Final Report:

Corridor Management Plan

Dix Avenue Corridor Study

City of Glens Falls, Town of Queensbury, Town of Kingsbury, NY

Prepared for:

Adirondack/Glens Falls Transportation Council
June, 2000

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DESIGN FOR REAL LIFE

The Sear-Brown Group

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I. GENERAL

The Adirondack-Glens Falls Transportation Council (A/GFTC) has contracted with the consultant team, The Sear-Brown Group and The Environmental Collaborative, to initiate a corridor study to provide short, intermediate and long-term mobility recommendations along the Dix Avenue corridor in Warren and Washington counties. The study area, shown on Figure 1, consists of portions of the City of Glens Falls, and the Towns of Queensbury and Kingsbury. The corridor is approximately four miles in length and generally bounded by a mixture of residential, commercial and agricultural/vacant land uses.

The Dix Avenue corridor serves as a primary east-west connecting route between Washington County, western Vermont and the I-87 Northway. The eastern half of the corridor, extending from Highland Avenue to US Route 4 is a continuation of NYS Route 32 and is included in the National Highway System (NHS). The western portion, extending approximately 1.6 miles from Highland Avenue, through the intersection with Quaker Road (NYS Route 254) to Ridge Avenue (NYS Route 9L) in the City of Glens Falls, extends into a residential section located north of the Central Business District (CBD).

Dix Avenue is a two-lane roadway throughout the corridor with varying shoulder types and widths. Major intersection approaches do not feature separate turning lanes except at the Quaker Road (NYS Route 254) intersection where turning lanes have been added to both approaches. Drainage is open in all but the western segment of the corridor in the City of Glens Falls.

The general goals of the study are:

- Assess current operating and geometric conditions throughout the corridor;
- Identify transportation needs through the corridor ("needs assessment");
- Develop a Corridor Management Plan that describes capital and operational projects, to be executed in the short (2005), intermediate (2015) and long-range (2025) planning horizons, that are consistent with A/GFTC and local plans;
- Select a preferred investment strategy

These general goals have been addressed through the following phases of the planning study:

Phase A: Investigation of Current Conditions
Phase B: Forecasting Growth and its Effects
Phase C: Develop Goals, Objectives and Needs
Phase D: Develop and Evaluate Alternative Solutions
Phase E: Develop the Corridor Management Plan and Other Associated Documents and Identify the Most Important Proposed Projects.

DIX AVENUE CORRIDOR

Figure 1. Dix Avenue Corridor

Legend

- Dix Avenue
- Parcels

N

1000 0 1000 2000 3000 Feet

300 0 300 600 900 Meters

This map was created from data provided by the Adirondack-Glens Falls Transportation Council, the Town of Queensbury, Warren County, and Washington County. These data sets were converted, combined, and processed using ArcView® and ARC/INFO® GIS software.

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This report, the Corridor Management Plan, is the final step in completing the corridor planning process, documenting the overall efforts involved in completing the six-phase process outlined above.

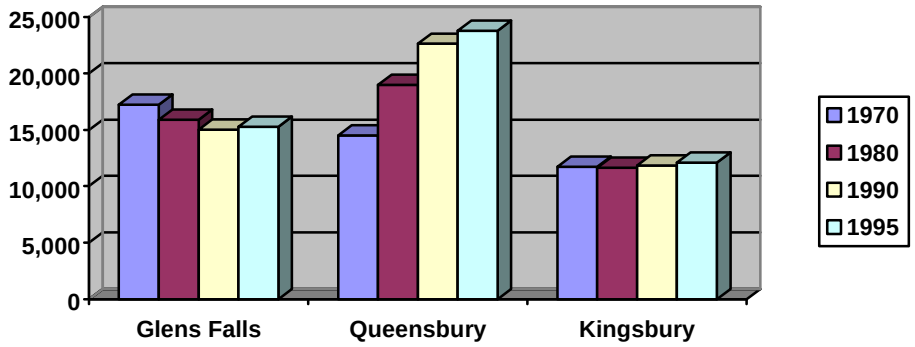
II. PROJECT EVOLUTION/BACKGROUND

The Dix Avenue corridor has experienced significant traffic volume growth over the past 20 years, and it is anticipated that this growth will continue through the year 2025. Employment growth along the NYS Route 254 corridor in the vicinity of Glens Falls and in the Lake George recreational area to the north will continue to draw increasing numbers of commuters from Glens Falls, Hudson Falls and other smaller communities in the area. In addition, the connection with the I-87 northway to the west and the recreational areas in Vermont to the east assures that a steady volume of recreational traffic will continue to utilize the Dix Avenue corridor. These connections to the east and north ensure that this route will become increasingly important for accommodating future traffic volumes.

The study area lies within the City of Glens Falls and the Towns of Queensbury and Kingsbury. As shown in Figure 2, population in the area has been shifting away from the City of Glens Falls and out into suburban areas in the Town of Queensbury. In the period between 1970 and 1990, Glens Falls' population has decreased between 6 and 7 percent per decade while the population in the remainder of the Town of Queensbury has grown steadily. A slight increase in Glens Falls population has occurred in the 1990 to 1995 period.

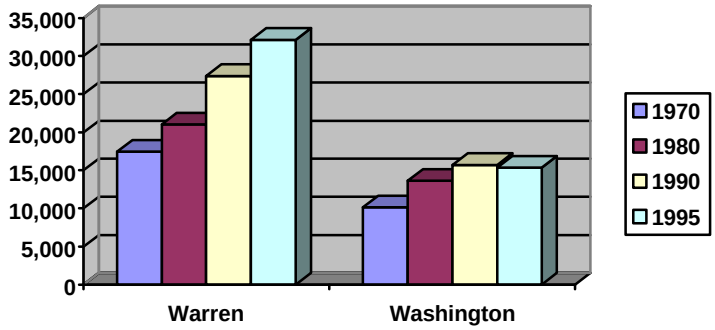
The suburbanization process, along with proximity to Lake George and the southeastern portion of the Adirondack State Park, has led to nearly a 33% increase in population in Queensbury. Further east, in the Town of Kingsbury, population has grown slowly at a rate of approximately 1 - 2% per decade from 1970 to 1995. This may change if the suburban shift continues eastward.

Figure 2: Population History



In conjunction with the local population trends, there has been a significant increase in the overall number of people employed in both Warren and Washington Counties. As shown on Figure 3, Warren County alone has experienced over a 90% increase in total employees in the period from 1970 to 1995 while Washington County employees have increased by approximately 50%. By comparison, the populations of Warren and Washington counties have increased by approximately 16% and 12% respectively over the same twenty-five year time period.

Figure 3: Total Persons Employed – By County



With a substantial increase in number of workers in both counties, it becomes evident that peak hour commuter related traffic has increased. Given this trend and the emphasis on seasonal recreational activities in areas immediately north of the Glens Falls area and to the east in Vermont, continued area-traffic growth would be expected.

The A/GFTC has identified several major traffic generators in the western portion of the Dix Avenue corridor. The Glens Falls Hospital, I-87 Northway and several Glens Falls and Queensbury employers and commercial establishments generate considerable traffic to/from the east in Washington County. These establishments and facilities often attract enough trips to produce periods of traffic congestion. In addition to the Glens Falls area generators identified by the A/GFTC, proximity to the Village of Lake George, the Adirondack Park and recreational areas in Vermont produce additional increases in traffic along Dix Avenue, particularly during the summer months and on weekends.

III. EXISTING ROADWAY CHARACTERISTICS

The data collection effort, documented in this report, was conducted to provide current base traffic, land use, geometric and utility data at locations throughout the corridor. Review of tax maps, municipal utility data, GIS coverages and recent traffic studies conducted in support of private development along the corridor were also reviewed. This section provides a synopsis of the general state of each of the areas reviewed. Existing roadway characteristics are shown on Figures 4 through 9.

DIX AVENUE CORRIDOR

Figure 4. Existing Roadway Characteristics (Ridge to Platt)

Legend

- Dix Avenue right-of-way
- Traffic analysis zones
- 8 Traffic analysis zone ID
- Signalized intersection
- Parking areas

200 0 200 400 600 Feet

50 0 50 100 150 Meters

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DIX AVENUE CORRIDOR

Figure 5. Existing Roadway Characteristics (Platt to City Line)

Legend

- Dix Avenue right-of-way
- Traffic analysis zones
- 8 Traffic analysis zone ID
- Signalized intersection
- Parking areas

N

200 0 200 400 600 Feet

50 0 50 100 150 Meters

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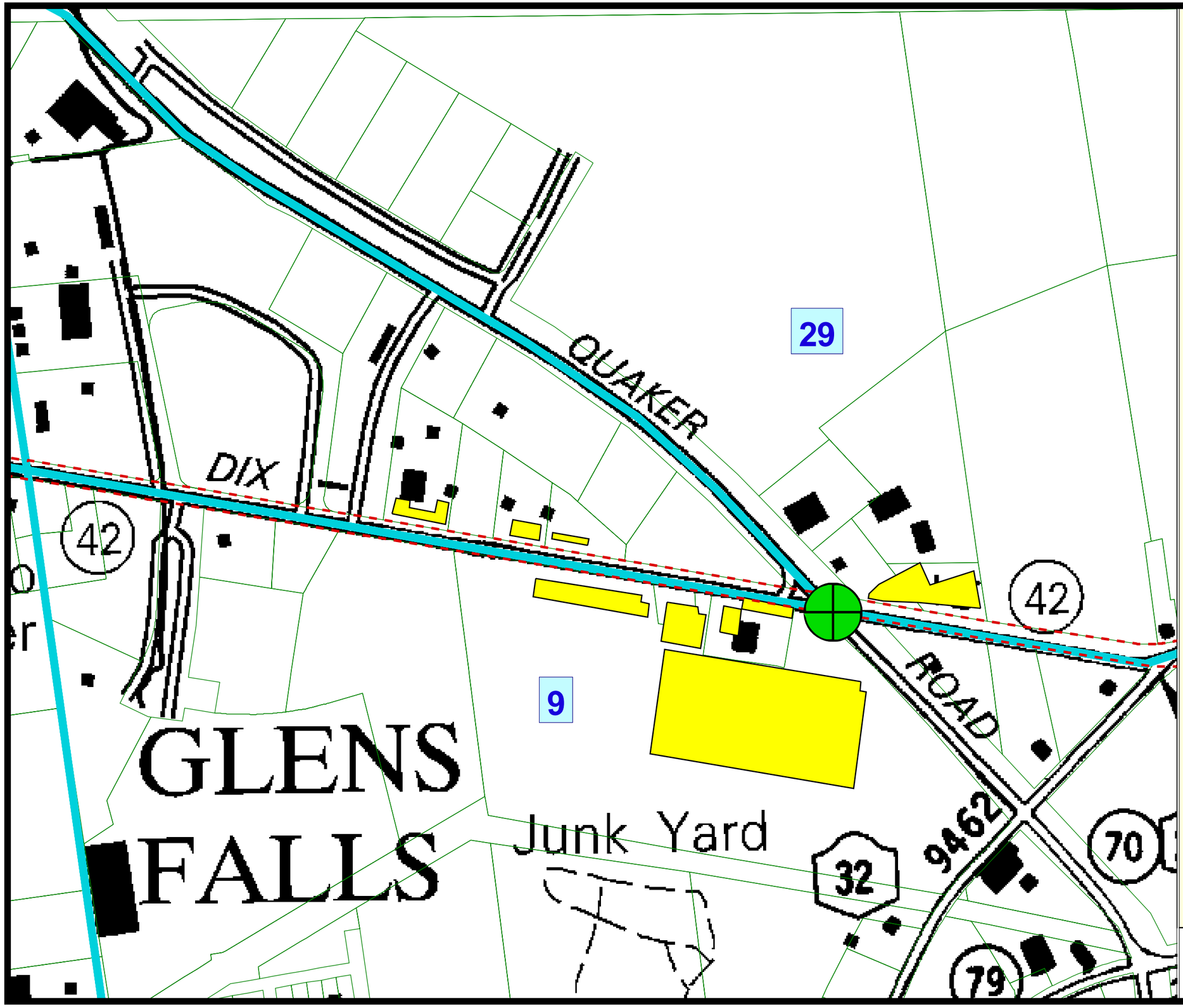
DIX AVENUE CORRIDOR

Figure 6. Existing Roadway Characteristics (City Line to Highland)



Legend

- Dix Avenue right-of-way
- Traffic analysis zones
- 8 Traffic analysis zone ID
- Signalized intersection
- Parking areas

N

200 0 200 400 600 Feet

50 0 50 100 150 Meters

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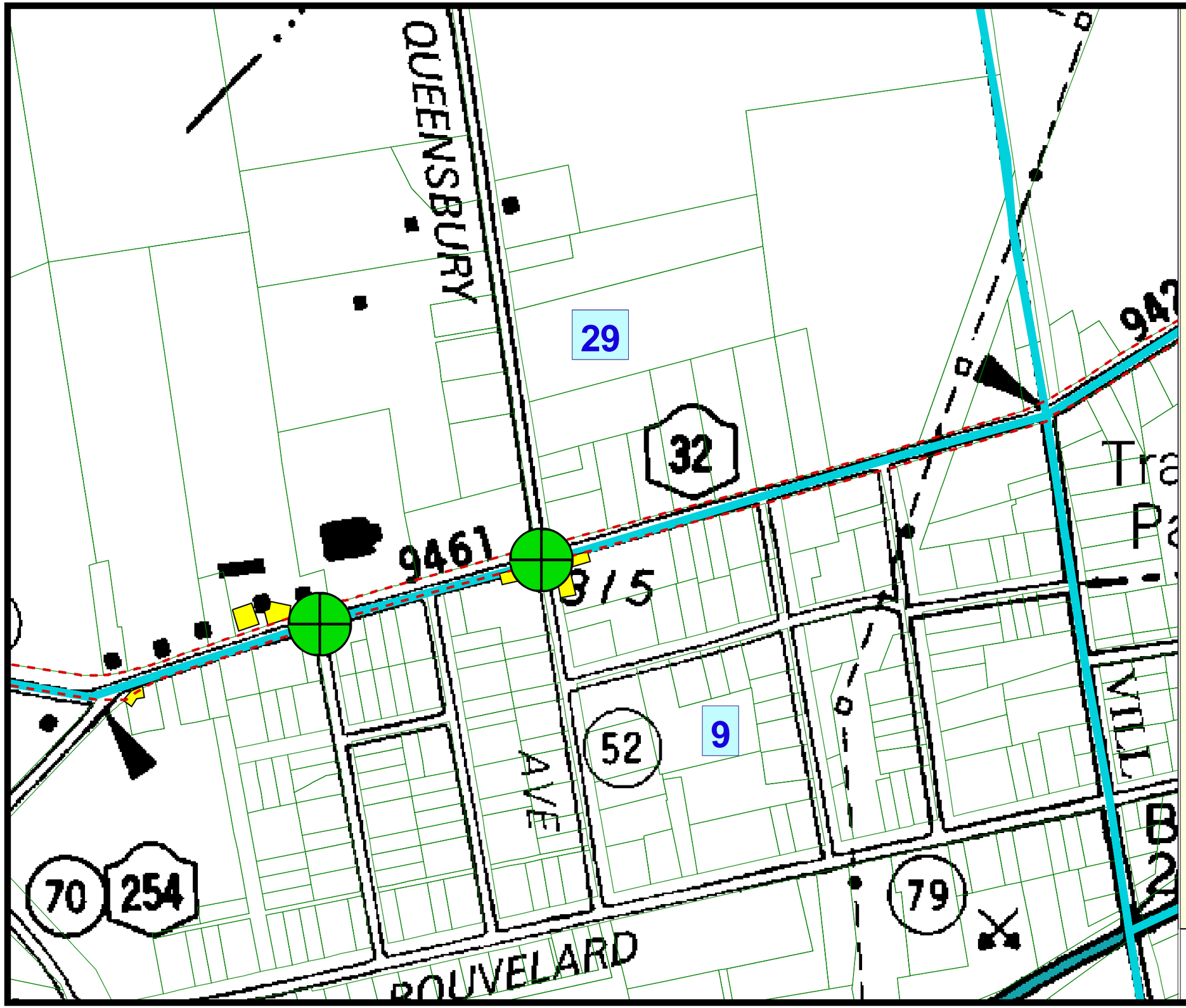
DIX AVENUE CORRIDOR

Figure 7. Existing Roadway Characteristics (Highland to Co. Line)



Legend

- Dix Avenue right-of-way
- Traffic analysis zones
- 8 Traffic analysis zone ID
- Signalized intersection
- Parking areas

N

200 0 200 400 600 Feet

50 0 50 100 150 Meters

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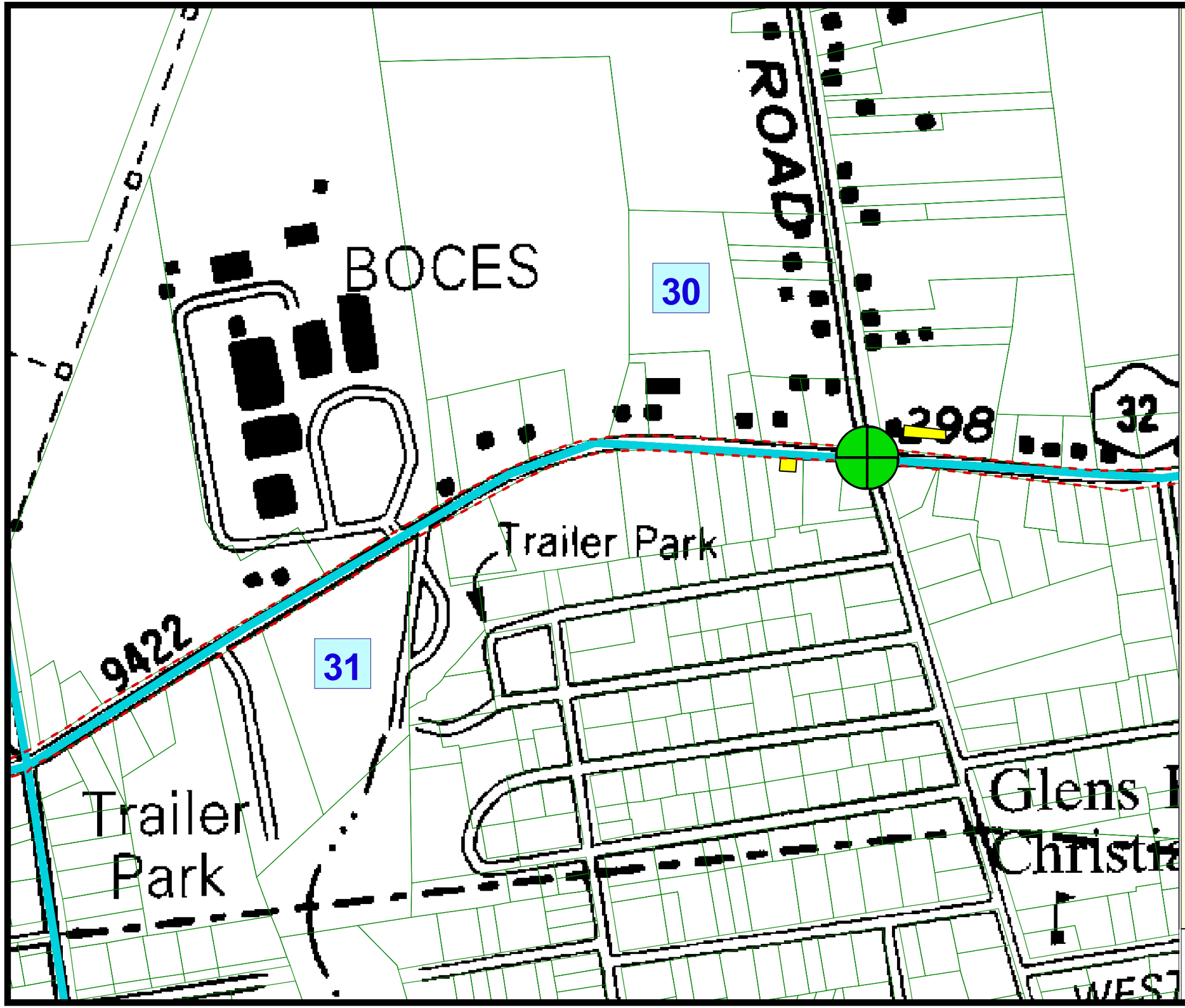
DIX AVENUE CORRIDOR

Figure 8. Existing Roadway Characteristics (County Line to Myrtle)



Legend

- Dix Avenue right-of-way
- Traffic analysis zones
- 8 Traffic analysis zone ID
- Signalized intersection
- Parking areas

N

200 0 200 400 600 Feet

50 0 50 100 150 Meters

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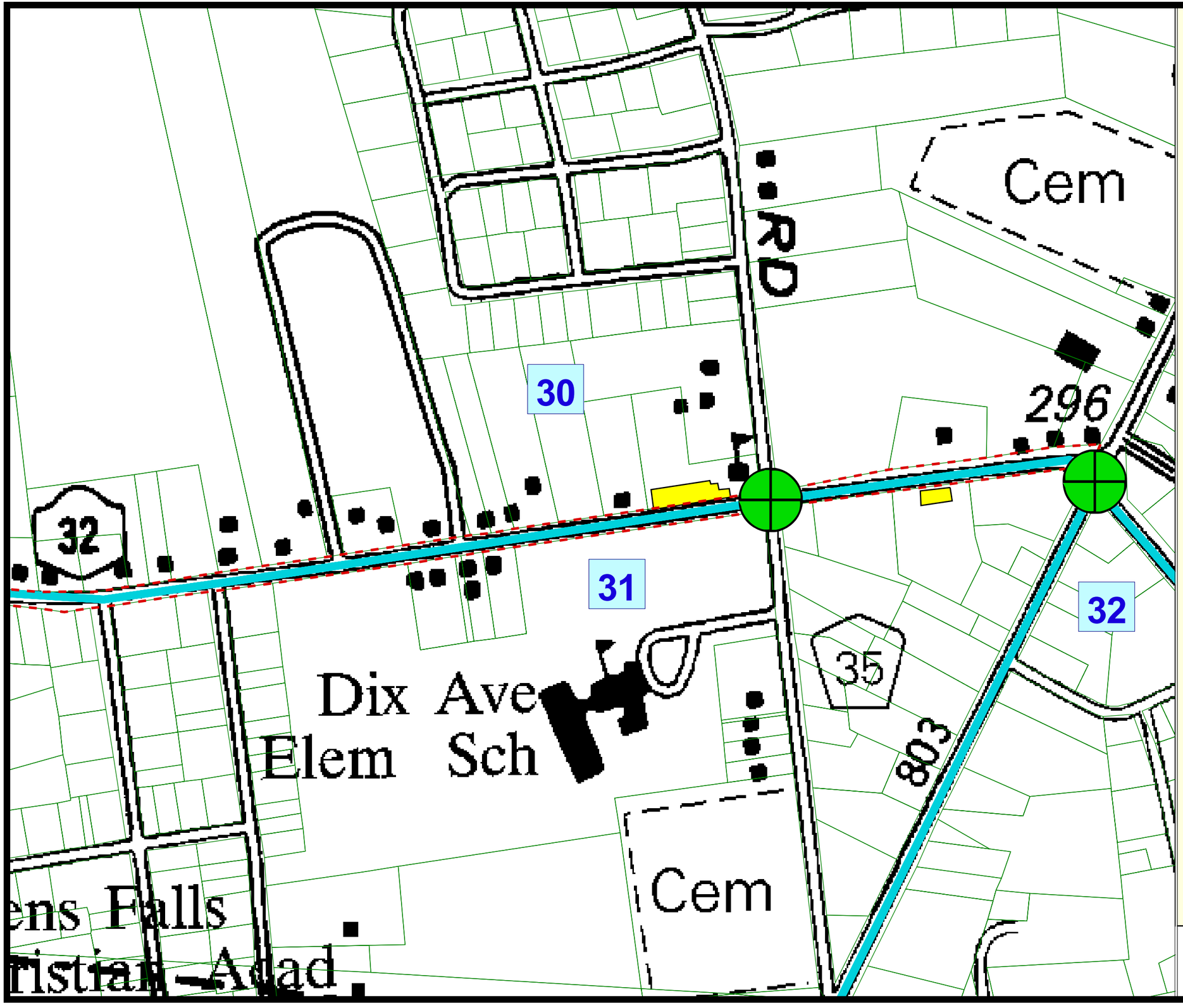
DIX AVENUE CORRIDOR

Figure 9. Existing Roadway Characteristics (Myrtle to US Route 4)



Legend

- Dix Avenue right-of-way
- Traffic analysis zones
- 8 Traffic analysis zone ID
- Signalized intersection
- Parking areas

N

200 0 200 400 600 Feet

50 0 50 100 150 Meters

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Roadway

Dix Avenue is a two-lane roadway extending eastward from Ridge Street in the city of Glens Falls to US Route 4 in the Town of Kingsbury, a distance of approximately 4 miles. One 11 – 19 foot travel lane is provided in each direction with separate turning lanes provided at the intersection with Quaker Road (NYS Route 254) and at the "tee" intersection with Ridge Street. Turning lanes at Quaker Road are 200-foot (eastbound) and 250-foot (westbound) in length. At Ridge Street, the 19-foot westbound travel lane available in this section is striped to provide separate left and right turn lanes. Pavement condition is generally good. Running speeds are typically within 6 mph of the posted speed limit of 35 mph (30 mph posted in the City of Glens Falls). The western portion of Dix Avenue, extending from Ridge Street to the Glens Falls City line, is under the jurisdiction of the City of Glens Falls. From the City line east to Highland Avenue, Dix Avenue is under the jurisdiction of the Warren County Department of Public Works. To the east, from Highland Avenue to its terminus at US Route 4, Dix Avenue is under the jurisdiction of the NYSDOT.

Right-of-Way

Review of information provided by the City of Glens Falls, Warren County, and Washington County shows that Dix Avenue provides a 66-foot typical right-of-way throughout the City of Glens Falls, tapering down to 50-foot typical from the City line east to Route 4. In the vicinity of the Quaker Road intersection, the right-of-way flares out to 66-foot to support turning lanes on both the east and west Dix Avenue approaches.

Existing Traffic Signals

Traffic signals are provided at six cross street intersections and at the Town of Queensbury fire station located approximately ¼ mile west of Queensbury Avenue. The fire station signal normally operates in a "caution" mode, flashing yellow toward the mainline approaches. Of the six cross street signals, three (Vaughan, Dean/Feeder and Queensbury Ave.) are two-phase, semi-actuated signals giving priority to Dix Avenue. There are no separate turning phases provided on any approach. The Dix Avenue/US Route 4 signal is two-phase, fully actuated, providing varying cycle lengths on all approaches in response to traffic conditions. Again, there are no separate turning phases provided. At the "tee" intersection of Dix Avenue and Ridge Road, a semi-actuated configuration is present with Ridge as the mainline. Green time on Dix Avenue varies according to demand.

The only fixed time signal along the corridor is the four-phase configuration at the Dix Avenue/Quaker Road (NYS Route 254) intersection. This signal was recently upgraded to operate on 60 to 90-second cycle lengths that provide separate east-west and north-south left-turn phases. The 1998 study *"Route 254 Signal Coordination – Final Report"* prepared for the Town of Queensbury developed optimal cycle lengths at this signal as part of a coordination effort that would extend from the I-87 intersection east to River Street/Warren Street in Glens Falls. The suggested signal timings at Dix Avenue result in 60 seconds cycle lengths during the AM and Midday peak periods and a 90 second cycle length during the PM peak period. This timing configuration was implemented in Fall, 1999.

Existing Access

Existing access along Dix Avenue varies throughout the corridor. Curbed sections are present in Glens Falls, but for the most part, open, uncontrolled access prevails. Uncontrolled access defines the area along the frontage of a parcel where vehicle turning movements may be negotiated without being contained to strict turning channels or lanes. Turns may be negotiated from any point along the property frontage, causing conflicts with both internal site and on-street traffic. Controlled access is present at newer commercial/retail development in the vicinity of Quaker Road or US Route 4. Existing access is shown for each segment of the corridor on Figures 10 through 15. Driveways and curbcuts are located throughout the corridor, with standard spaced access points located at the western end in Glens Falls. In this section, residential driveways are generally paved and situated in a section of roadway where curbing is provided. To the east, in the remainder of Queensbury and Kingsbury, residential driveways are often unpaved and curbing is not present.

Commercial driveways vary in width and design as well. Generally, the newer developments, such as the K-Mart, McDonald's or Hess located in the vicinity of Quaker Road or the Rite Aid located at the US Route 4 intersection, have standard width curbed access points while older developments have uncontrolled access.

Intersection Geometry

Most intersections along the Dix Avenue corridor feature one approach lane in all directions with no separate turning lanes. The exceptions are the intersections with NYS Route 254 and the "tee" intersection at Ridge Street, where left and right turn lanes are provided. Turning radii are typically 20 feet in the older curbed sections in Glens Falls and vary from <20 to 40 feet in shouldered sections along the corridor. Intersections that support high volumes of truck turning movements, or are projected to in the future, will require longer radii to accommodate these movements. The A/GFTC has identified Ridge Street, Cooper Street, Queensbury Avenue, Quaker Road and US Route 4 as intersections where frequent truck turning movements occur.

Parking Areas

On-street parking is allowed on Dix Avenue in the residential section in Glens Falls. No parking is allowed in the commercial section extending from the City line to Quaker Road. To the east, residential parking within the right-of-way parallel to the roadway occurs regularly. Several commercial surface parking lots are provided adjacent to Dix Avenue, the largest being the approximately 1,200 space lot at the K-Mart. Access to this lot is controlled via three site drives. Older commercial lots, such as the lot at Price Chopper or the Chevrolet dealer in Glens Falls have open access fronting the facility that can be used for parking.

Signs

Signs along the corridor are generally in fair condition, but the majority are deteriorated enough that they would not be able to be reused as part of a highway improvement project. The level of signing and placement seems appropriate for the existing conditions. There are numerous special

DIX AVENUE CORRIDOR

Figure 10. Existing Access to Dix Avenue (Ridge to Platt)

Legend

- Dix Avenue corridor

Types of Access

- *Curb*
- *Driveway (paved)*
- *Driveway (unpaved)*
- *Fence*
- *Street*
- *Uncontrolled*

200 0 200 400 600 Feet

50 0 50 100 150 Meters

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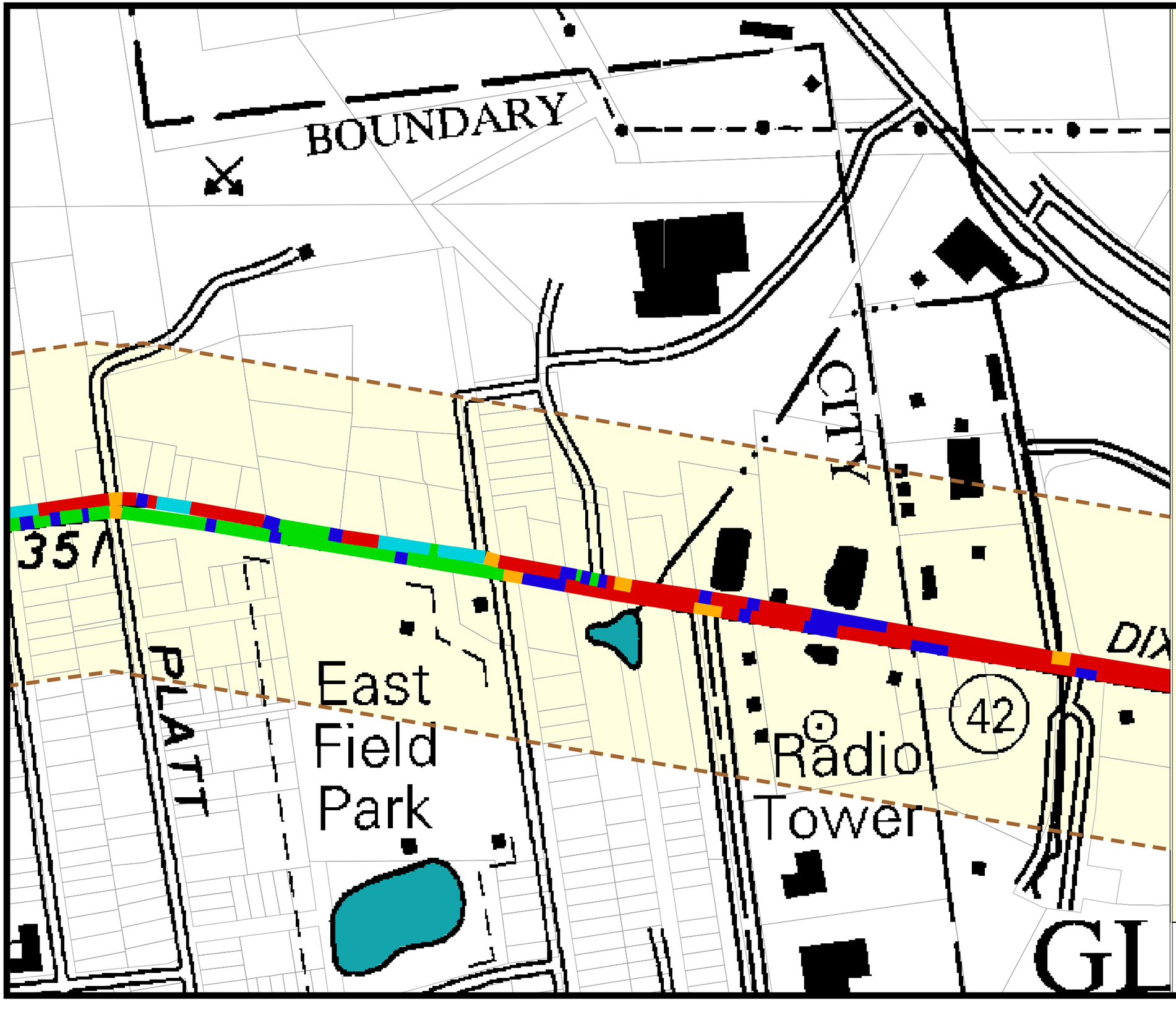
DIX AVENUE CORRIDOR

Figure 11. Existing Access to Dix Avenue (Platt to City Line)



Legend

- Dix Avenue corridor

Types of Access

- *Curb*
- *Driveway (paved)*
- *Driveway (unpaved)*
- *Fence*
- *Street*
- *Uncontrolled*

N

200 0 200 400 600 Feet

50 0 50 100 150 Meters

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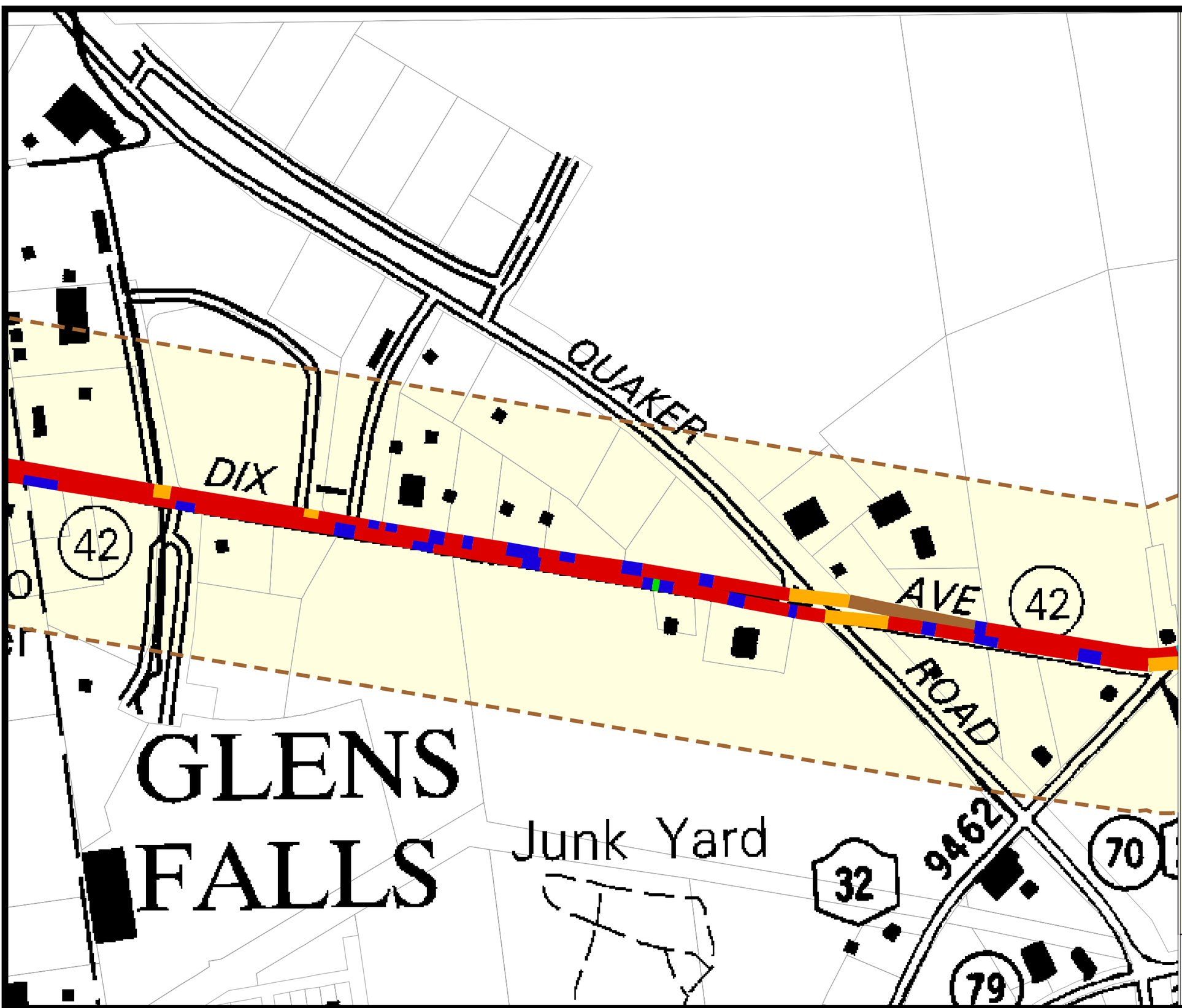
DIX AVENUE CORRIDOR

Figure 12. Existing Access to Dix Avenue (City Line to Highland)



Legend

- Dix Avenue corridor

Types of Access

- *Curb*
- *Driveway (paved)*
- *Driveway (unpaved)*
- *Fence*
- *Street*
- *Uncontrolled*

N

200 0 200 400 600 Feet

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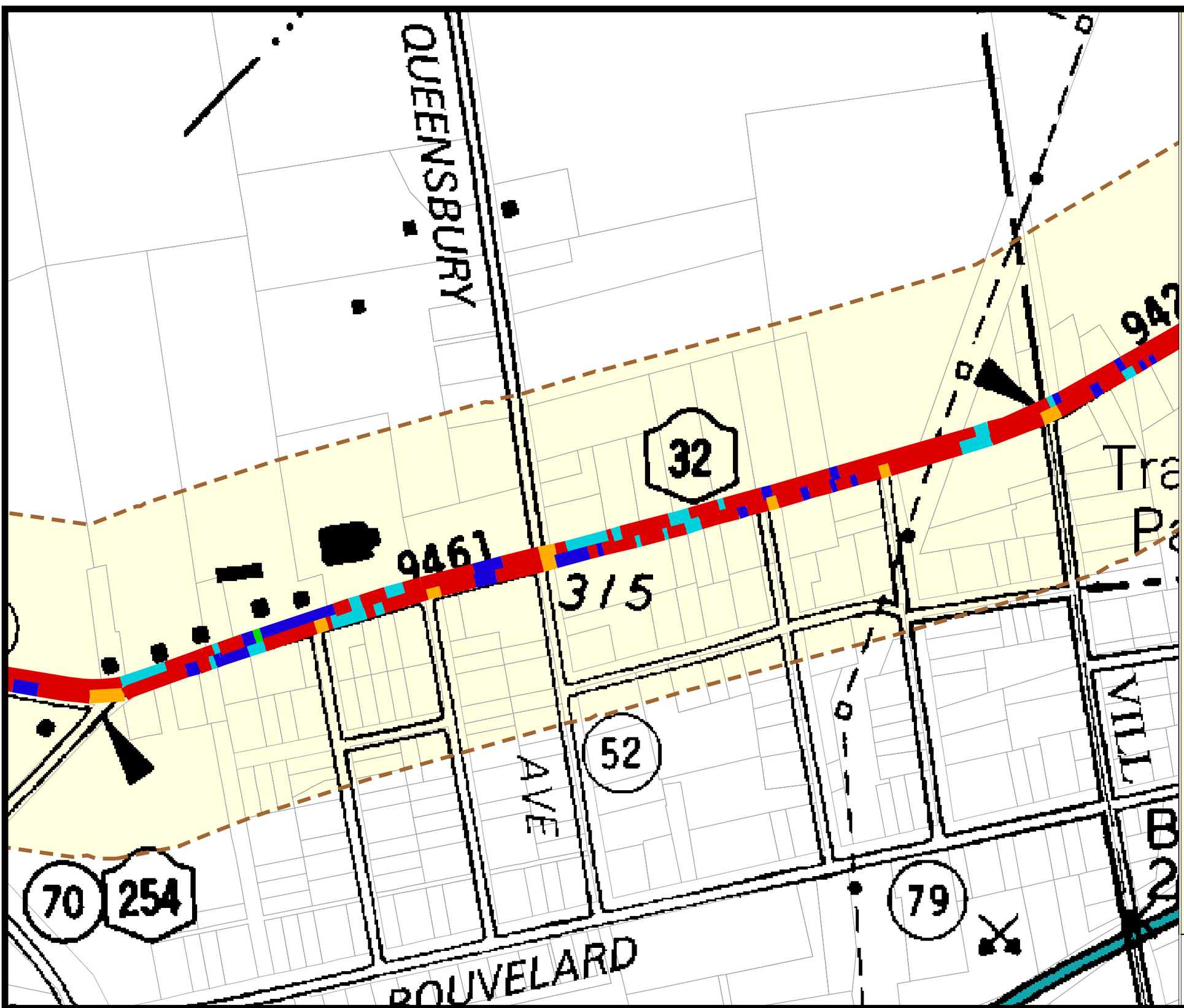
DIX AVENUE CORRIDOR

Figure 13. Existing Access to Dix Avenue (Highland to Co. Line)



Legend

- Dix Avenue corridor

Types of Access

- *Curb*
- *Driveway (paved)*
- *Driveway (unpaved)*
- *Fence*
- *Street*
- *Uncontrolled*

N

200 0 200 400 600 Feet

50 0 50 100 150 Meters

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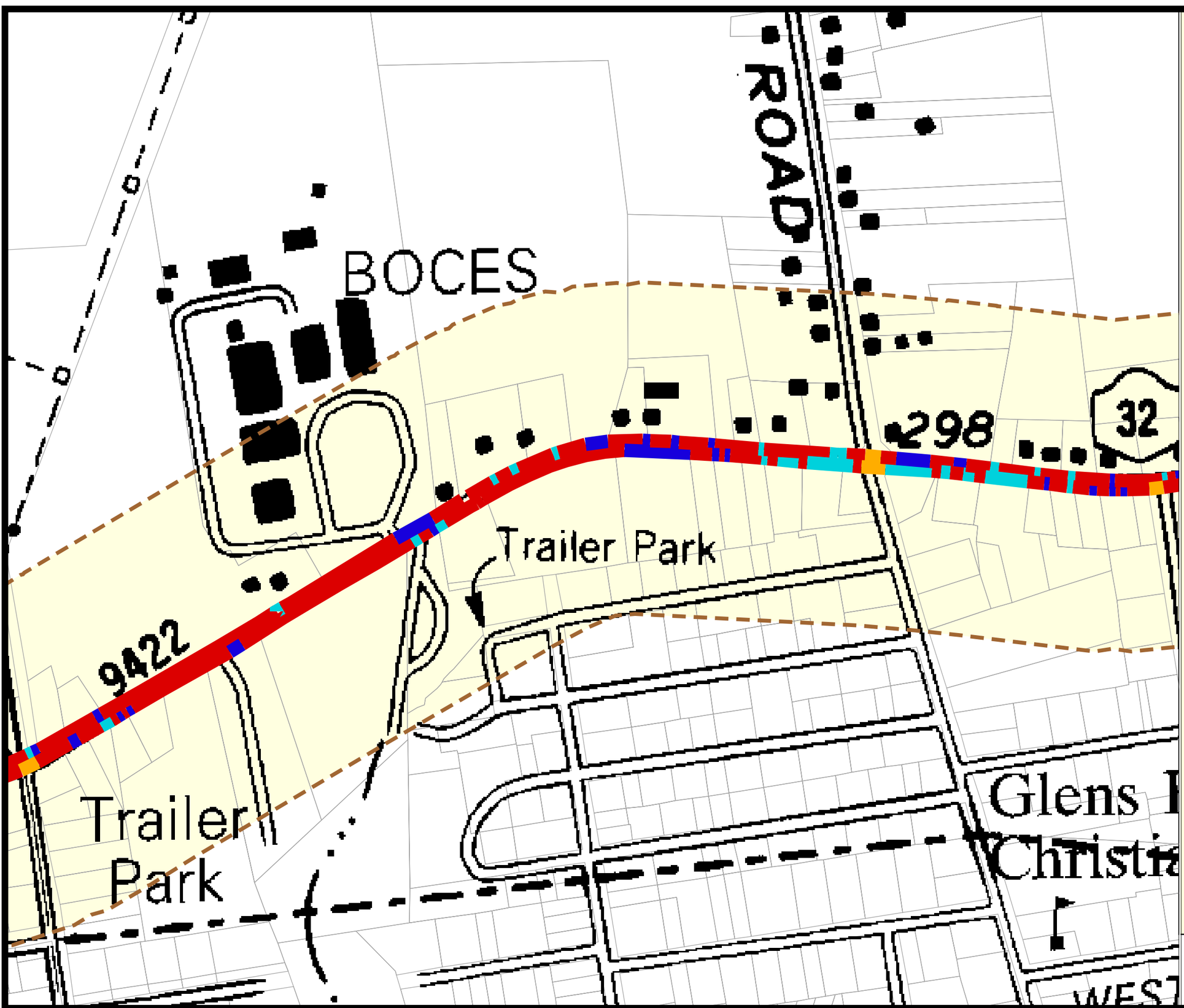
DIX AVENUE CORRIDOR

Figure 14. Existing Access to Dix Avenue (Co. Line to Myrtle)



Legend

- Dix Avenue corridor

Types of Access

- *Curb*
- *Driveway (paved)*
- *Driveway (unpaved)*
- *Fence*
- *Street*
- *Uncontrolled*

N

200 0 200 400 600 Feet

50 0 50 100 150 Meters

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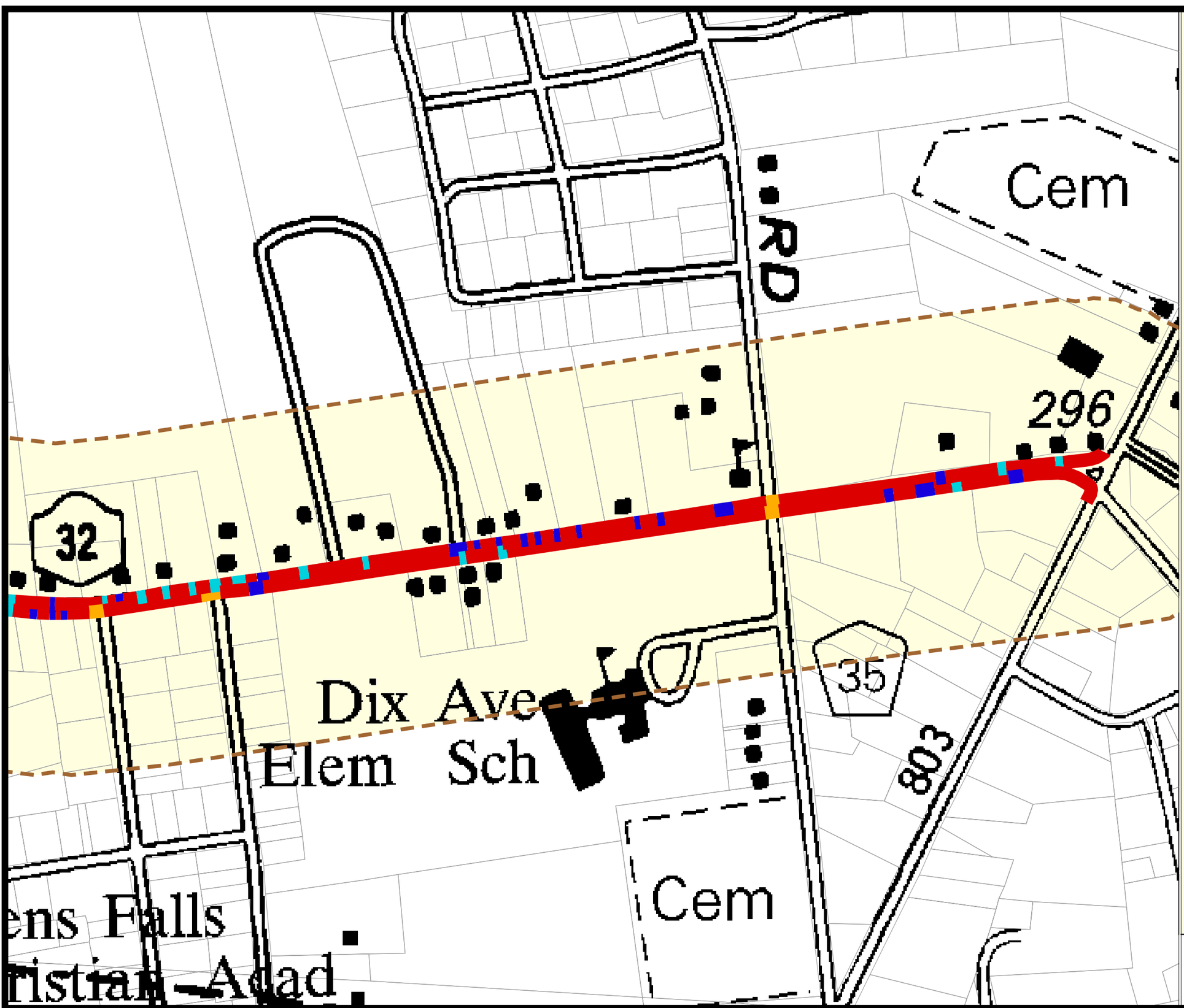
DIX AVENUE CORRIDOR

Figure 15. Existing Access to Dix Avenue (Myrtle to US Route 4)



Legend

- Dix Avenue corridor

Types of Access

- *Curb*
- *Driveway (paved)*
- *Driveway (unpaved)*
- *Fence*
- *Street*
- *Uncontrolled*

N

200 0 200 400 600 Feet

50 0 50 100 150 Meters

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signs found throughout the length of the corridor, including several business signs in decorative planters or landscaped areas in close proximity to the roadway.

Freestanding Light Fixtures

Street lighting is provided along the length of the project, although somewhat sporadically. With the exception of one pole at the BOCES entrance, all lighting is mounted on utility poles. Lights are spaced fairly regularly within the Glens Falls city limits, but there is a gap through the commercialized area up to Quaker Road. After Quaker Road, lights are spaced fairly regularly to the Warren County line. In Washington County the lights are more widely spaced, primarily being placed at intersections. The lighting arms appear to be in fair condition for the most part, and would likely be replaced as part of a major construction project.

Above-Ground Utilities

Electric, telephone and cable are carried for the length of the project overhead, with an occasional underground service drop. In the City of Glens falls, poles are located between the sidewalk and curb, and switch back and forth from one side of the road to the other. Outside the City and to the eastern limit of the project, poles appear along both sides of the roadway to accommodate the main transmission lines and customer service drops. These poles are generally located at least 1 meter from the edge of shoulder pavement. Street lighting is mounted to many of these poles, as described earlier. Toward the eastern project limit in Washington County, many abandoned poles remain on the north side of the road.

Underground Utilities

Storm drainage is accommodated in several different ways throughout the corridor. Both the City of Glens Falls and Warren County utilize closed drainage systems with drop inlets of varying size and type. Most are in fair to poor condition, with several of the inlets in the City completely filled with silt. Washington County utilizes some closed drainage, but where the majority of the water cannot be removed by road side ditches, large “drywells” are used to collect runoff and slowly dissipate it into the ground. Several of these “drywells” were full of water during a site visit, in spite of no precipitation falling for several days.

Water lines run the entire length of the project with sanitary sewer lines present in a few locations. The condition of these utilities is unknown, but many of the sewer manholes are partially or fully buried under the roadway. Numerous water valves are found within the pavement and in front of buildings for service lines throughout the length. Fire hydrants appear at regular intervals throughout the corridor.

Gas valves were visible at intersections within the City of Glens Falls from the west end of the project through Leonard Street. There was no visible evidence of gas lines from Leonard Street east. Existing conditions could not be ascertained, but Niagara Mohawk crews were replacing several lengths of pipe while the field survey was being performed.

Greenspace/Landscaping

Greenspace and unique landscaping features are located throughout the Dix Avenue corridor. Several vacant agricultural parcels and woodlots are located along the eastern end of the corridor,

however, most of these parcels are available for development. Permanent greenspace locations include the East Field ball park and surrounding grounds in Glens Falls, South Queensbury Park located behind the fire station and the Hudson Falls elementary school grounds and adjacent future softball fields in Kingsbury.

Unique landscaping generally involves public/private plantings around monument signs or at site drive entrances. This type of feature is located sporadically through the corridor.

Pedestrian/Bicycle Facilities

Pedestrian sidewalks and Bike Trails are located in portions of the Dix Avenue corridor. Pedestrian/Bicycle facilities are covered in detail in section IX of this report.

Wetlands

A review of federal and NYSDEC wetland maps has determined that no impacts will be exacted on existing wetlands. Wetlands in proximity to the Dix Avenue corridor exist in the vicinity of the Dix/Quaker intersection, although primarily to the north and southeast. These areas may be impacted by future development as the parcels containing wetlands are located close to recent commercial development, particularly to the north along Quaker Road. However, no potentially effected wetlands are located adjacent to Dix Avenue.

IV. EXISTING LAND USE

An inventory of current land use data was developed from the City of Glens Falls and Towns of Queensbury and Kingsbury's land use/zoning and master plan documents. Additional field work verifying current land uses was conducted by The Sear Brown Group, which was then organized into the following categories:

- Urban Residential
- Transitional Commercial
- Heavy Industrial
- Light Industrial
- Recreational
- Suburban Residential
- Two-Family Residential
- Multi-Family Residential
- Planned Development
- Commercial
- Vacant

The existing land use pattern along the Dix Avenue corridor is shown on Figure 16. Starting from the west, a large urban residential section in Glens Falls is evident, with commercial uses fronting on Dix Avenue. This transitions to light industrial and then commercial in the vicinity of the Quaker Road intersection. Continuing east, the predominant uses become a mix of residential, commercial and vacant parcels extending all the way to US Route 4.

DIX AVENUE CORRIDOR

Figure 16. Existing Land Use

Legend

- Dix Avenue corridor
- Traffic analysis zones
- 30 Traffic analysis zone ID

Land use (based on zoning)

- *Transitional Commercial*
- *Commercial*
- *Light Industry*
- *Heavy Industry*
- *Recreation*
- *Suburban Residential*
- *Two Family Residential*
- *Multi-Family Residential*
- *Urban Residential*
- *Planned Development*
- *Municipal/Public*
- *Vacant*

N

1000 0 1000 2000 3000 Feet

300 0 300 600 900 Meters

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To relate land use to transportation, travel demand models are often used. Travel demand models divide an area into Traffic Analysis Zones (TAZ's) in order to model the trip making patterns of the area under study. The main determinants of how many trips are made are population and economic activity. The A/GFTC's TModel2 travel demand model includes the number of households and employment within each TAZ. Employment is divided into the four categories listed below:

- Retail
- Service
- Finance/Insurance/Real Estate
- Other

The base household and employment data was obtained from the 1990 Census Transportation Planning Package. The 1990 employment data was updated to 1996 to represent more current conditions using data from the NYS Department of Labor. Likewise, population data was updated to 1996 using estimates provided by the U.S. Census Bureau. The purpose of the household and employment data is to provide a base for estimating the number of vehicle trip origins and destinations generated by each TAZ.

A description of the land use adjacent to the Dix Avenue corridor within each TAZ is provided in the remainder of this section. An estimate of undeveloped land within each TAZ is also provided as an indicator of future development potential.

Transportation Analysis Zone # 6
TAZ #6 includes the area north of Dix Avenue from Ridge Street east to the City Line. This is a residential area consisting primarily of single-family homes, with retail and commercial uses located along Dix Avenue. The Jackson Heights elementary school is located in the northern portion of TAZ #6, with several commercial uses including Bell Atlantic, Niagara Mohawk, and the Glens Falls DPW fronting on Dix Avenue. The remainder of the zone includes private residences and privately owned open land. One vacant parcel is available for sale located behind the Bell Atlantic facility east of the Niagara Mohawk site drive. Overall, there is very little undeveloped land in TAZ #6, approximately <5%.

Transportation Analysis Zone #7
TAZ #7 is located south of TAZ #6, immediately south of Dix Avenue, and extends east to Orchard Avenue and south to Warren Street. This is also a residential area consisting of several local streets with small retailers and local services located at intersections and along arterial roadways. Price Chopper market, Sam's Diner and Whiteman Chevrolet are located on Dix Avenue within TAZ #7. TAZ #7 appears to be built-out, with no vacant land available.

Transportation Analysis Zone #8
TAZ #8 is located east of TAZ #7, extending from Dix Avenue south to the Hudson River, and east to the City line. This is a transitional area, with single-family residential uses located in the vicinity of East Field and in the southern portions of the zone, and larger commercial and

industrial developments located to the west. On Dix Avenue, these uses include the Technical Park light industrial park and Harron commercial park. A large undeveloped parcel is located west of East Field, between Haskell Avenue and Technical Park. Additional lots are also available in the Technical Park development. It is estimated that undeveloped land in TAZ #8 represents <10%, however, the majority of this has been previously built and may only be suitable for specific future development.

Transportation Analysis Zone #9

TAZ #9 is located east of TAZ #8, continuing from the Glens Falls City line through the remainder of the Town of Queensbury to the Warren/Washington county line. Dix Avenue serves as the northern border of this TAZ that extends south to the Hudson River. The western portion of this TAZ consists of a mix of light industrial and retail uses, extending from the Glens Falls City line to Highland Avenue. The vacant Ceiba-Geigi site is located in this zone. This is a large area brownfield site being promoted for industrial redevelopment. The area adjacent to the intersection of Quaker Road (NYS Route 254), a major retail and commercial corridor is also located in TAZ #9. Hess Express, McDonald's, Sunoco, K-Mart, a garden store and a furniture store are all located at this intersection. A small out-parcel, located just east of the McDonalds, is currently being developed as a beverage center. From Highland Avenue eastward, TAZ #9 becomes more suburban in nature, with a mix of low-density single-family homes and commercial uses. It is estimated that 10% of the land in TAZ #9 remains undeveloped.

Transportation Analysis Zone #29

TAZ #29 is located north of TAZ #9, extending from NYS Route 254 east to the county line. Dix Avenue serves as the southern border for this zone. Land uses along Dix Avenue consist of a mix of residential, commercial and vacant agricultural lands. A 14.5 acre vacant parcel, zoned commercial, is located north of the Highland Avenue intersection. The Quaker Farms garden store, South Queensbury Park and the South Queensbury Fire Department are located along Dix Avenue within this zone. As much as 30% of the total land available in TAZ #29 may be undeveloped. Considering the proximity to the Quaker Road intersection, this zone could see significant future development.

Transportation Analysis Zone #30

TAZ #30 is a large zone extending east from the Warren County line through the Town of Kingsbury in Washington County. Dix Avenue serves as the southern boundary for the western portion of this zone all the way to US Route 4. Land uses located within this zone include single and multi-family residential, commercial, agricultural/vacant and institutional. Specific uses in TAZ #30 include the Southern Adirondack Educational Center and Washington County Project Head Start. Several pieces of land are for sale, including two large vacant parcels. The first is a 35-acre parcel, zoned residential/commercial, located just west of the Southern Adirondack Educational Center. The second is a 14.5 acre commercial parcel located across from the Hudson Falls Elementary School. It appears this plot included a drive-in theater at one time. As much as 75% of the land area in this zone is undeveloped, with the majority being agricultural or vacant.

Transportation Analysis Zone #31
TAZ #31 extends from the Warren/Washington county line east to US Route 4 and from Dix Avenue south to Boulevard Road in the Village of Hudson Falls. Land uses consist of single and multi-family residential, commercial/retail, vacant and institutional. The Hudson Falls Elementary School, Town of Kingsbury Highway Department and Rite Aid Drive-through pharmacy are located within this zone. Several existing commercial buildings are vacant and for sale, particularly in the vicinity of the Dix/Dean/Feeder intersection. This zone appears to be relatively built-out, as the boundaries of the zone extend south into the Village of Hudson Falls. There are several parcels fronting on Dix Avenue that currently feature older commercial and agricultural uses. Considering that most of these parcels are zoned commercial, re-development is likely.

Table 1 below summarizes the Dix Avenue Corridor 1996 Land Use data by TAZ.

Table 1
1996 - EXISTING LAND USE
Number of Households and Number of Employees

TAZ #	Households	F/I/RE	Service	Retail	Other
6	283	17	392	95	316
7	568	33	320	219	842
8	588	9	221	103	1641
9	221	0	29	365	956
29	161	10	18	14	186
30	644	9	11	20	129
31	438	0	400	116	111

V. EXISTING SPEEDS AND DELAY

Vehicle speed and delay data was collected along Dix Avenue during the morning, midday and evening peak hours. Speed and delay runs were conducted between 7:00 and 9:00 AM, 11:00 AM and 1:00 PM, and 4:00 and 6:00 PM on Friday, August 20, 1999. These studies provide information regarding the average travel speed, average running speed and associated delays at various locations in the corridor. Average travel speed is based on the average travel time, defined as the total time to traverse a given highway segment. Average running speed is based on the average running time, defined as the total time during which the vehicle is in motion while traversing a given highway segment. The running speed does not include stopped delay, while the travel speed does.

In order to provide a reasonable representation of existing conditions, at least two runs were conducted in both directions. The "floating car" technique was utilized in the runs. This method has the study vehicle "float" with traffic by passing as many vehicles as pass the study vehicle. During the runs, the length of time between control points and the length of delay is recorded. Delay is the time lost to travel because of traffic control devices (fixed delays) and other types of

delay such as turning vehicles, stopped school buses or congestion (operational delay). Delay is defined as stopped time delay or the time during which the vehicle is actually standing still.

During the speed and delay runs, the actual causes of delay were recorded in order to determine the main contributors to delay along the corridor. The main contribution to delay was traffic signals and congestion associated with left-turning movements at the traffic signals. Considering that the majority of the corridor is two-lane roadway with no left-turn pockets available, left-turning movements would be expected to cause significant delay.

Concern over operating speeds on Dix Avenue was voiced at the first public meeting. Table 2 presents a comparison of the posted, average travel and average running speeds on Dix Avenue during the morning, midday and evening peak travel hours. Review of Table 2 shows that Dix Avenue is running within 6 mph of the posted speed limit with a maximum average running speed of 38 mph during the peak hour analysis periods. These results are comparable to those found in NYSDOT speed data counts conducted in 1998 and 2000 on Dix Avenue in the vicinity of the BOCES driveway and near Cooper Street in Glens Falls. The one hour (off-peak) analysis at the BOCES driveway in 1998 found an average speed of 39 mph with 40% of traffic traveling at or above 40 mph. The 85^{th} percentile speed was found to be 44 mph. In April, 2000, NYSDOT conducted a week-long tube speed study in the City of Glens Falls. In this segment of the corridor, the 85^{th} percentile speed was consistently found to be approximately 35 mph. Data collected by the study team and NYSDOT suggest that Dix Avenue is operating at acceptable speeds during daytime hours. Evening/night travel speed data was not collected as volumes diminish substantially and review of accident data shows no marked increase in speed related accidents.

There is some delay associated with the signal at Dix Avenue/Quaker Road (NYS Route 254) and with the signal at Dix Avenue/US Route 4. On the westbound approach to the Quaker intersection and the eastbound approach to the Route 4 intersection, vehicle speeds are up to 20 mph below the posted speed limit of 35 mph. Average vehicle speed diagrams for the three peak periods studied are shown on Figures 17 through 19. Note the sharp drop in running speeds at the Quaker, Vaughn and US Route 4 intersections.

TABLE 2
DIX AVENUE
SPEED COMPARISON

Highway Segment:	Posted Speed (mph)	Travel Speed (mph)			Running Speed (mph)		
Dix Avenue WB		**AM**	**Midday**	**PM**	**AM**	**Midday**	**PM**
US Route 4 - Vaughn Road	35	19	25	19	24	25	24
Vaughn Road - Dean/Feeder Road	35	35	37	35	35	38	35
Dean/Feeder Road - Queensbury Road	35	37	31	33	37	35	35
Queensbury Road - Quaker Road (NYS Route 254)	35	25	15	17	33	29	33
Quaker Road (NYS Route 254) - Ridge Road	35*	33	28	26	33	30	30
Dix Avenue EB							
Ridge Road - Quaker Road (NYS Route 254)	35*	26	31	33	34	33	34
Quaker Road (NYS Route 254) - Queensbury Road	35	30	30	25	32	34	34
Queensbury Road - Dean/Feeder Road	35	31	28	32	35	35	36
Dean/Feeder Road - Vaughn Road	35	33	25	30	35	32	37
Vaughn Road - US Route 4	35	16	15	15	27	26	35

*The posted speed limit reduces down to 30 mph in the City of Glens Falls

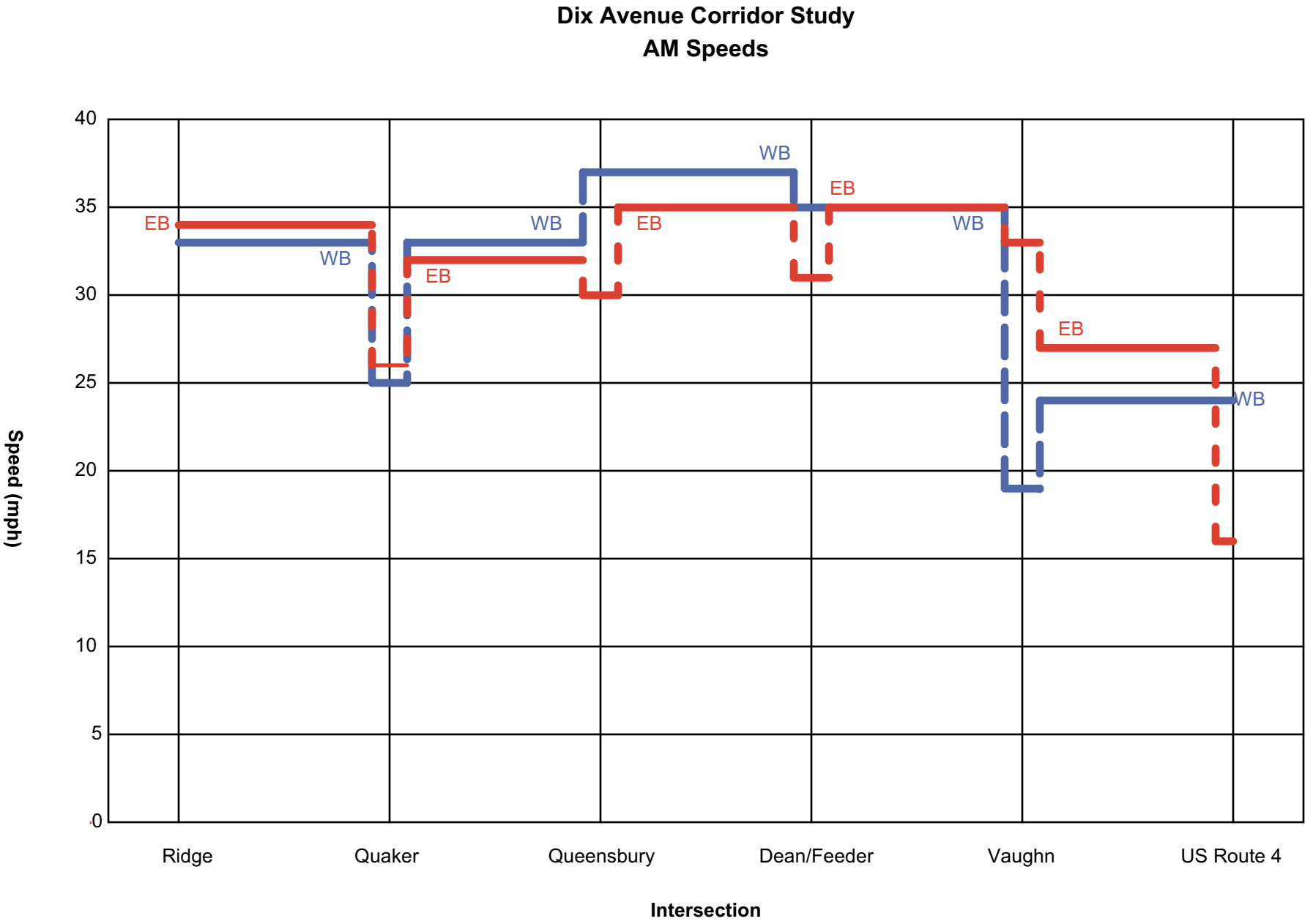

Dix Avenue Corridor Study
AM Speeds
Speed (mph)
40
35
30
25
20
15
10
5
0
EB
WB
EB
WB
WB
EB
EB
WB
EB
WB
Ridge
Quaker
Queensbury
Dean/Feeder
Vaughn
US Route 4
Intersection

Figure 17

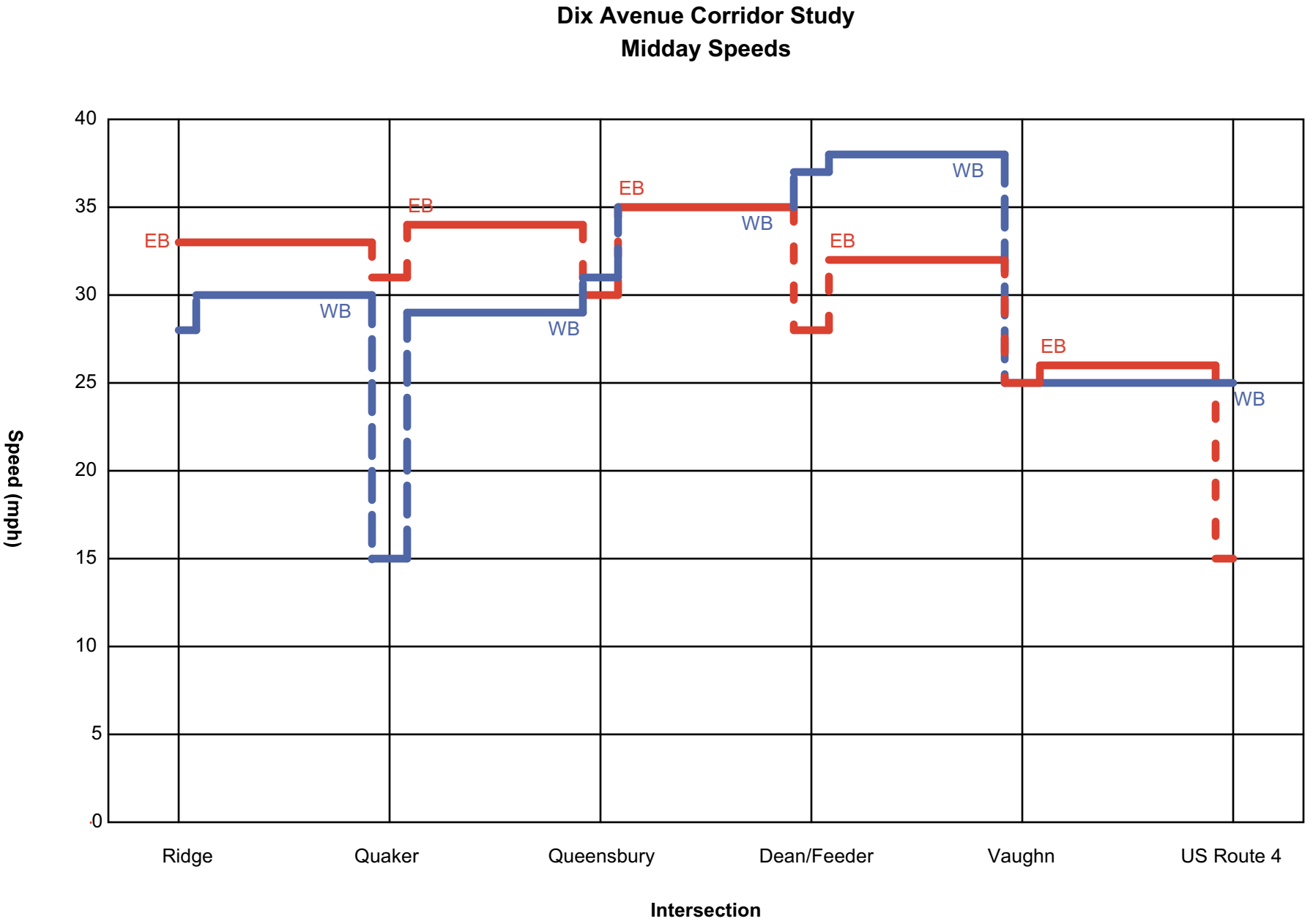

Dix Avenue Corridor Study
Midday Speeds
Speed (mph)
40
35
30
25
20
15
10
5
0
EB
WB
EB
WB
EB
WB
EB
WB
EB
WB
Ridge
Quaker
Queensbury
Dean/Feeder
Vaughn
US Route 4
Intersection

Figure 18

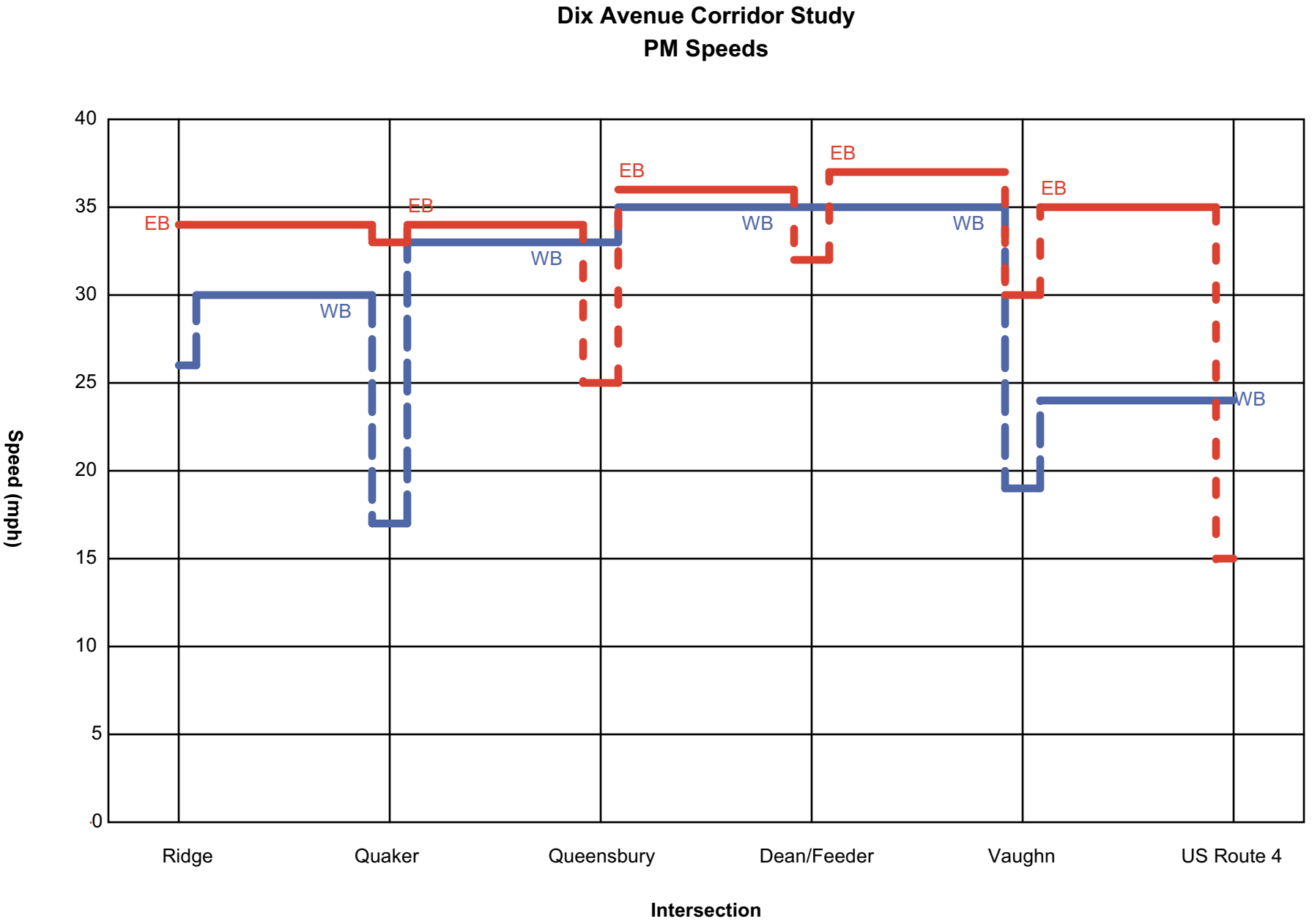

Dix Avenue Corridor Study
PM Speeds
Speed (mph)
40
35
30
25
20
15
10
5
0
EB
WB
Ridge
Quaker
Queensbury
Dean/Feeder
Vaughn
US Route 4
Intersection

Figure 19

VI. EXISTING TRAFFIC VOLUMES

Average Daily Traffic (ADT)

Average daily traffic volumes were collected from 24-hour mechanical count data obtained by Sear-Brown over a 48-hour period on August 19th and 20th, 1999. The mechanical counters were positioned at five locations along the corridor, approximately ¾ of a mile apart. The locations chosen filled in gaps in existing data, as these locations had not been counted by NYSDOT or Warren County. In addition, it was important to make sure that traffic diversion to major crossing routes would be identified. Previous traffic counts were provided by the NYSDOT (on the NYS Route 32 portion of the corridor) and Warren County Department of Transportation. The ADT and the Directional Design Hourly Volumes (DDHV) are depicted on Figure 20.

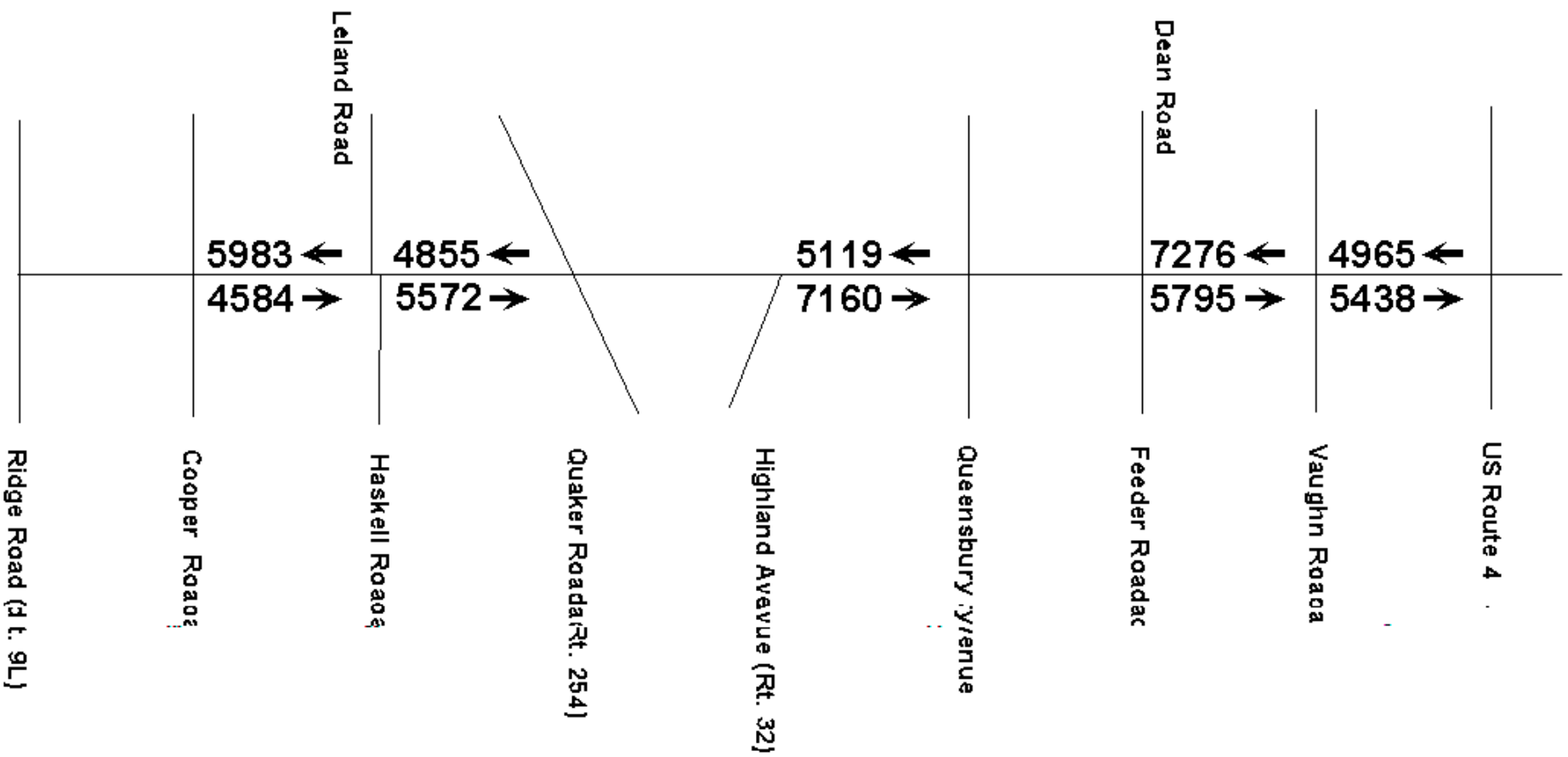
Heavy Truck Percentage

The NYSDOT Main Office has developed their "Average Heavy Truck" percentage table by investigating hundreds of vehicle classification counts for each functional class of highway throughout New York State. The averages represent what is likely to be experienced by particular highway functional classifications. Variances from the averages are usually minor. Average truck percentages were calculated from the mechanical classification counts conducted in August of 1999. The functional classification and the associated heavy truck percentage for Dix Avenue is shown in Table 3.

TABLE 3
HEAVY TRUCK PERCENTAGES

HIGHWAY	FUNCTIONAL CLASS	HEAVY TRUCK %
Dix Avenue		
Ridge Road to Highland Ave.	Minor Arterial	5%
Highland Ave. to US Route 4 (NYS Route 32 – NHS segment)	Urban Principal Arterial	7%

The 7% average truck value is not surprising on the eastern portion of the corridor considering the connection that NYS Route 32 provides between I-87 and US Route 4, a primary truck route from I-87 into Vermont. The recently completed NYSDOT Expanded Project Proposal (EPP) for US Route 4 reports an 11% truck volume to the north of Dix Avenue and a 9% truck volume to the south, in the vicinity of Fort Edward. Dix Avenue is a logical pathway for trucks accessing the Glens Falls area from US Route 4, as well as several destinations along or adjacent to the corridor.



Dix Avenue Corridor Study

Figure 20

1999 Existing AADT

THE SEAR-BROWN GROUP

NOT TO SCALE

Turning Movement Counts

Turning movement counts were taken at eight locations along the corridor during the commuter peak hours. The counts were performed between 7:00 – 9:00 AM, 11:00 AM – 1:00 PM, and 4:00 – 6:00 PM. A review of the turning movement data revealed the commuter peak hours in the corridor to be:

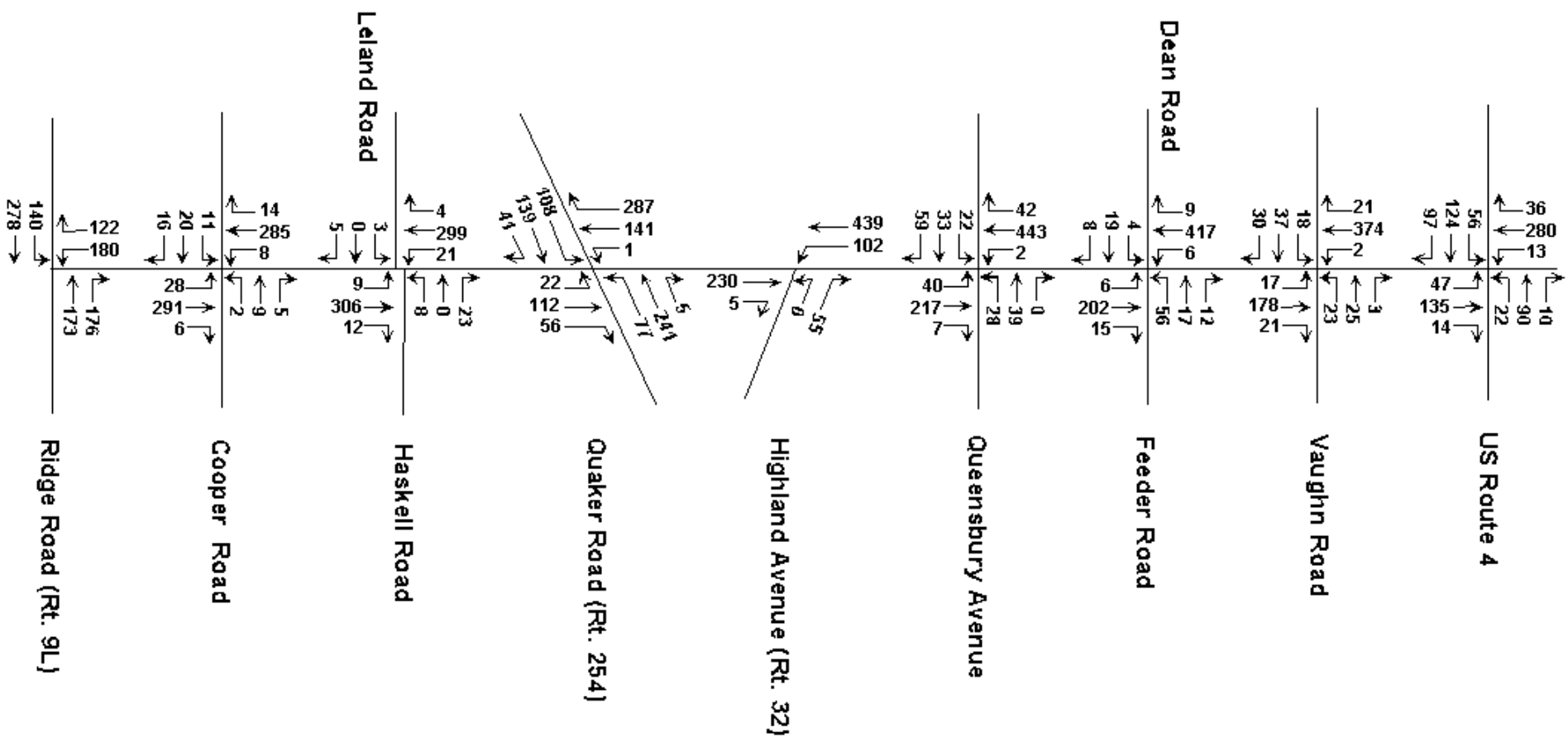
- ***Morning Peak Hour: 7:30 - 8:30 AM;***
- ***Midday Peak Hour: 11:30 AM – 12:30 PM;***
- ***Evening Peak Hour: 4:15 – 5:15 PM.***

Turning movement diagrams, depicting the morning commuter (AM), midday peak and evening commuter (PM) peak travel periods, are shown on Figures 21 through 23. Traffic volumes were found to be consistent with volumes collected in previous studies, including the "Hess Express Traffic Impact Study" conducted by Transportation Concepts, LLP, and the "Route 254 Signal Coordination Study" conducted by Vollmer Associates for the Town of Queensbury. Turning movement counts were collected on Friday August 20th, 1999 in order to obtain peak seasonal volumes associated with recreational activities in the Lake George, southeast Adirondack and Vermont areas. Additional turning movement counts were taken at select intersections in September to determine changes due to the reduction in recreational traffic, and the addition of school-related traffic. Results show an increase in peak hour movements associated with commuter and school traffic, an expected condition.

VII. EXISTING LEVELS OF SERVICE

In order to measure the quality of traffic flow through the corridor, capacity analysis was conducted. Transportation models were utilized to simulate existing conditions and provide measures of effectiveness such as the Levels of Service (LOS) or periods of delay. The transportation model used for the signalized intersections was Synchro, version 3, which produces 1994 Highway Capacity Manual (HCM) comparable delays for level of service calculations. The model used for the unsignalized intersections was Highway Capacity Software (HCS) version 3, which is based on the methodologies of the 1997 HCM. The LOS of an intersection can range from "A" to "F". The ranges of delay for each LOS category were determined from national data on the acceptability of various levels of delay by drivers. Generally, LOS for overall intersections of "D" or higher are considered acceptable. Individual movement LOS lower than "D" is sometimes acceptable if queues are not excessive, volumes are low or if all vehicles clear the intersection during every green phase. Peak hour Synchro and HCS analysis results appear in Appendix A, along with definitions of Levels of Service, as contained in the 1994 and 1997 Highway Capacity Manuals.

Table 4 presents the existing Levels of Service (LOS) at the intersections within the corridor, during the morning, midday, and evening peak hours. Note that while all of the signalized intersections on the corridor have been analyzed, not all of the unsignalized intersections have



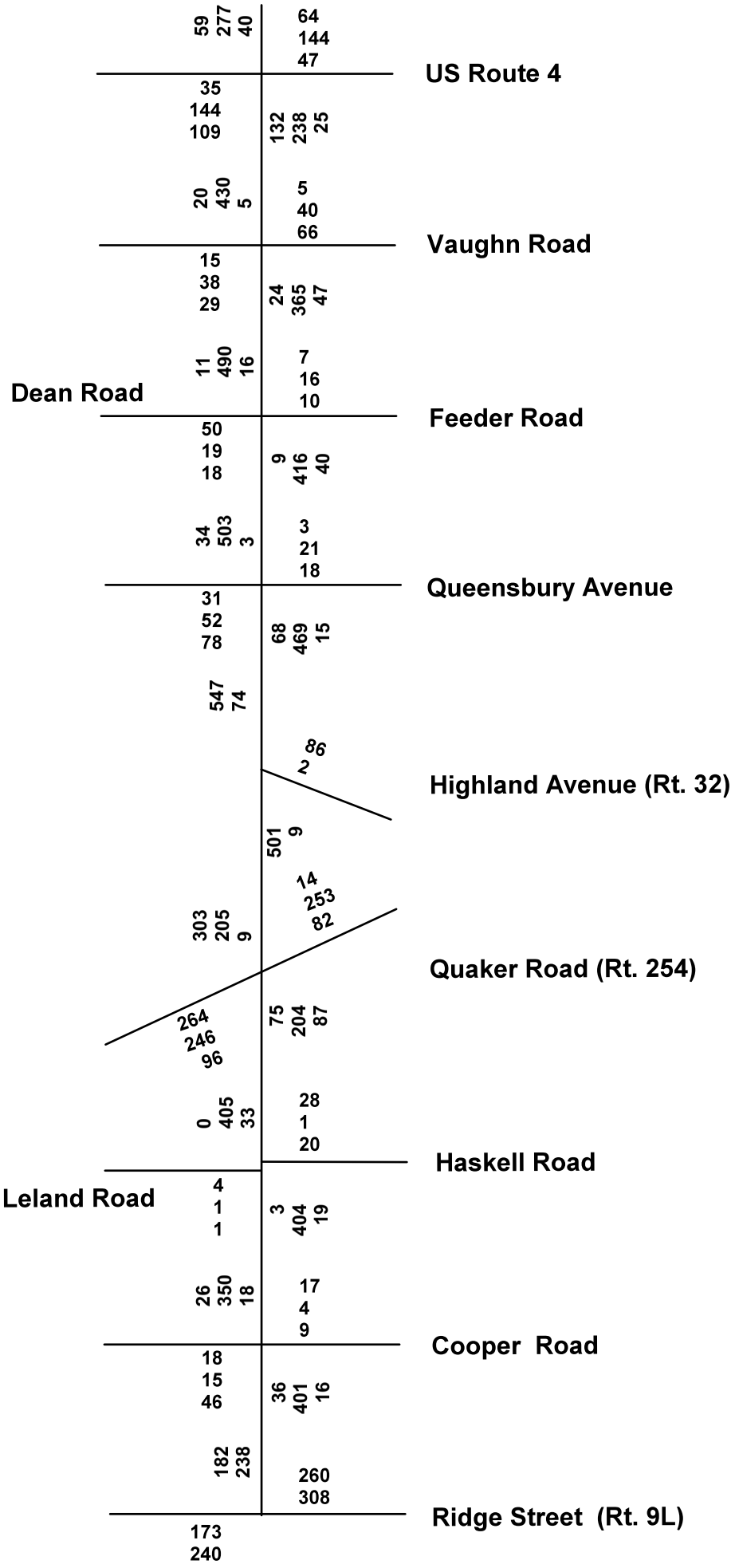
Dix Avenue Corridor Study

Figure 21

THE SEAR-BROWN GROUP

1999 Existing AM
Peak Hour Volumes

NOT TO SCALE



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W E
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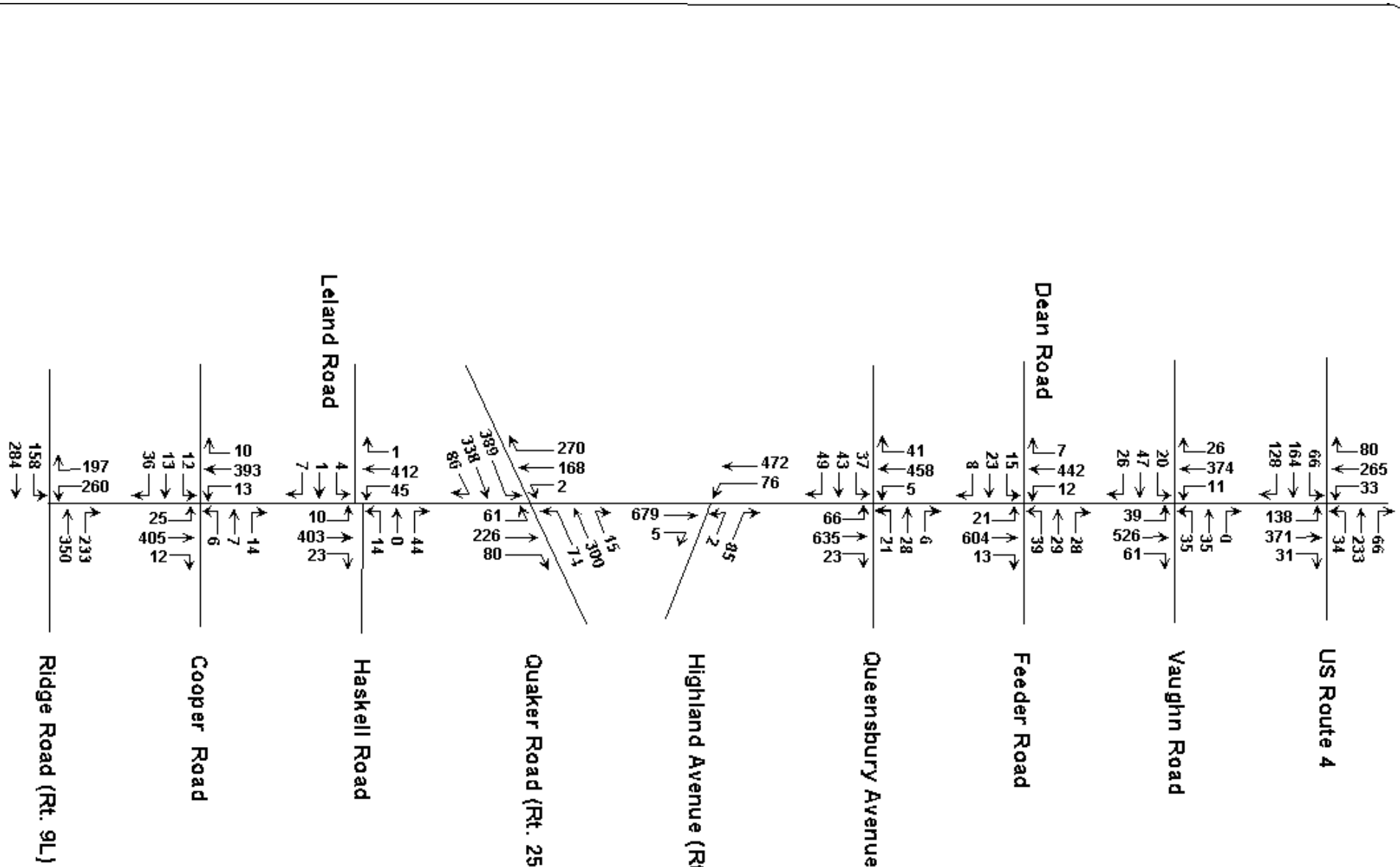
NOT TO SCALE

1999 Existing Midday Peak Hour Volumes

Dix Avenue Corridor Study

Figure 22

THE SEAR-BROWN GROUP



Dix Avenue Corridor Study

Figure 23

THE SEAR-BROWN GROUP

1999 Existing PM
Peak Hour Volumes

NOT TO SCALE

TABLE 4
OVERALL INTERSECTION LOS - EXISTING CONDITIONS

INTERSECTION of	AM LOS	Midday LOS	PM LOS
Dix Avenue with			
US Route 4	B	B	E
Vaughan Road	B	B	B
Dean/Feeder Road	B	B	B
Queensbury Road	B	B	C
Highland Road (NYS Route 32):			
EB Through	a	a	a
EB Right	a	a	a
WB Through	a	a	a
WB Left	a	a	a
NB Left	c	b	c
NB Right	c	b	c
Quaker Road (NYS Route 254)	C	C	C
Haskell Road:			
Dix Ave mainline approaches	a	a	a
Haskell Road cross street approaches	b	c	c
Cooper Road:			
Dix Avenue mainline approaches	a	a	a
Cooper Road cross street approaches	c	c	c
Ridge Avenue (NYS Route 9L)	B	B	B

Note: A = Level of Service at signalized intersection
a = Level of Service at unsignalized intersection

been included. Many intersections, such as those within the City of Glens Falls, exhibit similar characteristics to the ones chosen. The following intersection has an overall operation level below a LOS D:

- Dix Avenue with US Route 4 during the PM peak period (LOS E)

Analysis shows the eastbound left-turn movement operates at LOS "F" during the PM peak period. This left-turn movement is currently being negotiated from a single shared left/right/through lane.

VIII. SAFETY CONSIDERATIONS, ACCIDENT HISTORY AND ANALYSIS

Accident data was provided by the NYSDOT for various intersections and segments along the Dix Avenue Corridor. Data was provided for a three year period, from mid 1995 to mid 1998. Analysis was conducted to determine which, if any, locations experienced accident rates higher than the statewide average for similar facility types.

In order to evaluate accident locations, the analysis was comprised of calculating accident frequency and rate. Accident frequency is the number of accidents that have occurred at an intersection or segment during the specified period. The accident rate at an intersection is the ratio of the number of accidents for every million vehicles entering the intersection. The accident rate for a segment is the ratio of the number of accidents for every million-vehicle miles traveled within the segment. The accident rate numbers were calculated using the following formulae:

$$\textbf{Intersection Accident Rate} = \frac{\textbf{\# Accidents x One-Million}}{\textbf{ADT x Days in Study}}$$

$$\textbf{Segment Accident Rate} = \frac{\textbf{\# Accidents x One-Million}}{\textbf{ADT x Segment Length x Days in Study}}$$

As presented in the *NYSDOT 1997 Traffic Volume Report*, the 1997 AADT for this corridor was estimated to be 11,600 vehicles. There were a total of 208 accidents along the corridor during the three-year period, mainly concentrated at the intersections. Analysis showed that the following two corridor segments and five intersection locations had accident rates higher than the expected average:

Intersections:

1. Dix Ave @ Sagamore Rd
2. Dix Ave @ Cooper Rd
3. Dix Ave @ Quaker Rd
4. Dix Ave @ Highland Ave
5. Dix Ave @ Vaughn Rd

Segments:

1. Vaughn to US Route 4
2. BOCES to Dean/Feeder

Segment #1, Vaughn to US Route 4, has been classified as a Priority Investigation Location (PIL) by NYSDOT, and Segment #2, BOCES to Dean/Feeder, has been classified as a Safety Deficient Location (SDL). The seven locations are summarized below, and detailed summary sheets are provided in Appendix B. The seven high accident locations are shown on Figure 24.

DIX AVENUE CORRIDOR

Figure 24. High Accident Locations

-- Dix & Quaker --
29 accidents
1.01 accidents/MEV
0.77 expected/MEV

-- Dix & Vaughn --
16 accidents
1.15 accidents/MEV
0.77 expected/MEV

-- Dix & Sagamore --
10 accidents
0.75 accidents/MEV
0.38 expected/MEV

-- BOCES to Dean/Feeder --
23 accidents
6.04 accidents/MEV
3.94 expected/MEV

-- Dix & Cooper --
7 accidents
0.52 accidents/MEV
0.38 expected/MEV

-- Dix & Highland --
7 accidents
0.52 accidents/MEV
0.20 expected/MEV

-- Vaughn to US Route 4 --
32 accidents
8.40 accidents/MEV
3.94 expected/MEV

Legend

- Dix Avenue corridor
- Intersection accident locations (presented as absolute numbers and per million entering vehicles (MEV))
- Segment accident locations (presented as absolute numbers and per million entering vehicles (MEV))

N

1000 0 1000 2000 3000 Feet
300 0 300 600 900 Meters

This map was created from data provided by the Adirondack-Glens Falls Transportation Council, the Town of Queensbury, Warren County, and Washington County. These data sets were converted, combined, and processed using ArcView® and ARC/INFO® GIS software.

Intersection #1: Dix Avenue at Sagamore Road
City of Glens Falls, Warren County
Study Period: 4/95 to 3/98

Table 5
Accident Total and Type – Dix/Sagamore Intersection

Year	Fatal Accidents	Injury Accidents	Property Damage/Non-Reportable
1995	0	2	0/2
1996	0	1	0/2
1997	0	0	0/1
1998	0	1	1/0

Estimated ADT (1997) along this section of Dix Avenue is 12,180 vehicles (11,600 on east-west Dix approaches, plus 5% (580) on cross street). Ten total accidents occurred at this intersection during the three-year analysis period. This total results in an actual accident rate of 0.75 accidents per million vehicles entering the intersection (MEV). The expected accident rate at this type of intersection would be 0.38 accidents per MEV. Injury accidents consisted of 40% of the total, compared to an expected injury percentage of 37%. The intersection type is a 4-way unsignalized with 1-3 lanes and side street stop control.

Intersection #2: Dix Avenue at Cooper Road
City of Glens Falls, Warren County
Study Period: 4/95 to 3/98

Table 6
Accident Total and Type – Dix/Cooper Intersection

Year	Fatal Accidents	Injury Accidents	Property Damage/Non-Reportable
1995	0	0	0/2
1996	0	1	0/1
1997	0	1	0/1
1998	0	0	1/0

Estimated ADT (1997) is again 12,180 vehicles – 11,600 on mainline plus 580 on side street. Seven total accidents occurred at this intersection during the analysis period, resulting in an actual accident rate of 0.52 accidents per MEV. The expected rate for this intersection is 0.38 accidents per MEV. Injury accidents represented 29% of the total, lower than the 37% share expected. The intersection type is a 4-way, unsignalized with 1-3 lanes and side street stop control

Intersection #3: Dix Avenue at Quaker Road (Rt. 254)
Town of Queensbury, Warren County
Study Period: 4/95 to 3/98

Table 7
Accident Total and Type – Dix/Quaker Intersection

Year	Fatal Accidents	Injury Accidents	Property Damage/Non-Reportable
1995	0	3	0/2
1996	0	6	0/5
1997	0	5	1/5
1998	0	1	0/1

The estimated ADT (1997) at this intersection is 26,300 vehicles, highest along the corridor. Twenty-nine total accidents occurred during the three-year analysis period. A corresponding actual accident rate was 1.01 accidents per MEV compared to an expected rate of 0.77 accidents per MEV. Of the 29 accidents, 52% involved personal injury, a considerably higher rate than the expected share of 37%. The intersection is a 4-way signalized with 1-4 lanes.

Intersection #4: Dix Avenue at Highland Avenue
Town of Queensbury, Warren County
Study Period: 10/95 to 9/98

Table 8
Accident Total and Type – Dix/Highland Intersection

Year	Fatal Accidents	Injury Accidents	Property Damage/Non-Reportable
1995	0	0	0/0
1996	0	0	0/0
1997	0	0	1/3
1998	0	2	0/1

The estimated ADT (1997) at this point along Dix Avenue is 12,180. The total number of accidents occurring at this intersection during the 3-year analysis period was 7, corresponding to an actual accident rate of 0.52 accidents per MEV. An intersection of this type would normally be have an expected rate of 0.20 accidents per MEV. Actual injury accidents involved 29% of the total, lower than the 37% expected. The intersection type is 3-way, unsignalized with 1-3 lanes and side street stop control.

Intersection #5: Dix Avenue at Vaughn Road

Town of Kingsbury, Washington County
Study Period: 10/95 to 9/98

Table 9
Accident Total and Type – Dix/Vaughn Intersection

Year	Fatal Accidents	Injury Accidents	Property Damage/Non-Reportable
1995	0	1	0/1
1996	0	4	1/2
1997	0	2	0/3
1998	0	1	1/0

The estimated ADT (1997) at this point along Dix Avenue is 12,760 vehicles. Sixteen total accidents occurred at this intersection during the three-year analysis period, resulting in an actual accident rate of 1.15 accidents per MEV. An expected rate of 0.77 accidents per MEV corresponds to this type of intersection. 50% of the total accidents involved personal injury, higher than the 37% expected. The intersection type is 4-way, signalized with 1-4 lanes.

Segment #1: Dix Avenue from Vaughn to US Route 4
Town of Kingsbury, Washington County
Study Period: 7/96 to 6/99

Table 10
Accident Total and Type – Vaughn to US Route 4

Year	Fatal Accidents	Injury Accidents	Property Damage/Non-Reportable
1996-1999	0	11	4/8

Data for this segment analysis was provided for a three year period, from mid 1996 to mid 1999. The yearly breakdown of data was not available for the segments, as they were for the intersections. Thus, Tables 10 and 11 show only the cumulative accident information over the three year period. The estimated ADT (1997) at this point along Dix Avenue is 11,600 vehicles. Twenty three total accidents occurred along this segment during the three-year analysis period, resulting in an actual accident rate of 6.04 accidents per MVM. An expected rate of 3.94 accidents per MVM corresponds to this type of segment. 48% of the total accidents involved personal injury, higher than the 37% expected. The segment type is undivided urban section with two through lanes.

Segment #2: Dix Avenue from BOCES to Dean/Feeder
Town of Kingsbury, Washington County
Study Period: 7/96 to 6/99

Table 11
Accident Total and Type – BOCES to Dean Feeder

Year	Fatal Accidents	Injury Accidents	Property Damage/Non-Reportable
1996-1999	0	12	9/11

Again, data for this segment analysis was provided for a three year period, from mid 1996 to mid 1999. The estimated ADT (1997) at this point along Dix Avenue is 11,600 vehicles. Thirty two total accidents occurred along this segment during the three-year analysis period, resulting in an actual accident rate of 8.40 accidents per MVM. An expected rate of 3.94 accidents per MVM corresponds to this type of segment. 38% of the total accidents involved personal injury, slightly higher than the 37% expected. The segment type is undivided urban section with two through lanes, and includes the curved roadway section just east of BOCES.

During the three-year study period, 208 accidents occurred through the Dix Avenue corridor, of which 99 were non-reportable – involving no personal or property damage. Of the 108 reportable accidents, there were 52 rear ends (48%), 23 left turns (21%), and 16 right angles (15%). The expected rates are 25%, 23%, and 17%, respectively. Rear end, left turn, and right angle were also the leading accident types for the five locations discussed above.

Of the 52 rear end accidents, 12 were attributed to driver inattention and 18 were attributed to following too closely. The highest cluster of reportable rear end accidents occurred at Quaker Road, however, much of the data was collected before the left-turn lanes were installed on Dix Avenue. Of the 23 left-turn accidents, the leading causes were failure to yield right-of-way to oncoming traffic (14), and disregard for traffic control devices (3). This type of accident was scattered throughout the study area. The 16 right angle accidents were caused by disregard for traffic control (6) and failure to yield the right-of-way (8). The highest number of right angle accidents occurred at Vaughn Road.

Overall, the percentages of left-turn and right angle accidents are slightly lower than expected, but the highest percentage of both types involved failure to yield the right-of-way to oncoming traffic. In the case of left-turn accidents, this can often be attributed to the lack of protected turning phases. In the case of right angle accidents, running a red light or stop sign would constitute failure to yield the right-of-way. Inadequate roadway lighting/poor visibility and/or restricted sight distance may all be involved. The rear end accident total (48%) is nearly double the expected rate of 25%. Given the single travel lane in each direction, it is not surprising that rear end accidents occur frequently as approaching traffic must slow down, and often stop to allow turning vehicles ahead to clear.

IX. PROVISIONS FOR PEDESTRIANS AND BICYCLISTS

There are limited bicycle and pedestrian facilities within the Dix Avenue Corridor study area. Pedestrian facilities include sidewalks, curb cuts, pedestrian signals and crosswalks. In general, there are adequate pedestrian facilities provided within the residential section of the City of Glens Falls. Four to five-foot wide sidewalks are located on both sides of Dix Avenue from the intersection with Ridge Road east to Byrne Avenue. At this point, the sidewalk located on the north side of the roadway is discontinued. The sidewalk on the south side of the roadway continues east approximately six blocks to Haskell Avenue, just beyond East Field. East of Haskell Avenue, the predominant land use in Glens Falls changes from residential to open/vacant land and commercial. No sidewalks were constructed in this section of Glens Falls or through the remaining portion of the Town of Queensbury. This is a distance of approximately 1¼ miles extending from Haskell Avenue east beyond the NYS Route 254 intersection to the Warren/Washington County line, in the vicinity of Quarry Crossing Road.

Crossing into Washington County and the Town of Kingsbury, a 4-foot sidewalk is located on the north side of the roadway from just east of the Dean/Feeder intersection to the corridor terminus at US Route 4. There is a small section across from Myrtle Avenue where the sidewalk is discontinued for approximately 250 feet. A well worn dirt track along the roadway connects the two sidewalk segments in front of three residential lots. Pedestrian signals and crosswalks are provided at the Vaughan Road intersection in support of the Hudson Falls Elementary School located on the southwest corner of that intersection and the Project Head Start facility on the northwest corner.

On-street bicycle facilities are not currently present along the Dix Road corridor. Given the lack of curbing, varying shoulder widths and types and the proliferation of open commercial access, on-street bicycle operations would not be recommended. Adjacent or crossing bicycle facilities consist of one recently completed off-street multi-use trail in Glens Falls and one on-street state bicycle route, located on US Route 4 in the Town of Kingsbury.

The off-street multi-use trail in Glens Falls is the Warren County Bikeway extension, a rails-to-trails corridor that utilizes a former Delaware & Hudson Railroad branchline corridor. This trail features a 10.5-foot paved surface, with bollards to prevent auto encroachment and signage and pavement striping consistent with NYSDOT requirements. This segment connects two previously disconnected portions of the Warren County trail system, now providing a continuous link between the City of Glens Falls and the Village of Lake George located approximately seven miles to the north. To the south, the new trail connects to the Feeder Canal Trail that runs east to Hudson Falls.

The on-street bicycle trail in proximity to the corridor is NYS Bike Route 9, which runs along US Route 4 from Troy north to Whitehall and Quebec, Canada. In the vicinity of the Dix Avenue corridor, US Route 4 provides an eight-foot paved shoulder on both sides of the roadway for bike operations. Field visits revealed a significant volume of truck traffic using the shoulder for temporary parking at the Dix Avenue/US Route 4 intersection. North and southbound trucks routinely stop here in order to access a convenience store located on the southeast corner of the

intersection - adequate truck parking is not available on-site. The use of the shoulder for truck parking presents a conflict with the intended bike route operations.

A Bicycle Map for the Lake George/Glens Falls Area is produced and distributed by the A/GFTC. Pedestrian and Bicycle facilities within the study area are depicted on Figures 25 through 27.

X. TRANSIT PROVISIONS

Transit service along the Dix Avenue corridor and surrounding area is provided by Greater Glens Falls Transit (GGF Transit). Service is provided on nine fixed routes extending north to Lake George, south to Moreau and Fort Edward, and east to Hudson Falls. One route operates along a portion of Dix Avenue in Glens Falls and Queensbury, running from Ridge Road to the Super K-Mart, while a second route crosses Dix Avenue at the eastern terminus at US Route 4. Ridership on GGF Transit has been increasing by approximately 2 – 3% annually over the last three years. Approximately 2% of all travel in the greater Glens Falls area is made on public transit. A seasonal shuttle service between Glens Falls and Lake George carries a high volume of traffic in the summer months.

Bus stops are located infrequently along all GGF Transit routes. Given the lack of sufficient stop locations, a "flagging" system is used, where riders are encouraged to flag the bus from any intersection along the route. Instructions for flagging are provided in the local schedules.

All GGF Transit routes provide service during the day, with service times extending from 6:00 AM to 6:00 PM weekdays and from 8:00 AM to 5:00 PM on Saturdays. No service is provided on Sundays or Holidays. A brief description of the fixed bus routes running along or crossing Dix Avenue is provided below.

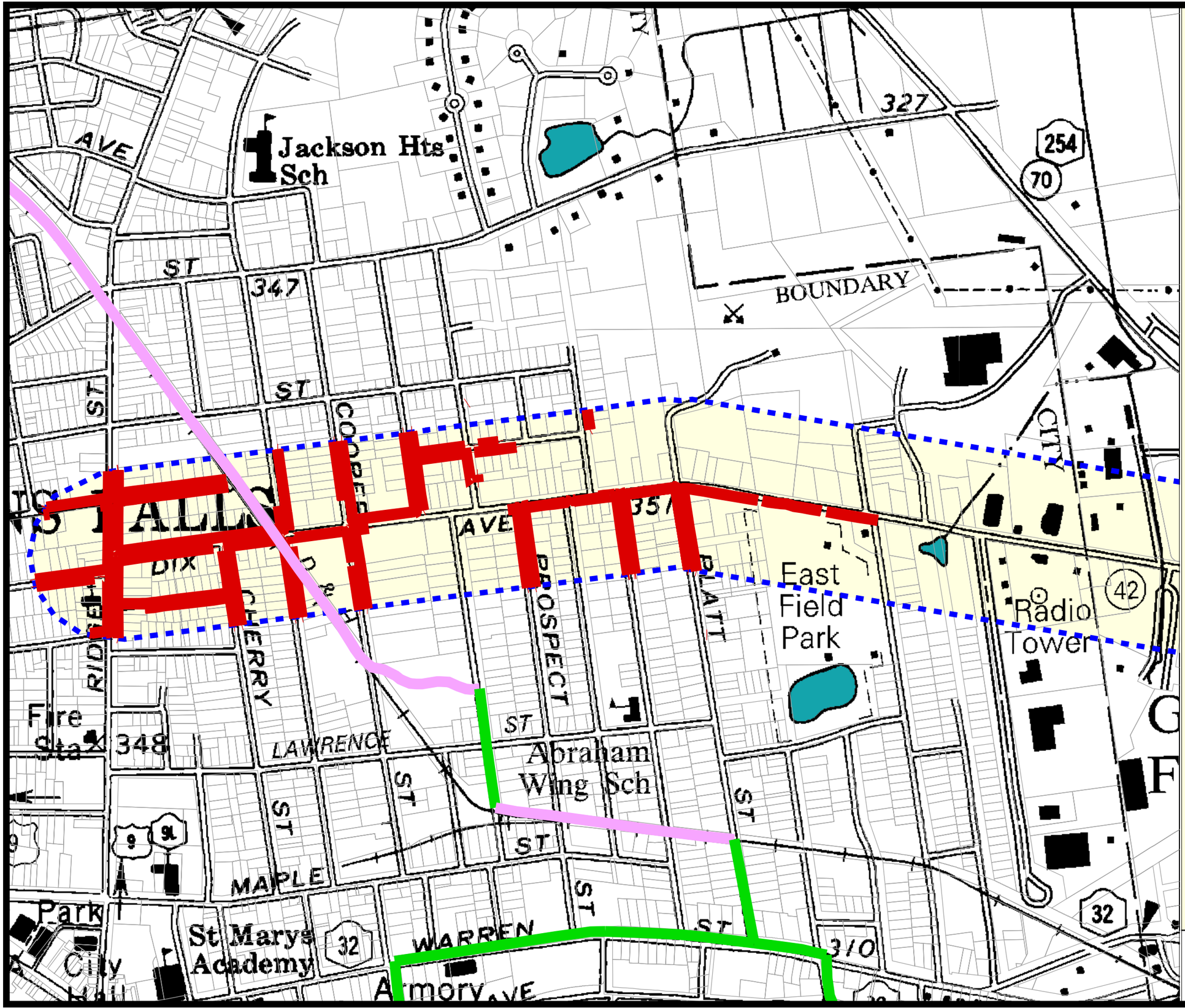
Route 3 (~7:20 AM - 6 PM)	**Ridge – East Loop** – Ridge Road north to Hartford Road, then east to Sagamore, south to Sanford, east to Uncas, south to Hunter, west back to Sagamore, south to Dix, and east to Haskell (before 9:00 AM) or K-Mart plaza (after 9:00 AM). Buses leaving K-Mart plaza travel west on Dix Avenue to Haskell, then south into downtown Glens Falls.
Route 4 (~10 AM - 5:15 PM)	**Hudson Falls – Fort Edward** - Ames Plaza south on US Route 4 to Fort Edward, or south on US Route 4 to Feeder Street, then west on Boulevard Street to downtown Glens Falls. The Ames Plaza is only serviced between 10 AM and 2 PM, and then by one bus at approximately 5 PM.

<u>Buses</u>

GGF-Transit utilizes a fleet of six 30-foot urban style buses. The buses seat up to 24 passengers. The newer buses in the fleet are 102" extra-wide and include additional amenities. There are no

DIX AVENUE CORRIDOR

Figure 25. Pedestrian and Bicycle Facilities (Western Corridor)



Legend

- Dix Avenue corridor
- Sidewalks

Recreational Trails

- *Separated right-of-way*
- *Shared right-of-way*

N

500 0 500 1000 Feet

100 0 100 200 300 Meters

This map was created from data provided by the Adirondack-Glens Falls Transportation Council, the Town of Queensbury, Warren County, and Washington County. These data sets were converted, combined, and processed using ArcView® and ARC/INFO® GIS software.

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DIX AVENUE CORRIDOR

Figure 26. Pedestrian and Bicycle Facilities (Central Corridor)

Legend

- Dix Avenue corridor
- Sidewalks

Recreational Trails

- *Separated right-of-way*
- *Shared right-of-way*

N

500 0 500 1000 Feet

100 0 100 200 300 Meters

This map was created from data provided by the Adirondack-Glens Falls Transportation Council, the Town of Queensbury, Warren County, and Washington County. These data sets were converted, combined, and processed using ArcView® and ARC/INFO® GIS software.

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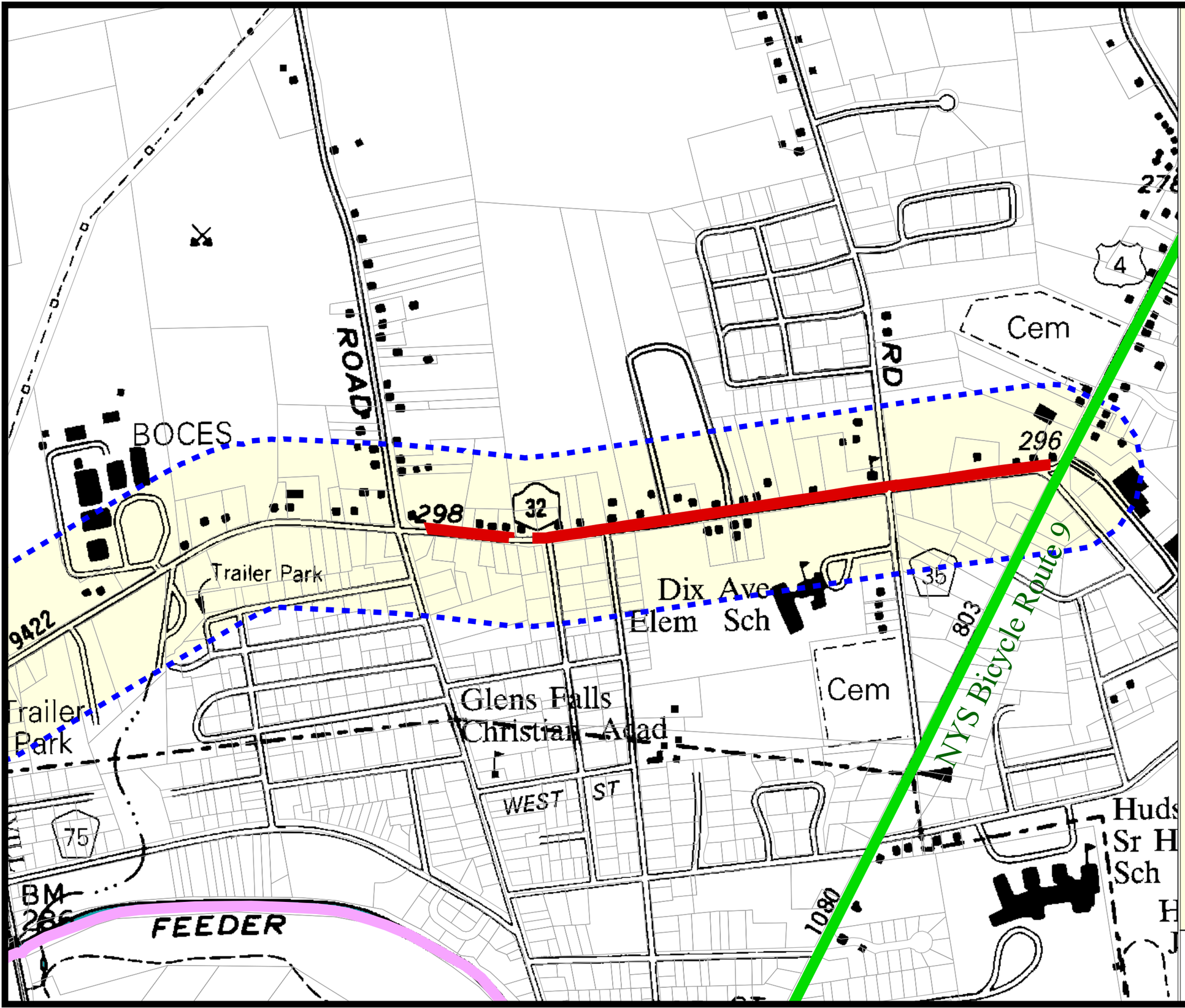
DIX AVENUE CORRIDOR

Figure 27. Pedestrian and Bicycle Facilities (Eastern Corridor)



Legend

- Dix Avenue corridor
- Sidewalks

Recreational Trails

- *Separated right-of-way*
- *Shared right-of-way*

N

500 0 500 1000 Feet

100 0 100 200 300 Meters

This map was created from data provided by the Adirondack-Glens Falls Transportation Council, the Town of Queensbury, Warren County, and Washington County. These data sets were converted, combined, and processed using ArcView® and ARC/INFO® GIS software.

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locations along the Dix Avenue corridor that have especially high levels of passengers arriving or departing by transit, however, the following two locations serve as terminus points for two GGF routes:

- Super K-Mart Plaza at Dix/NYS Route 254
- Ames Plaza at Dix/US Route 4

Buses enter the K-Mart plaza via a right-turn off of Dix Avenue at the center access driveway. The bus progresses down the main access aisle to the store entrance area where pick-ups/drop-offs occur. The bus then continues south beyond the store, turning around in the parking area and returns via the same access route, negotiating a left-turn onto Dix Avenue. At the Ames plaza, a similar pattern is used, with the bus turning left into the plaza off of Burgoyne Avenue, continuing to the entrance area, where pick-up/drop-off occurs, and then continuing west through the plaza accessing US Route 4 via a left-out turn from the west access drive.

Bus Stops, Shelters

There are three bus stop locations on the south side of Dix Avenue in the City of Glens Falls. All three are associated with the Route #3 Ridge-East Loop bus route, which runs on one-hour headways. The bus stop locations are displayed on Figure 1. Although the Route #3 bus travels westbound on Dix Avenue between the K-Mart and Haskell, there are no bus stops located along that portion of the route. None of the GGT Transit bus stops have shelters. Each posted bus stop has a recognizable GGT Transit bus stop sign, although most are faded and occasionally bent. The stop locations are not wheelchair accessible and do not meet current ADA requirements for accessibility. There are no provisions for protection from rain, snow, wind or cold.

An additional bus stop is located on southbound US Route 4, approximately 100 feet south of the Dix Road intersection in front of the Rite Aid drug store. This bus stop location is served by the Hudson Falls – Fort Edward line which also runs hourly. Again, the location is marked by a GGT Transit bus stop sign and has no weather or ADA required accommodations. This bus stop is also located at the point where truck traffic on US Route 4 routinely parks on the shoulder. In this case, a parked truck would be occupying the bus stop pull-over area.

XI. AREAS OF DEFICIENCY

The following areas of deficiency have been identified through the existing conditions review process. Potential solutions will be developed and discussed in later sections of the report.

- Uncontrolled access is present throughout the corridor – primarily commercial areas in Glens Falls, the remainder of the Town of Queensbury and the majority of Kingsbury.

- Five intersections along the corridor are high accident locations;
  Dix Avenue/Sagamore Street
  Dix Avenue/Cooper Street
  Dix Avenue/Quaker Road (NYS Route 254)
  Dix Avenue/Highland Avenue
  Dix Avenue/Vaughn Road

- Intersection Level of Service (LOS) is being compromised by lack of separate turning lanes at the Dix Avenue/US Route 4 intersection

- Significant delay is being experienced by drivers at the following intersections;
  - Dix Avenue/Quaker Road (NYS Route 254)
  - Dix Avenue/Vaughn Road
  - Dix Avenue/US Route 4

- Potential conflicts between trucks, transit and bicycles are present at the Dix/US Route 4 intersection. Specifically, the bike lanes are also used as a transit stop and for truck parking.

- Truck Routes need to be clearly identified – local and through trucks. Local trucks in Glens Falls need to be removed from residential streets connecting Warren Street with Dix Avenue.

- Pedestrian facilities (sidewalks, crosswalks) are only present in residential section of Glens Falls and in Kingsbury east of Dean Road.

- Bicycle facilities are not present along the corridor.

- Transit facilities along the corridor do not provide weather protection or meet current ADA accessibility standards.

- Street lighting is sporadically located along the corridor east of Glens Falls.

- Drop inlets in Glens Falls and eastern Warren County are in fair to poor condition – many completely filled with silt. Drywells in Washington County are not draining properly.

Specific needs and alternative solutions designed to remedy these problem areas will be identified in sections XXV and XXVI of this report.

XII. FUTURE LAND USE AND TRAFFIC CONDITIONS

Land use data is a basic component of any transportation model. The purpose of this section is to describe the land use assumptions that will be used to determine future conditions along the Dix Avenue Corridor and generate associated future traffic volumes. These volumes will then be applied to the HCS and Synchro software analysis packages in order to assess future operations at the critical intersections. In order to forecast future traffic volumes and conditions, it is necessary to have a reasonable estimate of where, when, and what type of development will occur that will influence traffic. Land use assumptions for the Dix Avenue Corridor have been developed for the short-, intermediate-, and long-term horizons. Short term development is that which is expected within the next five years – through 2005. The portion of Dix Avenue between Ridge Street and Route 254 (Quaker Road) is scheduled for a pavement rehabilitation project in 2004, therefore an estimate of conditions at the Expected Time of Completion (ETC) is needed. Intermediate-term development is anticipated to occur between 2005 and 2015, with long-term development occurring between 2015 and 2025.

This section of the report also documents the existing and estimated land use assumptions for the Dix Avenue Corridor Study and applies estimated future traffic volumes to the roadway system. These volumes will be used to evaluate alternative improvements to the transportation system and study the effect of future growth on the corridor.

XIII. EXISTING FORECASTS

Existing land uses in the corridor were reviewed through field visits and aerial photographs. 1990 and 1996 household and employment data for the area was provided by the A/GFTC. Estimates for households and employment for the year 2015 were also provided by A/GFTC. The current and forecast levels of households and employment in the Dix Avenue Corridor by Traffic Analysis Zone, as provided by A/GFTC, are shown in Table 12. This data served as a benchmark for the forecasting effort. The Zoning Ordinances and Zoning Maps for the City of Glens Falls, the Town of Queensbury, and the Town of Kingsbury were all reviewed. The *Town of Queensbury 1998 Comprehensive Land Use Plan* was reviewed, as was the *Glens Falls Transportation Council Long Range Plan*. Information was also obtained from interviews with planning and economic development staff from Washington and Warren Counties. The consultant working on the Glens Falls Master Plan was also interviewed. Using the information obtained from documents, interviews, and the existing A/GFTC forecasts, short (2005), intermediate (2015), and long range (2025) forecasts were developed for the Dix Avenue corridor. These forecasts were reviewed and approved by the Study Advisory Committee.

As seen in Table 12, the A/GFTC forecast growth in households between now and 2015 is negligible. However, total employment in the general area along the corridor is expected to increase by 13% by the year 2015.

Table 12
A/GFTC Household and Employment Estimates
Traffic Analysis Zones near Dix Avenue

	1996		2015		Change	
TAZ	Households	Employees	Households	Employees	HH	Emp
6	283	820	288	837	5	17
7	568	1414	578	1499	10	85
8	588	1974	578	2125	(10)	151
9	221	1350	225	1649	4	299
29	161	228	166	341	5	113
30	644	169	659	291	15	122
31	438	627	443	710	5	83
Total	**2,903**	**6,582**	**2,937**	**7,452**	**34**	**870**

XIV. MUNICIPAL DEVELOPMENT TRENDS

City of Glens Falls

The City of Glens Falls is currently preparing a Master Plan. Future land use plans have not yet been developed, but the assumption is that future growth will be based on re-use of existing buildings within current zoning regulations. As the Glens Falls area is fairly built-out in the vicinity of Dix Avenue, household and employment growth within the corridor is expected to be modest. The number of households in Glens Falls has increased by only 4% between 1970 and 1990.

Warren County (Town of Queensbury)

The Town of Queensbury has identified the general area around Dix Avenue as Neighborhood 10. The Queensbury Land Use Plan describes this neighborhood as "perhaps the most diverse neighborhood area, with uses including an airport, large industrial, a junkyard, large and small commercial uses, as well as both rural and relatively urban residential, and uninhabitable natural areas." A "Super K-Mart" was constructed at the corner of Dix Avenue and Quaker Road in 1993, and "a boom was predicted for the immediate area." However, "The predicted boom has not happened in quite the way it was envisioned, but commercial development does seem to be happening over time, and existing businesses in this entrance to Queensbury seem to be upgrading as well."

The Warren-Washington Industrial Park is located on Queensbury Avenue-County Line Road. There are sites available at the Park, and a second phase is planned once sewer facilities are extended to the Park. The Warren County Airport is also located on Queensbury Avenue and is used primarily for corporate and private flights.

The Queensbury Land Use Plan makes several recommendations to allow more flexible zoning to encourage commercial and industrial development, and to enhance residential neighborhoods. The recommendations that apply to the Dix Avenue corridor include the following.

1. Zone the area between Dix Avenue and Warren Street in a way that allows flexibility for industrial or large commercial uses.
2. Create an opportunity for a planned business and industrial park with zoning for either office or light industrial uses on the north side of Dix Avenue between Quaker Road and Queensbury Avenue. Expanded sewer service is a key requirement for development in this area.
3. Zone the area between River Street and the Feeder Canal to allow medium commercial, office, and residential use. This will allow existing commercial entities to develop further, but protect the Feeder Canal area.

Washington County (Town of Kingsbury)

Discussions with Washington County planners indicate no significant development in the Dix Avenue corridor. Development is primarily constrained by lack of public sewer service. For the short term, scattered commercial and residential in-fill development is expected. For the long-term, the greatest potential for development appears to be at the Warren-Washington Industrial Park discussed earlier. The Phase II development could expand the park by as much as 100 acres. Current marketing efforts are focused on high-tech or light industrial companies.

Valente Homes, located on Dix Avenue near the BOCES, is a manufacturer of high-end pre-fabricated homes. Based on recent demand, it is expected that Valente Homes will expand their facility.

XV. FUTURE DEVELOPMENT FORECASTS

For analysis purposes, the Census Transportation Planning Package (CTPP), developed by the U.S. Department of Transportation, provides a variety of trip and demographic data at the state, county and municipal levels. At the municipal level, the data is broken down further to localized units called Transportation Analysis Zones (TAZ). These zones vary in size, often corresponding geographically to census tracts.

Seven TAZ's border on the Dix Avenue corridor. A description of the adjacent land uses within each TAZ is provided in this section, followed by a description of potential growth in each TAZ that will have an influence on the Dix Avenue corridor. Projected household and employment growth for the three analysis periods (2005, 2015 and 2025) are shown on Figures 28 through 30.

Transportation Analysis Zone # 6

There are approximately 15 vacant houses/lots in TAZ #6 in proximity to the Dix Avenue corridor. It is assumed that five will be occupied by 2015, with the remaining 10 occupied by 2025. There are also several opportunities for small commercial developments along Dix Avenue, which are forecast to add 10 jobs by 2005, another 10 by 2015, and 10 more by 2025.

Transportation Analysis Zone #7

While no additional households are forecast for TAZ #7, there are opportunities for retail and commercial growth along Dix Avenue, with 5 additional employees being added by 2005, 10 in 2015, and another 10 by 2025.

Transportation Analysis Zone #8

There are approximately 20 vacant/undeveloped housing units in TAZ #8 in proximity to the Dix Avenue corridor. It is assumed that 5 will be occupied in 2005, another 10 by 2015, and the remaining 5 by 2025. The industrial parks along Dix Avenue are expected to add 30 employees by 2005, another 70 by 2015, and 30 more by 2025.

Transportation Analysis Zone #9

TAZ #9 includes a small residential district with approximately 20 vacant/undeveloped lots. It is assumed that 5 will be occupied by 2005, another 10 by 2015, and the remaining 5 by 2025. There are several development opportunities in this TAZ, including the vacant AMG building and Ceiba-Geigi site, which the City is actively marketing for redevelopment. There are also several vacant lots in the industrial park at Progress Boulevard. The Queensbury Land Use Plan recommends flexible zoning in this area for light industrial and large commercial uses. If the vacant parcels are developed as recommended, over 400 employees could be added to this TAZ by the year 2025. It is assumed that 250 new employees will be added by 2005 as the Ceiba-Geigy site redevelops, another 100 by 2015, and the remaining 75 by 2025.

Transportation Analysis Zone #29

No new residential development is expected in TAZ #29 that will influence the Dix Avenue corridor. The Queensbury Land Use Plan recommends office and light industrial uses on the north side of Dix Avenue between Quaker Road and Queensbury Avenue. Assuming with full build-out of phase II at the Warren-Washington Industrial Park, 115 new employees are expected by 2005, another 80 by 2015, and 125 by 2025, for a total of 320 new employees by 2025.

Transportation Analysis Zone #30

There are approximately 15 vacant housing lots in TAZ #30 along the Dix Avenue corridor. It is assumed that 5 will be occupied by 2005, another 5 by 2015, and the remaining 5 by 2025. Assuming that the large vacant parcels in this TAZ are developed for light industrial or business park uses, and full build-out of phase II at the Warren-Washington Industrial Park occurs, as many as 195 additional employees are forecast for this TAZ by 2025. It is expected that 80 employees will be added by 2005, another 90 by 2015, and 25 more by 2025.

Transportation Analysis Zone #31

TAZ #31 has approximately 15 vacant housing units/lots, of which 5 are assumed to be occupied by 2005, another 5 by 2015, and the remaining 5 by 2025. Commercial/Retail growth in this TAZ will primarily be in-fill/expansion, with 30 new employees by 2005, 50 more by 2015, and another 20 by 2025. The additional households and employees by TAZ and by period are summarized in Table 13.

Table 13
New Households and Employees
Dix Avenue Corridor

TAZ #	Additional Households			Additional Employees		
	2005	2015	2025	2005	2015	2025
6	0	5	10	10	10	10
7	0	0	0	5	10	10
8	5	10	5	30	70	30
9	5	10	5	250	100	75
29	0	0	0	115	80	125
30	5	5	5	80	90	25
31	5	5	5	30	50	20
Total	**20**	**35**	**30**	**520**	**410**	**295**

As shown in Table 13, the forecast for additional households in 2015 is slightly higher than the estimate developed by the A/GFTC. If the forecast growth in commercial and industrial activities is realized – 1,295 additional employees by 2025, the demand for housing for the new employees should be substantially higher than the forecast increase in number of new households in proximity to Dix Avenue. A larger percentage of new housing is not forecast in close proximity to the Dix Avenue corridor due to existing zoning and the fact that recent new housing stock has been building to the east, north of Hudson Falls. The forecast for additional employees is slightly less than that developed by the A/GFTC, and is due to the fact that some of the development in the TAZ's will be outside the Dix Avenue influence area.

Development anticipated for each of the three analysis years is shown on the previously attached Anticipated Future Development maps - Figures 28 through 30.

XVI. BACKGROUND TRAFFIC GROWTH

In addition to the new traffic generated by the forecast development along the Dix Avenue corridor, traffic along Dix Avenue is also expected to grow as a result of development outside the corridor and increased recreational traffic. In order to account for this "background growth" existing traffic volumes along Dix Avenue have been increased by ½% per year from 1999 through 2025. Projected traffic volumes for each of the three analysis horizons (2005, 2015, 2025) will include this background growth. The ½% annual growth rate is an extension of the actual historical rate of increase in traffic along the corridor from 1988 to 1997 which includes local development traffic as well as increases in through traffic. In this study, specific development traffic is accounted for separately.

In order to account for potentially extensive commercial development in the Warren/Washington IDA Park and surrounding area, a 1% annual background growth rate will be applied to traffic utilizing Queensbury Avenue. The proposed sewer extension project into this area, to be completed in 2002, is anticipated to act as a springboard for commercial development, particularly in the 2005 and 2015 time horizons.

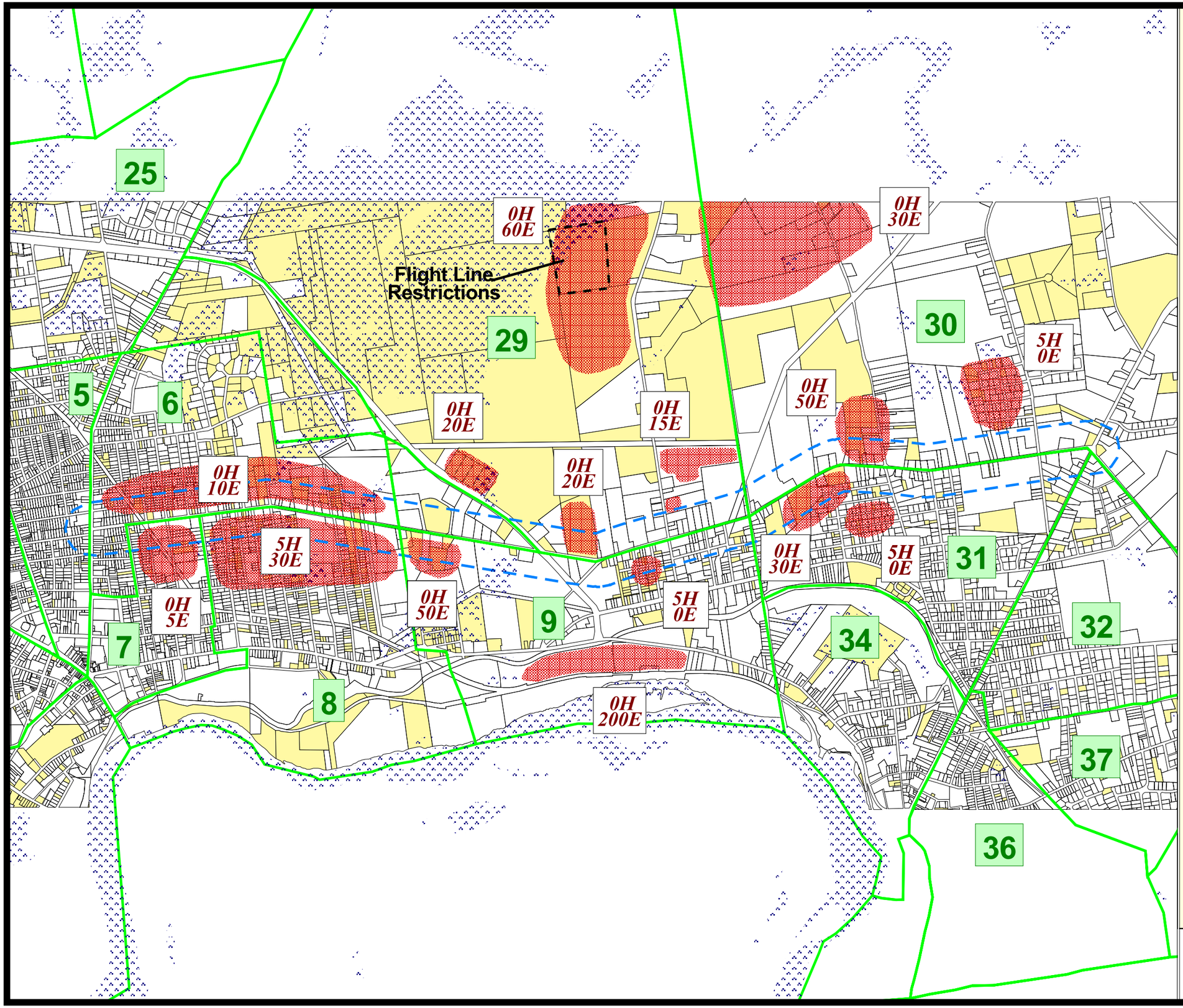
XVII. ESTIMATION OF FUTURE TRAFFIC VOLUMES

The future traffic volumes used to represent corridor traffic conditions at the 2005, 2015 and 2025 time horizons were generated through discussions with the A/GFTC and other area stakeholders focussed on the location and amount of development anticipated in and around the study area. As shown previously on Figures 28 through 30, incremental increases in development at different locations have been identified, with the primary locations for future commercial development being the Airport Industrial Area and the Ceiba-Geigy redevelopment site. As mentioned, the sewer extension project into the Airport Industrial Area is expected to generate significant commercial development once completed in 2002. The approximately 10 - 15 acre Ceiba-Geigy site and adjacent 10 acre Warren County site are the only heavy-industrial zoned sites in the County. The County site is being actively marketed currently, while the Ceiba-Geigy site is anticipated to be ready to market in 2001 upon completion of remediation.

Based on the future development assumptions, The Institute of Transportation Engineers' publication *Trip Generation, Sixth Edition* (1997) was referenced in order to determine estimates of peak hour trips associated with each development scenario. Corresponding AM and PM peak hour traffic volumes for each of the three time horizons are shown on Figures 31 and 32. These volumes include both potential development and pass-through traffic.

DIX AVENUE CORRIDOR

Figure 28. Anticipated Future Development -- 2005



Legend

- Dix Avenue corridor
- Traffic analysis zones
- 8 — Traffic analysis zone ID
- 5H / 30E — Anticipated no. of households / Anticipated no. of employees
- Vacant parcels (1999)
- Anticipated future development areas
- NYSDEC wetlands

N

1000 0 1000 2000 3000 Feet

300 0 300 600 900 Meters

This map was created from data provided by the Adirondack-Glens Falls Transportation Council, the Town of Queensbury, Warren County, and Washington County. These data sets were converted, combined, and processed using ArcView® and ARC/INFO® GIS software.

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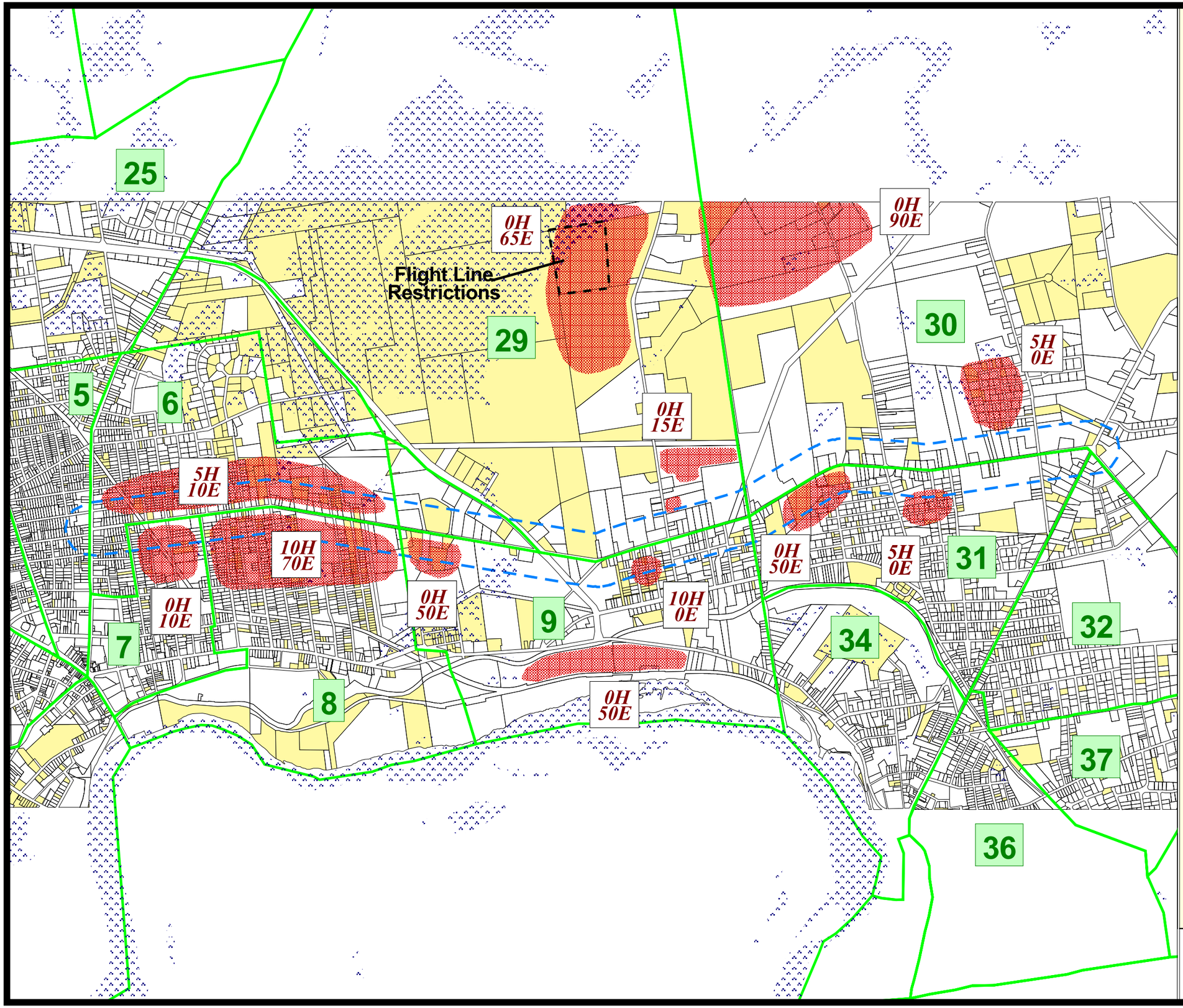
DIX AVENUE CORRIDOR

Figure 29. Anticipated Future Development -- 2015



Legend

- Dix Avenue corridor
- Traffic analysis zones
- 8 — Traffic analysis zone ID
- 5H 30E — Anticipated no. of households / Anticipated no. of employees
- Vacant parcels (1999)
- Anticipated future development areas
- NYSDEC wetlands

N

1000 0 1000 2000 3000 Feet

300 0 300 600 900 Meters

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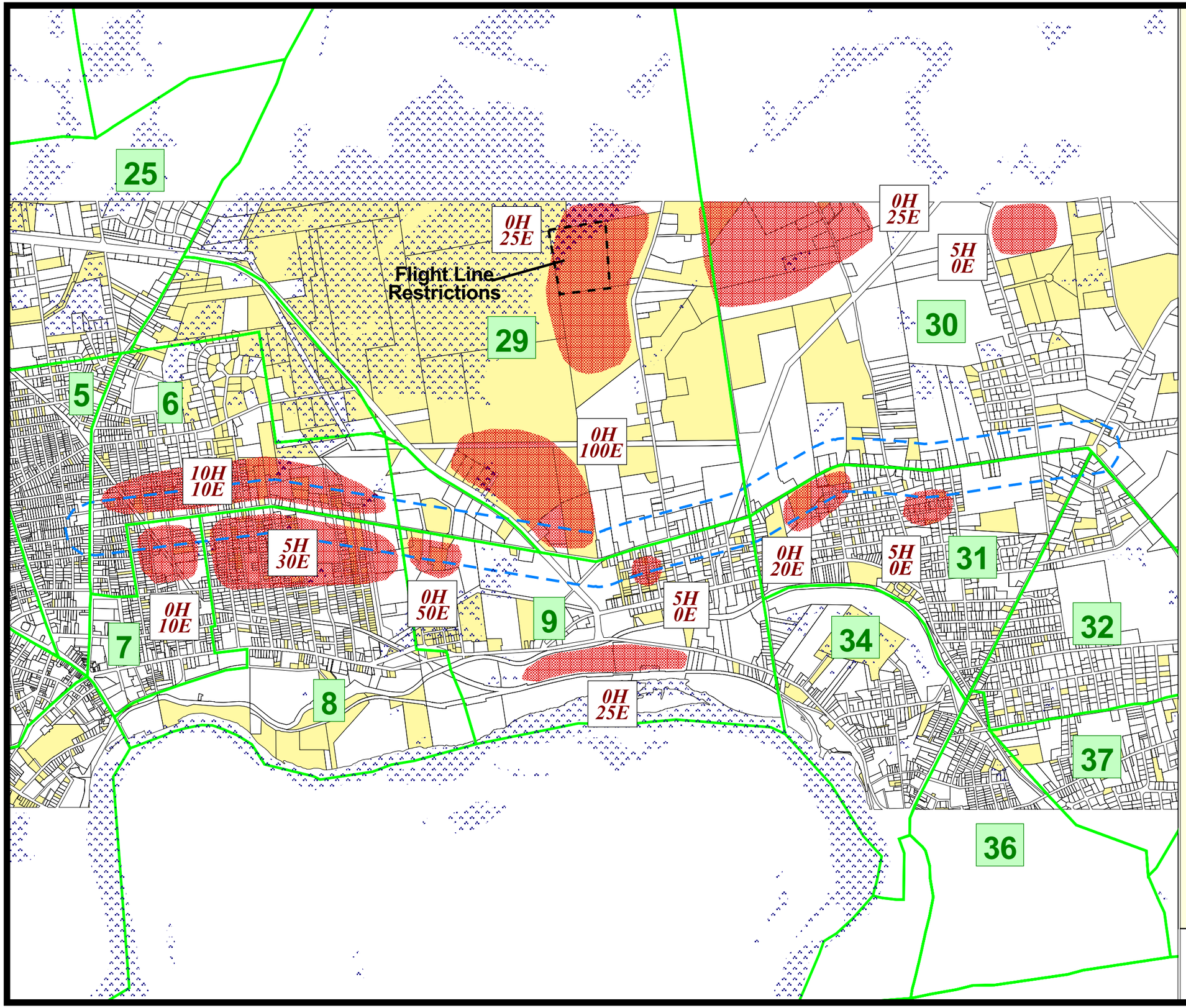
DIX AVENUE CORRIDOR

Figure 30. Anticipated Future Development -- 2025



Legend

- Dix Avenue corridor
- Traffic analysis zones
- 8 — Traffic analysis zone ID
- 5H 30E — Anticipated no. of households / Anticipated no. of employees
- Vacant parcels (1999)
- Anticipated future development areas
- NYSDEC wetlands

N

1000 0 1000 2000 3000 Feet

300 0 300 600 900 Meters

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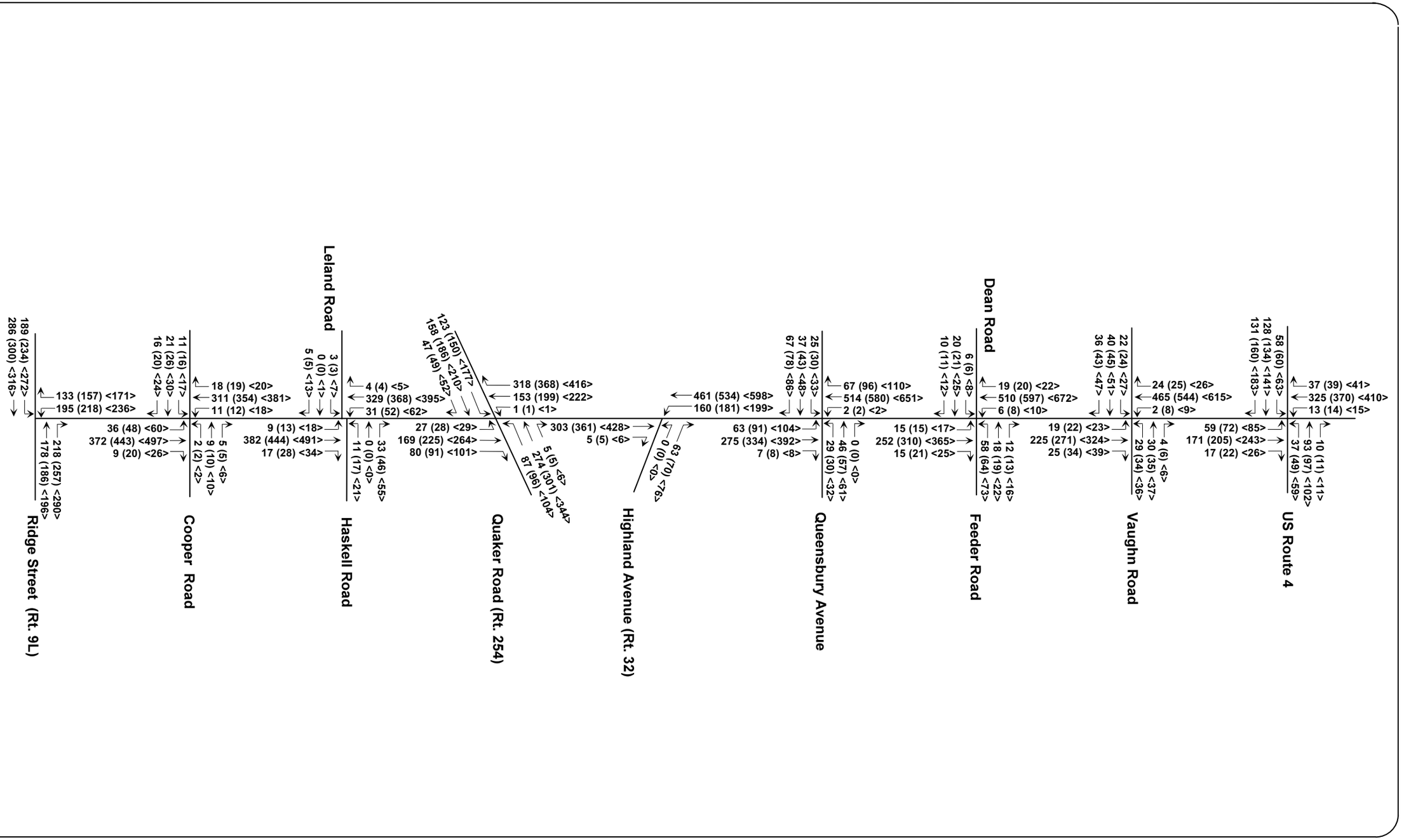


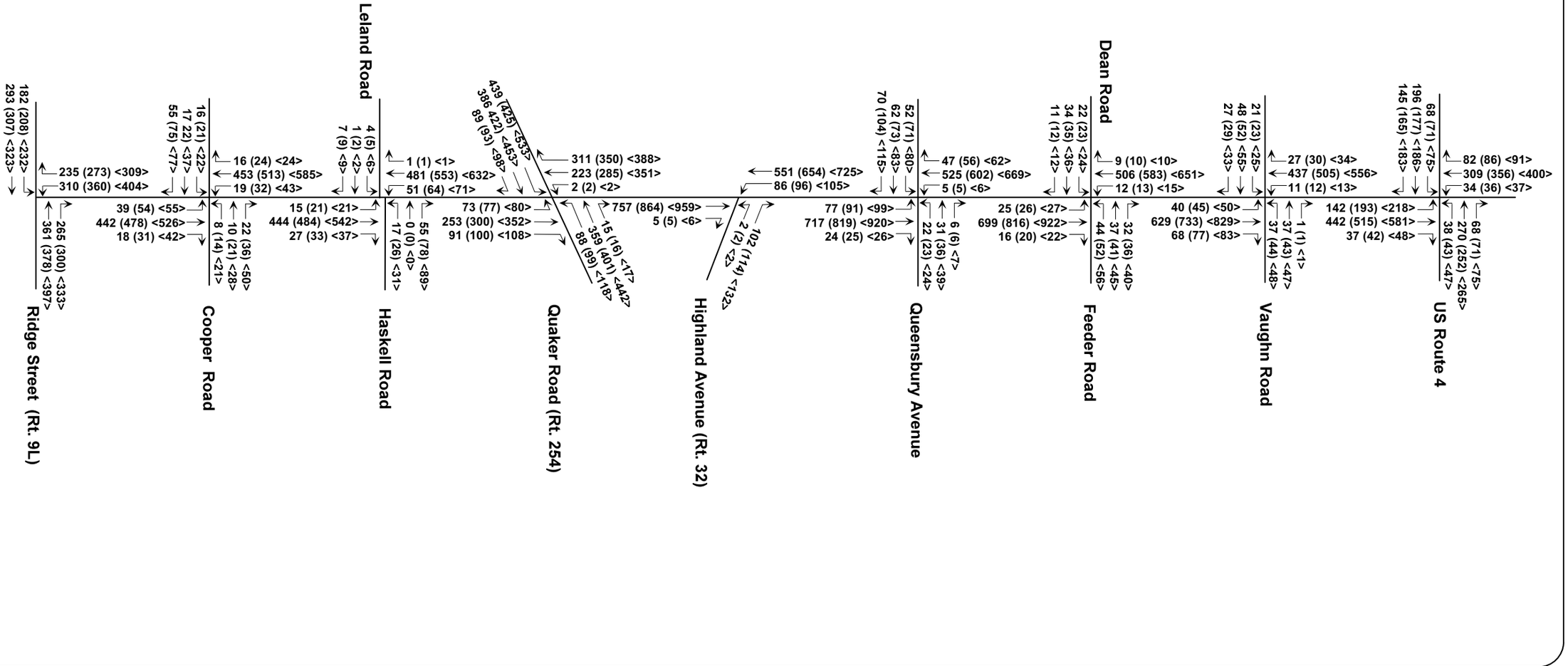
Dix Avenue Corridor Study

Figure 31

THE SEAR-BROWN GROUP

Future AM Peak Hour Volumes
2005 (2015) <2025>

NOT TO SCALE



Dix Avenue Corridor Study

Figure 32

THE SEAR-BROWN GROUP

Future PM Peak Hour Volumes
2005 (2015) <2025>

NOT TO SCALE

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XVIII. EXPECTED LEVELS OF SERVICE

Consistent with the existing conditions analysis, the projected volumes for the three time horizons were incorporated into Synchro and HCS. A description of these models and their resulting documentation is provided in section VII – Existing Levels of Service. The results of the individual intersection capacity analyses are presented in Appendix A. Synchro summary analyses reports are provided for the six signalized intersections while HCS summary reports are presented for the three unsignalized intersections. A summary of the overall intersection Level of Service (LOS) is presented in Table 14. The NYSDOT considers a LOS of "D" to be acceptable. Intersections with overall intersection and individual movement operations worse than LOS "D" are highlighted in bold letters in Table 14.

Table 14
Intersection LOS at Existing and Future Time Horizons

Location/ Movement	Existing		2005		2015		2025	
	AM	PM	AM	PM	AM	PM	AM	PM
Dix/Ridge								
Overall LOS	*B*	*B*	*B*	*B*	*B*	*B*	*B*	*D*
WB L	C	B	C	B	C	C	C	C
WB R	B	B	B	B	B	B	B	B
NB T	B	B	B	B	B	B	B	B
NB R	A	A	A	A	A	A	A	A
SB L	B	B	B	B	B	C	B	**F**
SB T	B	B	B	B	B	B	B	B
Dix/Cooper								
EB LTR	a	a	a	a	a	a	a	a
WB WTR	a	a	a	a	a	a	a	a
NB LTR	c	c	c	C	c	**e**	d	**f**
SB LTR	c	c	c	C	d	**f**	**e**	**f**

Table 14 (Continued)

	Existing		2005		2015		2025	
Location/ Movement	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
Dix/Haskell								
EB LTR	a	a	a	a	a	a	a	a
WB WTR	a	a	a	a	a	a	a	a
NB LTR	b	c	b	c	c	d	c	**e**
SB LTR	b	c	c	c	c	d	c	**e**
Dix/Quaker								
Overall LOS	*C*	*C*	*C*	*D*	*C*	***E***	*C*	***F***
EB L	C	C	C	C	C	C	C	C
EB T	C	C	C	C	C	C	C	C
EB R	A	A	A	A	A	A	A	A
WB LT	D	D	D	D	D	**E**	D	**F**
WB R	B	B	B	C	B	C	B	C
SB L	B	C	C	**E**	C	**F**	C	**F**
SB T	D	D	D	**E**	D	**F**	D	**F**
SB R	A	A	A	A	A	A	A	A
NB L	B	B	B	C	B	C	B	C
NB T	D	D	D	D	D	**E**	D	**F**
NB R	A	A	A	A	A	A	A	A
Dix/Highland								
EB TR	a	a	a	a	a	a	a	a
WB LT	a	a	a	b	a	b	a	b
NB LR	b	b	b	c	b	c	b	d
Dix/Qunsbry								
Overall LOS	*B*	*B*	*C*	***F***	***F***	***F***	***F***	***F***
EB LTR	B	B	**E**	**F**	**F**	**F**	**F**	**F**
WB LTR	B	B	B	B	C	B	**F**	B
NB LTR	B	B	B	B	B	B	B	B
SB LTR	B	B	B	B	B	C	B	C
Dix/Dean								
Overall LOS	*B*	*B*	*B*	*B*	*B*	*D*	*B*	***F***
EB LTR	A	A	A	C	A	**E**	A	**F**
WB LTR	A	A	A	B	A	A	B	B
NB LTR	C	B	C	B	C	B	C	B
SB LTR	C	B	C	B	C	B	C	B

Table 14 (Continued)

	Existing		2005		2015		2025	
Location/ Movement	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
Dix/Vaughn								
Overall LOS	*B*	*B*	*B*	*C*	*B*	***F***	*B*	***F***
EB LTR	A	B	A	D	A	**F**	B	**F**
WB LTR	A	A	A	B	B	B	B	B
NB LTR	B	B	B	C	B	B	B	B
SB LTR	B	B	B	B	B	B	B	B
Dix/US Rte 4								
Overall LOS	*B*	*B*	*B*	***F***	*B*	***F***	*C*	***F***
EB LTR	B	B	B	**F**	C	**F**	**E**	**F**
WB LTR	B	B	B	C	C	D	D	**F**
NB LTR	A	B	B	B	B	B	B	B
SB LT	A	B	B	B	B	B	B	B
SB R	A	A	A	A	A	A	A	A

A – Signalized intersection LOS; a – unsignalized intersection LOS

Review of Table 14 shows that with the existing roadway geometry and traffic control, traffic conditions at the majority of intersections along the corridor will steadily degenerate as traffic levels increase. At the 2005 PM peak hour, the signalized intersections of Dix Avenue with Queensbury Avenue and US Route 4 will fall to LOS "F" conditions. In these cases, the projected increase in both through and turning movements result in substantial average delay increases, causing the dramatic change in overall intersection LOS. This is a typical condition in suburban environments where increasing through/left/right movements are supported by a single lane.

By 2015, LOS "E" or "F" conditions will exist during the PM peak hour at the Dix Avenue signalized intersections with Quaker, Queensbury, Vaughn, and US Route 4. Unacceptable LOS conditions will also exist during the AM peak period at the Dix/Queensbury intersection, and on the north and southbound legs of certain unsignalized intersections in the City of Glens Falls. At Queensbury, Vaughn and US Route 4, the problem can again be attributed to the single through/left/right lane on each approach. At Quaker, where separate turn lanes have been added, the additional delay is associated with sub-optimal signal operations. Optimizing the signal will reduce overall delay, resulting in acceptable LOS. This was determined in a previous study by the Town of Queensbury.

With the current roadway design and signal operations, by 2025 failing LOS conditions will prevail at the majority of intersections throughout the corridor. Arterial capacity has also been examined, with analyses conducted using the HCS arterial analysis package. Projected ADT traffic volumes at the 2025 time horizon were used as the basis to measure arterial LOS during

the AM and PM peak hour periods. The segments analyzed were Queensbury to Highland and Cooper to Quaker in the City of Glens Falls. Using the existing two-lane configuration, the arterial LOS in both instances is projected to be LOS "B", suggesting that through capacity will not be required along Dix Avenue in the foreseeable future.

XIX. INTERSECTION NEEDS

As noted previously, the main contributors to delay through the corridor were traffic signals and congestion associated with left-turning movements at the signalized intersections. The lack of left-turning pockets at most major intersections along Dix Avenue will continue to cause significant delay as future traffic volumes increase. In the two instances where turning pockets exist (Dix/Quaker and Dix/Ridge), optimizing existing traffic signals may return future traffic conditions to acceptable levels of operation. This section of the report will focus on defining the specific problems that appear currently and/or are anticipated to appear at each of the major intersections through the corridor.

Intersection Geometric Improvements

Geometric improvements are most often recommended at locations where current or projected future traffic volumes result in levels of delay that are deemed unacceptable in supporting efficient traffic operations. Left-turning movements in particular can add substantial levels of delay to an intersection if these movements are not separated from through/right-turning movements. The review of existing conditions presented in Technical Memorandum #1 shows that four of the six major intersections along the corridor do not currently provide separate left-turning pockets to separate these movements from through traffic. While the lack of left-turn lanes does not result in unacceptable LOS currently, review of Table 12 shows that both the Dix/Queensbury and Dix/US Route 4 intersections will operate with failing LOS by 2005. In both cases, increased volumes on the eastbound shared left/through/right movement create the failing conditions and may require a separation of the left-turning movements.

By the 2015 time horizon, unacceptable LOS will also appear at the Dix/Vaughn intersection and on the eastbound movement at Dix/Dean – in addition to failing LOS at Dix/Queensbury and Dix/US Route 4. Again, the eastbound shared left/through/right movement will result in the unacceptable levels of delay and separation of the left-turning movement from the through-right movements will be required.

By the 2025 time horizon, 2015 problems will be compounded by unacceptable LOS on the westbound left/through/right movements at the Dix/Queensbury and Dix/US Route 4 intersections.

In summary, the four signalized intersections located on the eastern half of the corridor do not currently provide separate left-turning pockets. Analyses of future operating conditions shows that these intersections will begin to fail as soon as 2005 without the separation of left-turning movements at these intersections.

Traffic Signal Improvements

In the case of major intersections located on the western half of the corridor, both the Dix/Quaker and Dix/Ridge intersections have been designed to separate left-turning from through/right movements. The Dix/Quaker intersection was improved in the early 1990's in support of the K-Mart Plaza with left-turn pockets being provided on all four approaches. At the Dix/Ridge "tee" intersection, the western terminus of Dix Avenue, separate left and right-turn lanes are provided on the Dix Avenue approach and northbound right and southbound left-turn lanes are provided on Ridge Avenue.

Review of Table 12 again shows unacceptable LOS conditions developing at both these intersections. At Dix/Quaker, LOS "E" is anticipated on the southbound through and left movements by 2005, with overall LOS "E" by 2015 and Overall LOS "F" by 2025. Given the forecast volume levels and recent capacity improvements at this intersection, it appears unlikely that additional geometric improvements are necessary. A more logical solution to the anticipated traffic problems in this case would be to optimize the existing signal operations. The Town of Queensbury has developed a signal coordination system for Quaker Road extending from the I-87 Northway south and east to Warren Street. This system consists of 15 signalized intersections, including Dix/Quaker. Synchro 3.2 was used to optimize the system, resulting in a reduction in cycle length at the Dix/Quaker intersection from the approximately 120 second cycle witnessed in August of 1999, to 60 seconds in the AM peak hour, and 90 seconds in the PM peak. At this time, this coordinated system has been partially implemented including recent (Fall 1999) implementation at the Dix/Quaker intersection.

At Ridge Avenue, unacceptable LOS conditions begin to appear on the southbound left-turn movement at the 2025 time horizon. Considering the close proximity to older residential properties at this location, adding capacity to the roadway will be difficult if not impossible. Optimizing the signal operations at this "tee" intersection would be recommended, particularly given that only one movement is showing failing LOS conditions.

In summary, implementing the signal timings previously suggested in the Town of Queensbury *Route 254 Signal Coordination Study* will substantially improve future traffic conditions at the Dix/Quaker intersection. In addition, analyses show that the suggested signal phasings and timings will support a pedestrian phase on Quaker. At the Dix/Ridge intersection, optimizing signal operations should resolve the problems forecast in the 2025 time horizon. Finally, phasing and timing improvements may also be needed at the four eastern signalized intersections.

Coordinated Signal Operations

Given the forecast levels of future traffic along the Dix Avenue corridor, coordinated signal operations would be recommended as a means of assuring efficient traffic progression through the corridor. On the eastern half of the corridor in particular – from Highland Avenue to US Route 4 – where signalized intersections are located more closely and the potential for additional signalized intersections is greater, coordinated operations could effectively minimize future

delay. As future traffic levels increase and development proposals unfold, coordinated operations should be considered.

XX. TRUCK ROUTING

As identified by the Study Advisory Committee (SAC), the need exists to develop a designated truck routing system through the corridor and adjacent roadway system in order to keep trucks off the local, residential streets in Glens Falls. This routing scheme must be flexible in accommodating future commercial needs in the vicinity of the airport and at the Ceiba-Geigy site, as well as account for future residential and /or institutional development that would not be compatible with high volumes of truck traffic.

The Dix Avenue corridor currently supports a 7% truck mix east of Quaker Road, and a 5% mix on the western end in Glens Falls. A recent study conducted by NYSDOT found an 11% truck share on US Route 4 in the vicinity of Dix Avenue. As commercial development increases in the vicinity of Dix Avenue, particularly at the Airport Industrial Park and at Ceiba-Geigy, these truck percentages may increase.

The City of Glens Falls is currently examining a truck routing scheme as part of their master planning effort, which will include both Dix Avenue and Ridge Street within the City limits. The goal is to restrict all but local delivery truck traffic to major roadways within the City. Currently, trucks use a variety of local streets as short-cuts, including the north-south local streets connecting Dix Avenue with Warren Street. It is recommended that the SAC coordinate with the City to ensure that the recommendations of that study are consistent with plans for the corridor to the east in the remainder of Queensbury and in Washington County.

Once a flexible truck routing scheme has been developed, it is imperative that proper signing be installed and an enforcement program be enacted in order to "encourage" truckers to remain on the approved routes.

Capacity Issues

The effect of routing an increased number of trucks along Dix Avenue should have a minimal impact on segment capacity or operations in Glens Falls. However, effects will be felt at the signalized intersections at Ridge and Quaker. The Quaker intersection was improved to include separate turning lanes and improved lane widths in 1996. An increase in truck volume at this intersection will add a minimal amount of delay to the LOS on certain movements, associated with the longer stopping/starting times required by trucks. However, the overall impacts at this intersection should be minimal.

The Ridge Street intersection is not designed to support modern truck turning movements. The west-to-north right turning movement from Dix to Ridge is difficult to negotiate for trailers in excess of 40-foot – standard truck trailers are currently 45, 48 and 53-feet in length – as is both the southbound left and northbound right turning movements onto Dix from Ridge. In order to support the efficient movement of trucks at this intersection, improved geometry, including

longer radius curbing and increased lane widths, will be required. Fourteen-meter turning radii are recommended to support a standard WB-50 multi-unit vehicle.

XXI. SAFETY CONSIDERATIONS

As Dix Avenue traffic volumes continue to increase, it is anticipated that the number of accidents will increase respectively. Future accident rates may also increase unless there are improvements to the roadway network. The following high-accident locations have been identified as having safety considerations to be addressed. These locations were discussed previously and are shown on Figure 24 - High Accident Locations.

1) Intersection of Dix Avenue and Vaughn Road;
   - rear-end accidents attributed to driver inattention, following too closely or frequent stopping and starting due to left-turning vehicles.
   - right-angle accidents involving primarily southbound vehicles running the red light – site distance to the west is impaired by fencing and large tree.

2) Intersection of Dix Avenue and Highland Avenue;
   - left-turn accidents attributed to possible driver confusion due to the layout of the intersection and/or unclear traffic control. When approaching from the east, it is unclear how traffic from the west or southwest is controlled.
   - rear-end accidents attributed to driver inattention or following too closely.

3) Intersection of Dix Avenue and Quaker Road;
   - rear-end accidents attributed to driver inattention, following too closely or frequent stopping and starting due to left-turning vehicles*.
   - left-turn accidents attributed to driver impatience due to congestion.

*It is important to note that several of the accidents documented at the Dix/Quaker intersection occurred before the intersection was improved in 1996. The installation of left-turn lanes and protected turning phases should have corrected the majority of these safety problems.

4) Intersection of Dix Avenue and Cooper Road;
   - rear-end accidents due to driver inattention or following too closely.
   - left-turn accidents due to driver impatience or failure to obey stop control.
   - right-angle accidents associated with driver impatience due to delays.

5) Intersection of Dix Avenue and Sagamore Road;
   - rear-end accidents due to driver inattention or following too closely.
   - right-angle accidents associated with driver impatience due to delays.

In addition to the five intersection locations, the segments extending from BOCES to Dean/Feeder and from Vaughn to US Route 4 have been identified as having safety deficiencies. It should also be noted that incidents involving the brick wall at the “tee” intersection of Dix Avenue and Ridge Street at the western end of the corridor have received a good deal of local

attention. While this intersection does not have a higher than expected rate of accident occurrence, an alternate solution, such as a high visibility barrier, may be required.

XXII. OTHER CONSIDERATIONS

Access Control

As identified previously, wide open access to private parcels is prevalent throughout the corridor. As future traffic volumes rise, this type of access to Dix Avenue will become hazardous to both motorized and pedestrian traffic as the potential for conflicting turning movements increase. The development of clear access guidelines will assist in minimizing future conflicts by restricting site traffic to channelized driveways and reducing vehicle/pedestrian contact points.

While existing site access needs to be addressed, it is also important to ensure that access to future development will be controlled. In general, the newer developments along Dix Avenue have clearly defined site access points and, in some cases, pedestrian walkways. Access guidelines will assist future developers in meeting requirements in regard to auto, pedestrian and bicycle facilities.

Lighting and Landscaping

As pointed out in section III, Existing Roadway Characteristics, street lighting is sporadically located along the corridor east of the City of Glens Falls. The need exists to upgrade this condition to ensure that the entire corridor is adequately lighted. In instances where intersection improvements may be recommended, guidelines for maintaining/improving lighting should be developed.

The same goes for landscaping along the public right-of-way. Ground cover and tree/shrubbery plantings should remain consistent through segments of the corridor. Green space should be maintained wherever possible as well.

In summary, guidelines/standards are needed to ensure future development conformity.

Public Transit Accommodations

Public transit does not currently play an important role along the Dix Avenue corridor. Only one bus route travels along Dix Avenue, and it serves only the western portion of the corridor, terminating at the K-Mart Plaza. As noted previously, the current bus stop facilities do not meet current standards, and it is recommended that these locations be updated to include shelters and ADA approved elements.

However, the future of public transit through the corridor may become brighter. Anticipated development along Queensbury Avenue in and around the airport industrial park may create the need for bus service along that corridor, possibly extending service along portions of Dix Avenue into downtown Glens Falls or Hudson Falls. To facilitate this potential transit expansion through

the corridor, accommodations for bus stops and required facilities should be included in any future intersection improvements. These accommodations should include a location for the bus stop, room for bus stop signs and shelter structures, and all ADA required ingress/egress features.

Pedestrian/Bicycle Accommodations

Pedestrian facilities are currently discontinuous along the corridor. Pedestrian traffic has been increasing, particularly in the vicinity of the K-Mart Plaza and surrounding retail uses at the Dix/Quaker intersection. The need for pedestrian/bicycle facilities in this area has been pointed out by the SAC. Once completed, it will be important for any future development along the corridor to provide both adequate internal sidewalks and connection to the Dix Avenue and area-wide pedestrian systems. Redevelopment of the Ceiba-Geigy site may result in increased pedestrian traffic in the vicinity of Quaker Road and both Dix Avenue and Highland Avenue, adding to the future need for pedestrian/bicycle facilities in this area.

In the Glens Falls segment of Dix Avenue, an on-street bicycle trail may be feasible, extending to the Quaker Road retail district and providing local access to the Warren County Bikeway that crosses Dix Avenue in this area. East of Highland Avenue, on-street bicycle facilities are less feasible due both to traffic conditions and to the fact that the Feeder Canal Park Heritage Trail runs parallel to the roadway, approximately 1/2 mile to the south. Along this segment of Dix Avenue, maintaining/providing connections between local residential and commercial areas and the Heritage Trail should be emphasized. This will consist primarily of pavement striping for consolidating bicycle crossings at intersections and encouraging future development to provide adequate connections where necessary.

XXIII. FUTURE AREAS OF DEFICIENCY

- **Access Control** – Develop/implement future access guidelines.
- **Pedestrian/Bike Network** – Ensure ped/bike connections to future commercial and residential development along corridor.
- **Transit Accommodations** – Provide for future transit system expansion.
- **Intersection Geometry** – Provide capacity improvements at intersections where needed.
- **Truck Routing** – Modify/enforce truck routing scheme to keep trucks off local streets in Glens Falls and direct them to proper routes to/from future development.
- **Traffic Signal Improvements** – Implement coordinated operations.
- **Accident Mitigation Strategy** – Monitor safety improvements at High Accident Locations (HAL's), implement new safety improvements where required.

- **Lighting and Landscaping** – Develop corridor design guidelines for future developments.

As outlined in this section, likely future development scenarios and associated traffic volumes have been identified. Analyses have been conducted to determine if the projected future traffic volumes can be accommodated through the corridor with no capacity, access or control improvements to Dix Avenue. Based on these analyses, the existing Dix Avenue configuration will not efficiently support future traffic operations.

The next step in this process, Identification/Evaluation of Alternatives, will take a closer look at the areas of deficiency identified in section XXIII of this document and identify and evaluate alternative solutions. A planning level evaluation will be conducted, focused on cost and effectiveness measures for each category. The goal will be to identify a solution to each area of deficiency that is both effective in correcting the anticipated problem, and "do-able" in terms of ease of implementation and cost.

XXIV. IDENTIFICATION AND EVALUATION OF ALTERNATIVES

This section of the report documents the methodology and findings of the alternative evaluation task for the Dix Avenue Corridor Study. This task consists of developing a range of alternatives to satisfy the short, intermediate and long term needs identified in the previous stages of this study. The alternatives were developed in sufficient detail to allow for technical, environmental and financial evaluation.

The Evaluation of Alternatives describes the potential improvements developed for the study area. These alternatives were developed based on information and existing and future deficiencies presented in the Existing Conditions and Future Land Use and Traffic conditions sections of this report.

The method employed in developing the alternative list is described in section XXV. Upon review and approval by the A/GFTC, further review was conducted by the Study Advisory Committee members. The two-step evaluation process used is described in section XXVI. The alternatives are presented in detail in section XXVII.

XXV. DEVELOPMENT OF ALTERNATIVE LIST

The alternative list was developed by Sear-Brown, A/GFTC and the Study Advisory Committee in response to the existing, intermediate and long-term deficiencies identified throughout the corridor in draft Technical Memoranda #1 and #2 and presented previously in sections II and III of this document. Community input was also obtained at the first public information meeting held on Tuesday, November 17, 1999. Depending on the nature of the deficiency, a project or policy level recommendation was made to address each item. These recommendations vary from specific treatments designed to remedy existing/projected site specific operating deficiencies, such as traffic control improvements, to broad policy/program oriented recommendations that may require implementation throughout the corridor.

The recommendations are presented at a planning level of detail. As such, further detailed engineering/design will be required to identify exact site-related features of specific roadway/ facility improvements. These issues will be further addressed in the Expanded Project Proposal (EPP) phase of this study for the western portion of the corridor, extending from the Highland Avenue intersection west to Ridge. Further design studies will be required for the eastern portion of the corridor.

The analysis conducted has considered the Dix Avenue corridor and surrounding study area as one entity, as growth and changes in traffic patterns at one location can have a considerable effect on other areas. It has previously been documented that Dix Avenue serves a significant volume of commuter traffic, serving as a link between the I-87 Northway and communities to the east of Glens Falls. In order to support this and projected area growth traffic in the future, a series of transportation and supporting facility improvements have been identified. These improvement alternatives have been selected based on criteria designed to maximize the efficiency of existing capacity while minimizing total capital outlay. System enhancing alternatives such as adding turning lanes and optimizing/modifying traffic control devices are considered preferable in terms of satisfying identified needs and ease of implementation.

XXVI. EVALUATION PROCESS

The following two-step evaluation process was developed to assess the potential alternatives.

Phase 1: Preliminary Screening

The main goal of this phase was to analyze the 41 short term and 8 long term alternatives developed to eliminate those that are infeasible or provide limited benefits. Analyses performed in Phase 1 consisted of modeling existing and future traffic volumes developed in previous phases with improvements designed to address the deficiencies noted in those phases. The traffic related improvements generally consisted of adding turning lanes at intersections where unacceptable LOS was present and optimizing traffic signal operations. Supporting facility enhancement recommendations were also provided, based on a combination of field observations and comments/concerns received from the Study Advisory Committee. These recommendations focus on non-roadway systems and amenities such as pedestrian/bicycle facilities, transit

accommodations, corridor lighting and drainage systems. The recommendations were generated to address the noted deficiencies and alternatives were developed that would best address these deficiencies in a cost effective manner.

As an output from Phase 1, a list of alternatives was constructed and formatted to show the problem addressed and benefits provided. This list is presented by corridor segment in section XXVII. In the majority of cases, one best solution was apparent so alternatives were not considered. Most traffic related deficiencies identified in the previous stages of this study are site-specific problems that will develop as future traffic volumes increase. A typical solution for each problem was identified (e.g., add turning lanes) and analyzed to ensure correction of the deficiency. System-wide deficiencies, such as the lack of pedestrian facilities through the corridor, were corrected with broader solutions provided at a planning level of detail.

The Dix Avenue Corridor Study is intended to focus on the highest priority needs through the corridor. A/GFTC staff and SAC members provided input for this Phase 1 assessment of the potential alternatives. The responses from A/GFTC and SAC members were summarized and used to assist in the determination of the viability of the preliminary recommendations and which ones should be considered for inclusion in the final report. In some cases, potential alternatives were eliminated or substantially revised at the suggestion of the reviewing bodies.

B. Phase II: Planning Level Evaluation

Each of the alternatives was examined at a planning level of depth to determine its cost, social/environmental, engineering and traffic related effects. These assessments are presented in the following section.

B-1 Cost

The assessment of cost factors included the estimation of possible costs associated with both construction and maintenance of each of the recommendations. The following factors were considered in the development of these estimates:

- Lane-miles of new pavement
- Linear feet of new curbing required
- Square feet of new sidewalk
- Square feet of new retaining wall
- Square feet of land acquisition required
- Cost for other items

Possible order of magnitude costs were estimated for each of these factors, which were added to develop possible total cost for the alternative to be used for comparison purposes only. The cost estimates are not inclusive of all of the alternative details, as they may not be known at this level of analysis. Copies of the estimates of possible costs are provided in Appendix C for each recommendation. The estimates indicate the per-unit costs and estimated quantities.

B-2 Social/Environmental

The alternatives also underwent a qualitative comparison based on the following factors:

Social/Land Use/Economic/Traffic Impacts/Safety

- Development Potential – Each of the alternatives were assessed to determine if they have a positive or negative impact on potential future development (i.e. the development of the Valente Builders access roadway provides the opportunity to develop additional properties), which involves improved access to developable lands.
- Land Use Compatibility – Each of the alternatives underwent a cursory evaluation to assess if they were compatible with the existing land use and existing and future zoning plans.
- Neighborhood Traffic Effects – Each of the alternatives were evaluated to determine if they would have adverse effects on neighborhoods (i.e. generate or mitigate cut-through traffic).
- Community Acceptability – The qualitative review of this factor was based on public input received from the community following the two public information meetings (documentation provided in Appendix D).
- Economic – A qualitative assessment was performed on the alternatives to determine if there would be a positive or negative impact to the economy (i.e. reducing congestion on Dix Avenue).
- Historic/Architectural/Cultural – The initial assessment of this factor is based on the identification of buildings or properties, which are listed on the National or State Historic Register.

Environmental

- Green Space/Open Space – The amount of open space reduced by potential alternatives was qualitatively assessed.
- Air Quality – Effects on air quality were evaluated by considering reductions or increases in traffic congestion.
- Noise - Effects on noise levels were evaluated by considering reductions or increases in traffic congestion. Alternatives that brought the roadway closer to or farther from occupied buildings were also flagged as having potential noise impacts or benefits.
- Wetlands/Floodplains – Alternatives that would have impacts to wetlands or floodplains and may require mitigation were identified. The amount of impact was also qualitatively assessed.
- Farmland – The amount of active farmland affected by a potential alternative was qualitatively assessed.
- Visual – Alternatives that had high visual impacts were identified (i.e. proximity to development or parks).
- Water Quality – Potential impacts to surface and ground water quality were qualitatively assessed.
- Wildlife – Alternatives that may infringe upon areas that are the known habitat for endangered and threatened species were considered to have a negative impact.

B-3 Engineering Effects

Design Criteria

Each of the alternatives was evaluated based on their ability to meet the appropriate design criteria. Table 13 lists general roadway design criteria suggested within the study area. Three typical cross sections have been developed through the different segments of the corridor. In the City of Glens Falls, a two-lane roadway with on-street parking on the south side, curbing, grass snow storage area and extended sidewalks is recommended. This cross section has been developed to typify a traditional urban arterial featuring on-street parking, enhanced pedestrian facilities and upgraded landscaping. Alternative variations of this design are discussed in the following section.

Extending from the City line east to Highland Avenue, a more suburban cross section has been developed that features two travel lanes with curbing, grass snow storage area and sidewalks. On-street parking is not provided as no adjacent residential uses are present and commercial land uses display more suburban setbacks with off-street parking available. Alternatives presented provide varying levels of pedestrian facilities.

From the Highland Avenue intersection eastward, a two-lane section with varying shoulder type, grass snow storage area and sidewalks is recommended. Alternative variations focus on shoulder type and the level of pedestrian facilities provided. Other factors considered include the following:

- Constructability – This factor evaluates the required complexity of the method of implementation. More complex schemes would have a higher impact.
- Construction Impacts – Maintenance and protection of traffic issues during construction were evaluated.
- Right-of-Way - The number of properties impacted and buildings to be removed were quantified and considered as part of the evaluation process.
- Maintenance – The required annual maintenance expected to be needed was included.

Table 15

PROPOSED ROADWAY CROSS-SECTIONAL ELEMENTS

ROADWAY	# LANES (Typ.)	LANE WIDTH	BIKE/PED FACILITIES	SHDR. WIDTH	POSTED SPEED
Dix Avenue (NYS Rt. 32)					
a. NYS Rt. 4 to Vaughn Road.	2	3.4 m (11')	Paved Shoulder Sidewalk – N. Side	1.2 - 2.4 m (4 - 8')	35 mph
b. Vaughn Rd. to Dean/Feeder Rd.	2	3.4 m (11')	Paved Shoulder Sidewalk – N. Side	1.2 - 2.4 m (4 - 8')	35 mph
c. Dean/Feeder to Queensbury Rd.	2	3.4 m (11')	Paved Shoulder Sidewalk – N. Side	1.2 - 2.4 m (4 - 8')	35 mph
d. Queensbury to NYS Rt. 254.	2	3.4 m (11')	Paved Shoulder Sidewalk – S. Side	1.2 - 2.4 m (4 - 8')	35 mph
e. NYS Rt. 254 to Haskell Ave.	2	4.2 m (14')	On-Street 14' Lane Sidewalk – S. Side	N/A (curb section)	30/35 mph
f. Haskell Ave. to Ridge St.	2	4.2 m (14')	On-Street 14' Lane Sidewalk – N & S	N/A (curb section)	30 mph

B-4 Traffic Assessment:

Each of the recommendations was assessed for their ability to improve traffic operations. Traffic projections developed in section III – Future Land Use and Traffic Conditions were utilized. The assessment of alternatives included the morning and/or evening peak hours, where appropriate.

For most alternatives, the projected traffic volumes were incorporated into Trafficware's Synchro, version 3.2. Synchro was used to model the majority of the study area's signalized intersections and to develop optimal signal timing and progression for the alternatives. The model was also used to assess the expected traffic operations that would result from the implementation of the alternatives. The evaluation of traffic operations considered the following factors:

- 1994 Highway Capacity Manual (HCM) comparable delays for level of service calculations
- Total Travel Time,
- Stops and Fuel Consumption

The analyses conducted were then summarized to determine the effects each alternative would have on overall traffic operations in the study area. Factors assessed include:

- Congestion – This was assessed from review of the traffic model outputs. Congestion on Dix Avenue and arterial and local connecting roads were considered as separate factors. Alternatives that will greatly reduce congestion were considered to have high benefits, while those that may actually make congestion worse in some locations were considered to have negative impacts.
- Local Access – Alternatives that would improve access to key local development areas were considered beneficial.

- Safety – Alternatives that would most likely enhance safety, reduce accidents or reduce the severity of accidents were considered beneficial.
- Transit – The potential to improve transit access and service to key areas was considered a benefit.
- Pedestrian Mobility/Accessibility – Alternatives that provided new or improved pedestrian facilities were benefits.
- Bicycling Space – Alternatives that provide new or improved bicycle facilities, including improving multi-use trail crossing safety, are considered benefits.

XXVII. EVALUATION OF ALTERNATIVES

The following section describes the short (2005), intermediate (2015) and long (2025) term alternative solutions developed for the Dix Avenue corridor. The short-term alternatives address the current roadway, access and enhancement deficiencies noted in section II – Existing Conditions, as well as the future deficiencies anticipated through the 2005 time frame noted in section III – Future Land Use and Traffic Conditions. The intermediate and long-term improvements address the anticipated problems that will arise as future development occurs in the vicinity of the corridor through the 2015 and 2025 time horizons. These alternatives address the 2015 and 2025 anticipated deficiencies identified previously .

Within each time frame, alternatives are presented that address the following general areas of concern, as described in the previous technical sections of this report:

- Cross Section
- Access Control
- Pedestrian/Bicycle Facilities
- Transit Accommodations
- Intersection Geometry
- Truck Routing
- Traffic Signal Operations/Coordination
- Safety
- Lighting, Landscaping and Drainage

For the sake of clarity, the corridor has been divided into three segments. Segment 1 consists of the portion of the corridor situated in the City of Glens Falls – extending from Ridge Street east to the City line. This portion of Dix Avenue functions as a minor urban arterial serving a combination of residential and commercial users. The roadway in this segment is curbed in places with sidewalks available through the higher density residential and commercial areas to the west.

Segment 2 consists of the Town of Queensbury in the remainder of Warren County, extending from the City line to the Warren/Washington County line east of Queensbury Avenue. This segment features newer commercial and manufacturing uses to the west, along with a combination of older residential and commercial uses through the eastern portion. The roadway

is two-lane with gravel shoulders and no pedestrian facilities. Two important regional connections are located in Segment 2. Route 254 provides access to the I-87 Northway, while Queensbury Avenue feeds into the Glens Falls Airport and surrounding industrial/manufacturing district that is anticipated to grow in the near future.

Finally, Segment 3 consists of the Town of Kingsbury/Washington County portion of the roadway, extending from the Warren/Washington County line east to the corridor terminus at U.S Route 4. This segment is primarily suburban in nature, supporting a mix of residential and commercial land uses. The roadway provides two travel lanes with gravel shoulders and open drainage. Sidewalks are located sporadically on the north side of the roadway.

The alternatives presented tend to be project, program or policy oriented. Short and long term specific project and overall policy recommendations are presented by roadway segment.

A. Short Term (2005) Recommendations

Segment 1: Glens Falls

Cross Section

E1A, Provide a 36-foot curb-to-curb, two-lane cross section with an 8-foot on-street parking lane on the south side of the roadway through the Glens Falls segment, extending from Ridge Avenue to the City line. Two 14-foot travel lanes are recommended with an 8-foot outside parking lane. The parking lane will drop off in selected locations where left-turn pockets are proposed, transit stops are located or proximity to local streets or commercial driveways dictates. Six-inch reveal curbing is recommended to transition from the roadway to an 8-foot snow storage area and 4-5 foot outside sidewalk – 4-foot in existing sidewalk sections transitioning to 5-foot in new sidewalk sections. Snow storage design alternatives are shown in **E3**. The width may vary depending on right-of-way availability and compatibility with adjacent land uses.
Jurisdiction: City of Glens Falls
Existing Characteristics of Concern and/or Project Objectives: Improve overall appearance, operating efficiency and safety conditions along Dix Avenue through the City of Glens Falls. This cross section retains on-street parking on one side of the street, provides 14-foot travel lanes in both directions and provides space for on-street bicycle use.
Design Considerations:

1. Visual: Improves visibility of proposed road structure and adjacent facilities.
2. Operational: Provides standard lanes, parking, on-street bicycle and snow storage. Alternatives **E4** and **E5** present suggested pedestrian facility designs.
3. Safety: Improves vehicular/pedestrian safety through the segment by accounting for existing roadway safety deficiencies and providing/extending pedestrian/bike facilities.
4. Cost: On-street parking will be eliminated on the north side of the roadway from Ridge Street east to Haskell Avenue in order to minimize right-of-way requirements. A variation of this cross-section maintaining parking on both sides of the roadway from Ridge east to Walnut is presented in the EPP for this section of the corridor.

E1B, Provide a 40-foot curb-to-curb, three-lane cross section with 12-foot travel lanes, a 2-foot curb offset on the north side for on-street bicycle use and a continuous 14-foot center turn lane to support left-turning movements throughout the segment. Six-foot snow storage areas are recommended on both sides of the roadway with sidewalks as described in alternatives **E3**. The snow storage width may vary depending on right-of-way availability and compatibility with adjacent land uses.
Jurisdiction: City of Glens Falls
Existing Characteristics of Concern and/or Project Objectives: Improve overall appearance, operating efficiency and safety conditions along Dix Avenue through the City of Glens Falls. This cross section eliminates on-street parking on both sides of the street, replaced by a continuous left-turn lane through the City segment. 12-foot travel lanes are provided in both directions and space is provided for on-street bicycle use.
Design Considerations:

1. Visual: Improves visibility of proposed road structure and adjacent facilities
2. Operational: Provides standard lanes, on-street bicycle space, snow storage and separates left-turning movements from through traffic throughout the segment.
3. Safety: Improves vehicular/pedestrian safety through the segment by accounting for existing roadway safety deficiencies, providing separate left-turning facilities and providing on-street bike facilities.
4. Impact: Additional right-of-way may be required in isolated locations.
5. Impact: Removes on-street parking through the segment.
6. Impact: The 2-foot striped offset is not wide enough for bicycle standards – A 14-foot lane will accommodate bicycle usage in urban, restricted speed conditions without an offset or striping.

Access

E2. Consolidate open access at commercial sites by installing curbing with defined channelized driveway locations. Develop access guidelines for commercial/residential development. Guidelines should include both general and segment-specific recommendations.
General Guidelines:

- Standard site drive widths, lane configuration, traffic control, signs.
- Recommended turning radii for commercial/residential driveways
- Align driveways where possible
- Develop driveway spacing standards – number of driveways allowed based on an appropriate variable

For long term access guideline development issues, see alternative **F1**.
Description: Eliminate turning movement conflicts associated with wide open access that occur regularly through this segment.
Jurisdiction: City of Glens Falls
Existing Characteristics of Concern and/or Project Objectives: Improve safety for pedestrians/bicyclists, traffic flow through the segment, corridor aesthetics in the City, particularly at commercial establishments.

Specific Locations of Short Term Concern:

1. Vacant Toyota dealership and shops (north side)
2. Price Chopper (south side)
3. Bell Atlantic (south side)
4. Whiteman Chevrolet and shops (north and south side)
5. Dix Avenue Plaza strip center (north side)
6. Small commercial uses between Platt and Leland (north side)
7. Glens Falls DPW (north side)

The above locations currently provide "wide open" access. Defined site drive locations will improve operations and minimize potential conflicts. The larger parcels, such as the Chevy dealership and Price Chopper should have at least two defined driveway locations including at least one designed to accommodate in/out delivery truck movements. Small parcels should be reduced to one defined driveway.

E3A, Install brick paver "streetscape" snow storage area with trees between curb and sidewalk adjacent to the commercial properties listed in **E2**.

Description: Provides upscale urban appearance through segment

Jurisdiction: City of Glens Falls

Design Considerations:

1. Visual: Improves visibility of proposed road structure and adjacent facilities
2. Maintenance: Moderate long term maintenance requirements

E3B, Install a grass snow storage area with trees between curb and sidewalk adjacent to commercial properties listed in **E2**.

Description: Provides consistent appearance through segment

Jurisdiction: City of Glens Falls

Design Considerations:

1. Visual: Improves visibility of proposed road structure and adjacent facilities
2. Maintenance: Minimizes long term maintenance requirements

Pedestrian/Bicycle

E4, Extend pedestrian sidewalk on the south side of Dix Avenue east from its' current terminus at Haskell Avenue to the City Line – and on to Queensbury Avenue in Segment 2.

Description: Provides pedestrian access from the residential section of Glens Falls to the retail district emerging in the vicinity of the Dix/Quaker intersection.

Jurisdiction: City of Glens Falls, Town of Queensbury, Warren County

Existing Characteristics of Concern and/or Project Objectives: Pedestrian facilities currently serve only the residential section of Dix Avenue in this segment.

Design Considerations:

1. Safety: Benefit- separates pedestrian traffic from roadway/shoulder.

Social/Economic:

1. Impact: Cost - May require additional right-of-way.
2. Impact: Cost - Maintenance will be an additional cost.

E5, Extend pedestrian sidewalk on the north side of Dix Avenue from its' current terminus at Byrne one block east to Uncas. Pedestrian crossing will be added at the Dix/Cooper intersection.
Description: Improves pedestrian mobility in the segment.
Jurisdiction: City of Glens Falls
Existing Characteristics of Concern and/or Project Objectives: Extends pedestrian facilities on the north side of the roadway in the western section of Dix Avenue in Glens Falls.
Design Considerations:
1. Safety: Benefit – Facilitates pedestrian movements on the north side of Dix Avenue in GlensFalls.
2. Impact: Cost – Maintenance will be an additional cost.

E6, Extend pedestrian sidewalks on both sides of Dix Avenue from their current terminal point to the City Line – and on to Queensbury Avenue in Segment 2.
Description: Greatly improves pedestrian mobility in the segment.
Jurisdiction: City of Glens Falls
Existing Characteristics of Concern and/or Project Objectives: Extends pedestrian facilities on both sides of the roadway in the western section of Dix Avenue in Glens Falls.
Design Considerations:
1. Safety: Benefit – Facilitates pedestrian movements along Dix Avenue in GlensFalls.
2. Impact: Cost – Maintenance will be an additional cost.
3. Impact: Cost – Additional right-of-way will be required.

E7, Monitor safety conditions at existing striped rail-trail crossing in the vicinity of Walnut Street.
Description: Ensure minimal level of conflict at busy pedestrian/bicycle crossing.
Jurisdiction: City of Glens Falls
Existing Characteristics of Concern and/or Project Objectives: Potential for accidents exists at the new crossing point – trail use in Glens Falls section has increased substantially since recent paving and connection to Lake George leg to the north.
Traffic/Transportation Considerations:
1. Safety: Benefit – allows for quick response to perceived safety problems.

Transit

E8, Replace existing bus-stop signs with new, higher visibility signs.
Description: Clearly identifies bus stop locations on south side of Dix Avenue.
Jurisdiction: Greater Glens Falls Transit
Existing Characteristics of Concern and/or Project Objectives: Existing bus-stop signs are badly faded and in some cases bent, making identification of the bus stop area difficult for motorists and potential service users.
Traffic/Transportation Considerations:
1. Safety: Benefit – increases motorist awareness of transit facilities and potential for stopped transit vehicles.

Truck Routing

E9, Install "No Through Trucks" restrictive signs on North-South local streets in City of Glens Falls

Description: Reduces cut-through truck traffic between Dix Avenue and Warren Street, currently using the local streets in the City.

Jurisdiction: City of Glens Falls

Existing Characteristics of Concern and/or Project Objectives: Eliminate cut-through truck traffic from residential streets. Local delivery trucks will remain.

Traffic/Transportation Considerations:

1. Redistribution of traffic volume: Trucks currently using local street system will need to be directed to urban arterial roadway system – coordinate with City of Glens Falls Truck Routing Study.
2. Safety: Benefit – reduce potential hazard associated with trucks on residential streets

Intersection Geometry

E10, Lengthen turning radii on the Dix Avenue leg of the Dix/Ridge intersection from current 5.1 meter (approx. 16-foot) to 12 – 18 meters (approx. 46 – 59 feet) to meet applicable WB-50 truck turning movement standards.

Description: Provides adequate space for the following truck turning movements;

- West-to-north from Dix onto Ridge.
- North-to-east from Ridge onto Dix.

Jurisdiction: NYSDOT, City of Glens Falls

Existing Characteristics of Concern and/or Project Objectives: Improve traffic flow, reduce congestion and accidents associated with truck turning movements at the Dix/Ridge intersection

Traffic/Transportation Considerations:

1. Congestion: Benefit – will improve overall progression through the signalized intersection.
2. Safety: Benefit - potential to reduce congestion related accidents and stopped traffic conditions due to slow moving trucks negotiating tight intersection radii

Environmental/Social/Economic Considerations:

1. Economic: Impact – the existing signal pole on the northeast corner of the intersection will need to be relocated.
2. Impact: additional right-of-way will be required.
3. Impact: the fencing and sidewalk on the south side of Dix Avenue at the intersection have historical significance.

E11, Add left-turn lanes on Dix Avenue approaches to Cooper Street and Technical Park Drive.

Description: Separates left-turning traffic from through traffic minimizing mainline delay and reducing potential for accidents associated with stopped, turning traffic.

Jurisdiction: City of Glens Falls

Existing Characteristics of Concern and/or Project Objectives: Mitigate high accident conditions at Sagamore and Cooper intersections, improve traffic flow at Cooper – particularly if this becomes a north-south truck connector - and in vicinity of Technical Park which could see increased traffic in the near term.

Traffic/Transportation Considerations:
1. Safety: Benefits – reduction in congestion-related accidents at unsignalized intersections.

Traffic Signal Improvements

E12, Signalize the Dix/Cooper intersection. Add striped pedestrian crossings.
Description: Improve traffic control at an important north-south cut-through location
Jurisdiction: City of Glens Falls
Existing Characteristics of Concern and/or Project Objectives: Provide distinct north-south connector between Dix Avenue and Warren Street. Mitigate high accident conditions at Sagamore/Walnut and Cooper unsignalized intersections. Facilitate truck movements through the residential section of Glens Falls.
Traffic/Transportation Considerations:
1. Benefit – restrict cut-through traffic to one location.
2. Safety – reduce turning-related accidents at unsignalized intersections to the west in Glens Falls.

Lighting/Landscaping/Drainage

E13A, Clean out silted-in drainage system – Immediate Need
Jurisdiction: City of Glens Falls
Existing Characteristics of Concern and/or Project Objectives: There is an immediate need to restore existing drainage system to good operating condition.
Design Considerations:
This alternative will require minimal capital outlay for maintenance of existing system.

E13B, Provide new closed drainage system
Jurisdiction: City of Glens Falls
Existing Characteristics of Concern and/or Project Objectives: Update drainage system as an element of roadway reconstruction
Design Considerations: New roadway cross section will require relocation of existing drainage system.

Segment 2 – Town of Queensbury: City Line to Warren/Washington County Line

Cross Section

E14, Glens Falls City line east to Highland Avenue - Provide a 28-foot curb-to-curb, two-lane cross section, extending from the Glens Falls City line east to Highland Avenue. Six inch reveal curbing is recommended to transition the roadway to an 8-foot grass snow storage area and 5-foot sidewalk. The snow storage width may vary depending on right-of-way availability and compatibility with adjacent land uses. Sidewalk design alternatives are provided in **E17A** and **E17B**.
Jurisdiction: Town of Queensbury, Warren County

Existing Characteristics of Concern and/or Project Objectives: Improve overall appearance, operating efficiency and safety conditions along Dix Avenue through the Town of Queensbury segment. This cross section provides 14-foot travel lanes in both directions with space for on-street bicycle use.

Design Considerations:

1. Visual: Improves visibility of proposed road structure and adjacent facilities
2. Operational: Provides standard lanes, on-street bicycle and snow storage area.
3. Safety: Improves vehicular safety through the segment by accounting for existing roadway safety deficiencies and providing space for bicycle operations.

Environmental/Social/Economic Considerations:

1. Impact: May require additional right-of-way.

E15A, Highland Avenue east to the Warren/Washington County line - Provide a 38-foot, two-lane paved section with two 11-foot travel lanes and 8-foot paved shoulders on both sides of the roadway. Seasonal bicycle use will be accommodated on the paved shoulders.

Jurisdiction: Town of Queensbury, Warren County, NYSDOT

Existing Characteristics of Concern and/or Project Objectives: Improve overall appearance, operating efficiency and safety conditions along Dix Avenue through the Town of Queensbury segment. This cross section provides 11-foot travel lanes with paved shoulders designed to separate disabled vehicles from through traffic and support on-street bicycle use. Sidewalk design alternatives are provided in **E16** through **E18**.

Design Considerations:

1. Visual: Improves visibility of proposed road structure and adjacent facilities
2. Operational: Provides standard lanes, on-street bicycle and snow storage/pedestrian facilities and separates left-turning movements from through traffic throughout the segment.
3. Safety: Improves vehicular/pedestrian safety through the segment by accounting for existing roadway safety deficiencies, providing separate left-turning facilities, providing on-street bike facilities and extended pedestrian facilities on both sides of the roadway.
4. Impact: May require additional right-of-way in several locations.

E15B, Highland Avenue east to the Warren/Washington County line - Provide a 30 – 34-foot, two-lane paved section with two 11-foot travel lanes and 4 – 6-foot paved shoulders on both sides of the roadway. Seasonal bicycle use will be accommodated on the paved shoulders.

Jurisdiction: Town of Queensbury, Warren County, NYSDOT

Existing Characteristics of Concern and/or Project Objectives: Improve overall appearance, operating efficiency and safety conditions along Dix Avenue through the Town of Queensbury segment. This cross section provides 11-foot travel lanes with narrower paved shoulders designed to separate disabled vehicles from through traffic and support on-street bicycle use while minimizing right-of-way requirements. Sidewalk design alternatives are provided in **E16** through **E18**.

Design Considerations:

1. Visual: Improves visibility of proposed road structure and adjacent facilities
5. Operational: Provides standard lanes, on-street bicycle and snow storage/pedestrian facilities and separates left-turning movements from through traffic throughout the segment.

6. Safety: Improves vehicular/pedestrian safety through the segment by accounting for existing roadway safety deficiencies, providing separate left-turning facilities, providing on-street bike facilities and extended pedestrian facilities on both sides of the roadway.
7. Impact: May require additional right-of-way in isolated locations.

E15C, Highland Avenue east to the Warren/Washington County line - Provide a 28-foot, two-lane paved section with two 14-foot travel lanes, 6-inch reveal curbing, grass snow storage area on both sides of the roadway and sidewalk.
Jurisdiction: Town of Queensbury, Warren County, NYSDOT
Existing Characteristics of Concern and/or Project Objectives: Improve overall appearance, operating efficiency and safety conditions along Dix Avenue through the Town of Queensbury segment. This cross section provides 14-foot travel lanes with curbing and greatly minimizes additional right-of-way requirements. Sidewalk design alternatives are provided in **E16** through **E18**.
Design Considerations:
1. Visual: Improves visibility of proposed road structure and adjacent facilities
8. Operational: Provides standard lanes and snow storage/pedestrian facilities.
9. Safety: Improves vehicular/pedestrian safety through the segment by accounting for existing roadway safety deficiencies, providing separate left-turning facilities, providing on-street bike facilities and extended pedestrian facilities on both sides of the roadway.
10. Impact: May require additional right-of-way in isolated locations.

Access

E-16, Consolidate open access through Segment 2, particularly at commercial sites near the Queensbury Fire Department and at the Dix/Queensbury intersection. Identify potential shared access points for vacant/available parcels where short-term development is likely.
Jurisdiction: NYSDOT, Town of Queensbury, Warren County
Existing Characteristics of Concern and/or Project Objectives: Control traffic operations, reduce congestion and accidents associated with turning movements.
Specific Locations of Concern:
1 Commercial shops at Queensbury intersection (north and south side)
2 Potter Express (north side)
3 Queensbury Fire Department (north side)
4 Transit Connection (south side)
5 Vacant parcels adjacent to and across from Triangle Park Drive (north and south side)
6 Vacant parcels adjacent to McDonald's and Quaker Farms Garden Center near Dix/Highland intersection (north and south sides)
7 Open parcels behind existing residential east of Queensbury Avenue, across from New Pine and Belle (north side).
The above locations currently provide "wide open" access. Defined site drive locations will improve operations and minimize potential conflicts. The number of recommended site drives will vary depending on the type and intensity of the existing or proposed use. Small commercial parcels should be restricted to one defined driveway.

Pedestrian/Bicycle

E17, Extend existing sidewalk on the south side of the roadway from Haskell Avenue in Glens Falls to Queensbury Avenue.
Jurisdiction: City of Glens Falls, Town of Queensbury
Existing Characteristics of Concern and/or Project Objectives: There are currently no pedestrian facilities along this section of Dix Avenue.
Design Considerations:
1. Safety: Benefit – separates pedestrian traffic from roadway/shoulder.

Environmental/Social/Economic Considerations:
1. Impact: Additional right-of-way may be required.
2. Impact: Cost – Maintenance will require capital outlay.

E18A, Extend sidewalk from the Queensbury Avenue intersection east to the Warren/Washington County line on the north side of Dix Avenue to connect with existing sidewalk network.
Jurisdiction: NYSDOT, Town of Queensbury
Existing Characteristics of Concern and/or Project Objectives: There are currently no pedestrian facilities along this section of Dix Avenue.
Design Considerations:
1. Safety: Benefit- separates pedestrian traffic from roadway/shoulder.

Locating sidewalk on the north side of Dix Avenue east of Queensbury will facilitate tie-in to existing sidewalk on the north side in Washington County. Pedestrian crossings will be required at Quaker Road and Highland Avenue.
Environmental/Social/Economic Considerations:
1. Impact: Cost – Maintenance will require capital outlay.

E18B, Extend sidewalk from the Glens Falls City line east to the Warren/Washington County line on both sides of the roadway.
Jurisdiction: NYSDOT, Warren County, Town of Queensbury
Existing Characteristics of Concern and/or Project Objectives: There are currently no pedestrian facilities along this section of Dix Avenue.
Design Considerations:
1. Safety: Benefit- separates pedestrian traffic from roadway/shoulder.

Environmental/Social/Economic Considerations:
1. Impact: Cost – Maintenance will require capital outlay
2. Impact: Cost – Additional right-of-way will be required, particularly east of Highland Avenue.

E19, Install pedestrian crossing pavement markings and signal heads at the Quaker Road and Queensbury Avenue intersections.
Jurisdiction: NYSDOT, Town of Queensbury
Existing Characteristics of Concern and/or Project Objectives: Improve pedestrian operations and safety at these intersections – there are no existing pedestrian facilities currently.
Design Considerations:
1. Safety: Benefit- provides specific crossing location at busy intersections; separates pedestrian traffic from roadway/shoulder.

Pedestrian traffic has been increasing in the vicinity of the Quaker Road intersection as new retail development continues. Pedestrian operations, as proposed, would fit within existing signal phasing pattern.

Intersection Geometry

E20, Re-design the Dix/Highland "Y" intersection to form a stop-controlled "tee" located west of the current intersection. Add a westbound left-turn pocket on Dix Avenue and improved directional signs to direct traffic.
Description: Improves sub-standard intersection design, mitigates high accident condition at existing intersection.
Jurisdiction: NYSDOT
Existing Characteristics of Concern and/or Project Objectives: Mitigate high accident conditions at Highland intersection, improve east-west traffic flow and driver confidence on Dix Avenue.
Design Considerations:
1. Safety: Benefits – improvement in traffic flow through the intersection and reduction in congestion-related accidents associated with stopped traffic and driver confusion.

Environmental/Social/Economic Considerations:
1. Cost: Land acquisition may be required – impacts to currently developing beverage center will need to be determined.

E21, Add left-turn lanes on both approaches to the Dix/Queensbury intersection. Design intersection to accommodate WB-50 truck turning movements.
Description: Addresses short-term future capacity problems.
Jurisdiction: NYSDOT, Town of Queensbury
Existing/Future Characteristics of Concern and/or Project Objectives: Separate increasing left-turn movements from through traffic. Maintain acceptable intersection LOS as area to the north develops.
Traffic/Transportation Considerations:
1. Benefit – Acceptable LOS maintained.

Environmental/Social/Economic Considerations:
1. Cost – Additional right-of-way may be required.

Truck Routing

E22, Install signs directing I-87 bound traffic to Quaker Road, and local traffic to either Dix Avenue or Highland Avenue.
Description: Sign program will clarify truck and general traffic routing choices, minimizing need for turn-arounds and detours through local streets.
Jurisdiction: NYSDOT
Existing Characteristics of Concern and/or Project Objectives: Traffic routing through the area is unclear. Through trucks often end up in residential sections of Glens Falls trying to find route to the Northway. Clear routing signs should eliminate this problem.
Design Considerations:
1. Safety: Benefits – improved vehicle travel times, reduction in local congestion related to turning vehicles, improve local safety by reducing number of through vehicles in residential sections of Queensbury and Glens Falls.

E23, Install "No Through Trucks" restrictive signs on north-south local streets that connect Dix Avenue and Warren Boulevard east of Highland Avenue in Town of Queensbury – Phillips, Park, New Pine, Belle and Quarry Crossing.
Description: Restrictive signs will assist in minimizing truck cut-through traffic on local residential streets.
Jurisdiction: Town of Queensbury, Warren County
Existing Characteristics of Concern and/or Project Objectives: Truck routing through the area is unclear. Local and through trucks often use residential streets as short-cut. Restrictive signs should help eliminate this problem.
Design Considerations:
1. Safety: Benefits – Improve local safety by reducing number of trucks on residential streets in Queensbury.

Traffic Signal Improvements

E24, Add pedestrian phase to the Quaker Road intersection.
Description: Necessary to support proposed pedestrian crosswalk.
Jurisdiction: NYSDOT, Town of Queensbury
Existing Characteristics of Concern and/or Project Objectives: Pedestrian signals and phases will facilitate pedestrian/bicycle crossings which have been increasing with additional retail development in the area.
Design Considerations:
1. Safety: Benefit – Pedestrian phase will ensure safe crossing operations.
Environmental/Social/Economic Considerations:
1. Cost – installing pedestrian signal hardware will require capital outlay.

E25, Add protected turning phases to Dix/Queensbury traffic signal.
Description: Protected turning phases are recommended at the Dix/Queensbury intersection when left-turn lanes have been added.
Jurisdiction: NYSDOT, Town of Queensbury

Future Characteristics of Concern and/or Project Objectives: Ensure optimum traffic and safety operations at reconfigured intersection.
Traffic/Transportation Considerations:
1. Congestion: Benefit – improve intersection operations by allowing for protected movements.

Environmental/Social/Economic Considerations:
1. Cost – installing upgraded hardware will require capital outlay.

E26, Install coordinated signal system through Dix Avenue corridor
Description: Upgrade existing signal system hardware, optimize operations
Jurisdiction: NYSDOT, Warren/Washington County, City of Glens Falls
Existing Characteristics of Concern and/or Project Objectives: Improve overall traffic progression through the corridor.
Design Considerations:
1. Congestion: Benefit – upgrading signal hardware and incorporating into a coordinated system will allow incorporation into the Route 254 signal system and improve traffic progression through the entire Dix Avenue corridor.

Lighting/Landscaping/Drainage

E27, Install standard suburban-spaced street lighting throughout this segment of the corridor.
Description: Street lighting is sporadically located through this segment.
Jurisdiction: NYSDOT, Warren County, Town of Queensbury
Existing Characteristics of Concern and/or Project Objectives: Improve visibility/safety through the segment.
Traffic/Transportation Considerations:
This alternative will have minimal effect on traffic operations.
Environmental/Social/Economic Considerations:
1. Impact: There will operating costs for the municipality.

E28, Clean out silted-in drainage system
Jurisdiction: NYSDOT, Warren County, Town of Queensbury
Existing Characteristics of Concern and/or Project Objectives: Restore drainage system to good operating condition.
Design Considerations:
This alternative will require minimal capital outlay for maintenance of existing system.
Existing Characteristics of Concern and/or Project Objectives: Provides efficient drainage along improved roadway segment.

E29, Install new closed drainage system in curbed section of Dix Avenue, from Glens Falls City line east to Highland Avenue.
Jurisdiction: Town of Queensbury, Warren County
Design Considerations:
This alternative will require capital outlay for construction of new system.

Segment 3 – Town of Kingsbury: Warren/Washington County line to NYS Route 4

Cross Section

E30A, Warren/Washington County line east to US Route 4 - Provide a 38-foot, two-lane paved section with two 11-foot travel lanes and 8-foot paved shoulders on both sides of the roadway. Seasonal bicycle use will be accommodated on the paved shoulders.
Jurisdiction: Town of Kingsbury, Washington County, NYSDOT
Existing Characteristics of Concern and/or Project Objectives: Improve overall appearance, operating efficiency and safety conditions along Dix Avenue through the Washington County segment. This cross section provides 11-foot travel lanes with paved shoulders designed to separate disabled vehicles from through traffic and support on-street bicycle use.
Design Considerations:
1. Visual: Improves visibility of proposed road structure and adjacent facilities
2. Operational: Provides standard lanes, shoulders, bicycle and snow storage/pedestrian facilities throughout the segment.
3. Safety: Improves vehicular safety through the segment by accounting for existing roadway safety deficiencies and providing shoulders on both sides of the roadway.
4. Impact: May require additional right-of-way in several locations.

E30B, Warren/Washington County line east to US Route 4 - Provide a 30 - 34-foot, two-lane paved section with two 11-foot travel lanes and 4 - 6-foot paved shoulders on both sides of the roadway. Seasonal bicycle use will be accommodated on the paved shoulders.
Jurisdiction: Town of Kingsbury, Washington County, NYSDOT
Existing Characteristics of Concern and/or Project Objectives: Improve overall appearance, operating efficiency and safety conditions along Dix Avenue through the Washington County segment. This cross section provides 11-foot travel lanes with paved shoulders designed to separate disabled vehicles from through traffic and support on-street bicycle use.
Design Considerations:
1. Visual: Improves visibility of proposed road structure and adjacent facilities
2. Operational: Provides standard lanes, shoulders, bicycle and snow storage/pedestrian facilities throughout the segment.
3. Safety: Improves vehicular safety through the segment by accounting for existing roadway safety deficiencies and providing shoulders on both sides of the roadway.
4. Impact: May require additional right-of-way in isolated locations.

E30C, Warren/Washington County line east to US Route 4 - Provide a 28-foot, two-lane paved section with two 14-foot travel lanes, 6-inch reveal curbing, 8-foot snow storage area and sidewalks as described in **E32A** and **E32B**. Bicycle use will not be accommodated on the roadway.
Jurisdiction: Town of Kingsbury, Washington County, NYSDOT
Existing Characteristics of Concern and/or Project Objectives: Improve overall appearance, operating efficiency and safety conditions along Dix Avenue through the Washington County segment. This cross section provides 11-foot travel lanes with paved shoulders designed to separate disabled vehicles from through traffic and support on-street bicycle use.
Design Considerations:
1. Visual: Improves visibility of proposed road structure and adjacent facilities
2. Operational: Provides standard lanes, shoulders, bicycle and snow storage/pedestrian facilities throughout the segment.
3. Safety: Improves vehicular safety through the segment by accounting for existing roadway safety deficiencies and providing shoulders on both sides of the roadway.
4. Impact: May require additional right-of-way in isolated locations.

Access

E31, Consolidate open access through Segment 3, particularly at commercial sites near the Dean/Feeder and NYS Route 4 intersections. Identify potential shared access points for vacant/available parcels where short-term development is likely.
Jurisdiction: NYSDOT, Washington County
Existing Characteristics of Concern and/or Project Objectives: Control traffic operations, reduce congestion and accidents associated with turning movements.
Specific Locations of Concern:
1. Commercial/retail stores at Dean/Feeder intersection (north and south side)
2. Goodyear Tire store (south side)
3. Radio Shack (south side)
4. Vacant building east of Homestead Restaurant (south side)
5. Town of Kingsbury Highway Department shops (south side)
6. Vacant parcel located west of BOCES Center (north side)
7. Vacant parcel located north of the future softball fields (north side)
8. Future softball field site, west of Hudson Falls Elementary School (south side)

The first five locations above currently provide “wide open” access. Defined site drive locations will improve operations and minimize potential conflicts. The number of recommended site drives will vary depending on the type and intensity of the existing or proposed use. Small commercial parcels should be restricted to one defined driveway. In the case of vacant parcels, shared access should be explored where possible. New site access drives should be aligned with existing access wherever possible.

Pedestrian/Bicycle

E32A, Install sidewalk on the north side of the corridor from the Warren/Washington County line east to the Dean/Feeder intersection. Add sidewalk to short "missing" sections east of Dean/Feeder.
Jurisdiction: NYSDOT, Washington County, Town of Kingsbury
Existing Characteristics of Concern and/or Project Objectives: There are currently no pedestrian facilities from the County line east to Dean/Feeder. East of Dean/Feeder, there are two short sections where the sidewalk is not present.
Design Considerations:
1. Safety: Benefit- separates pedestrian traffic from roadway/shoulder. Adding this (and Segment 2) section of sidewalk will provide continuous pedestrian facilities on the north side of the roadway from Queensbury Avenue east to Route 4.
2. Impact: Cost – Maintenance will require capital outlay.

E32B, Install sidewalk on both sides of the corridor from the Warren/Washington County line east to the Dean/Feeder intersection. Add sidewalk to short "missing" sections east of Dean/Feeder.
Jurisdiction: NYSDOT, Washington County, Town of Kingsbury
Existing Characteristics of Concern and/or Project Objectives: There are currently no pedestrian facilities from the County line east to Dean/Feeder. East of Dean/Feeder, there are two short sections where the sidewalk is not present.
Design Considerations:
1. Benefit: Provides continuous pedestrian facilities on both sides of the roadway

Environmental/Social/Economic Considerations:
1. Impact: Cost - Pedestrian facilities on both sides of the roadway will require additional right-of-way.
2. Impact: Cost – Maintenance will require capital outlay.

Transit

E33, Enforce parking restriction at the Bus Stop location on Route 4, in front of the Rite Aid. Replace existing bus-stop sign with new, higher visibility signs. Add "No Parking" sign in vicinity of bus stop.
Description: Eliminates conflict parked vehicles and transit operations. Clearly identifies bus stop location on west side of Route 4.
Jurisdiction: NYSDOT, Greater Glens Falls Transit
Existing Characteristics of Concern and/or Project Objectives: Southbound trucks routinely park at the bus stop location to access the convenience store located across the street. Existing bus-stop sign is faded and difficult to notice, making identification difficult for motorists and potential service users.
Traffic/Transportation Considerations:
1. Safety: Benefit – increases motorist awareness of transit facilities and potential for stopped transit vehicles. Keeps parked vehicles out of the bus pick-up/drop-off area.

Intersection Geometry

E34, Install left-turn lanes on the east and west approaches to the Vaughn and Route 4 intersections.
Description: Separates left-turning traffic from through traffic minimizing mainline delay and reducing potential for accidents associated with stopped, turning traffic.
Jurisdiction: NYSDOT, Washington County
Existing Characteristics of Concern and/or Project Objectives: Mitigate high accident conditions at Vaughn intersection, improve traffic operations at Route 4 intersection.
Associated improvements include the following:

1. Relocate utility pole located inside the curb line at the west Rite Aid site drive.
2. Add pedestrian cross walks and signal heads at the Route 4 intersection
3. Re-stripe the existing pedestrian cross walks at the Vaughn intersection – upgrade pedestrian signal heads as necessary.

Traffic/Transportation Considerations:

1. Safety: Benefits – reduction in congestion and related accidents at important signalized intersections.

Truck Routing

E35, Add signs directing local traffic to Glens Falls and through traffic to the I-87 Northway via Dix Avenue and Quaker Road.
Description: Sign program will clarify traffic routing choices, minimizing need for turn-arounds and detours through local streets.
Jurisdiction: NYSDOT
Existing Characteristics of Concern and/or Project Objectives: Traffic routing off of Route 4 through the area is unclear. Through traffic often ends up in residential sections of Glens Falls trying to find route to the Northway. Clear routing signs should eliminate this problem.
Design Considerations:

1. Safety: Benefits – improved vehicle travel times, reduction in local congestion related to turning trucks, improve local safety by reducing volume of through traffic in residential sections of Queensbury and Glens Falls.

Lighting/Landscaping/Drainage

E36, Install standard suburban-spaced street lighting throughout Segment 3.
Description: Street lighting is sporadically located through this segment.
Jurisdiction: NYSDOT, Washington County, Town of Kingsbury
Existing Characteristics of Concern and/or Project Objectives: Improve visibility/safety through the segment.
Traffic/Transportation Considerations:
This alternative will have minimal effect on traffic operations.

E37, Clean out silted-in drainage system
Jurisdiction: NYSDOT, Washington County, Town of Kingsbury
Existing Characteristics of Concern and/or Project Objectives: Drywells are not functioning properly. Restore drainage system to good operating condition.
Design Considerations:
This alternative will require minimal capital outlay for maintenance of existing system.
Environmental/Social/Economic Considerations:
1. Impact: There will operating costs for the municipality.

B. Long Term Recommendations

The intermediate (2015) and long-term (2025) recommendations are presented in this section, categorized by needs category. Many of these recommendations are of a program or policy nature and extend out through both time periods. Where specific project recommendations are included, the time period is noted, if applicable.

Access

F1, Develop access guidelines for commercial/residential development. Guidelines should include both general and segment-specific recommendations.
General Guidelines:

- Standard site drive widths, lane configuration, traffic control, signs.
- Recommended turning radii for commercial/residential driveways
- Align driveways where possible
- Develop driveway spacing standards – number of driveways allowed based on an appropriate variable

Segment-Specific Guidelines – Segment 1:

- Tie future development access in Technical Park area to Technical Park Drive
- Tie future development north of Technical Park (on north side of Dix) to NI-Mo access drive.
- Any additional development on Dix Avenue in Glens Falls should be tied to local roadway system where possible – minimizing new access drives on Dix Avenue.

Segment-Specific Guidelines – Segment 2:

- Consider consolidated/shared access for additional development parcels at/near the Dix/Quaker intersection.

Segment-Specific Guidelines – Segment 3:

- Align future access drive to vacant parcel west of the BOCES facility with Dix Avenue Trailer Park Drive.
- Apply spacing standards to new driveways located near major intersections through the segment – US Route 4, Vaughn, Dean/Feeder.

Jurisdiction: A/GFTC, City of Glens Falls, Towns of Queensbury/Kingsbury, Warren/Washington County
Future Characteristics of Concern and/or Project Objectives: Control traffic operations, reduce congestion and accidents associated with turning movements.

The locations described above have the greatest potential for new development along the corridor. Ensuring that new development conforms to access guidelines will improve operations, minimize future traffic related conflicts and improve corridor aesthetics. Tying new development driveways to existing roadways such as Technical Park Drive and Niagara-Mohawk site drive will consolidate turning movements to specific locations, improving overall safety and allowing for future traffic control upgrades, if required. New/consolidated site access drives should be aligned with existing local streets or driveways wherever possible through the corridor.

Pedestrian/Bicycle

F2, Extend sidewalks from the Quaker Road intersection east to the corridor terminus on both sides of Dix Avenue.
Jurisdiction: NYSDOT, Town of Queensbury
Existing Characteristics of Concern and/or Project Objectives: There are currently no pedestrian facilities along this section of Dix Avenue – short term recommendations call for sidewalks to be installed on one side of the roadway from Haskell Avenue east to Route 4.
Design Considerations:
Safety: Benefit- separates pedestrian traffic from roadway/shoulder.
Sidewalk on the north side of Dix Avenue east of Quaker will facilitate tie-in to existing sidewalk on the north side in Washington County. Sidewalk on the south side will require crossings at Quaker and Highland Avenue.
Environmental/Social/Economic Considerations:
1. Impact: Sidewalk on both sides of the roadway will require additional right-of-way.
2. Impact: Cost – Maintenance will require capital outlay and coordination between jurisdictions.

All new commercial/residential development through the corridor must provide pedestrian connections to Dix Avenue pedestrian facilities. Require developers to provide standard 5-foot pedestrian sidewalks connecting to Dix Avenue sidewalk facilities.

Transit

F3, Provide space at existing and future bus stop locations for facility upgrades.
Description: Upgrade existing conditions to ADA and improved user-comfort standards. Improves image of transit – encourages use during all weather conditions.
Jurisdiction: City of Glens Falls, Greater Glens Falls Transit
Future Characteristics of Concern and/or Project Objectives: Current bus stops provide no weather protection and are not ADA compliant in terms of facilitating use by disabled patrons. In order to encourage future usage and attain ADA compliance, the following features will need to be installed:
- Weather shelters w/seating
- ADA flush curbing facilitating movement from street to curb level

In conjunction with new signs providing improved visibility, these additions should make transit in the Greater Glens Falls service area more attractive.

These recommendations should be implemented at new bus-stop locations throughout the corridor as well.

- Provide adequate space at key intersections for future transit facilities – bus stop signs, shelters, flush curbing.
- Key locations along Dix Avenue should include:
    1) Quaker Road
    2) Queensbury Avenue
    3) BOCES
    4) Dean/Feeder
    5) Vaughn/Hudson Falls Elementary School
    6) Route 4

Additional locations may become important as future development occurs.

Traffic/Transportation Considerations:

1. Improved Mobility: Benefit – transit patrons will be provided will a higher level of comfort and convenience. Barriers for general use by the disabled will be removed.

Intersection Geometry

F4, Add intersection capacity where necessary – based on projected operations.

- Add left-turn lanes on both approaches to the Dix/Dean/Feeder intersection (Long term - 2015).
- Add eastbound left-turn lane on Dix Avenue at the BOCES site drive (Long term – 2025).

Description: Separate left-turning movements from through traffic – improves future intersection LOS by reducing mainline delay and reduces potential for accidents associated with stopped, turning traffic.

Jurisdiction: NYSDOT, Washington County

Future Characteristics of Concern and/or Project Objectives: Improve future intersection LOS at critical locations.

Traffic/Transportation Considerations:

1. Congestion: Benefit – improve intersection operations by removing left-turning vehicles from through traffic.
2. Safety: Benefit – reduction in congestion-related accidents at key locations.

Traffic Signal Improvements

F5, Add protected turning phases to traffic signals where applicable.
Description: Protected turning phases will be required at signalized intersections where left-turn lanes have been added. Locations include Dix/Dean/Feeder in 2015.
Jurisdiction: NYSDOT, City of Glens Falls
Future Characteristics of Concern and/or Project Objectives: Ensure optimum traffic and safety operations at reconfigured intersections along the corridor.
Traffic/Transportation Considerations:
1. Congestion: Benefit – improve intersection operations by allowing for protected movements.
5. Safety: Benefit – reduction in congestion-related accidents at signalized locations.

Truck Routing

F6, Continue enforcement of truck routing program, restricting trucks to arterial roadways and selected local streets. Incorporate new development into the system on an ongoing basis.
Description: To maintain traffic and safety benefits gained through developing specific truck routes through the City of Glens Falls and Town of Queensbury, ongoing enforcement and adaptation to needs of new industrial start-ups will be necessary.
Jurisdiction: City of Glens Falls, Town of Queensbury
Future Characteristics of Concern and/or Project Objectives: ensure that the original system – as devised by this advisory committee, the City of Glens Falls and the Town of Queensbury – continues to function.
Traffic/Transportation Considerations:
1. Safety: Benefit – continue to minimize potential impacts associated with trucks on residential streets.

Accident Mitigation Strategy

F7, Monitor safety conditions at the current high accident locations through the corridor - Dix/Sagamore, Dix/Cooper, Dix/Quaker, Dix/Highland and Dix/Vaughn. Short-term improvements have been recommended at all high accident locations. Future monitoring is suggested before and after the short-term recommendations are implemented.
Description: Dix/Sagamore - Dix/Cooper: Upon implementation, the short term improvements recommended at the Dix/Cooper intersection are anticipated to reduce the turning volumes at these two intersections and the associated turning-related accidents.
Dix/Quaker: Optimizing traffic signal operations at this intersection should improve safety conditions as accidents associated with turning movements and driver frustration should be minimized.
Dix/Highland: Realigning this intersection and adding westbound left-turn lane will reduce accidents associated with left-turn movements and minimize driver confusion.
Dix/Vaughn: Adding left-turn lanes on both east and west approaches will eliminate stopped mainline traffic and associated congestion-related accidents.

Jurisdiction: NYSDOT, City of Glens Falls, Towns of Queensbury/Kingsbury, Warren/Washington Counties, A/GFTC
Future Characteristics of Concern and/or Project Objectives: Ensure that short-term recommended roadway improvements through the corridor are addressing the existing high accident conditions.
Traffic/Transportation Considerations: Safety: Benefit – monitoring safety conditions throughout the corridor will verify improved operations, identify future problems.

Lighting/Landscaping/Drainage

F8, Develop and maintain consistent residential/commercial planting/landscaping design theme through the City of Glens Falls, Warren County and NYSDOT segments.
Jurisdiction: NYSDOT, Warren County, City of Glens Falls
Characteristics of Concern and/or Project Objectives: Maintain consistent urban image in Glens Falls, transitioning to suburban image in remainder of Queensbury and Kingsbury. Maintain good operating conditions on lighting and drainage elements throughout the corridor.
Design Considerations: Capital outlay will be required for initial design, implementation and ongoing maintenance.
Traffic/Transportation Considerations: Traffic impacts will be negligible

C. Evaluation Matrix

The following "Alternatives Evaluation Matrix" shows all alternatives that were evaluated. A qualitative rating system was developed to evaluate various factors for each alternative. These factors, as described previously, fall under the categories of:

- Traffic/Safety/Multimodal
- Social/Land Use/Economic
- Environmental
- Cost/Construction
- Community/Neighborhood Impacts

Factor weights were also developed. Four weighting groups were formed with weights of 1, 2, 3, or 4 assigned to the factors, as indicated on the matrix. The weights correspond to benefits and costs/impacts, categorized on the matrix as slight/moderate or high. The ratings for environmental (open space, wetland), and construction costs were based on the following quantitative values:

<u>Open Space Impacts</u>
- High – greater than 10 acre impact
- Medium – 5 – 10 acres impact
- Low ->0 to 5 acres of impact
- No Impact – 0 acres impact
- High – greater than 10 acre impact

<u>Construction Costs</u>
- High - >$2 Million
- Medium - >$500,000 to $2 Million
- Low - $50,000 to $500,000
- No Impact – less than $50,000

Wetland Impacts

- High – greater than 5 acres impact
- Medium – 1 to 5 acres of impact
- Low – less than 1 acre of impact

The alternatives are listed in Table 16.

Table 16
EVALUATION MATRIX
DIX AVENUE CORRIDOR STUDY
POSSIBLE SOLUTIONS

+++ *Benefit*		- *Slight Impact*	
+ *Slight/Moderate Benefit*		-- *Moderate Impact*	
No Impact/Not Applicable		--- *High Impact*	

Possible Solution	Traffic Congestion	Ped/Bike Safety	Vehicle Safety	Construct. Cost	Mainten. Costs	Nbrhd Effects	Comm Accept	Hist/Arch Cultural	L/Use Compat.	Econ. Effects	Environ. Effects	Busnss Effects
1. Short Term Recommendations												
Segment 1												
E1A Add 36-foot Cross Section	+	+++	+++	---	-	+++	+++		+++	+	+	
E1B Add 40-foot Cross Section	+++	+	+++	---	-	+++	+		+	-		-
E2 Consolidate Access - Segment 1	+	+	+++	-	-	+	+		+	+	+++	-
E3A Install Brick Snow Storage Area				--	--	+	+	+	+	+	+	+
E3B Install Grass Snow Storage Area				-	-	+	+	+	+	+	+++	+
E4 Extend South Sidewalk to City Line		+++		---	-	+	+++				+	
E5 Extend North Sidewalk to Uncas		+++		-	-	+	+				+	-
E6 Extend N + S Sidewalk to City Line		+++		-	-	+	+			+	+	+
E7 Monitor Safety at Trail Crossing		+				+	+				-	
E8 Install New Bus Stop Signs		+	+				+					
E9 Remove Trucks from Local Streets	+	+	+			+++	+++		+		+	
E10 Lengthen Turning Radii at Dix/Ridge	+		+++	-					-	+		+
E11 Add L-Turn Lanes at Cooper/Tech. Prk	+	+	+	-	-	+	+				-	+
E12 Signalize Dix/Cooper Intersection	+	+	+++	-	-	+	+		+	+	+	+
E13A Clean Out silted-in Drainage System				-	-	+	+	+		+	+	
E13B Add New Closed Drainage System				--	-	+	+	+	+	+	+	
Segment 2												
E14 (**E15C**)Provide 28-foot Cross Sect.		+	+	--	-	+	+		+	+	+	
E15A Provide 38-foot Cross Section	+	+	+	---	-	+	+		+	+	+	
E15B Provide 30 - 34-foot Cross Section	+	+	+	---	-	+	+		+	+	+	
E16 Consolidate Access - Segment 2	+	+	+++	-	-	+	+		+	+	+++	-
E17 Extend S. Sidewalk to Queensbury		+		-	-	+	+++				+	+
E18A Extend N. Sidewalk to County Line		+++		-	-	+	+++		+	+	+++	+
E18B Extend N + S Sidewalk to Cnty Line		+++		--	-	+	+		+	+	+	+
E19 Ped Crossing @Quaker & Queensbry		+++		-	-	+	+		+			+
E20 Realign Dix/Highland	+		+++	---	-		+		-		-	
E21 L-Turn Lanes at Dix/Queensbury	+++	+	+	--	-				-	+	-	
E22 Install Traffic Routing Signs	+					+			+	+		
E23 No Through Truck Signs - Local Sts.	+	+	+			+++	+++		+		+	

Table 16 (Continued)
EVALUATION MATRIX
DIX AVENUE CORRIDOR STUDY
POSSIBLE SOLUTIONS

+++	*Benefit*	-	*Slight Impact*
+	*Slight/Moderate Benefit*	--	*Moderate Impact*
	No Impact/Not Applicable	---	*High Impact*

Possible Solution	Traffic Congestion	Ped/Bike Safety	Vehicle Safety	Construct. Cost	Mainten. Costs	Nbrhd Effects	Comm Accept	Hist/Arch Cultural	L/Use Compat.	Econ. Effects	Environ. Effects	Busnss Effects
E25 Add turn Phases at Queensbury	+++	+	+	-	-					+	+	
E26 Add Coord. System to Corridor	+++		+	--	-	+				+	+	
E27 Install Street Lighting - Segment 2		+	+	-	-	+	+	+	+		+	+
E28 Clean Drainage System				-	-	+	+		+		+	
E29 Install Closed Drainage to Highland				--	-	+	+		+		+	
Segment 3												
E30A Add 38-foot Cross Section	+	+	+	---	-	+	+		+		+	-
E30B Add 30-34-foot Cross Section	+	+	+	--	-	+	+		+		+	-
E30C Add 28-foot curbed Cross Section	+	+	+++	---	-	+	+		+		+	
E31 Consolidate Access - Segment 3	+	+	+++	--	-	+	+		+		+	-
E32A Install N. Sidewalk to Dean/Feeder		+++	+	-	-	+	+		+		+	+
E32B Install Sidewalk - Both Sides		+++	+	--	-	+	+		+		+	-
E33 Enforce "No Parking" at Bus Stops		+	+			+	+					
E34 Add L-Turn Lanes @Vaughn & Rte 4	+++		+++	--	-		+		+	+	+	
E35 Add Traffic Routing Signs		+	+			+	+		+		+	
E36 Install Street Lighting - Segment 3		+	+	-	-	+	+		+		+	+
E37 Clean Existing Drainage System				-	-	+	+		+		+	+
Possible Solution	Traffic Congestion	Pedestrian Safety	Vehicle Safety	Construct. Cost	Mainten. Costs	Nbrhd Effects	Comm Accept	Hist/Arch Cultural	L/Use Compat.	Econ. Effects	Environ. Effects	Busnss Effects
2. Long Term Recommendations												
F1 Devel. Long Term Access Guidelines	+	+	+			+	+	+	+	+	+	-
F2 Ped. Connection Guidelines		+++				+	+	+	+			+
F3 Upgrade Transit Facilities		+		-		+	+		+			+
F4 Add Intersection Capacity	+++	+	+	---	-	+	+		+	+	+	-
F5 Add Turning Phases	+++	+	+	-	-	+	+		+	+		
F6 Monitor Traffic Routing	+		+			+++	+++		+		+	
F7 Monitor Safety at Current HAL's		+++	+++			+	+	+				+
F8 Develop Consistent Landscaping				-	-	+	+++	+++	+		+	+

XXVIII.RECOMMENDATIONS

Based on the list of alternatives presented in the previous section, a set of short, intermediate and long term recommendations has been developed. These recommendations are categorized by time frame and roadway segment. For convenience, these recommendations are also displayed on Figures 33 – 35 located at the end of this section.

Segment 1 – Glens Falls: Short Term Recommendations

E1A Provide 36-foot curb-to-curb cross section with 14-foot travel lanes, 8-foot on-street parking lane on the south side, 6-inch reveal granite curbing and 8-foot grass snow storage area with trees.

E2 Consolidate open access at commercial sites by installing granite curbing and defined channelized driveway locations.

E3B Install 8-foot typical grass snow storage area with trees between curb and sidewalk adjacent to commercial properties listed in **E2**.

E4 Extend pedestrian sidewalk on the south side of Dix Avenue east from its' current terminus at Haskell Avenue to the City Line.

E5 Extend pedestrian sidewalk on the north side of Dix Avenue from its' current terminus at Byrne east to Uncas – one block to the east.

E7 Monitor safety conditions at existing striped rail-trail crossing in the vicinity of Walnut St.

E8 Replace existing bus-stop signs with new, higher visibility signs.

E9 Install "No Through Trucks" restrictive signs on North-South local streets in City of Glens Falls.

E10 Lengthen turning radii on the Dix Avenue leg of the Dix/Ridge Avenue intersection.

E11 Add left-turn lanes on Dix Avenue approaches to Cooper Street and Technical Park Drive.

E12 Signalize the Dix/Cooper intersection – Install Pedestrian Crossing.

E13A Clean out silted-in drainage system (immediate need).

E13B Install new closed drainage system

Segment 2 – Town of Queensbury: Short Term Recommendations

E14 Provide 28-foot curb-to-curb section with 6-inch reveal curbing, two 14-foot travel lanes, 8-foot grass snow storage area and sidewalk.

E16 Consolidate open access through Segment 2, particularly at commercial sites near the Queensbury Fire Department and at the Dix/Queensbury intersection.

E17 Extend sidewalk on the south side of Dix Avenue from the Glens Falls City line east to Queensbury Avenue.

E18A Extend sidewalk from the Queensbury intersection east to the Warren/Washington County line on the north side of Dix Avenue.

E19 Install pedestrian crossing pavement markings and signal heads at the Quaker Road, Highland Avenue and Queensbury Avenue intersections. Add pedestrian signal heads at Quaker and Queensbury intersections.

E20 Re-design the Dix/Highland "Y" intersection to form a stop-controlled "tee" located west of the current intersection. Add a westbound left-turn pocket on Dix Avenue at Highland and improved directional signs.

E21 Add left-turn lanes on both approaches to the Dix/Queensbury intersection.

E22 Install signs directing I-87 bound traffic to Quaker Road, and local traffic to either Dix Avenue or Highland Avenue.

E23 Install "No Through Trucks" restrictive signs on north-south local streets that connect Dix Avenue and Warren Boulevard east of Highland Avenue in Town of Queensbury.

E25 Add protected turning phases to Dix Avenue approaches at Dix/Queensbury traffic signal.

E29 Install new closed drainage system extending from Glens Falls City line east to Highland Avenue.

Segment 3 – Town of Kingsbury: Short Term Recommendations

E30C Provide a 28-foot, two-lane paved section with two 14-foot travel lanes, 6-inch reveal curbing, 8-foot snow storage area and sidewalks.

E31 Consolidate open access at commercial sites near the Dean/Feeder and NYS Route 4 intersections.

E32A Install sidewalk on the north side of the corridor from the Warren/Washington County line east to the Dean/Feeder intersection. Add sidewalk to short "missing" sections east of Dean/Feeder.

E33 Enforce parking restriction at the Bus Stop location on Route 4, in front of the Rite Aid.

E34 Install left-turn lanes on the east and west approaches to the Vaughn and Route 4 intersections.

E35 Add signs directing local traffic to Glens Falls and through traffic to the I-87 Northway via Dix Avenue and Quaker Road.

Corridor Wide Short Term Recommendations

- Install standard suburban-spaced street lighting throughout Segments 2 and 3.
- Clean out silted-in drainage system.
- Install coordinated signal system through Dix Avenue corridor

Long Term Recommendations

F1 Develop access guidelines for commercial/residential development.

F2 Require developers to provide standard 5-foot pedestrian sidewalks connecting to Dix Avenue sidewalk facilities.

F3 Provide space at existing and future bus stop locations for facility upgrades.

F4 Add intersection capacity where necessary – based on projected operations.
Add left-turn lanes on both approaches to the Dix/Dean/Feeder intersection (Long term - 2015).
Add eastbound left-turn lane on Dix Avenue at the BOCES site drive (Long term – 2025).

F5 Add protected turning phases to traffic signals where applicable.

F6 Continue enforcement of truck routing program, restricting trucks to arterial roadways and selected local streets. Incorporate new development into the system on an ongoing basis.

F7 Monitor safety conditions at the current high accident locations through the corridor - Dix/Sagamore, Dix/Cooper, Dix/Quaker, Dix/Highland and Dix/Vaughn. Short-term improvements have been recommended at all high accident locations.

F8 Develop and maintain consistent residential/commercial planting/landscaping design theme through the City of Glens Falls, Warren County and NYSDOT segments.

Dix Avenue Corridor

Figure 33. Recommended Improvements (Western Corridor)

Lengthen turning radii on Dix Avenue approaches to better accommodate truck turning movements

Monitor safety conditions at Dix/Cooper intersection (current High Accident Location)

Add left-turn lanes at Dix/Cooper intersection

Signalize Dix/Cooper intersection

Install striped pedestrian crossing

Extend northside sidewalk to Uncas Avenue

Link future development access to NiMo site drive

Monitor safety conditions at Dix/Sagamore intersection (current High Accident Location)

Install topsoil/grass snow storage area with trees

Consolidate open access at commercial site

Monitor safety conditions at trail crossing.

Upgrade existing treatment consistent with other treatments as required.

Install topsoil/grass snow storage area with trees

Consolidate open access at commercial sites

Replace existing bus stop sign

Provide weather protection seating and flush curbing

Add left-turn lanes at Technical Park Drive intersection

Extend southside sidewalk to Quaker Road

Link future development access to Technical Park Drive

Install "No Through Truck" signs on local north-south streets

Legend

- New sidewalks
- New crosswalks

Improvements

- *Short term (through 2005)*
- *Intermediate term (through 2015)*
- *Long term (through 2025)*
- *Ongoing activity*

N

500 0 500 1000 Feet

100 0 100 200 300 Meters

This map was created from data provided by the Adirondack-Glens Falls Transportation Council, the Town of Queensbury, Warren County, and Washington County. These data sets were converted, combined, and processed using ArcView® and ARC/INFO® GIS software.

DIX AVENUE CORRIDOR

Figure 34. Recommended Improvements (Central Corridor)

Monitor safety conditions at Dix/Quaker intersection (current High Accident Location)

Realign Highland Avenue to form a stop-controlled "Tee"

Add westbound left-turn lane to Dix Avenue approach

Provide 38 ft paved section with 11 ft travel lanes, 8 ft paved shoulders from Highland east to Route 4

Install northside sidewalk from Queensbury to county line

Provide 28 ft paved section with 14 ft travel lanes, 8 ft grass snow storage from City line to Highland

Add pedestrian signal heads to Quaker signal

Encourage shared access for new development in Quaker/Highland area

Consolidate open commercial access

Install pedestrian crosswalk

Install pedestrian crosswalk

Install pedestrian crosswalk

Install southside sidewalk to Queensbury Ave

Install closed drainage system from County line to Highland

Monitor safety conditions at Dix/Highland intersection (current High Accident Location)

Install signs routing traffic to I-87 and Glens Falls via Highland, Dix and Quaker

Install "No Trucks" restrictive signs

Add left-turn lanes to Dix Avenue approaches

Add protected turning phases to signal

Legend

- New sidewalks
- New crosswalks

Improvements

- *Short term (through 2005)*
- *Intermediate term (through 2015)*
- *Long term (through 2025)*
- *Ongoing activity*

N

500 0 500 1000 Feet

100 0 100 200 300 Meters

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DIX AVENUE CORRIDOR

Figure 35. Recommended Improvements (Eastern Corridor)

Require 5-foot sidewalk to link to future public sidewalk along Dix Avenue

Add left-turn lanes on east/west Dix Avenue approaches at Dean/Feeder

Upgrade traffic signal

Monitor safety conditions at Dix/Vaughn intersection (current High Accident Location)

Install signs routing traffic to I-87 and Glens Falls

Apply driveway spacing standards to redeveloped commercial parcels

Provide 38 ft paved section with 11 ft travel lanes, 8 ft paved shoulders from Highland east to Route 4

Improve west-to-north site distance: Trim/remove tree, lower fencing

Install northside sidewalk from county line to Dean/Feeder

Install northside sidewalk from Queensbury to county line

Consolidate open commercial access

Add eastbound left-turn lane at BOCES site drive

Install left-turn lanes on Dix Avenue approaches

Upgrade traffic signal

Install left-turn lanes on east/west Dix Avenue approaches

Upgrade traffic signal

Restrict parking at bus stop

Align future site drive with Dix Avenue trailer park driveway

Legend

- New sidewalks
- New crosswalks

Improvements

- *Short term (through 2005)*
- *Intermediate term (through 2015)*
- *Long term (through 2025)*
- *Ongoing activity*

N

500 0 500 1000 Feet

100 0 100 200 300 Meters

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XXIX. FUTURE TRAFFIC OPERATIONS

As discussed in Section XVIII – Expected Levels of Service, and shown on Table 12, the existing geometric design of the roadway will not perform adequately in certain locations as future development and associated traffic increases occur. The recommendations described previously have been designed to address specific mobility/safety deficiencies, as well as ensure acceptable operating Levels of Service. Future intersection LOS incorporating recommended improvements by time period is presented in Table 17. Review of Table 17 shows that with the recommended improvements implemented, no overall intersection LOS will be below LOS "C" at the 2025 time horizon, and no individual turning movement will operate below LOS "D". Comparing this to Table 14 (p.65) shows significant gains in operating efficiency can be expected as left-turning movements are separated from through movements at the key intersections.

As a final step in judging the effect of implementing the recommendations, a sensitivity analysis is provided that identifies the levels of traffic increase beyond those projected herein that would necessitate additional capacity improvements, and ultimately, additional through-capacity on Dix Avenue.

XXX. SENSITIVITY ANALYSIS

In order to gauge the longer term effects of the traffic related recommendations, a sensitivity analysis was performed in order to gauge if and when the corridor would require additional through capacity. This was accomplished by assessing the increases in traffic that the short and long term intersection improvements recommended herein could accommodate beyond the projected long-term volume increases developed in this study. Due to the close proximity of signalized intersections through the corridor, the operation of these intersections will drive the overall roadway operations (delay, arterial LOS) through the corridor. Identifying and analyzing a number of key intersections will then serve to assess the operations along the corridor. The key locations considered are the intersections of Dix Avenue with Quaker Road, Queensbury Avenue and US Route 4.

The method employed begins with determining the percentage increase in corridor traffic at the three key locations from the current (1999) levels to the long term projected levels at the year 2025. The 2025 traffic levels and intersection LOS operations include the improvements recommended in this report. To test the sensitivity of these recommendations, traffic volumes at these three intersections were increased to a level that would border on unacceptable (LOS "D") operations with implementation of the recommendations. These critical volume and percentage increases in traffic are shown in Table 18.

Table 17
Dix Avenue Corridor Study
LOS Summary

Existing/Revised Signal Timings & Lane Configurations																	
Location/	**1999 Existing**		**2005 existing**		**lane config.**	**2005 revised**		**2015 existing**		**lane config.**	**2015 revised**		**2025 existing**		**lane config.**	**2025 existing**	
Movement	**AM**	**PM**	**AM**	**PM**	**changes**	**AM**	**PM**	**AM**	**PM**	**changes**	**AM**	**PM**	**AM**	**PM**	**changes**	**AM**	**PM**
Dix/Ridge	**B**	**B**	**B**	**B**		**B**	**B**	**B**	**B**		**B**	**B**	**B**	**D**		**B**	**B**
WB L	C	B	C	B		C	B	C	C		C	C	C	C		C	C
WB R	B	B	B	B		B	B	B	B		B	B	B	B		B	B
NB T	B	B	B	B		B	B	B	B		B	B	B	B		B	C
NB R	A	A	A	A		A	A	A	A		A	A	A	A		A	A
SB L	B	B	B	B		B	B	B	C		B	C	B	F		B	D
SB T	B	B	B	B		B	B	B	B		B	B	B	B		B	B
Dix/Cooper					add signal	**B**	**B**			add signal	**B**	**B**			add signal	**B**	**B**
EB LTR	a	a	a	a		A	A	a	a		B	B	a	a		B	B
WB LTR	a	a	a	a		A	A	a	a		A	A	a	a		A	B
NB LTR	c	c	c	c		C	C	c	e		C	C	d	f		C	C
SB LTR	c	c	c	c		C	C	d	f		C	C	e	f		C	C
Dix/Quaker	**C**	**C**	**C**	**D**		**B**	**C**	**C**	**E**		**B**	**C**	**C**	**F**		**B**	**C**
EB L	C	C	C	C		B	C	C	C		B	C	C	C		B	C
EB T	C	C	C	C		B	C	C	C		B	C	C	C		B	C
EB R	A	A	A	A		A	B	A	A		A	B	A	A		A	B
WB LT	D	D	D	D		B	C	D	E		B	D	D	F		B	D
WB R	B	B	B	C		B	B	B	C		B	B	B	C		B	B
SB L	B	C	C	E		B	C	C	F		B	C	C	F		C	D
SB T	D	D	D	E		B	B	D	F		B	B	D	F		B	B
SB R	A	A	A	A		A	A	A	A		A	A	A	A		A	A
NB L	B	B	B	C		B	B	B	C		B	B	B	C		B	B
NB T	D	D	D	D		B	C	D	E		C	D	D	F		C	D
NB R	A	A	A	A		A	A	A	A		A	A	A	A		A	A
Dix/Queensbury	**B**	**B**	**C**	**F**		**B**	**B**	**F**	**F**		**C**	**B**	**F**	**F**		**C**	**B**
	--	--	--	--	EB L	C	A	--	--	EB L	A	C	--	--	EB L	B	C
EB LTR	B	B	E	F	EB TR	A	B	F	F	EB TR	A	B	F	F	EB TR	A	B
	--	--	--	--	WB L	A	A	--	--	WB L	B	A	--	--	WB L	A	A
WB LTR	B	B	B	B	WB TR	B	A	C	B	WB TR	D	B	F	B	WB TR	D	B
NB LTR	B	B	B	B		B	B	B	B		B	B	B	B		C	B
SB LTR	B	B	B	B		B	B	B	C		C	C	B	C		C	C

Table 17
Dix Avenue Corridor Study
LOS Summary

Existing/Revised Signal Timings & Lane Configurations																	
Location/	**1999 Existing**		**2005 existing**		**lane config.**	**2005 revised**		**2015 existing**		**lane config.**	**2015 revised**		**2025 existing**		**lane config.**	**2025 existing**	
Movement	**AM**	**PM**	**AM**	**PM**	**changes**	**AM**	**PM**	**AM**	**PM**	**changes**	**AM**	**PM**	**AM**	**PM**	**changes**	**AM**	**PM**
Dix/Dean	**B**	**B**	**B**	**B**		**B**	**B**	**B**	**D**		**B**	**B**	**B**	**F**		**B**	**C**
	--	--	--	--		--	--	--	--	EB L	A	A	--	--	EB L	A	A
EB LTR	A	A	A	C		A	C	A	E	EB TR	A	B	A	F	EB TR	A	D
	--	--	--	--		--	--	--	--	WB L	A	A	--	--	WB L	A	A
WB LTR	A	A	A	B		A	B	A	A	WB TR	A	A	B	B	WB TR	A	B
NB LTR	C	B	C	B		C	B	C	B		C	B	C	B		C	B
SB LTR	C	B	C	B		C	B	C	B		C	B	C	B		C	B
Dix/Vaughn	**B**	**B**	**B**	**C**		**B**	**C**	**B**	**F**		**B**	**B**	**B**	**F**		**B**	**B**
	--	--	--	--		--	--	--	--	EB L	A	A	--	--	EB L	A	B
EB LTR	A	B	A	D		A	D	A	F	EB TR	A	B	B	F	EB TR	A	C
	--	--	--	--		--	--	--	--	WB L	A	A	--	--	WB L	A	A
WB LTR	A	A	A	B		A	B	B	B	WB TR	B	A	B	B	WB TR	B	B
NB LTR	B	B	B	C		B	C	B	B		B	B	B	B		B	B
SB LTR	B	B	B	B		B	B	B	B		B	B	B	B		B	B
Dix/Main (Rt 4)	**B**	**B**	**B**	**F**		**B**	**B**	**B**	**F**		**B**	**B**	**C**	**F**		**B**	**B**
	--	--	--	--	EB L	B	C	--	--	EB L	B	D	--	--	EB L	B	B
EB LTR	B	B	B	F	EB TR	B	B	C	F	EB TR	B	B	E	F	EB TR	B	B
	--	--	--	--	WB L	B	B	--	--	WB L	B	B	--	--	WB L	B	B
WB LTR	B	B	B	C	WB TR	B	B	C	D	WB TR	B	B	D	F	WB TR	B	C
NB LTR	A	B	B	B		B	B	B	B		B	B	B	B		B	C
SB LT	A	B	B	B		B	B	B	B		B	B	B	B		B	B
SB R	A	A	A	A		A	A	A	A		A	A	A	A		A	A

(A) = Level of Service for a signalized intersection

Table 18
TRAFFIC INCREASES REQUIRED TO IMPACT CURRENT INTERSECTION RECOMMENDATIONS

Intersection	Current Intersection Volume (PM Peak)	Projected 2025 Intersection Volume (PM Peak)	Critical Volume and % Increase Beyond 2025	Further Recommended Solutions	Critical Volume & % Increase After Recommended Solutions
Dix/Quaker	2007 LOS – C	2705 (+35%) LOS – C*	3238 (+20% from 2025) (+60% from 1999) LOS – D	Add dual SB Left Turn Lanes LOS – C	3785 (+37% from 2025) (+88% from 1999) LOS – D
Dix/ Queensbury	1412 LOS – B	2098 (+48%) LOS – B*	2517 (+20% from 2025) (+80% from 1999) LOS – D	Add SB Left Turn Lane LOS – C	2943 (+40% from 2025) (+109% from 1999) LOS – D
Dix/Route 4	1609 LOS – B	2198 (+37%) LOS – B*	2519 (+15% from 2025) (+56% from 1999) LOS – D	Add NB and SB Left Turn Lanes LOS - C	2963 (+35% from 2025) (+84% from 1999) LOS – D

* LOS associated with projected 2025 volumes assumes implementation of recommended capacity improvements.

The next step was to determine if additional low-cost solutions would be feasible in restoring acceptable LOS, or if additional through capacity would be required. The further recommended solutions shown in Table 18 were included in the analysis and the resulting LOS – C operations were found at all three intersections. These recommendations, considered post 2025, would be the next set of improvements required to maintain satisfactory operating conditions through the corridor if and when traffic volumes approach the levels indicated. In all cases, these improvements consisted of adding left-turn lanes to the cross-street approaches.

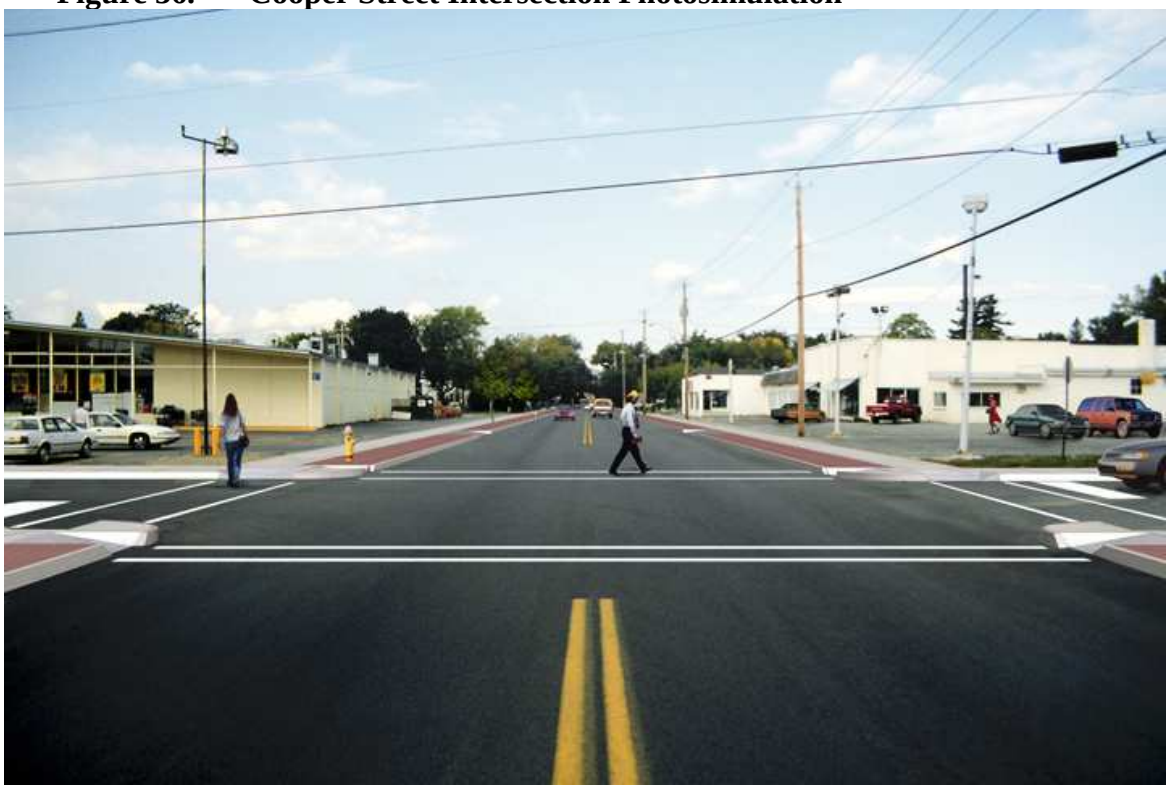
Finally, additional traffic was added to all three intersections in order to determine the volumes and percent increase required to offset the further recommendations. Capacity analysis was conducted at the three intersections assuming that the further recommendations were implemented. The final column in Table 18 shows the actual and percentage increases over current and 2025 projected traffic volumes that would be required to compromise acceptable operating conditions. At this point, low cost improvements may well be exhausted and additional through capacity on Dix Avenue may be required.

In summation, additional growth of between 15% and 20% beyond that forecast through 2025 in this study could be supported with the improvements proposed herein. Beyond that, 35% to 40% additional traffic growth could be supported, with the implementation of low cost improvements - as shown in Table 18 - before additional through capacity on Dix Avenue would need to be considered.

XXXI. FUTURE ROADWAY CHARACTERISTICS

As a final task in the development of the Corridor Management Plan, Sear-Brown developed three photo-simulations that depict actual locations along the corridor with proposed roadway elements added. These simulations are not meant to show precisely how a location will appear, but rather to provide an idea of what the recommended improvements could look like in certain places. The locations for the photo-simulations were chosen and approved by the project team. The first photo-simulation – Figure 36 - shows the improved Cooper Street intersection. The proposed traffic signal is present along with turning lanes, pedestrian crossings/stop bar. This photosimulation provides a good representation of how this intersection could appear and function when improved. This intersection is the only new signal location through the corridor.

Figure 36. Cooper Street Intersection Photosimulation



The second photosimulation – Figure 37 - shows the roadway as it will appear in the vicinity of the Prospect Street intersection, just east of Whiteman Chevrolet in Glens Falls. Defined access and pedestrian facilities are highlighted here, as shown by the new curbing, site driveway, snow storage areas and sidewalks on both sides of the roadway. Trees have been added to the snow storage area on the north side as well.

Figure 37 provides an excellent example of how the Glens Falls segment of the corridor could appear with enhanced pedestrian facilities on both sides of the roadway. While this is an option subject to right-of-way constraints and land acquisition costs, its' merits in providing a vastly improved pedestrian environment should not be overlooked.

Figure 37 Prospect Street Photosimulation

Finally, the Dix/Queensbury intersection is shown on Figure 38, incorporating the recommended changes including left-turn lanes, access control via curbing and channelized site driveways and sidewalk on the north side of the roadway. The widening to incorporate the turn lanes could require relocation of overhead utilities, as shown. The traffic signal will need to be modified to include left-turn phases and support poles could need to be relocated, as shown. Specific driveway locations eliminate "wide open" conditions that exist today and minimize turning conflicts due to closeness to the intersection. Pedestrian facilities are shown on the north side of the roadway only in this case, an alternative designed to minimize right-of-way needs and provide easy tie-in to existing north side sidewalks located further to the east.

Unlike the first two photosimulations showing locations in the City of Glens Falls, this location is more suburban in nature and may not warrant a grass snow storage with trees design adjacent to the intersection. However, the "greener" design is an option at these suburban locations and should be considered as a method of maintaining a consistent identity through the corridor.

Figure 38. Queensbury Avenue Intersection Photosimulation

XXXII.CONCLUSIONS

The Corridor Management Plan was developed in order to identify deficiencies in intermodal safety and mobility and develop feasible alternative improvements. This plan summarizes the process used to assess current and forecasted mobility needs through the Dix Avenue corridor. A companion study, Expanded Project Proposal – Dix Avenue Corridor Improvements, provides preliminary design and cost elements for the western section of Dix Avenue, scheduled for rebuilding in 2004.

The project team has identified the transportation needs through the corridor through detailed analysis, evaluation and public input. Through this process, it has been determined that Dix Avenue will function adequately as a two-lane roadway through the 2025 time horizon with a series of short, intermediate and long term improvements focused on adding capacity at specific locations, controlling access and improving pedestrian/bicycle facilities.

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