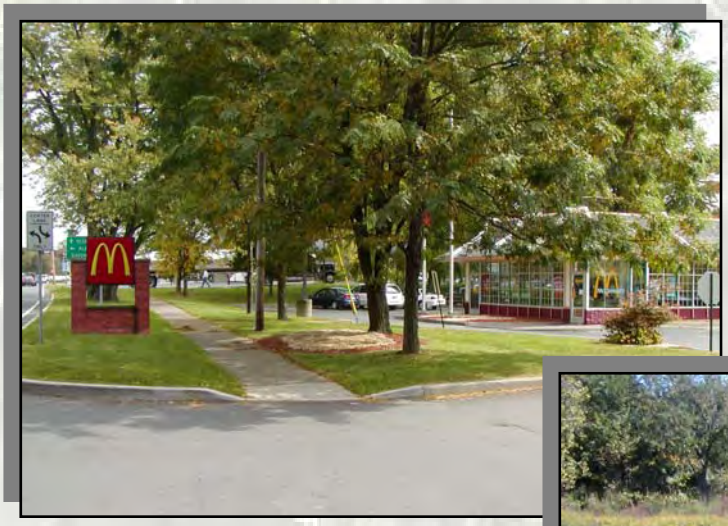
Draft US 9W Corridor Profile

Advancing the Town of Bethlehem's Comprehensive Plan



Prepared for:

The Town of Bethlehem

&

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I. INTRODUCTION

A. BACKGROUND

Route 9W is a major north-south arterial that runs through the Town of Bethlehem, west of, and parallel to the New York State Thruway. The road serves as a major commuter route connecting the Town and communities to the south, with the City of Albany to the north and the region's Interstate Highway System. While serving as an important commuting route, the 9W corridor is also home to both the Glenmont and Becker Elementary Schools, several big box retail and strip shopping centers, and a variety of other commercial uses, as well as residential neighborhoods and agricultural and vacant lands.

The Town of Bethlehem has invested a considerable amount of effort over the years with respect to planning activity in the corridor. These efforts have included preparation of a *Route 9W Corridor Study* (1989); a *draft Master Plan Study* (LUMAC 1997); a *Selkirk Truck Traffic Study* (1991); and various traffic and other studies associated with individual development proposals in the area.

Recently, Bethlehem has completed and adopted a Comprehensive Plan to guide the future development of the Town. This Plan generally identifies the Route 9W corridor as an area for future economic development comprised of areas for: commercial uses; planned mixed economic development areas; commercial and rural hamlets; and residential and industrial uses. The plan calls for better integration of new and existing development with a more balanced transportation system. A significant recommendation contained in the Plan is for the Town to undertake a study of the 9W corridor to assess needs and develop preferred alternatives for both transportation improvements and land uses. According to language in the Plan, a Route 9W Study could result in refined land use recommendations and, at the Town Board's discretion, may be treated as a comprehensive plan amendment potentially leading to further zoning amendments impacting lands in the corridor. The Plan recommended, and subsequent amendments to the Town's zoning ordinance now include, standards and guidelines for subdivision, and site and building design in an effort to promote a more attractive, walkable community.

As the Town recognizes, development growth brings economic opportunity, but it also brings additional costs, visual impacts, inconveniences and other obligations to the community if not carefully planned and executed.

In response to the Comprehensive Plan's recommendation, the Town of Bethlehem commissioned a planning study of the Route 9W area of the Town with the assistance of the Capital District Transportation Committee (CDTC). The CDTC is the designated Metropolitan Planning Organization (MPO) carrying out federal requirements for cooperative transportation planning and programming within the metropolitan area surrounding the Albany-Schenectady-Troy urbanized area.

Building on the Town of Bethlehem's Comprehensive Plan and the New York State Department of Transportation's (NYSDOT's) project development work for the Selkirk Bypass, this 9W Corridor Study will develop a transportation plan that gives the corridor a transportation system that works well for all users, is supportive of the town's economic

development goals, and respects and strengthens residential neighborhoods along the corridor. As a guide to future growth and change in the community, the Town's Comprehensive Plan laid out a tentative land use vision for the corridor that called for mixed economic development zoning and hamlet development. The NYSDOT project development work identified two different truck bypass options for NYS Route 396 focusing on the objectives of improving safety and quality of life for residents who live along that route by reducing truck traffic. The Town would like to look at this in the context of a lot more than just a 'Selkirk Bypass' by engaging the community in a discussion of the ability of a northern Selkirk Bypass alignment to support the Town's land use and transportation vision for the corridor.

B. STUDY OBJECTIVES

The Route 9W study will build upon the land use findings and recommendations identified in the Town's Comprehensive Plan, developing a focused and targeted 9W corridor transportation and land use vision and management plan. The 9W study will:

- Review the feasibility of a northern alignment alternative to the Selkirk Bypass project. NYSDOT's project development work for the Selkirk Bypass identified a 'northern alignment' that would mitigate the impact of truck traffic on the hamlet of Selkirk. The town would like to look at this in the context of a lot more than just a 'Selkirk bypass' by engaging the community in a discussion of the ability of a northern Selkirk Bypass alignment to support the Town's land use and transportation vision for the corridor. A significant component of feasibility is cost. Funding of this magnitude is not available from the Town, NYSDOT, or CDTC for the foreseeable future. The study will highlight the economic development opportunities that can financially supplement public resources committed to the project through CDTC's Transportation Improvement Program.

- Identify transportation and land use actions needed to support planned development in the corridor. Priority is to be given to operational and management actions, including advanced traffic signal technology, driveway consolidation, shared access, service roads, roundabouts, and other relatively low-cost actions. Bicycle and pedestrian links to neighborhoods, retail areas, and business parks are to be identified as well. Building enough road capacity to handle all the traffic that wants to travel during the peak period at the same time without delay could be impractical and prohibitively expensive. Management actions can be more helpful in advancing economic development goals of the town because they have been proven to promote more efficient land use and transportation systems.

- Transportation is not only about moving people and goods, but also about creating attractive and livable communities. The study will identify opportunities to improve the look of the roadway and curb appeal of commercial buildings through streetscaping and refinement of site and urban design guidelines developed in the comprehensive plan. Research has shown that aesthetics plays

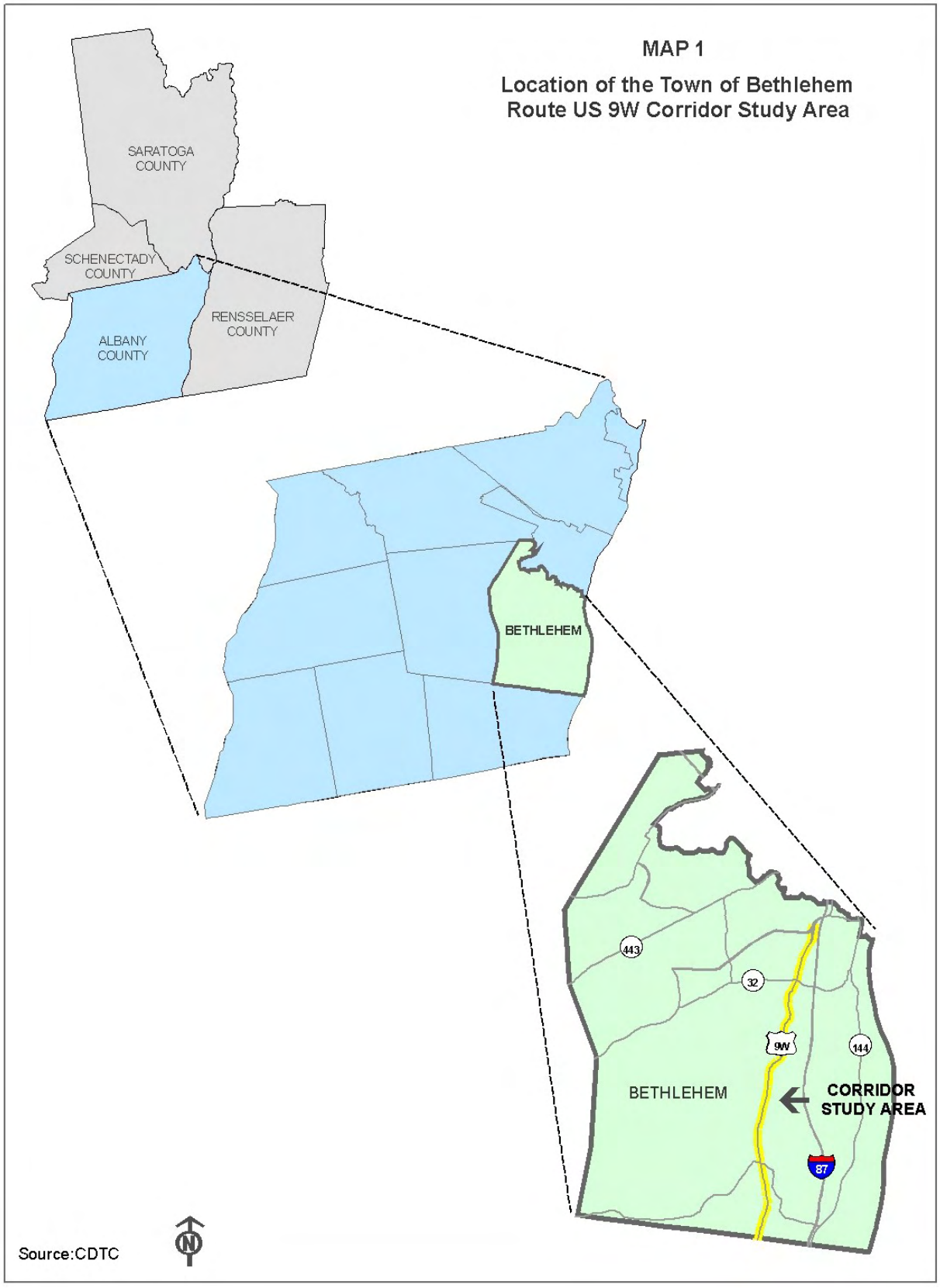
an important role in the economic success of communities. The *Town of Bethlehem Comprehensive Plan*, CDTC's *New Visions Plan for Transportation*, NYSDOT's Draft *Transportation Strategies for a New Age: New York's Transportation Plan for 2030*, and the Governor Pataki's *Quality Communities Initiative* all call for designing land development and transportation projects to support and proactively create vibrant and attractive communities.

- Develop a financial plan for recommended improvements. Because competition for federal and state funding is extremely tight and regional needs extensive, public financing through traditional sources cannot be assumed. Public/private sharing of the costs of new transportation infrastructure will be key to successful implementation of the plan.

C. STUDY AREA

As shown on Map 1 on the following page, the study area extends for approximately six miles from Hannay Lane (near the Delmar Bypass) on the north to Cottage Lane (just south of NY 396) on the south. The width of the corridor varies up to one mile and is bounded by the NYS Thruway on the east and the utility right-of-way on the west.

The Route 9W Corridor study area is also shown in various maps found in the **Figures** section at the back of this report.


MAP 1
Location of the Town of Bethlehem
Route US 9W Corridor Study Area
SARATOGA COUNTY
SCHENECTADY COUNTY
ALBANY COUNTY
RENSSELAER COUNTY
BETHLEHEM
443
32
9W
144
BETHLEHEM
CORRIDOR STUDY AREA
87
Source:CDTC
N

II. EXISTING CONDITIONS

A. INTRODUCTION

As the first step in studying the Route 9W corridor, the focus is on understanding the existing condition. The following sections provide an overview of many different characteristics of the Route 9W Corridor in the Study Area. These factors are important to consider because they either define or impact the current use of the corridor or could impact future changes to the use or alignment of the roadway.

The land uses along the corridor are a prime factor in the amount of traffic that travels the corridor. While some of the traffic on Route 9W in Bethlehem is only passing through, a significant amount of traffic is there to access the growing number of commercial, retail, residential or other land uses in the corridor. Zoning requirements provide the parameters under which future development or redevelopment can occur. While zoning regulations can be flexible over time, they still provide a fairly constant picture of what future development may occur. The environmental factors affect how the roadway or the adjacent land uses can change over time. Most of the environmental factors place some limitation on future uses. For example, wetland areas are protected by numerous types of laws and could limit or remove development from parcels that contain them. **Attachment I-C** contains a copy of the Constraints Map from the Town Plan. This map highlights how the various factors discussed in this section can constrain development in the future.

B. LAND USE

1. Current Land Use

Figure I-1 presents an overview of the existing land uses in the Route 9W Corridor Study Area. As the figure portrays, there is an auto-oriented commercial concentrations at the north end of the corridor. These auto-oriented commercial land uses, centered around the new Wal-Mart on the west side of Route 9W north of Beacon Road, include gas stations, Lowe's, grocery stores, financial institutions, family restaurants, and other retail stores accessible primarily by automobile. The size of the commercial establishments gradually change to smaller scale commercial uses as one travels south, although the Glenmont Plaza south of Feura Bush Road contains a few larger establishments. The pattern of businesses and shopping plazas along the roadway is typical of central New York State and the entire northeast. There is no specific character to the area and it is unpleasant and even difficult to travel through by any means other than motor vehicle.

South of the Calvary Cemetery, residential uses, both single and multiple family units, begin to be intermixed with the commercial uses. The character of the roadway begins to change, with more commercial uses located in former single family residences, the presence of more trees, and fewer parking areas close to the roadway. A little north of the Route 9W intersection with Wemple Road, the land use shifts to agricultural or former agricultural uses.

South of Wemple Road, the mix of residential and small scale commercial uses resumes, with more older and potentially historic houses close to the road. This general pattern, with some community and public services intermingled, continues almost the entire remaining length of

Route 9W in Bethlehem. Overall, the character of the Road south of Wemple Road is more rural than suburban or urban due to the spacing of the houses and the remaining open or forested parcels intermixed along the road.

The most significant deviations from the rural mixed use land use patterns are the primarily residential area in Selkirk near Old Town Road and the primarily industrial area south of the railroad overpass.

An analysis of a recent aerial photo shows that along Route 9W between Route NYS Route 32 and Route NY 396 there are:

- 10 municipal or community services;
- 52 single family residences;
- 9 apartment complexes;
- 4 family farms;
- 4 shopping centers;
- 28 individual commercial establishment; and
- 1 industrial park

2. Current Zoning

The zoning along the Route 9W corridor in Bethlehem varies significantly from north to south. **Figure I-2** shows the current zoning in the Study Area.

The northern end is primarily general commercial and light industrial districts. These districts shift to residential and mixed districts in the middle portions of the corridor. They include three rural hamlet districts separated by mixed economic development or rural residential districts. The southern end of the corridor is primarily light industrial district, with a small residential component on the east side of Route 9W.

Attachment I-A provides greater detail on the allowed uses and other requirements of the zoning districts in the Route 9W Study Area, as shown in the *Schedule of Use Regulations* and *Schedule of Area, Yard, and Bulk Requirements.*

3. Development Projects

Figure I-3 highlights the current development projects in the Study Area. In general, the commercial development is in the northern portions of the Study Area, or the southern Rural Hamlet District or Industrial Districts. The new residential developments are located

on both sides of Route 9W in the middle portions of the Study Area. **Attachment I-B** contains a table prepared by the Town Staff that provides details on the various projects identified in **Figure I-3**.

C. ENVIRONMENTAL FEATURES

1. Wetlands

Figure I-4 shows the location of State regulatory wetlands in the Study Area, as well as the location of hydric soils, which typically indicate the presence of wetlands. Wetlands provide critical ecological functions, including water quality improvement, floodwater storage, and fish and wildlife habitat, among others. The disturbance of wetland areas is closely regulated at both the State and federal level. In general, there are no significant wetlands close to Route 9W. There are several larger State wetlands (wetlands regulated by New York State) or areas of hydric soils further from the roadway that could create significant hindrances to the development of two of the Selkirk Bypass options. They could also restrict future development of portions of the mixed economic development districts in the corridor. Wetland areas in the corridor may also impact other modifications to the existing alignment of Route 9W that may be considered now or in the future. There are other smaller wetland areas that are not regulated by the State that still may be of importance in the future.

2. Watercourses and Water bodies

The Vloman Kill crosses Route 9W just north of the intersection with Creble Road. The small valley associated with the Vloman Kill creates one of two significant topographic changes along the Route 9W corridor. There is also a small un-named stream that crosses Route 9W between Beacon Road and Feura Bush Road. **Figure 1-4** shows the location of the watercourses and water bodies in the Study Area.
Several other tributaries to the Normans Kill drain the northern portions of the Study Area; the Normans Kill itself flows under Route 9W at the northern limits of the Town. Sprout Creek flows south to Vloman Kill on the east side of Route 9W from a little ways north of Wemple Road to just south of Clapper Road.

Under the State's water quality classification system both the Normans Kill and the Vloman Kill are rated Class C streams through the study area. The other watercourses in the Route 9W Study Area are rated Class D. According to the NYS DEC, Classification C is for waters supporting fisheries and suitable for non - contact activities. The lowest classification and standard is D.

A set of small ponds lie west of Route 9W just south of Beacon Road. These ponds are also rated Class C which means they are waters considered suitable for fish propagation and survival.

3. Floodplains

There is a small floodplain associated with Vloman Kill. No other floodplains are mapped in the Route 9W Study Area.

4. Contours & Steep Slopes

The topography in the Route 9W Study Area is relatively level. Only two noticeable changes in natural elevation are evident along Route 9W in Bethlehem: the valley associated with Vloman Kill and the small depression associated with the un-named drainage channel north of Feura Bush Road. The only significant steep slopes in the vicinity of Route 9W are associated with these two areas. **Figure I-4** shows existing contours in the Study Area.

Several steep slope areas associated with streams draining into Norman's Kill come close to Route 9W on the west side in northern portions of the study area. Similarly, steep slopes associated with Sprout Creek east of Route 9W comes close to the roadway in the middle section of the Study Area near Wemple Road.

5. Soils

The Town of Bethlehem contains approximately 15 different dominant soil types. The Soil Survey data for the Town had rated the soils for various different traits, including the degree of wetness, (hydric soils), value for agricultural purposes, and other useful characteristics. The recent Town Plan update presents figures that show the location of hydric soils, soils of statewide agricultural significance and their relative suitability for septic tank absorption fields – factors that could limit development or redevelopment potential. Hydric soils are generally an indicator of Federal regulatory wetlands. **Attachment I-C** contains copies of the Town Plan maps for reference.

D. CULTURAL FEATURES

1. Historic Features

The Route 9W Study Area contains numerous properties eligible for listing on the State and National Registers of Historic Places. Of these properties, three in Selkirk are currently listed on the Registers. These are: (a) the First Reformed Church of Bethlehem located on Church Street; (b) the Dr. John Babcock House located at 101 Lasher Road; and (c) Bethlehem Grange No. 137 located at 24 Bridge Street. **Figure I-5** shows the location of these different properties. The New York State Office of Historic Preservation (SHPO) administers an Environmental Review program which is a planning process to help protect the state's historic cultural resources from the potential impacts of projects that are funded, licensed or approved by state or federal agencies. As required by both federal and state legislation, SHPO is involved to ensure that effects or impacts on eligible or listed properties are considered and avoided or mitigated during project

2. Community Services

Figure I-5 shows the location of community services in the Route 9W Study Area. Of particular importance are the Glenmont Elementary School in the north end of the corridor and the Becker Elementary School in the southern portion of the corridor. Also of importance are the Glenmont and Selkirk post offices, and the ambulance and police station near Selkirk. Several churches and private schools are also located in the corridor.

3. Environmental Justice Populations

Environmental justice as it relates to transportation, is the term given to the balancing of overall mobility benefits of transportation projects against the protection of the quality of life of low-income and minority communities. The goal of environmental justice review is to ensure that adverse human health or environmental effects of a government action, such as a roadway or transit project, do not disproportionately affect minority or low-income residents of a community. Environmental Justice is a public policy objective that can help improve the quality of life for those whose interests have been traditionally overlooked. Based on a review of the latest socio-economic data available, the study team has identified a single environmental justice community, located in the northern portion of the Study Area west of Route 9W. **Attachment I-D** shows the location of the Environmental Justice Population.

E. TRANSPORTATION

1. Roadway Network

The transportation analysis covers the section of Route 9W from Hannay Lane, near the Delmar Bypass on the north, to Cottage Lane, just south of NY 396, on the south. The four major roadways in the analysis area are:

Route 9W is a major north-south directional two-lane, two-way arterial that runs through the Town of Bethlehem, west of and parallel to the New York State Thruway. There is a posted speed limit of 40 mph on Route 9W between Bethlehem Shopping Center and Jericho Road. Beyond Jericho Road to the south, the posted speed limit is 55 mph to the Town boundary. Land use along Route 9W is primarily a mix of residential and commercial. No parking is allowed along Route 9W in the analysis area.

Route 9W, functionally classified as an urban principal arterial, is a major commuter route connecting the Town and communities to the south, with the City of Albany to the north and the region's Interstate Highway System. Apart from serving as an important commuting route, the 9W corridor also serves major traffic flows between several important activity centers including the Glenmont and Becker Elementary Schools, several big box retail and strip shopping centers, as well as residential neighborhoods and agricultural and vacant lands.

Within the analysis area, Route 9W is approximately six miles in length with seven intersections, five of which are signalized. In addition, there are more than two hundred driveways to residential and commercial establishments along the corridor within the study area. According to New York State Department of Transportation's (NYSDOT) Traffic Volume Report daily traffic volumes along the highway range from approximately 8,000 vehicles per day at the Town's southern boundary, to approximately 16,000 vehicles per day at the Delmar Bypass (NY 32).

NYS Route 396 **(Maple Avenue and Bridge Street)** is an east-west directional two-lane, two-way roadway that borders the analysis area to the south. West of Route 9W there is a posted speed limit of 35 mph on Bridge Street within the study area. East of Route 9W the

speed limit is 30 mph on Maple Avenue. Land use along Route 396 is primarily residential and commercial. No parking is allowed along Route 396 in the analysis area.

NYS Route 32 **(Delmar Bypass and Corning Hill Road)** is an east-west directional roadway that borders the analysis area to the north. The segment east of Route 9W, Corning Hill Road, is a two-lane, two-way road with a posted speed limit of 30 mph. The segment west of Route 9W, the Delmar Bypass, is a two-way limited access roadway with four lanes. There is a posted speed limit of 55 mph on this segment of Route 32. Land use along Route 32 is primarily a mix of residential and commercial. No parking is allowed along Route 32 in the analysis area. There are no driveway curb cuts west of 9W.

NYS Route 910A **(Feura Bush Road and Glenmont Road)** is an east-west directional two-lane, two-way roadway. The posted speed limit is 35 mph within the study area. Land use along the road is a mixture of residential and commercial properties within the study area.

2. Study Area Intersections

This section details the analysis area intersections on Route 9W with geometry, parking, and land use information.

Signalized Intersections

Route 9W and Service Roads (Jughandle) is a four-way signalized intersection. Route 9W is a four-lane divided highway oriented in a north-south direction. The intersection provides access to two service roads. The west service road serves several commercial properties including a Stewarts Shop, service station, and restaurant. The east service road provides access from northbound 9W to westbound Route 32. The service road approaches are single-lane approaches.

Route 9W and Bethlehem Town Center/Gas Station Driveway is a four-way signalized intersection. Both the Bethlehem Town Center and Gas Station driveways are two-way driveways oriented in an east-west direction. In the eastbound direction, the Bethlehem Town Center driveway approach to the intersection consists of two-lanes with a shared left-through lane and an exclusive right turn lane. In the westbound direction, the approach for the Gas Station driveway has a single lane with shared left, through and right turn movements. In the northbound direction the Route 9W approach has two lanes with an exclusive left turn lane and a shared through-right turn lane. In the southbound direction Route 9W has three lanes with an exclusive left turn lane, a through lane and an exclusive right turn lane. No parking is permitted along Route 9W or the Bethlehem Town Center/Gas Station driveway approaches at the intersection.

Route 9W and NY Farm Family Driveway/Bender Lane is a four-way signalized intersection. Bender Lane and NY Farm Family driveway are two-way roadways oriented in the eastbound and westbound direction. In the eastbound direction, the Bender Lane approach consists of two-lanes with an exclusive left turn lane and a shared through-right turn lane. In the westbound direction, the NY Farm Family driveway has a single lane approach with shared left, through and right turn movements. In the northbound direction

the Route 9W approach to the intersection has two lanes with an exclusive left turn lane and a shared through-right turn lane. In the southbound direction Route 9W has two lanes with an exclusive left turn lane and a shared through-right turn lane. No parking is permitted along Route 9W, Bender Lane or the NY Farm Family driveway approach at this intersection.

Route 9W and Feura Bush Road/Glenmont Road is a four-way signalized intersection. Feura Bush Road and Glenmont Road are two-way, two-lane roadways oriented in the eastbound and westbound directions. In the eastbound direction, the Feura Bush Road approach to the intersection has two lanes with an exclusive left turn lane and a shared through-right turn lane. In the westbound direction, the Glenmont Road approach has a single lane with shared left, through and right turn movements. Neither Feura Bush or Glenmont Roads intersect Route 9W at a 90 degree angle; the skewed alignment creates blocked sight lines and awkward travel movements as through traffic attempts to pass to the side of vehicles waiting to make left turns onto Route 9W. In the northbound direction, Route 9W has a single lane with shared left, through and right turn movements. In the southbound direction Route 9W has two lanes with an exclusive right turn lane and a shared left-through lane. No parking is permitted along Route 9W or Feura Bush Road at this intersection.

Route 9W and Wemple Road is a four-way signalized intersection. Wemple Road is a two-way two-lane roadway oriented in the east-west direction. All approaches of this intersection have a single lane with shared left, through and right turn movements. No parking is permitted along Route 9W or Wemple Road at this intersection.

Route 9W and Route 396/Maple Avenue is a four-way signalized intersection. Route. 396/Maple Avenue is a two-way two-lane roadway oriented in the east-west direction. All approaches of this intersection have a single lane with shared left, through and right turn movements. No parking is permitted along Route 9W or Route 396/Maple Avenue at this intersection.

Unsignalized Intersections

Route 9W and Northern Bethlehem Town Center Driveway. The intersection of Route 9W and the northern Bethlehem Town Center driveway is controlled by a STOP sign on the Bethlehem Town Center driveway approach. The Bethlehem Town Center driveway is a two-way two-lane driveway oriented in an east-west direction. In the eastbound direction the Bethlehem Town Center driveway approach has an exclusive right turn lane. There are no left-turns allowed out of the Town Center driveway. In the northbound direction, Route 9W has a single lane approach with through movement only. Left turns are accommodated by a shared center turn lane. In the southbound direction, Route 9W has two lanes with an exclusive right turn lane and a through lane. No parking is permitted along Route 9W or the Bethlehem Town Center driveway approach at this intersection. This intersection will be signalized as part of the Bethlehem Town Center II expansion project.

Route 9W and Magee Drive. The intersection of Route 9W and Magee Drive is a T-intersection controlled by a STOP sign on Magee Drive. Magee Drive is a two-way two-lane road located on the east side of Route 9W. In the westbound direction, Magee Drive has a

single lane with shared left and right turn movements. In the northbound direction, Route 9W has a single lane with shared through-right turn lane. In the southbound direction, Route 9W has an exclusive left turn lane and a through lane. No parking is permitted along Route 9W at or near the intersection. Limited parking is available along Magee Drive.

Route 9W and Beacon Road/Asprion Road. The intersection of Route 9W and Beacon Road/Asprion Road is controlled by STOP signs on Beacon Road and Asprion Road. Beacon Road/Asprion Road is a two-way two-lane road oriented in the east-west direction, with Beacon Road on the west side of Route 9W and Asprion Road on the east. All approaches at this intersection have a single lane allowing shared left, through and right turn movements. No parking is permitted along Route 9W at or near the intersection. Limited parking is available along Beacon Road and Asprion Road. Route 9W curves to the east to the north and the south of the intersection, creating very poor sight distances for traffic at the intersection on Asprion Road.

Route 9W and Jericho Road. The intersection of Route 9W and Jericho Road is a T-intersection controlled by a STOP sign on Jericho Road. Jericho Road is a two-way two-lane road located on the west side of Route 9W. In the eastbound direction, Jericho Road has a single lane with shared left and right turn movements. In the northbound direction, Route 9W has two lanes including a shared through-left turn lane. In the southbound direction, Route 9W has two lanes including a shared through-right turn lane. No parking is permitted along Route 9W or Jericho Road at this intersection.

Route 9W and Creble Road. The intersection of Route 9W and Creble Road is a three-way intersection controlled by a STOP sign and overhead flashing signal on Creble Road. Creble Road is a two-way two-lane road located on the west side of Route 9W. In the eastbound direction, the Creble Road approach has a single lane with shared left and right turn movements. In the northbound direction, Route 9W has two lanes including a shared through-left turn lane. In the southbound direction, Route 9W has two lanes including a shared through-right turn lane. No parking is permitted along Route 9W or Creble Road at this intersection.

3. Analysis of Current Traffic Conditions

Current traffic conditions along the Route 9W corridor were analyzed to provide a snapshot of how the roadway handles motor vehicle travel demand today. This picture is important as it will in part help determine what potential improvements are appropriate and necessary to meet the community's quality of life and economic development goals in the future.

Data Collection

Wilbur Smith Associates (WSA) collected the following data from existing sources:

- Traffic volumes
- Crash summary data

WSA collected the following data through field reconnaissance in May and June, 2006:

- Intersection geometries
- Sight distance measurements
- Signal phasing and timing information

Existing P.M. Peak Hour Traffic Volumes

CDTC provided the manual turning movement counts collected in June, 2004; August, 2005 and May, 2006 at seven intersections along the corridor. The data included vehicle counts as well as truck and bus movements at each of the study area intersections. Turning movement count data collected in June, 2004 and August 2005 at some intersections were projected to (after consultation with CDTC on the traffic growth in the area between 2004 and 2006) and balanced with the May, 2006 traffic counts;. The intersections analyzed along the analysis area are listed below:

1) Route 9W and Northern Bethlehem Town Center Driveway
2) Route 9W and Bethlehem Town Center/Gas Station Driveway
3) Route 9W and Magee Drive
4) Route 9W and NY Farm Family driveway/Bender Lane
5) Route 9W and Feura Bush Road/Glenmont Road
6) Route 9W and Beacon Road/Asprion Road
7) Route 9W and Wemple Road
8) Route 9W and Jericho Road
9) Route 9W and Creble Road
10) Route 9W and Route 396/Maple Avenue

Figure I-6 Presents the existing P.M. peak hour traffic volumes for the Study Area intersections. The peak hour is defined as the highest travel hour over a 24-hour period. Based on traffic counts compiled for this study, the peak hour occurs sometime between the hours of 4:00 pm and 6:00 pm.

Intersection Capacity Analysis

A study of capacity is important in determining the ability of a specific roadway, intersection, or freeway to accommodate traffic under various levels of service. Level of service (LOS) is a qualitative measure describing driver satisfaction with a number of factors that influence the degree of traffic congestion. These factors include speed and travel time, traffic interruption, freedom of maneuverability, safety, driving comfort and convenience, and delay.

The level of service on a roadway segment or at an intersection ranges from "A" (best) to "F" (worst). Level of service "A" is the most desirable but may not always be achievable. A level of service "F", while perhaps not desirable, may be acceptable under certain circumstances. For example, a level of service "F" condition may be designed into the traffic signal timing plan at the intersection of a heavily traveled through roadway with a collector road. The majority of "green time" will be assigned to the major route, some "green time" may be allocated to the left-turn movements on both streets (allowing motorists to turn left without having to cross opposing through traffic), and the remaining time will be allocated

to through traffic on the cross street. Resulting average stopped time may be very long, but most, if not all, motorists will be able to pass through the intersection in one signal cycle, which is acceptable.

Similarly, a level of service "E" or "F" condition at a stop sign controlled intersection may indicate that, because of heavy traffic volume on the major street, there are few if any gaps available for turning or crossing traffic. However, if the volume on the minor cross street is not heavy, the actual delay experienced in waiting for a gap may not be that great.

For this analysis, level of service was performed for signalized and un-signalized intersections. The traffic analysis software Synchro 6 was used to determine the existing peak hour Level of Service (Level of Service) at all the intersections along the analysis area.

Table I-1 highlights the level of service criteria for signalized intersections. The level of service criteria for signalized intersections is based on control delay per vehicle measured in seconds.

Table I-1
LOS Criteria for Signalized Intersections

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (seconds)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	> 80

Source: 2000 Highway Capacity Manual, Transportation Research Board

Table I-2 highlights the level of service criteria for un-signalized intersections. The level of service criteria for un-signalized intersections is based on control delay per vehicle measured in seconds.

Table I-2
LOS Criteria for Unsignalized Intersections

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (seconds)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	> 50

Source: 2000 Highway Capacity Manual, Transportation Research Board

Level of service was determined for the study area intersections using SYNCHRO and HCS software under existing (2006) conditions during the weekday P.M. peak hour. **Table I-3** and **Figure I-7** show the results of the analyses for signalized intersections.

Table I-3
Existing (2006) Level of Service for Signalized Intersections

Location	Existing (2006) LOS/Delay (in sec.)
	P.M. Peak Hour
Signalized	
Rt 9W at Bethlehem Town Center /Gas Station Driveway	**B (18.4)**
Bethlehem Town Center Driveway E.B.	C (30.2)
Left-through	C (34.9)
Right	C (24.3)
Farm Family Drive W.B. approach	C (24.9)
Rt. 9W N.B. approach	B (13.9)
Left	B (11.6)
Through-Right	B (14.3))
Rt 9W S.B. approach	B (17.0))
Left	A (8.2)
Through	B (19.2)
Right	A (8.8)
Rt 9W at Bender Lane/Farm Family Drive	**D (35.9)**
Bender Lane E.B. approach	C (26.1)
Left	C (29.6)
Through-Right	C (25.6)
Farm Family Drive W.B. approach	D (54.6)
Left	F (86.0)
Through-Right	D (36.0)
Rt. 9W N.B. approach	B (17.7)
Left	C (23.0)
Through-Right	B (17.0)
Rt 9W S.B. approach	D (37.2)
Left	B (10.4)
Through-Right	D (37.4)
Rt 9W at Feura Bush Road/Glenmont Road	**C (30.9)**
Feura Bush Road E.B. approach	C (30.1)
Left	D (37.4)

Table I-3
Existing (2006) Level of Service for Signalized Intersections

Location	Existing (2006) LOS/Delay (in sec.)
	P.M. Peak Hour
Through-Right	B (15.3)
Glenmont Road W.B. approach	D (52.3)
Rt. 9W N.B. approach	C (33.5)
Rt 9W S.B. approach	C (20.1)
Left-through	C (26.8)
Right	B (11.3)
Rt 9W at Wemple Road	**A (8.3)**
Wemple Road E.B. approach	C (26.0)
Wemple Road W.B. approach	C (27.1)
Rt. 9W N.B. approach	A (4.6)
Rt 9W S.B. approach	A (5.0)
Rt 9W at Rt. 396/Maple Avenue	**A (8.6)**
Bridge Street/Rt. 396 E.B. approach	C (28.1)
Maple Avenue/Rt. 396 W.B. approach	C (27.8)
Rt. 9W N.B. approach	A (3.9)
Rt 9W S.B. approach	A (3.8)

Source: Wilbur Smith Associates based on data provided by CDTC and NYSDOT

Below is a list of findings from the level of service analysis of signalized intersections in the analysis area:

- **Route 9W/Route 32 Jughandle-** A previous traffic engineering assessment completed for Bethlehem Town Center indicated that this intersection works fairly well (Level-of-Service D or better) during the peak travel periods. While the configuration of this intersection provides convenient access from the Delmar Bypass to Route 9W, the return trip is far less direct. Despite the need to cross a divided highway at two signalized intersections to return to the Delmar Bypass, this trip is a good deal quicker than traveling back to Delmar via Route 9W and Feura Bush Road.

- **Route 9W at Bethlehem Town Center /Gas Station Driveway-** The intersection of Route 9W and Bethlehem Town Center/Gas Station Driveway currently operates at LOS B. All approaches and individual movements operate at LOS C or better.

- **Route 9W at Bender Lane/Farm Family Drive-** The intersection of Route 9W and Bender Lane/Farm Family Drive currently operates at LOS D. All approaches and movements at this intersection operate at LOS D or better, except the Farm Family Drive W.B. approach left turn which operates at LOS F.

- **Route 9W at Feura Bush Road/Glenmont Road-** The intersection of Route 9W and Feura Bush Road/Glenmont Road currently operates at LOS C. All approaches and movements of the intersection operate at LOS D or better.

- **Route 9W at Wemple Road-** The intersection of Route 9W and Wemple Road currently operates at LOS A. All approaches and movements of the intersection operate at LOS C or better.

- **Route 9W at Route 396/Maple Avenue**- The intersection of Route 9W and Route 396/Maple Avenue currently operates at LOS A. All approaches and movements of the intersection operate at LOS C or better.

The results of the analyses for un-signalized intersections are presented in **Table I-4**.

Table I-4
Existing (2005) Level of Service for Un-signalized Intersections

Location	Existing (2006) LOS/Delay (in sec.)
	P.M. Peak Hour
Unsignalized	
Rt 9W at Bethlehem Town Center Driveway	
Bethlehem Town Center Driveway E.B. approach	C (17.5)
Right	C (17.5)
Rt 9W at Magee Drive	
Magee Drive W.B. approach	F (167.6)
Rt. 9W S.B. approach left	B (10.6)
Rt 9W at Beacon/Asprion Road	
Beacon Road E.B. approach	D (28.6)
Asprion Road W.B. approach	B (14.7)
Rt. 9W N.B. approach left	A (9.2)
Rt. 9W SB. Approach left	A (8.0)
Rt 9W at Jericho	
Jericho Road E.B. approach	C (21.7)
Rt. 9W N.B. approach left	A (9.4)

Table I-4
Existing (2005) Level of Service for Un-signalized Intersections

Location	Existing (2006) LOS/Delay (in sec.)
	P.M. Peak Hour
Rt 9W at Creble Road	
Creble Road E.B. approach	E (43.3)
Rt. 9W N.B. approach left	A (9.4)

Source: Wilbur Smith Associates based on data provided by CDTC and NYSDOT

Below is a list of findings from the level of service analysis of unsignalized intersections in the analysis area:

- **Route 9W at Bethlehem Town Center Driveway-** All approaches and movements of this intersection operate at LOS C or better.

- **Route 9W at Magee Drive-** The Magee Drive W.B. approach operates at LOS F and the Route 9W S.B. approach left turn operates at LOS A during the P.M. peak hour period.

- **Route 9W at Beacon Road/Asprion Road-** All approaches at this intersection operate at LOS D or better.

- **Route 9W at Jericho Road-** The Jericho Road E.B. approach operates at LOS C and the Route 9W N.B. approach left turn operates at LOS A during the P.M. peak hour period.

- **Route 9W at Creble Road-** The Creble Road E.B. approach operates at LOS E and the Route 9W N.B. approach left turn operates at LOS A during the P.M. peak hour period.

4. Crash Data Analysis

Crash data was obtained from the CDTC for the most recent three-year period available. Reports were received and evaluated for the most recent period of June 2002 through May 2005. Crash data summary sheets were prepared for the analysis area and are shown in **Table I-5**. **Figures I-8** and **I-9** show a breakdown of the crashes at the intersections and non-intersection mid-block segments respectively.

Table I-5
Crash Data Summary*

Roadway	Location	2002-2005		
		Fixed	Non-Fixed	Total
US 9W	Between Corning Hill Road and Frontage Road/Plank Road/Hannay Lane	1	8	9
	At Frontage Road/Plank Road/Hannay Lane	1	10	11
	Between Frontage Road/Plank Road/Hannay Lane and SB ramp to NY 32 SB	0	4	4
	At SB ramp to NY 32 SB	0	1	1
	Between SB ramp to NY 32 SB and SB ramp to NY 32 NB	1	2	3
	At SB ramp to NY 32 NB	0	1	1
	Between SB ramp to NY 32 NB and Magee Drive	2	6	8
	At Magee Drive	0	3	3
	Between Magee Drive and Bender Lane	0	2	2
	At Bender Lane/Farm Family Drive	0	11	11
	Between Bender Lane - NY 910A Feura Bush Road	1	6	7
	At NY 910A Feura Bush Road	0	5	5
	Between NY 910A Feura Bush Road and Beacon/Asprion Road	4	26	30
	At Beacon/Asprion Road	0	2	2
	Between Beacon/Asprion Road and Wemple Road	3	11	14
	At Wemple Road	0	5	5
	Between Wemple Road and Hague Boulevard	4	6	10
	At Hague Boulevard	0	2	2
	Between Hague Boulevard and Church Road	0	7	7
	At Church Road	1	0	1
	Between Church Road and Clapper Road	0	1	1
	At Clapper Road	0	3	3
	Between Clapper Road and Creble Road	0	1	1
	At Creble Road	0	3	3
	Between Creble Road and Miller Road	1	9	10
	At Miller Avenue	0	1	1
	Between Miller Avenue and NY 396/ Bridge Avenue/Maple Avenue	0	0	0
	At NY 396/ Bridge Avenue/ Maple Avenue	0	8	8
	Grand Total	**19**	**144**	**163**

Note: * Based on total number of reported accidents
Source: Wilbur Smith Associates based on data provided by CDTC and NYSDOT

The analysis revealed that of the total of 163 crashes, 144 were crashes involving non-fixed objects like automobiles, pedestrians or animals; and 18 were crashes involving fixed objects like trees, light support/utility pole or earth element/rock/ditch. Over the 3 year period, two intersection crashes involved either a pedestrian or bicyclist: one vehicle - pedestrian crash occurred at Rte 9W/Bender Lane/Farm Family Drive and one vehicle-bicyclist crash took place at Rte 9W/Clapper Road.

Table I-6 below shows the breakdown of crashes by severity.

Table I-6
Crash Data Summary by Severity

Roadway	Location	2002-2005			
		Fatality	Personal Injury	Property Damage	Total
US 9W	Between Corning Hill Road and Frontage Road/Plank Road/Hannay Lane	0	5	4	9
	At Frontage Road/Plank Road/Hannay Lane	1	6	4	11
	Between Frontage Road/Plank Road/Hannay Lane and SB ramp to NY 32 SB	0	2	2	4
	At SB ramp to NY 32 SB	0	0	1	1
	Between SB ramp to NY 32 SB and SB ramp to NY 32 NB	0	3	0	3
	At SB ramp to NY 32 NB	0	0	1	1
	Between SB ramp to NY 32 NB and Magee Drive	0	7	1	8
	At Magee Drive	0	2	1	3
	Between Magee Drive and Bender Lane	0	2	0	2
	At Bender Lane/Farm Family Drive	0	6	5	11
	Between Bender Lane - NY 910A Feura Bush Road	0	4	3	7
	At NY 910A Feura Bush Road	0	0	5	5
	Between NY 910A Feura Bush Road and Beacon/Asprion Road	0	13	17	30
	At Beacon/Asprion Road	0	2	0	2
	Between Beacon/Asprion Road and Wemple Road	0	10	4	14
	At Wemple Road	0	1	4	5
	Between Wemple Road and Hague Boulevard	0	8	2	10
	At Hague Boulevard	0	1	1	2
	Between Hague Boulevard and Church Road	0	3	4	7
	At Church Road	0	1	0	1
	Between Church Road and Clapper Road	0	1	0	1
	At Clapper Road	0	2	1	3
	Between Clapper Road and Creble Road	0	0	1	1
	At Creble Road	0	2	1	3
	Between Creble Road and Miller Road	0	7	3	10
	At Miller Avenue	0	1	0	1
	Between Miller Avenue and NY 396/ Bridge Avenue/Maple Avenue	0	0	0	0

Table I-6
Crash Data Summary by Severity

Roadway	Location	2002-2005			
		Fatality	Personal Injury	Property Damage	Total
	At NY 396/ Bridge Avenue/ Maple Avenue	0	3	5	8
	Grand Total	**1**	**92**	**70**	**163**

Note: * Based on total number of reported accidents
Source: Wilbur Smith Associates based on data provided by CDTC and NYSDOT

As shown in **Table I-6**, of the 163 crashes reported there were 92 personal injury crashes, 70 crashes involving property damage and 1 fatality crash. Of the total crashes, 40 accidents (25%) occurred at signalized intersections, 17 accidents (10%) occurred at unsignalized intersections and the remaining 106 accidents (65%) occurred on mid-block segments. The highest number of accidents occurred between Feura Bush Road and Beacon Road i.e. 30 accidents (18% of total accidents). Also, Attachment I-E graphically displays mid-block crash numbers per segment relative to the location, type and traffic volumes of driveways along each segment. The relationship between the number and location of driveways and crashes is apparent in examining this graphic; typically as driveways increase along a segment, so too does the number of crashes.

Table I-7 shows a comparison of actual crash rates with the state-wide threshold crashes.

Table I-7
Comparison of Actual and Statewide Crashes

Roadway	Location/Segment	2002-2005		
		Total	Statewide Rate	Actual Rate
	Between Corning Hill Road and Frontage Road/Plank Road/Hannay Lane	9	2.6	0.74
	At Frontage Road/Plank Road/Hannay Lane	11	0.60	0.41
	Between Frontage Road/Plank Road/Hannay Lane and SB ramp to NY 32 SB	4	2.6	0.88
	At SB ramp to NY 32 SB	1	0.16	0.14
	Between SB ramp to NY 32 SB and SB ramp to NY 32 NB	3	2.6	0.66
	At SB ramp to NY 32 NB	1	0.16	0.12
	Between SB ramp to NY 32 NB and Magee Drive	8	2.19	0.79
	At Magee Drive	3	0.16	0.15
	Between Magee Drive and Bender Lane	2	2.19	0.78
	At Bender Lane/Farm Family Drive	11	0.46	0.51
	Between Bender Lane - NY 910A Feura Bush Road	7	2.19	1.11
	At NY 910A Feura Bush Road	5	0.46	0.21

Table I-7
Comparison of Actual and Statewide Crashes

Roadway	Location/Segment	2002-2005		
		Total	Statewide Rate	Actual Rate
	Between NY 910A Feura Bush Road and Beacon/Asprion Road	30	2.19	4.84
	At Beacon/Asprion Road	2	0.27	0.18
	Between Beacon/Asprion Road and Wemple Road	14	2.19	1.41
	At Wemple Road	5	0.60	0.40
	Between Wemple Road and Hague Boulevard	10	2.19	2.25
	At Hague Boulevard	2	0.35	0.15
	Between Hague Boulevard and Church Road	7	2.19	0.60
	At Church Road	1	0.35	0.08
	Between Church Road and Clapper Road	1	2.19	0.35
	At Clapper Road	3	0.35	0.25
	Between Clapper Road and Creble Road	1	2.19	0.65
	At Creble Road	3	0.35	0.24
	Between Creble Road and Miller Road	10	2.19	1.35
	At Miller Avenue	1	0.35	0.09
	Between Miller Avenue and NY 396/ Bridge Avenue/Maple Avenue	0	2.19	0.00
	At NY 396/ Bridge Avenue/ Maple Avenue	8	0.6	0.72

Source: Wilbur Smith Associates based on data provided by CDTC and NYSDOT

Crash rates are expressed in million entering vehicles (MEV) for intersections and million vehicle miles (MVM) for segments, which is standard to the traffic engineering profession; the rate relates the number of crashes over a certain time period to the traffic volume (in MEV or MVM) using an intersection or roadway segment over that time period.

Intersection Crashes

The following describes the intersection locations where the actual crash rate exceeded the state-wide crash rate:

- **Route 9W at Bender Lane/Farm Family Drive-** A total of eleven crashes occurred at this intersection during the three year analysis period, all of which were non-fixed object crashes. Six (6 of 11, 55%) crashes resulted in the injury of one or more persons and five (5 of 11, 45%) crashes resulted in damage to property. One of the personal injury crashes at this location involved a pedestrian.

- **Route 9W at Route 396/Maple Avenue-** A total of eight crashes occurred at this intersection during the three year analysis period, all of which were non-fixed object crashes. Three (3 of 8, 38%) crashes resulted in the injury of one of more person and five (5 of 8, 62%) crashes resulted in damage to property.

Non-Intersection (Mid-Block) Segments

The following describes the segment locations where the actual crash rate exceeded the state-wide crash rate:

- **On Route 9W- Between Feura Bush Road and Beacon Road/Asprion Road.** A total of thirty crashes along this segment during the three year analysis period, four (4 of 30, 13%) of which were fixed-object crashes and twenty-six (26 of 30, 87%) crashes were non-fixed object crashes. Thirteen (13 of 30, 43%) crashes resulted in the injury of one or more persons and seventeen (17 of 30, 57%) crashes resulted in damage to property.

- **On Route 9W- Between Wemple Road and Hague Boulevard.** A total of ten crashes along this segment during the three year analysis period, four (4 of 10, 40%) of which were fixed-object crashes and six (6 of 10, 60%) crashes were non-fixed object crashes. Eight (8 of 10, 80%) crashes resulted in the injury of one or more persons and two (2 of 10, 20%) crashes resulted in damage to property.

The analysis revealed that the corridor overall functions fairly well from a vehicular safety standpoint. There are, however, clusters of crashes along the corridor, particularly between Feura Bush Road and Beacon Road. This segment experiences crashes above or near the expected statewide rate of 2.19 crashes per year. The large number of driveways and turning traffic primarily contributes to a high number of vehicular conflicts and higher crash occurrence in this area.

5. Existing Truck Movements

Rt. 9W provides connectivity to I-87 and accommodates truck traffic from several big box retail and commercial and industrial centers, as well as the Selkirk Rail Yard, which is served by trucks on a regular basis. This activity attracts trucks to Rt. 9W and therefore the Town of Bethlehem.

Figure I-10 shows the truck percentages within the study area along Rt. 9W during the P.M. peak hour periods based on the traffic counts collected in June, 2004; August, 2005 and May, 2006.

As shown in **Figure I-10**, the segment between Rt. 396 and Creble Road along Rt. 9W experiences significant truck activity (6-9 percent). On the remaining segments along Rt. 9W, the truck percentages are in the 2-3 percent range.

6. Existing Travel Speeds

Travel Speed and Delay runs were conducted by CDTC during the P.M. peak hour (4:00 - 6:00 P.M.) on Tuesday, June 21, 2005 in the study area along Route 9W. **Tables I-8** and **I-9**

summarize the average and 85th percentile speeds along Route 9W in the southbound and northbound directions respectively. 85th percentile speed is defined as the speed at which 85 percent of the traffic is at or below that speed. For this study, the 85th percentile speed was calculated to be used strictly to help determine sigh distance deficiencies. The posted speed limits along the corridor are also shown in the tables.

Table I-8
Existing Travel Speeds- Route 9W Southbound

Southbound Roadway	Posted Speed Limit (mph)	Average Travel Speed (mph)	85th Percentile Speed (mph)
Bethlehem Town Center-Bender Lane	40	17	22
Bender Lane- Feura Bush Road	40	13	13
Feura Bush Road- Beacon Road	40	35	38
Beacon Road-Wemple Road	40	38	41
Wemple Road-Creble Road	40 & 55	47	49
Creble Road-Rt. 396	55	41	48

Source: Wilbur Smith Associates based on data provided by CDTC and NYSDOT.

As indicated in **Table I-8** the average speeds and 85th percentile speeds in the southbound direction along Route 9W between Bethlehem Town Center and Beacon Road and between Creble Road and Route 396 are lower than the posted speed limit. Between Bethlehem Town Center and Beacon Road these slower travel speeds can be attributed to traffic volumes, traffic signals and the numerous driveways that exist along portions of this section.

Table I-9
Existing Travel Speeds- Route 9W Northbound

Northbound Roadway	Posted Speed Limit (mph)	Average Travel Speed (mph)	85th Percentile Speed (mph)
Rt. 396- Creble Road	55	44	46
Creble Road- Wemple Road	40 & 55	47	51
Wemple Road- Beacon Road	40	41	42
Beacon Road - Feura Bush Road	40	25	27
Feura Bush Road- Bender Lane	40	27	32
Bender Lane- Bethlehem Town Center	40	23	29

Source: Wilbur Smith Associates based on data provided by CDTC and NYSDOT

As indicated in **Table I-9** in the northbound direction along Route 9W, the average speed between Wemple Road and Beacon Road is near or higher than the posted speed limit. The average speed between Route 396 and Creble Road and Beacon Road and Bethlehem Town Center is lower than the posted speed limit. Again, during the peak travel periods these slower speeds can be attributed to traffic volumes, traffic signals and the presence of driveways.

7. Mainline Performance Analysis

In addition to intersection analysis, a Capacity Threshold Analysis was also performed for "mid-block" locations. Capacity threshold analysis is designed to estimate reserve capacity of the roadway system for mid-block locations. This mainline analysis looks at the physical ability of a road to carry existing and future traffic volumes without any changes to the roadway system. Comparing mid-block volumes against theoretical mid-block capacities leads to the identification of operational deficiencies. Mainline performance was analyzed for the entire day based on the CDTC's Regional STEP Model practice. For this purpose, the CDTC Standards/Criteria for Highway System Evaluation was used to determine the mainline performance.

Based on CDTC standards, practical capacity (roughly LOS D) is at 1,000 vehicles per hour and maximum capacity (roughly LOS E) is at 1,300 vehicles per hour for each direction of travel in a two lane highway segment. For a three-lane highway segment with a center-turn lane, practical capacity is at 1,250 vehicles per hour and maximum capacity is at 1,625 vehicles per hour for each direction. For a four-lane undivided highway segment, the practical capacity is at 2,500 vehicles per hour and maximum capacity is at 3,120 vehicles per hour for each direction

Table I-10 highlights the proportion of roadway capacity that is being used for specific segments along Route 9W.

Table I-10
Existing Levels of Service on Two-lane Highway Segments – P.M. Peak Hour

Segment on Route 9W	Direction	Volume	Capacity (LOS E)	v/c ratio
Route 32-Feura Bush Road	NB	739	1,625	0.45
	SB	953	1,625	0.59
Feura Bush Road – Wemple Road	NB	423	1,300	0.33
	SB	686	1,300	0.53
Wemple Road – Creble Road	NB	426	1,300	0.33
	SB	625	1,300	0.48
Creble Road – Route 396	NB	336	1,300	0.26
	SB	535	1,300	0.41

Source: Wilbur Smith Associates based on Chapter 8, 1997 Highway Capacity Manual & CDTC's STEP Model.

As shown on Map 2 on Page 28, under existing traffic conditions, the entire corridor operates at about 25 – 50 percent of its practical capacity, with the exception of the segment between Route 32 and Feura Bush Road, which is operating closer to 60 percent of its practical capacity. This means that Route 9W has enough reserve capacity to absorb traffic generated by a modest amount of new development assuming that: driveways are limited and spaced far apart; traffic signals are properly spaced and coordinated; and intersections are properly designed. The volume to capacity (V/C) ratio shown in the table below compares

the amount of traffic on a roadway segment to the number and width of the segment's travel lanes, among other factors. Accepted engineering practice recommends that the V/C ratio not exceed a value of 1.0 during the peak travel hour. A V/C ratio close to 1.0 can indicate that a segment is close to its saturation point or its ability to process the traffic that desires to move through it.

8. US 9W Pavement Condition

The New York State Department of Transportation annually conducts a highway condition survey in cooperation with the US Department of Transportation. The CDTC staff conducts a similar survey for local federal-aid roads (non-state roadways) every two years. The purpose of this survey is to determine the surface condition for each section of highway in the region.

The physical condition of each roadway section is determined by assessing the condition of the pavement surface. The data collection is performed using a windshield survey and reported in a 1-10 scale, where the value of 1 represents the poorest roadway condition and 10 the best condition. The rating reflects those elements of pavement distress which are generally not structurally related, including the extent of scaling, cracking, patching, ravelling, and faulting that is visually evident.

The current condition of US 9W is shown in **Table I-11**. The scores show that Route 9W is in good condition (very little pavement distress) between the Delmar Bypass and Feura Bush Road. The remainder of the corridor between Feura Bush Road and Maple Avenue (NY 396) is in fair condition where distress is clearly visible. There is a noticeable amount of alligator cracking along this section of Route 9W; there is some rippling on the northbound approach to Creble Road.

Table I-11
US 9W Pavement Condition: 2005 Condition

Section	Surface Score
Delmar Bypass - Bender Lane	9
Bender Lane - Feura Bush Road	7
Feura Bush Road - Wemple Rope	6
Wemple Road - Creble Road	6
Creble Road - NY 396	6

Rating	Condition Description
9-10	Excellent: No pavement distress

7- 8	Good: Distress symptoms beginning to show
6	Fair: Distress clearly visible
1- 5	Poor: Distress is frequent and may be severe

9. Travel Distribution Patterns

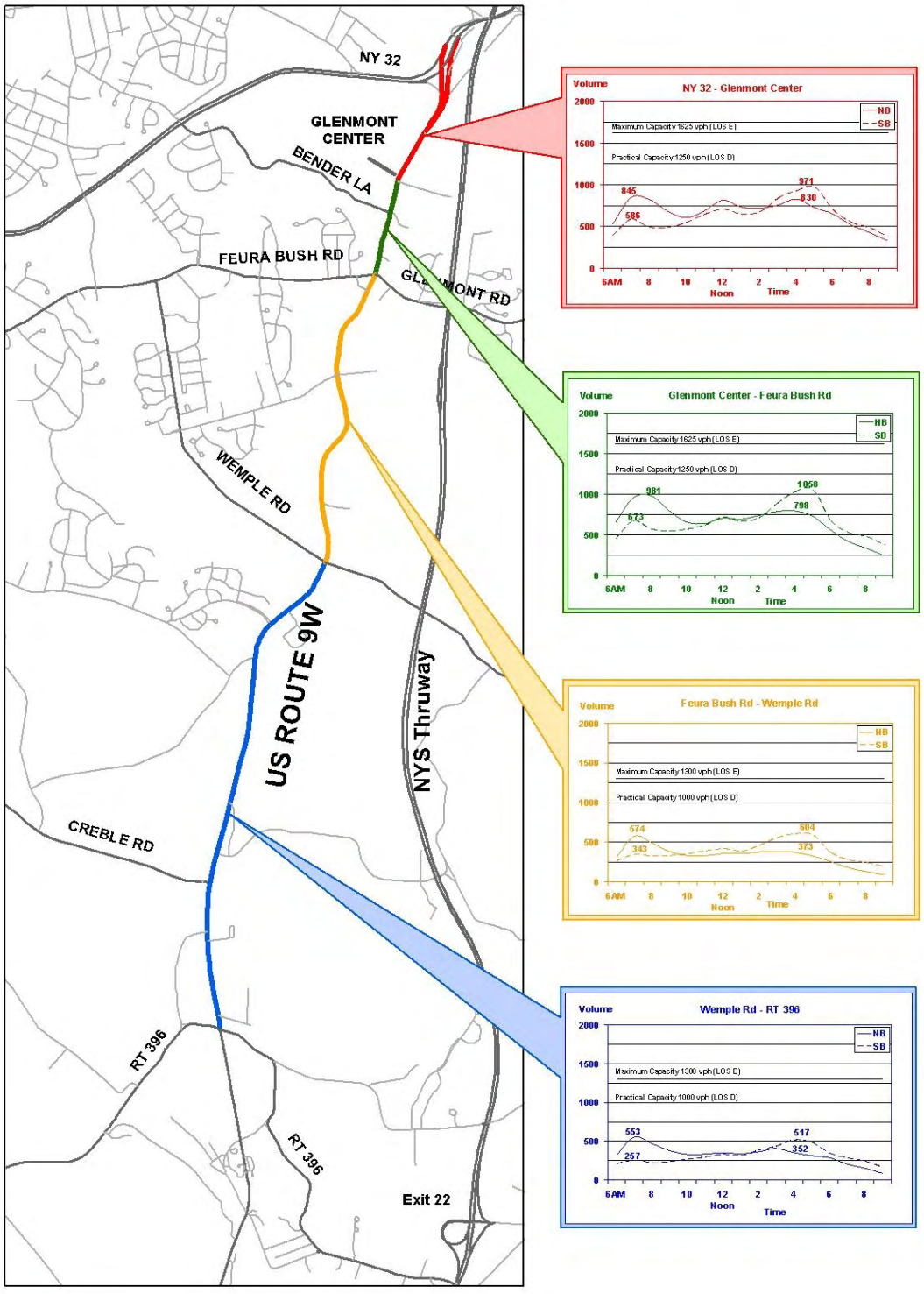
The orientation of most trips under current land use and travel conditions is to the north toward the City of Albany and the towns of Guilderland, Colonie, and East Greenbush. **Table I-12** shows that the proportion of travel to the City of Albany has lessoned since 1980, dropping from 42 percent to 33 percent today. More travel, about 30 percent today compared to 20 percent in 1980, is destined to the suburban Albany County communities of Guilderland and Colonie.

The trip distribution patterns in **Table I-12** were derived from CDTC's traffic simulation model. These patterns were generally found to be consistent with actual travel patterns inventories by CDTC staff for existing development in the Town for the town's 1990 LUMAC study.

Table I-12
Existing and Historic Travel Patterns Attendant to Development in the US 9W Corridor Study Area

Origin/Destination	Distribution Pattern 1980 Pattern	2000 Pattern
To/from Downtown & Midtown City of Albany	42%	33%
To/from Communities north of the City of Albany	5%	2%
To/from Rensselaer County Communities	4%	6%
To/from Town of Colonie, Guilderland and Saratoga County Communities	20%	30%
To/From Town of Bethlehem	25%	23%
To/from Other	4%	6%

Map 2 **Traffic Profile for Route 9W : 2005 Daily Traffic**



F. TRANSIT SERVICES

The Capital District Transportation Authority (CDTA) is the provider of fixed route and paratransit public transportation services in the Capital District. The majority of CDTA services are concentrated in the region's major urban centers, especially within the City of Albany.

CDTA's transit Route 7, a service commenced in May 2004, connects Bethlehem Center and Glenmont with downtown Albany. The service departs from the Albany Greyhound station and runs along So. Pearl Street, Corning Hill Road, Route 9W and Glenmont Road into Town Squire Shopping Center; major stops include Wal-Mart, Kmart and Price Chopper. Transit Route 7 provides connections to the rest of the CDTA network, including other regional transportation centers including as the Albany International Airport and Rensselaer Train Station.

Transit Route 7 provides service at 30 minute intervals Monday through Saturday, departing from Albany at 6:30 AM until 6:00 PM. Hourly service is provided from 6:00 PM until 10:00 PM. The service operates on an hourly schedule on Sundays from 9:00 AM until 6:00 PM, departing from Albany. Buses from Glenmont depart from 9:30 AM until 6:30 PM. Fares on the route are $1.00 per trip.

This route is used by numerous employees and shoppers at the new Wal-Mart store. While the total number of transit users may be small compared to the overall number of corridor travelers in automobiles and trucks, the transit service provides a critical transportation service to the population living within or close to the corridor, as well as those coming to the businesses or facilities in the corridor that do not have regular access to an automobile.

G. VEHICULAR TRAFFIC, LAND USE, ACCESS AND DRIVEWAYS

Route 9W has approximately 180 different access driveways and roadway intersections within the Study Area. **Attachment I-E** contains a graphic displaying access points along the corridor along with the land use and estimated traffic volume generated by each. This information is overlain on an aerial image and also includes the 3 year crash history of each roadway segment.

The roadway network of a community is defined in terms of street hierarchy. This hierarchy describes the principal use and/or intended function of each road. Under the functional classification system, arterial streets primarily serve the through movement of traffic between communities. Local streets provide access to abutting land, such as in residential neighborhoods. Collector streets funnel traffic between the two, and usually serve a secondary land access function. When a street begins to serve more than its principal function, conflicts can occur.

One type of conflict that occurs along Route 9W, a principal arterial, concerns access conflict with commercial traffic. Excess curb cuts and resulting driveway turn movements can interrupt traffic flow. As conflict between the primary function of a roadway as conveyor of through traffic and access to adjoining parcels increases, congestion and traffic crashes follow. This undesirable situation also limits the suitability of arterials for use by

pedestrians, transit users, and bicyclists. Where problems either exist or are emerging, construction of too many more driveways would threaten the operational integrity of the corridor.

From a quality of life perspective, the most notable conflict concerns the intrusion of through traffic into residential areas. Heavy traffic volumes and through traffic diminish the quality of residential living environments. Conflicts occur when through traffic uses local neighborhood streets, or where residential properties exist along streets that are intended to serve a through traffic function. For Route 9W, the concern with regard to residential traffic conflict occurs south of Feura Bush Road.

The ability of Route 9W to accommodate increases in daily traffic while maintaining adequate and safe accessibility to residential and commercial areas is a legitimate concern of area residents. The point at which traffic levels are perceived as a detriment to residential quality or commercial access, however, is difficult to measure and depends on the expectations and past experience of each individual. Using objective criteria developed from a number of sources, and based on traffic volumes, roadway function, and land use characteristics, analysis of the highway network can identify areas along the arterial and collector streets where traffic volumes are clearly in conflict with residential land use or commercial access.

The CDTC has developed a Level of Compatibility rating to measure these conflicts. This measure compares traffic volumes to the number of residential or commercial driveways per segment using the formula, AADT/average distance between driveways in feet to arrive at a residential or arterial or "commercial" conflict index. As shown in the chart below, for traffic/residential use conflicts, the scale ranges from A, for which there is no conflict between residential uses and the level of traffic on the roadway, to F, for which continued residential use may not be possible. For commercial access conflicts, the scale ranges again from A, for which the arterial function is not affected by access, to F, for which either the access or through movement of the roadway is not functional.

Level-of-Compatibility Thresholds Developed Through CDTC's Regional Highway System Review; Driveway Spacing Inventory Suggested Thresholds and Corresponding Descriptions		
Traffic - Residential Use Conflict	Residential Conflict Index	Level-of Compatibility
No conflict (no residential use or not traffic)	0 - 4.9	A
Little residential use or modest traffic	0 - 9.9	B
Both traffic and residential use noticeable; a concern	10 - 24.9	C
Significant conflict between traffic and residential Use	25 - 49.9	D
Continued residential use may be unsatisfactory	50 - 99.9	E
Continued residential use may not be possible	100 +	
Residential Conflict Index – (AADT/feet between residential driveways)		
Arterial – Land Access Conflict	Arterial Conflict Index	Level-of Compatibility
Arterial function not affected by access	0 - 9.9	A
Aware of turning traffic, but not an issue	10 - 19.9	B
Access traffic noticeable; a concern	20 - 49.9	C
Frequent conflict between access and through traffic	50 - 99.9	D
Persistent conflict between access and through traffic	100 - 199.9	E
Either access or through movement not functional	200 +	
Arterial conflict index = (AADT/feet between non-residential driveways)		
Note: Driveway counts measured for one side of road or averaged for both sides.		

Table I-13 below shows the results of using this analysis on Route 9W. The rating also provides an indirect measure of safety considerations along the highway. Those locations where there are more driveways and land uses that generate a significant amount of traffic roughly correspond to those portions of Route 9W with higher levels of crashes. **Attachment I-F** shows a comparison of the crash data to driveway location and type.

Table I-13
Residential & Commercial Level of Compatibility

Segment	Driveways			LOC Residential	LOC Commercial
	Residential	Commercial	Total		
Route 32 to Bender Lane	**3**	**8**	**11**	**C**	**C**
Bender Lane to Feura Bush Road	**3**	**6**	**9**	**D**	**D**
Feura Bush Road to Beacon Road	**10**	**23**	**33**	**C**	**D**
Beacon Road to Wemple Road	**29**	**19**	**48**	**D**	**C**
Wemple Road to Jericho Road	**16**	**6**	**22**	**D**	**B**
Jericho Road to Creble Road	**12**	**6**	**18**	**C**	**A**
Creble Road to Route 396	**5**	**12**	**17**	**B**	**B**

In addition, several of the roadway intersections and driveways have limited sight distances. Of particular note is the Route 9W intersection with Beacon and Asprion Roads. Also, at Church Road, the angle of the intersection with Route 9W limits visibility southbound from

Church Road. Driveways located on the inside of curves or just beyond the crest of the rise in pavement also have limited sight distances.

H. PEDESTRIAN & BICYCLE FACILITIES

1. Sidewalks & Crosswalks

The presence of sidewalks is an important feature to be noted along the Route 9W corridor. Adequate sidewalks can link the residential areas to the east and west of the existing commercial areas, link transit stops to surrounding areas, and provide improved overall circulation as a viable alternative to the motor vehicle. The Town of Bethlehem's Comprehensive Plan, CDTC's New Visions Plan and the Governor's Quality Communities initiative all call for designing land development and transportation projects to support and proactively create vibrant communities where walking is a viable means of transportation.

Few sidewalks line the sides of Route 9W in the Study Area. **Figure I-5** shows the locations of the few existing sidewalks. The newest and most contiguous system lies adjacent to and links with the new Wal-Mart store on the west side of Route 9W north of Bender Lane. In addition to the new five-foot wide sidewalk on the west side of Route 9W between the northern entrance to Wal-Mart and the intersection with Bender Lane, new crosswalks link the sidewalk to the east side of Route 9W at the signalized intersections. The Bender Lane crosswalk connects to a sidewalk that leads to the Glenmont Elementary School.

Another small segment of sidewalk lies north of the entrance from Route 9W to the Price Chopper Shopping Center on the east side of Route 9W starting on the south side of the driveway, crosses the driveway, and continues to the northern property line. While it currently does not connect to other sidewalks, it can serve as the basis of a longer sidewalk that links to the Glenmont Elementary School and the new sidewalks near Wal-Mart.

New crosswalks traverse Glenmont Road and the southern leg of Route 9W at the intersection with Glenmont Road, although there are currently no sidewalks linking to the crosswalks.

Another small segment of sidewalk lies on the west side of Route 9W in front of Glenmont Plaza. This sidewalk runs along the property frontage but does not continue to the north to the intersection with Feura Bush Road. To the south, the sidewalk ends at the common property line with Calvary Cemetery. Sidewalks are also provided at Glenmont Plaza along the Feura Bush Road frontage of the property.

For planning purposes, the Capital District Transportation Committee (CDTC) staff has developed a Pedestrian Accommodation index in order to evaluate the "friendliness" of intersections to pedestrians throughout the Capital District. Based on a set of specific characteristics, the CDTC evaluated several intersections along Route 9W in the Study Area and scored them according to how "friendly" the intersection currently is to pedestrians. The index ranges from A to F, with A representing the highest level of pedestrian accommodation and F representing the lowest level. The index is only based on the physical characteristics of the intersection and amenities that are present. It does NOT include other factors such as vehicular traffic volume, pedestrian volume, and approach speed, although

the relatively high traffic volumes along Route 9W make it difficult to cross. The more features there are at an intersection that provide a measure of pedestrian friendliness such as pedestrian signals, crosswalks, fewer turn lanes to cross, etc., the higher the raw score; the higher the raw score the higher the overall grade. **Table I-14** summarizes the results of this pedestrian accommodation inventory. **Attachment I-G** provides more detail about how these ratings were derived.

The results suggest that there are certain intersection deficiencies within the corridor from a pedestrian accommodation standpoint. These consist of various characteristic such as long crossing distances, allowance of right turn on red which increases pedestrian/vehicular conflicts, large intersection radii, and lack of: painted crosswalks, active pedestrian signal indications on certain approaches, and intersection lighting, among others.

Table I-14
Pedestrian Accommodation Inventory

Priority Route	Intersection	Raw Score	Grade
Route 9W	Bethlehem Town Center	35	**C**
Route 9W	Bender Lane	37	**C**
Route 9W	Feura Bush Road	37	**C**
Route 9W	Wemple Road	26	**D**
Route 9W	Creble Road	22	**D**
Route 9W	Maple Avenue	28	**D**

Pedestrian Infrastructure Index ("friendliness") ratings:

A = nearly ideal pedestrian conditions; factors negatively affect pedestrian friendliness are minimal.
B = reasonable pedestrian conditions; small number of factors impact pedestrian safety & comfort.
C = basic pedestrian conditions; significant number of factors impact pedestrian safety & comfort.
D = poor pedestrian conditions; factors negatively affecting pedestrian friendliness are wide-ranging or individually severe. Pedestrian comfort is minimal and safety concerns are evident.
E = pedestrian environment is unsuitable; occurs when all or almost all of the factors affecting pedestrian friendliness are below acceptable standards.

2. Bicycle Facilities

There are no facilities specifically oriented towards bicycle travel in the Route 9W Study Area. The roadway itself has paved shoulders of variable widths that legally can be used by bicyclists.

The CDTC conducted a bicycle inventory along Route 9W as a more specific measure of the quality of service for this mode of travel. The *Bicycle Level of Service (BLOS) Model* measures bicycle conditions of shared roadway environments and is based on industry research published by the Transportation Research Board. The CDTC documented criteria such as overall vehicular traffic volume, percent of heavy vehicles, pavement condition, curb side

lane width, presence of parking, presence of bike lanes, presence of drainage structures, and roadway speed, and evaluated them according to the CDTC's BLOS model procedures. **Table I-15**, below, summarizes the results of the analysis and shows that that bicycle level of service on Route 9W is marginal for most of the length of the roadway in Bethlehem. **Attachment I-G** contains details on how these values were derived. Relatively high travel speeds, high traffic volumes and the lack of a dedicated bicycle facility contribute significantly to the BLOS ratings along the corridor in both directions.

Table I-15
Bicycle Level of Service (BLOS) Evaluation

Road Name	From	To		BLOS	
				Score	Grade (A..F)
Route 9W	Bethlehem Town Center Entrance	Bender Lane	SB	**3.8**	**D**
			NB	**3.8**	**D**
Route 9W	Bender	Feura Bush	SB	**3.8**	**D**
			NB	**3.8**	**D**
Route 9W	Feura Bush	Beacon Rd	SB	**4.6**	**E**
			NB	**4.6**	**E**
Route 9W	Beacon Rd	Wemple	SB	**4.9**	**E**
			NB	**4.9**	**E**
Route 9W	Wemple	Hague Rd	SB	**4.8**	**E**
			NB	**4.8**	**E**
Route 9W	Hague Rd	Jericho Rd	SB	**2.5**	**C**
			NB	**3.0**	**C**
Route 9W	Jericho Rd	Church Rd	SB	**5.4**	**E**
			NB	**5.4**	**E**
Route 9W	Church Rd	Creble	SB	**4.9**	**E**
			NB	**4.9**	**E**
Route 9W	Creble	Lasher Rd	SB	**3.6**	**D**
			NB	**3.5**	**C**
Route 9W	Lasher Rd	Maple Av	SB	**4.8**	**E**
			NB	**4.8**	**E**

3. Origin and Destination Points

The various new or existing residential neighborhoods that line the perimeter of the Study Area serve as origins or both motorized and non-motorized travel trips along Route 9W.

The destinations in the Study Area of the various trips include:

- The new development at or near the Wal-Mart in the north end of the Study Area;
- The commercial areas around the Route 9W/Feura Bush Road intersection;
- The different retail and service business fronting directly on Route 9W south of Glenmont Plaza and north of Wemple Road and south of the railroad overpass to the Town line;
- The two elementary schools;
- The two post offices;
- The isolated businesses and convenience stores on Route 9W in the Study Area south of the intersection with Wemple Road; and
- The Selkirk businesses both in the center of Selkirk and on Route 9W.

I. VISUAL ENVIRONMENT

1. Visual Character

The visual character of the Route 9W corridor varies dramatically with the Study Area. **Figure I-12** provides a suggestion of the variation in highway character along the corridor.

At the northern end, the visual character is very focused on new suburban type retail development, typified by auto-oriented building orientation in Segments B and C. It gradually shifts to a more rural character in the middle of the corridor, especially in Segments D, H and L. The trees, variable alignment of the road, and building size and scale help to reinforce the more rural character. Intermixed with the rural areas are other character types, including rural suburban retail in Section F, abandoned agricultural in Section E, and overdeveloped in Sections G, I and N. Section M conveys a rural residential character.

Attachment I-H contains representative photos from each of the sections.

2. Signs

The Route 9W corridor contains a wide confusing mix of commercial and informative signs. This lack of sign coordination begins right at the northern Town Line, as the first photo in **Attachment I-H** shows. It continues along the entire corridor. Official information, directional or regulatory signs have apparently been placed with no consideration for how they are perceived in the larger context of other signs, buildings or vegetation, as several other pictures convey.

Commercial signs must conform to the Town's sign regulations, but these also appear to be seldom planned to be compatible with other signage in the corridor.

The result of the random placement of signs is a corridor that creates distractions for drivers, especially those who needs the signs to navigate their way. For these viewers, trying to make sense of the signage creates distractions from maintaining focus on the road itself.

J. PLANS & RECOMMENDATIONS

1. 1989 Route 9W Corridor Study

A Route 9W Corridor Study completed in 1989 made numerous recommendations about land use and roadway improvements for Route 9W in the Study Area. Several relatively important recommendations emerged from that report, including a suggestion for a formal process to plan and evaluate a bypass around the Selkirk neighborhood. Other important recommendations included straightening Route 9W in a few sections, creating parallel by-pass roads to relieve congestion, and intersection improvements.

Figure I-13 highlights several of the recommendations made in this and other reports. While several of the intersection improvement recommendations have been implemented; most others remain to be addressed. Furthermore, some of the recommendations found in several of these reports are no longer appropriate as noted below.

2. Selkirk Bypass

The Town, the CDTC and NYSDOT have also pursued the feasibility of creating the Selkirk Bypass recommended in the 1989 Corridor Study. The bypass was recommended due to the significant impacts that trucks traveling on State Route 396 have on the residential hamlet of Selkirk. Numerous reviews and studies have resulted in the creation of three options for aligning the bypass, along with improvements to the Route 396 itself. **Figure I-13** also shows the locations of the three proposed by-pass alternatives. To date, no conclusions have been reached as to which alternative is most appropriate or feasible for the proposed bypass.

3. Sidewalk/Bicycle Feasibility Study

In 1998, the Town completed a sidewalk/bikeway feasibility study that recommended sidewalks along both sides of Feura Bush and Glenmont Roads in the Study Area. The report also recommended creating continuous four foot wide paved shoulders on each side of these roads for bicycling. **Figure I-13** shows the proposed location of these sidewalks. The feasibility of sidewalks along Rte 9W north of Feura Bush Road was also evaluated.

4. Town Plan

The Town of Bethlehem completed and accepted its current Town of Bethlehem Comprehensive Plan in 2005. The Plan recommends that an updated Route 9W Corridor Study be completed. It also provides additional recommendations related directly to the Route 9W corridor:

> Despite being large developments, the areas in the north part of Route 9W could be enhanced to have more character and more of an identity. The

> Town should be clear from the beginning what is expected of the developer regarding site and building design. … Site design should emphasize the pedestrian as well as the automobile. Prominent crosswalks should be located at appropriate signalized intersections and sidewalks should be developed along the roadway, especially as the areas continue to build out. The sidewalk should be separated from the road with a wide planting strip. The planting strip would serve to buffer pedestrians from automobile traffic. …smaller buildings oriented to the sidewalk and street, should improve the pedestrian environment along Route 9W and buffer the large parking areas that large-scale stores require. These areas [along Route 9W] should function well, not only from a vehicular point of view, but also from a transit and pedestrian view as well. Access management techniques could be utilized to reduce traffic congestion and potential conflict points with pedestrians and thru traffic.

The latest Town Plan makes several other recommendations that are relevant to this study, including:

- Establish an Official Map to identify and reserve future roadway corridors;
- Provide adequate bicycling facilities and establish a signed system of bicycle routes throughout the Town;
- Consider opportunities to provide paved shoulders on all collector and arterial roads where sidewalks are not provided; and
- Enhance entranceways/gateways to the community.

Most of these recommendations are included as topics to be considered as part of this Route 9W Corridor Study.

5. CDTC's New Visions

The Capital District Transportation Committee produced its landmark "New Visions" transportation plan in 1997 after several years of extensive work and public involvement. The new plan helped clarify the region's policy perspective on issues ranging from land use planning to rail transit; from highway widening to technology implementation. Since that time, transportation planning and investment activities in the region have followed the adopted New Visions principles, strategies and actions. This has resulted in projects focused on urban revitalization, highway repair, investment in technology, bike and pedestrian improvements, rail station projects, development of bus rapid transit and increased emphasis on land use planning.

The New Visions policies remain relevant and remain supported throughout the region. They were re-affirmed in CDTC's adoption of the New Visions 2025 Amendment in August 2004. CDTC recognizes that the existing New Visions plan relies heavily on common sense system management, incremental improvements and increased attention to coordination of

land use planning with transportation considerations to meet current and near-term transportation challenges.

Bigger initiatives such as new rail systems, major expressway widenings or construction of significant mileage of new streets and highways **are not contained in the plan**.

Specific planning and investment principles found in CDTC's New Visions Plan of importance to the Route 9W Corridor Study include:

- ***Cost-effective operational actions are preferable*** to capacity expansion
- ***Land use planning and management is critical*** to the protection of transportation system investment. (… Pro-active corridor management that fosters efficient settlement patterns protects mobility. Site design practices that limit access to highways, are transit friendly, and provide pedestrian access help avoid gridlock.)
- ***Encouraging bicycle and pedestrian travel is a socially, economically and environmentally responsible approach*** to improving the performance of our transportation system.
- In addition to supporting desired land settlement patterns, ***transit service helps meet multiple regional objectives*** in the Capital District.
- ***Managing traffic flows on the Capital District …arterial system is critical*** for both economic and social reasons. (Good arterial corridor management planning designs facilities that adequately serve traffic yet guide surrounding development in a sustainable manner. Development opportunities can be embraced when access, transit, and pedestrian issues are properly addressed.)
- ***Design of street layout and location of complementary uses creates a pedestrian scale*** and provides increased accessibility without compromising the attractiveness of development.
- ***Possible bicycle/pedestrian-related improvements will be considered from the perspective of developing a system*** -- not just based on whether a particular facility is currently used.

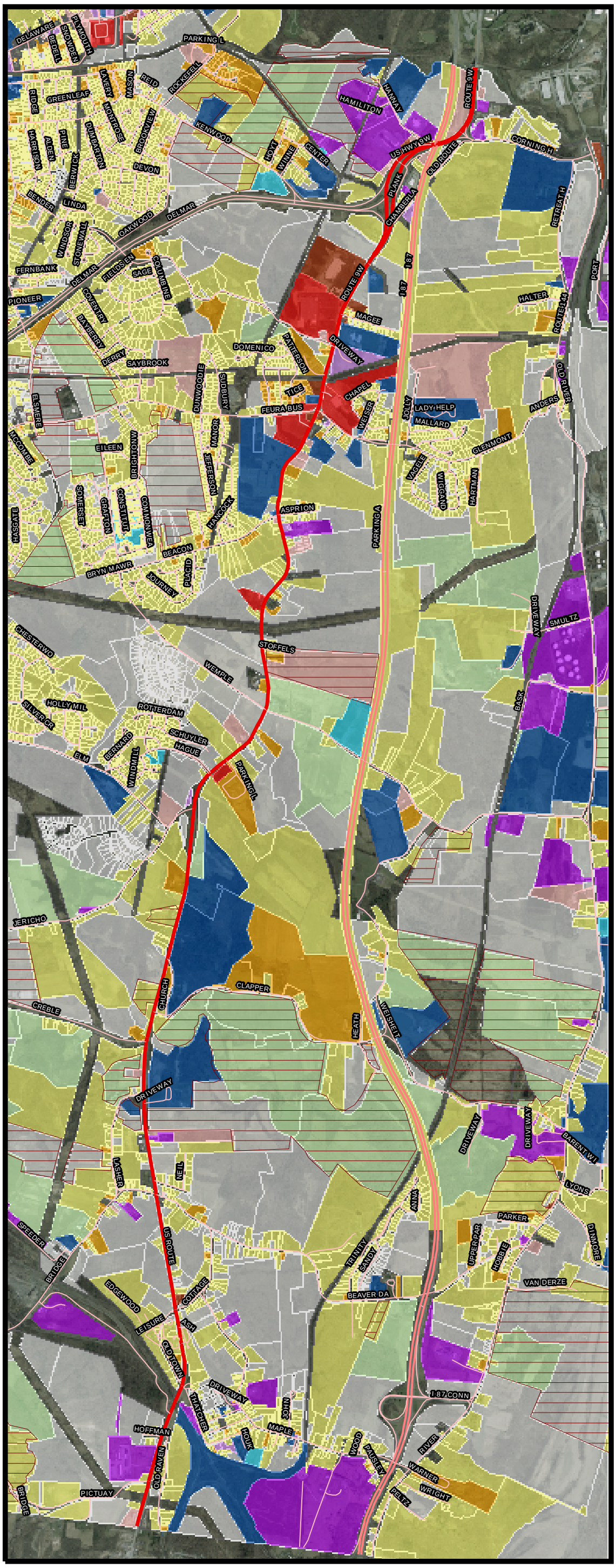
These planning and investment principles will be considered as possible modifications to the Route 9W corridor are explored later in this study.

6. New York State's Quality Communities Initiative

To improve the quality of the cities, towns, and villages in New York State, Governor Pataki initiated a Quality Communities Initiative in 2000. A task Force appointed by the Governor produced a Quality Communities Initiative Report in 2001. The report included recommendations for many different aspects of community health, including the transportation infrastructure. Several of the Reports recommendations are relevant to the Route 9W Corridor Study in Bethlehem and are noted here.

Recommendation 28: State and local agencies and private utilities should coordinate highway improvement projects with community development plans to maximize use of road openings for infrastructure repairs, to bury cable lines and make aesthetic improvements while minimizing disruption to residents, businesses and visitors.

Recommendation 32: Build upon existing State and local partnerships and expand efforts to accommodate bicycle and pedestrian access and mobility on all new and improved transportation facilities.
Recommendation 33: Continue to encourage community transportation planning and coordination.



SOURCE:

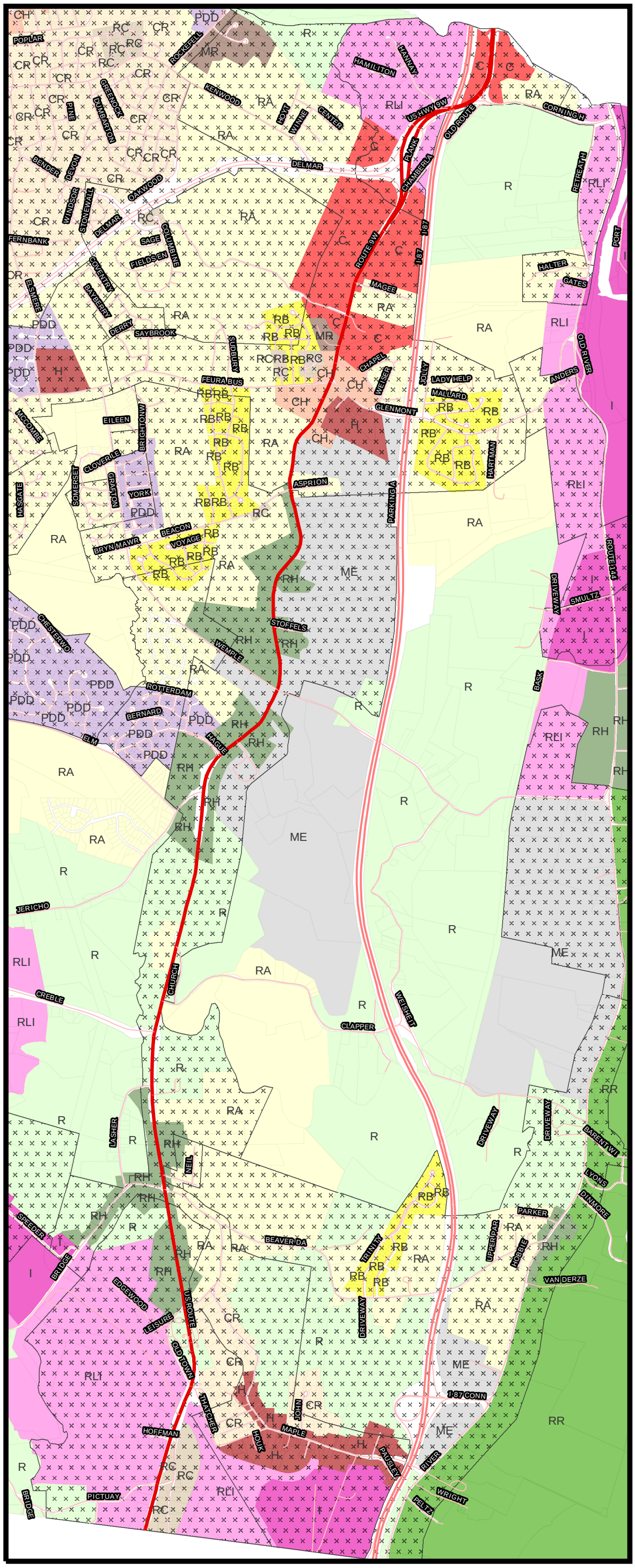
Land Use

Wilbur Smith Associates
ENGINEERS
PLANNERS
ECONOMISTS

9W_Map3.mxd

ROUTE 9W CORRIDOR STUDY
Town of Bethlehem, New York
Capital District Transportation Committee

NOVEMBER 20, 2006
FIGURE: I-1



Legend

- Parcels (2005)

Roads

- Local Roads
- I-87
- ROUTE 9W

ZONING (2005)

- COMMERCIAL (C)
- COMMERCIAL HAMLET (CH)
- CORE RESIDENTIAL (CR)
- HAMLET (H)
- HEAVY INDUSTRIAL (I)
- MIXED ECONOMIC DEVELOPMENT (ME)
- MULTI-FAMILY (MR)
- PLANNED DEVELOPMENT DISTRICT (PDD)
- RESIDENTIAL A (RA)
- RESIDENTIAL B (RB)
- RESIDENTIAL C (RC)
- RIVERFRONT RURAL (RR)
- RURAL (R)
- RURAL HAMLET (RH)
- RURAL LIGHT INDUSTRIAL (RLI)
- WATER DISTRICT (2005)

0 1,950 3,900 7,800

Feet

SOURCE:

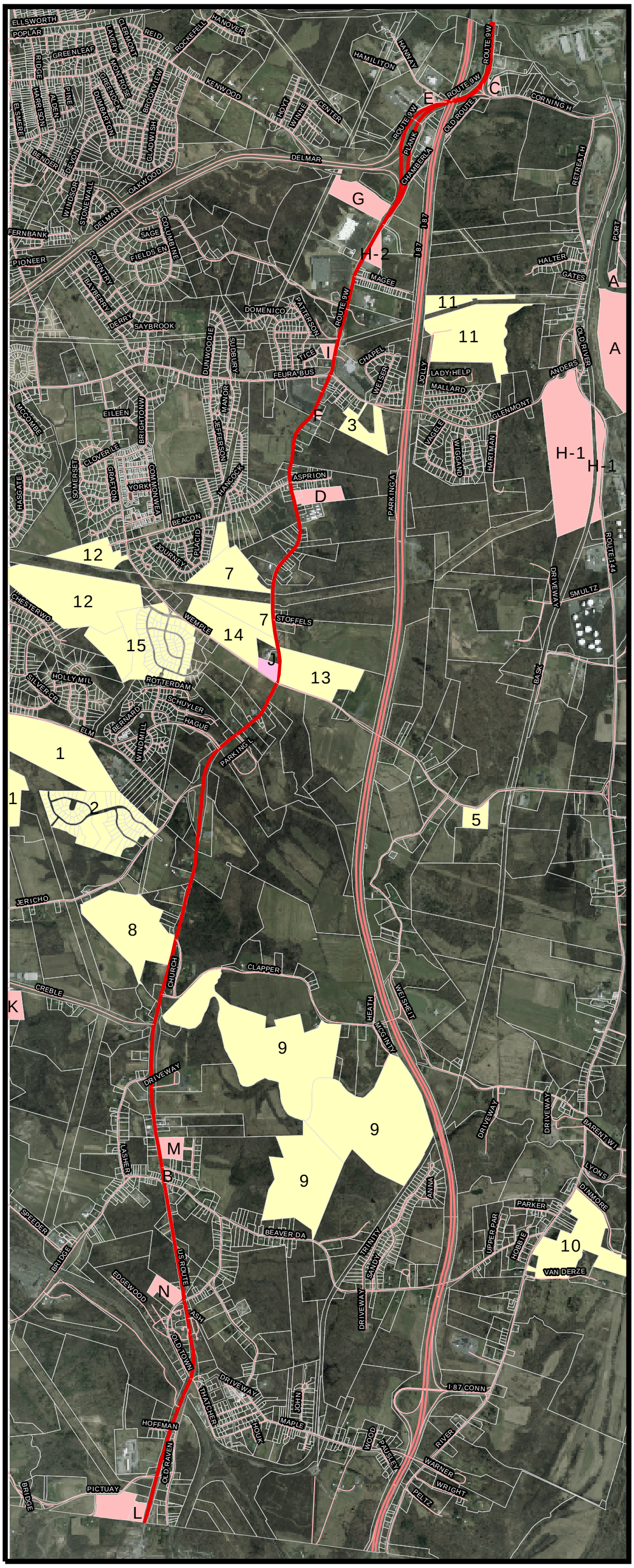
ZONING

Wilbur Smith Associates
ENGINEERS PLANNERS ECONOMISTS

9W_Map4.mxd

ROUTE 9W CORRIDOR STUDY
Town of Bethlehem, New York
Capital District Transportation Committee

JUNE 21, 2006
FIGURE: I-2



N

Note: See Attachment I-B for project descriptions.

Legend

- Parcels (2005)

Roads

- Local Roads
- I-87
- ROUTE 9W

Development Activity

- Commercial
- Residential

0 2,050 4,100 8,200

Feet

SOURCE:

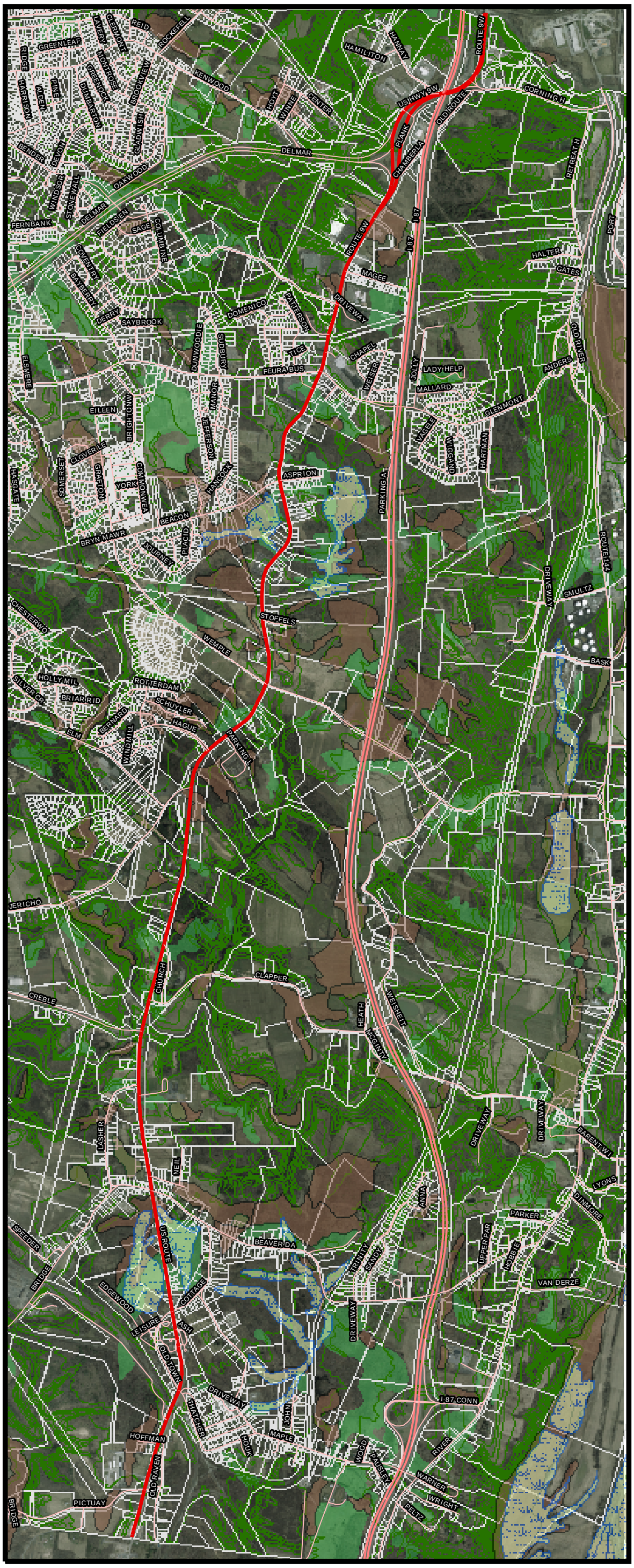
DEVELOPMENT ACTIVITY

Wilbur Smith Associates
ENGINEERS PLANNERS ECONOMISTS

9W_Map7.mxd

ROUTE 9W CORRIDOR STUDY
Town of Bethlehem, New York
Capital District Transportation Committee

NOVEMBER 28, 2006
FIGURE: I-3



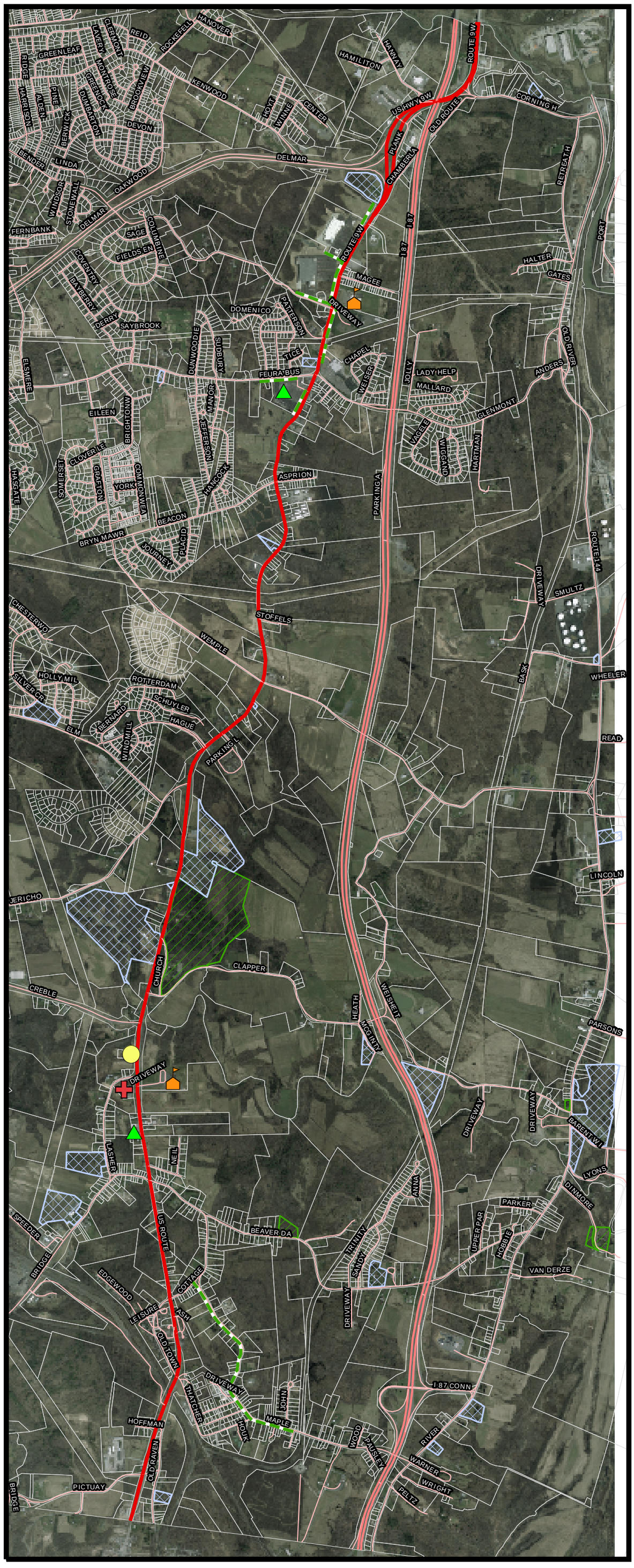
ENVIRONMENTAL RESOURCES

ENGINEERS PLANNERS ECONOMISTS
Wilbur Smith Associates

9W_Map2.mxd

ROUTE 9W CORRIDOR STUDY
Town of Bethlehem, New York
Capital District Transportation Committee

NOVEMBER 20, 2006
FIGURE: I-4



N

Legend

- Parcels (2005)

Roads

- Local Roads
- I-87
- ROUTE 9W
- National Register
- National Register Eligible
- Ambulance
- Police
- Post Office
- School
- Existing Sidewalks

0 1,950 3,900 7,800

Feet

SOURCE:

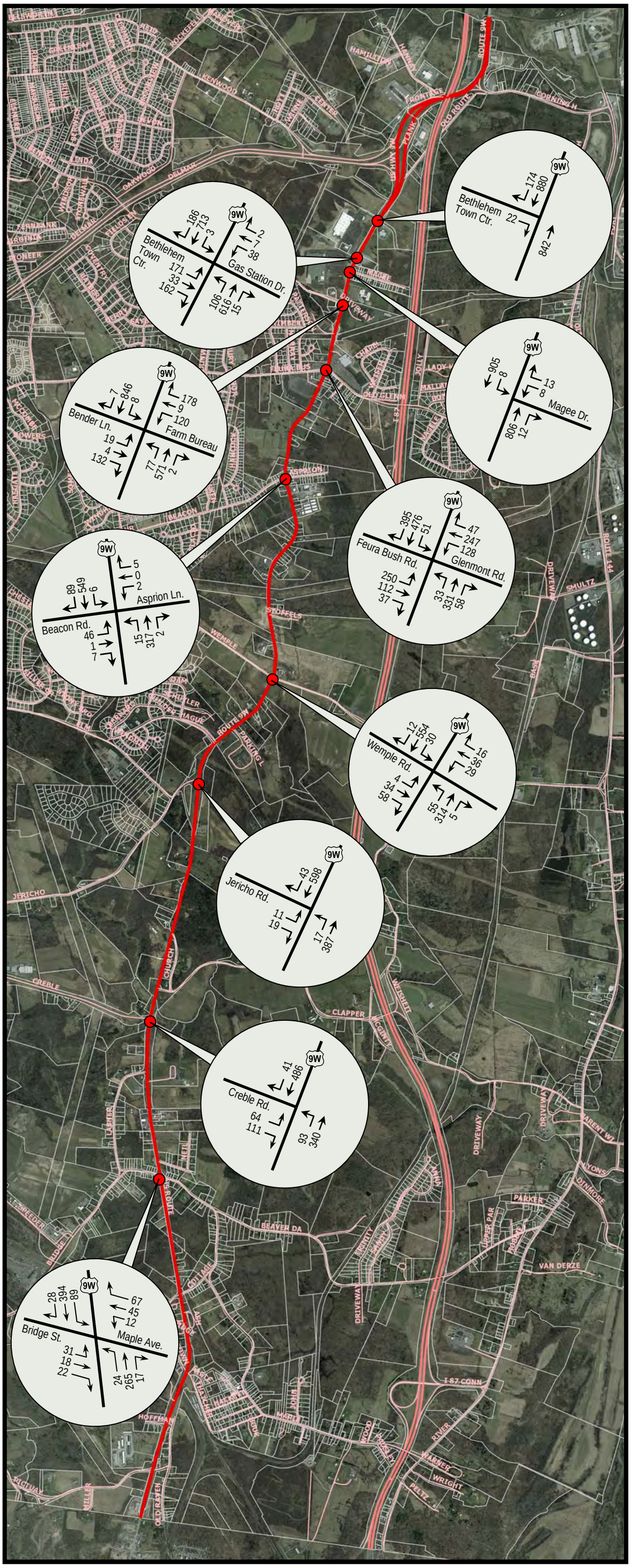
CULTURAL RESOURCES AND MUNICIPAL SERVICES

Wilbur Smith Associates
ENGINEERS PLANNERS ECONOMISTS

9W_Map9.mxd

ROUTE 9W CORRIDOR STUDY
Town of Bethlehem, New York
Capital District Transportation Committee

NOVEMBER 20, 2006
FIGURE I-5



0 1,950 3,900 7,800

Feet

SOURCE:

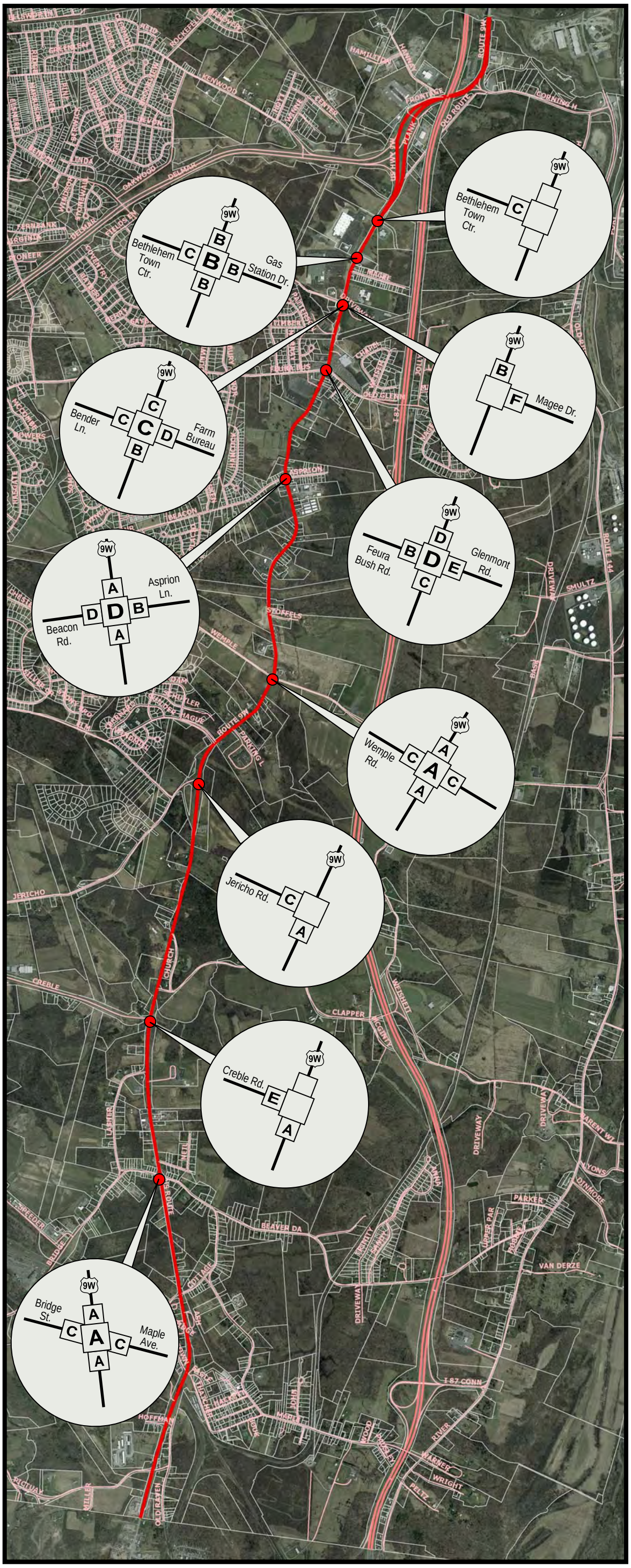
EXISTING (2006) P.M. PEAK HOUR PERIOD TRAFFIC VOLUMES

Wilbur Smith Associates
ENGINEERS PLANNERS ECONOMISTS

FILE NAME

ROUTE 9W CORRIDOR STUDY
Town of Bethlehem, New York
Capital District Transportation Committee

NOVEMBER 22, 2006
MAP: I-6



N

LEGEND

A
B C D
E

Overall Intersection Level of Service

Approach Level of Service (Typ)

0 1,950 3,900 7,800

Feet

SOURCE:

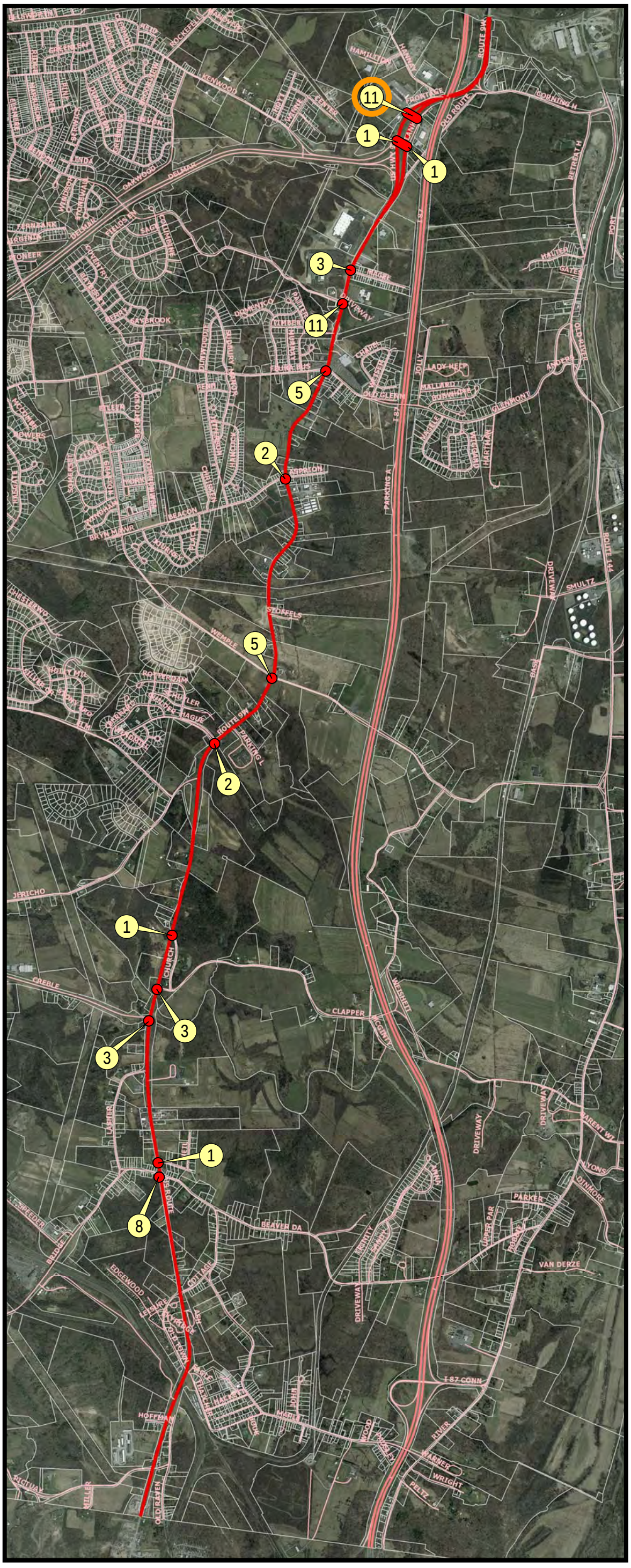
EXISTING (2006) P.M. PEAK HOUR PERIOD- LEVELS OF SERVICE

Wilbur Smith Associates
ENGINEERS
PLANNERS
ECONOMISTS

FILE NAME

ROUTE 9W CORRIDOR STUDY
Town of Bethlehem, New York
Capital District Transportation Committee

NOVEMBER 22, 2006
MAP: I-7



N

LEGEND

X — Number of Intersection Crashes

Denotes Fatality

Note: Denotes crashes over a 3 year time period 2002-2004.

0 1,950 3,900 7,800

Feet

SOURCE:

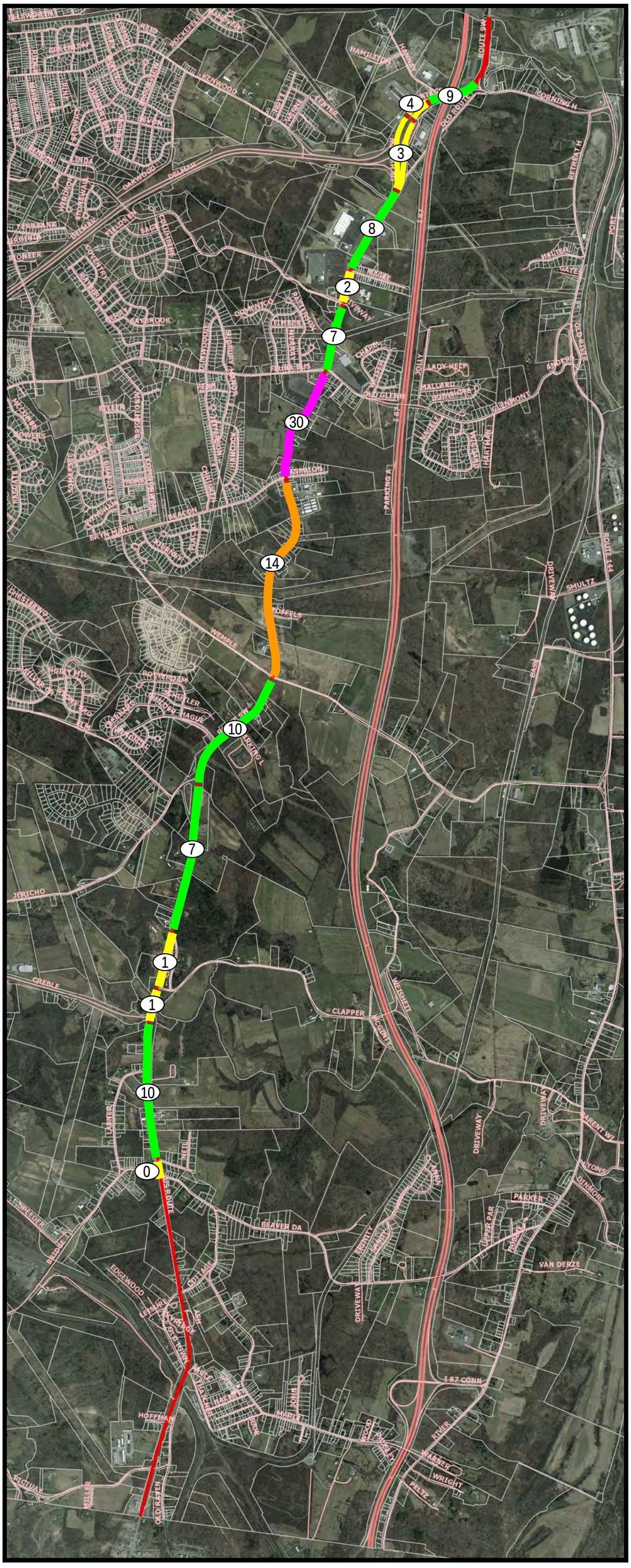
INTERSECTION CRASH LOCATIONS

Wilbur Smith Associates
ENGINEERS
PLANNERS
ECONOMISTS

FILE NAME

ROUTE 9W CORRIDOR STUDY
Town of Bethlehem, New York
Capital District Transportation Committee

NOVEMBER 22, 2006
MAP: I-8



N

LEGEND

- Less Than 5
- 5 – 10
- 11 – 15
- More Than 15
- (X) Number of Mid-Block Non-Intersection Crashes

Note: Denotes crashes over a 3 year time period 2002-2004.

0 1,950 3,900 7,800

Feet

SOURCE:

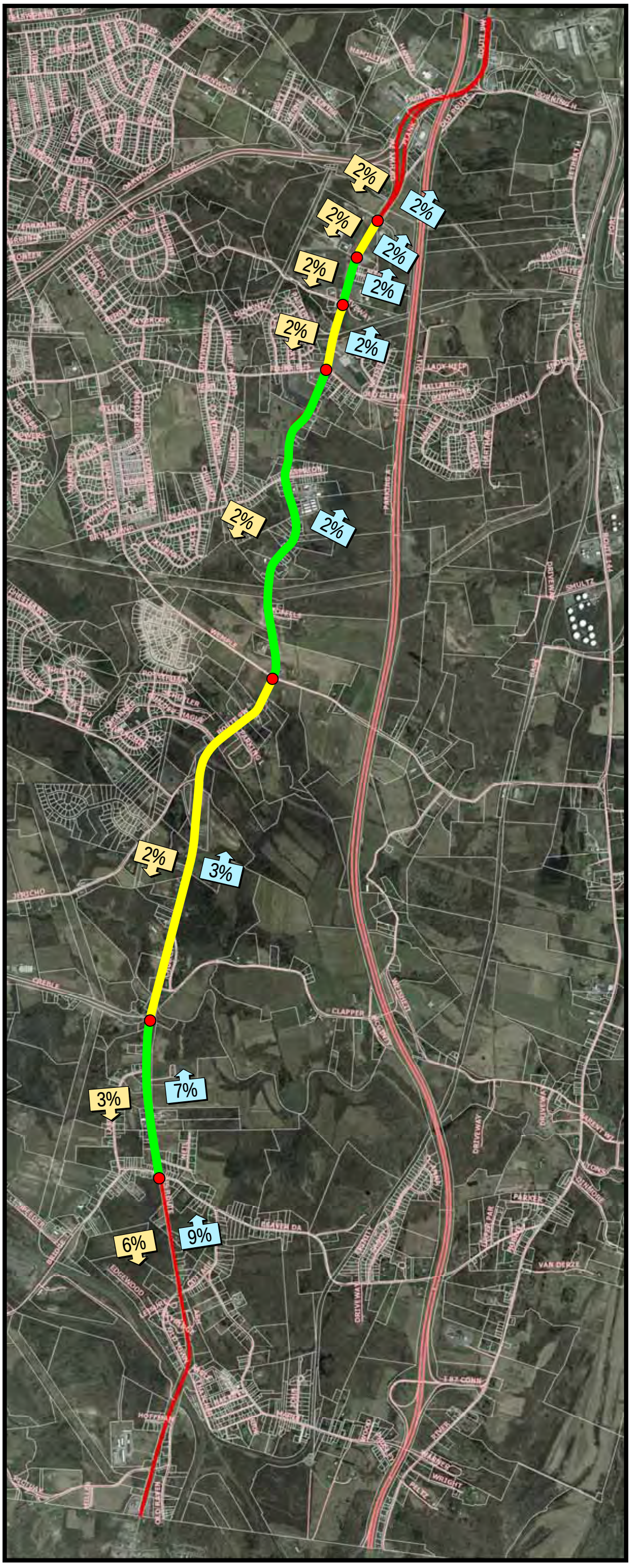
MID-BLOCK NON-INTERSECTION CRASH LOCATIONS

Wilbur Smith Associates
ENGINEERS PLANNERS ECONOMISTS

FILE NAME

ROUTE 9W CORRIDOR STUDY
Town of Bethlehem, New York
Capital District Transportation Committee

NOVEMBER 22, 2006
MAP: I-9



N

LEGEND

X% Rt. 9W Southbound Direction Truck %

X% Rt. 9W Northbound Direction Truck %

Segments

0 1,950 3,900 7,800

Feet

SOURCE:

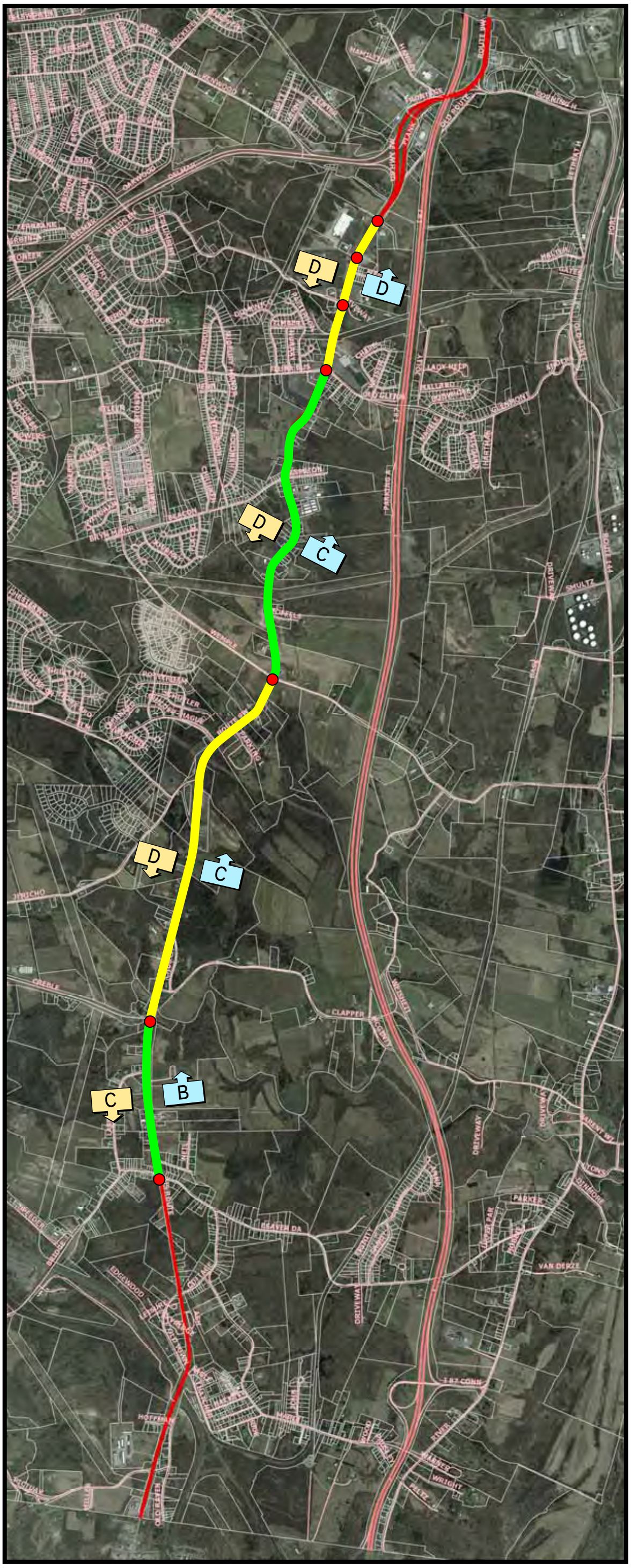
TRUCK PERCENTAGES

ENGINEERS PLANNERS ECONOMISTS
Wilbur Smith Associates

Truck Percentages-Segment LOS.ppt

ROUTE 9W CORRIDOR STUDY
Town of Bethlehem, New York
Capital District Transportation Committee

NOVEMBER 20, 2006
Figure I-10



N

LEGEND

X — Rt. 9W Southbound Direction LOS

X — Rt. 9W Northbound Direction LOS

Segments

Note: Indicates 2006 PM Peak Hour LOS

0 1,950 3,900 7,800

Feet

SOURCE:

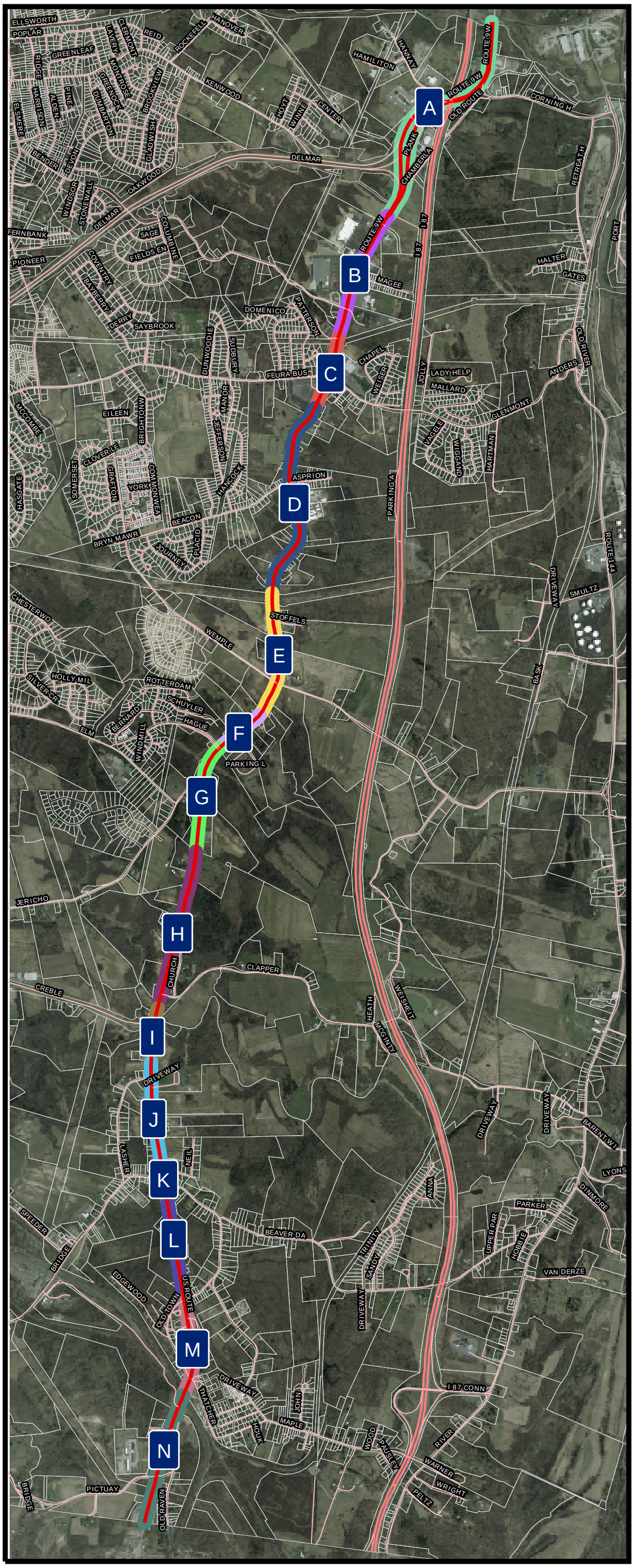
MAINLINE SEGMENT LEVELS OF SERVICE

ENGINEERS PLANNERS ECONOMISTS
Wilbur Smith Associates

Truck Percentages-Segment LOS.ppt

ROUTE 9W CORRIDOR STUDY
Town of Bethlehem, New York
Capital District Transportation Committee

NOVEMBER 20, 2006
Figure I-11



Note: Each of the 14 different segments of roadway identified in this figure identifies a portion of Route 9W in Bethlehem that has a similar visual character. Each of the segments is described in more detail in Section II.I.1 of the Corridor Profile. Attachment I-8 has representative photos from each segment.

SOURCE:

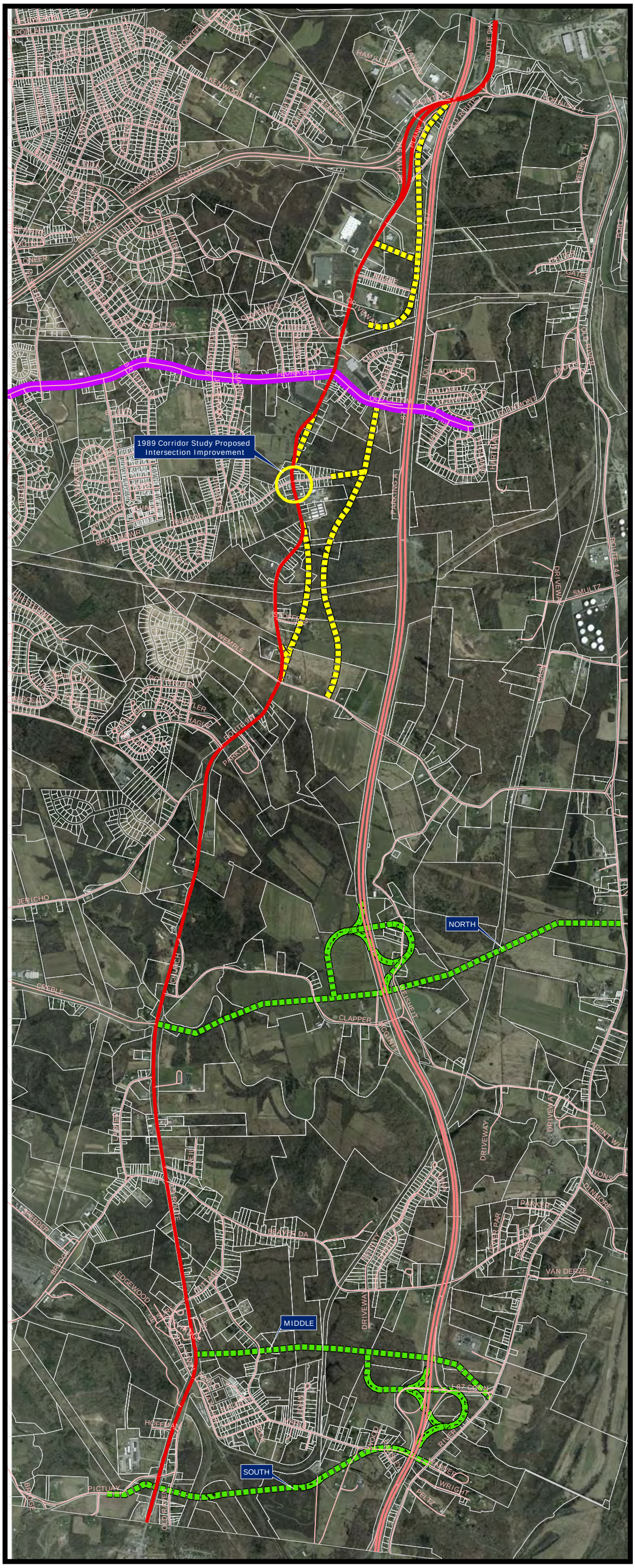
VISUAL CHARACTER

Wilbur Smith Associates
ENGINEERS PLANNERS ECONOMISTS

9W_Map8.mxd

ROUTE 9W CORRIDOR STUDY
Town of Bethlehem, New York
Capital District Transportation Committee

NOVEMBER 28, 2006
FIGURE I-12



N

Legend

- Parcels (2005)

Alternatives & Improvements

- 1989 Corridor Study Proposed New Roads
- Selkirk Bypass Alternatives
- Proposed Sidewalks and Wider Paved Shoulders

Roads

- Local Roads
- I-87
- ROUTE 9W

0 1,950 3,900 7,800

Feet

SOURCE:

PREVIOUS RECOMMENDATIONS

Wilbur Smith Associates
ENGINEERS PLANNERS ECONOMISTS

9W_Map5.mxd

ROUTE 9W CORRIDOR STUDY
Town of Bethlehem, New York
Capital District Transportation Committee

JUNE 21, 2006
FIGURE: I-13

Attachment I-A
Schedule of Use Regulations and
Area, Yard and Bulk Requirements

SECTION 128-99: SCHEDULE OF USE REGULATIONS	RURAL [1] (R)	RESIDENTIAL LARGE LOT (RLL)	RESIDENTIAL "A" (RA)	RESIDENTIAL "B" (RB)	RESIDENTIAL "C" (RC)	CORE RESIDENTIAL (CR)	MULTI-FAMILY (MR)	RURAL RIVERFRONT (RR)	HAMLET (H)	COMMERCIAL HAMLET (CH)	RURAL HAMLET (RH)	GENERAL COMMERCIAL (C)	MIXED ECONOMIC DEVELOPMENT [11] (MED)	HEAVY INDUSTRIAL (I)	RURAL LIGHT INDUSTRIAL (RLI)
Residential Uses															
One-Family Dwelling	BR	BR	BR	BR	BR	BR	BR	BR	BR	BR	BR		BR [14]		BR
Two-Family Dwelling	BR				BR		BR	SP	SP	SP	BR				BR
Three-Four Family Dwelling	BR				BR		SP	SP	SP	SP	SP				BR
Multi-Family Dwelling	SP						SP		SP	SP	SP		SP [2b]		SP
Sr. Citizen Housing							SP		SP	SP	SP				
Accessory Apartment [6]	BR	SUP	SUP	SUP	SUP	SUP		SUP	SUP	SUP	SUP				BR
Non-Residential Uses															
Adult Business Use [9]														SUP	
Agriculture, Agricultural Use	BR	SP [3]	SP [3]	SP [3]	SP [3]	SP [3]	SP [3]	BR	SP [3]	SP [3]	BR	SP [3]	SP [3]	BR	BR
Airport														SUP	SUP
Animal Hospital, Animal Clinic	SP								SP	SP	SP	SP			SP
Appliance Repair	SP									SP	SP			SP	SP
Automobile Salvage and Reclamation Yards and Facilities														SUP	
Banks and financial institutions									SP	SP	SP	SP	SP [2b]		
Bed & Breakfast	SP	SP	SP [12]	SP	SP	SP [12]	SP	SP	SP	SP	SP				
Beverage Bottling, Distribution and Warehousing														SP	SP
Broadcasting Facilities, FCC Licensed	BR									SP		SP			BR
Bulk Storage of Materials														SUP	
Business Office	BR		SP [12]			SP [12]			SP	SP	SP	SP	SP [2b]	SP	BR
Day Camp, Vacation Campground [4]	SP							SP							SP
Car Wash										SUP	SUP	SUP		SUP	SUP
Cemetery, public	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP		SUP	SUP
Club, Fraternity, Lodge	SP		SP [12]			SP [12]	SP	SP	SP	SP	SP				SP
Cold Storage Facilities	SP													SP	SP
Commercial Bakery, No Retail Sales	SP														SP
Commercial Recreation	SUP							SUP			SUP	SUP			SUP
Conservancy	SP	SUP	SUP	SUP	SUP	SUP	SUP	SP	SP	SP	SP	SP	SP [2b]	SP	SP
Concrete and Asphalt Plants														SUP	
Conference Center								SP					SP [2b]		

SECTION 128-99: SCHEDULE OF USE REGULATIONS	RURAL [1] (R)	RESIDENTIAL LARGE LOT (RLL)	RESIDENTIAL "A" (RA)	RESIDENTIAL "B" (RB)	RESIDENTIAL "C" (RC)	CORE RESIDENTIAL (CR)	MULTI-FAMILY (MR)	RURAL RIVERFRONT (RR)	HAMLET (H)	COMMERCIAL HAMLET (CH)	RURAL HAMLET (RH)	GENERAL COMMERCIAL (C)	MIXED ECONOMIC DEVELOPMENT [11] (MED)	HEAVY INDUSTRIAL (I)	RURAL LIGHT INDUSTRIAL (RLI)
Contractors Yard, Offices and Storage Buildings; Including General Contractors, Landscape Contractors, Plumbers, Electricians, Heating, Ventilating, Air Conditioning Contractors, Masons, Painters, Refrigeration Contractors, Excavators, Roofing Contractors, and other such Construction Occupations	SP													SP	SP
Convenience Store, Mini-Mart	SP								SP	SP	SP	SP	SP [2b]		SP
Day Care Center	SP	SP	SP [12]	SP	SP	SP [12]	SP	SP	SP	SP	SP		SP [2b]		SP
Distribution Centers														SP	SP
Educational Institution	SP	SP	SP [12]	SP	SP	SP [12]		SP	SP	SP	SP		SP [2b]		SP
Fabrication Shop	SP													SP	SP
Farm Equipment Rentals, Sales & Repair	SP													SP	SP
Fitness Clubs	SP								SP	SP	SP	SP	SP [2b]		SP
Food Processing														SP	SP
Grain Storage, Processing and Distribution														SUP	SUP
Garage, Commercial	SP									SP		SP			
Garage, Commercial Storage	SP									SP		SP		SP	SP
Heavy Equipment Sales, Rental and Service														SP	SP
Home Occupations [5]	BR	SP	SP	SP		SP		SP	SP	SP	SP				BR
Hospital									SP	SP	SP				
Hotel, Motel										SP	SP	SP	SP [2b]		SP
House of Worship	SP	SP	SUP	SUP	SUP	SUP	SUP	SP	SP	SP	SP	SP	SP [2b]	SP	SP
Ice Production, Storage, Sales and Distribution														SP	SP
Indoor Theater									SP	SP	SP	SP			
Industrial Park													SP [2a]	SP	SP
Inn	SP							SP	SP	SP	SP		SP [2b]		SP
Junkyard														SUP	
Kennel [8]	SUP										SUP	SUP			SUP
Laboratories for Research, Testing and Experimental Purposes Including Offices for Research and Development													SP [2a]	SUP	SUP
Laboratories, Medical										SP	SP		SP [2a]	SP	SP
Laundry, Dry Cleaning Service									SP	SP	SP	SP	SP [2b]	SP	SP

SECTION 128-99: SCHEDULE OF USE REGULATIONS	RURAL [1] (R)	RESIDENTIAL LARGE LOT (RLL)	RESIDENTIAL "A" (RA)	RESIDENTIAL "B" (RB)	RESIDENTIAL "C" (RC)	CORE RESIDENTIAL (CR)	MULTI-FAMILY (MR)	RURAL RIVERFRONT (RR)	HAMLET (H)	COMMERCIAL HAMLET (CH)	RURAL HAMLET (RH)	GENERAL COMMERCIAL (C)	MIXED ECONOMIC DEVELOPMENT [11] (MED)	HEAVY INDUSTRIAL (I)	RURAL LIGHT INDUSTRIAL (RLI)
Lumber Yard, Mill	SP													SP	SP
Manufacturing of Computers, Computer Peripherals, Electrical Appliances, Electronic Equipment, Medical Instruments, and Other Similar Products From Previously Manufactured Components; Manufacturing of Precision Instruments and Equipment, such as Watches, Electronics Equipment, Photographic Equipment, Optical Goods and Similar Products													SP [2a]	SP	SP
Manufacturing of Products and Merchandise Involving the Use of Chemicals, Processes or Materials That Might Constitute a Potential Explosive or Environmental Hazard														SP	
Manufacturing of Articles or Merchandise from Previously Prepared or Natural Materials such as Cardboard, Cement, Cloth, Cork, Fiber, Glass, Leather, Paper, Plastics, Wood, Metals, Stones and other such Prepared Materials; Printing and Publishing														SP	SP
Marina								SUP					SP [2b]	SUP	
Medical Clinic, Wellness Center	SP		SP [12]	SP	SP	SP [12]			SP	SP	SP	SP	SP [2b]		SP
Mining, Mineral Extraction [7]	SUP													SUP	SUP
Mortuary, Undertaker, No Cremation									SP	SP	SP				SP
Motor Vehicle Repair Shop	SP									SUP	SUP	SUP		SP	SP
Motor Vehicle Sales	SP									SUP	SUP	SP			SP
Motor Vehicle Service Station	SUP									SUP	SUP	SUP		SUP	SUP
Nursery	BR								SUP	SUP	SUP	SUP			BR
Nursery School	SP		SP [12]	SP	SP	SP [12]	SP	SP	SP	SP	SP		SP [2b]		SP
Nursing Home, Convalescent Home							SP			SP					
Office Park													SP [2a]		
Outdoor Drive-In Theater	SP														SP
Packaging Facilities														SP	SP
Processing or Production of Oil, Natural Gas, Geothermal Resources or Other Hydrocarbons														SUP	
Professional Office	BR		SP [12]	SP	SP	SP [12]			SP	SP	SP	SP	SP [2a]		BR
Public Transportation Terminal									SUP	SUP	SUP	SUP		SUP	SUP
Public Utilities												SP	SP [2b]	SP	

SECTION 128-99: SCHEDULE OF USE REGULATIONS	RURAL [1] (R)	RESIDENTIAL LARGE LOT (RLL)	RESIDENTIAL "A" (RA)	RESIDENTIAL "B" (RB)	RESIDENTIAL "C" (RC)	CORE RESIDENTIAL (CR)	MULTI-FAMILY (MR)	RURAL RIVERFRONT (RR)	HAMLET (H)	COMMERCIAL HAMLET (CH)	RURAL HAMLET (RH)	GENERAL COMMERCIAL (C)	MIXED ECONOMIC DEVELOPMENT [11] (MED)	HEAVY INDUSTRIAL (I)	RURAL LIGHT INDUSTRIAL (RLI)
Religious Camp or Retreat	SP							SP							SP
Residential Care Facility	SP						SP	SP	SP	SP	SP				SP
Restaurant, No Drive-Thru	SP							SP	SP	SP	SP	SP	SP [2b]		SP
Restaurant, With Drive-Thru										SUP	SUP	SUP	SP [2b]		
Retail Business	BR								SP	SP	SP	SP	SP [2b]		BR
Riding Academy	BR							SUP							BR
Service Business	SP								SP	SP	SP	SP	SP [2b]		SP
Shopping Center, Shopping Mall										SP	SP	SP	SP [2b]		
Slaughter Plants, Packing Houses, Animal by-Products Rendering, and Other such Animal Processing Activities														SUP	
Telecommuncation Facilities, Co-Located Facilities [10]	BR	BR	BR	BR	BR	BR	BR	BR	BR	BR	BR	BR	BR	BR	BR
Telecommuncation Facilities, Non Co-Located Facilities [10]	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP		SUP	SUP	SUP	SP [2b]	SUP	SUP
Transportation Terminal, Delivery Service, Moving and Storage Facilities, Truck Maintenance														SUP	
Trucking Business, Fuel Delivery, No Bulk Storage	SP													SP	SP
Wholesaling, Warehouse, Self-Storage Facilities														SP	SP

"**BR**" Designates a use allowed "By-Right" subject to Building Permit and Certificate of Occupancy for certain improvements.

"**SP**" Designates a use allowed subject to Site Plan approval.

"**SUP**" Designates a use permitted subject to Special Use Permit and Site Plan approvals, and the Special Permit criteria of section 128-69(F) in addition to the criteria of Article VIII for certain designated uses.

Any use which is not designated "**BR**", "**SP**" or "**SUP**" is prohibited.

1. Rural District - structures for non-agricultural and non-residential uses limited to 4,000 square feet (sq.ft..) or less. Agricultural uses are exempt from this size limitation.

2a. Permitted as a primary use.

2b. Permitted as a secondary use. See Section 128-37 for special rules regarding limitations on secondary uses in a Mixed Economic Development District.

3. In the RLL, RA, RB, RC, CR,MR, H, CH, C, and MED districts agricultural uses in existence as of the effective date of this Chapter, and agricultural uses located in a County Agricultural District are permitted By-Right. For new agricultural uses, the seasonal planting of crops will be exempt from Site Plan review. For instances where Site Plan Review is required, the Planning Board shall refer to "Site Plan Process" Guidelines as set forth by Commissioner of Agriculture and Markets.

4. Subject to criteria in Section 128-64.

5. Subject to criteria in Section 128-50.

6. Subject to criteria in Section 128-73.

7. Subject to criteria in Section 128-77.

8. Subject to criteria in Section 128-76.

9. Subject to criteria in Section 128-74.

10. See special rules for telecommunication facilities in Section 128-61.

11. See Section 128-37 for special requirements regarding approval of a Development Master Plan prior to site plan review, and limitations on the amount of permitted floor area for permitted secondary uses.

12. Adaptive Reuse of existing residential structure only as defined in Section 128-27 and Section 128-30. Expansion of the existing building footprint is permitted up to 15% of the total lot area.

13. Allowed as accessory use to a motor vehicle service station.

14. Existing single family structures in existence as of the effective date of this Chapter. See Section 128-37.

SECTION 128-100: SCHEDULE OF AREA, YARD and BULK REQUIREMENTS	RURAL[1]	RESIDENTIAL LARGE LOT	RESIDENTIAL "A"	RESIDENTIAL "B"	RESIDENTIAL "C"	CORE RESIDENTIAL	MULTI-FAMILY	RURAL RIVERFRONT	HAMLET	COMMERCIAL HAMLET	RURAL HAMLET	GENERAL COMMERCIAL	MIXED ECONOMIC DEVELOPMENT[5]	HEAVY INDUSTRIAL	RURAL LIGHT INDUSTRIAL
	(R)	(RLL)	(RA)	(RB)	(RC)	(CR)	(MR)	(RR)	(H)	(CH)	(RH)	(C)	(MED)	(I)	(RLI)
Major Residential Subdivision: Maximum Density Unit Per Acre[14, 15]	1 DU per 2 acres unconstrained land	1 DU per 2 acres unconstrained land	3 DU per 1 acre unconstrained land	5 DU per 1 acre unconstrained land	8 DU per 1 acre unconstrained land with public water and public sewer	6 DU per 1 acre unconstrained land with public water and public sewer	8 DU per 1 acre unconstrained land with public water and public sewer	1 DU per 5 acres unconstrained land	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Permitted Not More Than 4 Lots Note 12
Minor Residential Subdivision: Maximum Density Unit Per Acre[14, 15]	Note 12	1 DU per 2 acres unconstrained land	Note 12	Note 12	Note 12	Note 12	Note 12	Note 12	8 DU per 1 acre unconstrained land with public water and public sewer	Prohibited	4 DU per 1 acre unconstrained land with public water and public sewer	Prohibited	Permitted	Prohibited	Note 12
Land Division[12]	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Prohibited	Permitted	Prohibited	Prohibited	Permitted	Prohibited	Prohibited	Prohibited	Permitted
Minimum Lot Size - Residential[8]	Note 12	2 acre	14,520 s.f.	8,500 s.f.	8,500 s.f./du[11]	7,260 s.f.	8,500 s.f.[2]	5 acres	5,000 s.f.	10,000 s.f.	7,500 s.f.	Not Applicable	Not Applicable	Not Applicable	Note 12
Minimum Lot Size - Non-Residential	Note 12	Not Applicable	Not Applicable	15,000 s.f.	15,000 s.f.	15,000 s.f.	15,000 s.f.	5 acres	7,000 s.f.	10,000 s.f.	7,500 s.f.	1 acre	Note 5	5 acres	1 acre
Minimum Lot Size - Mixed Use	Note 12	Not Applicable	Not Applicable	Not Applicable	15,000 s.f.	15,000 s.f.	15,000 s.f.	5 acres	10,000 s.f.	10,000 s.f.	10,000 s.f.	Not Applicable	Note 5	Not Applicable	1 acre
Minimum Front Yard, From ROW[1, 10]	40 ft	50 ft	35 ft	25 ft	30 ft	25 ft	35 ft	40 ft	10 ft[6]	30 ft	30 ft	100 ft	Note 5	100 ft	50 ft
Minimum Front Yard, From Centerline[1, 10]	65 ft	75 ft	60 ft	50 ft	55 ft	50 ft	60 ft[3]	65 ft	35 ft	55 ft	55 ft	125 ft	Note 5	125 ft	75 ft
Minimum Side Yard[1]	15 ft	25 ft	10 ft	8 ft	16 ft (8' for 1-fam)	8 ft	16 ft	15 ft	5 ft	10 ft	10 ft	40 ft	Note 5	25 ft	25 ft
Minimum Rear Yard	40 ft	50 ft	25 ft	25 ft	25 ft (1-2 fam) 40 ft (3-4 fam)	25 ft	25 ft (1-2 fam) 40 ft (3-4 fam)	40 ft	40 ft	40 ft	40 ft	50 ft	Note 5	50 ft	50 ft
Minimum Highway Frontage[13]	75 ft	75 ft	70 ft	50 ft	70 ft	50 ft	50 ft	100 ft	40 ft	100 ft	60 ft	100 ft	Note 5	150 ft	50 ft
Maximum Height	35 ft	35 ft	30 ft	30 ft	30 ft	30 ft	35 ft	35 ft	35 ft	35 ft	35 ft	35 ft	Note 7	60 ft[9]	45 ft
Minimum Lot Depth	120 ft	120 ft	120 ft	120 ft	100 ft	120 ft	120 ft	120 ft	100 ft	100 ft	100 ft	150 ft	Note 5	200 ft	150 ft
Minimum Lot Width	75 ft	100 ft	100 ft	60 ft	100 ft[4]	60 ft	60 ft[3]	100 ft	50 ft	100 ft	75 ft	100 ft	Note 5	150 ft	50 ft
Maximum Lot Coverage	30%	20%	20%	20%	30%	20%	30%	20%	75%	65%	70%	35%	Note 5	30%	30%

1. On a corner lot, there shall be provided a side yard on the side street equal in depth to the required front yard in said district.
2. For a single family dwelling. Density for a 2, 3, and 4 Family and Multi-Family Development is an additional 5,000 sq.ft. per dwelling unit.
3. For a single family dwelling. Minimum lot width for a 2, 3, or 4, Family and Multi-Family Development is 100 feet plus 2.5 feet for each dwelling unit.
4. Minimum lot width for a single family dwelling is 50' and for a 2, 3 and 4 family it is 100' plus 2.5' for each unit over 2 units.
5. Requirements vary. See Section 128-37 for lot and bulk requirements in a Mixed Economic Development District
6. New buildings will have the option of conforming to front setback of adjacent buildings.
7. Requirements vary. See Section 128-37 for height limitations in a Mixed Economic Development District.
8. Minimum lot sizes do not apply to lots created as part of a conservation subdivision or an average density subdivision.
9. The lesser of 4 stories or 60 feet in height.
10. The minimum required front yard shall be determined from the centerline of the pavement of the street on which the building fronts, or from the right-of-way line of the street on which the building fronts, whichever develops the greater front yard. For flag lots, use the "Minimum Front Yard, from ROW" distance.
11. For a single family dwelling. Density for a 2, 3, and 4 family development is an additional 5,000 sq.ft. per dwelling unit.
12. Each proposed lot shall meet the minimum area and bulk standards as set forth in Section 128-100, as applicable. In addition, if the site is not served by a public water supply and sewage disposal system the proposed lot(s) shall be of a size and configuration so as to meet the minimum separation distances and design standards for on-site water supply and/or sewage disposal systems as established by the Albany County Department of Health.
13. The minimum is 28 ft for flag lots. Flag lots are subject to the requirements of Section 128-48.
14. Density Unit (DU) is equal to one dwelling unit. See also Section 128-22.
15. The Planning Board may allow the use of an average density subdivision for a major subdivision.

Attachment I-B
Development Activity

Rt. 9W Corridor Development Activity

Map Key	Project Name	Type	Description	Status[1]
A	Beacon Pointe Harbor	mixed use	2.483 million sq. ft. total consisting of: 860,000 sf office; 238,000 sf retail/office; 200,000 sf entertainment (theater, museum, indoor water park), 20,000 sf restaurant; 552,000 sf hotel (500 rooms); 613,000 sf condominium (420 units)	-application submitted -DEIS being prepared -needs zone change
B	Cumberland Farms	retail	4,134 sf convenience store w/ gas sales	- application submitted - needs zone change on portion of lot
C	Cumberland Farms	retail/restaurant	4,905 sf bldg to include 3,825 sf Cumberland Farm convenience store w/ fuel sales and 1,080 sf Dunkin Donuts w/ drive thru. Demolish existing truck stop.	- application submitted - under review
D	Digeser	office	2000 sf addition to existing office structure	- application submitted
E	Econolodge	motel	4,519 sf addition to add pool and 18 rooms.	- application submitted - under review
F	Whiting Insurance	office	1200 sf office. Conversion of existing house to office.	- application submitted
G	Bethlehem Town Center	retail	79,531 sf retail plaza	- approved - expect construction shortly
H-1	Beacon Heights	warehouse/flex	210,000 sf warehouse / 105,000 sf flex space total (in 7 bldgs)	-application submitted -DEIS being prepared -needs zone change
H-2	Dunkin Donuts	restaurant/retail	5,000 sf bldg to include 2,500 sf Dunkin Donuts w/drive thru and 2,500 sf retail store	- pre-application phase
I	385 Rt. 9W	retail/restaurant	14,500 sf drug store bldg + 3,600 sf restaurant. Demolish existing restaurant.	- pre-application phase
J	Stewarts Shop	retail	Convenience store w/ gas sales	- pre-application phase -wetland issues need to be resolved
K	Creble Road Business Park	mixed use	10 light industrial/commercial/office bldgs. of 5k-36k sq. ft.	- status unknown
L	Robert Finke & Sons	equipment repair & sales	25,000 sf heavy equipment repair shop / 10,000 sf parts area / 3,600 sf showroom /	- pre-application phase

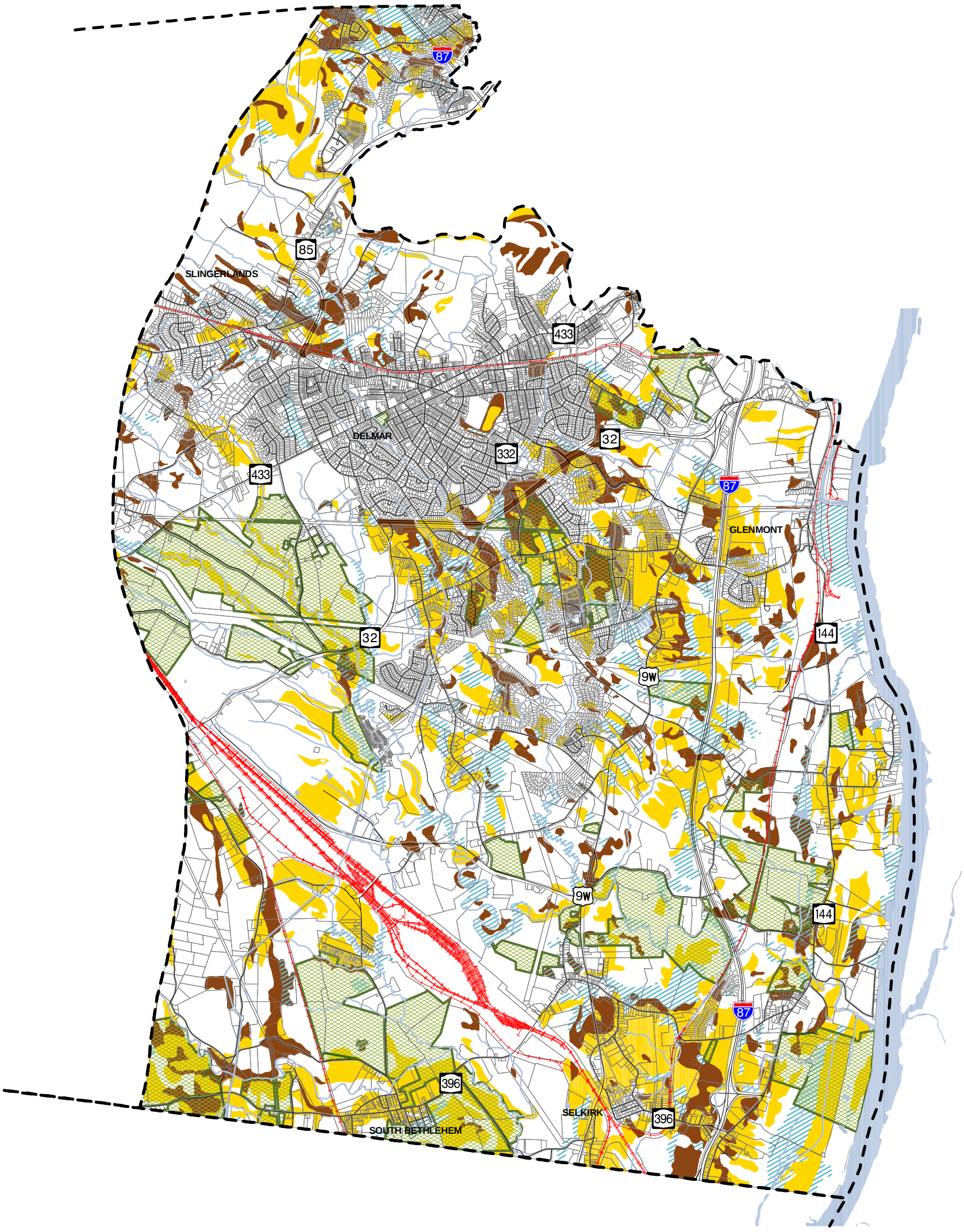
Map Key	Project Name	Type	Description	Status[1]
			4,096 sf office	
M	Backyard Sheds	shed sales	Outdoor display area for shed sales	- pre application
N	Retail Plaza	retail	7,800 sf retail plaza	- pre-application
1	Elm Avenue east Subdivision	1-fam	83 single-family lots	- preliminary plat - under review
2	Carriage Hill Subdivision	1-fam	90 single family lots	- approved
3	Glenwood Village	senior housing multi-family	150 senior citizen rental units	- application submitted - requires zone change
4	Hamden Woods	multi-family	88 condominiums and 1 single-family lot	- application submitted - requires zone change
5	James Subdivision	1-family	1 new single-family lot	- application submitted
6	Klein Subdivision	1-family	4 single-family lots	- application submitted
7	Glenmont Woods	1-family	9 single family lots	- approved
8	Troubador Subdivision	1-family	11 single family lots	- preliminary plat approved
9	Clapper Meadows	mixed residence	345 single family / 78 townhomes / 84 condominiums / 80 apartments	- pre-application
10	Cedar Hill Farm	1-family	9 single-family lots	- inactive recently
11	Dreamfield Estates	1-family	105 single-family lots	- inactive recently
12	GRA-Bil Estates	1-family	93 single-family lots	- inactive recently - resubmission made
13	The Hammocks	multi-family	200 apartment units	- inactive recently
14	Wemple Road Condominiums	multi-family	120 condominium units	- application submitted - needs zone change
15	Milltown Plaza	single-family	93 single-family lots	- approved - under construction

1 – Status as of 5/15/06

Attachment I-C
Town Plan Maps

TOWN OF BETHLEHEM

COMPREHENSIVE PLAN



AGRICULTURAL RESOURCES

LEGEND:

- Town Boundary
- Tributary
- Right-of-way
- Interstate
- State Roads
- US & Federal Roads
- Railroad
- Water
- Parcel Boundary
- Agricultural District
- Soils of Statewide Importance
- Prime Farmland
- Prime Farmland When Drained

Background Data: NYSDOT Quadrangle Maps (1990)

February 2005

THE SARATOGA ASSOCIATES

LANDSCAPE ARCHITECTS, ARCHITECTS, ENGINEERS & PLANNERS, P.C.

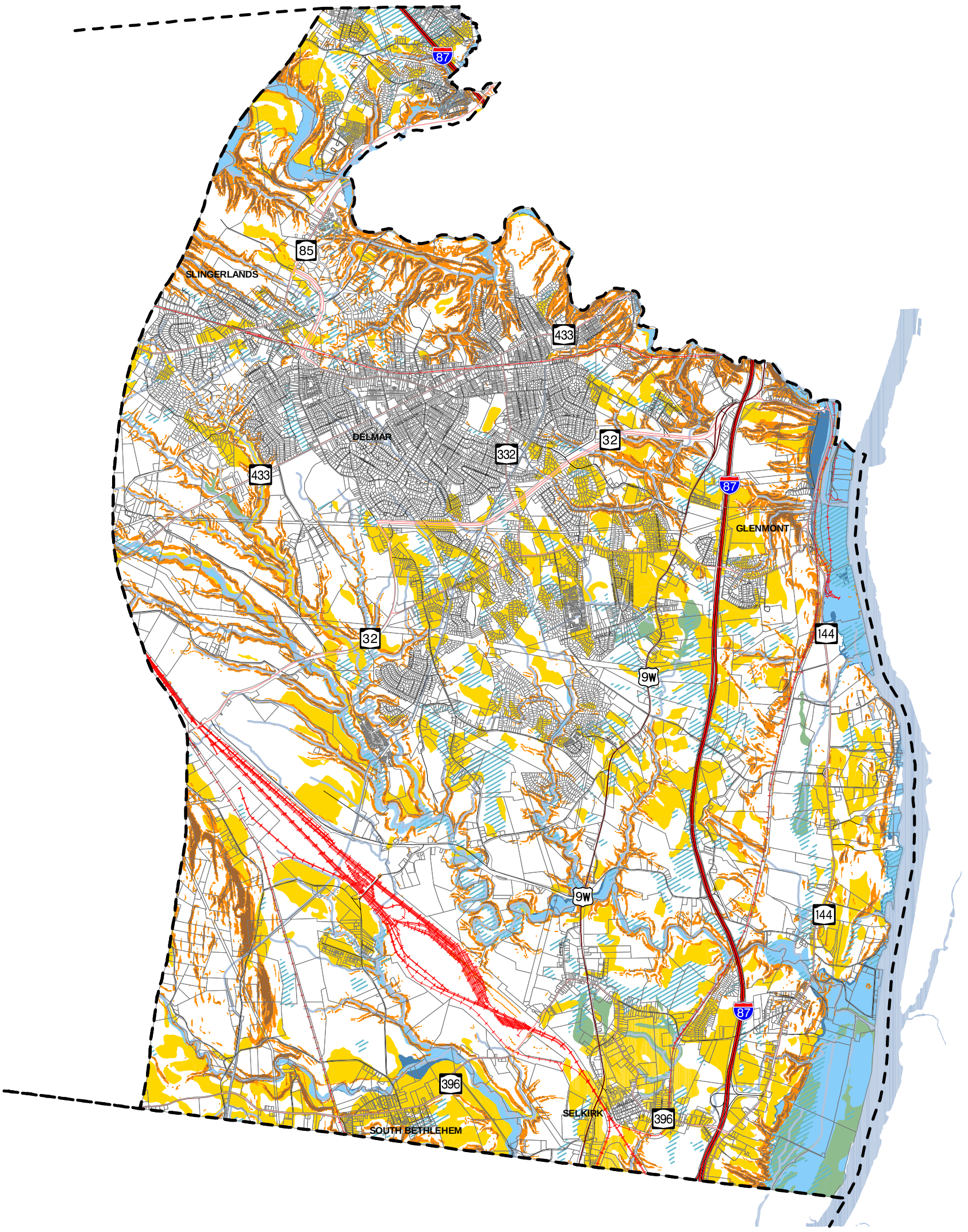
NEW YORK SARATOGA SPRINGS BOSTON

N

0.5 0 0.5 Miles

TOWN OF BETHLEHEM

COMPREHENSIVE PLAN



DEVELOPMENT CONSTRAINTS

LEGEND:

- Town Boundary
- Tributary
- Right-of-way
- Interstate
- State Roads
- US & Federal Roads
- Local Road
- Railroad
- Water
- Parcel Boundary

- Prime Farmland
- Hydric Soil

Steep Slopes
- 16%-25%
- 25%+

NOTE: The resources illustrated on this map should be taken into consideration as development occurs. The presence of these resources on the land does not necessarily prevent development from occurring.

FEMA Floodplains
- 100 Year
- 500 Year

- Rivers, Streams
- DEC Wetlands

February 2005

THE SARATOGA ASSOCIATES

LANDSCAPE ARCHITECTS, ARCHITECTS, ENGINEERS & PLANNERS, P.C.
NEW YORK SARATOGA SPRINGS BOSTON

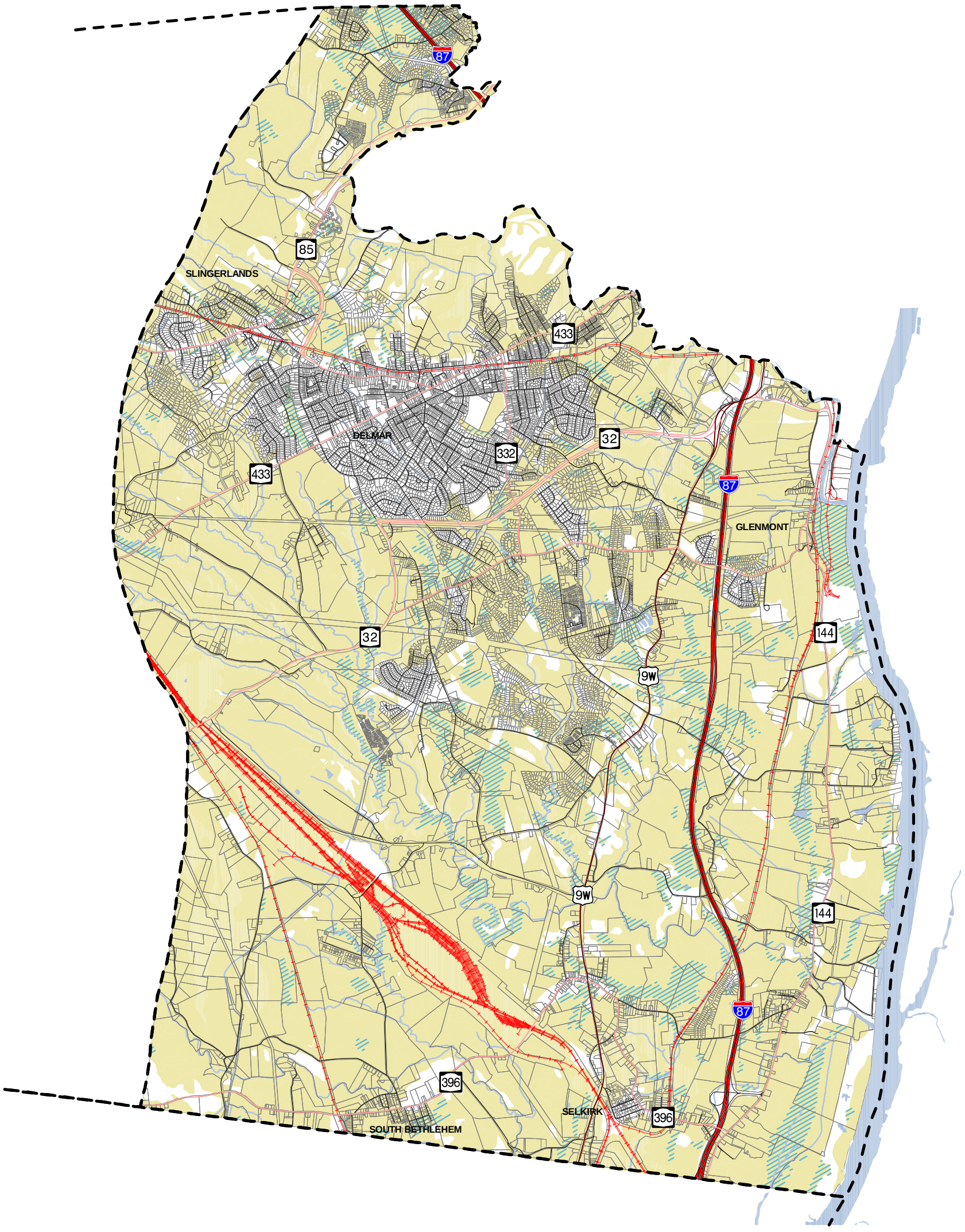
Background Data:
NYSDOT Quadrangle Maps, Digital Elevation Model
Hillshade (exaggerated 5x for visual display)

N

0.5 0 0.5 Miles

TOWN OF BETHLEHEM

COMPREHENSIVE PLAN



SOIL SUITABILITY

LEGEND:

- Town Boundary
- Tributary
- Right-of-way
- Interstate
- State Roads
- US & Federal Roads
- Local Road
- Railroad
- Water
- Parcel Boundary
- Hydric Soils*
- Severely Limited Soils for Septic Tank Absorption Fields*

* NOTE: Data provided by Natural Resource Conservation Service (NRCS). The conditions illustrated on this map should be taken into consideration as development occurs. The presence of these conditions on the land does not necessarily prevent development from occuring.

February 2005

THE SARATOGA ASSOCIATES

LANDSCAPE ARCHITECTS, ARCHITECTS, ENGINEERS & PLANNERS, P.C.

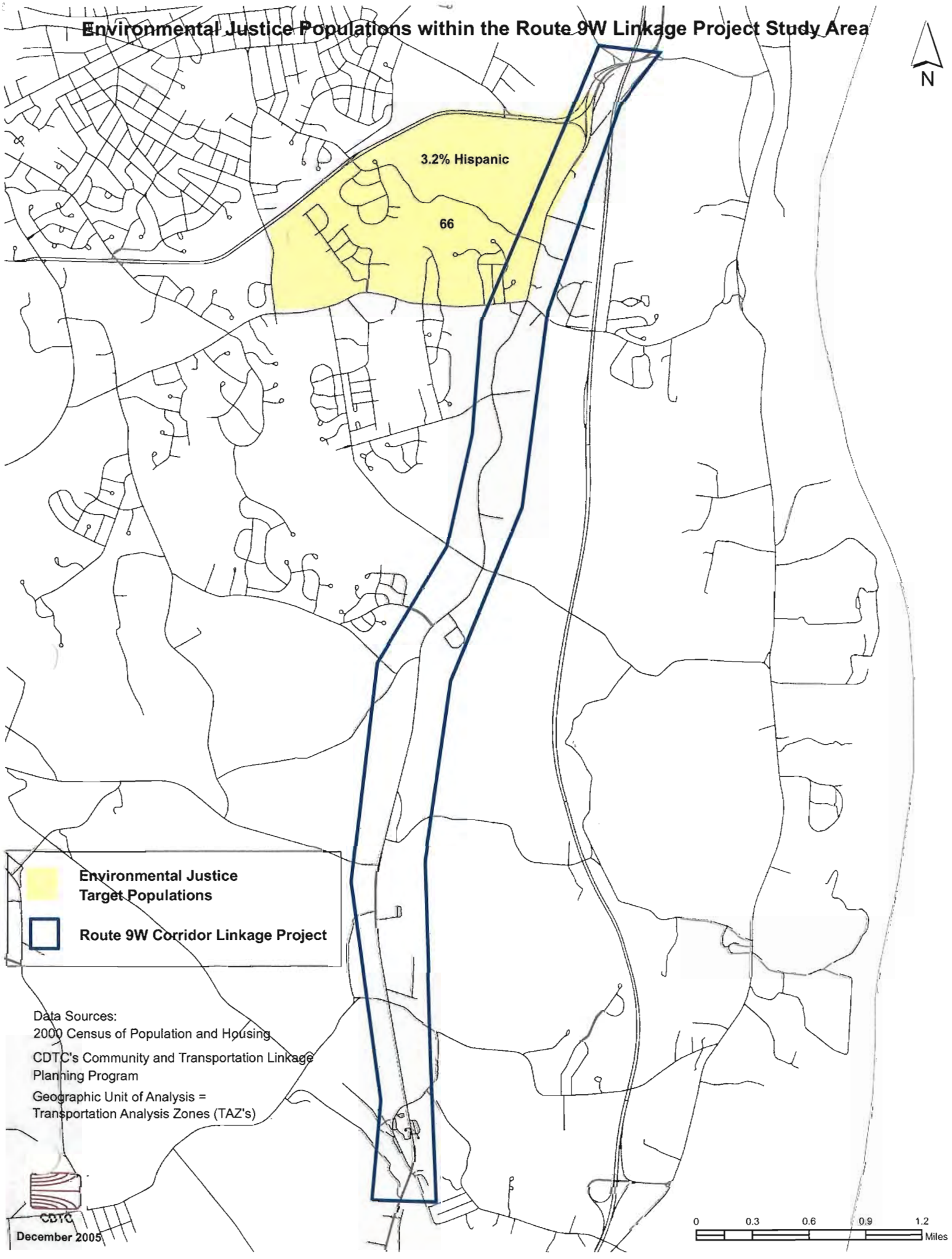
NEW YORK SARATOGA SPRINGS BOSTON

This map is computer generated using data acquired by The Saratoga Associates from various sources and is intended only for reference, conceptual planning and presentation purposes. This map is not intended for and should not be used to establish boundaries, property lines, location of objects or to provide any other information typically needed for construction or any other purpose when engineered plans or land surveys are required.

N

0.5 0 0.5 Miles

Attachment I-D
Environmental Justice Populations

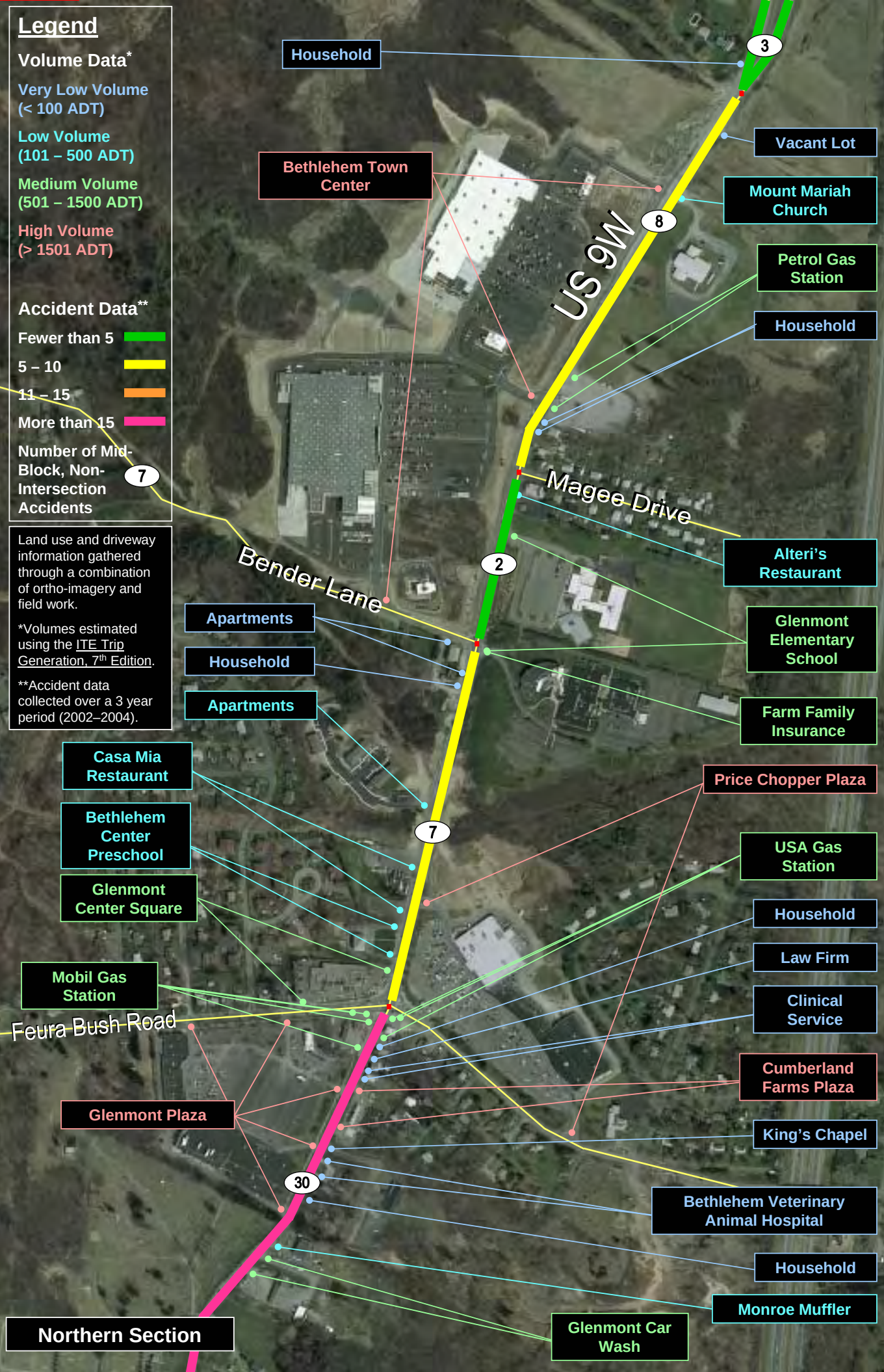

Environmental Justice Populations within the Route 9W Linkage Project Study Area
N
3.2% Hispanic
66
Environmental Justice Target Populations
Route 9W Corridor Linkage Project
Data Sources:
2000 Census of Population and Housing
CDTC's Community and Transportation Linkage Planning Program
Geographic Unit of Analysis = Transportation Analysis Zones (TAZ's)
CDTC
December 2005
0 0.3 0.6 0.9 1.2
Miles

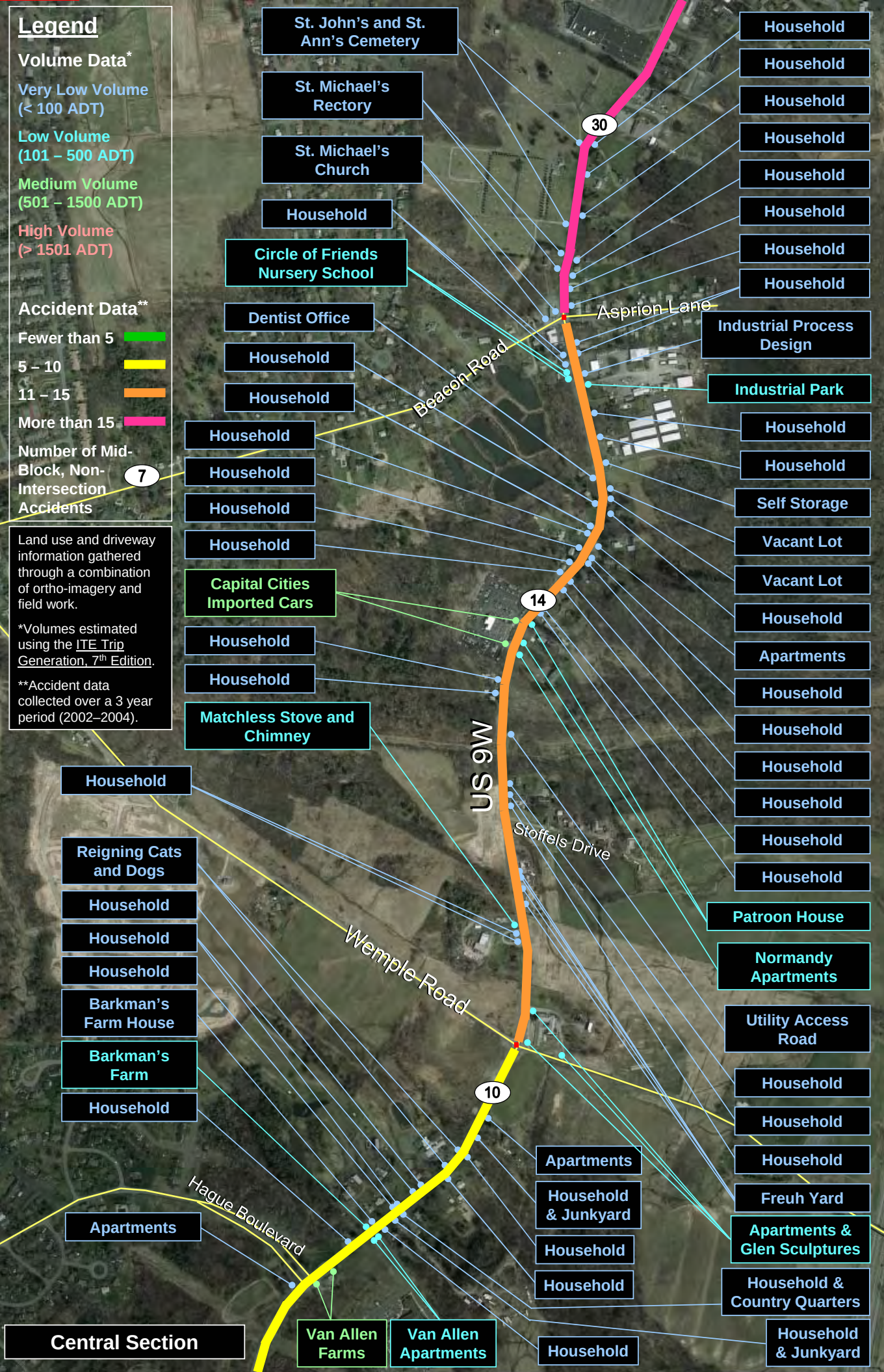
There are a total of 1 TAZ's in the Route 9W Corridor Linkage Study Area that are identified as Environmental Justice Target Population Areas. EJ Target Population Areas are defined as any TAZ with low income, minority, or Hispanic populations equal to or greater than the regional average.

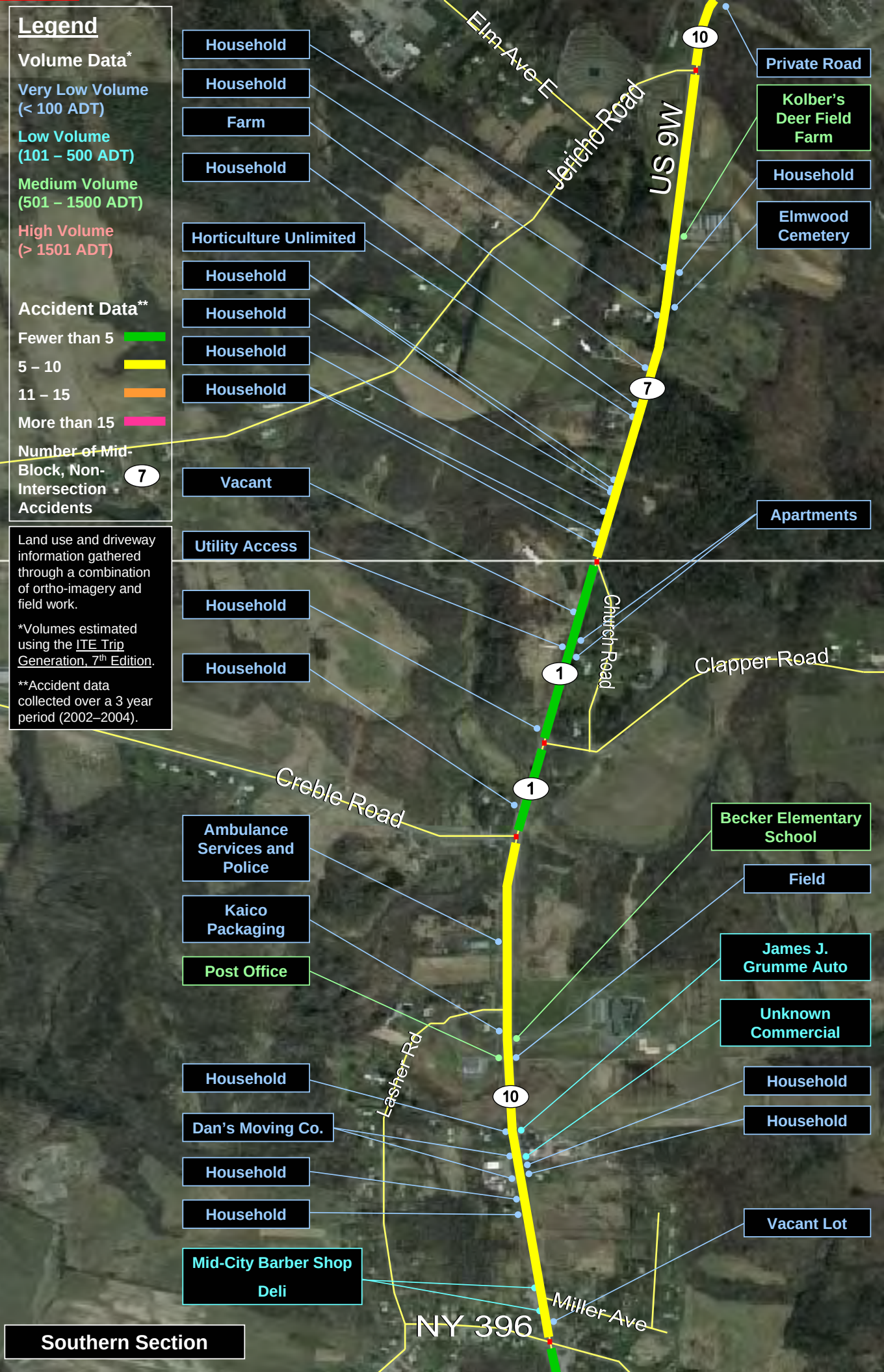
The regional averages are as follows:

Minority Population	11.2%
Hispanic Population	2.6%
Low Income Population	8.9%

Attachment I-E
Access Point Data


Legend
Volume Data*
Very Low Volume (< 100 ADT)
Low Volume (101 – 500 ADT)
Medium Volume (501 – 1500 ADT)
High Volume (> 1501 ADT)
Accident Data**
Fewer than 5
5 – 10
11 – 15
More than 15
Number of Mid-Block, Non-Intersection Accidents
Land use and driveway information gathered through a combination of ortho-imagery and field work.
*Volumes estimated using the ITE Trip Generation, 7th Edition.
**Accident data collected over a 3 year period (2002–2004).
Household
Vacant Lot
Bethlehem Town Center
Mount Mariah Church
US 9W
Petrol Gas Station
Household
Magee Drive
Bender Lane
Alteri's Restaurant
Apartments
Household
Apartments
Glenmont Elementary School
Farm Family Insurance
Casa Mia Restaurant
Price Chopper Plaza
Bethlehem Center Preschool
USA Gas Station
Glenmont Center Square
Household
Law Firm
Mobil Gas Station
Clinical Service
Feura Bush Road
Cumberland Farms Plaza
Glenmont Plaza
King's Chapel
Bethlehem Veterinary Animal Hospital
Household
Monroe Muffler
Glenmont Car Wash
Northern Section
3
8
2
7
7
30


Legend
Volume Data*
Very Low Volume (< 100 ADT)
Low Volume (101 – 500 ADT)
Medium Volume (501 – 1500 ADT)
High Volume (> 1501 ADT)
Accident Data**
Fewer than 5
5 – 10
11 – 15
More than 15
Number of Mid-Block, Non-Intersection Accidents
7
Land use and driveway information gathered through a combination of ortho-imagery and field work.
*Volumes estimated using the ITE Trip Generation, 7th Edition.
**Accident data collected over a 3 year period (2002–2004).
St. John's and St. Ann's Cemetery
St. Michael's Rectory
St. Michael's Church
Household
Circle of Friends Nursery School
Dentist Office
Household
Household
Household
Household
Household
Household
Capital Cities Imported Cars
Household
Household
Matchless Stove and Chimney
Household
Reigning Cats and Dogs
Household
Household
Household
Barkman's Farm House
Barkman's Farm
Household
Apartments
Beacon Road
Asprion Lane
30
14
10
US 9W
Stoffels Drive
Wemple Road
Hague Boulevard
Household
Household
Household
Household
Household
Household
Household
Industrial Process Design
Industrial Park
Household
Household
Self Storage
Vacant Lot
Vacant Lot
Household
Apartments
Household
Household
Household
Household
Household
Household
Patroon House
Normandy Apartments
Utility Access Road
Household
Household
Household
Freuh Yard
Apartments & Glen Sculptures
Household & Country Quarters
Household & Junkyard
Apartments
Household & Junkyard
Household
Household
Household
Van Allen Farms
Van Allen Apartments
Central Section


Legend
Volume Data*
Very Low Volume (< 100 ADT)
Low Volume (101 – 500 ADT)
Medium Volume (501 – 1500 ADT)
High Volume (> 1501 ADT)
Accident Data**
Fewer than 5
5 – 10
11 – 15
More than 15
Number of Mid-Block, Non-Intersection Accidents
7
Land use and driveway information gathered through a combination of ortho-imagery and field work.
*Volumes estimated using the ITE Trip Generation, 7th Edition.
**Accident data collected over a 3 year period (2002–2004).
Household
Household
Farm
Household
Horticulture Unlimited
Household
Household
Household
Household
Vacant
Utility Access
Household
Household
Ambulance Services and Police
Kaico Packaging
Post Office
Household
Dan's Moving Co.
Household
Household
Mid-City Barber Shop
Deli
Private Road
Kolber's Deer Field Farm
Household
Elmwood Cemetery
Apartments
Becker Elementary School
Field
James J. Grumme Auto
Unknown Commercial
Household
Household
Vacant Lot
Elm Ave E
Jericho Road
US 9W
Church Road
Clapper Road
Creble Road
Lasher Rd
Miller Ave
NY 396
10
7
1
1
10
Southern Section

Attachment I-F
Pedestrian Accommodation Survey

9W Study Area Pedestrian Accommodation

Pedestrian Infrastructure Index Evaluation

Priority Route	Intersection	Total # of Lanes at the Intersection	Greatest # of Lanes Across Any Road	Left Lanes	Right Channel	Right Red Prohibited	Signal Phasing	Crosswalk			Pedestrian			Sidewalks	Approach Grade	Blocked Views	ADA Compliant		Turn Radius	Skewed /Offset	Lighting	Special Features	Raw Score	Grade
								#	Type	Condition	Buttons	ADA Buttons	Signals				Curb Cuts	Refuge Islands						
Route 9W	Bethlehem Center	12	4	2	0	0	M	2	2	G	4	4	4	3	3	1	4	0	3	N	0	1	35	C
Route 9W	Bender	12	3	4	0	0	M	2	2	G	4	4	4	3	3	0	4	0	2	N	1	1	37	C
Route 9W	Feura Bush	10	3	1	0	0	M	2	2	G	4	4	4	0	3	0	4	0	3	N	1	1	37	C
Route 9W	Wemple	8	2	0	0	0	S	0	0	0	0	0	0	0	3	0	0	0	2	N	1	0	26	D
Route 9W	Creble	8	3	0	0	0	S	0	0	0	0	0	0	0	2	0	0	0	3	N	0	0	22	D
Route 9W	Maple	8	2	0	0	0	S	0	0	0	0	0	0	0	4	0	0	0	2	N	2	0	28	D

Grade	Raw Score
A	>49
B	40 - 49
C	30 - 39
D	20 - 29
E	10 - 19
F	< 10

Attachment I-G
Bicycle Level of Service (BLOS) Evaluation

9W Study Area Bicycle Level of Service

Bicycle Level of Service (BLOS) Evaluation

Road Name	From	To	Len. (Ls) (Mi)	Dir. of Sur.	Lanes (L) Th #	Tu #	Con.	Traffic Vol. Data Traffic Vol. (ADT) (vpd)	Trk. Pct. (HV) (%)	Post. Spd. (SPp) mph	Width of Pavement (Wt) (ft)	(Wl) (ft)	# of Grates (N)	Percent of Occupied Parking (OSPA) Left	Right	Pavement Condition (PCt) (1..5)	(PCl) (1..5)	Bike Lane? (Y/N)	Volume Term Dir. Pk. Hr. 15 min. Vol. (Vol_{15})	Dir. Lanes (L_n)	Outside Lane Vol. in 15 min. (Vol_{15}/L_e)	Speed Term Effec. Speed (SP_e)	Trans. Speed (SP_t)	Width Term Effe. Width (W_e)	Pavement Term Pvmt. Factor (PF)	Model Terms Volume ln(Vol15/L_n)	Speed S_{pt}(1+10.38HV)^2	Width (W_e)^2	Pvmt. (PF)^2	Raw BLOS Score	BLOS Score	BLOS Grade (A..F)
Route 9W	Bethlehem Ctr Entrance	Bender	0.40	**SB**	1	1	S	*16,500*	1.5	45	11.0	4.0	0	0	0	5.0	5.0	N	189	1	189	25	4.42	15.00	0.20	5.24	5.90	225.00	0.04	3.75	**3.75**	**D**
Route 9W	Bender	Bethlehem Ctr Entrance	0.40	**NB**	1	1	S	*16,500*	1.5	45	11.0	4.0	0	0	0	5.0	5.0	N	189	1	189	25	4.42	15.00	0.20	5.24	5.90	225.00	0.04	3.75	**3.75**	**D**
Route 9W	Bender	Feura Bush	0.30	**SB**	1	1	S	*16,500*	1.7	45	11.0	4.0	0	0	0	5.0	5.0	N	189	1	189	25	4.42	15.00	0.20	5.24	6.12	225.00	0.04	3.79	**3.79**	**D**
Route 9W	Feura Bush	Bender	0.30	**NB**	1	1	S	*16,500*	1.7	45	11.0	4.0	0	0	0	5.0	5.0	N	189	1	189	25	4.42	15.00	0.20	5.24	6.12	225.00	0.04	3.79	**3.79**	**D**
Route 9W	Feura Bush	Beacon Rd	0.60	**SB**	1	0	S	*10,900*	2.9	40	10.0	2.0	0	0	0	4.0	2.0	N	125	1	125	20	4.17	10.00	0.25	4.83	7.06	100.00	0.06	4.56	**4.56**	**E**
Route 9W	Beacon Rd	Feura Bush	0.60	**NB**	1	0	S	*10,900*	2.9	40	10.0	2.0	0	0	0	4.0	2.0	N	125	1	125	20	4.17	10.00	0.25	4.83	7.06	100.00	0.06	4.56	**4.56**	**E**
Route 9W	Beacon Rd	Wemple	1.00	**SB**	1	0	S	*10,900*	2.9	40	10.0	2.0	0	0	0	3.0	3.0	N	125	1	125	20	4.17	10.00	0.33	4.83	7.06	100.00	0.11	4.88	**4.88**	**E**
Route 9W	Wemple	Beacon Rd	1.00	**NB**	1	0	S	*10,900*	2.9	40	10.0	2.0	0	0	0	3.0	3.0	N	125	1	125	20	4.17	10.00	0.33	4.83	7.06	100.00	0.11	4.88	**4.88**	**E**
Route 9W	Wemple	Hague Rd	0.50	**SB**	1	0	S	*10,900*	4.3	40	11.0	2.0	0	0	0	4.0	3.0	N	125	1	125	20	4.17	11.00	0.25	4.83	8.72	121.00	0.06	4.78	**4.78**	**E**
Route 9W	Hague Rd	Wemple	0.50	**NB**	1	0	S	*10,900*	4.3	40	11.0	2.0	0	0	0	4.0	3.0	N	125	1	125	20	4.17	11.00	0.25	4.83	8.72	121.00	0.06	4.78	**4.78**	**E**
Route 9W	Hague Rd	Jericho Rd	0.20	**SB**	1	0	S	*10,900*	4.3	55	13.0	12.0	0	0	0	4.0	4.0	N	125	1	125	35	4.79	25.00	0.25	4.83	10.02	625.00	0.06	2.52	**2.52**	**C**
Route 9W	Jericho Rd	Hague Rd	0.20	**NB**	1	0	S	*10,900*	4.3	55	12.0	11.0	0	0	0	4.0	4.0	N	125	1	125	35	4.79	23.00	0.25	4.83	10.02	529.00	0.06	3.00	**3.00**	**C**
Route 9W	Jericho Rd	Church Rd	0.70	**SB**	1	0	S	*10,900*	4.3	55	11.0	2.0	0	0	0	3.0	3.0	N	125	1	125	35	4.79	11.00	0.33	4.83	10.02	121.00	0.00 0.11	5.37	**5.37**	**E**
Route 9W	Church Rd	Jericho Rd	0.70	**NB**	1	0	S	*10,900*	4.3	55	11.0	2.0	0	0	0	3.0	3.0	N	125	1	125	35	4.79	11.00	0.33	4.83	10.02	121.00	0.11	5.37	**5.37**	**E**
Route 9W	Church Rd	Creble	0.40	**SB**	1	0	S	*10,900*	4.3	55	12.0	2.0	0	0	0	4.0	4.0	N	125	1	125	35	4.79	12.00	0.25	4.83	10.02	144.00	0.06	4.92	**4.92**	**E**
Route 9W	Creble	Church Rd	0.40	**NB**	1	0	S	*10,900*	4.3	55	12.0	2.0	0	0	0	4.0	4.0	N	125	1	125	35	4.79	12.00	0.25	4.83	10.02	144.00	0.06	4.92	**4.92**	**E**
Route 9W	Creble	Lasher Rd	0.20	**SB**	1	0	S	*10,900*	3.6	55	11.0	11.0	0	0	0	4.0	3.0	N	125	1	125	35	4.79	19.25	0.25	4.83	9.04	370.56	0.06	3.60	**3.60**	**D**
Route 9W	Lasher Rd	Creble	0.20	**NB**	1	0	S	*10,900*	3.6	55	11.0	12.0	0	0	0	4.0	3.0	N	125	1	125	35	4.79	20.00	0.25	4.83	9.04	400.00	0.06	3.45	**3.45**	**C**
Route 9W	Lasher Rd	Maple Av	0.50	**SB**	1	0	S	*10,900*	3.6	55	11.0	2.0	0	0	0	4.0	2.0	N	125	1	125	35	4.79	11.00	0.25	4.83	9.04	121.00	0.06	4.84	**4.84**	**E**
Route 9W	Maple Av	Lasher Rd	0.50	**NB**	1	0	S	*10,900*	3.6	55	11.0	2.0	0	0	0	4.0	2.0	N	125	1	125	35	4.79	11.00	0.25	4.83	9.04	121.00	0.06	4.84	**4.84**	**E**

Bicycle Level-of-Service Categories

LEVEL-OF-SERVICE	Bicycle LOS Score
A	≤ 1.5
B	> 1.5 and ≤ 2.5
C	> 2.5 and ≤ 3.5
D	> 3.5 and ≤ 4.5
E	> 4.5 and ≤ 5.5
F	> 5.5

The *Bicycle Level of Service (Bicycle LOS)*
Model measures bicycle conditions of shared roadway environments and is based on industry research published by the Transportation Research Board[3].
Criteria such as volume and composition of traffic (percent heavy vehicles), pavement condition, curb side lane width, presence of parking, presence of bike lanes, presence of drainage structures, and roadway speed were documented, and evaluated according to the bicycle model procedures.

The table displays results of the inventory and analysis and shows that the bicycle level of service on Route 9W in the Town of Bethlehem ranges from C to E ratings, with the majority of segments in the analysis considered poor (E rating).

[3] Landis, Bruce W. "Real-Time Human Perceptions: Toward a Bicycle Level of Service" Transportation Research Record Transportation Research Board, Washington DC 1997

Attachment I-H
Section Photos


BETHLEHEM


ROUTE
GLENMONT RD


9W


TACS


LOSEE'S


CLAPPER


SELF
STORAGE