.

- Main Street and Parker Avenue - this signalized intersection consists of three legs. The eastbound Parker Avenue approach consists of dedicated left turn and right turn lanes. The northbound and Main Street approach consists of one thru lane and one shared thru/left turn lane. Only buses are permitted to make left turns to access the Amherst Street Metro Station. The southbound Main Street approach consists of one thru lane and one shared thru/right turn lane. The intersection includes an extension of the dedicated left turn lane for the Fillmore Avenue intersection. This acts as a thru movement at this intersection. The intersection incorporates pedestrian crossing facilities.

- Main Street and Fillmore Avenue/Vernon Street - this signalized intersection consists of four legs. The westbound Fillmore Avenue approach consists of dedicated left turn and shared thru/right turn lane. Vernon Street is one way in the westbound direction and does not have approach traffic. Northbound and southbound Main Street approaches consist of three lanes, with one thru lane, one lane for shared thru/right lane and a dedicated left turn lane. All left turns have protected phases. The intersection incorporates pedestrian crossing facilities. Pedestrian crossing of Main Street is restricted to the crosswalk located south of Fillmore Avenue.

- Main Street and Rodney Street - this signalized intersection consists of three legs. The westbound Rodney Street approach consists of shared left/right turn lane. The northbound and Main Street approach consists of one thru lane and one shared thru/right turn lane. The southbound Main Street approach consists of one thru lane and one shared thru/left turn lane. The intersection incorporates pedestrian crossing facilities.

- Amherst Street and Parker Avenue - this signalized intersection consists of four legs. The eastbound and westbound Amherst Street approaches consist of a shared left turn, thru and right turn lane. Northbound and southbound Parker Avenue approaches consist of a shared left turn, thru and right turn lane. The intersection incorporates pedestrian crossing facilities.

- Amherst Street and Manhattan Avenue - this signalized intersection consists of four legs. The eastbound and westbound Amherst Street approaches consist of a shared left turn, thru and right turn lane. Northbound and southbound Manhattan Avenue approaches consist of a shared left turn, thru and right turn lane. The intersection incorporates pedestrian crossing facilities.

Traffic Modeling Approach

Traffic Modeling Approach

Synchro Version 8 traffic modeling software was used to analyze traffic operations. Synchro is based on methodologies presented in the 2000 Highway Capacity Manual that describe the operation of both signalized and unsignalized intersections. Although the 2000 Highway Capacity Manual does take into account the effects of adjacent traffic signals on overall operations, Synchro provides a more refined process to account for signal actuation, progression between signals and impacts of traffic queues. This program is an industry accepted standard and was used to determine the Levels of Service (LOS) for traffic traveling through the study area intersections.

The LOS for both signalized and unsignalized intersections are defined in terms of control delay. Control delay is a measure of the total travel time lost and includes slowing delay, stopped delay, queue move up time and start up lost time. LOS thresholds are defined as average delay in seconds per vehicle over a fifteen-minute analysis period and range from LOS A to LOS F for both signalized and unsignalized intersections. LOS A represents operating conditions of freely flowing traffic with little or no delay. LOS F represents operating conditions of highly congested traffic with forced (breakdown) flow and substantial delays. The following provides a summary of the Level of Service thresholds as defined in the 2000 Highway Capacity Manual.

Table 1: Level of Service Thresholds

Level of Service Thresholds	Signalized Intersections (seconds of delay)	Unsignalized Intersections (seconds of delay)
A – Little or no delay	Less than 10.0 seconds	Less than 10.0 seconds
B – Minor, short delays	10.1 to 20.0 seconds	10.1 to 15.0 seconds
C – Average delays	20.1 to 35.0 seconds	15.1 to 25.0 seconds
D – Long but acceptable delays	35.1 to 55.0 seconds	25.1 to 35.0 seconds
E – Long, near unacceptable delays	55.1 to 80.0 seconds	35.1 to 50.0 seconds
F – Unacceptable delays	More than 80.0 seconds	More than 50.0 seconds

An overall intersection LOS D or better is generally considered acceptable at a signalized intersection. An overall intersection LOS E or better is considered acceptable at unsignalized intersections. The acceptable Level of Service thresholds are lower for an unsignalized intersection because drivers generally expect longer delays at unsignalized verses signalized intersections.

The TIS utilizes accepted traffic impact study processes and methodology accepted by the City of Buffalo Department of Public Works, Parks and Streets.

Peak Intervals for Analysis

Given the functional characteristics of the Project study limits and the proposed residential use of the development, the peak hours selected for analysis are the weekday AM and PM commuter peaks. The combination of site generated traffic and peak hour commuter traffic produces the greatest demand during these time periods.

Peak Hours associated with commuter traffic were determined from 24-hour counts available from the Greater Buffalo Niagara Regional Transportation Council (GBNRTC). Based on counts taken at study area intersections on Main Street as well as traffic counts taken at the remaining study intersections, the Morning Peak Hour is between 7:30 and 8:30 AM and the Evening Peak Hour is between 4:30 and 5:30 PM.

Existing Traffic Conditions

Existing Traffic Conditions

A. *Existing Traffic Volume Data*

Turning movement traffic counts were obtained from the Greater Buffalo Niagara Regional Transportation Committee (GBNRTC) for the following intersections:

- Main Street and Amherst Street
- Main Street and Parker Avenue
- Main Street and Fillmore Avenue

These turning movement counts were performed for a 24-hour period during August of 2011 and August of 2013. Based on these counts the AM Peak hour for the study area occurs between 7:00AM and 9:00AM. The PM peak hour occurs between 4:00PM and 6:00PM. These two hour AM and PM periods were used as the basis for the manual turning movement count program.

Manual turning movement traffic counts were obtained for the following intersections.

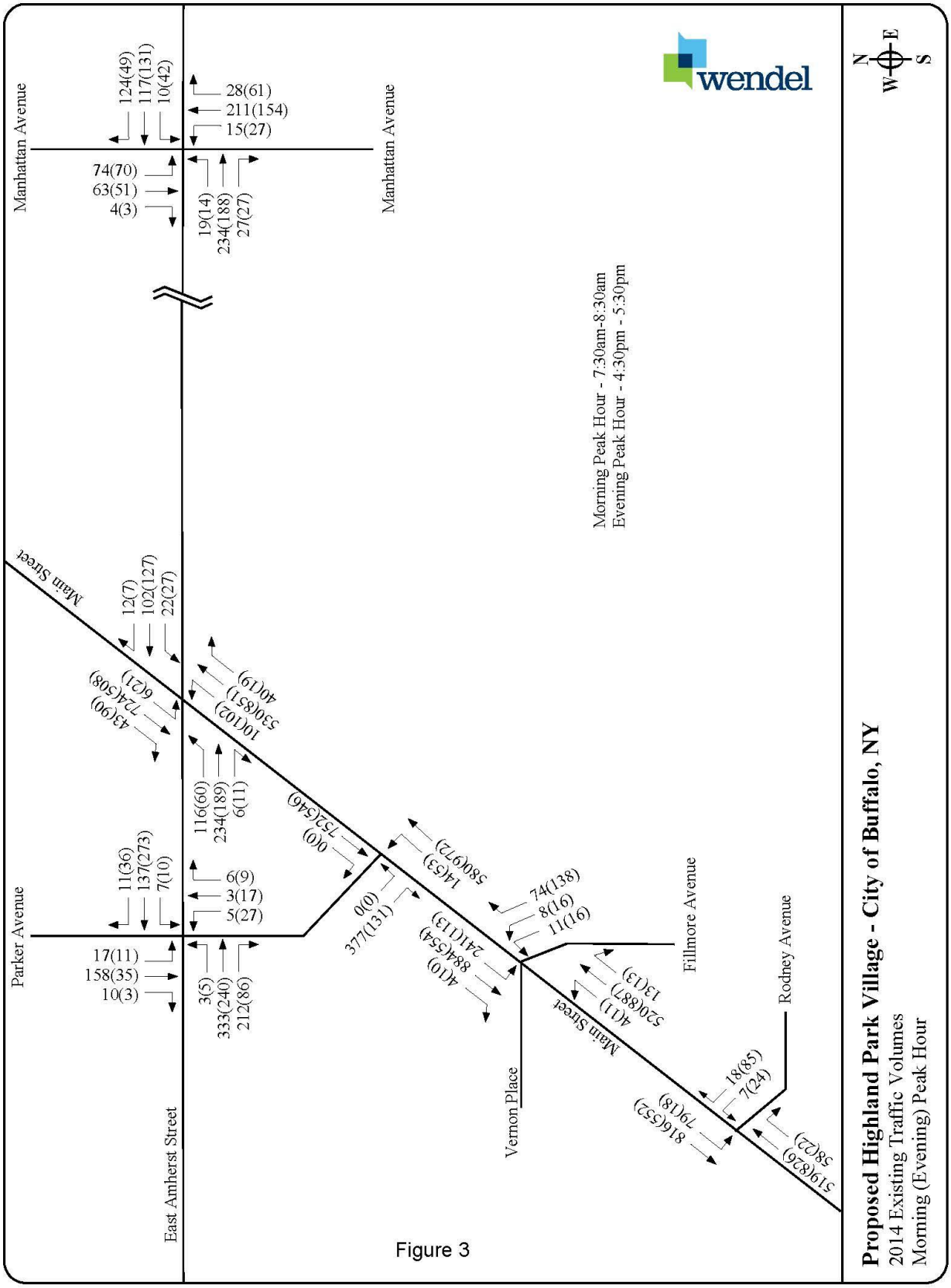
- Main Street and Rodney Street
- Amherst Street and Parker Avenue
- Amherst Street and Manhattan Avenue

B. *Field Observations*

Results for existing weekday AM and PM peak hour volumes are shown in Figure 3, Traffic Count Summary.

C. *LOS and Queue Analysis*

The results for the LOS and Queue summaries for existing traffic conditions are presented in Tables 2 and 3 respectively and described as follows.


wendel
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Proposed Highland Park Village - City of Buffalo, NY
2014 Existing Traffic Volumes
Morning (Evening) Peak Hour
Morning Peak Hour - 7:30am-8:30am
Evening Peak Hour - 4:30pm - 5:30pm
Manhattan Avenue
Manhattan Avenue
124(49)
117(131)
10(42)
28(61)
211(154)
15(27)
74(70)
63(51)
4(3)
19(14)
234(188)
27(27)
Main Street
Parker Avenue
East Amherst Street
Vernon Place
Fillmore Avenue
Rodney Avenue
Main Street
12(7)
102(127)
22(27)
43(90)
724(508)
6(21)
530(851)
10(102)
40(19)
116(60)
234(189)
6(11)
752(546)
0(0)
11(36)
137(273)
7(10)
6(9)
3(17)
5(27)
17(11)
158(35)
10(3)
3(5)
333(240)
212(86)
377(131)
0(0)
580(972)
14(53)
74(138)
8(16)
11(16)
884(554)
241(113)
4(10)
4(11)
520(887)
13(13)
816(552)
79(18)
18(85)
7(24)
519(826)
58(22)

Figure 3

Table 2
Intersection Level of Service Summary – Existing Conditions

Intersection	2014 Morning Peak Hour	2014 Evening Peak Hour
Main Street @ East Amherst Street	**C(33)**	**D(42)**
EB Left	C(27)	C(25)
EB Through/Right	F(113)	F(110)
WB Left	C(24)	C(24)
WB Through/Right	D(39)	D(40)
NB Left	A(5)	B(12)
NB Through/Right	B(12)	D(42)
SB Left	B(11)	B(13)
SB Through/Right	C(25)	C(26)
Main Street @ Parker Avenue	**C(34)**	**D(48)**
NB Left/Through	C(21)	E(71)
SB Through/Right	A(8)	A(5)
SEB Left/Right	F(106)	D(46)
SEB Right	F(108)	D(47)
Main Street @ Fillmore Avenue/Vernon Street	**B(12)**	**C(24)**
NB Left	C(26)	C(21)
NB Through/Right	C(34)	D(40)
SB Left	A(5)	A(8)
SB Through/Right	A(1)	A(1)
NWB Left	D(41)	D(44)
NWB Right	A(5)	B(13)
Main Street @ Rodney Avenue	**B(11)**	**A(7)**
NWB Left/Right	B(11)	B(11)
NB Through/Right	A(8)	A(7)
SB Left/Right	B(12)	A(6)
East Amherst Street @ Parker Avenue	**B(15)**	**C(25)**
EB Left/Through/Right	B(12)	B(13)
WB Left/Through/Right	A(10)	D(40)
NB Left/Through/Right	B(15)	B(15)
SB Left/Through/Right	C(25)	B(17)
East Amherst Street @ Manhattan Avenue	**B(12)**	**B(11)**
EB Left/Through/Right	B(11)	A(9)
WB Left/Through/Right	A(7)	A(9)
NB Left/Through/Right	B(16)	B(14)
SB Left/Through/Right	B(17)	B(15)

B(16) – Signalized Level of Service (Average Delay per Vehicle in Seconds)

Table 3
Maximum Queue Summary – Existing Conditions

Intersection	Available Storage	2014 Morning Peak Hour	2014 Evening Peak Hour
Main Street @ East Amherst Street			
EB Left	160	103	58
EB Through/Right	160	249	204
WB Left	50	28	33
WB Through/Right	-	120	143
NB Left	145	4	39
NB Through/Right	180	128	204
SB Left	110	7	19
SB Through/Right	-	264	223
Main Street @ Parker Avenue			
NB Left/Through	100	262	352
SB Through/Right	180	61	35
SEB Left/Right	150	232	91
SEB Right	75	252	95
Main Street @ Fillmore Avenue/Vernon Street			
NB Left	70	10	18
NB Through/Right	-	225	372
SB Left	100	42	41
SB Through/Right	100	0	0
NWB Left	80	33	53
NWB Right	-	4	56
Main Street @ Rodney Avenue			
NWB Left/Right	-	16	48
NB Through/Right	-	84	128
SB Left/Right	-	167	77
East Amherst Street @ Parker Avenue			
EB Left/Through/Right	-	215	152
WB Left/Through/Right	160	56	154
NB Left/Through/Right	150	12	40
SB Left/Through/Right	-	118	39
East Amherst Street @ Manhattan Avenue			
EB Left/Through/Right	-	87	79
WB Left/Through/Right	-	54	74
NB Left/Through/Right	-	112	104
SB Left/Through/Right	-	70	64

All Measurements in Feet
Maximum Queue = 95th Percentile Queue

- Main Street and East Amherst Street - The intersection operates at overall LOS C for the morning peak hour and LOS D for the evening peak hour. The eastbound thru/right movement on East Amherst Street operates at LOS F during the morning and evening peak hours. During the morning and evening peak hours, there is not sufficient storage to accommodate the queue lengths for the eastbound through and right turning traffic on East Amherst Street. During the evening peak hour, there is not sufficient storage for the westbound through and right turning traffic on East Amherst Street and northbound through and right turning traffic on Main Street.

- Main Street and Parker Avenue- The intersection operates at overall LOS C for the morning peak hour and LOS D for the evening peak hour. The eastbound left/right and right only movements on Parker Avenue operate at LOS F during the morning peak hour. Due to the proximity of the Fillmore Avenue and East Amherst Street intersections, there is insufficient storage to accommodate the queue lengths for this intersection.

- Main Street and Fillmore Avenue/Vernon Street - The intersection operates at overall LOS B for the morning peak hour and LOS C for the evening peak hour. For both peak hours, LOS for all turning movements is D or better. There is sufficient storage to accommodate the queue lengths for the intersection.

- Main Street and Rodney Avenue - The intersection operates at overall LOS B for the morning peak hour and LOS A for the evening peak hour. For both AM and PM peak hours, LOS for all turning movements is B or better. There is sufficient storage to accommodate the queue lengths for the intersection.

- Amherst Street and Parker Avenue - The intersection operates at overall LOS B for the morning peak hour and LOS C for the evening peak hour. For both AM and PM peak hours, LOS for all turning movements is D or better. There is sufficient storage to accommodate the queue lengths for the intersection.

- Amherst Street and Manhattan Avenue - The intersection operates at overall LOS B for the morning peak hour and evening peak hours. For both AM and PM peak hours, LOS for all turning movements is B or better. There is sufficient storage to accommodate the queue lengths for the intersection.

Detailed traffic simulation results for Existing Conditions are included as Appendix A.

D. *Pedestrian and Bicycle Facilities*

Existing City streets in the study area provide sidewalks for pedestrians. There are no dedicated bicycle facilities within the study area. Bicycle traffic would share the vehicular travel lanes.

E. *Transit Bus and Light Rail*

The NFTA bus and light rail routes in the vicinity of the project area can be seen in Figure 4. The site is located in close proximity to the NFTA Metro Rail Amherst Street Station. In addition the site is served by the Number 23 Fillmore-Hertel and Number 32 Amherst Metro Bus Routes.

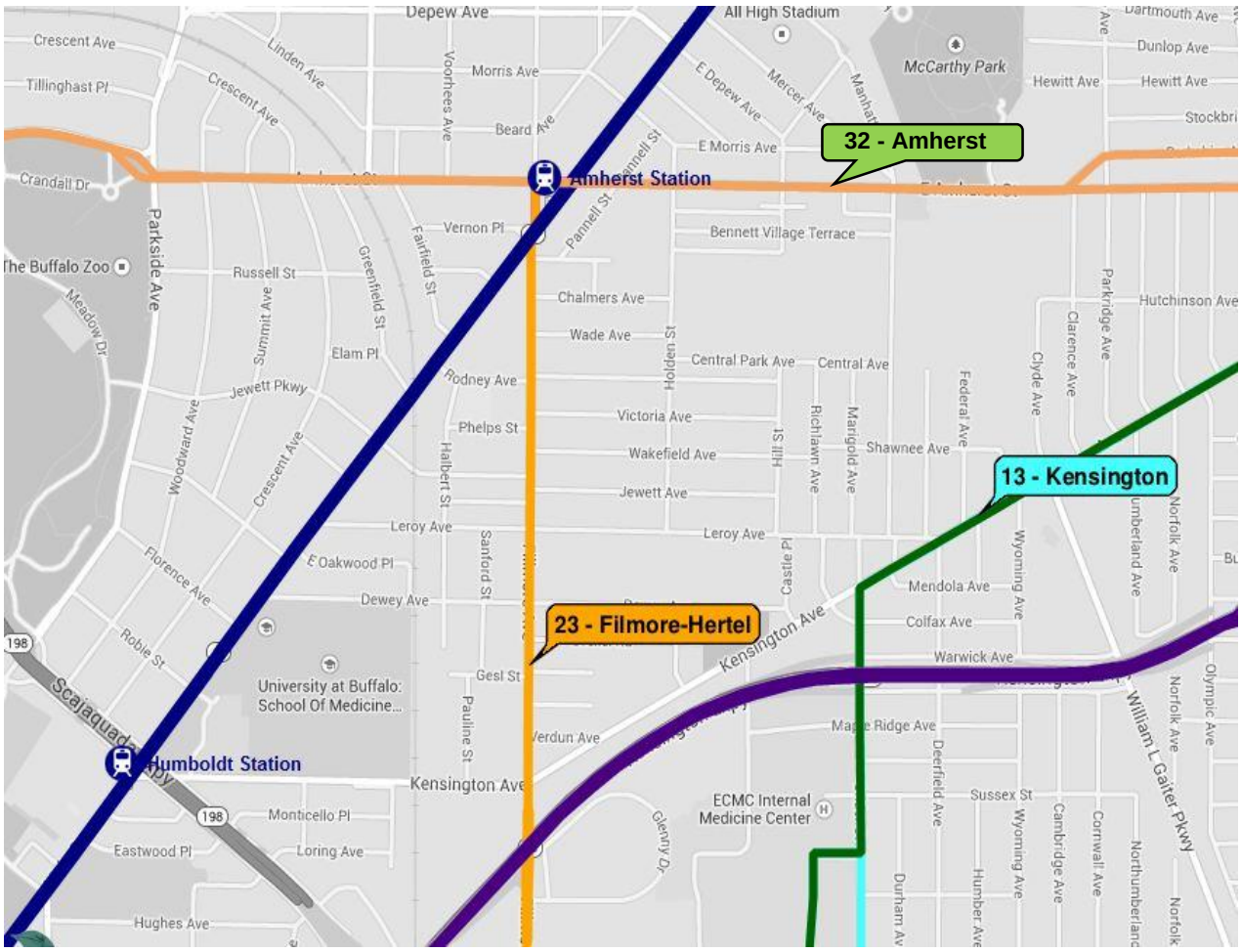


Figure 4: NFTA Bus and Light Rail Routes

Future Area Development and Background Traffic Growth

Future Area Development and Background Traffic Growth

A. *Background Traffic Growth*

The proposed Highland Park Redevelopment project is expected to be completed over the next eight years. The City of Buffalo was contacted to discuss any other specific developments that are in the vicinity of the project area. There are no significant planned projects in the area for this time period. The Traffic Impact Study considers the full build scenario to occur in 2022.

Traffic volume percent changes from recent years were obtained from GBNRTC historic counts and compared for the surrounding area. Based on historic data, a growth rate of 0.5% per year was selected to account for the increase in background traffic due to generalized growth. Growth rate calculations are presented in Appendix 5. Using a simple growth factor approach, this rate results in a total growth in background traffic of 4%. This background growth rate was applied to the existing traffic data to calculate background traffic volumes for the build year of 2022. Future Background traffic volumes for the study area are presented in Figure 5.

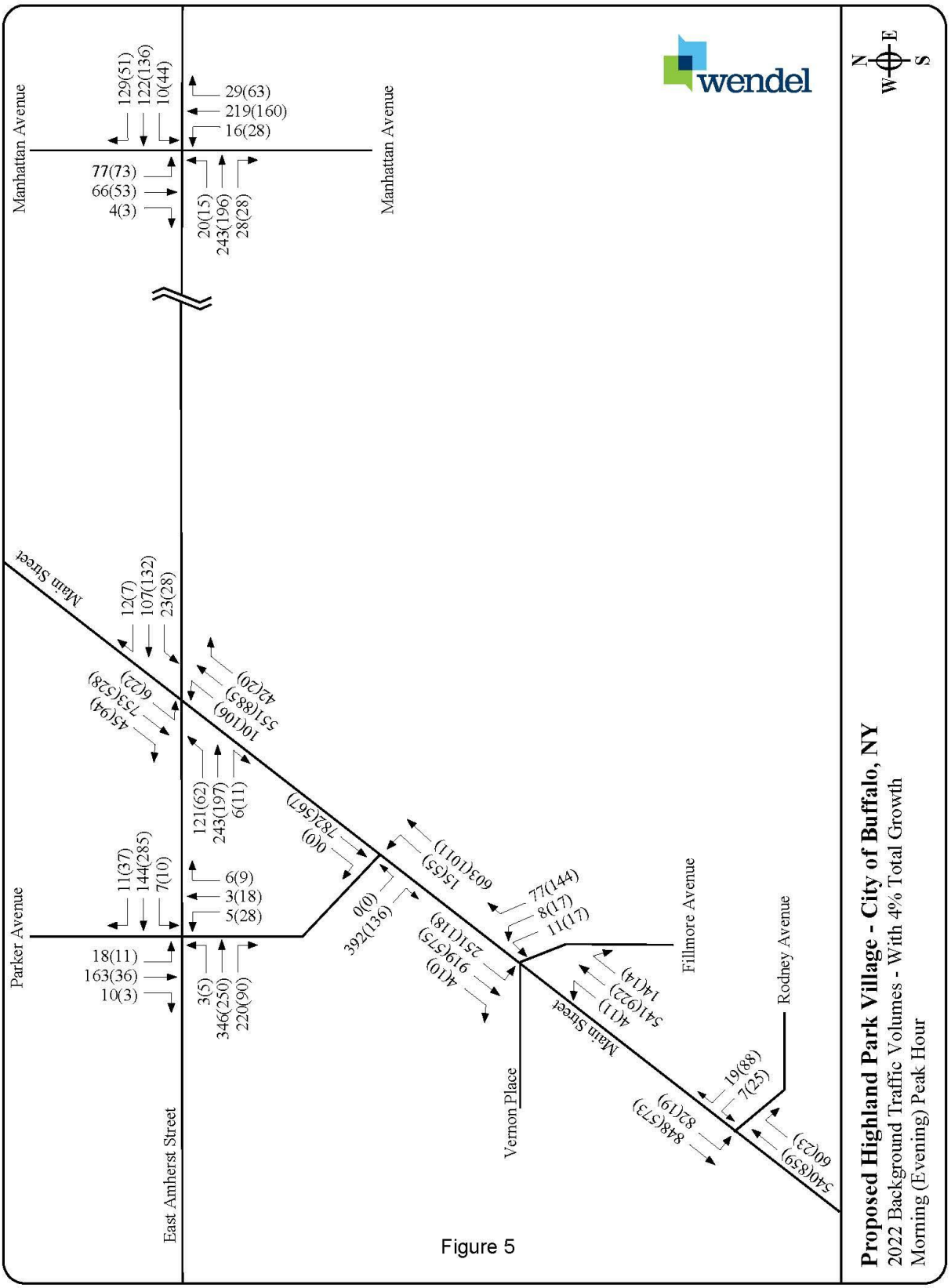
B. *LOS and Queue Analysis*

The results for the LOS and Queue summaries for background traffic conditions are presented in Table 4 and 5 respectively. Background traffic operations can be summarized as follows.

- Main Street and East Amherst Street - The intersection operates at overall LOS C for the morning peak hour and LOS D for the evening peak hour. The eastbound thru/right movement on East Amherst Street operates at LOS F during the morning and evening peak hours. During the morning and evening peak hours, there is not sufficient storage to accommodate the queue lengths for the eastbound through and right turning traffic on East Amherst Street. During the evening peak hour, there is not sufficient storage for the westbound through and right turning traffic on East Amherst Street and northbound through and right turning traffic on Main Street.

- Main Street and Parker Avenue- The intersection operates at overall LOS D for the morning and evening peak hours. The eastbound left/right and right only movements on Parker Avenue operate at LOS F during the morning peak hour. Due to the proximity of the Fillmore Avenue and East Amherst Street intersections, there is insufficient storage to accommodate the queue lengths for this intersection.

- Main Street and Fillmore Avenue/Vernon Street - The intersection operates at overall LOS B for the morning peak hour and LOS C for the evening peak hour. For both peak hours, LOS for all turning movements is D or better. There is sufficient storage to accommodate the queue lengths for the intersection.


wendel
N
W
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Manhattan Avenue
Manhattan Avenue
129(51)
122(136)
10(44)
29(63)
219(160)
16(28)
77(73)
66(53)
4(3)
20(15)
243(196)
28(28)
Main Street
12(7)
107(132)
23(28)
45(94)
753(528)
6(22)
10(106)
551(885)
42(20)
121(62)
243(197)
6(11)
782(567)
0(0)
603(1101)
15(55)
77(144)
8(17)
11(17)
Parker Avenue
11(37)
144(285)
7(10)
6(9)
3(18)
5(28)
18(11)
163(36)
10(3)
3(5)
346(250)
220(90)
392(136)
0(0)
251(118)
919(575)
4(10)
Fillmore Avenue
4(11)
541(922)
14(14)
Main Street
Rodney Avenue
East Amherst Street
Vernon Place
19(88)
7(25)
848(573)
82(19)
540(859)
60(23)
Proposed Highland Park Village - City of Buffalo, NY
2022 Background Traffic Volumes - With 4% Total Growth
Morning (Evening) Peak Hour

Figure 5

Table 4
Intersection Level of Service Summary – Future 2022 Background Conditions

Intersection	2022 Morning Peak Hour	2022 Evening Peak Hour
Main Street @ East Amherst Street	**C(33)**	**D(49)**
EB Left	C(28)	C(25)
EB Through/Right	F(114)	F(110)
WB Left	C(24)	C(24)
WB Through/Right	D(39)	D(40)
NB Left	A(5)	B(11)
NB Through/Right	B(14)	E(59)
SB Left	B(11)	B(13)
SB Through/Right	C(26)	C(26)
Main Street @ Parker Avenue	**D(39)**	**D(49)**
NB Left/Through	C(27)	E(72)
SB Through/Right	A(8)	A(5)
SEB Left/Right	F(117)	D(48)
SEB Right	F(120)	D(48)
Main Street @ Fillmore Avenue/Vernon Street	**B(12)**	**C(28)**
NB Left	C(26)	C(21)
NB Through/Right	D(35)	D(50)
SB Left	A(6)	B(11)
SB Through/Right	A(1)	A(1)
NWB Left	D(41)	D(45)
NWB Right	A(6)	B(13)
Main Street @ Rodney Avenue	**B(11)**	**A(7)**
NWB Left/Right	B(11)	B(11)
NB Through/Right	A(8)	A(8)
SB Left/Right	B(12)	A(7)
East Amherst Street @ Parker Avenue	**B(15)**	**C(28)**
EB Left/Through/Right	B(13)	B(13)
WB Left/Through/Right	A(10)	D(47)
NB Left/Through/Right	B(15)	B(16)
SB Left/Through/Right	C(26)	B(17)
East Amherst Street @ Manhattan Avenue	**B(13)**	**B(11)**
EB Left/Through/Right	B(12)	A(9)
WB Left/Through/Right	A(8)	A(9)
NB Left/Through/Right	B(17)	B(14)
SB Left/Through/Right	B(18)	B(15)

B(16) – Signalized Level of Service (Average Delay per Vehicle in Seconds)

Table 5
Maximum Queue Summary – Future 2022 Background Conditions

Intersection	Available Storage	2022 Morning Peak Hour	2022 Evening Peak Hour
Main Street @ East Amherst Street			
EB Left	160	106	60
EB Through/Right	160	274	213
WB Left	50	29	34
WB Through/Right	-	124	148
NB Left	145	4	38
NB Through/Right	180	142	201
SB Left	110	7	20
SB Through/Right	-	277	234
Main Street @ Parker Avenue			
NB Left/Through	100	277	395
SB Through/Right	180	63	35
SEB Left/Right	150	245	93
SEB Right	75	268	96
Main Street @ Fillmore Avenue/Vernon Street			
NB Left	70	10	17
NB Through/Right	-	235	393
SB Left	100	48	50
SB Through/Right	100	0	0
NWB Left	80	33	54
NWB Right	-	7	57
Main Street @ Rodney Avenue			
NWB Left/Right	-	17	49
NB Through/Right	-	88	136
SB Left/Right	-	178	81
East Amherst Street @ Parker Avenue			
EB Left/Through/Right	-	228	160
WB Left/Through/Right	160	58	161
NB Left/Through/Right	150	12	41
SB Left/Through/Right	-	121	39
East Amherst Street @ Manhattan Avenue			
EB Left/Through/Right	-	91	82
WB Left/Through/Right	-	57	77
NB Left/Through/Right	-	117	108
SB Left/Through/Right	-	73	67

All Measurements in Feet
Maximum Queue = 95th Percentile Queue

- Main Street and Rodney Avenue - The intersection operates at overall LOS B for the morning peak hour and LOS A for the evening peak hour. For both AM and PM peak hours, LOS for all turning movements is B or better. There is sufficient storage to accommodate the queue lengths for the intersection.

- Amherst Street and Parker Avenue - The intersection operates at overall LOS B for the morning peak hour and LOS C for the evening peak hour. For both AM and PM peak hours, LOS for all turning movements is D or better. There is sufficient storage to accommodate the queue lengths for the intersection.

- Amherst Street and Manhattan Avenue - The intersection operates at overall LOS B for the morning and evening peak hours. For both AM and PM peak hours, LOS for all turning movements is B or better. There is sufficient storage to accommodate the queue lengths for the intersection.

Detailed traffic simulation results for Background Conditions are included as Appendix A.

Proposed Development

Proposed Development

A. *Phased Development Scenario*

The proposed Highland Park Redevelopment involves redevelopment of the existing shopping center to a transit oriented residential development consisting of market rate residential apartments. The Project will be developed in phases with full buildout of the development anticipated in 2022. The anticipated Phasing Plan is presented in Figure 6. Based on market conditions, future development phases may be altered. For the purpose of this Traffic Impact Study, the full build scenario that represents the greatest potential impact was analyzed.

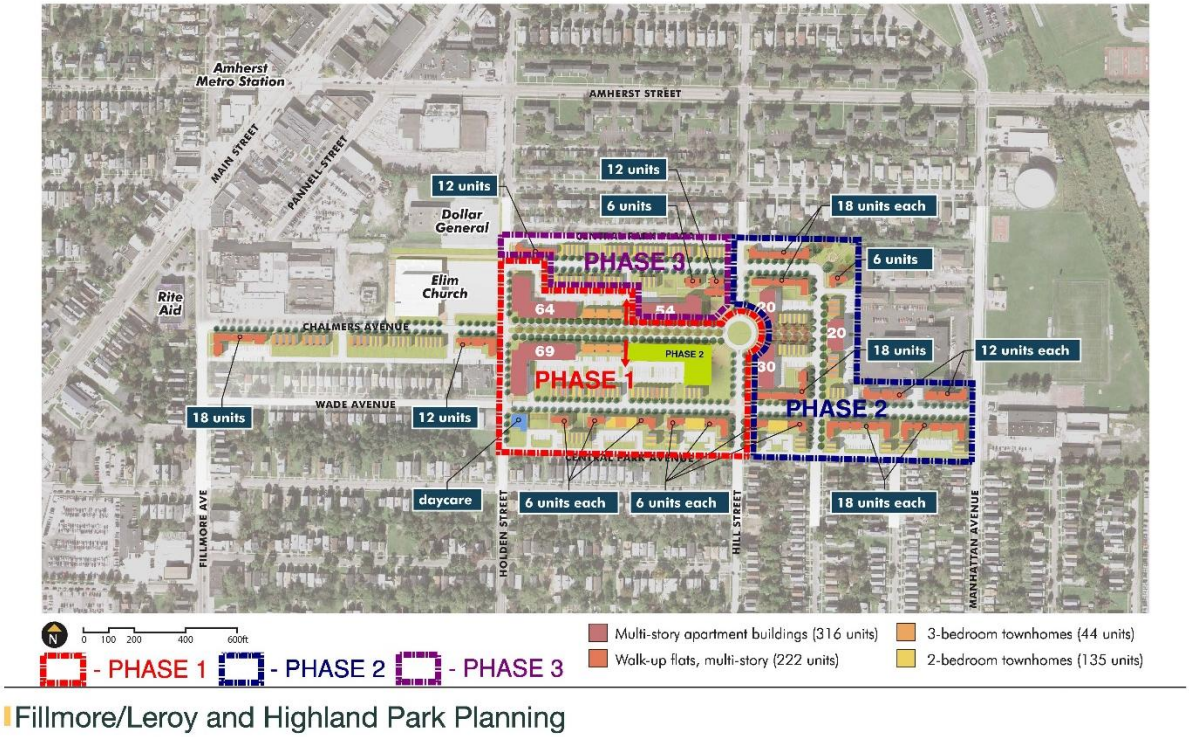


Figure 6: Phasing Plan for Proposed Highland Park Redevelopment

B. *Street Development Plan*

The proposed project will include construction of several new City streets as well as modifications to the street network. New City streets will connect adjoining streets through the development to create neighborhood blocks. The street development plan and typical cross sections are presented in Appendix B. New streets include the following:

- Wade Avenue from Holden Street to Manhattan Avenue with one travel lane in each direction. (Typical Section C)
- Chalmers Avenue from Holden Street to Richlawn Avenue. Chalmers Avenue will be a boulevard with one travel lane in each direction separated by a landscaped median. A roundabout will be placed at the intersection with Hill Street. (Typical Section A)

- Rockwood Street from Holden Street to Richlawn Avenue with one travel lane in each direction. (Typical Section C)
- Hill Street from Central Park Avenue to the northern terminus of Hill Street near Amherst Street with one travel lane in each direction. (Typical Section B)
- Richlawn Avenue from Central Park Avenue to Rockwood Street with one travel lane in each direction. (Typical Section C)
- Marigold Avenue from Central Park Avenue to Wade Avenue with one travel lane in each direction. (Typical Section C)

Existing sidewalks and cub on the east side of Holden Street from Central Park Avenue to the northern site boundary would be replaced as part of the development. The development will incorporate walkable/bikeable features throughout the site providing connections to these new streets. These modifications would be implemented as part of phased project development.

C. *Trip Generation*

Using the Institute of Transportation Engineers (ITE) Trip Generation Manual, trips generated by the proposed development were calculated for the morning and evening peak hours of the adjoining street network. The percent of traffic entering and exiting were calculated based on specific values depending on the type of Land Use and the time of day. The Trip Generation Summary is presented in Table 6.

Table 6: Trip Generation Summary

Proposed Development — 538 Apartments (316 Multi-Story and 222 Walk-Up Flats); 179 Townhouses (44 3-Bedroom and 135 2-Bedroom)

ITE Trip Generation - 9th Edition

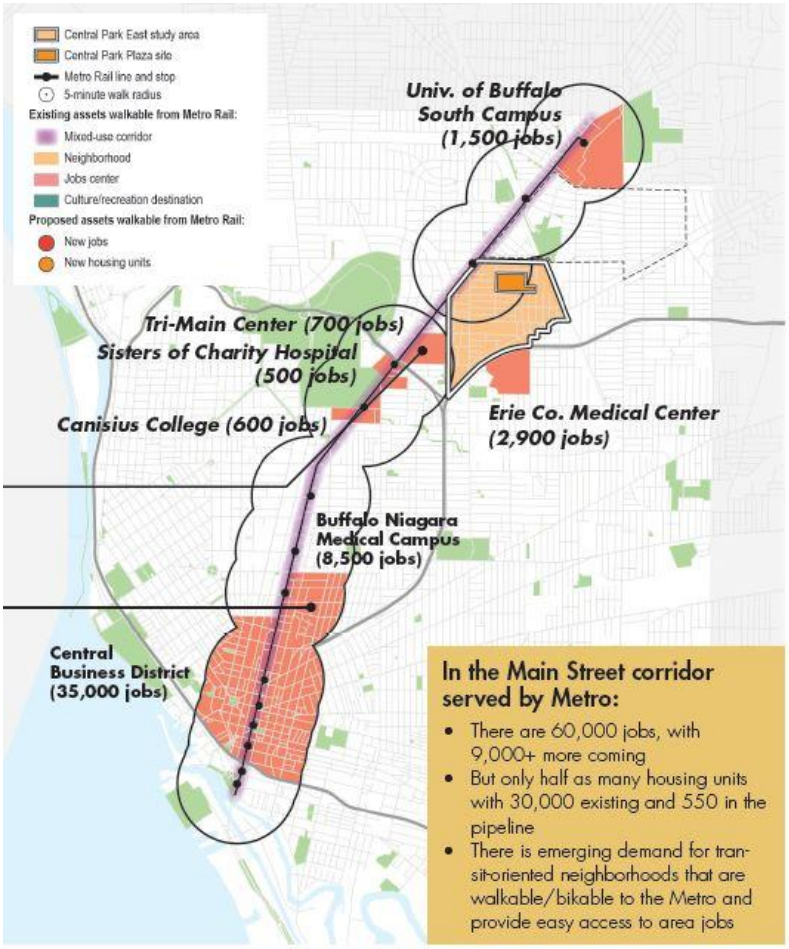
Land Use 220 - Apartment			
AM Peak Hour	0.51 Trips/unit	20% Enter	80% Exit
PM Peak Hour	0.62 Trips/unit	65% Enter	35% Exit
Land Use 230 - Residential Condominium/Townhouse			
AM Peak Hour	0.44 Trips/unit	17% Enter	83% Exit
PM Peak Hour	0.52 Trips/unit	67% Enter	33% Exit

Assumed that 30% of residents will use public transportation

Trip Generation Summary

		Morning Peak Hour			Evening Peak Hour		
Development	**Size**	**Total Trips**	**Entering**	**Exiting**	**Total Trips**	**Entering**	**Exiting**
Apartments	538 Units	274	55	219	334	217	117
Townhouses	179 Units	79	13	66	93	62	31
Total Trips Generated		**353**	**68**	**285**	**427**	**279**	**148**
Transit Credit - 30%		*-106*	*-20*	*-86*	*-128*	*-83*	*-45*
Total Vehicle Trips Generated		**247**	**48**	**199**	**299**	**196**	**103**

Highland Park has been planned as a Transit Oriented Development (TOD). TOD's are designed to maximize access to public transport, and incorporate features to encourage transit ridership. A TOD neighborhood typically has a center near a transit station or stop, is surrounded by relatively high-density development with progressively lower-density development spreading outward from the center.



TOD enhances the role of transit in providing access to jobs by increasing opportunities for people to find housing and employment near transit stations. TODs generally are located within a radius of one-quarter to one-half mile from a transit stop and represents a 5 to 7 minute walk or short bicycle ride. TOD's provide sustainable transportation choices for residents with no or limited access to a car.

Highland Park is located less than 0.4 miles from the Amherst Street Station. In addition, NFTA has indicated their willingness to extend the Number 32 Amherst Bus Route to service the development further enhancing transit access. Another important factor is that many of potential employers that are identified in the Master Plan are located on or in close proximity to the NFTA Metro Rail or multiple Metro Bus Routes. Based on these factors, trip generation calculations include a 30 percent reduction in the number of vehicle trips to account for use of public transit by residents.

D. *Former Plaza Trip Generation*

The Highland Park Redevelopment Project will transform land that was occupied by the former Central Park Plaza into an urban, transit oriented residential development. The former plaza was comprised of 275,000 square feet (SF) of mixed retail buildings. Institute of Transportation Engineers (ITE) Trip Generation Manual. In addition to vehicular traffic

for patrons and employees, the former hospital generated a significant volume of truck traffic associated with deliveries for retail operations.

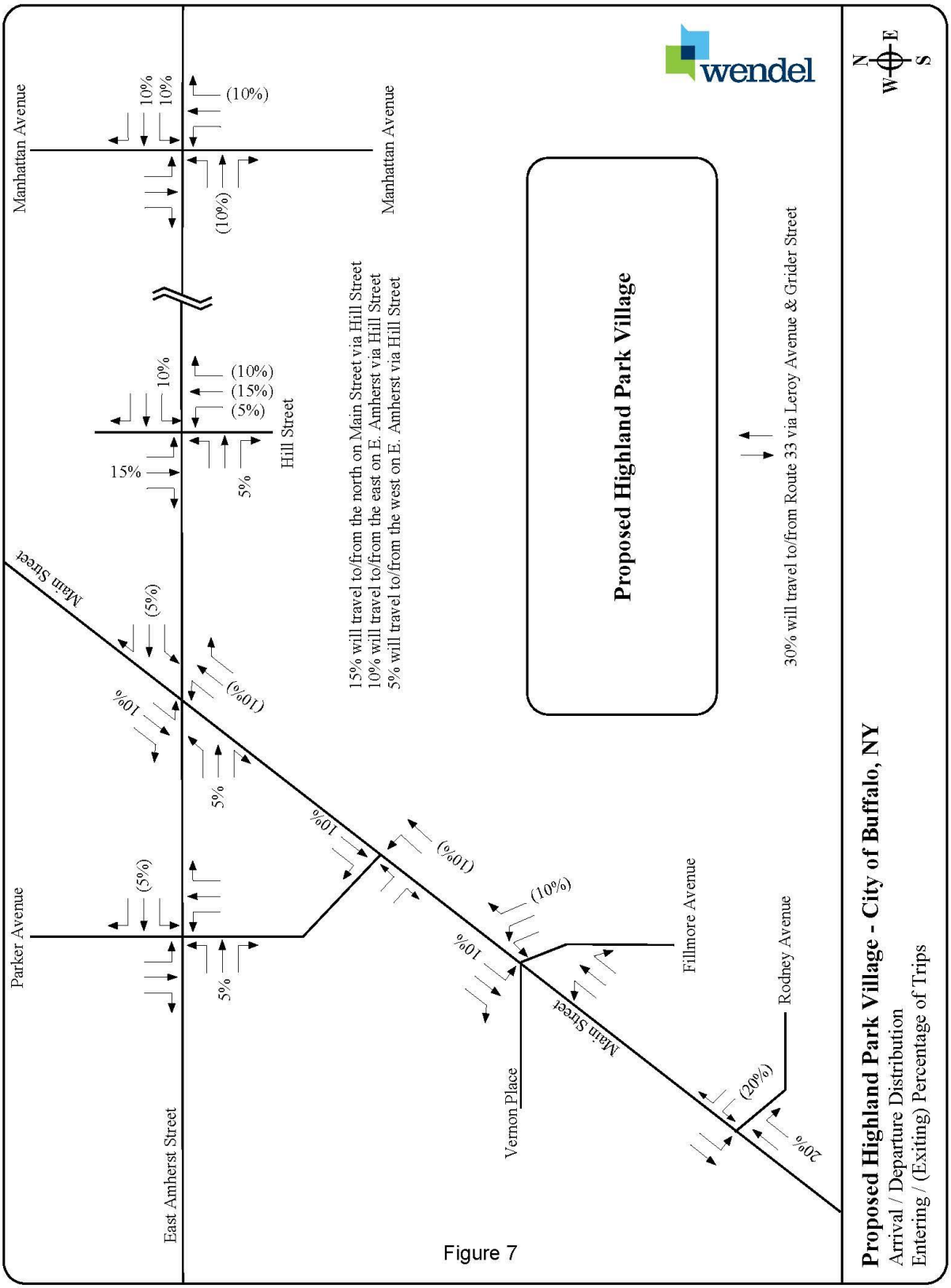
For comparison with the proposed development, trip generation associated with former shopping center was calculated based on Land Use: 820, Shopping Center, as set forth in the Institute of Transportation Engineers (ITE). Based on the approximate 275,000 SF size of the former shopping center, the AM Peak is 290 trips and PM Peak is 1,180 trips during the peak hours of the adjacent street. As presented in the previous section, the proposed Highland Park Redevelopment has an AM Peak of 247 trips and PM Peak of 299 trips resulting from the full build scenario in 2022. Therefore, the number of trips associated with the former shopping center is greater than the projected number of trips associated with the proposed Highland Park Redevelopment.

E. *Trip Distribution*

The arrival and departure trip distribution for the morning and evening peak hours can be seen in Figure 7. The site generated trips for the full build scenario for the morning and evening peak hours can be seen in Figure 8. The combined full build traffic volumes can be seen in Figure 9.

F. *Combined LOS and Queue Analysis for 2022 Build Traffic Volumes*

The results for the LOS and Queue summaries are described as follows.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N
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Proposed Highland Park Village - City of Buffalo, NY
Arrival / Departure Distribution
Entering / (Exiting) Percentage of Trips
Proposed Highland Park Village
15% will travel to/from the north on Main Street via Hill Street
10% will travel to/from the east on E. Amherst via Hill Street
5% will travel to/from the west on E. Amherst via Hill Street
30% will travel to/from Route 33 via Leroy Avenue & Grider Street
Manhattan Avenue
Manhattan Avenue
Hill Street
Main Street
Main Street
Parker Avenue
East Amherst Street
Vernon Place
Fillmore Avenue
Rodney Avenue
10%
10%
(10%)
(10%)
10%
(10%)
(15%)
(5%)
15%
5%
(5%)
(10%)
10%
5%
10%
(10%)
10%
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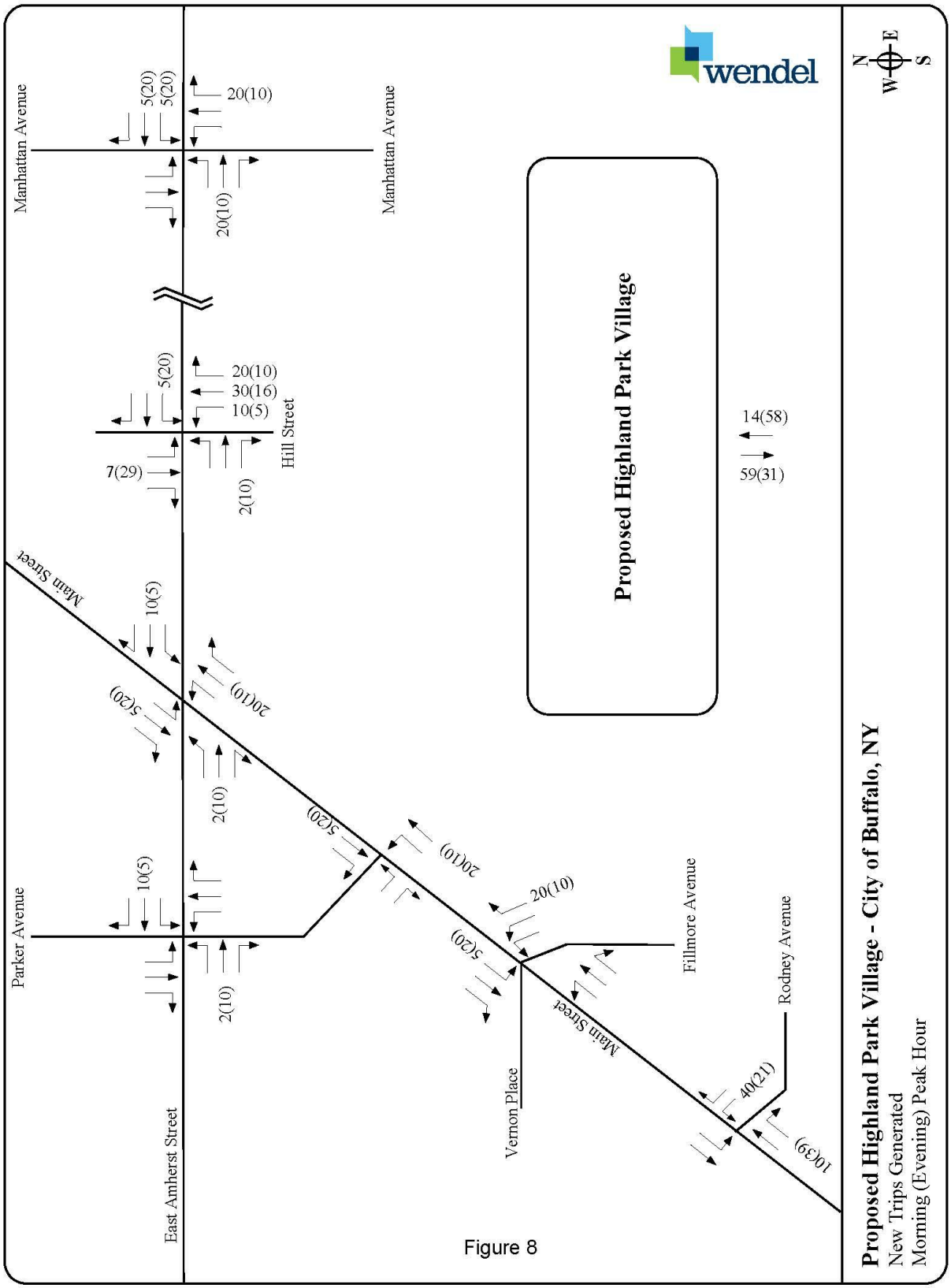
(5%)
5%
20%
(20%)

Figure 7


wendel
N
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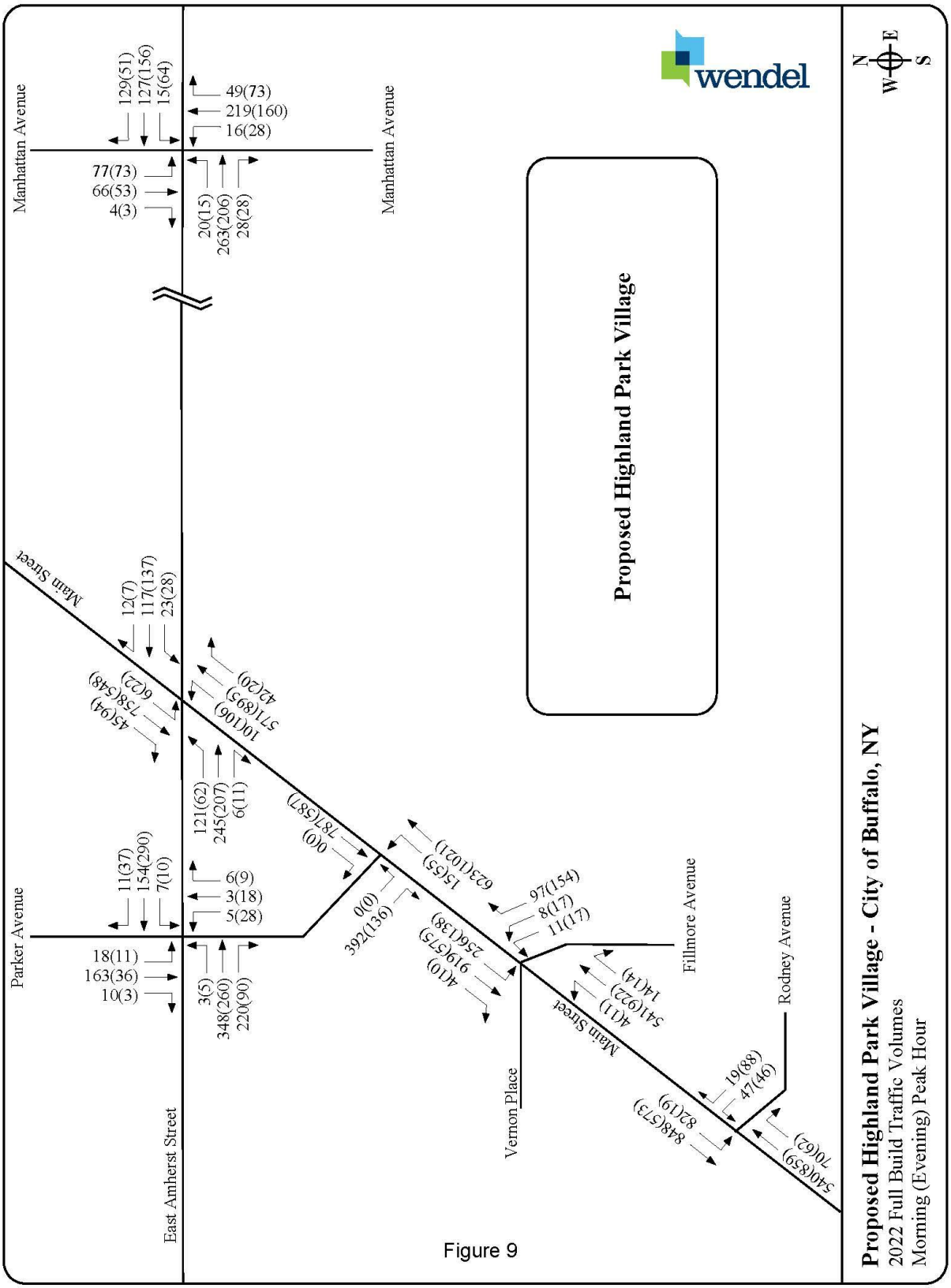
Manhattan Avenue
Manhattan Avenue
5(20)
5(20)
20(10)
20(10)
Hill Street
5(20)
20(10)
30(16)
10(5)
7(29)
2(10)
Proposed Highland Park Village
14(58)
59(31)
Main Street
10(5)
20(10)
5(20)
2(10)
5(20)
20(10)
20(10)
5(20)
Parker Avenue
10(5)
2(10)
East Amherst Street
Vernon Place
Fillmore Avenue
Main Street
Rodney Avenue
40(21)
10(39)
Proposed Highland Park Village - City of Buffalo, NY
New Trips Generated
Morning (Evening) Peak Hour

Figure 8


Proposed Highland Park Village
Manhattan Avenue
Manhattan Avenue
Parker Avenue
East Amherst Street
Main Street
Main Street
Vernon Place
Fillmore Avenue
Rodney Avenue
129(51)
127(156)
15(64)
49(73)
219(160)
16(28)
77(73)
66(53)
4(3)
20(15)
263(206)
28(28)
12(7)
117(137)
23(28)
45(94)
6(22)
758(548)
10(106)
571(895)
42(20)
121(62)
245(207)
6(11)
787(587)
0(0)
11(37)
154(290)
7(10)
6(9)
3(18)
5(28)
18(11)
163(36)
10(3)
3(5)
348(260)
220(90)
0(0)
392(136)
623(1021)
15(55)
97(154)
8(17)
11(17)
256(138)
919(575)
4(10)
4(11)
541(922)
14(14)
19(88)
47(46)
848(573)
82(19)
540(859)
70(62)
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Proposed Highland Park Village - City of Buffalo, NY
2022 Full Build Traffic Volumes
Morning (Evening) Peak Hour

Figure 9

Table 7
Intersection Level of Service Summary – 2022 Build Conditions

Intersection	2022 Morning Peak Hour	2022 Evening Peak Hour
Main Street @ East Amherst Street	**C(34)**	**D(50)**
EB Left	C(28)	C(25)
EB Through/Right	F(114)	F(111)
WB Left	C(24)	C(24)
WB Through/Right	D(40)	D(40)
NB Left	A(5)	B(11)
NB Through/Right	B(14)	E(61)
SB Left	B(11)	B(13)
SB Through/Right	C(26)	C(26)
Main Street @ Parker Avenue	**D(39)**	**D(49)**
NB Left/Through	C(29)	E(72)
SB Through/Right	A(8)	A(5)
SEB Left/Right	F(117)	D(48)
SEB Right	F(120)	D(48)
Main Street @ Fillmore Avenue/Vernon Street	**B(13)**	**C(30)**
NB Left	C(26)	C(21)
NB Through/Right	D(36)	D(53)
SB Left	A(6)	B(12)
SB Through/Right	A(1)	A(1)
NWB Left	D(41)	D(45)
NWB Right	A(10)	B(14)
Main Street @ Rodney Avenue	**B(11)**	**A(8)**
NWB Left/Right	B(15)	B(12)
NB Through/Right	A(8)	A(8)
SB Left/Right	B(13)	A(7)
East Amherst Street @ Parker Avenue	**B(15)**	**C(29)**
EB Left/Through/Right	B(13)	B(13)
WB Left/Through/Right	B(10)	D(49)
NB Left/Through/Right	B(15)	B(16)
SB Left/Through/Right	C(26)	B(17)
East Amherst Street @ Manhattan Avenue	**B(13)**	**B(12)**
EB Left/Through/Right	B(12)	A(9)
WB Left/Through/Right	A(8)	A(10)
NB Left/Through/Right	B(17)	B(14)
SB Left/Through/Right	B(18)	B(15)

B(16) – Signalized Level of Service (Average Delay per Vehicle in Seconds)

Table 8
Maximum Queue Summary – 2022 Build Conditions

Intersection	Available Storage	2022 Morning Peak Hour	2022 Evening Peak Hour
Main Street @ East Amherst Street			
EB Left	160	106	60
EB Through/Right	160	278	224
WB Left	50	29	34
WB Through/Right	-	134	153
NB Left	145	4	37
NB Through/Right	180	151	197
SB Left	110	7	20
SB Through/Right	-	280	243
Main Street @ Parker Avenue			
NB Left/Through	100	276	408
SB Through/Right	180	63	36
SEB Left/Right	150	245	93
SEB Right	75	268	96
Main Street @ Fillmore Avenue/Vernon Street			
NB Left	70	10	17
NB Through/Right	-	235	393
SB Left	100	51	66
SB Through/Right	100	0	0
NWB Left	80	33	54
NWB Right	-	24	58
Main Street @ Rodney Avenue			
NWB Left/Right	-	39	61
NB Through/Right	-	88	143
SB Left/Right	-	178	81
East Amherst Street @ Parker Avenue			
EB Left/Through/Right	-	228	166
WB Left/Through/Right	160	62	164
NB Left/Through/Right	150	12	41
SB Left/Through/Right	-	121	39
East Amherst Street @ Manhattan Avenue			
EB Left/Through/Right	-	98	86
WB Left/Through/Right	-	62	95
NB Left/Through/Right	-	124	111
SB Left/Through/Right	-	74	68

All Measurements in Feet
Maximum Queue = 95th Percentile Queue

- Main Street and East Amherst Street - The intersection operates at overall LOS C for the morning peak hour and LOS D for the evening peak hour. The eastbound thru/right movement on East Amherst Street operates at LOS F during the morning and evening peak hours. During the morning and evening peak hours, there is not sufficient storage to accommodate the queue lengths for the eastbound through and right turning traffic on East Amherst Street. During the evening peak hour, there is not sufficient storage for the westbound through and right turning traffic on East Amherst Street and northbound through and right turning traffic on Main Street.

- Main Street and Parker Avenue- The intersection operates at overall LOS D for the morning and evening peak hours. The eastbound left/right and right only movements on Parker Avenue operate at LOS F during the morning peak hour. Due to the proximity of the Fillmore Avenue and East Amherst Street intersections, there is insufficient storage to accommodate the queue lengths for this intersection.

- Main Street and Fillmore Avenue/Vernon Street - The intersection operates at overall LOS B for the morning peak hour and LOS C for the evening peak hour. For both peak hours, LOS for all turning movements is D or better. There is sufficient storage to accommodate the queue lengths for the intersection.

- Main Street and Rodney Avenue - The intersection operates at overall LOS B for the morning peak hour and LOS A for the evening peak hour. For both AM and PM peak hours, LOS for all turning movements is B or better. There is sufficient storage to accommodate the queue lengths for the intersection.

- Amherst Street and Parker Avenue - The intersection operates at overall LOS B for the morning peak hour and LOS C for the evening peak hour. For both AM and PM peak hours, LOS for all turning movements is D or better. There is sufficient storage to accommodate the queue lengths for the intersection.

- Amherst Street and Manhattan Avenue - The intersection operates at overall LOS B for the morning and evening peak hours. For both AM and PM peak hours, LOS for all turning movements is B or better. There is sufficient storage to accommodate the queue lengths for the intersection.

Detailed traffic simulation results for Existing Conditions are included as Appendix A.

Parking Analysis

A. *Parking Demand*

Two methods were used to determine the parking that would be required for the proposed Highland Park Redevelopment. The first method used the Institute of Transportation Engineers (ITE) Parking Generation Manual, which calculated the amount of parking spaces needed based on given parking demand ratios that are dependent on the type of Land Use and day of the week, and the amount of units or square feet for that specific Land Use. Calculations utilizing this method are presented in Table 9. Based on ITE Parking Generation Calculations, the parking needed for the proposed development is 796 parking spaces.

Table 9: Parking Demand Using ITE Parking Generation Manual

ITE Land Use	Number of Units	Number of Spaces
Land Use 221 Low/Mid Rise Apartments	538	500
Land Use 224 Rental Townhouse	179	296
Total		796

The second method used the City Building Code requirements for each building in the proposed development, using a required car park ratio based on the amount of units. From the second method, the total parking needed for the proposed development is 180 parking spaces. Calculations for this method are presented in Table 10.

Table 10: Parking Demand Using Building Code Requirements

Buffalo Code	Number of Units	Number of Spaces/Unit	Number of Spaces
Land Use 221 Low/Mid Rise Apartments	538	1	538
Land Use 224 Rental Townhouse	179	1	179
Total			707

B. *Parking Supply*

As seen in Table 11, the proposed site will be able to accommodate parked cars in proposed surface lots and on development streets. Therefore, the parking supply exceeds the demand and the total parking for the proposed development will be able to accommodate the expected parking volumes.

Table 11: Parking Supply for Proposed Development

Area	Number of Spaces
Off-Street Parking	550
On-Street Parking	394
Total	944

Transit/Transportation Demand Management

Transit/Transportation Demand Management

Transportation Demand Management (TDM) is the application of demand strategies and policies to reduce travel demand (specifically that of single-occupancy private vehicles), or to redistribute this demand in space or in time. Managing demand can be a cost-effective alternative to increasing capacity. A demand management approach to transport also has the potential to deliver better environmental outcomes, improved public health, stronger communities, and more prosperous and livable cities. For the Highland Park Redevelopment project, TDM opportunities would include:

- Working with the NFTA to enhance Metro Bus service to the site as well as the Amherst Street Metro Rail Station.
- Encourage Biking by offering bicycle storage amenities and Bikesharing.

Conclusions and Recommendations

Conclusions and Recommendations

The Highland Park Redevelopment Project will transform land that was occupied by the former Central Park Plaza into an urban, transit oriented development. The former shopping center, generated approximately 290 trips during the AM Peak hour and 1,180 trips is during the PM Peak hour of the adjacent street. The proposed Highland Park Redevelopment has an AM Peak of 247 trips and PM Peak of 299 trips resulting from the full build scenario in 2022. Therefore, the number of trips associated with the former shopping center is greater than the number of trips associated with the Highland Park Redevelopment.

Based on Combined LOS and Queue Analysis results for the for 2022 Build Scenario, the Highland Park Redevelopment will not impact future traffic operations on the adjacent street network. Therefore, no modifications or improvement to the adjacent street network are necessary for development of this project.

The project will include development of new City streets. The street development plan and typical cross sections are presented in Appendix B. New streets include the following:

- Wade Avenue from Holden Street to Manhattan Avenue with one travel lane in each direction. (Typical Section C)
- Chalmers Avenue from Holden Street to Richlawn Avenue. Chalmers Avenue will be a boulevard with one travel lane in each direction separated by a landscaped median. A roundabout will be placed at the intersection with Hill Street. (Typical Section A)
- Rockwood Street from Holden Street to Richlawn Avenue with one travel lane in each direction. (Typical Section C)
- Hill Street from Central Park Avenue to the northern terminus of Hill Street near Amherst Street with one travel lane in each direction. (Typical Section B)
- Richlawn Avenue from Central Park Avenue to Rockwood Street with one travel lane in each direction. (Typical Section C)
- Marigold Avenue from Central Park Avenue to Wade Avenue with one travel lane in each direction. (Typical Section C)

Existing sidewalks and cub on the east side of Holden Street from Central Park Avenue to the northern site boundary would be replaced as part of the development. The development will incorporate walkable/bikeable features throughout the site providing connections to these new streets. These modifications would be implemented as part of phased project development.