NYS ROUTE 151
(Luther Road)
CORRIDOR STUDY
(from U.S. Route 4 to Columbia High School access road)

TOWN OF EAST GREENBUSH

2004
Town of East Greenbush

NYS ROUTE 151
(Luther Road)
CORRIDOR STUDY
(from US Route 4 to
Columbia High School access road)

JUNE 2004

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4 Computer Drive West
Albany, New York 12205

Laberge Project # 23020
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Acknowledgements

The Town of East Greenbush and the Capital District Transportation Committee would like to recognize the following individuals for their contribution and guidance throughout the preparation of this study:

**STUDY ADVISORY COMMITTEE**
- Robert Angelini, P.E., Supervisor
- Anne Benware, Capital District Transportation Committee
- Terrance Brewer, Superintendent of East Greenbush Public Schools
- Richard Kemner, Sargeant of East Greenbush Police Department
- Dean Kennedy, P.E., East Greenbush Traffic Safety Committee Chair
- Christopher Lavin, East Greenbush Police Chief
- Marie Miszewski, East Greenbush YMCA
- Patricia Nonamaker and Deborah Shoup, East Greenbush Public Library
- Kevin Novak, P.E., NYSDOT Region 1 Planning & Programming Management
- Peter Partak, East Greenbush Commissioner of Public Works

**TOWN COUNCIL**
- Robert Angelini, P.E., Supervisor
- Phillip Danaher, Council Member
- Dean Kennedy, P.E., Council Member
- Rick McCabe, Council Member
- Richard Reilly, Council Member

**CDTC (Capital District Transportation Committee)**
- John Poorman, Staff Director
- Anne Benware, Senior Transportation Planner
Acknowledgements

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Executive Summary

In the Spring of 2003, the Town of East Greenbush with assistance from the Capital District Transportation Committee (CDTC) initiated a corridor study of New York State Route 151, from U.S. Route 4 to Columbia High School. The study was partially funded by the Community and Transportation Linkage Program.

The purpose and goals of the study is to identify short and long-term action recommendations that would improve pedestrian, bicycle and vehicular safety and mobility in the corridor, with particular concern being pedestrian safety between the High School, Public Library and YMCA Facilities; and reducing vehicular congestion on Route 151 during peak hour periods.

A Study Advisory Committee was established to assist the Consultant throughout the study period and provide input on potential actions that may be implemented to meet the goals of the study. Public input was solicited through an informational meeting and via documents placed on the Town of East Greenbush, CDTC, East Greenbush Public Library and YMCA facilities respective websites.

Based upon goals of the study, engineering evaluation of numerous options and input from the public, the following actions are suggested for future implementation.

SHORT-TERM ACTIONS

- Install flashing beacons on the school child advisory signs located on Route 151.

- Provide two (2) ingress lanes and one (1) egress lane north of the High School access road intersection with Route 151 via re-striping the pavement.

- Replace speed bumps with speed humps on the High School access road. A study should be conducted to determine where and the number of humps needed to reduce vehicular speed.
Executive Summary

- Monitor traffic volumes at the Route 151/Michael Road intersection. If traffic volume on Michael Road increases due to future developments in the area, then a signal system may be warranted.

- Clear brush along the northeast side of Route 151/Glaz Street intersection to improve sight distance.

- Town of East Greenbush adopt residential and commercial driveway design standards. Future developments along or adjacent to the corridor would be required to conform to standards.

- The Town of East Greenbush future planning approval process should include provisions for secondary access roads in the Study Area to improve pedestrian and vehicular mobility.

- Monitor traffic volumes, flow and crashes at the Route 151/High School access road.

- Aggressively seek funding opportunities that may be available to implement short and long-term action recommendations.

LONG-TERM ACTIONS

1. Pedestrian Access Improvements:

- Provide sidewalks with non-mountable curbing along Route 151, High School access road, Michael Road and Community Way.

- Provide a buffer zone between the curb and the sidewalk.

- Provide a pedestrian connection from Donna Lynn Drive area to Community Way.

- Utilize high visibility crosswalks at all intersections.

- Provide a pedestrian countdown signals at signalized intersection(s).

- Develop snow removal plans associated with providing the sidewalks.
2. Bicycle Access Improvements:

- Provide bicycle lanes along Route 151 and shared lanes along Michael Road, High School access road and Community Way.

3. Vehicular Access and Safety Improvements:

- Reconstruct Route 151 to include improving sight distance at the crest vertical curves adjacent to Glaz Street and the High School access road.

- Install a traffic signal at Route 151/Michael Road Intersection.

- Remove or realign the westbound right turn “slip lane” to the High School access road.

- Provide a secondary access road to the High School from Mannix Road, including a connection to the technology park.

- Provide a secondary access road from Donna Lynn Drive area to Community Way and Michael Road.

- Remove a portion of Newkirk Road and thus eliminate the skewed intersection with Route 151.

- Provide a high visibility flush or a raised median on Route 151 east and west of the intersection of the High School access road.

- Provide a high visibility flush or a raised median on the High School access road once a secondary access road is constructed.

- Provide landscaping treatments that would improve the visual character of the area and calm traffic.

- Provide pedestrian scale lighting to enhance pedestrian safety, activity and calm traffic.
• Utilize a decorative retaining wall where needed to minimize right-of-way impacts associated with several of the long-term action recommendations.

Refer to Figures 10 through 16 in Appendix I for Concept Plans showing some of the long-term action recommendations.

An order of magnitude cost for the recommended actions is provided in Section VI. Strategies for implementing the recommended actions, along with potential funding sources are identified as part of this study and provided in Section VII.

Prior to completion of the report, a draft corridor study report was prepared and distributed to the SAC and CDTC staff for review and input. All comments received were analyzed and incorporated into the final report.
The Town of East Greenbush, similar to many suburban communities in the Capital Region, has experienced significant residential and commercial growth over the last 20-years. Numerous residential and commercial developments have been constructed which has increased population in the Town. The Town has attempted to provide public services to meet the increased demand. However, there are areas in the Town of East Greenbush where the transportation system needs to be improved to handle the increased vehicular, pedestrian and bicycle traffic. One area where the transportation system has been identified for improvement is the NYS Route 151 (Luther Road) Corridor.

NYS Route 151 in the Town of East Greenbush, Rensselaer County, is classified as an urban collector road that extends from Broadway in the City of Rensselaer to NYS Route 150 in the Town of Schodack. A multitude of community services are within the segment of the study, including Columbia High School, Eden Park Nursing Home, East Greenbush Public Library, and the YMCA. As a result of the increased commuter traffic through the corridor, safety concerns have been raised by the public regarding pedestrian and bicycle traffic from US Route 4 to the High School access road.

Many of the numerous complaints made by the community include motorists traveling at a high rate of speed, traffic congestion during peak hours of the day, poor sight distance, and the lack of a safe facility for pedestrians and bicyclists.

In an effort to address transportation safety concerns and in turn quality of life, the Town of East Greenbush applied for funding assistance to the Capital District Transportation Committee (CDTC) via the Community and Transportation Linkage Planning Program. The application requested federal funding to perform a Corridor Study along the NYS Route 151, from US Route 4 to the Columbia High School access road. The application was approved and the project was included in CDTC’s 2002-2003 Unified Planning Work Program.

This study was administered by CDTC, which is the designated Metropolitan Planning Organization (MPO) that carries out federal requirements for cooperative transportation, planning and programming, within the metropolitan area surrounding Albany, Saratoga, Schenectady, and Rensselaer Counties.
**PURPOSE**

The main purpose of the study is to provide safe and efficient circulation of pedestrians, bicyclists, and motor vehicles, which will improve the quality of life within the area. The primary concerns are pedestrian safety between the High School, Public Library, and YMCA facilities; and reducing vehicular congestion on Route 151 during peak hour periods.

**GOALS**

The goals of this study are to identify short and long-term action recommendations that would improve pedestrian, bicycle, and vehicular safety and mobility in the corridor. It includes developing Concept Plans, determining order of magnitude cost for the action recommendations, identifying potential funding opportunities and developing future implementation strategies.

**STUDY AREA BOUNDARY**

The Corridor study area extends from US Route 4 to the Columbia High School access road. It also includes the surrounding areas north and south of Route 151. A Study Area boundary map (Figure 1) is provided in Appendix A of this report.
Public Participation

SAC

A Study Advisory Committee (SAC) was established to provide guidance, feedback, and input for the duration of the project. The committee included representatives from the Town, NYSDOT, East Greenbush Police Department, East Greenbush School District, East Greenbush Public Library, East Greenbush YMCA, and CDTC. Several meetings were held with the committee members during various phases of the study to obtain input and direction. The committee’s responsibilities included ensuring that the recommendations were consistent with the goals of the study, including addressing issues and concerns raised by the public.

PUBLIC INPUT

A Corridor Study Input Form was prepared and distributed to members of the SAC. In addition, an electronic version of the form was forwarded to the Town of East Greenbush, CDTC, East Greenbush Public Library, and East Greenbush YMCA for the purpose of obtaining public input via placement on their respective websites. As a result, public input was gathered throughout the study period. Refer to Appendix B for content on the form.

A Public Information Meeting was held on February 10, 2004 at the East Greenbush Public Library facility located on Community Way. Representatives of Laberge Group conducted the meeting, which included a presentation of the project, and providing visual aids and displays of the following:

- Existing Condition Concept Plans.
- Preliminary Short Term Action Recommendation Concept Plans.
- Preliminary Long Term Action Recommendation Concept Plans.
- Preliminary Long Term Action Recommendation Concept Roadway Sections.

Refer to Appendix B for presentation materials provided at the public meeting. Approximately 30 residents attended and provided input to the various preliminary recommendations. A survey form was also distributed to allow further public input on the action recommendations. Refer to Appendix B for content on the form. Following the public meeting, Laberge Group forwarded the presentation to the Town of East Greenbush, CDTC, East Greenbush Public Library and East Greenbush YMCA for placement on their respective websites. Residents who could not attend the meeting had
access to the presentation and were able to provide input via the public input form or other means.

A summary of the responses received from the public throughout the study period follows.

1. **Question:**

   *Describe locations within the study area where pedestrian safety is a concern?*

   **Responses:**
   
   a. From Route 4 to Columbia High School.
   b. From Budd Lane to Columbia High School, YMCA and proposed Town Park.
   c. From YMCA to Columbia High School.
   d. From Route 4 to Elliot Road.
   e. Route 4/Route 151 intersection.
   f. Route 151/Michael Road intersection.
   g. Route 151/High School access road intersection.
   h. From Route 4 to the proposed Town Park.
   i. Columbia High School Campus.

2. **Question:**

   *Route 151 does not provide a pedestrian facility along the corridor. If sidewalks were installed, would you utilize this facility as a mode of transportation and/or recreation?*

   **Response:**

   The majority responded that they would utilize sidewalks as a transportation and/or recreation facility.

3. **Question:**

   *Route 151 does not provide a bicycle facility along the corridor. If bicycle lanes were installed, would you utilize this facility as a mode of transportation?*
Response:
The majority responded that they would utilize the bicycle lanes as a transportation and/or recreational facility.

4. Question:
What areas along the corridor do you believe needs to be improved with respect to vehicular traffic and safety?

Responses:

a. Intersection of Route 4 and Route 151.
b. Intersection of Route 151 and Michael Road.
c. Intersection of Route 151 and High School access road.
d. Improve sight distance at the crest vertical curves.
e. Reduce vehicular speeds.
f. Shoulders should be widened.
g. Traffic circulation/access.
h. Change design of the northbound “Slip Lane” to the High School to slow vehicular speed.

5. Question:
What streetscape and/or landscape amenities should be provided to improve safety, visual character, and quality of life?

Responses:

a. Provide more street lighting.
b. Use native plant species and mature trees.
c. Provide high visibility decorative crosswalks.

6. Question:
Describe any other issues/concerns you have along the corridor?

Response:

a. Provide a walkway from Donna Lynn Drive area to the YMCA and Library.
b. Extend project limit to Elliot Road.
c. Increase police enforcement of the speed limit on Route 151.
d. If sidewalks were installed, the Town should consider maintaining them.
e. Provide pedestrian and bicycle access to the future Town Park.
f. Minimize right-of-way impact if bicycle and sidewalk facilities are constructed.
g. Minimize impact on existing trees/vegetation if Route 151 is reconstructed.
h. Residential and commercial developments should include providing connectivity to adjacent establishments.
i. Buffer strip if provided should be located between curbs and sidewalks.
j. Consider utilizing an off road multi-use path instead of a bicycle and pedestrian facility along Route 151.
k. Consider providing a secondary access to the High School.
l. Consider providing a secondary access to Community Way.
m. Route 4/Mannix Road and Route 4/I-90 Exit 9 intersections need to be improved.
Demographics

The proposed study area demographic information provided herein centers on the Route 4 and Route 151 (Couse Corners) intersection and includes a distance of approximately 0.75-miles of Route 151, running in an easterly direction. Using the Route 151 and Route 4 intersection as the central demographic location, the tables and narratives herein provide an overview of the demographic characteristics of the area. The project area has been divided into three (3) surrounding radii, which are from 0 to 0.5-mile circle, 0.5 to 1.00-mile circle, and 1.00 to 1.50-mile circle.

Route 151 east of Route 4 can be characterized as suburban in nature, with several side streets connecting to the two-lane roadway referred to as Luther Road. Several popular public destinations are located along this well-traveled route. They include the Public Library, YMCA facility and Columbia High School. A number of housing units are also present in the immediate area. Donna Lynn Drive and adjacent side streets provide the location for the greatest number of residential units east of Route 4 and south of Route 151, within a 1.5-mile circle.

Table 1 below represents the total number of people residing in the demographic area. As represented, the number is relatively low within the 0.5-mile circle, due to vacant lands and mixed use associated with the adjoining properties.

Table 1: Total Population in Project Area

<table>
<thead>
<tr>
<th>Year</th>
<th>0 to 0.5 Mile Circle</th>
<th>0.5 to 1.0 Mile Circle</th>
<th>1.0 to 1.5 Mile Circle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>73</td>
<td>1,130</td>
<td>3,043</td>
</tr>
<tr>
<td>2000</td>
<td>91</td>
<td>1,241</td>
<td>3,172</td>
</tr>
<tr>
<td>2002*</td>
<td>93</td>
<td>1,220</td>
<td>3,099</td>
</tr>
<tr>
<td>2007*</td>
<td>98</td>
<td>1,170</td>
<td>2,932</td>
</tr>
</tbody>
</table>

* Source: 2003 Claritas Inc.
* Projections

Located on the north side of Route 151 and east of Route 4 is the entrance to Eden Park Nursing Home. A short distance from the Nursing Home entrance on the north side of Route 151 is the East Greenbush Fire Station. On the south side of Route 151 is Michael Road, which in addition to being a collector road for motorists traveling from/to Route 151 and Elliot Road (County Road 56), serves as the entrance and exit to the East Greenbush Public Library and the East Greenbush YMCA. East of Michael Road and
north of Route 151 is the entrance and exit to Columbia High School, which generates a significant volume of traffic during the school day morning and afternoon peak hours and special events. The high school, sports fields, and public facilities are major destinations for all ages. These types of attractors encourage bicycle and pedestrian traffic if a safe facility is available in the corridor. Currently, shoulders are used to provide access to pedestrians and bicyclists.

Tables 2 and 3 below represent the population of children and seniors residing within the 1.5-mile circle. Table 2 includes the current number of elementary and high school aged children that attend or will be attending the high school within a 7-year period.

### Table 2: 2000 Children between 5 and 19 Years

<table>
<thead>
<tr>
<th>Population</th>
<th>0 to 0.5 Mile Circle</th>
<th>0.5 to 1.0 Mile Circle</th>
<th>1.0 to 1.5 Mile Circle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
<td>91</td>
<td>1,241</td>
<td>3,172</td>
</tr>
<tr>
<td>Children Population - 5-19 years of age</td>
<td>18</td>
<td>262</td>
<td>605</td>
</tr>
<tr>
<td>Percent of Children 5-19 Years of age</td>
<td>19.88%</td>
<td>21.10%</td>
<td>19.07%</td>
</tr>
</tbody>
</table>

Source: 2003 Claritas Inc.

### Table 3: 2000 Senior Population Over the Age of 60 Years

<table>
<thead>
<tr>
<th>Population</th>
<th>0 to 0.5 Mile Circle</th>
<th>0.5 to 1.0 Mile Circle</th>
<th>1.0 to 1.5 Mile Circle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
<td>91</td>
<td>1,241</td>
<td>3,172</td>
</tr>
<tr>
<td>Senior Population</td>
<td>26</td>
<td>205</td>
<td>486</td>
</tr>
<tr>
<td>Percent of Seniors</td>
<td>28.52%</td>
<td>16.51%</td>
<td>15.33%</td>
</tr>
</tbody>
</table>

Source: 2003 Claritas Inc.

A broader view of the Town wide population is shown in Table 4 below, which includes future projections. This information indicates that the number of students attending the Town’s sole high school is estimated to continue increasing over the years. Columbia High School’s guidance office stated that current enrollment for school year 2003 is approximately 1,400 students.

### Table 4: Town Wide School Age Population by Age Cohort with Projections

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 5</td>
<td>948</td>
<td>978</td>
<td>991</td>
<td>925</td>
<td>1,000</td>
<td>1,060</td>
</tr>
<tr>
<td>5 to 14</td>
<td>1,818</td>
<td>2,013</td>
<td>2,191</td>
<td>2,305</td>
<td>2,118</td>
<td>2,419</td>
</tr>
<tr>
<td>15 to 24</td>
<td>1,847</td>
<td>1,745</td>
<td>1,622</td>
<td>1,829</td>
<td>1,891</td>
<td>1,816</td>
</tr>
</tbody>
</table>
Another consideration when investigating the demographic overview of a project area is the number of households. As provided in the 2000 US Census, the Town of East Greenbush has an average household size of 2.5 persons and an average family size of 3.02 persons. The average household has two (2) vehicles and therefore the estimated number of vehicles owned or leased by residents in the 1.50-mile circle is 2,600. Table 5 represents the number of households in the project area.

Table 5: Households Located within the Project Area

<table>
<thead>
<tr>
<th>Households</th>
<th>0 to 0.5 Mile Circle</th>
<th>0.5 to 1.0 Mile Circle</th>
<th>1.0 to 1.5 Mile Circle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990 Census</td>
<td>24</td>
<td>414</td>
<td>1,232</td>
</tr>
<tr>
<td>2000 Census</td>
<td>28</td>
<td>454</td>
<td>1,310</td>
</tr>
</tbody>
</table>

Source: 2003 Claritas Inc.

Table 6 represents the number of business establishments with the 1.50-mile circle. Businesses are mainly located along Route 4, with Route 151 providing a major connection from areas to the east and west.

Table 6: Local Industries

<table>
<thead>
<tr>
<th>Business Description</th>
<th>Total Establishments</th>
<th>Total Employees</th>
<th>Establishments 20+Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>0 to 0.5 Mile Circle</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total All Industries</td>
<td>23</td>
<td>150</td>
<td>1</td>
</tr>
<tr>
<td>All Manufacturing</td>
<td>1</td>
<td>63</td>
<td>1</td>
</tr>
<tr>
<td>All Retailing</td>
<td>2</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td><strong>0.5 to 1.0 Mile Circle</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total All Industries</td>
<td>14</td>
<td>77</td>
<td>1</td>
</tr>
<tr>
<td>All Manufacturing</td>
<td>1</td>
<td>49</td>
<td>1</td>
</tr>
<tr>
<td>All Retailing</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td><strong>1.0 to 1.5 Mile Circle</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total All Industries</td>
<td>259</td>
<td>2,397</td>
<td>31</td>
</tr>
<tr>
<td>All Manufacturing</td>
<td>10</td>
<td>97</td>
<td>1</td>
</tr>
<tr>
<td>All Retailing</td>
<td>62</td>
<td>783</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: 2003 Claritas Inc.
Existing Zoning and Land Use

The Town of East Greenbush Comprehensive Zoning Law was adopted on June 4, 1986 with last revision dated August 11, 1999. Three (3) different zoning districts are located within the study area. Current zoning in the area is shown in Figure 1 of Appendix A. A summary of the location, type, and land use is shown in Figure 2 of Appendix A. The zoning and permitted uses in the study area are as follows:

From west of the Route 151/Route 4 intersection to the Route 151/Paul Street intersection, the area is zoned as General Business District. The following land use/buildings are permitted or require special use permits:

1. General Uses:
   - Animal Hospitals.
   - Recreation Club.
   - Veterans and Fraternal Organizations.
   - Public Indoor Recreation Facilities.
   - Commercial Kennels.
   - Institutions for Treatment or Recovery of Human Ailments (Special Permit Use).
   - Drive-In Theaters (Special Permit Use).

2. Accessory Uses:
   - Off-Street Parking.
   - Enclosed Storage of Merchandise Carried in Stock.
   - Open Storage of Private Utility Trailers, Commercial Vehicles, and Merchandise Carried in Stock.
   - Caretaker Residence (Special Permit Use).
   - Non-Residential Garages and Storage Sheds (Special Permit Use)

3. Business Uses:
   - Personal Service Uses (Insurance Sales, Beauty Shop, and Dance Instruction).
Inventory of Existing Conditions

- Professional Offices (Doctors, Dentists, Architects, Engineers, Lawyers, and Accountants).
- Banks, Government Offices, and Studios.
- Eating and Drinking Establishments.
- Retail Shops and Services.
- Motels, Hotels, and Tourist Homes.
- Public Transportation Passenger Station.
- Commercial Amusements.
- Recreational and Entertainment Establishments.
- Wholesale Establishments.
- Parking Lots or Garages for Private Vehicles.
- Newspaper Uses.
- Taxicab Station, including Storage, Repair, and Maintenance.
- Parking Lots or Garages for Commercial Vehicles (Special Permit Use).
- Gas Stations or Auto Service Facilities (Special Permit Use).

4. Light Industrial Uses:
- Manufacturing of Food Products as Part of a Retail Establishment.
- Printing and Publishing.
- Car Wash, Repair, or Storage (Special Permit Use).

5. Residential Uses, such as one-family, two-family, and multi-family are considered conforming uses permitted by right if existing on or before June 4, 1986.
From Route 151/Paul Street intersection to just west of the I-90 overpasses on the north side of Route 151 and just east of Glaz Street on the south side, the area is zoned as Residential District. The following land use/buildings are permitted or require special use permits:

1. Residential Uses:
   - One-Family Residence.
   - Rooming and Boarding House.
   - Dormitories (Special Permit Use).

2. General Uses:
   - Schools.
   - Religious Facilities.
   - Park and Outdoor Recreation Facilities.
   - Cultural Facilities (Libraries, Art Galleries, etc.).
   - Institution for Treatment or Recovery of Human Ailments (Special Permit Use).
   - Veterans and Fraternal Organizations (Special Permit Use).

3. Accessory Uses:
   - Customary Residential Garages and Sheds.
   - Residential Recreation Facilities Integral to Development.
   - Off-Street Parking.
   - Professional Office in Private Residence (Special Permit Use).
   - Home Occupations (Special Permit Use).
From just west of the I-90 overpasses on the north side and east of Glaz Street on the south side of Route 151 to the High School access road and beyond, the area is zoned as a Residential Buffer District. The following land use/buildings are permitted or require special use permits:

1. Residential Uses:
   - One-Family Residence.
   - Dormitories (Special Permit Use).

2. General Uses:
   - Schools.
   - Religious Facilities.
   - Park and Outdoor Recreation Facilities.
   - Cultural Facilities (Libraries, Art Galleries, etc.).
   - General Farming, Nursery, Grazing, and Ranching.
   - Reforestation Areas.
   - Golf Driving Ranges.
   - Golf Courses and Clubhouses.
   - Riding Academy.
   - Recreation Club.
   - Vacation Resort or Camp (Special Permit Use).
   - Animal Hospitals (Special Permit Use).
   - Institution for Treatment or Recovery of Human Ailments (Special Permit Use).
   - Cemeteries and Crematories (Special Permit Use).
   - Veterans and Fraternal Organizations (Special Permit Use).
   - Public Indoor Recreation Facilities (Special Permit Use).
   - Commercial Kennels (Special Permit Use).

3. Accessory Uses:
   - Customary Residential Garages and Sheds.
Inventory of Existing Conditions

- Customary Farm Buildings
- Greenhouses.
- Residential Recreation Facilities Integral to Development.
- Off-Street Parking.
- Professional Office in Private Residence (Special Permit Use).
- Home Occupations (Special Permit Use).
- Private Dog Kennels (Special Permit Use).

Land uses/buildings that require a special permit need approval by the Zoning Board of Appeals and to adhere to any conditions set for their use. It should also be noted that a variance from the use regulations may be obtained to allow an establishment on a specific lot of a use otherwise prohibited in a particular zoning district. A variance is obtained only if strict enforcement of the designated land use/building would result in undue and unnecessary hardship or practical difficulty.

As previously stated in Section I, the Town has experienced significant growth over the years and as a result, the Town is considering updating the Master Plan, the Zoning Code and Zoning Map to better reflect existing and future land use, including identifying infrastructure needs that includes transportation, water and sewer.
Existing Roadway Systems

Route 151 is a major collector road that extends west to Broadway in the City of Rensselaer and east to Route 150 in the Town of Schodack. Within the study area, Route 151 intersects with Route 4, Eden Park access road, Donna Lynn Drive, Glaz Street, Newkirk Road, Michael Road, High School access road, and Country Lane. A summary of the roadway characteristics, including circulation patterns and access restrictions are as follows:

All of the above noted side roads are controlled by a stop sign at the minor approach, except for Route 4, which is controlled by a traffic signal system. In addition, a “Yield” sign is present at the Route 151/High School access road intersection. Eastbound left turn traffic yields the right-of-way to the westbound “slip” lane for ingress to the access road.

All roads provide two travel lanes except Route 151 intersection with Route 4, Michael Road, and the High School access road, which are as follows:

- Route 4, south of Route 151 – dedicated left turn lane and through/right turn lane for northbound motorists and through lane for southbound motorists.
- Route 4, north of Route 151 – dedicated left turn lane and through/right turn lane for southbound motorists and through lane for northbound motorists.
- Route 151, west of Route 4 – dedicated left turn lane and through/right turn lane for eastbound motorists and through lane for westbound motorists.
- Route 151, east of Route 4 – dedicated right turn lane and through/left turn lane for westbound motorists and through lane for eastbound motorists.
- The Route 151/High School access road intersection includes a flush striped median north and south of intersection and the following:
  - Eastbound Route 151 – One through lane and a dedicated left turn lane.
  - Westbound Route 151 – One through lane and dedicated right turn slip lane.
  - High School access road – Two egress lanes and one ingress lane, in addition to a flush island that separates the turning lanes at its...
inventory of existing conditions

intersection with route 151. in addition, two speed bumps are also present north of the intersection with route 151.

- the michael road intersection includes one through/left turn lane and one dedicated right turn lane.

route 151 and all side roads do not have access restrictions. however, there are two areas within the study limits where only one access point is provided. the only point of access to columbia high school is route 151 and the only point of access to the public library and ymca is michael road via community way. in addition, the east greenbush technology park’s only point of access is mannix road.

vehicular access

route 151 does not have sidewalks or a multi-use path adjacent to the roadway to accommodate pedestrian traffic. pedestrians currently utilize the shoulders or travel lane for walking. based upon several project site investigations, pedestrian traffic mainly consisted of students walking from the high school to the public library at the end of the school day. students’ travel path consisted of walking along the west side of the high school access road, cutting through a grassed area adjacent to the right-of-way fencing east of the i-90 overpasses, down a steep embankment to the route 151 westbound shoulder, to michael road and community way.

discussions were held with a representative of the school district regarding students walking to/from the public library and the high school. the representative indicated that students are typically transported from the high school to the public library during the school day. however, many students decide to walk for various reasons.

bicycle access

a dedicated bicycle access facility is not present along the corridor. bicyclists currently utilize the travel lane or shoulders. route 151 is part of designated bicycle facility (ny state bicycle route 5).

travel lane and shoulder widths

the travel lane widths on route 151 vary from 10’ to 11’ within the study area. this includes both through and turning lanes. shoulder width from route 4 to michael road is typically 4’. from michael road to the high school access road, the shoulder widens to 10’ at the i-90 overpasses. the shoulder on the south side reduces to 4’ at the intersection with the high school access road and further east.
Inventory of Existing Conditions

Driveways

There are numerous driveways within the Route 151 study area. They typically provide access for residential dwellings, except for the wide driveway at the firehouse, located on the northeast side of the Route 151/Route 4 intersection. In general, geometry of the driveways do not conform to the NYSDOT driveway design standards. Currently, there are no restrictions with respect to the number and location of driveways.

Speed Limit

The posted speed limit of Route 151 within the study area is 45 mph. The posted speed limit on intersecting streets are as follows:

- Route 4 - 45 mph.
- Paul Street - 30 mph.
- Glaz Street - Not Posted.
- Newkirk Road - Not Posted.
- Donna Lynn Drive - 30 mph.
- Michael Road - 30 mph.
- Country Lane - Not Posted.
- School access road - 15 mph.

Existing Traffic Volumes:

Traffic data was collected by CDTC and Laberge Group staff and is available for review. A summary of the data collected is provided in Appendix C. In addition, traffic data was available from other project studies conducted in the area were also utilized.

1. Corridor Traffic Data:
   a. Route 151:
      - Average Annual Daily Traffic = 9,430 veh./day.
      - AM Peak Hour Volume = 710 veh./hr.
      - PM Peak Hour Volume = 729 veh./hr.
      - Percent of Heavy Vehicles = 7.7%.
      - Average AM Overall/Running Speeds = 30 mph/37 mph.
      - Average PM Overall/Running Speeds = 34 mph/37 mph.
      - Total Stopped Delay = 6 minutes (AM).
Inventory of Existing Conditions

- Total Stopped Delay = 12 minutes (PM).

b) Donna Lynn Drive:
   - Average Annual Daily Traffic = 830 veh./day.
   - AM Peak Hour Volume = 69 veh./hr.
   - PM Peak Hour Volume = 74 veh./hr.
   - Percent of Heavy Vehicles = 2.6%.

c) Michael Road:
   - Average Annual Daily Traffic = 3,490 veh./day.
   - AM Peak Hour Volume = 222 veh./hr.
   - PM Peak Hour Volume = 308 veh./hr.
   - Percent of Heavy Vehicles = 4.2%.
   - 85th Percentile Speed = 23 mph (near intersection w/NY Route 151).

2. Corridor Traffic Speed:

   Pneumatic tube counters were installed on Route 151 for the purpose of
determining travel speed of motorized traffic. The data was collected
from June 11, 2003 to June 13, 2003. The 85th percentile speed was
computed between the hours of 9:00am to 11:00am and from 1:00pm to
3:00pm, which are considered off-peak periods. All vehicular speeds
were recorded, including vehicles that may slow down to turn into a side
street or driveway(s).

   The computed AM and PM off-peak 85th percentile speed is summarized
in the table below:

Table 7: 85th Percentile Speed

<table>
<thead>
<tr>
<th>DATE</th>
<th>AM Off-Peak Speed</th>
<th>PM Off-Peak Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/11/03</td>
<td>43 mph</td>
<td>43 mph</td>
</tr>
<tr>
<td>6/12/03</td>
<td>44 mph</td>
<td>44 mph</td>
</tr>
<tr>
<td>6/13/03</td>
<td>44 mph</td>
<td>43 mph</td>
</tr>
</tbody>
</table>

Overall 85th Percentile Speed = 43 mph (70 km/hr.)
Laberge Group forwarded the speed study to NYSDOT for review and also possible reduction of the “45 MPH” posted speed limit on Route 151.

The NYSDOT typically utilizes free flow speeds to determine the 85th percentile speed along a roadway. As a result, vehicles that slow down to turn into a side street or driveway(s) are typically not included in their speed study.

NYSDOT previously conducted a speed limit and safety investigation study west of Columbia High School access road as a result of numerous complaints by the public and the Town’s Police Department. Their study concluded that the 85th percentile speed in this area was 51 mph. In addition, 61% of the traffic was determined to violate the 45 mph speed limit. Refer to Appendix C for further information of NYSDOT study.

3. Peak Hour Intersection Turning Movement Counts:

As previously stated, all intersections to Route 151 are controlled by a “STOP” sign, except for Route 4, which is controlled by a signal system. Traffic data was collected at each intersection within the Route 151 study area except for Route 4.

A summary of AM and PM Peak Hour Volumes is as follows:

**Table 8: Route 151 and Michael Road - AM Peak Hour (6:45 – 7:45)**

<table>
<thead>
<tr>
<th>Route 151 - Eastbound</th>
<th>Route 151 - Westbound</th>
<th>Michael Road - Northbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
</tr>
<tr>
<td>1</td>
<td>374</td>
<td>69</td>
</tr>
</tbody>
</table>

**Table 9: Route 151 and Michael Road - PM Peak Hour (3:15 – 4:15)**

<table>
<thead>
<tr>
<th>Route 151 - Eastbound</th>
<th>Route 151 - Westbound</th>
<th>Michael Road - Northbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
</tr>
<tr>
<td>1</td>
<td>316</td>
<td>151</td>
</tr>
</tbody>
</table>

**Table 10: Route 151 and Columbia High School access road - AM Peak Hour (6:45 – 7:45)**

<table>
<thead>
<tr>
<th>Route 151 - Eastbound</th>
<th>Route 151 - Westbound</th>
<th>High School access road Southbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
</tr>
<tr>
<td>346</td>
<td>56</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 11: Route 151 and Columbia High School access road - PM Peak Hour (3:00 – 4:00)

<table>
<thead>
<tr>
<th>Route 151 - Eastbound</th>
<th>Route 151 - Westbound</th>
<th>High School access road Southbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
</tr>
<tr>
<td>170</td>
<td>219</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 12: Route 151 and Donna Lynn Drive - AM Peak Hour (6:45 – 7:45)

<table>
<thead>
<tr>
<th>Route 151 - Eastbound</th>
<th>Route 151 - Westbound</th>
<th>Donna Lynn Drive Northbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
</tr>
<tr>
<td>0</td>
<td>403</td>
<td>14</td>
</tr>
</tbody>
</table>

Table 13: Route 151 and Donna Lynn Drive - PM Peak Hour (3:15 – 4:15)

<table>
<thead>
<tr>
<th>Route 151 - Eastbound</th>
<th>Route 151 - Westbound</th>
<th>Donna Lynn Drive Southbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
</tr>
<tr>
<td>0</td>
<td>506</td>
<td>28</td>
</tr>
</tbody>
</table>

Table 14: Route 4 and Route 151 - AM Peak Hour (7:45 to 8:45)

<table>
<thead>
<tr>
<th>Source</th>
<th>US Route 4 Southbound</th>
<th>US Route 4 Northbound</th>
<th>NY Route 151 Eastbound</th>
<th>NY Route 151 Westbound</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td>1</td>
<td>149</td>
<td>440</td>
<td>142</td>
<td>68</td>
</tr>
<tr>
<td>2</td>
<td>93</td>
<td>413</td>
<td>203</td>
<td>82</td>
</tr>
</tbody>
</table>

2: Traffic data provided by NYSDOT, dated October 1, 2002.

Table 15: Route 4 and NY Route 151 - PM Peak Hour (4:30 –5:30)

<table>
<thead>
<tr>
<th>Source</th>
<th>US Route 4 Southbound</th>
<th>US Route 4 Northbound</th>
<th>NY Route 151 Eastbound</th>
<th>NY Route 151 Westbound</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td>1</td>
<td>146</td>
<td>836</td>
<td>190</td>
<td>58</td>
</tr>
<tr>
<td>2</td>
<td>302</td>
<td>759</td>
<td>139</td>
<td>101</td>
</tr>
</tbody>
</table>

2: Traffic data provided by NYSDOT, dated October 1, 2002.

Refer to Figures A and B in Appendix C for a graphic presentation of the AM and PM peak hour volumes at the intersections.
Based upon the peak-hour traffic volumes at the Route 151 intersection with Michael Road, Columbia High School access road and Donna Lynn Drive, a Level of Service (LOS) analysis was conducted utilizing the Highway Capacity Software (HCS) 2000, Release 4.1d.

The LOS for roadway intersections is generally controlled by the geometric characteristics, volumes, and consequently delays. The standard measure of intersection LOS, as defined by the 2000 Highway Capacity Manual, ranges from LOS “A”, representing the best operating conditions, to a LOS “F”, representing the worst operating conditions. A LOS “D” is considered the minimum acceptable operating service for urban collector roads. A LOS “E” indicates that an intersection is near its capacity and the delays are typically unacceptable.

LOS criteria for “STOP” controlled intersections is based upon the average control delay, which is defined as the total elapsed time when a vehicle stops at the end of the queue, until the vehicle departs from the stop bar. The LOS criteria of “STOP” controlled intersection is shown in Table 16 below:

Table 16: LOS Criteria, Unsignalized

<table>
<thead>
<tr>
<th>LOS</th>
<th>CONTROL DELAY SECONDS/VEHICLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&lt;10</td>
</tr>
<tr>
<td>B</td>
<td>&gt;10 - 15</td>
</tr>
<tr>
<td>C</td>
<td>&gt;15 - 25</td>
</tr>
<tr>
<td>D</td>
<td>&gt;25 - 35</td>
</tr>
<tr>
<td>E</td>
<td>&gt;35 - 50</td>
</tr>
<tr>
<td>F</td>
<td>&gt;50</td>
</tr>
</tbody>
</table>

Source: Highway Capacity Manual, Transportation Research Board, and HCM 2000

Based on the HCM 2000 capacity analysis, the AM and PM peak hour for Route 151 intersection with Michael Road, Columbia High School access road and Donna Lynn Drive the “STOP” controlled intersections are shown in the Tables below:

Table 17: Route 151 and Michael Road LOS

<table>
<thead>
<tr>
<th>Movement</th>
<th>AM Peak Hour Delay (sec.)</th>
<th>AM Peak Hour LOS</th>
<th>PM Peak Hour Delay (sec.)</th>
<th>PM Peak Hour LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EB LT/T/RT</td>
<td>8.6</td>
<td>A</td>
<td>7.9</td>
<td>A</td>
</tr>
<tr>
<td>WB LT/Thru</td>
<td>9.4</td>
<td>A</td>
<td>8.9</td>
<td>A</td>
</tr>
<tr>
<td>NB Left</td>
<td>130.4</td>
<td>F</td>
<td>32.5</td>
<td>D</td>
</tr>
<tr>
<td>NB Right</td>
<td>13.9</td>
<td>B</td>
<td>11.7</td>
<td>B</td>
</tr>
<tr>
<td>Overall</td>
<td>81.1</td>
<td>F</td>
<td>25.4</td>
<td>D</td>
</tr>
</tbody>
</table>
As noted in Table 17, the Route 151/Michael Road intersection experiences an overall level of service of “F” during the AM Peak Hour, which is typically unacceptable.

### Table 18: Route 151 and Columbia High School access road LOS

<table>
<thead>
<tr>
<th>Movement</th>
<th>AM Peak Hour Delay (sec.)</th>
<th>AM Peak Hour LOS</th>
<th>PM Peak Hour Delay (sec.)</th>
<th>PM Peak Hour LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EB Left</td>
<td>13.3</td>
<td>B</td>
<td>8.3</td>
<td>A</td>
</tr>
<tr>
<td>EB Thru</td>
<td>0</td>
<td>A</td>
<td>0</td>
<td>A</td>
</tr>
<tr>
<td>WB Right</td>
<td>0</td>
<td>A</td>
<td>0</td>
<td>A</td>
</tr>
<tr>
<td>WB Thru</td>
<td>0</td>
<td>A</td>
<td>0</td>
<td>A</td>
</tr>
<tr>
<td>SB Left</td>
<td>267.6</td>
<td>F</td>
<td>25.9</td>
<td>D</td>
</tr>
<tr>
<td>SB Right</td>
<td>18.3</td>
<td>C</td>
<td>13.3</td>
<td>B</td>
</tr>
<tr>
<td>Overall</td>
<td>42.2</td>
<td>E</td>
<td>15.5</td>
<td>C</td>
</tr>
</tbody>
</table>

As noted in Table 18, the Route 151/Columbia High School access road Southbound left turn lane AM Peak Hour experiences a LOS of “F”, which is typically unacceptable. The overall intersection level of service of “E” for the AM Peak Hour, indicates it is near capacity.

### Table 19: Route 151 and Donna Lynn Drive LOS

<table>
<thead>
<tr>
<th>Movement</th>
<th>AM Peak Hour Delay (sec.)</th>
<th>AM Peak Hour LOS</th>
<th>PM Peak Hour Delay (sec.)</th>
<th>PM Peak Hour LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EB Thru/RT</td>
<td>0</td>
<td>A</td>
<td>0</td>
<td>A</td>
</tr>
<tr>
<td>WB Thru/LT/RT</td>
<td>8.9</td>
<td>A</td>
<td>8.8</td>
<td>A</td>
</tr>
<tr>
<td>NB LT/RT</td>
<td>27.2</td>
<td>D</td>
<td>18.1</td>
<td>C</td>
</tr>
<tr>
<td>Overall</td>
<td>27.2</td>
<td>D</td>
<td>18.1</td>
<td>C</td>
</tr>
</tbody>
</table>

As noted in Table 19, the Route 151/Donna Lynn Drive intersection overall LOS is “D” during the AM Peak Hour, which is considered the minimum acceptable operating service.

Refer to Appendix C for the unsignalized intersections HCS analysis output.
As previously noted, Route 151/Route 4 intersection is controlled by a signalized system. The LOS criteria for signalized intersection is also based upon the average control delay. However, the delay for signalized intersections is based upon a number of variables which includes: cycle length; volume/capacity ratio for the lane group and the entire approach; green time; actuated, or pre-timed operation; pedestrian volumes; and geometric intersection conditions. The LOS criteria for a signalized intersection is shown in Table 20.

Table 20: LOS Criteria, Signalized

<table>
<thead>
<tr>
<th>LOS</th>
<th>CONTROL DELAY (SECONDS/VEHICLE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>≤10</td>
</tr>
<tr>
<td>B</td>
<td>&gt;10 - 20</td>
</tr>
<tr>
<td>C</td>
<td>&gt;20 – 35</td>
</tr>
<tr>
<td>D</td>
<td>&gt;35 – 55</td>
</tr>
<tr>
<td>E</td>
<td>&gt;55 – 80</td>
</tr>
<tr>
<td>F</td>
<td>&gt;80</td>
</tr>
</tbody>
</table>

Source: Highway Capacity Manual, Transportation Research Board, and HCM 2000

The AM and PM peak hour LOS for the Route 4/Route 151 intersection was previously analyzed as part of another study (Mill Creek Commerce Park Generic Environmental Impact Statement). A summary of the LOS results is shown in Table 21 below.

Table 21: Route 4 and Route 151 LOS

<table>
<thead>
<tr>
<th>Movement</th>
<th>AM Peak Hour Delay (sec.)</th>
<th>AM Peak Hour LOS</th>
<th>PM Peak Hour Delay (sec.)</th>
<th>PM Peak Hour LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EB Left</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EB Thru/RT.</td>
<td>14.5</td>
<td>B</td>
<td>19.9</td>
<td>B</td>
</tr>
<tr>
<td>WB Left</td>
<td>27.6</td>
<td>C</td>
<td>60.7</td>
<td>E</td>
</tr>
<tr>
<td>WB Thru/RT.</td>
<td>0.0</td>
<td>A</td>
<td>0.0</td>
<td>A</td>
</tr>
<tr>
<td>NB Left</td>
<td>35.4</td>
<td>D</td>
<td>29.5</td>
<td>C</td>
</tr>
<tr>
<td>NB Thru/RT.</td>
<td>22.6</td>
<td>C</td>
<td>35.6</td>
<td>D</td>
</tr>
<tr>
<td>SB Left</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SB Thru/RT.</td>
<td>16.7</td>
<td>B</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

The westbound left turn PM peak hour LOS is “E”, which indicates it is near capacity.

In summary, the following intersections may be considered undesirable due to significant delays:
Inventory of Existing Conditions

- Route 151 and Michael Road, due to the delay associated with the northbound left turns during the AM peak hour.
- Route 151 and the High School access road, due to the delay associated with the southbound left turns during the AM peak hour.
- Route 4 and Route 151 intersection, due to the delay associated with the westbound left turns during the PM peak hour.

Refer to Appendix C for the signalized intersection HCS analysis output.

In addition to the traffic analysis, several field investigations were conducted with respect to identifying where traffic is congested in the corridor. During a morning investigation, specifically between the hours of 7:00am and 8:00am, eastbound traffic on Route 151 backed up from the High School access road to near the intersection with Route 4. The backup is partially due to the number of school buses and motorists traveling to the High School to drop off students. With respect to the High School access road, the speed bumps due to their abrupt shape, force school buses to routinely stop before traveling over them to minimize jarring. As a result, traffic circulation on the school campus slows down, which contributes to the backup on Route 151. The left turn lane does not provide adequate storage for eastbound left turn movement.

During an afternoon investigation, specifically between the hours of 2:00pm to 3:30pm, there were no major backups at the Route 151/High School access road. The only noticeable concern was the high rate of motorist speed on the access road exiting the school campus.

The Town of East Greenbush Police Department provided Laberge Group with Police Crash Reports from the period of January 1, 2000 through March 31, 2003. In addition, NYSDOT provided Laberge Group Crash Data Summary Report for the period of January 1, 1998 to August 31, 2001. After review of this information, it was decided that the periods from January 1, 2000 through March 31, 2003 would be used to perform crash analysis. NYSDOT crash data from January 1, 2000 through August 31, 2001 was reviewed as well to make certain that all crashes in the study area were accounted for. The study area crash analysis is Route 151, east of the Route 4 intersection to Country Lane. The Route 4/Route 151 intersection crashes were not analyzed since this effort will be included as part of a future Route 4 Corridor Management Study.
A summary of the crashes that occurred in the study area limits is provided in Appendix D. Thirty reportable crashes occurred within the study limit period. A breakdown of apparent contributing factors is provided in the table below:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure to Yield to ROW</td>
<td>9</td>
</tr>
<tr>
<td>Driver Inattention</td>
<td>6</td>
</tr>
<tr>
<td>Animals</td>
<td>4</td>
</tr>
<tr>
<td>Following too closely</td>
<td>4</td>
</tr>
<tr>
<td>Unsafe Speed</td>
<td>2</td>
</tr>
<tr>
<td>Turning Improperly</td>
<td>1</td>
</tr>
<tr>
<td>Backing Unsafely</td>
<td>1</td>
</tr>
<tr>
<td>Limited View</td>
<td>1</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>1</td>
</tr>
<tr>
<td>Fell Asleep</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

A breakdown of pavement conditions when the above noted crashes occurred is provided in the table below:

<table>
<thead>
<tr>
<th>TYPE</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry</td>
<td>27</td>
</tr>
<tr>
<td>Snow/Ice</td>
<td>2</td>
</tr>
<tr>
<td>Wet</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>
A breakdown of types of crashes is provided in the table below:

<table>
<thead>
<tr>
<th>TYPE</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear End</td>
<td>10</td>
</tr>
<tr>
<td>Left Turn</td>
<td>7</td>
</tr>
<tr>
<td>Fixed Object</td>
<td>5</td>
</tr>
<tr>
<td>Right Angle</td>
<td>3</td>
</tr>
<tr>
<td>Animal Crossing</td>
<td>3</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>1</td>
</tr>
<tr>
<td>Backing Up</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

Based upon a review of the police crash reports, crashes within the study area are consistent with similar types of urban collector roadway facilities. However, an opportunity does exist to potentially reduce crashes in this area. For example, the pedestrian crash incident that occurred at the Route 151/Michael Road intersection could be eliminated if a future traffic signal system with pedestrian countdown signals and a high visibility crosswalk is provided.

The unsafe crash incidents could also be reduced via placement of traffic calming devices, including curbs, sidewalks, lighting and landscaping amenities. Improving the sight distance along the corridor could potentially reduce the limited view crash incidents.

**School Bus Stops**

The East Greenbush Central School’s Transportation Department provided locations where school buses stop to pick up and/or drop off students in the study area. Presently, school buses stop at the following locations:

- Intersection of Glaz Street and Route 151.
- 1037 Luther Road.
- 1022 Luther Road.
- One (1) location on Newkirk Road.
- Three (3) locations on Paul Street, north of its intersection with Route 151.
Inventory of Existing Conditions

Based upon discussions with a representative of the Transportation Department, a total of 47 school buses between the hours of 6:55am to 7:30am and 45 school buses between the hours of 2:00pm to 2:30pm travel to the High School to drop off or pick up students.

CDTA Services

The Capital District Transportation Authority (CDTA) is the public transit system in the capital region. Transit services are provided in the area via the Shuttle Bee, which is a flexible routed service within fixed end points. In general, service to the High School, YMCA, and the Public Library can be served by the Shuttle Bee on specific trips based upon customer demand. CDTA is prohibited from providing a “charter” service, such as students traveling to/from the High School and the Public Library. Refer to Appendix E for additional information regarding its service and restrictions. At this time, CDTA is not anticipating increasing transit services in the area.

Sight Distances

Field measurements were taken on May 22, 2003 along the corridor to determine approximate stopping and intersection sight distance. A summary where sight distance is limited are as follows:

1. Stopping Sight Distance:
   a. Crest Vertical Curve located west and east of Glaz Street was measured to be 292’.
   b. Crest Vertical Curve located west and east of the High School access road was measured to be 345’.

2. Intersection Sight Distance:
   a. Route 151/Glaz Street, intersection sight distance for a westbound motorist to a stopped vehicle on Glaz Street was measured to be 350’.
   b. Route 151/High School access road, intersection sight distance for a westbound right turn movement is severely restricted due to the embankment slope, north of the intersection.
   c. Sight distance of driveways located within the crest vertical curves are also restricted. A total of four (4) driveways are within the crest vertical curve located west and east of Glaz Street.
A review of the 2002 New York State Department of Transportation Highway Sufficiency Ratings (NYSDOTHSF) along with a visual site assessment was conducted to determine the condition of the pavement.

In general, the Route 151 pavement is in good condition within the corridor study area. Based upon information provided by NYSDOT, the roadway section was resurfaced and restriped in 2002. Pavement distress is only visible in a few areas. The distress mainly consists of general cracking of the asphalt concrete surface. The side streets that connect to Route 151, such as Paul Street, Glaz Street, High School access road, and Country Lane appear to be in similar condition. Michael Road was recently resurfaced and restriped. In addition, the commercial and residential driveways that connect to Route 151 are generally in fair condition.

In summary, based upon an inventory of existing conditions, goals of the study and public input, a list of problems/concerns that should be evaluated to improve pedestrian, bicycle and vehicular safety and mobility in the corridor are as follows:

1. Pedestrian Access Improvements:
   - Consider providing a pedestrian facility from the High School campus to the Library and YMCA.
   - Consider extending pedestrian safety to Elliot Road and the proposed Town Park.
   - Improve pedestrian crossings at all intersections with Route 151.
   - Consider improving pedestrian circulation from the Donna Lynn Drive to the Library and YMCA.

2. Bicycle Access Improvements:
   - Consider providing a bicycle facility along Route 151.
   - Consider providing a multi-use facility off the road.
   - Consider extending bicycle safety improvements to Elliot Road and the proposed Town Park.
3. Vehicular Circulation Improvements:
   - Consider reducing traffic congestion from Route 4 to the High School access road during peak morning period.
   - Consider improving traffic flow at the Route 151 intersection with Route 4, Michael Road, and the High School access road.
   - Consider reducing the posted speed limit.
   - Consider improving sight distance at the crest vertical curves.
   - Consider improving vehicular circulation to the High School, Library and YMCA.
   - Consider improving vehicular circulation at the Route 4 intersection with I-90 Exit 9 and Mannix Road.
   - Consider moving the “Yield” sign at the Route 151/High School access road to the westbound “slip” lane.

Refer to Figures in Appendix F showing the existing conditions within the study area.
Design Standards

Establishing a design criteria is one of the critical elements in proper planning and design of a transportation facility. The design criteria serves as a basis in providing adequate roadway geometry for highways and streets.

Design criteria is influenced by the functional classification of highway, traffic volumes, operating speed and terrain. The following describes the critical design elements and provides recommendations for selection of appropriate values for the Route 151 Corridor.

1. Functional Classification and National Highway System:
   a. Route 151 is functionally classified as an urban collector road. The American Association of State Highway and Transportation Officials (AASHTO) developed a manual titled “A Policy on Geometric Design of Highways and Streets”. Engineers utilize this manual in the planning and design of transportation facilities. It states that urban collector roads are to provide both land access service and traffic circulation in residential, commercial and industrial areas. Collector roads typically connect to both local streets and arterials, collects traffic from local streets in residential areas and channels it into the arterial system. It also states that urban collectors are intended to accommodate bicycle and pedestrian traffic.
   b. NY Route 151 is not included or a part of the National Highway System.

2. Design Speed:
   The design speed is used to determine geometric design features of a roadway. The selected speed should be as practical as possible to attain degree of safety, mobility, and efficiency and be consistent with the adjacent land use. The selected design speed should also consider the impact it may have on social, economic, and environmental quality.

   According to the New York State Department of Transportation (NYSDOT) Highway Design Manual (HDM), the design speed is selected based upon the following:
   • Functional classification of the road.
   • A speed that fits the travel desires and habits of nearly all drivers (85th percentile speed) for anticipated off-peak conditions.
A speed study was conducted to determine the anticipated off-peak 85th percentile speed for Route 151. The results of the study was described in Section III. The AM and PM off-peak 85th percentile speed was determined to be 43 mph. The method used by Laberge Group to determine the 85th percentile speed differs from NYSDOT standard practice as discussed in Section III. NYSDOT study determined the 85th percentile speed to be 51 mph.

Although Route 151 is classified as an “Urban” collector, the current roadway was originally designed to function as a rural road, which typically is only intended to accommodate vehicular traffic. This section has little to no characteristic of an urban setting via the lack of pedestrian and bicycle accommodations, landscaping treatment, traffic calming features, and other urban amenities. Route 151 should be changed from its “Rural” roadway character to an “Urban” setting. Therefore, a design speed of 45 mph (70 km/hr) is suggested to be used for the purpose of this study, which is the current posted speed limit instead of 50 mph, which is what NYSDOT study would suggest. During the implementation process of the long-term action recommendations, the design speed will need to be re-evaluated.

3. Travel Lane Width:

For urban collector roads, the minimum travel lane width is 11 feet, except for industrial areas where the minimum width is 12 feet. The suggested travel lane width is 11 feet.

Turning lanes, where necessary at intersections, may be less in width when compared to the through lanes. The minimum and suggested right and left turn lane width is 10 feet.

4. Shoulder Width:

Shoulders are not required for an urban collector road that does not provide shared or bicycle lanes. However, if non-mountable curbs are provided adjacent to the travel lane, a 1 feet or 2 feet curb offset is desirable.

5. Grade:
Grades for urban collector roads should be consistent with the surrounding terrain. According to the HDM, for a Design Speed of 45 MPH, the maximum grade for rolling terrain is 9%.
6. Horizontal Curvature and Superelevation:

The minimum radius for a roadway curve is based upon the design speed, superelevation, and side friction. As stated in the AASHTO Manual, vehicles traveling in a circular path undergo a centrifugal acceleration that acts toward the center of curvature. As a result, AASHTO and the NYSDOT HDM developed minimum curve radius and maximum superelevation for various design speeds. For a design speed of 45 MPH (70 km/hr), the minimum radius for a maximum superelevation rate of 4% is 666 feet.

7. Stopping Sight Distance:

Stopping sight distance is the length of a roadway ahead that is visible to a driver. It is the sum of the distance a vehicle travels and sights an object that necessitates a stop to the instant the brakes are applied; and the distance needed to stop the vehicle from the instant the brakes are applied. This distance is dependent on an object height above the road surface, height of the driver’s eye and obstructions within the driver’s line of sight. For passenger vehicles, the height of the driver’s eye is assumed to be 3.5 feet above the road surface. The height of object is assumed to be 2 feet above the road surface.

For a design speed of 45 MPH (70 km/hr), the minimum stopping sight distance is 345 feet.

8. Lateral Clearance:

Lateral Clearance is the distance that should be provided between the edge of a travel lane to roadside obstacles, such as trees and other types of fixed objects. For curbed roads, the minimum lateral clearance is 1.5 feet. For uncurbed roads, the minimum lateral clearance is 3 feet.

9. Vertical Clearance:

As previously discussed, I-90 overpasses exist between Michael Road and the High School access road. The minimum and desirable vertical clearance are 14’-0” and 14’-6” respectively.

10. Pavement Cross-Slope:
Cross-slope is typically provided to rapidly drain the pavement during rainstorms. Typically, the pavement cross-slope is 2% for normal crown sections.

11. Rollover:

The maximum rollover between travel lanes is 4% and 8% between the pavement edge and shoulder.

12. Pedestrian and Bicycle Accommodations:

Refer to Section V for design information and justification. Pedestrian and bicycle facilities are to comply with the NYSDOT HDM and AASHTO Guide for Development of Bicycle Facilities.
Transportation Improvements

SHORT-TERM ACTION INVESTIGATION

Pedestrian Access Improvement

As previously stated in Section III, Inventory of Existing Conditions, students walk to/from the High School, Library, and YMCA. School child advisory signs are currently located west of the Route 151/Michael Road and east of the Route 151/High School access road intersections. Refer to Existing Condition Maps in Appendix F for location of these signs. Flashing beacons are suggested to be installed with these signs, which would emphasize and warn approaching traffic of pedestrians in the area.

Bicycle Access Improvements

Bicycle route signs currently exist along Route 151 indicating that it is part of NYS Bicycle Route 5. One option that was considered to improve bicycle safety is to provide bicycle symbol markings on the shoulders of Route 151. However, this option is not suggested at this time since the shoulders were not designed to accommodate bicycle traffic.

Intersection Improvements

Traffic signals when warranted are a valuable traffic control device for improving the safety and efficient movement of traffic by assigning right-of-way at intersections. The New York State Manual of Uniform Traffic Control Devices (NYSMUTCD) specifies a series of warrants which outlines minimum conditions under which a traffic control signal may be justified. A detailed list of warrants follows:

- Warrant 1 - Minimum Vehicular Volume.
- Warrant 2 - Interruption of Continuous Traffic.
- Warrant 3 - Minimum Pedestrian Volume.
- Warrant 4 - School Crossing.
- Warrant 5 - Progressive Movement.
- Warrant 6 - Accident Experience.
- Warrant 7 - Systems Warrant.
- Warrant 8 - Combination of Warrants.
Transportation Improvements

- Warrant 9 - Four-Hour Volumes.
- Warrant 10 - Peak Hour Delay.
- Warrant 11 - Peak Hour Volume.

It is important to note that NYSMUTCD recommends the above warrants to be used as guidelines, and that engineering judgment should play an important part in determining the need for a traffic signal system.

A traffic signal warrant analysis was conducted at the Route 151 intersection with Michael Road and the High School access road. The results of the analysis are as follows:

**Route 151/Michael Road** - Based upon the current vehicular and pedestrian traffic and accident history at this intersection, a traffic signal system is not warranted at this time. However, it is important to note that the intersection nearly met Warrant 2 – Interruption of Continuous Traffic.

This warrant applies where traffic volume of the main roadway is so heavy for an extended period of the day, the side road traffic experiences long delays. The warrant is met when each of any eight (8) hours of an average day traffic volumes noted below are present:

**Table 25: Traffic Volumes of any 8 hours of an Average Day**

<table>
<thead>
<tr>
<th>Main Road Approach Lane(s)</th>
<th>Side Road Approach Lane(s)</th>
<th>Total Volume of Main Road Veh/hr.</th>
<th>Volume of Side Road (1 direction) Veh/hr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>750 (525 *)</td>
<td>100 (70 *)</td>
</tr>
</tbody>
</table>

* However, if 85th-percentile speed of the main road exceeds 40 mph, and 70% of the above noted volumes are present, then the warrant is met.

The current traffic volumes at this intersection for and eight (8) hour period on an average day is as follows:

**Table 26: Traffic Volumes at Route 151/Michael Road**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Route 151 (EB Approach)</th>
<th>Route 151 (WB Approach)</th>
<th>Total of Route 151 Veh/hr.</th>
<th>Michael Road Approach (Veh/hr.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00 – 7:00 AM</td>
<td>357</td>
<td>186</td>
<td>543</td>
<td>51</td>
</tr>
<tr>
<td>7:00 – 8:00 AM</td>
<td>257</td>
<td>478</td>
<td>735</td>
<td>96</td>
</tr>
<tr>
<td>8:00 – 9:00 AM</td>
<td>219</td>
<td>307</td>
<td>526</td>
<td>80</td>
</tr>
<tr>
<td>2:00 – 3:00 PM</td>
<td>496</td>
<td>369</td>
<td>865</td>
<td>99</td>
</tr>
<tr>
<td>3:00 – 4:00 PM</td>
<td>547</td>
<td>290</td>
<td>837</td>
<td>107</td>
</tr>
</tbody>
</table>
Note that seven (7) of the eight (8) hours of the day, traffic volume exceeded the minimum. The hours from 6:00am to 7:00am on Michael Road was less than the minimum volume of 70 veh./hr.

Although the consensus of the SAC is to have a traffic signal system installed, it is not suggested at this time. However, the Route 151/Michael Road intersection should be continually monitored and if traffic volume on Michael Road increases, a traffic signal system should be considered.

**Route 151/High School access road** - Based upon the current vehicular and pedestrian traffic, and accident history at this intersection, a traffic signal system is not warranted at this intersection.

As previously stated in Section III, a “Yield” sign facing the eastbound left turn movement is present at the Route 151/High School access road intersection. A consideration was given to moving the “Yield” sign adjacent to the “slip” lane so that westbound motorists ingressing the access road would yield the right-of-way to the eastbound motorists turning left onto the access road.

NYSDOT reviewed this consideration and based upon the history of crashes, they concluded that the current intersection control is adequate and should not be changed. However, this intersection should be continually monitored with respect to traffic control. If in the event future crashes occur that are directly related to the existing access control, then moving the “Yield” sign as previously stated should be reconsidered.

**Route 4 and Route 151 Signalized Intersection** - Due to the limited amount of funding available for this project, SAC recommended that this intersection not be addressed as part of this study. The Route 4 Corridor Transportation/Land Use Master Plan has been approved for funding. A part of that study will address and likely recommend options to improve roadway safety and congestion in the Route 4 Corridor, including this intersection.

The access road approach to Route 151 intersection includes two (2) egress and one (1) ingress lanes. If the lane configurations were changed so that the
majority of the access road would accommodate two (2) ingress lanes, and one (1) egress lane, then additional storage of vehicles would be available for inbound traffic and thus potentially reduce some of the congestion on Route 151. In addition, the speed bumps could be removed and replaced with speed humps, which would allow school buses to travel over them at a higher speed and thus improve vehicular circulation. Additional speed humps should be considered along the access road in reducing vehicular speeds. The majority of traffic travel at much higher speed than the posted limit of 15 MPH.

Sight Distance

The crest vertical curve east and west of Glaz Street has limited sight distance. Removing the brush in this area would slightly improve intersection sight distance.

School Zone Speed Limit

NYSMUTCD states that a school zone speed limit should be established only if all of the following exist:

- The zone contains a marked crosswalk.
- The crosswalk is supervised (crossing guard).
- The school has one or more grades below grade 10.
- There is no nearby traffic control signal, pedestrian overpass or underpass, or bridge suitable for pedestrian use.

The Vehicle and Traffic Law specifies that school speed limits are to be in effect between 7:00am and 6:00pm on school days. If flashing beacons are used in conjunction with the school speed limit signs, they must flash for this entire period. The school speed limits may extend no further than 300 feet in either direction from the school building. Also, the school zone speed limit should be approximately 10 MPH below the normal prevailing 85th percentile speed on the highway.

Establishing a school zone speed limit is suggested if all of the above noted conditions are met, along with extensive police enforcement and an aggressive program by the High School in educating students to safely walk along the road and crossing the street.

Driveway Design Standards

Collector streets are typically not planned or constructed with access restriction. However, management of driveways with respect to their
location and geometry is most desirable in order to provide an efficient
circulation and adequate ingress and egress capability.

As noted in Section III, Inventory of Existing Conditions, the geometry of
existing driveways are not consistent along the corridor. In addition, there
are no regulations with respect to their location. Driveways should be
standardized for both residential and commercial uses and meet the
following goals:

- Reduce pedestrian/motor vehicle conflicts.
- Improve visibility between vehicles and pedestrians.
- Improve pedestrian accessibility.

Driveway design should include provisions that would improve pedestrian
mobility and safety. Therefore, the following is suggested to be
implemented along the study area:

- The Town establishes regulations that all driveway layout and
  location be in conformance to the NYSDOT “Policy and Standards for
  Entrances to State Highways”.
- Where practicable, minimize the number of driveways intersecting
  the roadway.
- If sidewalks are constructed along Route 151, a cross-slope of no more
  than 2 percent should be provided through the driveway for
  compliance with ADA Regulations. Refer to Figure 6 in Appendix G
  for typical driveway design standards that could be suggested for
  future development along this corridor.

As residential or commercial developments continue to increase in the study
area, consideration should be given to improving connectivity. For example,
vacant land currently exists south of the YMCA which could be developed.
As part of a future development project, secondary connections should be
considered to Community Way and Michael Road that would improve
vehicular and/or pedestrian circulation and emergency access. In addition,
vacant land currently exits west of the East Greenbush Technology Park and
north of the High School. If future development is proposed in this area, a
secondary roadway connection should be considered to the High School and
the technology park.
Therefore, as part of the future approval process, the Planning Board and Town Council should consider including provisions for secondary access road connections as an essential component of approving the projects.

Laberge Group’s traffic speed analysis was forwarded to NYSDOT for consideration of lowering the posted speed limit. As previously stated, NYSDOT utilizes free flow speeds to determine the 85th percentile speed. Based upon a previous speed study conducted by NYSDOT, it determined that the prevailing speed is greater than the posted speed limit. At this time, NYSDOT indicates that reducing the speed limit is not advisable.

Based upon the findings of the various short-term action items previously discussed, the following actions should be considered to improve vehicular and pedestrian safety:

- Install flashing beacons on the school child advisory signs located on Route 151.
- Provide two (2) ingress lanes and one (1) egress lane north of the High School access road intersection with Route 151 via re-striping the pavement.
- Replace speed bumps with speed humps on the High School access road. A study should be conducted to determine where and the number of humps needed to reduce vehicular speed.
- Monitor traffic volumes at the Route 151/Michael Road intersection. If traffic volume on Michael Road increases due to future developments in the area, then a signal system may be warranted.
- Clear brush along the northeast side of Route 151/Glaz Street intersection to improve sight distance.
- Town of East Greenbush adopt residential and commercial driveway design standards. Future developments along or adjacent to the corridor would be required to conform to the standards.
- The Town of East Greenbush future planning approval process should include provisions for secondary access roads in the Study Area to improve pedestrian and vehicular mobility.
- Monitor traffic volumes, flow and crashes at the Route 151/High School access road.
Transportation Improvements

- Aggressively seek funding opportunities that may be available to implement short and long-term action recommendations.

Refer to Figure 6 through 9 in Appendix G for concept maps showing some of the short-term action recommendations noted above.

The recommendations described herein are consistent with the established goals of the study and respond to problems/concerns that were raised by the public. It is noted that this study is a planning document and several recommendations would require changes to the roadway cross-section and vertical alignment. During a future design process, assuming funding is in place, environmental consequences would need to be investigated to determine if any of the recommended actions have a negative impact.

In addition, several recommended improvements may require the purchase of lands adjacent to Route 151. It is anticipated that if lands need to be purchased, it would be in the form of strip takings.

Ultimately, the future designer will need to evaluate the benefits of the recommended actions versus the potential of any negative impact on the environment and/or right-of-way. From a planning perspective, it does appear that long-term actions suggested herein are feasible for implementation. The following long-term actions should be considered for future implementation:

**PEDESTRIAN MOBILITY:**

Based upon the existing land use, roadway functional classification, location of several popular destinations within the corridor, such as the High School, Public Library, YMCA facility, commercial facilities along Route 4, and the positive feedback from the public, constructing a pedestrian facility in the form of sidewalks should be considered along Route 151, High School access road, Michael Road and Community Way.

The Institute of Transportation Engineers (ITE) prepared a document titled “Design and Safety of Pedestrian Facilities” dated March 1998, which included recommended guidelines for sidewalk installation. Table 27 on the following page is included in the above noted document and summarizes the areas where sidewalks should be considered.
## Table 27: ITE Guidelines for Installing Sidewalks

<table>
<thead>
<tr>
<th>Land-Use / Roadway Functional Classification and Dwelling Unit</th>
<th>New Urban and Suburban Streets</th>
<th>Existing Urban and Suburban Streets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial and Industrial (All Streets).</td>
<td>Both sides.</td>
<td>Both sides. Every effort should be made to add sidewalks where they do not exist and complete missing links.</td>
</tr>
<tr>
<td>Residential (Major Arterials).</td>
<td>Both sides.</td>
<td>Both sides.</td>
</tr>
<tr>
<td>Residential (Collectors).</td>
<td>Both sides.</td>
<td>Multifamily – both sides.</td>
</tr>
<tr>
<td>Residential (Local Streets), more than 4 Units Per Acre.</td>
<td>Both sides.</td>
<td>Prefer both sides; require at least one side.</td>
</tr>
<tr>
<td>1 to 4 Units per Acre.</td>
<td>Prefer both sides; require at least one side.</td>
<td>At least 4-feet shoulder on both sides required.</td>
</tr>
<tr>
<td>Less than 1 Unit per Acre.</td>
<td>One side preferred; shoulder on both sides required.</td>
<td>One side preferred, at least 4-feet shoulder on both sides required.</td>
</tr>
</tbody>
</table>

**NOTES:**
1. Any local street within two blocks of a school site that would be on a walking route to school – sidewalk and curb and gutter required.
2. Sidewalks may be omitted on one side of a new street where that side clearly cannot be developed and where there are no existing or anticipated uses that would generate pedestrian trips on that side.
3. Where there are service roads, the sidewalk adjacent to the main road may be eliminated and replaced by a sidewalk adjacent to the service road on the side away from the main road.
4. For rural roads not likely to serve development, a shoulder at least 4 feet in width, preferably 8 feet on primary highways should be provided. Surface material should provide a stable, mud-free walking surface.

The NYSDOT has developed policies and design standards with respect to design and construction of pedestrian and bicycle facilities. These policies are provided in Chapter 18 of the NYSDOT Highway Design Manual. Table 28 on the following page is included in Chapter 18 of NYSDOT Highway Design Manual.
### Table 28: NYSDOT Guidelines for Installing Sidewalks in Developed Areas

<table>
<thead>
<tr>
<th>Type of Area (land use, roadway functional classification, or density of dwelling units)</th>
<th>Providing Sidewalks on New Urban and Suburban Streets.</th>
<th>Providing Sidewalks on Existing Urban and Suburban Streets.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial and Industrial and Public Service Areas – All Streets.</td>
<td>Developed sides of these Streets.</td>
<td>Developed sides of these Streets.</td>
</tr>
<tr>
<td>Residential – Arterials.</td>
<td>Developed sides of these Streets.</td>
<td>Developed sides of these Streets.</td>
</tr>
<tr>
<td>Residential – Collectors.</td>
<td>Developed sides of these Streets.</td>
<td>For Multi-Family Dwellings – needed on Developed Sides of these Streets. For Single-Family Dwellings – needed on at least one side of these Streets.</td>
</tr>
<tr>
<td>Residential – Streets with Detached Residences Closer than 30 m apart.</td>
<td>Developed sides of these Streets.</td>
<td>Desirable on both developed sides but needed on at least one side.</td>
</tr>
<tr>
<td>Residential – Streets with Detached Residences an Average of 30 to 60 m apart.</td>
<td>Desirable on both Developed Sides but needed on at least one side.</td>
<td>Desirable on both developed sides but needed on at least one side.</td>
</tr>
<tr>
<td>Residential – Roadways with Residences further than 60 m apart (see note 5 below).</td>
<td>Needed on one side of these Roadways, preferably the side where Development occurs. See section 18.6.5.</td>
<td>Needed on one side of these Roadways, preferably the side where development occurs. See section 18.6.5.</td>
</tr>
</tbody>
</table>

### NOTES:

1. Sidewalks frequently extend from the building face to the curb in heavily developed urban areas where structures are continuous and attached. Where sidewalks will be replaced or reconstructed, designers should begin their designs, profiles, and sections at the building face and work toward the centerline of the roadway. Particular attention must be given to doorway and basement entrances, stairs, roof drains, utilities, trees, street furniture, snow storage, etc, when designing pedestrian facilities in highly developed urban areas. Clearance next to the face of buildings is generally recommended to be 0.5 m. ADAAG and the Regional personnel responsible for pedestrian and accessibility guidance (normally the Regional landscape architecture staff) should be consulted early in the project design.

2. Identifying nearby land use, such as schools, parks, shopping centers and other commercial properties; and their associated pedestrian traffic will help determine whether sidewalks are needed on both sides of the street.

3. Sidewalks should be provided along both sides of roads, streets, and arterials where pedestrian access is needed or desired to schools, universities, office complexes, commercial establishments, post offices, transportation terminals and transit stops. The designer will determine the best sidewalk placement. A discussion of bus stop design can be found in Section 18.6.6.9.

4. Placing sidewalks on bridges is a function of existing and proposed roadway approach sections, adjacent land uses, vehicle volumes (including consideration of large vehicles), and the support of the community(ies). Highway and structure designers should collaborate to assure sidewalk system continuity. Sidewalks will normally be 1.525 m wide on the structure. A discussion of the need for wider sidewalks can be found in Section 18.6.6.1.

5. Professional judgment must be used to determine appropriate locations to begin and/or end sidewalks as development becomes less dense.
In addition, NYSDOT has recently issued Engineering Instruction (EI) 04-011 titled “Procedural Requirements for Pedestrian Accommodation”. EI 04-011 applies for all projects that are classified as new construction, reconstruction, bridge replacement, bridge rehabilitation, signal requirement contracts, safety and resurfacing. A copy of EI 04-011 is provided in Appendix H.

EI –4-011 includes “A Pedestrian Generator Checklist” that is typically completed for all projects noted above. If one or more answers are “yes”, then there is a potential need to accommodate pedestrians. A completed checklist for this study is provided in Appendix H, which further confirms the justification for providing a pedestrian facility in the study area.

The NYSDOT has been very proactive in integrating pedestrian and bicycle safety and accessibility in the planning and design of transportation projects. NYSDOT has developed a Bicycle and Pedestrian Policy, which in part states the following: “As part of our mission as an intermodal transportation agency, NYSDOT must make bicyclists and pedestrians an integrated element of our intermodal transportation system”. In addition, “To accomplish this, facilities for pedestrians and bicyclists must be considered for incorporation into highway, bridge and transit projects and integrated throughout NYSDOT’s policy, planning implementation and operations efforts”. Refer to Attachment B of EI 04-011 in Appendix H for a copy of the complete policy statement.

In addition, the NYSDOT’s Pedestrian and Bicycle Facility Scoping Guide states that, “Sidewalks are considered warranted and must be scoped whenever land use and development are such that pedestrians regularly move along the roadside or would move along a sidewalk.” A width of 5 feet is recommended, which would allow people to pass comfortably or to walk side-by-side. The sidewalk should be made of cement concrete. Sidewalks should also be designed to provide adequate access and use for people with disabilities as per ADA guidelines.

Constructing sidewalks will improve the quality of life in the study area since:
Transportation Improvements

- Pedestrians currently walking along the roadway shoulder or off the road will be accommodated by a sidewalk that would be adequately designed for this mode of transportation.
- Students currently bused to the High School and the Library could instead utilize the sidewalk and thus reduce school bus transportation needs.
- Pedestrians could walk safely to the High School, Library, YMCA, and various local businesses, specifically to the “Stewarts” shop located at the Route 4 and 151 intersection, which is a popular destination area for young adults.
- Sidewalks would provide safe accommodation for the elderly and disabled to walk from their homes to the Library, YMCA, High School, and local businesses.
- Sidewalks would reduce pedestrian/vehicle conflicts.
- Sidewalks with adjacent curbing would have an affect of “calming” traffic in the corridor and thus potentially reduce traffic speeds.
- Sidewalks along with landscaping would improve the visual character of the study area while creating a sense of community and encouraging social interactions.
- Sidewalks would improve the designated school bus stop areas by providing a facility where students can congregate.
- Sidewalks would encourage walking and thus reduce vehicular trips and congestion along the corridor.
- Sidewalks also provide a health benefit due to the likely increase in the pedestrian traffic because of their presence.
- Where residential driveways are present, the sidewalks should extend through the driveways. Refer to Figure 6 in Appendix G for additional information. The minimum suggested width for sidewalks is 5 feet, which would allow two-way pedestrian traffic and meets ADA guidelines. If right-of-way is available and there is no adverse impact, 6 foot wide sidewalks are preferred.

In addition to sidewalks, a buffer zone/snow storage area should also be considered. The buffer zone provides a separation between motor vehicles and pedestrians, which further improves pedestrian safety. A buffer zone of
4 feet is desirable to separate pedestrians from the roadway and also provide an area to store snow. The buffer zone could be made of a hard surface material such as brick pavers or grassed area. The grassed area is more in character to the visual appearance of the area and will allow ease for planting of small trees and shrubs. However, it does require increased maintenance.

Non-mountable curbing should be provided adjacent to the buffer zone. The curb height should be 6 inches. Curb type could be granite, concrete, or asphalt. Concrete curbing is less costly when compared to granite, more durable when compared to asphalt, and requires less maintenance. At residential driveways, curb transition should be provided to alter the curb height from six inches to one inch. At commercial driveways and intersecting streets, curb should be flush with pavement at the end of the curb ramp. Truncated domes should also be included at all handicapped accessible ramps to aid the visually impaired.

Pedestrian accommodations should also include crosswalks at all intersections. Crosswalks would clearly identify where pedestrians are to cross the road and designate locations where motorists are to yield the right-of-way. Various options are available in delineating the crosswalks. Options include ladder style pavement striping, granite or brick pavers, colored and imprinted cement concrete, paver-smooth area, colored synthetic asphalt wearing surface, and Belgian blocks. It is suggested that either colored synthetic asphalt wearing surface or paver-smooth area be utilized to delineate the crosswalks. Painted white lines should be considered on each side to increase visibility for both pedestrians and motorists. This type of crosswalk is highly visible and will improve the safety of a pedestrians crossing a road. In addition, the crosswalk would comply with ADA guidelines.

In addition to the crosswalks and where intersections are controlled by a traffic signal, pedestrian countdown signals should be provided. This would include the Route 4/Route 151 and possibly the Route 151/Michael Road intersections.

Based upon potential environmental and right-of-way impacts, the existing land use along the corridor, including the popular destinations, such as the High School, Public Library, YMCA facility, and commercial establishments along Route 4, it may be desirable to prioritize the placement of sidewalks in
the study area. The suggested placement of sidewalks are prioritized as follows:

<table>
<thead>
<tr>
<th>Priority</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>West side of the High School access road to north side of Route 151 to Michael Road and Community Way.</td>
</tr>
<tr>
<td>2</td>
<td>South side of Route 4/Route 151 intersection to Michael Road.</td>
</tr>
<tr>
<td>3</td>
<td>North side of Route 4/Route 151 intersection to Michael Road.</td>
</tr>
</tbody>
</table>

The ultimate goal would be to place sidewalks at all of the above noted locations.

In addition, residents within the Donna Lynn Drive and Commons Drive community do not have direct access to the Library and YMCA; they mainly drive to these facilities via Route 151 to Michael Road and Community Way. In an effort to improve pedestrian mobility, a pedestrian connection in the form of a multi-use path should be provided from either Fox Run Court or Commons Drive to Community Way. Bicyclists could also utilize the multi-use path.

**BICYCLE MOBILITY:**

As previously stated, Route 151 is part of New York State Bicycle Route 5. CDTC has recommended that Route 151 from Route 4 to County Road 56 (Elliot Road) be included as part of the Bicycle and Pedestrian Priority Network through the Bicycle and Pedestrian Game Plan and Toolbox update. The Town of East Greenbush has approved its inclusion.

A bicycle facility is recommended and supported by the public. A bicycle facility will have similar benefits as a pedestrian facility with respect to reducing vehicular trips and thus improve air quality.

As previously stated, NYSDOT has developed policies and design standards with respect to facilities for pedestrians and bicyclists. In addition,
American Association of State Highway and Transportation Officials “Guide for the Development of Bicycle Facilities” is a useful document in determining the need to accommodate bicycle traffic, along with appropriate design elements.

There are several potential options to improving bicycle access and safety in the corridor. A discussion of the various options are as follows:

Option A – Shared Roadway:
Shared roadway involves both motor vehicles and bicyclists sharing the same lane for access without special markings, such as pavement striping to separate the motor vehicle from the bicyclist. NYSDOT recommends a pavement width of 14’ in flat or rolling grades and 15’ for steep grades.

The use of shared lanes is generally acceptable in residential streets where motorists are traveling at lower speeds (30 mph or less). Shared lane treatment is generally not recommended for collector or arterial roads with the average speed of a motorists is more than 30 mph.

Option B – Bicycle Lanes:
Bicycle lanes are typically incorporated into a roadway section and are delineated by the use of special signing and pavement markings. NYSDOT’s minimum design standard for bicycle lanes is 4’. However, if curbing is provided, the minimal bicycle lane width should be 5’.

Option C – Shared Use Path:
Shared use paths are typically constructed away from or parallel to a roadway where adequate right-of-way is available. The most common locations are along inactive railroad right-of-way, along waterways and within parks and other recreational facilities. Since adequate right-of-way is not available within or adjacent to the corridor, this option is not practicable.

Selection of a Bicycle Facility on Route 151:
Selection of a bicycle facility should be based upon what types of bicyclists most likely will it serve. Considerations should also include the motor vehicle traffic volume, vehicular speed, traffic mix, sight distance, and number of intersections. The Federal Highway Administration (FHWA) published a document titled “Selecting Roadway Design Treatments to
Accommodate Bicycles” to assist in determining the appropriate type of bicycle facility.

Based upon the character and land use of the study area, it is anticipated that Design Group “B” Bicyclists will most likely use this facility. The FHWA defines Group “B” Bicyclists as follows:

“These are casual or new adult and teenage riders who are less confident of their ability to operate in traffic without special provisions for bicycles. Some will develop greater skills and progress to the advanced level, but there will always be many millions of basic bicyclists. They prefer:

- Comfortable access to destinations, preferably by a direct route, either using low-speed, low traffic-volumes streets or designated bicycle facilities.
- Well-defined separation of bicycles and motor vehicles on arterial and collector streets (bike lanes or shoulders) or separate bike paths.”

Therefore, Option B - Bicycle lanes is the suggested treatment along Route 151.

\textit{High School access road, Michael Road, and Community Way:}

Although many students are bused or drive to school, consideration should be given to the occasional student that would utilize a bicycle to travel to/from the High School, Public Library, and YMCA. Therefore, it is recommended that a shared lane be considered on these roads.

\textbf{SIGHT DISTANCE IMPROVEMENTS:}

There are two (2) main crest vertical curves on Route 151, one located west and east of Glaz Street and the other located to the west and east of the High School access road. The stopping sight distance was measured to be 292’ and 345’ respectively. Consideration should be given to increasing the sight distance at the vertical curves to provide a desirable stopping sight distance of 400’. The redesign would likely involve increasing the length of vertical curves, which would result in “Flattening” the vertical geometry. The “Flattening” of the curves would also improve intersection and driveway sight distance within their limits.
INTERSECTION IMPROVEMENTS:

Route 4/Route 151:
The Route 4 and Route 151 intersection will be evaluated as part of the Route 4 Transportation/Land Use Master Plan Study.

Route 151/Michael Road:
The Michael Road/Route 151 intersection traffic volumes as part of the Short Term Action recommendations will be monitored. It is anticipated that development in the area will continue and at some point, a traffic signal system may be warranted. The consensus of SAC and the public is that this intersection be signalized.

Route 151/High School access road:
A westbound “slip-lane” currently exists at this intersection. Motorists generally do not slow down when traveling on the “slip-lane” to the access road. It is recommended that the “slip-lane” be considered for removal or redesigned via increasing the angular approach so that motorists will need to slow down when utilizing this lane for ingress to the High School.

VEHICULAR ACCESS IMPROVEMENTS:

As previously stated, there is only one (1) access point to the Columbia High School campus. A secondary access road should be considered that would connect to Mannix Road. The future access road could be constructed as part of a future development north of the school property. The secondary access road would also have a benefit of reducing the volume of traffic on Route 151 and improve emergency access to the High School.

The Public Library and YMCA facility are located on a dead end street, which is Community Way. A connection should be considered either with Michael Road south of the YMCA facility and with Commons Drive. These access roads could be constructed as part of a future development south of the YMCA facility. The roads would also improve emergency access to these facilities. In addition, a connection should also be provided from the YMCA facility to the future development.
Newkirk Road currently intersects with Route 151 adjacent to Michael Road and at a skewed angle to the west. Based upon the number of residential homes on Newkirk Road and the low volume of traffic, a portion of Newkirk Road should be considered for removal. The current Michael Road extension connection to Route 151 is more than adequate to accommodate vehicular traffic and circulation.

**TRAFFIC CALMING AND LANDSCAPING:**

As previously stated, the vehicular speeds are relatively high along Route 151. If pedestrian and bicycle facilities that includes curbs, sidewalks and high visibility crosswalks and bicycle lanes are constructed, they would likely reduce vehicular speeds.

Other options that should be considered in calming traffic include utilizing a high visibility flush median on Route 151, west and east of the High School access road or a raised median utilizing mountable curbing. Although a raised median would calm traffic, concerns were raised with respect to their safety. NYSDOT’s experience with narrow raised curbed medians is it can introduce an obstruction that could increase the severity of “cross-over” accidents. In addition, maintenance of a landscaped raised median is more expensive when compared to a flush median. Further analysis of both options would need to be considered during a future design phase. The consensus of the SAC is a flush median is more practicable. A high visibility flush or raised median should also be considered for the High School access road once a secondary access road is constructed.

In addition, various landscaping treatments would also calm traffic and improve the visual character of the area. Therefore, trees, shrubs, and other visually appealing amenities should be considered along the corridor.

**RIGHT-OF-WAY IMPACTS:**

The approximate existing highway boundary along Route 151 is shown on the Concept Plans provided in Appendix G and I. It is anticipated that strip takings may be required along various locations on Route 151 for some of
the long-term action recommendations. Short retaining walls should be considered where practicable to minimize right-of-way takings.

LIGHTING:

Pedestrian scale lighting should be considered and placed adjacent to the recommended sidewalks. Luminaries should be between 12 to 15 high, architectural style. In addition to enhancing pedestrian activity, they would also function as a traffic calming device.

PAVEMENT AREA:

Based upon all the suggested long-term action recommendations, that includes increasing sight distances at the two (2) crest vertical curves, adding curbing and sidewalks and the time involved in obtaining funding, continued deterioration of the pavement, complete reconstruction is suggested, which would also increase the service life of the road.

SNOW REMOVAL PLANS:

As noted in Section II – Public Participation, several residents were concerned as to who would be responsible in the maintenance of future sidewalks, specifically with respect to snow removal. The Town should develop snow removal plans that would allow pedestrians to utilize the sidewalk during the winter season and minimize the burden of responsibility for their maintenance.

FUNDING OPPORTUNITIES:

Federal, State and private funds may be available to implement short and long-term action recommendations. Refer to Section VII for information on possible funding sources. The Town should aggressively pursue all available sources.
In summary, the following long-term actions should be considered to improve pedestrian, bicycle and vehicular safety:

1. Pedestrian Access Improvements:
   - Provide sidewalks with non-mountable curbing along Route 151, High School access road, Michael Road, and Community Way.
   - Provide a buffer zone between the curb and sidewalk.
   - Provide a pedestrian connection from Donna Lynn Drive area to Community Way.
   - Utilize high visibility crosswalks at all intersections.
   - Provide a pedestrian countdown signals at signalized intersection(s).
   - Develop snow removal plans associated with providing the sidewalks.

2. Bicycle Access Improvements:
   - Provide bicycle lanes along Route 151 and shared lanes along Michael Road, High School access road, and Community Way.

3. Vehicular Access and Safety Improvements:
   - Reconstruct Route 151 to include improving sight distance at the crest vertical curves adjacent to Glaz Street and the High School access road.
   - Install a traffic signal at Route 151/Michael Road Intersection.
   - Remove or realign the westbound right turn “slip lane” to the High School access road.
   - Provide a secondary access road to the High School from Mannix Road, including a connection to the technology park.
   - Provide a secondary access road from Donna Lynn Drive area to Community Way and Michael Road.
   - Remove a portion of Newkirk Road and thus eliminate skewed intersection with Route 151.
   - Provide a high visibility flush or a raised median on Route 151 east and west of the intersection of the High School access road.
Transportation Improvements

- Provide a high visibility flush or a raised median on the High School access road once a secondary access road is constructed.
- Provide landscaping treatments that would improve the visual character of the area and calm traffic.
- Provide pedestrian scale lighting to enhance pedestrian safety, activity and calm traffic.
- Utilize decorative retaining wall where needed to minimize right-of-way impacts associated with several of the long-term action recommendations.

Refer to Figures 10 through 16 in Appendix I for concept maps showing some of the long-term action recommendations noted above.

**OTHER PUBLIC CONCERNS THAT ARE NOT PART OF THIS STUDY:**

1. **Extending Project Limits:**

   Based upon public input, it was suggested that the study limits extend to Elliot Road and the future Town Park. Residents also have concerns in this area with respect to the lack of pedestrian, bicycle accommodations, and traffic speeds. In an effort to move forward with implementing some of the recommendations stated herein, the SAC elected to complete this project within the current study limits and investigate obtaining funds for another study, which would include Route 151 from the High School access road to Elliot Road.

2. **Route 4 Corridor Area:**

   As previously stated, the Route 4/Route 151 intersection will be addressed as part of the Route 4 Transportation/Land Use Master Plan Study. That study would likely include recommended actions for the I-90 Exit 9 area and Mannix Road intersections.
Order of Magnitude Cost

SHORT-TERM ACTIONS

The order of magnitude cost for the following short-term action recommendations are as follows:

- Two (2) flashing beacons - $10,000.
- Restriping the High School access road - $1,000.
- Replace speed bumps with speed humps on the High School access road - $25,000.
- Clear brush along north side of Route 151 - $1,000.

The total order of magnitude cost for the short term-action recommendations is $37,000.

LONG-TERM ACTIONS

The order of magnitude cost for the following long-term action recommendations are as follows:

- Route 151 Improvements - $4,250,000.
- Michael Road and Community Way Pedestrian Improvements - $615,000.
- High School access road improvements - $350,000.
- High School secondary access road and connection to the technology park - $900,000.

These costs include both design and construction phases. However, they do not include right-of-way acquisition since the extent of right-of-way impact is unknown at this time. Refer to Appendix J for itemized cost of the long-term action recommendations.

It is important to note that the Route 151 Improvements includes complete roadway reconstruction, pedestrian and bicycle accommodations, a traffic signal system at Michael Road, retaining walls to reduce right-of-way taking, median treatment from Michael Road to east of the High School access road, lighting, and landscaping.
There are a number of potential funding sources that may be available for some of the recommended action items. They include both public and private sources. A description of available funding sources is as follows:

**Transportation Enhancement Program (TEP):**

The CDTC is the designated Metropolitan Planning Organization (MPO) in the Capital Region. They are committed to enhancing pedestrian and bicycle mobility in the MPO area, which includes Albany, Schenectady, Rensselaer, and Saratoga Counties. As part of their planning process, they typically allocate funds for pedestrian, bicycle and canal projects. When funds become available, CDTC sends notices to local communities and other potential applicants soliciting projects, which could be partially funded as part of TEP. It is important to note that the program is administered as a grant and as a result, the federal contribution is fixed at a maximum of 80% of the project cost. Funding under the TEP is limited and only a select number of projects are typically approved in the State of New York.

The types of projects that are funded through this program must satisfy a minimum of one (1) of the twelve (12) categories. The categories include:

- Provisions of facilities for bicycle and pedestrians.
- Preservation of abandoned railway corridors, including converting and using it as a pedestrian and bicycle trail (multi-use path).

A TEP Guidebook, which further explains the program, is available through CDTC and NYSDOT Offices.

The following suggested actions may be eligible for funding under TEP:

- Sidewalks and bicycle lanes on Route 151 from US Route 4 to High School access road.
- Sidewalks along Michael Road and Community Way.
- Sidewalks along the High School access road.
Transportation Improvement Program (TIP):
The CDTC has responsibility under federal law to adopt a multi-year program of proposed transportation improvement projects within the MPO area. Similar to TEP, CDTC with input from NYSDOT and local governments, is the responsible MPO for programming federal transportation funds for state and local highway and transit projects. CDTC typically forwards notices to communities soliciting projects, which could be partially funded as part of the TEP Program. Communities that are interested in having their project considered for funding must complete and submit a Project Justification Package for CDTC’s review. If the project is selected, then it would receive federal funds up to a maximum of 80% of the overall cost. The remaining 20% would be the responsibility of the project sponsor. A minimum requirement for projects to receive federal funding is that the facility must be on the federal aid eligible list and thus the roadway must function as a collector or arterial highway. Route 151 is eligible to receive federal aid. Therefore, the reconstruction of Route 151, including adding sidewalks and bicycle lanes can be funded under this program.

New York State Marchiselli Funds (NYSMF):
As previously stated, TIP projects are 80% federally funded and remaining 20% would be the responsibility of the project sponsor. However, locally sponsored projects have received Marchiselli Aid, which is a state funding source that can fund up to three-quarters of the local cost. It is important to note that these funds must only be utilized for highway use. Pedestrian and bicycle facility type projects are not eligible to receive Marchiselli Aid, unless is part of a highway construction project. There is no assurance that Marchiselli funding will be available to offset some of the local share of the project cost.

New York State Multi-Modal Program Funding (MMPF):
The Multi-Modal Program legislation requires that all funds be solely utilized for capital project costs for construction, reconstruction, reconditioning, and preserving of facilities and equipment with a service life of ten (10) years or more. However, funds cannot be used for the mandated non-federal matching share of federally funded projects.

The amount of funds available under the Multi-Modal Program is very limited. The most likely scenario would be to utilize multi-modal funding...
Implementation Strategies

for right-of-way acquisition, preliminary engineering, and construction supervision and the inspection portion of a project.

State Administered Community Development Block Grant (CDBG):
This is a federally funded program administered under CDBG Small Cities Program. New York State is responsible for distributing funds to non-entitlement communities such as cities, towns, and villages with a population of less than 50,000. Projects, which receive funding under this program, need to be part of an overall revitalization project that benefits low-to-moderate income families within the area. Based upon history of projects funded under this program, it is unlikely that the long-term action recommendations will be selected to receive CDBG funds.

Transportation and Community and System Preservation Pilot Program (TCSP):
The TCSP is a nationwide discretionary program administered by the Federal Highway Administration. Projects, which are eligible for funding, must meet several objectives, which include:

- Improving efficiency of the transportation system.
- Reduce environmental impacts of transportation.

Similar to the CDBG Program, TCSP funding availability is very limited.

Spot Improvement Program:
CDTC has set aside $100,000 per year for projects that provide low cost pedestrian and bicycle improvements that are too small for other programs such as TIP and TEP. Spot improvement projects typically address problems at specific locations such as intersections and short lengths of roadway. All Spot improvement projects are funded with a maximum of 80% federal funds and are capped. The remaining 20% is a local match and typically funded by the project sponsor.

The short-term action recommendations may be funded as a spot improvement project.
There may be several local source options available to fund the recommended improvements. One potential source is the Town’s general fund. Under this option, the Town would need to set aside funds on an annual basis until adequate funding is available to construct the proposed improvements. Another option is the Town could bond the recommended improvements. However, due to budgetary constraints, local funding of the proposed long-term action improvements is unlikely.

With respect to constructing a secondary access road and recommended improvements of the existing High School access road, the school district has the same options as the Town to fund the recommended improvements.

As previously stated, development in the study area has significantly increased over the years. Currently, concept plans have been submitted to the Town Planning Board for a proposed senior citizen complex south of the YMCA. As part of that project, it is anticipated that Community Way would be extended as shown in Figure 14 of Appendix I. In addition, it is anticipated that the emergency access road from Community Way to Michael Road and a connection from the YMCA facility to Community Way will also be constructed as part of that project.

In addition, it is encouraged that the Town continue to work with the private developer to potentially dedicate the right-of-way to the Town to construct the pedestrian and/or vehicular connection from Commons Drive to Community Way and participate in the funding for construction of sidewalks along Community Way.

It has always been the practice in the Town that developers construct local roads within a commercial/residential development, dedicate the right-of-way to the Town and participate in the design and construction of local, collector and arterial roadways that are impacted by the proposed development. Therefore, future developer(s) should be considered as potential funding sources to construct a portion of the secondary access road to the High School and a roadway connection from the Technology Park to the secondary access road shown in Figure 13 of Appendix I.
The schedule for implementation of the short-term action recommendations is based upon the availability of funds. As previously stated, the Town and/or School District could set aside 100% of funding needed to implement the short-term actions or apply for funding under the Spot Improvement Program. In either case, implementation may be possible in less than one (1) year.

The schedule for implementation of the long-term action recommendations will require a significant investment of funds. However, an opportunity exists where private funds could be utilized to construct a portion of the sidewalk and pedestrian or vehicular connection along Community Way as part of the proposed Senior Citizen Complex shown in Figure 14 of Appendix I. It is anticipated that private funding will be utilized to:

- Extend Community Way to service the Senior Citizen Complex.
- Construct an emergency access road from Community Way to Michael Road.
- Connect YMCA parking area to Community Way.

With respect to implementing the sidewalks from Route 151 to Michael Road and Community Way, the Town should investigate all opportunities in obtaining federal and/or state funding, such as the TEP. Since federal and/or State funding availability is uncertain at this time, other options should be investigated which may include a collaborative effort between the Town, Public Library and YMCA in raising the funds needed to construct this pedestrian facility.

With respect to Route 151, the Town should consider submitting an application to CDTC for potential funding of the long-term action recommendations during the next TIP update. It is important to note that at this time, it is unknown if or how much funding is available for new projects under the TIP. Therefore, the Town should investigate other federal, state, local and private funding options described herein.

With respect to the High School access road, installation of sidewalks can be implemented separately from the access road median improvements. It is important to note that the median improvements cannot be implemented until a secondary access road to the High School is constructed.
With respect to the secondary access road to the High School and the potential connection to the Technology Park, the Town and school district should work closely with a future developer(s) in developing a strategy to utilize private and public funds to construct the roadways.
FIGURE 6
NY Route 151
Driveway Design Standards

Driveway Location Standards
All dimensions shown are minimum standards.

NOTE: FOR MORE INFORMATION, SEE NYSDOT STANDARD SHEETS.
FIGURE 9
Town of East Greenbush
Route NY 151 Corridor Study
From Route 4/151 to School Access Road
Short Term Action Recommendations
An example of a bicycle lane within a roadway section.

An example of a sidewalk adjacent to a retaining wall.

Bicycle lane, Guilderland. (Photo obtained from NYSDOT Website)

Yahoundasis Interchange, Onondaga Co. (Photo obtained from NYSDOT Website)

FIGURE 10
NY Route 151 (Luther Road)
Long Term Action Recommendations

LEGEND
- TRAVEL AND BICYCLE LANE
- BUFFER ZONE
- SIDEWALK
- CROSSWALK
- RAISED OR FLUSH MEDIAN
- LANDSCAPING

INSTALL PEDESTRIAN CROSSWALKS AND PEDESTRIAN ACTUATED SIGNALS AT EACH APPROACH

VFACANT LOT

IMPROVE SIGHT DISTANCE VIA "FLATTENING" VERTICAL CURVE

APPROX. HWY. BNDRY.

APPROX. HWY. BNDRY.

IMPROVE SIGHT DISTANCE VIA "FLATTENING" VERTICAL CURVE

EDEN PARK ACCESS (PRIVATE RD.)

FIREHOUSE

GLAZ ST

DONNA LYN DR

IMPROVE SIGHT DISTANCE VIA "FLATTENING" VERTICAL CURVE

STEWARTS

ROUTE 4

APPROX. HWY. BNDRY.
**FIGURE 14**

Town of East Greenbush
Route NY 151 Corridor Study
From Route 4/151 to School Access Road
Long Term Action Recommendations

**Legend**

- **Travel and Bicycle Lanes**
- **Buffer Zone**
- **Sidewalk**
- **Culvert**
- **Raised or Flush Median**
- **Landscaping**

**Possible Emergency Access Road**

**Possible Future Senior Citizen Complex**

**Pedestrian and/or Vehicular Connection**

**Traffic Signal System with Pedestrian Actuated Crossing**

**Improve Sight Distance via "Flattening" Vertical Curve**

**Note:**
- The map is a conceptual planning tool and may not reflect actual construction plans. 
- Specific details such as exact locations and dimensions should be verified with the original project documents.

**Source:**
- The map was created by Loberge Group and was submitted to the New York State DOT Planning Office.
NY Route 151 (Luther Road) Existing Conditions

1. Lack of dedicated pedestrian and bicycle facilities.
2. Crest Vertical Curve with limited sight distance.
3. Same Crest Vertical Curve with limited sight distance.
5. Traffic Sig. System Vacant Lot
6. School Bus Stop Area
7. Poor Sight Distance
8. Laberge Group

Aerial photography was taken in May 2000 and was obtained from the New York State GIS Data Library.