



# FREEMANS BRIDGE ROAD COMPLETE STREETS CONCEPT PLAN

MAY 2018





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*The Freemans Bridge Road Complete Streets Concept Plan is intended to provide a framework for advancing Complete Streets implementation in the corridor consistent with the Town Comprehensive Plan and Vision for the Town. The Concept Plan recommendations are conceptual in nature, and do not commit the Town of Glenville, CDTC, New York State Department of Transportation, or Schenectady County to funding any improvements. The concepts presented in this report may need to be investigated in more detail before any funding commitment is made. Undertaking additional engineering or other follow up work will be based upon funding availability.*

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An aerial orthomosaic image of a suburban and rural landscape. The image shows a mix of residential areas with houses and lawns, commercial zones with large industrial buildings and parking lots, and open fields. A road network is visible, including a prominent road that runs diagonally across the center. In the bottom right corner, a river or large body of water is visible, with some industrial structures along its bank. The overall color palette is dominated by browns, greens, and greys, typical of an aerial photograph.

# CHAPTER 1

## Introduction



# Town of Glenville Freemans Bridge Road Complete Streets Concept Plan

Map #1

Study Area



This map was made by Planning4Places, LLC.  
It is not for official use and should be used for planning purposes only. Data was derived from Schenectady County Department of Economic Development and Planning and the NY Statewide Digital Orthoimagery Program.





# Introduction



This goat path shows where pedestrians are actively walking but do not have facilities to accommodate their needs.

## Introduction

The Freemans Bridge Road Complete Streets Concept Plan is a planning study that provides a detailed framework and a set of recommendations for implementing Complete Streets within the corridor.

Currently, Freemans Bridge Road (NY Route 911F) adequately serves the needs of motor vehicles. However, alternative modes of transportation, including cycling and walking, are accommodated less so.

This Plan analyzes the existing conditions and researches alternatives for future street design and land use controls that will enable safe, attractive, and comfortable access and travel options for all users of Freemans Bridge Road. It provides a roadmap for implementing future land use and transportation planning policies that integrate safety improvements, minimize environmental impacts, encourage economic growth, and build a Complete Street that is safe, convenient and comfortable for all ages and abilities using any mode of transportation. The Plan continues to advance the goal of making the Town more viable for non-automobile travel and make the corridor a more walkable, livable, and healthy place to live, work, and play.

This Plan was developed with guidance from local residents and business owners, as well as other key stakeholders in the corridor to ensure widespread discussion and consideration of users, landowners, and interested parties located within the Freemans Bridge Road corridor.

## Study Background and Purpose

The purpose of the study was to develop recommendations for alternative design concepts that will create a more welcoming built environment that will accommodate the needs of all users. Future land use and transportation planning policies recommended in this Plan, and consistent with the Town Comprehensive Plan, integrate safety improvements, minimize environmental impacts, encourage economic development, and result in a Complete Street that is safe, convenient, and comfortable for all ages and abilities using any mode of transportation (motor vehicle, public transportation, foot, bicycle, etc.).

## Study Area

The limits of the Study Area are Freemans Bridge to the south and Route 50 to the north, though recommendations for connections beyond the Study Area are provided. The map to the left shows the Study Area generally represented by the red highlight. While the project focused almost exclusively on Freemans Bridge Road only, a much larger Analysis Area was assessed for adjacent considerations. This area is shown by the yellow highlight. In addition, development activities in nearby locations including the Route 50 corridor between Freemans Bridge Road and the Glenville Town Center, the Glenville Town Center, and development in the City of Schenectady were assessed as part of a larger regional context.



The only sidewalk in the corridor is located along the frontage of Speedway.

## What are Complete Streets?

**Streets for everyone -  
no matter who they are or how they travel**

Who Benefits? Everyone.

Why do we need Complete Streets? Safety, Mobility, Economic Development, Social Equity, Health.

Complete Streets are in demand and take many forms. They refer to a set of street design concepts that ensures that all users are safely accommodated regardless of how they travel or what their special needs may be (*NYSAMPO Complete Streets Fact Sheet*).

A Complete Street design can significantly improve safety and reduce pedestrian-related crashes. It can also help reduce congestion, provide more efficient travel within the community, and spur economic development (*NYSAMPO Complete Streets Fact Sheet*).

According to a 2010 Future of Transportation National Survey, 66% of Americans wanted more transportation options so that they have the freedom to choose how to get where they need to go.

The same survey also found that 73% of Americans felt that they had no choice but to drive as much as they do while at the same time 57% would like to spend less time in their car.

Complete Streets improve mobility for the young and old. An AARP study showed that 47% of older Americans said it was unsafe to cross a major street near their home. 56% of those older Americans expressed strong support for adoption of Complete Streets policies. Finally, in August 2011 Complete Streets in New York State took on an increased

level of importance with the passage of the Complete Streets Act (SO5411A/AO8366).

Children under 16 living in the Town of Glenville  
- none of whom can drive -  
& percent of the Town's total population

# 100% & 19%

Workers in the Town of Glenville 16+ who walked, biked, or took public transit to work

# 4.1%

Workers 16+ in the Town of Glenville who do not have access to a vehicle

# 1.8%

(See Appendix B: Complete Streets Toolkit for additional information)



## Why Implement Now?

To make the needs of ALL USERS the default for everyday transportation planning practices.

- An AARP study on Complete Streets and the Aging of America found that 56% of respondents expressed STRONG SUPPORT for adoption of Complete Streets policies.
- The 2009 National Household Travel Survey found that 50% of trips are less than 3 miles, 28% OF TRIPS ARE LESS THAN 1 MILE...yet 65% of these trips are driven.
- A 2012 CDC study found that 46% of people will walk 1 mile to a religious gathering or school and 35% will walk to work.
- WE ARE MOVING WITHOUT MOVING! The Centers for Disease Control recommends 22 minutes of walking per day...the average person in America, including drivers, gets 6 minutes per day (*Evaluation of Public Transportation Health Benefits, T. Litman*).
- TO SAVE MONEY IN THE LONG RUN: In general, infrastructure improvements & enhancements aren't getting any cheaper and planning/coordinating infrastructure investments across all departments should reduce costs overall.

## What is the Safety Benefit?

Pedestrian crash analysis findings show that approximately 15% of fatal crashes between 2005 and 2014 involved pedestrians.

### Pedestrian Crash Reduction Potential:

- 88% with sidewalks
- 69% with hybrid beacons
- 46% with medians
- 45% with road diets

### What is the health benefit?

There are wide-ranging benefits from implementing Complete Streets.

There is currently a health crisis in this country - 60% of people are at risk for diabetes, high blood pressure, and other chronic diseases associated with inactivity.

## Summary Conclusion

Special funding is not necessarily needed and many of the tools needed to implement Complete Streets are available through this Plan, the Comprehensive Plan, other activities within the Town, and by working with Town staff.

Thinking ahead and coordinating efforts can result in noticeable changes and improvements. This Plan helps detail the needs, opportunities, and recommendations to making Complete Streets along Freemans Bridge Road a reality. It was developed with guidance from local residents and business owners, as well as other key stakeholders in the corridor to ensure understanding, and achieve "buy-in" of the Complete Streets concepts.



Kids riding their bikes south onto Freemans Bridge.





The first public workshop was well-attended and provided useful input utilized in development of this Plan.

## Public Outreach & Engagement

From the onset of this project, public outreach and engagement was a primary focus. While the corridor is almost entirely non-residential, it still includes some residences and many local property and business owners who have a direct and significant stake in what happens within the corridor. There are also national chains located along Freemans Bridge Road, residential neighborhoods within a stones-throw of the corridor, and residents and people from outside the Town who use Freemans Bridge Road on a daily basis. The following summarizes the public outreach efforts that were undertaken:

**Project Website:** At the beginning of the project in mid-2017, Planning4Places, LLC designed a fully-editable, owned and managed website with a unique domain ([freemansgateway.com](http://freemansgateway.com)) dedicated to the project. The website was the portal through which project deliverables were disseminated to the public, notices such as public workshops and the online survey were posted, and the overall project purpose and vision was available 24/7 for anyone to access. This website was taken down at the end of the project.

**Project Survey:** A survey was created in SurveyMonkey, also in mid-2017, to compile comments and input from the community early in the process. With help from the Town Supervisor putting the information out through Twitter and Facebook, as well as more traditional outreach efforts, the survey resulted in 526 responses – a phenomenal response for a planning study such as this (the survey was open for 4.5 months). See the next page for more survey details.

**Press Coverage:** This project received decent press coverage. There was a project article in the Times Union in April 2017 and a reference to the project in an article about the new Verizon store in December 2017. The Daily Gazette published two articles about Public Workshop #1. Supervisor Koetzle posted information to his social media accounts which helped spread information about the project. The project was referenced in a January 2018 article detailing Town priorities for the year, in April 2018 regarding the “Let’s Talk Business” event, and in April 23rd and again on May 22nd regarding the final plan.

**Outreach and Engagement:** The Planning4Places, LLC Team developed and ran several meetings as part of the project planning process. These included the following:

- A public workshop early in the process to gather input from the community. This meeting resulted in overwhelmingly positive feedback about the project as well as information regarding the situation along the corridor from those who know it best – residents, property & business owners.
- A workshop geared for business owners along the corridor, which also included residents and others, was provided to reiterate the project vision and goals developed early in the process but most importantly, present the draft concept plan. This meeting resulted in positive feedback which confirmed that the project process was ready to move into the final stages.
- A business owners meeting.
- A final public meeting held in May 2018 to present the Concept Plan to the community.



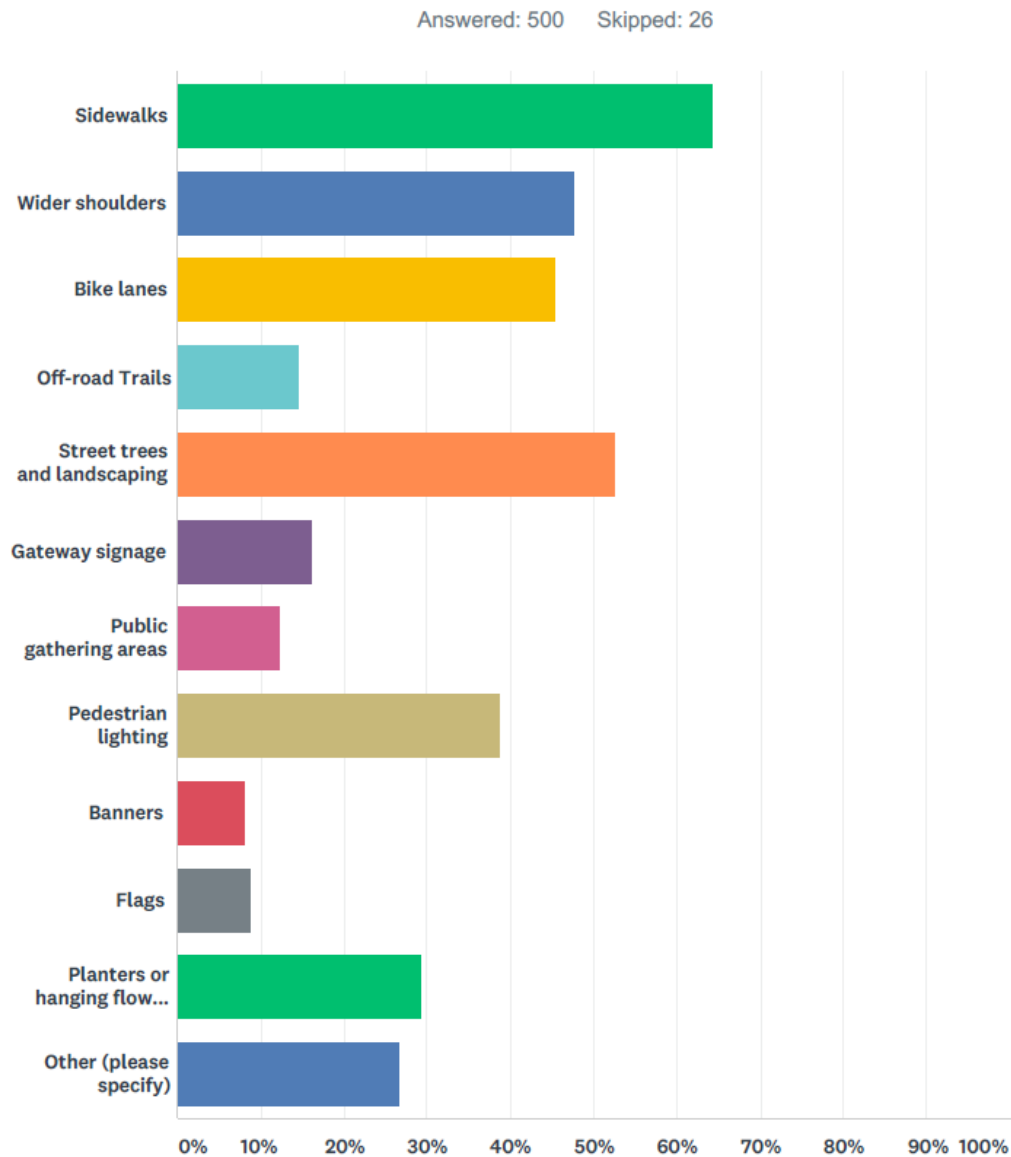
The final outreach effort was a presentation to the Town Board on May 16, 2018 to formally present the ideas and concepts to the Board.

### Survey Results

The full survey summary can be found in Appendix C. In general, the overall sentiment of respondents was positive for Complete Streets concepts. Survey respondents overwhelmingly noted the need for sidewalks and safer ways for bicyclists to traverse the corridor. These ideas floated to the top of the recommendations list and though there were also comments that corridor improvements were not needed, such comments were minimal.

Over 86% of survey respondents reported living in the Town of Glenville, with just over 80% noting that they do not work in the Town, meaning they travel longer distances for work. Nearly 70% of respondents reported traveling alone along the corridor, just over 2% reported bicycling along the corridor, with less than 1% walking or using transit. Despite the low walking statistic, as seen below, sidewalks were the highest requested improvement for the corridor. This likely indicates a high desire or respondents to walk along the corridor but not without the provision of sidewalks and safe routes to access businesses - the core reason this study was undertaken.

### Q10 What specific improvements would you like to see on the Freemans Bridge Road corridor?



Survey results showed significant support for Complete Streets concepts.



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# CHAPTER 2

## GOALS & OBJECTIVES



View of the Mohawk-Hudson Bike-Hike Trail underpass under Freemans Bridge. It is in poor condition.



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## Chapter 2

**Vision:** Freemans Bridge Road will be a destination gateway to Glenville, safely connecting the riverfront to Thomas Corners and the Town Center while providing accommodations for all users including pedestrians, bicyclists, and vehicles. The Town will employ a cohesive Complete Streets design to the corridor that enhances the live/work/play opportunities of the southeastern portion of the Town.



Pictures of the Freemans Bridge Road corridor.





Looking north from Freemans Bridge - goat path shown next to guiderail.



Looking South toward Dutch Meadows Lane - this is the only existing sidewalk along Freemans Bridge Road.

## Goal 1: Improve Pedestrian Infrastructure & Conditions along the Corridor.

### Objectives

The following objectives, in no particular order, focus on pedestrians and pedestrian infrastructure. These were identified during the existing conditions scan of the corridor and initial discussions early in the project.

#### Objective 1

Expand the sidewalk system focusing on connections from where infrastructure currently exists as well as heavily traveled areas (as evidenced by goat paths). Minimize the creation of sidewalk "islands" (segments that don't connect).

#### Objective 2

Improve pedestrian safety by providing better opportunities for walking along and crossing the corridor.

#### Objective 3

Improve and expand opportunities for pedestrian connectivity between the corridor and the waterfront.

#### Objective 4

Ensure that pedestrian infrastructure and surrounding areas are aesthetically pleasing - both to encourage pedestrian use and to enhance the sense of place for all users.

#### Objective 5

Anticipate priority pedestrian destinations and potential routes so that infrastructure is direct, safe, and encouraging for all users.

#### Objective 6

Ensure connectivity to the local and regional trail system(s).

#### Objective 7

Include wayfinding signage on the entire system which includes both location and distance information.

#### Objective 8

Improve the condition of the railroad crossing. Investigate the opportunity to provide pedestrian gates to enhance safety.

#### Objective 9

For any sidewalk expansion or implementation plans, coordinate with the business community and neighborhoods as soon as work is planned.



Pedestrian using a "goat path" on Freemans Bridge Road.



Pedestrian using the shoulder of Freemans Bridge Road.

## Goal 2: Improve Bicycling Infrastructure & Conditions along the Corridor.

### Objectives

The following objectives, in no particular order, focus on bicycle infrastructure.

#### Objective 1

Expand the bicycle system, both on- and off-road, focusing on improving connectivity along Freemans Bridge Road and to current (and proposed future) connections and destinations.

#### Objective 2

Improve bicycle safety in the corridor by providing adequate bicycle infrastructure.

#### Objective 3

Ensure connectivity to the local and regional trail system(s).

#### Objective 4

Include wayfinding signage on the entire system which includes both location and distance information.

#### Objective 5

Improve and expand opportunities for bicycle connectivity between the corridor and the waterfront.

#### Objective 6

Anticipate priority bicycle destinations and potential routes so that infrastructure is direct, safe, and encouraging for all users.

#### Objective 7

Coordinate with the business community, particularly bicycle-oriented or bicycle-related businesses, and neighborhoods on any plans as soon as they are considered for any action.



Complete Streets bicycle infrastructure reduces the potential for conflicts between cars and cyclists.



Bicycle infrastructure should eliminate the need for vehicles to cross the center line - improving safety for all users.



Shoulders are narrow and deteriorating in front of Paul Perry Kitchens (*image facing backwards/south from moving bicycle*).



There is a bicycle lane stub northbound at Maple Avenue (*image facing backwards/south from moving bicycle*).





Looking north on Freemans Bridge Road - there are many open curb cuts with little definition and utility poles close to the road.



Looking south on Freemans Bridge Road - 2 primary access driveways used by multiple businesses.

## Goal 3: Improve Safety, Better Manage Congestion, and Implement Access Management

### Objectives

The following objectives, in no particular order, focus on improving overall safety and managing congestion and accessibility for all users along Freemans Bridge Road.

#### Objective 1

Pursue Complete Streets compatible operational improvements and land use management techniques that consider the needs of all modes, including the needs of freight access and deliveries for businesses located along this commercial-focused corridor and those passing through.

#### Objective 2

Implement access management techniques and use best practices any time an opportunity arises. This could include during land development reviews, property enhancement proposals, driveway, or roadway rehabilitation or replacements, and if needed, to provide a safety benefit for a property owner to improve their access.

#### Objective 3

Consider roundabouts as the preferred intersection configuration any time existing signalized intersections are being considered for improvements and/or where there is a higher-than average crash frequency.

#### Objective 4

Improve the current at-grade railroad crossing in the near term and continue to investigate the feasibility of undertaking a grade-separation project in the long-term.

#### Objective 5

Incorporate access management techniques into planning and zoning efforts.

#### Objective 6

Minimize the installation of new driveways and consolidate driveways where appropriate (see Objective 2) to reduce conflict and enhance safety.

#### Objective 7

Pursue the development of service roads to connect adjacent properties where feasible.

#### Objective 8

Coordinate with the business community and neighborhoods on any plans to coordinate access as soon as they are considered.



Freemans Bridge Road



Example Upgraded Crossing

# Goal 4: Increase the Potential for Transit Service to Destinations Along the Corridor

## Objectives

The following objectives, in no particular order, focus on methods to help advance the Town’s desire to see transit service provided along Freemans Bridge Road.

### Objective 1

Collaborate with CDTA to determine desirable and safe bus stop locations and service offerings in the corridor.

### Objective 2

At viable bus stop locations, determine infrastructure needs and how they fit into the larger Complete Streets Implementation Plan.

### Objective 3

Coordinate with the business community along Freemans Bridge Road and in the vicinity of Thomas Corners to understand their potential needs and ideas regarding transit tie-ins to routes running along Route 50.

## Objective 4

As the Town makes land use decisions, transit-supportive techniques and controls should be considered.



CDTA buses would be used to provide transit service to the corridor.



CDTA Route 353 bus shelter located at Walmart.



Intersection of Lowes and Freemans Bridge Road. Several small businesses in close proximity make this a potential stop location.



Transit service to the waterfront area seems likely in the future.





Looking north on Freemans Bridge Road - an open ditch with no green infrastructure or stormwater management elements.



Low to no-maintenance tall grass is a sustainable and energy saving landscaping technique (shown behind Lowes).

## Goal 5: Incorporate Green Infrastructure and Sustainability into Future Work Along Freemans Bridge Road.

### Objectives

The following objectives, in no particular order, focus on increasing the awareness and desire to incorporate green infrastructure and sustainability into projects within the Study Area.

#### Objective 1

Develop more sustainable stormwater management regulations and options which will both enhance the appearance of the corridor while better managing stormwater management, assisting MS4 objectives, and improving the overall stormwater management system to minimize impacts on local creeks, streams, and the Mohawk River.

#### Objective 2

Promote land development patterns that are more bicycle, pedestrian, and transit-oriented and which help improve the sustainability goals of the Town.

#### Objective 3

Ensure that zoning and land development regulations, as well as Town-wide objectives, permit and encourage infill development where feasible.

#### Objective 4

Develop and adopt a plan that comprehensively details and addresses sustainable practices for both hard and soft landscaping practices and that create a consistent "look and feel" for the corridor in conjunction with the overall Complete Streets Concept Plan Implementation Actions.



Example of naturalized parking island with stormwater capture area.

Naturalized stormwater holding ponds can create an amenity and desirable feature.



Sidewalk integrated into stormwater capture area of a parking island.

Simple changes to common design elements can make a difference.

## Goal 6: Provide Amenities that give Freemans Bridge Road an Identity.

### Objectives

The following objectives, in no particular order, focus on improving the identity of the Freemans Bridge Road corridor.

#### Objective 1

Create consistent character along the corridor that incorporates street trees and landscaping.

#### Objective 2

Enhance the character of the area through pedestrian-scale lighting, banners, bike racks, street furniture, and other elements.

#### Objective 3

Periodically update the Town's Landscape Manual to ensure that Glenville's landscaping guidelines are consistent with Complete Streets policies and to keep guidelines and policies current with technology.





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# CHAPTER 3 EXISTING CONDITIONS INVENTORY & ANALYSIS

Freemans Bridge Road looking south from the railroad crossing.



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# Chapter 3



Looking north on Freemans Bridge Road toward Maple Avenue - this is the widest segment of the corridor.

## Introduction

Freemans Bridge Road (NY Route 911F) is a state-owned, Urban Principal Arterial located between Nott Street and the intersection with Route 50. (See Study Area map on page 2). This study assesses the segment of Freemans Bridge Road in the Town of Glenville from Freemans Bridge in the southeastern end of the corridor to the intersection with State Route 50 in the northwestern end of the corridor.

This project has designated two areas for review - a Study Area and an Analysis Area. The Study Area shows the limits of where the project concepts and designs will be developed. The Analysis Area is a larger land area which incorporates parcels that do (or may) directly influence the Study Area and thus were required to be assessed as part of the overall project.

Freemans Bridge Road adequately serves the needs of motor vehicles, however, alternative modes of transportation are not particularly well accommodated. The corridor changes from 4 travel lanes and a center turn lane with varying width shoulders (and a short bike lane stub along the right-turn lane to Maple Avenue) in the southern section to two travel lanes with a center turn lane and shoulders of varying width in the central portion of the corridor. After the Lowes driveway intersection, the corridor narrows down to a 2-lane road with narrow shoulders all the way to the intersection with NY Route 50, except for the Dutch Meadows Intersection which has a center turn lane. These different cross sections create different sets of issues and needs in each segment of the corridor.

Characteristics of the road begin to tell the story of the existing conditions within the corridor and why it really only serves the needs of motor vehicles. The pavement condition is scored as a 6 or "Fair" which means that surface distress is clearly visible. A 1/10 mile section near NAPA Auto Parts is ranked a 7 or good. Though not officially scored, the railroad crossing is in poor condition and causes all users to slow-down when crossing. There is only a small segment of sidewalk and a short bike lane stub, and worn grassy areas known as "goat paths" that show where pedestrians are walking in larger numbers.

Table 1: Road Characteristics

Segment	Posted Speed Limit <sup>1</sup>	Road Widths <sup>2</sup>	Shoulder Widths <sup>2</sup>	# of lanes <sup>1</sup> (Minimum to Maximum)
Freemans Bridge to Maple Avenue	40 mph	22'	4'-6'	4 through lanes to 4 through lanes and left or right turn lane
Maple Avenue to Lowes Access Drive	40 mph	22'-56'	0'-4'	2 through lanes with center median to 4 through lanes with left turn lane
Lowes Access Drive to Route 50	40 mph	56'-68'	0'	2 through lanes with left turn lane to 2 through lanes

<sup>1</sup> Observed Existing Conditions

<sup>2</sup> NYSDOT Region 1 2016 Pavement Scores Database

This chapter focuses on summarizing and detailing existing conditions found in the corridor and through studies and data reviewed at the beginning of this study. In addition to this chapter, Appendix A provides a photo log of the existing conditions as they were at the start of this project in the Summer of 2017. Corridor cross sections are found in Chapter 4: Concept Plan.





Looking north on Freemans Bridge Road - Despite some obstacles, there is a lot to work with along the corridor.

## Issues and Opportunities

When looking at Freemans Bridge Road in the context of Complete Streets, the corridor provides both significant opportunities and some obstacles. As part of the early analysis of the corridor, these issues and opportunities were analyzed and recorded for consideration and discussion by the Study Advisory Committee. They were updated as stakeholder and public input processes proceeded simultaneously with the technical analysis and review.

Though a generally auto-oriented corridor, the opportunities to implement Complete Streets actions are considerable. That said, the corridor also has constraints, both physical and in some cases educational, that must be overcome to bring about the desired multi-modal mixed-use corridor that provides safe passage for all users and encourages safe passage by all users.

These opportunities were investigated, considered, and discussed by the Study Advisory Committee, stakeholders, and the public as the project progressed and detailed recommendations were generated.

### Opportunities

The following section lists opportunities, in no particular order, that were initially identified during the existing conditions scan of the corridor and through preliminary discussions of this project.

#### Transportation

- Expand the sidewalk from where it currently exists to show the public connectivity opportunities. Try to minimize developing “islands” which generally raise questions about investment priorities. That said, any

new development should provide sidewalks that can become part of a larger sidewalk system in the future.

- Shoulder widening, particularly in areas without curbing, may be a quick-hit project as the roadway and particularly the shoulders are in poor condition in many locations. Repaving of the road will be necessary in the future.
- Upgrading of the railroad crossing. The current crossing is in poor condition and is not adequate for pedestrians or cyclists to cross. Based on watching traffic hit the brakes at the crossing it is not adequate for vehicles either. The crossing causes vehicles to bounce across the crossing - causing noise, vibration, wear, and tear on vehicles and issues for delivery trucks with fragile cargo. In addition, the gates are in need of maintenance work which may provide an opportunity to investigate undertaking a project to not only improve the existing gates but also install pedestrian gates.
- Access Management. There are several examples of good access management along the corridor but there are also locations where there are too many curb cuts in short proximity or too large a curb cut for a single location. These areas could be modified to improve ingress/egress movements, making them more predictable and safer.
- Maple Avenue Crossing for Pedestrians. The crossing at Maple Avenue is extremely wide. There is an opportunity to look at this intersection for installation of a pedestrian refuge to shorten the distance walkers need to travel.
- Northland Transportation Site. Currently this site takes access from Freemans Bridge Road which seems to

likely require a significant number of left turns across Freemans Bridge Road. Creating a new connection to Maple Avenue could alleviate the need for unprotected left turns by allowing buses and vehicles to utilize the Maple Avenue/Freemans Bridge intersection.

- Large Lot Parcels behind those fronting on Freemans Bridge Road. A policy could be adopted requiring these parcels to implement access management improvements wherever they gain access to a road. In addition, to take this one step further and really consider significant improvements for Freemans Bridge Road, the Town could require access roads to these lots, and work with existing sites/landowners to get them to take access from these roads and either close their current Freemans Bridge access or make it a right-in/right-out.
- Sidepath along Freemans Bridge Road. The constraints related to implementing on-street bicycle lanes may be significant due to road widths, utility pole location(s), drainage, and the feasibility of getting all but the most confident riders to ride along Freemans Bridge Road. An alternative, which could feasibly be constructed today with significantly fewer constraints (acquisition of ROW aside), would be a sidepath completely separated from Freemans Bridge Road which would serve all levels of bicyclists and pedestrians.
- Sidewalk. On the side of the road where a sidepath is not located, a sidewalk may be feasible both because it takes up less width than a sidepath and because a sidewalk is more appropriate in some of the sections where structures are closer to the road.
- Freemans Bridge Shared-Use Path. From the initial analysis it appears that there is adequate width to re-

stripe oversized travel lanes to provide adequate area to install a shared-use path across Freemans Bridge. This path would likely be best constructed on the west side of the bridge (current width from the railing to shoulder paint is approximately 9.5 feet). This location would utilize the existing raised sidewalk area, shoulder and width gained through restriping lanes. It would connect with the newly constructed Maxon Road sidepath and existing Mohawk-Hudson Bike-Hike Path in Glenville—thus providing access to both sides of Freemans Bridge on both sides of the river. This connection would strengthen any effort to improve and upgrade the existing Mohawk-Hudson Bike-Hike Path and, if aligned to this area, enhance efforts to create the connection to Alplaus.

## Land Use

- Street Frontage Landscaping. The corridor currently has an inconsistent streetscape. A consistent streetscape landscape design, varying where necessary to handle constraints, is a key element of Complete Streets that can be easily implemented on many of the parcels throughout the corridor - particularly those with large grassy areas between structures/parking and Freemans Bridge Road. This should be done as part of the comprehensive Complete Streets implementation plan for the corridor, not piecemeal, so as to not create a conflict with another element of the corridor plan.
- There is a mix of “mom and pop” shops and newer, and larger, big-box stores.
- Rezoning to encourage, and really permit, mixed-use development along Freemans Bridge Road.



View of the Speedway store - All types of users are already using the corridor.





Utility poles and swales line the northern end of the corridor.



Pedestrian Signal: right idea...wrong placement.

## Issues

The following section lists issues, in no particular order, that were initially identified during the existing conditions scan of the corridor and through preliminary discussions of this project:

### Transportation

- A lack of pedestrian infrastructure. There are “goat paths” - paths carved into the landscape by pedestrian use - in several locations along the corridor and in other locations pedestrians are known to walk on the shoulder of the road.
- A lack of bicycling infrastructure. The only dedicated bicycling infrastructure along the corridor is a bicycle lane on the northbound approach to Maple Avenue. There is also a termination of the trail at the west side of Freemans Bridge Road. In addition, it has been observed that cyclists will ride against traffic along Freemans Bridge Road.
- Significant vehicular volumes, particularly during peak hours. AADT is increasing over historical volumes according to the 2015 Traffic Study and the NYSDOT Traffic Data Viewer.
- The 2015 Traffic Study identified the potential for 520 new trips during the AM peak hour and 435 new trips during the PM peak hour in the 5-year growth scenario.
- Delays caused by the at-grade Pan-Am railroad crossing (approximately 1 train per day).
- Varying shoulder widths - some shoulders are very narrow while others are crumbling and nearly non-existent.
- The Mohawk-Hudson Bike-Hike Trail segment from Freemans Bridge Road to Scotia has nearly disappeared into a single-track like gravel path surrounded by mowed grass.
- There is little to no bicycle-oriented signage in the corridor.
- Much of the corridor is constrained by utility poles, open swales, and in some cases close proximity to structures so simply widening the corridor to provide bicycle lanes would require other moderate to significant work and design considerations in some sections of the corridor.
- The intersection of Freemans Bridge Road and Route 50 is viewed as a problematic location and as such has been identified for consideration of a redesign that would include a roundabout.
- The intersection of Freemans Bridge Road and Sarnowski Drive is viewed as a more dangerous location, particularly during peak hours.
- The railroad crossing is in poor condition. The rubber crossing has deteriorated to the point that cyclists, and possibly even motorcyclists, could catch a wheel in a parallel gap created by missing crossing material. The edges of the crossing stop at the shoulder and as such pedestrians either have to walk closer to vehicle traffic or through the rock and exposed track area.
- There are no pedestrian safety elements at the railroad crossing.
- Many locations along the corridor are in need of access management assessments and improvements. These improvements should help increase safety (and could

improve the streetscape design) by better defining ingress and egress through, most likely, sharing driveways among adjacent properties.

- There is a general feeling that bicycling and walking on Freemans Bridge Road is not a viable activity under current conditions.

## Land Use

- There is significant variation in setbacks between new development and older structures.
- There is a mix of “mom and pop” shops and newer, and larger, big-box stores.
- There is significant potential for additional development on vacant and underutilized sites.
- There are a significant number of properties for sale along the corridor - this could be a sign that changes are needed along the corridor to make it viable for businesses and/or just that businesses are transitioning, as they often do (or a combination of both!).
- The corridor lacks a cohesive landscaping design for properties fronting on Freemans Bridge Road. Much of the newer development has as significant grassy-area

setback with some amount of landscaping while older properties vary from some to nearly no landscaping at all, particularly if the frontage is nearly all ingress/egress and parking area.

- While new development is mostly found on lots that front on Freemans Bridge Road, there is a significant amount of development potential on lots located one parcel back from the road. This land has the potential to change the dynamics of the corridor depending on how, and what type of, development comes and how access management is utilized for new and existing development.
- There is a 100-year floodplain located between Maple Avenue and Freemans Bridge. During Hurricane Irene and Tropical Storm Lee, Freemans Bridge Road was closed due to flooding.



The mix of uses and setbacks can be see in this picture looking southbound on Freemans Bridge Road.





Traffic at the intersection of Freemans Bridge Road/NY Route 50/Airport Road/Worden Road.

## 2015 Traffic Analysis

The Town of Glenville completed a Traffic Evaluation for Freemans Bridge Road in June of 2015. The study analyzed existing and future conditions under both five- and ten-year growth scenarios for Freemans Bridge Road. The recommendations from the study were developed to support the Town's efforts to develop a plan for the future of the Corridor.

### Traffic Data Analysis Used for this Study

This Study - the Freemans Bridge Road Complete Streets Concept Plan - was scoped to rely on the 2015 Traffic Evaluation data for elements such as turning movement counts, traffic data (this Study also used the NYSDOT Traffic Data Viewer), future volume estimates and traffic operations and capacity evaluations. The Town of Glenville undertook spot counts in June 2017 and after reviewing the data, it was determined that volumes in June 2017 did not reveal significant deviations that would warrant adjustment to traffic volumes presented in the 2015 Traffic Study.

### 2015 Traffic Evaluation Findings

The 2015 study analyzed the two growth scenarios for potential future traffic increases and the impact the increases would have on the corridor. The details of the analysis, and there are many, can be found in the Traffic Evaluation document, but in summary, it was determined that there was the potential for 520 new trips during the AM peak hour and 435 new trips during the PM peak hour for the five-year growth scenario.

For the ten-year growth scenario, an it was determined that an additional 250 new trips could come about in the AM peak hour and 425 new trips during the PM peak hour.

The study noted that roadway capacity evaluations showed that the existing through travel lanes on Freemans Bridge Road and Maple Avenue were sufficient to accommodate future traffic volumes in this area. Intersection capacity analyses identified operational constraints at the intersections with NY Route 50/Worden Road/Airport Road, Maple Avenue, and Sunnyside Road.

Based on a traditional traffic engineering approach that prioritizes reductions in motor vehicle delay, the 2015 evaluation suggested:

- @Route 50 Intersection: Construct a roundabout for the five-year growth scenario.
- @Maple Avenue: Extend the northbound right-turn lane south to Sunnyside Road, modify signal timing, coordinate signal with Sunnyside signal for the ten-year growth scenario.
- @Sunnyside Road: Construct an additional northbound through/right turn lane, construct a southbound right turn lane, provide an eastbound left-turn and shared left-turn/through/right-turn lane, provide a westbound left-turn and through/right-turn lane, update traffic signal timing, coordinate traffic signal with Maple Avenue for the ten-year growth scenario.

It is important to note that while the 2015 Study was used to develop this Complete Streets Concept Plan, the findings of this Plan will be different. To create a Complete Street concept there will be trade-offs. For example, additional turn lanes to enhance motor vehicle movements in the future are not likely going to result in a traffic calmed roadway that is safe and comfortable for all users. As the Study progressed, suggested intersection capacity modifications were reexamined and recommendations made based on an overall Complete Streets approach.

The 2015 study found that the ultimate goal for Freemans Bridge Road should be to “...transform it into a Complete Street” - in other words seeking to find a balance between the needs of all users. Recommendations related to transforming the corridor into a Complete Street included:

- Install pedestrian traffic signals with countdown timers and ADA compliant crossings at existing traffic signals.
- Construct a five-foot sidewalk on at least one side of Freemans Bridge Road.
- Provide visual cues including street trees, benches, raised medians, etc.
- Install bike lane symbols in the 4-foot paved shoulder to clarify the use for bicyclists.
- Consider bicycle routing at intersections during intersection design to maximize safety - especially where dedicated right-turn lanes are recommended.

Table 2: New Trip Assessment from 2015 Traffic Evaluation

No.	Land Use	AM Peak Hour Trips	PM Peak Hour Trips
<b>2020 Growth</b>			
1	Hotel	55	60
2	Restaurant	55	40
3	Mixed Use Recreational	0	100
4	Mixed Use Institutional	240	90
5	Convenience	95	110
6	Mixed Retail	75	35
Subtotal New Trips		520	435
<b>2025 Growth</b>			
7	Retail	50	175
8	Retail	20	65
9	Restaurant	40	30
10	Service	25	45
11	Research & Development	115	110
Subtotal New Trips		250	425
Total New Trips (through 2025)		770	860

Source: Freemans Bridge Road Traffic Evaluation (2015)

- Construct new parallel roads on the east side from the Lowe’s driveway to Sunnyside Road, connecting to Maple Avenue.
- Construct a center flush two-way left-turn lane median between the Lowe’s driveway and NY Route 50.
- Implement access management techniques as projects come about.

## 2017 Complete Streets Concept Plan Traffic & Engineering Analysis

NYSDOT lists Freemans Bridge Road as a Principal Arterial Other (FC-14) - Urban. The Federal Highway Administration (FHWA) 2013 Highway Functional Classification Concepts, Criteria and Procedures document defines this classification as “...roadways [that] serve major centers of metropolitan areas, provide a high degree of mobility and can also provide mobility through rural areas.”

This section details findings from the traffic engineering analysis conducted as part of the existing conditions analysis for this project. The analysis covers engineering assessment aspects of Freemans Bridge Road including:

- Traffic Volume
- Traffic Level of Service
- Crash History
- Conflict Points
- Bicycle Level of Stress
- Pedestrian Conditions “Audit”

In addition to the information that follows, non-peak/unconstrained mid-day timing runs were done between the NYS boat launch driveway to the intersection with NY Route 50 in the middle of July 2017. These runs averaged between 3.0 and 3.5 minutes depending on delays created by stops at intersection signals. Delays caused by the train crossing have not been able to be secured for this analysis.



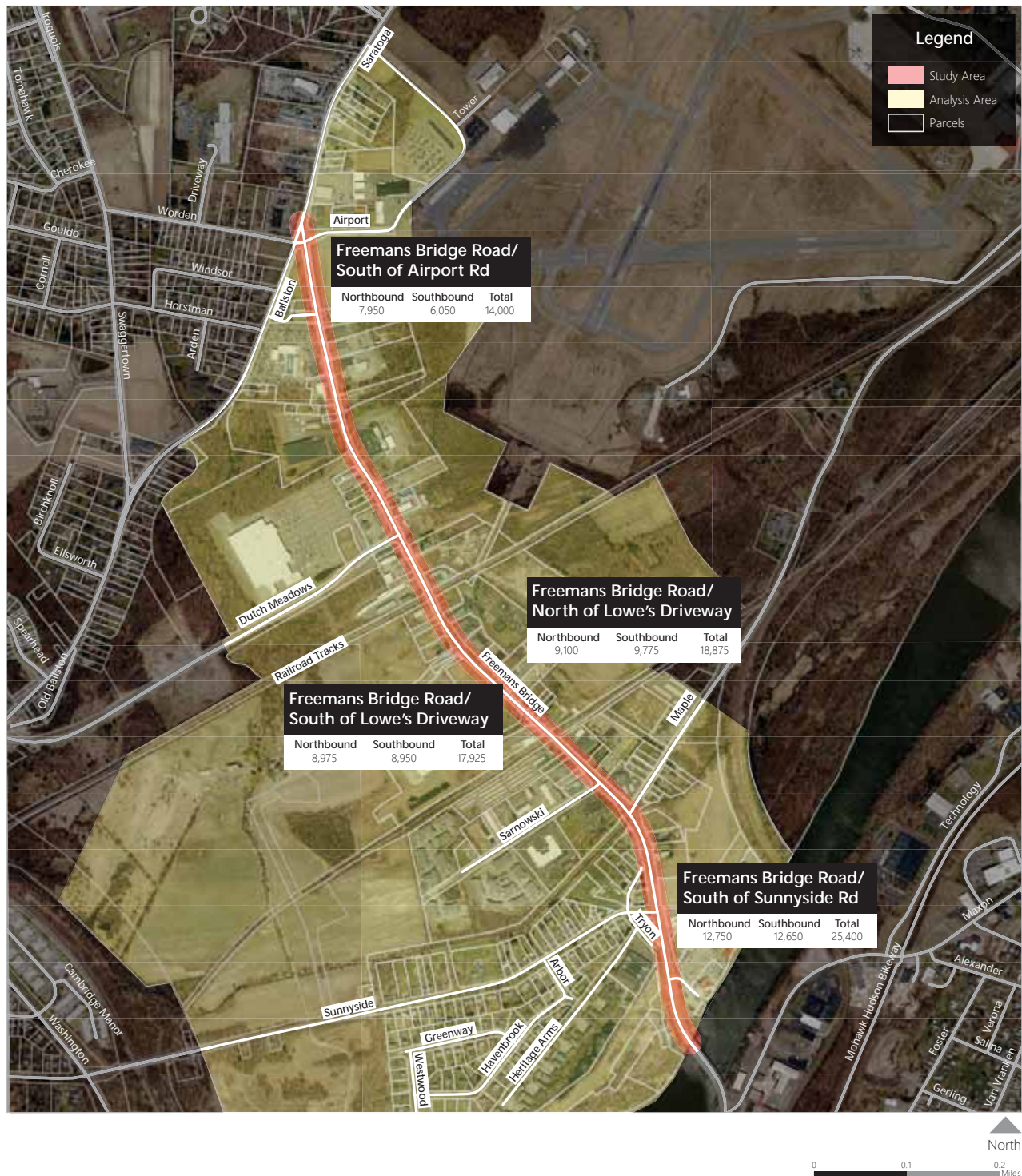
Traffic at the intersection of Freemans Bridge Road and Sunnyside Avenue.



# Town of Glenville Freemans Bridge Road Complete Streets Concept Plan

Map #2

## Daily Traffic Volumes



This map was made by Planning4Places, LLC & Sam Schwartz Consulting. It is not for official use and should be used for planning purposes only. Data was derived from Schenectady County Department of Economic Development and Planning, the 2015 Traffic Study and the NY Statewide Digital Orthoimagery Program.



## Traffic Volume Analysis

Data from the 2015 Traffic Study provides daily traffic volumes for Freemans Bridge Road at four count locations. Over the course of a full day, traffic is relatively even in north bound and southbound directions, although the count performed around Airport Road indicates daily northbound volumes are about one-third higher.

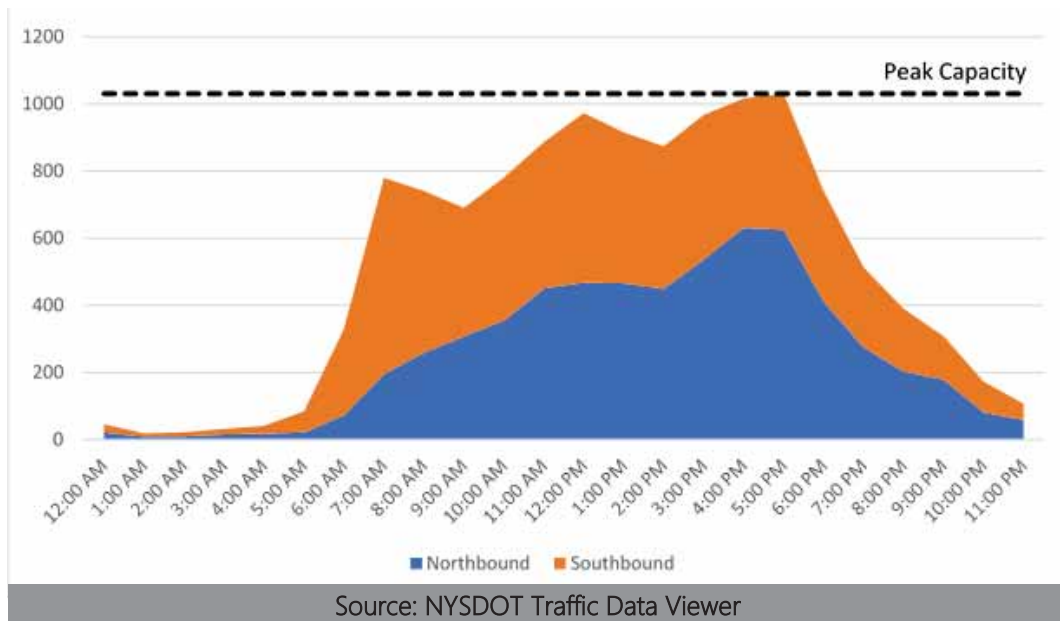
Volumes are typically higher going southbound during weekday morning rush hour and going northbound in evenings, corresponding with trips into and out of Schenectady.

Overall, traffic volumes are significantly higher at the south end of the corridor, with daily volumes 80% higher around Sunnyside Road as compared with Airport Road. The

difference in volumes is reflected in the profile of the street, as Freemans Bridge Road features multiple travel lanes per direction south of Maple Avenue. (Note: a spot count of volumes in June 2017 did not reveal significant deviations that would warrant adjustment to traffic volumes presented in the 2015 Traffic Study).

The 2015 Traffic Study mainline capacity analysis did find that “the existing through travel lanes on Freemans Bridge Road...are sufficient to accommodate the future traffic volumes in the study area.” This finding supports the basis for this study in that the Concept Plan will consider the development of Complete Streets elements and will not generally be recommending additional capacity for Freemans Bridge Road.

Chart 1: Freemans Bridge Road Hourly Traffic Volumes



Source: NYSDOT Traffic Data Viewer



Traffic at the intersection of Freemans Bridge Road and Maple Avenue.



# Town of Glenville Freemans Bridge Road Complete Streets Corridor Study

Map #3

## Traffic Peak Hour Level of Service



This map was made by Planning4Places, LLC & Sam Schwartz Consulting. It is not for official use and should be used for planning purposes only. Data was derived from Schenectady County Department of Economic Development and Planning, the 2015 Traffic Study and the NY Statewide Digital Orthoimagery Program.



## Traffic Peak Hour Level of Service

The map to the left shows intersection-based “levels of service,” which estimates the seconds of delay experienced by motor vehicles and assigns letter grades based on perceived reaction to that delay.

The Level of Service (LOS) of a signalized intersection is defined in terms of control delay per vehicle (seconds per vehicle). Control delay is the portion of total delay experienced by a motorist that is attributed to the traffic signal. Several factors contribute to the delay at a signalized intersection including cycle length, pedestrian crossing times, progression/signal coordination, and volume to capacity (v/c) ratios. For signalized intersections, LOS A describes operations with minimal delays, up to 10 seconds per vehicle, while LOS F describes operations with delays in excess of 80 seconds per vehicle. The LOS criteria for signalized intersections, as defined in the HCM 2000, are provided in Table 3.

Table 3: LOS Criteria for Signalized Intersections

Level of Service (LOS)	Average Delay
A	≤ 10.0 seconds
B	> 10.0 and ≤ 20.0 seconds
C	> 20.0 and ≤ 35.0 seconds
D	> 35.0 and ≤ 55.0 seconds
E	> 55.0 and ≤ 80.0 seconds
F	> 80.0 seconds

In general, overall level of service D or better conditions are desirable during peak hour operating conditions on each

intersection lane group; however, in some cases, lesser levels of service are accepted by municipalities and NYSDOT during peak operating periods. All intersections operate at a level of service of “C” or better during morning and evening weekday peak hours. (Although traffic operations at non-peak times were not analyzed as part of this scope, they are likely equal or better in performance than the data suggests for weekday peak hours.) This means that a vehicle approaching any of the analyzed intersections can expect to have no more than 35 seconds of delay, on average, to pass through.

It is notable that levels of service are more favorable for vehicles in the middle and southern sections of the corridor than at the northern end (e.g. at Airport Road). Nonetheless, currently no intersections have a “poor” level of service of “E” or “F” along the corridor. In addition, the 2015 evaluation that examined future growth in the corridor, including trips generated by the casino, estimated future LOS at each Study Area intersection would operate at LOS D or better. This would indicate that potential Complete Streets improvements that impact traffic capacity should be tested as part of an alternatives analysis.

There are tradeoffs that come about when discussing making changes to roadway design. Is it worth it, for instance, to wait an extra 10-15 seconds in a vehicle (maybe think of it as the time it takes to open the garage door) so that someone who is walking can cross the 2-lane segment of Freemans Bridge Road safely? Is it worth an extra minute - less than the time it typically takes to get something at a drive-through window - to provide the same ability at a wider intersection like at Maple Avenue? Complete Streets planning requires thinking about all users - from seniors who do not drive to kids and adults without access to a car and those who just want to walk or bike.



Traffic at the intersection of Route 50 and Freemans Bridge Road.



# Town of Glenville Freemans Bridge Road Complete Streets Concept Plan

Map #4

Study Area Crash History: 2012-2017



This map was made by Planning4Places, LLC. It is not for official use and should be used for planning purposes only. Data was derived from Schenectady County Department of Economic Development and Planning, CDTC, and the NY Statewide Digital Orthoimagery Program.



PLANNING4PLACES

Sam Schwartz

## Study Area Crash History

From May 2012 through February 2017 (approximately 5 years), there were 242 crashes reported along Freemans Bridge Road, including at and around intersections of streets that meet it. To look at the number a little differently, this equates to approximately 50 crashes per year along the corridor.

Of these crashes, a vast majority involved vehicles and their occupants. Only 3 of the 242 reported crashes involved pedestrians, and while all of these pedestrian-involved crashes resulted in injuries—none were fatal. There were no reported crashes that involved bicyclists. Crashes are generally dispersed throughout the entire corridor, although a larger concentration appears around the intersection of Freemans Bridge Road and Maple Avenue, Sarnowski Drive, Lowe's intersection, and at Route 50.

Traffic volumes are far higher on the southern portion of the corridor, which likely contributes relatively higher numbers of crashes there, though the crash rate in this section is close to the average for this type of facility.

### *Freemans Bridge Road Comparison Crash Rate Analysis*

According to the NYSDOT Information Management System Accident Severity Summary for Freemans Bridge Road, the "accident rate" along the 1.5-mile corridor is **5.62 crashes per one million vehicle miles**.

- That rate accounts for both "mainline" and "juncture" crashes. Mainline crashes are those occurring on linear street segments. Juncture crashes occur at intersections. The crash data provided for Freemans Bridge Road includes both of these.

- Freemans Bridge Road features sections with 3 total lanes (1 per direction plus 1 center turn lane) for about 1/3 of its length. In some sections, particularly on the southern portion of the corridor, Freemans Bridge Road is 4 or more total lanes wide. NYSDOT classifies Freemans Bridge Road as an Urban Principal Arterial.

According to the most current NYSDOT summary report on Average Accident Rates for State Highways by Facility Type:

- The average crash rate for mainline and juncture crashes for three-lane, free-access State Highways with an urban functional class is **4.18 per one million vehicle miles**.
- The average rate for four-lane, free-access State Highways is **5.43 per one million vehicle miles**.

Based on these numbers, the crash rate on Freemans Bridge Road is 35 percent higher than the typical crash rate published by NYSDOT for similar three-lane facilities and 3.5 percent higher than the rate for similar four-lane facilities.

In this high level comparison, it would appear that Freemans Bridge Road has slightly to moderately higher rates of crashes than similar facilities. The alternatives assessment portion of this study, which will come about later in the project, will seek to identify methods that could reduce crash rates.

*\*Note: This comparison is for all NYSDOT facilities, filtered by similar number of lanes and "urban" classification, which is the classification category for Freemans Bridge Road.*



Bicyclist, pedestrian, and car crossing paths in the southbound lane of Freemans Bridge Road (image from back of bike).





Freemans Bridge Road southbound toward Maple Avenue.

Chart 2: Collision Type

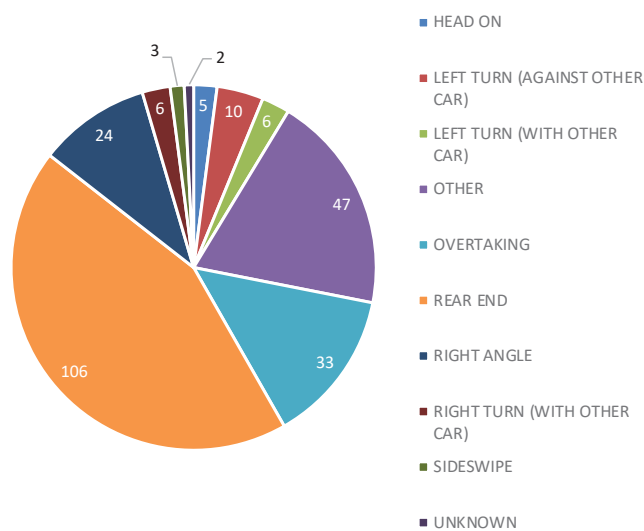


Chart 3: Crash Detail

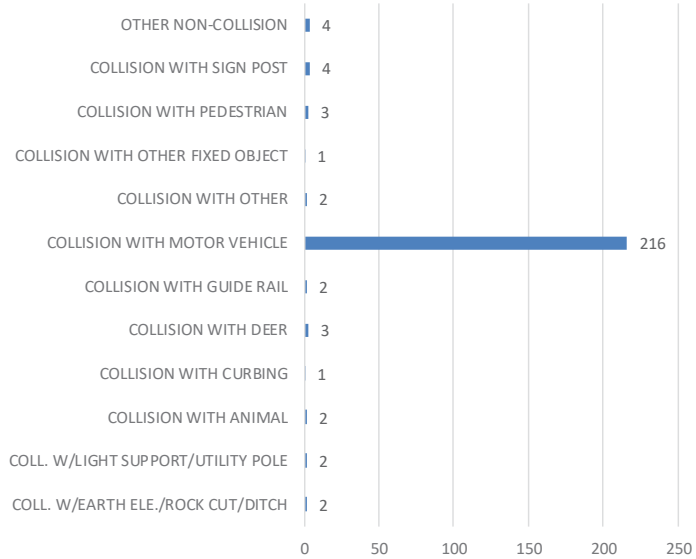
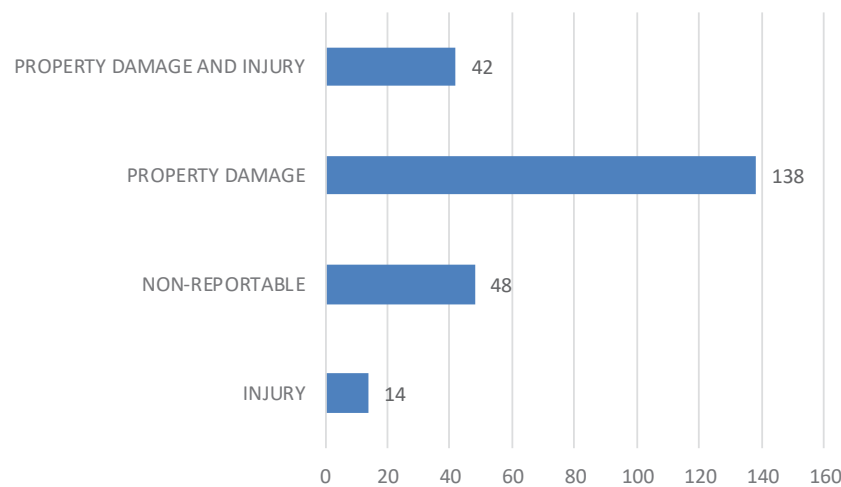


Chart 4: Crash Classification



The charts to the left provide details of crashes that occurred along Freemans Bridge Road during the 5-year period analyzed.

- Of the 242 crashes during the 5-year period there were 77 injuries, 7 of which were considered serious injuries.
- There were three pedestrian-related crashes - none resulted in a serious injury or fatality.
- 216 of the crashes (approximately 89%) were collisions between motor vehicles.
- 138 crashes (57%) resulted in property damage and another 42 (17%) resulted in property damage and injury.
- Approximately 44% of crashes in the corridor (106 total) were rear-end crashes.
- Approximately 14% were crashes related to overtaking - an action where a driver passes another vehicle headed in the same direction.

While not identified as a specific issue related to crashes or issues along the corridor, Freemans Bridge Road has seen several new developments, redevelopment(s), and

expansions of existing properties occur within the last five years, the timeframe within which crash data was analyzed.

The corridor analysis and assessment phase will evaluate and consider the potential impacts any changes may have on the existing system as part of the overall Freemans Bridge Complete Streets Corridor Concept Plan.



Traffic signal at Dutch Meadows Lane looking north on Freemans Bridge Road.



Traffic at the intersection of Freemans Bridge Road and NY Route 50.



# Town of Glenville Freemans Bridge Road Complete Streets Concept Plan

Map #5

## Conflict Points along Freemans Bridge Road



This map was made by Planning4Places, LLC & Sam Schwartz Consulting. It is not for official use and should be used for planning purposes only. Data was derived from Schenectady County Department of Economic Development and Planning and the NY Statewide Digital Orthoimagery Program.





## Conflict Points

The map to the left shows locations where vehicles cross Freemans Bridge Road and as a result present potential conflicts with pedestrians, bicyclists, or other vehicles. Conflict points themselves are not necessarily a problem, especially if design and operational solutions are implemented to minimize the potential for collisions. The reduction of conflict points can improve safety and roadway operations for all users and is at the core of access management. The USDOT Federal Highway Administration defines access management as "...the proactive management of vehicular access points to land parcels adjacent to all manner of roadways." In general this includes looking at the spacing of driveways, traffic signals, sight-distances, median design(s), and the safety of turning lanes.

However, Freemans Bridge Road features a significant number of inactive or "low activity" driveways that may create unnecessary locations where conflicts can occur. There are over 10 curb cuts that appear totally inactive, along with several dozen "low activity" curb cuts adjacent to each other that could be consolidated to reduce the number of conflict points. (Note: the distinction between "high" and "low" activity driveways was made by the Consultant Team using professional judgement on land use types and likely corresponding vehicle trip generation potential, on a relative basis).

Finally, the map notes the unmarked, unsignalized location where the Mohawk-Hudson Bike-Hike Trail crosses Freemans Bridge Road just north of Freeman's Bridge. While this is an official/defined crossing point for trail access that field work has verified people use to cross Freemans Bridge Road, there is an alternative route.

The alternative is to follow the trail toward the Mohawk River. The existing trail parallels Freemans Bridge Road from the official/defined crossing point south and runs under Freemans Bridge, thus providing an underpass option to crossing the road. Despite there being an underpass, it is not well marked and this trail segment is in poor condition. Where it passes underneath the bridge parallel to the Mohawk River, the trail is covered in several inches of mud and contains pools of standing water and debris.



Looking south just south of Route 50.



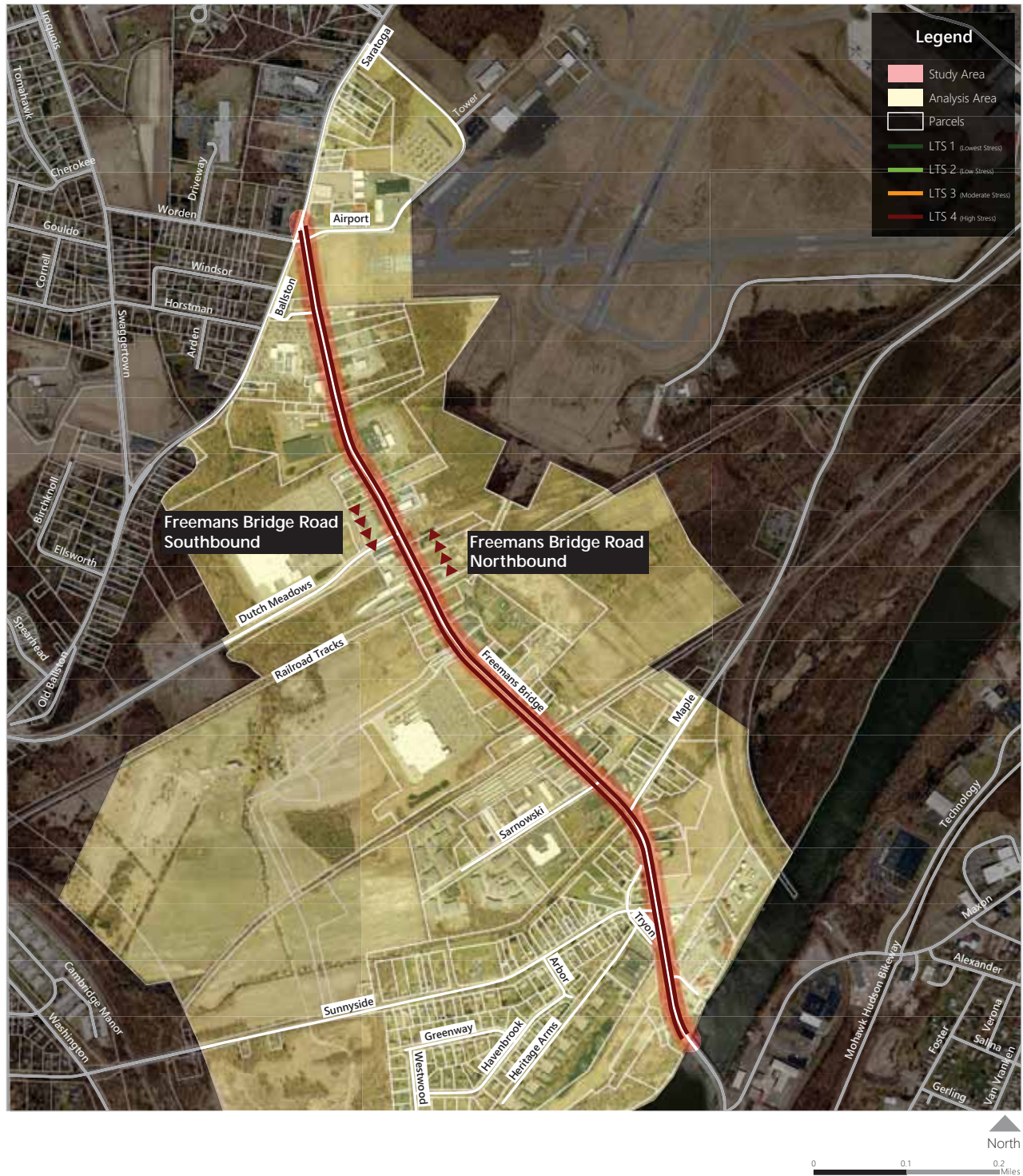
Entrance to the Mohawk-Hudson Bike-Hike Trail from Freemans Bridge Road (southbound side).



# Town of Glenville Freemans Bridge Road Complete Streets Concept Plan

Map #6

## Bicycle Level of Traffic Stress



This map was made by Planning4Places, LLC & Sam Schwartz Consulting. It is not for official use and should be used for planning purposes only. Data was derived from Schenectady County Department of Economic Development and Planning and the NY Statewide Digital Orthoimagery Program.



## Bicycle Level of Traffic Stress

The map to the left portrays the relative stress for bicyclists along Freemans Bridge Road. A methodology developed by the Mineta Transportation Institute called “Level of Traffic Stress” (LTS) can be applied to rank a street and its bike friendliness on a simple 1 to 4 scale. Factors that impact scoring include presence of bicycle facilities, the quality of those facilities, the number of vehicle travel lanes, vehicle speeds, and other factors. For example, a local neighborhood street with low speeds and low traffic volumes could rank as a 1.

There is currently only one dedicated bicycle facility along Freemans Bridge Road (a bicycle lane stub running from approximately 20’ north of the start of the northbound right turn lane onto Maple Avenue to the stop bar at the intersection) and vehicle speeds routinely exceed 40 mph, which makes bicycling in the bicycle lane and on shoulders generally prohibitive to anyone who is not a “fearless” cyclist.

As a result, as of today, conditions in both directions along the entire length of the study corridor are rated as highest Level of Traffic Stress (LTS 4) according to the methodology. Potential improvements to the corridor will be evaluated in a similar fashion with potential changes to LTS noted.



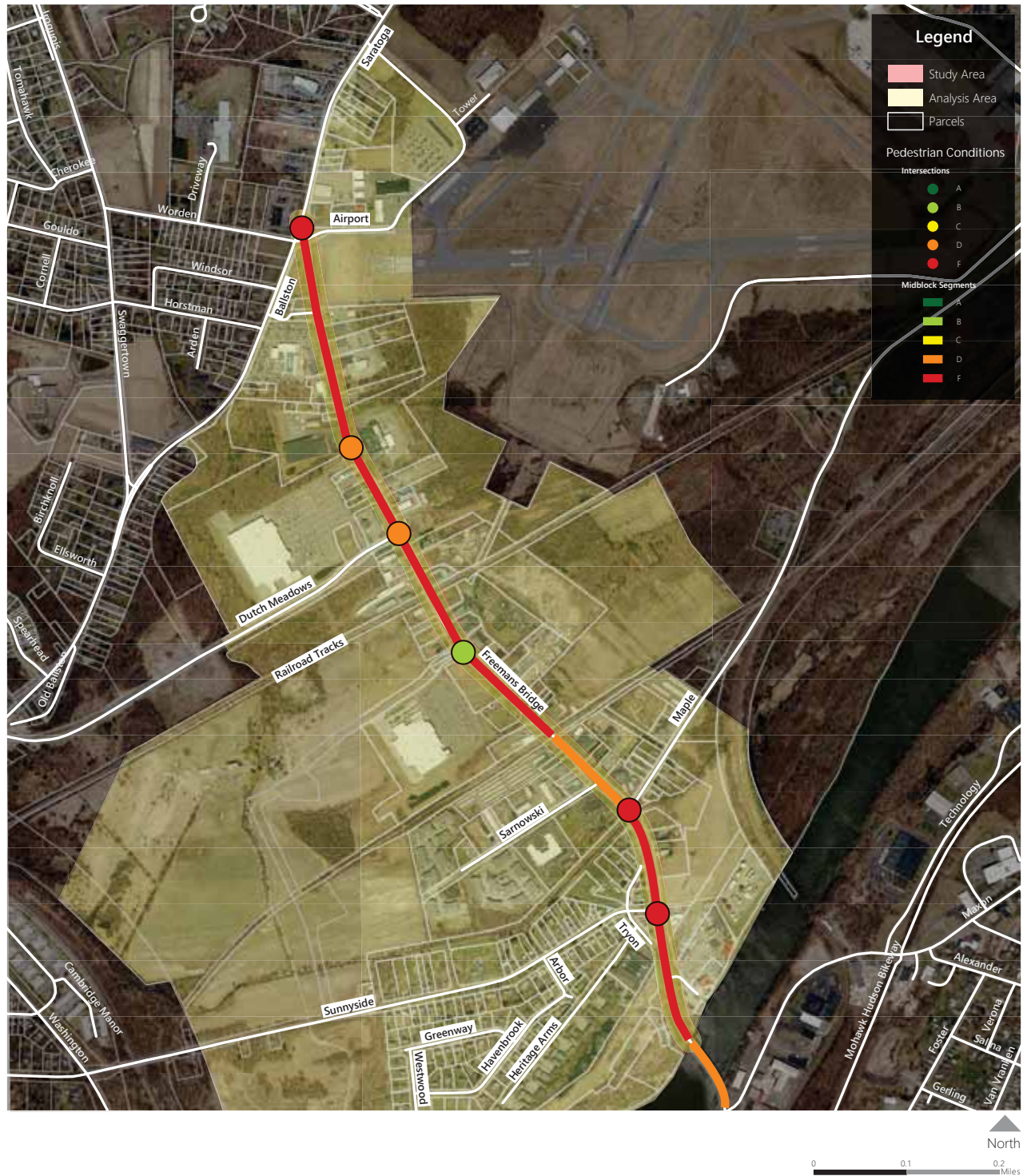
Passing vehicles at the railroad crossing.



# Town of Glenville Freemans Bridge Road Complete Streets Concept Plan

Map #7

## Pedestrian Conditions Audit



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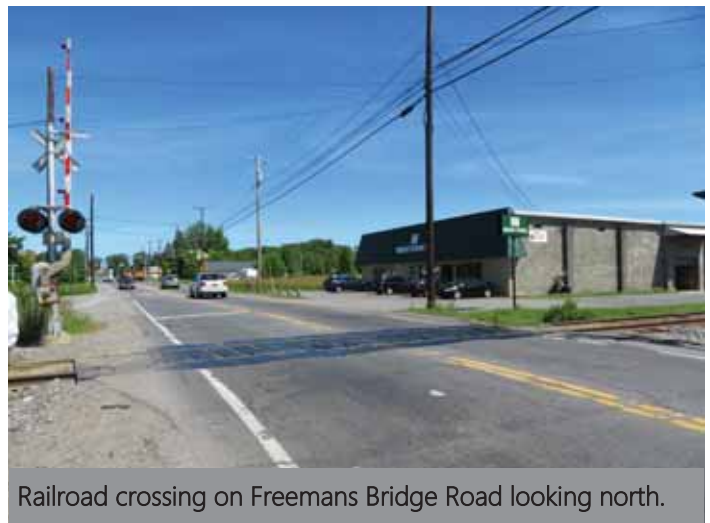
## Pedestrian Conditions “Audit”

The map at left shows results of a pedestrian conditions “audit” of Freemans Bridge Road. Using criteria designed to measure how it feels to walk along the corridor, numerous factors were scored and translated into letter grades to identify a pedestrian’s level of comfort on midblock segments and at intersections. Midblock segment criteria include the presence of sidewalks and their condition, buffer between sidewalks (if they exist) and moving traffic, interruptions caused by driveways, distance between crossing opportunities, presence of shade, lighting, wayfinding and resting places, and adjacent land uses and street frontage. Due to a lack of sidewalks throughout most of the corridor, a majority of segments are rated as “F” meaning pedestrian comfort is essentially non-existent.

Intersections are rated based on the presence and condition of marked crosswalks and pedestrian signal heads, the presence of any curb ramps, the number of travel lanes that must be crossed in both north/south and east/west directions, and driver behavior observed around intersections. As shown on page 40, a majority of intersections rate as “D” or “F” indicating poor intersection conditions for those on foot. This is primarily due to a lack of signalized crossings or marked crosswalks at a majority of intersections along the entirety of Freemans Bridge Road. One exception is the intersection at the Lowe’s entrance, which has marked crossings and pedestrian infrastructure at three of its four intersection legs. However, despite the grade of “B” here, adjacent segments rated as “F” render pedestrian connectivity and comfort limited at best. The sidewalks that exist adjacent to this intersection end abruptly (except for a connection to the Lowe’s property) and provide little benefit on Freemans Bridge Road as of today.



Pedestrian walking on the approach to Freemans Bridge.



Railroad crossing on Freemans Bridge Road looking north.



A pedestrian walks along Freemans Bridge Road north of Sarnowski Drive.





Sidewalk along Dutch Meadows Lane @ Walmart.



Bike lane along northbound approach to Maple Ave.



Pedestrian infrastructure at the Lowes driveway intersection.

## Planning Assessment & Field View Analysis

### Pedestrian Infrastructure

Pedestrian infrastructure in the corridor is limited. Currently there are sidewalks provided on the Speedway property on the northwestern corner of Dutch Meadows Lane and Freemans Bridge Road. In addition, further down Dutch Meadows Lane is a sub-standard width sidewalk along the Walmart parking lot that is in poor condition. There are also crosswalks and pedestrian signals on three of the 4-legs at the Lowe's Driveway intersection. Recently redeveloped parcels have included locations for proposed future sidewalks on approved site plans, however no easements or fees have been collected for implementation.

Technically, the Mohawk-Hudson Bike-Hike Trail is also part of the pedestrian infrastructure, though it does not parallel the corridor. It is described in more detail below.

### Bicycle Infrastructure

The corridor currently has limited bicycle infrastructure. Just north of Freemans Bridge, on the northbound side of Freemans Bridge Road approaching Maple Avenue, there is an approximately 520' long painted bicycle lane stub. This lane extends from just past where the northbound Maple Avenue right turn lane begins to the painted stop bar for traffic located at the intersection with Maple Avenue.

This corridor has a direct connection to a 1.1-mile segment of the Mohawk-Hudson Bike-Hike Trail parallel to the Mohawk River. This segment connects Freemans Bridge Road with Washington Avenue in Scotia.

The current official trail begins/terminates at the official/defined crossing point just north of Freemans Bridge adjacent to the boat launch parking lot, runs south and under Freemans Bridge and then north along the southbound side of Freemans Bridge Road to the other official/defined crossing point. This segment of the trail is paved, though in poor condition, and near and under the bridge it is covered in several inches of mud. The paved trail runs from the intersection with Freemans Bridge Road west toward Scotia for approximately 275' where the trail quickly becomes gravel and grass. At this point the trail essentially becomes double-track surrounded by mowed grass. At the bridge crossing over the stream, the trail changes to gravel single-track surrounded by mowed grass. The bridge crossing itself is unique and distinct as an older wood bridge, but the connection at each end is eroding which has created a gap between the land and bridge structure.

Finally, based on field view observations, the only other bicycle infrastructure in the corridor is a bicycle rack located behind the Walmart CDTA bus shelter.



Cycling on Mohawk-Hudson Bike-Hike Trail.



# Town of Glenville Freemans Bridge Road Complete Streets Concept Plan

Map #8

## Existing Bicycle & Pedestrian Infrastructure



This map was made by Planning4Places, LLC & Sam Schwartz Consulting. It is not for official use and should be used for planning purposes only. Data was derived from Schenectady County Department of Economic Development and Planning and the NY Statewide Digital Orthoimagery Program.







CDTA Bus at Walmart.



CDTA Bus headed southbound on Freemans Bridge Road.



Copy of Route 353 Bus Schedule (Source: CDTA website)

## Transit Service

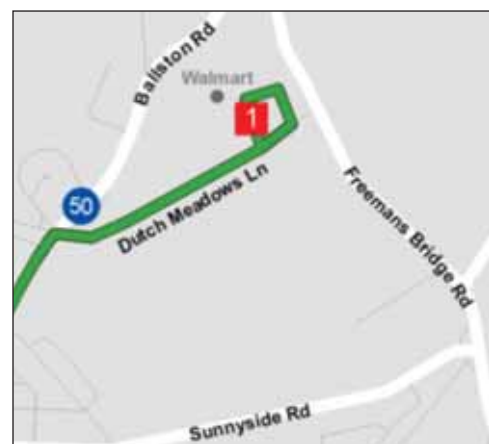
Transit service does not run on Freemans Bridge Road, however, there is regular service provided by CDTA bus Route 353 (Scotia/Mont Pleasant) to and from Walmart via Dutch Meadows Lane. Walmart is the northern terminus of this line. Service runs every 45 minutes both on weekdays and weekends.

On weekdays, service starts at Walmart at 5:00 AM southbound and has its first northbound drop-off at 6:21 AM. The final weekday trip southbound leaves at 10:15 PM with the last weekday trip drop-off reaching Walmart at 11:31 PM.

On weekends, the service provides fewer runs. Service starts at Walmart at 9:00 AM southbound and has its first northbound drop-off at 10:23 AM. The final southbound weekend trip leaves Walmart at 7:30 PM with the last weekend trip drop-off reaching Walmart at 7:21 PM.

Despite there being no bus service on Freemans Bridge Road, there are many CDTA buses that run along the

corridor. It is likely that these buses are off-duty and coming from/headed to the Maxon Road facility. There may be an opportunity to provide service along the corridor via these existing empty bus runs, particularly if the buses regularly run from Maxon Road to Route 50/Thomas Corners, the Town Center, and beyond.



Enlarged version of the route map showing the loop into Walmart.

## CDTC Priority Networks

The CDTC New Visions Plan identifies several priority networks including bicycle, pedestrian, transit, ITS, goods movement and infrastructure improvements (see [cdtcmpo.org](http://cdtcmpo.org)). Freemans Bridge Road is identified on several of these priority networks including the following:

### Bicycle and Pedestrian Priority Network

Freemans Bridge Road is designated as part of the CDTC Linear Bicycle Network in their 2015 Bicycle & Pedestrian Network. The northwestern end of the Freemans Bridge Road Corridor where it merges with Route 50 is located within a Tier 1 Pedestrian District. At the southeastern end of the corridor, just across the Mohawk River, the City of Schenectady is defined as a Tier 2 Pedestrian District along the riverfront but a Tier 1 Pedestrian District on the eastern side of a boundary formed by Maxon Road and Erie Boulevard.



As defined by CDTC, Tier 1 Pedestrian Districts "...highlight areas that have population and employment density and met at least two of the following additional criteria: proximity to schools, shopping centers, hospitals, parks and trails and Environmental Justice population areas. Tier 2 Pedestrian Districts consist of the remaining incorporated areas of all cities and villages that did not meet the criteria used to define Tier 1 Districts."

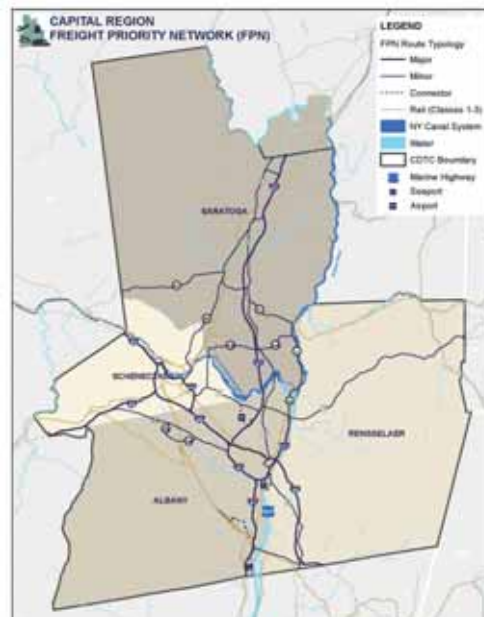
As a side note, it is likely that with the recent Mohawk Harbor mixed-use development along a portion of the riverfront this area will change to a Tier 1 Pedestrian District in the future.

### Freight Priority Network

The CDTC Freight & Goods Movement Study Executive Summary defines the CDTC Freight Priority Network (FPN) as "...a logical system of routes that facilitate efficient and safe truck mobility within, to, and from the CDTC region. The primary function of the FPN designation is to bring roads that carry critical freight and goods movements to the forefront in freight-related investment decisions. Further,

FPN designation is intended to engage local jurisdictions in operating, maintaining, and designing FPN roads to promote safe and reliable infrastructure and efficient movement.

Freemans Bridge Road is listed as a Minor Route that connects with Erie Boulevard and I-890 to the south and Route 50 to the north.







Northbound truck in median just north of Sarnowski Drive.

## ITS Priority Network

CDTC has an Intelligent Transportation Systems (ITS) Priority Network. This network consists of Interstates, arterial corridors, alternate routes and priority arterials. Freemans Bridge Road is listed on the CDTC ITS Priority Network as a Secondary Alternate Route - secondary to Priority Expressway Corridors (which are primarily Interstates).

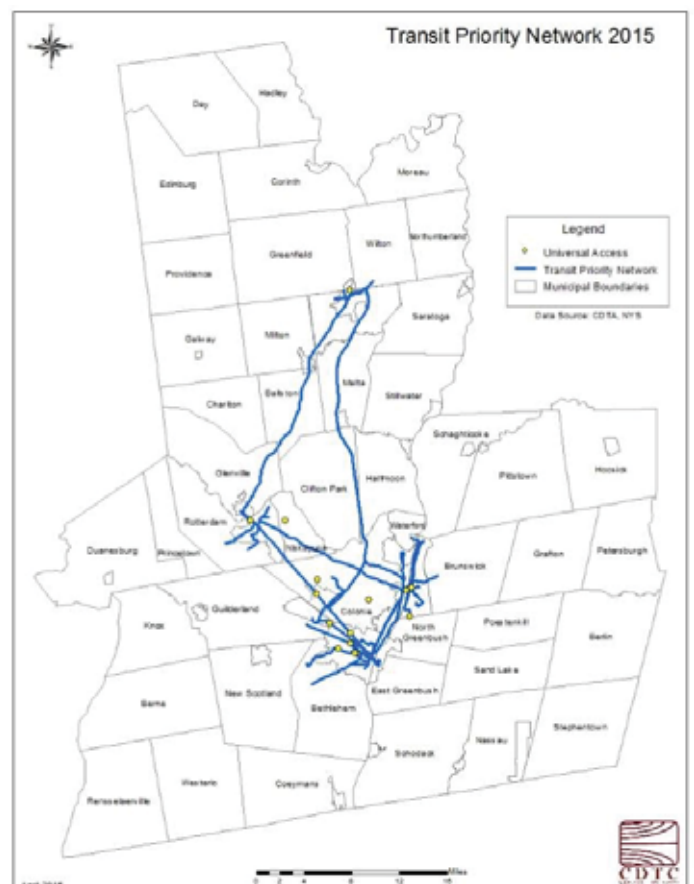
The Freemans Bridge Road segment connects to two Priority Arterial Corridors (these are immediate alternatives to a priority expressway) - State Street in Schenectady and Route 50 at Thomas Corners.

What this means for Freemans Bridge Road, according to the 2015 Regional Operations Safety White Paper, is that it is part of an identified network that has been established to help set priorities for Transportation Improvement Program (TIP) project selection. Another purpose, according to the document, is to give guidance for project development to make sure that individual projects address important needs on each priority network.

## Transit Priority Network

The CDTC New Visions Transit Task Force White Paper from 2015 described the Transit Priority Network as "constantly evolving to match the current CDTC route system." CDTC uses the network to "...assign points to projects proposed for federal funding and considered by CDTC for programming."

Freemans Bridge Road is not part of the 2015 Transit Priority Network (it does not have any transit routes along the corridor - though transit does utilize Dutch Meadows Lane to access Walmart and buses utilize the corridor when out of service- see the Transit write up in this chapter for more information).

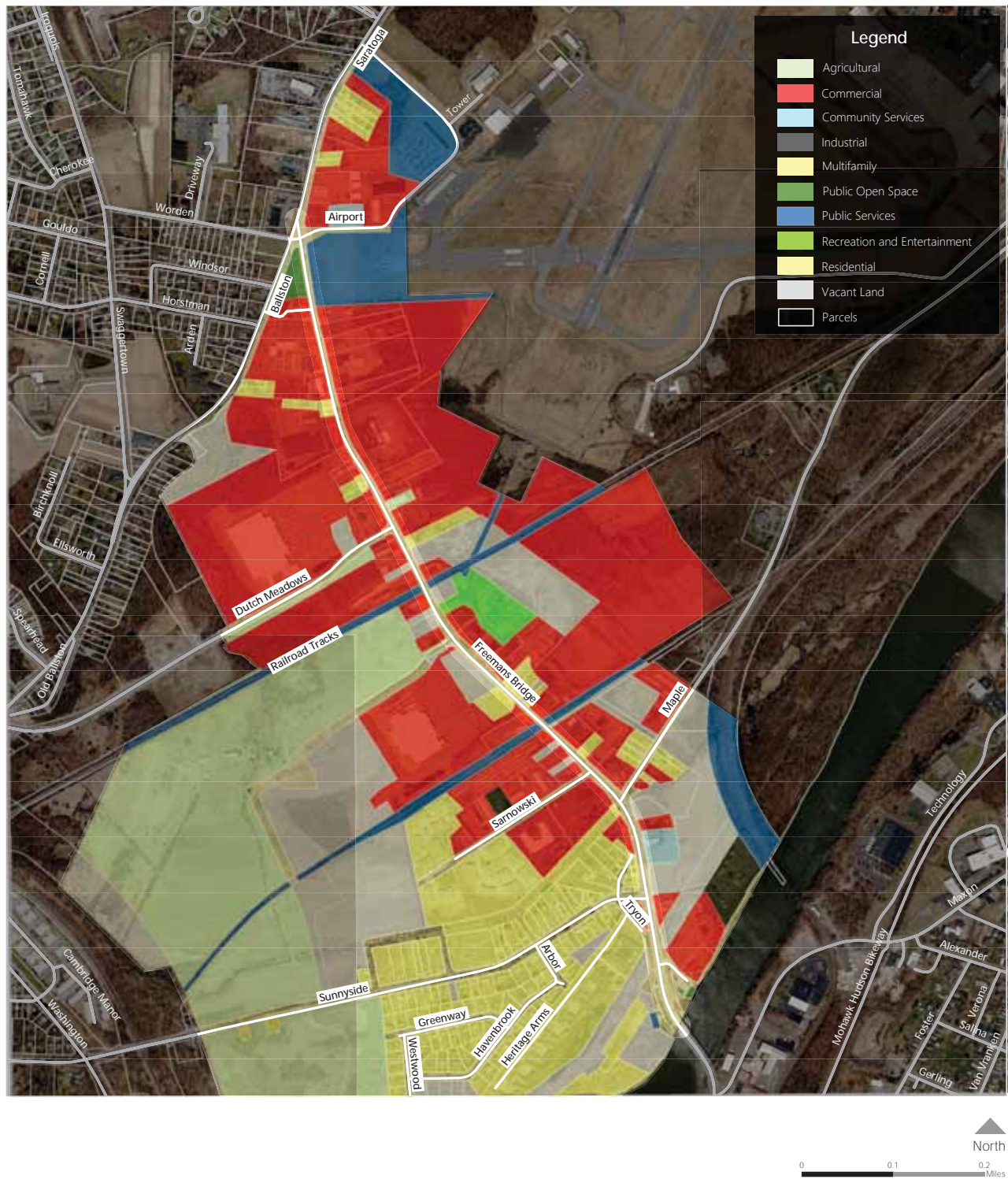


Source: CDTC Transit Priority Network White Paper

# Town of Glenville Freemans Bridge Road Complete Streets Concept Plan

Map #9

## Land Use



This map was made by Planning4Places, LLC & Sam Schwartz Consulting. It is not for official use and should be used for planning purposes only. Data was derived from Schenectady County Department of Economic Development and Planning and the NY Statewide Digital Orthoimagery Program.



PLANNING4PLACES

Sam Schwartz





Land uses along the eastern side of Freemans Bridge Road.

## Existing Land Use

The Land Use Map on the previous page shows that the Freemans Bridge Road Corridor is primarily commercial and retail and is home to big-box retailers Walmart and Lowe's, restaurants, service, and automotive businesses. In the vicinity of the Schenectady County Airport and the intersection of the corridor with Route 50, the area is primarily commercial, includes the Thomas Corners Fire Department and the newly expanded Capitaland GMC/Subaru Dealership just north of the Analysis Area.

Directly on, and adjacent to, Freemans Bridge Road is a fair amount of vacant/undeveloped property. The majority of the development potential on the corridor exists on lots behind those fronting on Freemans Bridge Road.

Currently, there are also a number of properties for sale in the corridor. As a related item, the build-out analysis from the 2015 Traffic Study indicated that there is potential for substantial development in both growth scenarios (see page 9 for the Traffic Study buildout anticipated new uses chart).

Recent development along the corridor includes the Speedway gas station and convenience store, the Waters Edge Lighthouse expansion and Hilton Homewood Suites Hotel adjacent to the Waters Edge Lighthouse Restaurant. The Reserve, a 184-unit apartment complex, was built in 2005 on Sarnowski Drive. One of the jewels of the corridor, and a unique feature not found in most communities, is the public access Freemans Bridge Boat Launch. This approximately 1/2 acre site on the Mohawk River is owned by the State of New York and has the potential to be part of a reinvigorated gateway to the Town and the corridor.

## Town Planning Documents

### **Town of Glenville Comprehensive Plan (2017)**

The Town of Glenville Comprehensive Plan was completed by the Economic Development and Planning Department with assistance from the Town's Residential Advisory Committee (RAC) and Comprehensive Plan Committee. It was adopted in October 2017.

The Plan details a number of recommendations relevant to the Freemans Bridge Road corridor. It identifies new potential opportunities for reinvestment on Freemans Bridge Road in conjunction with development in and around the Rivers Casino and Resort project and also notes that there is an opportunity for multi-family development along the Freemans Bridge corridor.

The Plan states that the Town of Glenville would like to see Freemans Bridge Road become a mixed-use corridor in the future. Access management, including consolidating driveways and minimizing new driveways, is encouraged as are Complete Streets principals that provide accommodations for pedestrians and bicyclists, calm traffic, and add landscaping and aesthetic treatments. Short term goals for the corridor as noted in the Plan include:

- Incorporate access management techniques into the Town's planning and zoning process.
- Extend the Lowe's driveway/road west and south along the existing Town right-of-way to Sunnyside Road. Coordinate the timing of the traffic signals at these intersections to improve level-of service.
- Improve the appearance of the gateway between Freemans Bridge Road and Sunnyside Road.

- Pursue traffic calming techniques.
- Construct sidewalks along the entire length of the corridor.
- Reduce delays and congestion at the Freemans Bridge Road and Maple Avenue intersections and at Sunnyside Road and Freemans Bridge Road.
- A long term goal is to eliminate the current at-grade railroad crossing.

### Freemans Bridge Road Master Plan (2004)

This plan was developed in response to increased commercial development (including the construction of the current Walmart and installation of new sewer lines). The Master Plan developed a series of goals and recommendations that serve as a guide for future development in the Freemans Bridge corridor area.

A moratorium on development was in place during the development of the Master Plan. The Master Plan's goals included encouraging a land use mix of single-family and multi-family housing, office, and commercial/mixed-use development, pedestrian-oriented design, access management, and the installation of pedestrian and bicycling infrastructure.

Additional goals included an improved boat launch and park area along the Mohawk River with a riverfront promenade, installation of multi-use trails, and a series of gateways. It was also recommended that Freemans Bridge Road be redesigned with sidewalks, street trees, and a planted boulevard.

### Town Center Master Plan (2004)

The Town Center Plan was "...developed to work creatively with existing conditions and community goals to create a design solution for the future..." of the Town Center boundary which is anchored by the intersection of Route 50 and Glenridge Road.

The Plan provided a conceptual system of multi-use paths that would run throughout the Town Center with connections to other destinations and areas. One such proposal was for a trail to run along the eastern side of Route 50 from the Town Center along the Schenectady County Airport property, connecting to Freemans Bridge Road at the intersection with Route 50 and Airport Road. From this point a trail was proposed to run along Route 50 until the southern extent of the Airport property adjacent to Freemans Bridge Road where the trail would then cut away from the road and run near the back of parcels fronting on Freemans Bridge Road. This location continued until Dutch Meadows Lane where the trail then would proceed along Dutch Meadows approximately half-way to NY Route 50 where it then turned south along an existing stream and connect with another proposed trail running which came up from the Mohawk River and turned east to connect into Sarnowski Drive.

### Zoning Ordinance (2001)

The zoning ordinance regulates uses and site development requirements.

The majority of the zoning along Freemans Bridge Road is GB - General Business District. This district permits commercial and office uses, institutional uses, indoor and outdoor recreation facilities by right and veterinary clinics/kennels/animal hospitals, restaurants, automobile dealerships/repair shops, gas stations, and car washes by conditional use. Front yard setbacks are 35 feet and lot sizes are a minimum of 40,000 sq. ft. (except for shopping centers which require a minimum of 5 acres) with a building height maximum of 35 feet.

The RM - Multi-Family Residential District is also found along Freemans Bridge Road. This district permits single-family, two-family dwellings, and home occupations by right and multi-family, townhouses, assisted living, Bed & Breakfast, and day-care centers by site plan review.



Former Greenhouse use that was redeveloped during this project into a Verizon store.





Construction of the realignment on Maple Avenue near Ronald Reagan Way began in the Spring of 2017.

Three acres is required for a multi-family development and building heights are limited to 35 feet.

The PPL - Public Park Lands District is for public parks and open spaces. Within the Analysis Area, this applies to the Schenectady County open space at Thomas Corners.

The LC - Land Conservation District permits parks, trails, and open spaces, and agricultural activities, private docks, and commercial logging subject to relevant permitting. Within the Analysis Area, this applies to the State Boat Launch.

The AZ - Airport Zoning District is associated with the Schenectady County Airport and the immediate surrounding area. Within this District, minimum lot sizes are 15,000 sq. ft. with a maximum building height of 35 feet.

The RDT - Research, Development and Technology District is also located along the corridor. This district permits industrial and warehousing uses as well as some commercial uses. This district permits buildings to be 50 feet in height and the minimum lot size is 40,000 sq. ft.

The RRC - Riverfront Recreation/Commercial District is found along the Mohawk River. This district permits public and private water-dependent or water-enhanced recreational and commerce opportunities that protect the riverfront.

In addition, on the edges of the Analysis Area, there is Suburban Residential and Rural Residential Zoning. The Suburban Residential District has lot size minimums ranging from 15,000-40,000 sq. ft. depending on the use and/or availability of public sewer. The Rural Residential District permits agricultural uses and residential uses on 2-5 acres depending on the use and whether public water is available.

In addition to the above described districts, it is also important to note that a Planned Development District

floating zone that allows additional flexibility and a mix of uses is included in the Town's Zoning Ordinance.

Overall, zoning within the Analysis Area seems to primarily focus on auto-oriented uses and while different uses are permitted, it does not generally provide zoning that would permit or encourage a mix of uses. The corridor generally has larger lot sizes, larger front yard setbacks, and lot coverages than is typical for an area with the goal of encouraging infill development - a stated goal of this study and the Comprehensive Plan.

### Town of Glenville Landscape Manual (2004)

The Manual provides detailed guidance for the selection, placement, and installation of landscaping in the Town of Glenville. The standards are intended to integrate landscaping into site design and provide for the vitality and longevity of landscaping materials. The manual supplements Chapter 270, Article 19 (Landscaping) of the Town of Glenville Zoning Ordinance and is not a regulatory document. However, all developments identified in Article 5 (Including Planned Development Districts), all conditional use permits, and all use variances that involve new construction are subject to the requirements of the Manual.

Of note is the Pedestrian Amenities section. It notes that grass strips and sidewalks along streets and roadways must be included in landscape plans, consistent with the Town Sidewalk Ordinance (Chapter 221). It also states that the Planning and Zoning Commission or Zoning Board may, at its discretion, allow applications to reserve an eight foot section along the pavement edge for future sidewalk construction. In addition, all landscape plans must include shade trees planted in a tree lawn located between 10- and 15-feet from the edge of pavement.

## Projects Underway/Proposed in the Town of Glenville

The following projects were underway or proposed during this analysis and are directly relevant to this plan.

**Plume Clean-Up** – A Superfund site on the west side of Freemans Bridge Road beginning just south of the Pan Am Southern Rail Line and extending to Sunnyside Road. During the Lowe's construction project, this plume was discovered and subsequently actions were taken to address the contamination. As part of this effort, New York State paid for the extension of public water to 122 homes within the path of the contamination.

**Maple Avenue Realignment Project** – This \$1.1 million-dollar project being conducted by the Schenectady County Department of Engineering and Public Works realigned Maple Avenue near Ronald Reagan Way (the road into the 109<sup>th</sup> Air National Guard Base). The project will increase safety by eliminating curves in the existing road and creating turn lanes into Ronald Reagan Way. This realignment project was completed in 2017.

**Freemans Bridge Gateway Improvement Project** – This project, funded by an Local Waterfront Revitalization Program (LWRP) grant from the New York State Department of State, will look at the lower section of Freemans Bridge Road and address safety, aesthetics, and adjacent land uses.

**Thomas Corners Roundabout** – This ~\$3 million-dollar proposal for a roundabout was submitted to the Capital District Transportation Committee (CDTC) to help alleviate congestion at the intersection of Freemans Bridge Road and Route 50.

**Mohawk-Hudson Bike-Hike Trail (Scotia-Glenville Canalway) Rehabilitation Project** – The Town applied for grant funding for a \$400,000 project to upgrade the existing deteriorating trail from Schonawee Avenue in Scotia to Freemans Bridge in Glenville. The project includes drainage improvements, parking, new signage, landscaping, amenities, and grade and paving changes to update the trail to be in compliance with the Americans with Disabilities Act (ADA).

The former Schenectady Seed property was proposed for development (and redeveloped during this project) as a Verizon Store at 122 Freemans Bridge Road - a 19 acre site with the potential for additional development.

In addition, there is currently a proposal for development adjacent to the Schenectady County Airport just north of the Study Area.



Mohawk-Hudson Bike-Hike Trail: (Scotia-Glenville Canalway): Pavement ends and gravel and grass begins.



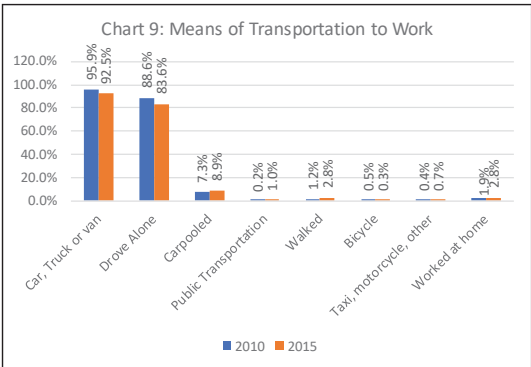
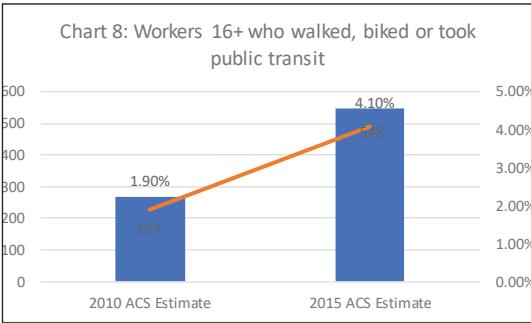
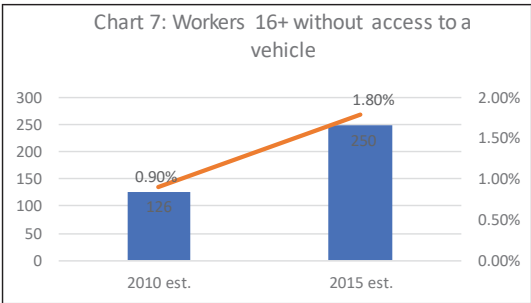
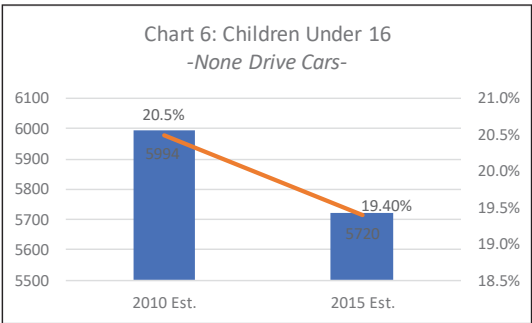
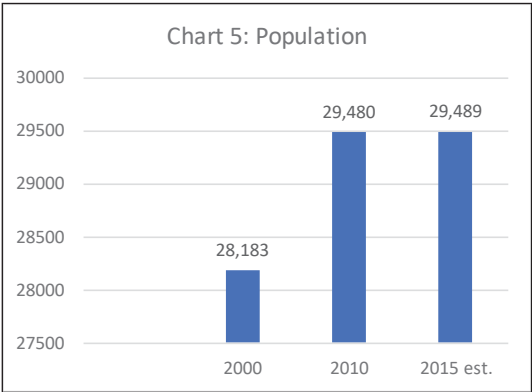


Cyclist riding along Freemans Bridge Road - in the wrong direction.

## Relevant Demographic Statistics

The U.S. Census Factfinder website portal provides statistics on population, education, business and industry, housing, income, and other statistics that are used by statisticians, governments, and others to assess the general demographic profile of a geographic place.

We have summarized some relevant statistics from this source using graphics to provide a text-free/graphics-based glimpse into some of the Complete Streets relevant demographics of the Town of Glenville:



Source: U.S. Census 2000, 2010, and 2015 American Community Survey

## Conclusion - Why this Information Matters

As stated in the beginning of this chapter, the corridor generally functions well for automobiles but less so for other modes like bicycling and walking. This fact is probably generally understood and assumed by those familiar with the corridor but the findings of this Chapter help to detail some of the specific reasons for this assessment.

Beyond the assessment of the corridor and its existing conditions, there are compelling statistics nationally that really help show the public's desire for Complete Streets and the potential opportunities of the Freemans Bridge Road corridor.

A Complete Streets Toolkit developed for this study (as a separate document) included the following statistics. For a copy of the toolkit visit [www.townofglenville.org](http://www.townofglenville.org) or see Appendix B.



An AARP study on Complete Streets and the Aging of America found that 56% of respondents expressed STRONG SUPPORT for adoption of Complete Streets policies.



50% of all trips are less than 3 miles, 28% OF TRIPS ARE LESS THAN 1 MILE...yet 65% of these trips are driven (2009 National Household Travel Survey). A 2012 CDC study found that 46% of people will walk 1 mile to a religious gathering or school and 35% will walk to work.



Safety: Pedestrian crash analysis findings from the US DOT National Highway Traffic Safety

Administration Traffic Safety Facts 2015 Data Fact sheet on Pedestrians shows that approximately 15% of fatal crashes between 2005 and 2014 involved pedestrians. So what is the crash reduction potential with Complete Streets related improvements:

- 88% with sidewalks
- 69% with hybrid beacons
- 46% with medians
- 45% with road diets



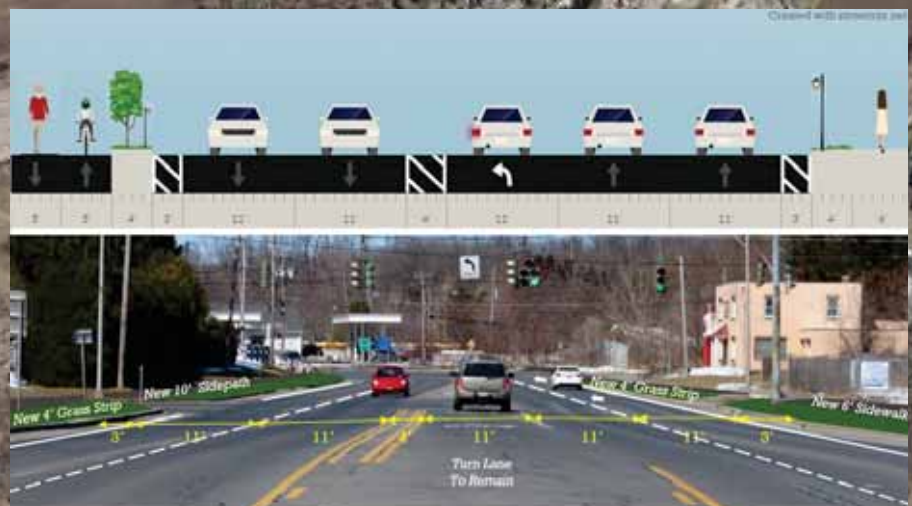
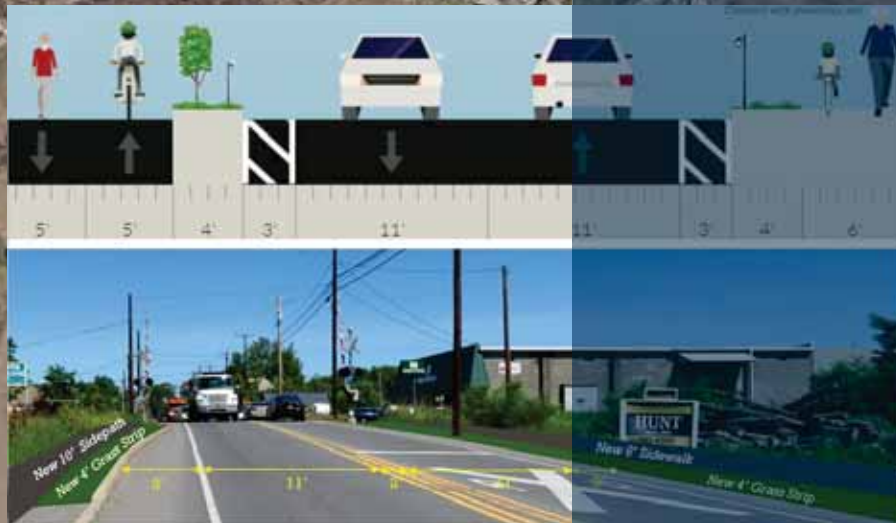
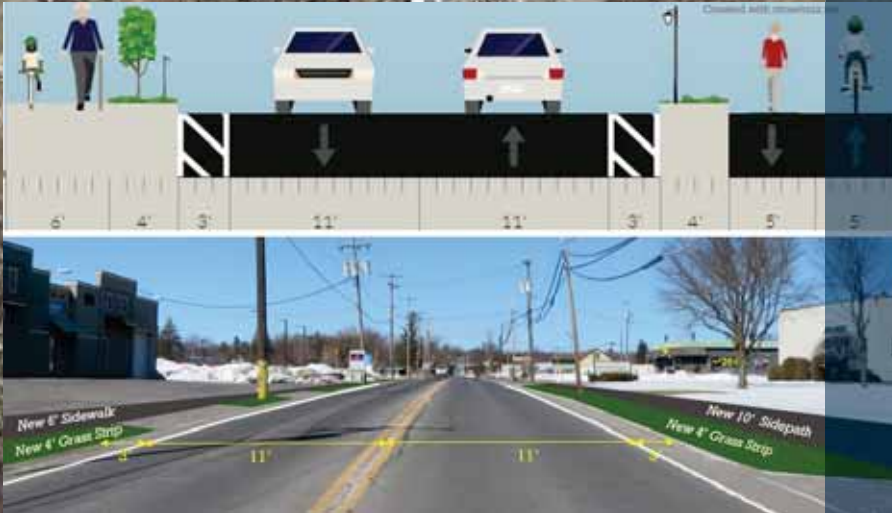
These pedestrians used the trail underpass to access the waterfront park.



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# CHAPTER 4

## Concept Plan

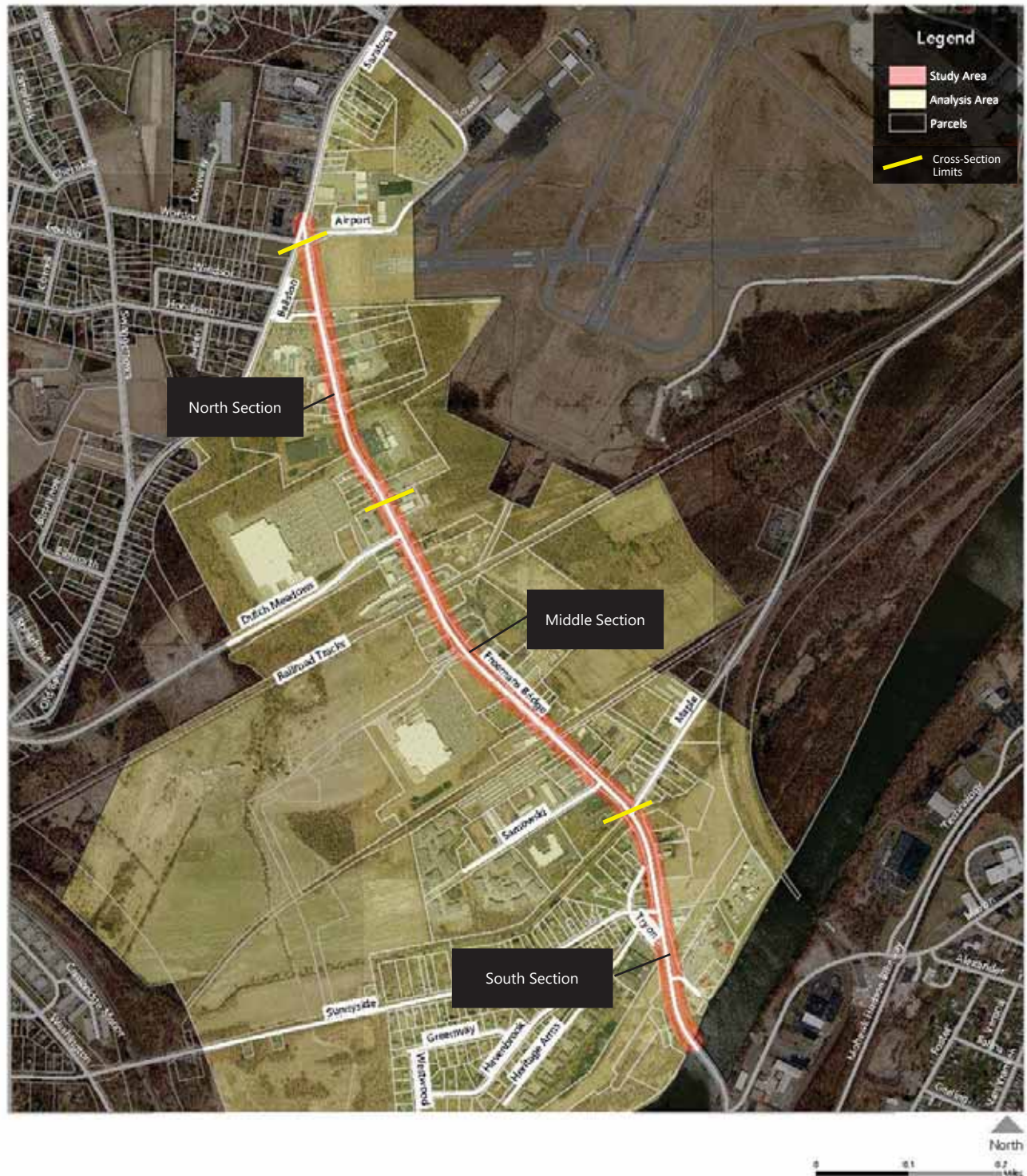




# Town of Glenville Freemans Bridge Road Complete Streets Corridor Study

Map #10

## Approximate Segment Limits



This map was made by Planning4Places, LLC & Sam Schwartz Consulting. It is not for official use and should be used for planning purposes only. Data was derived from Schenectady County Department of Economic Development and Planning and the NY Statewide Digital Orthoimagery Program.



**Sam Schwartz**

# Chapter 4



Looking northbound toward Maple Avenue.

## Introduction

The Complete Streets Concepts were developed to provide options that enhance the mobility and safety along the corridor for all users within the three generally different corridor profiles (South, Central, and North). The designs and associated considerations were based upon existing conditions, the Town Comprehensive Plan, and stakeholder and public feedback. The Planning4Places Consultant Team worked with Town staff, CDTC staff, NYSDOT Region 1 staff, CDRPC staff, and the Study Advisory Committee to develop these concepts. It was generally agreed by all parties involved that this is the most opportune time to make improvements to the corridor and to begin working toward the desired future condition for Freemans Bridge Road.

Design concepts in cross section format are found at the end of this chapter. The graphics were created using Streetmix. Corridor images were taken by the Consultant Team & widths were measured in the field. One major goal of this project was to try and minimize the need to expand the paved area of Freemans Bridge Road as much as possible (e.g. between existing curbs) while also separating vehicles and pedestrians to increase safety due to the vehicle volumes and speeds. Some cross sections may be within right-of-way while others may require land acquisition, depending on the location.

Each option has its benefits and challenges (or trade-offs - see matrix in the Implementation Chapter) but all are proposed to enhance the safety and mobility for all users, improve aesthetics, support the implementation of green

infrastructure and economic development along Freemans Bridge Road. While several alternatives have been offered, they do not necessarily need to be considered as a single package. There is the possibility to “mix and match” different concept ideas, though doing so may require additional analysis and consideration to ensure the elements create a relatively cohesive design schematic for the entire corridor.

Based on existing conditions (see Chapter 3) along the corridor from Freemans Bridge over the Mohawk River to the intersection with NYS Route 50, the corridor was divided into three segments to differentiate each of these areas as they have similar existing conditions (see segments map on opposite page). The initial alternatives proposal presented to the Town and CDTC included 11 different potential cross sections with a 12<sup>th</sup> concept added by the Town for consideration. This resulted in an assessment of four alternatives in the northern section of the corridor, three in the middle section of the corridor, and five in the southern section of the corridor. After additional discussions, the cross sections were revised as provided herein.

Technical data related to traffic existing conditions (and future conditions) were primarily based on the *Traffic Evaluation [of] Freemans Bridge Road* conducted by Creighton Manning Engineering (CME) in 2015. To ensure that the traffic volumes were still generally consistent with the 2015 CME Traffic Evaluation, the Town of Glenville undertook a spot count of volumes in June 2017 which did not reveal significant deviations that would warrant adjustment to traffic volumes presented in the 2015 traffic study.





Looking north on Freemans Bridge Road - despite some obstacles, there is a lot to work with along the corridor.

Future design alternatives were developed utilizing, among others, guidance provided in the *NACTO Urban Street Design* and *Urban Bikeway Design Guides* and NACTO's 2017 *Designing for All Ages and Abilities Bikeway Criteria* (NACTO), the *FHWA Small Town and Rural Multimodal Networks* guidebook (FHWA guidebook), along with a review of the NYSDOT's 2017 *Highway Design Manual* (HDM) and the *Empire State Trail Design Guide*. Level-of-Service analyses were developed utilizing Synchro model data from the 2015 CME Traffic Evaluation.

## Consistency with Public Input

This project included a Public Workshop early in the process and one at the end of the process. The first Workshop included nearly 50 attendees and the second Workshop included approximately 35 attendees. A meeting of business owners and property owners on Freemans Bridge Road was also held after the concepts were drafted to discuss the proposal(s) and get input from those individuals most directly impacted by any potential changes. The project also included an online survey which was open from July 26, 2017 until December 12, 2017 and resulted in an impressive 526 responses. A total of 500 out of the 526 respondents completed the question asking which improvements they would like to see on Freemans Bridge Road. The following summary provides details on the top responses:

- **Sidewalk:** This was the most requested element from the online survey. A total of 62.4% of respondents listed sidewalks as an improvement they would like to see on Freemans Bridge Road and this was a significant discussion topic at the first Workshop. Public Workshop attendees provided comments related to the need for sidewalks or pedestrian connections which were recorded for the record. Comments included asking for sidewalk improvements in the southern section (on the

eastern side of Freemans Bridge Road), providing a separated walkway over the railroad tracks, and improving sidewalk connectivity overall.

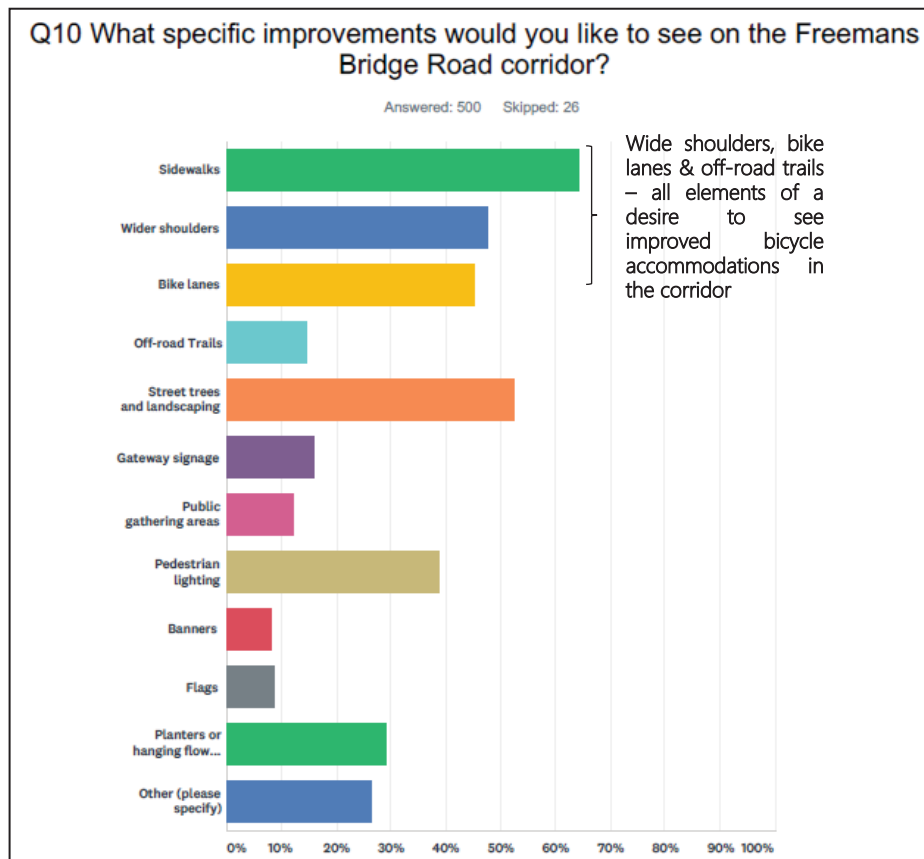
- **Improved Cyclist Facilities:** Improved cyclist facilities was the second most requested element in the survey, if one considers the 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> rows of the results graph collectively to relate to bike infrastructure. Based on a review of existing conditions and general design preferences in source documents, this project is proposing a sidepath (e.g. a separated, off-street, and shared bike & pedestrian facility). Sidepaths are multi-use facilities – not bike-only facilities – that separate cyclists and pedestrians from the roadway providing a much more user-friendly, appealing, and more comfortable facility for users of all ages and ability levels (particularly with appropriate design and signalization at intersections and major driveways).

Both in the survey and in the Public Workshop, the need for a safe facility for cyclists was noted. A total of 47.8% listed wider shoulders as a desired improvement, 45.4% listed bike lanes as desired improvement, and 14.6% listed off-road trails as a desired improvement. Survey respondents related a desire to have a separated cyclist facility due to the public's perception of high vehicle speeds (matched by the reality of on-the-ground speed data), along with high vehicle volumes and generally aggressive driver behavior, particularly in the southern section. Comments included that the section of the corridor just north of Freemans Bridge is too wide, always feels unsafe whether biking or in a car, and that a median strip and pedestrian path is needed in this area. It was noted that because Freemans Bridge Road is a key artery, it exacerbates the inherent conflicts between motorists and cyclists, with the least favorite section being located where the faded, "stub" bike lane

pops up in the middle of the road, providing no comfort for any cyclists beyond incredibly experienced intrepid riders (less than 5% of the biking population).

- Comments from the Public Workshop related to improved cycling infrastructure stated that shoulders of significantly additional width would be necessary; one comment noted the need for a bike path/sidewalk to allow people to have the option to not drive; and another mentioned the idea of a sidepath for both bikes and pedestrians. Other comments noted the need for a better transition for the “stub” bike lane at Maple Avenue, the need for a separated walkway and bike lane over the rail crossing, a physical separation between bikes and cars via a barrier, a need for both a pathway and sidewalk, and the need to be able to easily ride along Freemans Bridge Road. These various comments, combined with guidance from NACTO and the FHWA guidebook on the appropriate facility for roadways featuring certain levels of traffic volumes and vehicle speeds ultimately led to the proposal for a sidepath outside the curblane.
- Design Elements: Street trees, landscaping, and to a lesser degree street lights, filled-out the top 5 responses in the survey. Generally speaking, all comments on the corridor design focused on the fact that the corridor

needs an improved look. Street trees and landscaping were desired by 52.6% of respondents followed by pedestrian lighting which was desired by 38.8% of respondents. We heard similar comments at the Public Workshop including the idea of a landscaped center median and drainage space along the shoulders, a need for improved aesthetics – generally, adding nicer lighting and ornamental lighting, consideration of stamped concrete, and enhancing Freemans Bridge Road’s identity and sense of place.



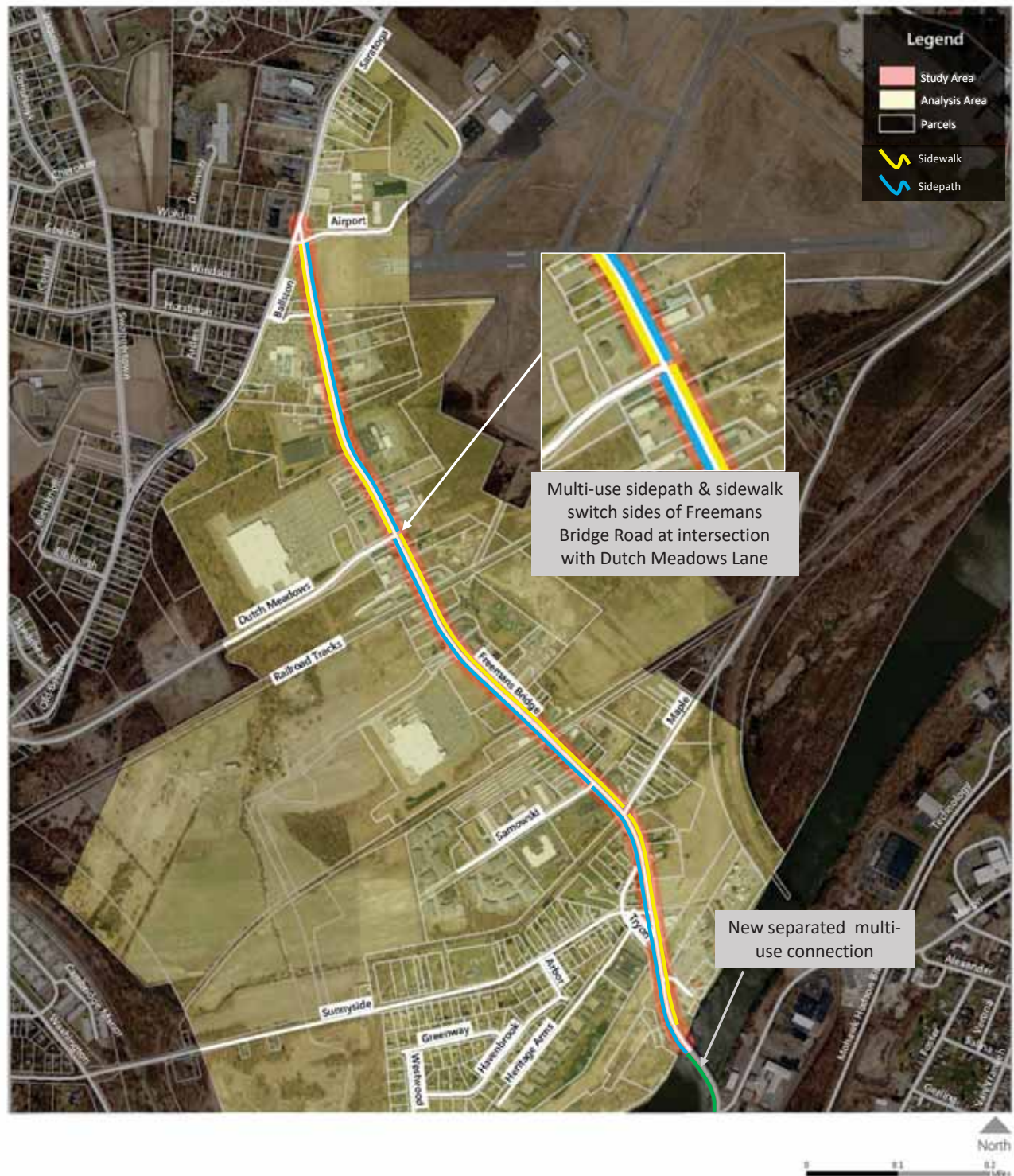
Survey results from the question about specific improvements.



# Town of Glenville Freemans Bridge Road Complete Streets Corridor Study

Map #11

## Sidepath & Sidewalk Location Concept



This map was made by Planning4Places, LLC & Sam Schwartz Consulting. It is not for official use and should be used for planning purposes only. Data was derived from Schenectady County Department of Economic Development and Planning and the NY Statewide Digital Orthoimagery Program.



## Preliminary Preferred Alternative Concept

The preliminary preferred alternatives concept involved reviewing the options and considering the design guidance related to different types of bicycle and pedestrian facilities on different road types and the minimum required width of each type of facility. In addition, the Consultant Team was tasked with staying within the framework of the objective to minimize additional width of any future cross sections to limit impacts or changes to properties fronting Freemans Bridge Road.

As such, the Town has stated that their preliminary preferred alternative is to enhance the corridor to be more consistent with Complete Streets principles while generally maintaining the number of travel lanes that exist today, including maintaining left turn lanes where they currently exist. The one exception is at the intersection with Maple Avenue. Today, two through lanes approach this intersection on northbound Freemans Bridge Road, and thereafter one lane drops out to result in one northbound through lane over the remainder of the corridor to Route 50. It is proposed that the northbound Freemans Bridge Road 2-to-1 lane merge occur earlier, in advance of the intersection (e.g. south of Maple Avenue). In addition to potentially relocating the merge, the most significant interventions proposed to be provided in the corridor through this study are the construction of a physically separated sidepath along one side of Freemans Bridge Road and a sidewalk along the opposite side, with associated streetscaping elements provided.

The sidepath (and potentially the sidewalk) will vary in separation distance from the roadway depending on the

segment and existing conditions and, wherever feasible, be designed to incorporate green infrastructure/stormwater management elements between the path or sidewalk and the road consistent with the green stormwater infrastructure objective for future enhancements. The sidepath and sidewalk proposal seek to minimize the expense related to utility pole relocation and/or tree removal, for instance, allow for variation depending on the current site layout (such as if the site has a structure close to the road), and allow for flexibility in design for locations where the sidepath crosses roadways. Designs at the north and south gateway areas (at Route 50 intersection and Freemans Bridge) will likely have a different design with an option for median gateway treatment(s) that could include a center planted or raised median. Though not part of the Study Area, we are recommending enhancing the existing pedestrian facility on the west side of Freemans Bridge to provide a physically separated 2-way bike and pedestrian facility to better connect the Town of Glenville with the City of Schenectady.

To assist in visualizing the designs and understanding some of the opportunities and issues with each, the Consultant Team provided the Town with draft cross section graphics, a map showing where each could be utilized, and related write-ups. Using that information, the Town identified preferred alternatives and this chapter details the alternative, options and considerations, examples of similar design(s), and graphics and representative cross sections that detail the preferred future for the Freemans Bridge Road Corridor.

### Analyzing the Corridor

After an initial assessment of the corridor, it was quickly determined that the different conditions along the corridor was going to require different design applications. As such the corridor was divided into three segments - South, which



The intersection of Freemans Bridge Road and Maple Avenue is the widest, by far, of any intersection on the corridor.





The Northern Section of the Study Area terminates at Route 50 where a roundabout has been previously proposed.

extends from Freemans Bridge to Maple Avenue; Middle, which extends from Maple Avenue to Dutch Meadows Lane; and North, which extends from Dutch Meadows Lane to State Route 50. Even with this breakdown of the corridor because of the land development pattern and roadway characteristics, there are unique elements within each section that required additional consideration. In addition, this project assessed the areas to the north and south of the Study Area and beyond the Study Area, as it was logical to assess connectivity and associated existing conditions that immediately connect to Freemans Bridge Road. The following sections detail the Freemans Bridge Road Concept Plan and ideas for areas outside the Study Area.

## Specific Design Elements and Options

The current proposal is for the sidepath to be placed along the western side of Freemans Bridge Road (FBR) from Freemans Bridge (where it would directly connect to the existing off-road multi-use trail and could connect to an improved pedestrian and bicycle connection over Freemans Bridge) to Dutch Meadows Lane, at which point it is recommended that the sidepath shift to the eastern side of FBR both to avoid some of the constraints north of this point (like utility poles and street trees) on the western side of FBR that would be an issue for a sidepath but not necessarily a sidewalk. This will also line up the sidepath with Route 50 northbound at the north end of the Study Area allowing cyclists (and pedestrians) to choose to either continue up Route 50 or use a combination of Airport Road, Tech Park Road, Rudy Chase Road, and the Hampton Run apartments non-vehicular connection as a “parallel route” to continue north and access Socha Plaza, the Town Center shopping opportunities, Town Hall, and the Library.

Along the eastern side of FBR from Freemans Bridge to Dutch Meadows Lane, the project envisions a sidewalk. Again, at Dutch Meadows Lane, the sidewalk would transition to the western side of the road to utilize the existing sidewalk in front of the Speedway and to provide a pedestrian facility that will require less width through the constrained area(s) along the west side of FBR north of Dutch Meadows Lane (see Sidepath & Sidewalk Location Concept Map on Page 60). This transition to opposite sides of the road is not absolutely necessary as the roadway could potentially be realigned to provide space for the sidepath, but it does appear this transition would likely reduce constraints issues and costs. These would be reduced by likely eliminating the potential need to shift Freemans Bridge Road eastward away from structures close to the western side of Freemans Bridge Road in order to incorporate a sidepath and by reducing the number of utility pole relocations & tree removals as these should be able to be incorporated into the physical separation area between the road and the sidepath. It is also important to note that although the sidepath will switch sides, as a pedestrian there will be continuous facility (sidepath or traditional sidewalk) on both sides of the corridor throughout; therefore, a pedestrian will not be forced to cross Freemans Bridge Road where the sidepath transitions.

Our rationale for recommending a sidepath is grounded in the recommendations of the FHWA guidebook which shows that roads with volumes and speeds such as those found along all of Freemans Bridge Road are not generally recommended for on-street facilities. Such guidance is corroborated by the “Bicycle Level of Traffic Stress” methodology, which would rate Freemans Bridge Road as a “4” (highest stress) throughout its length (see Existing Conditions for further information). Provision of a sidepath

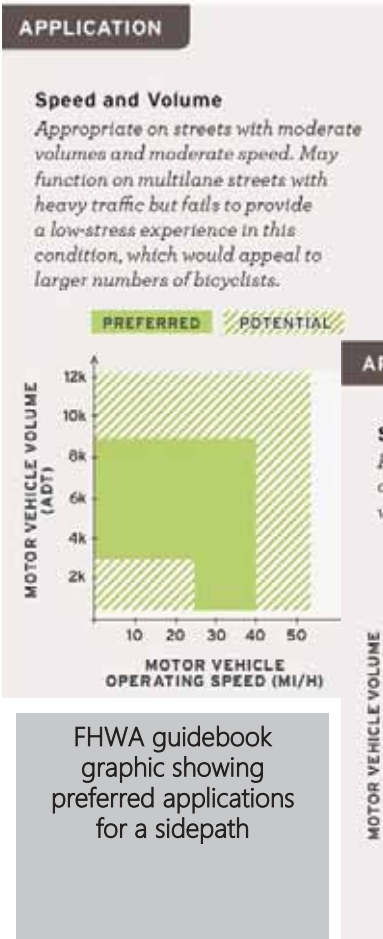
with appropriate intersection controls would reduce the “Bicycle Level of Traffic Stress” significantly and serve to attract a far greater range of riders of all ages and abilities.

On a related note, our assessment of the corridor crash history (from 2012-June 2017 – see Existing Conditions for further information) found that the crash rate is slightly to moderately higher than similar facilities in New York State. During this period, there were three crashes involving pedestrians, but no fatalities. Additionally, the NYSDOT Traffic Data Viewer data from the most recent Speed Count Average Weekday Report (2015) shows that the 85<sup>th</sup> percentile speeds average 42.9 mph northbound and 41.2 mph southbound but can reach as high as the mid- to high-40s throughout the day.

**Volumes & Speeds on Freemans Bridge Road:**

*Speed Limit: The posted speed limit on Freemans Bridge Road is 40 mph, outside the preferred motor vehicle speed for an on-street standard painted bike lane.*

*Traffic Volumes: Volumes vary depending on the segment – based on the 2015 CME Traffic Study the total volumes in the north end are 14,000 south of Airport Road, 17,925 south of the Lowe’s Driveway, and 25,400 south of Sunnyside Road. These volumes are well above the preferred motor vehicle volume for an on-street standard bike lane.*



The Freemans Bridge Road speed limit is 40 mph. Speeding was not found to be a significant issue in the corridor.





The west side of Freemans Bridge Road is generally more constrained than the east side in the Northern Section.

## Northern Section

Width constraints are an issue in this section, particularly on the west side of FBR (as shown in the picture above where the structure is close to the road and utility poles are close to the existing roadway), though they ease up approaching Rt. 50. Vehicle volumes remain on the high-end (14,000) and vehicle speeds are higher. According to the count done by the Town in June 2017, the 85th percentile speed was 41 mph in this section. Due to vehicle volumes, speeds and related safety concerns, a sidepath is recommended in order to reduce the high level of traffic stress imparted on bicyclists today, or the similar high levels of stress in the case of a painted, on-street (unprotected) bike lane or wide shoulder. The gateway treatment in this location may require widening (beyond that shown in the included sketch cross section) to provide a center median. The design will be dependent on any future intersection improvements.

North of Freemans Bridge Road, Route 50 is a designated bicycle route. However, thinking about connectivity within and beyond the corridor, the addition of a proposed sidepath along the east side of Freemans Bridge Road will provide significantly better access for bicyclists (and pedestrians) and as such create a much more significant bicycling element along the corridor. From the Freemans Bridge Road/Route 50 intersection there is also an opportunity to provide an additional bicycle facility that would cater to those less willing to ride along Route 50. A new on-road bike route could be created to the Town Center by using Airport Road, Tower Road, Tech. Park Road, and Rudy Chase Drive. This route provides a much quieter potential route than riding along Route 50, however, at the north end of Rudy Chase Drive the route lacks an existing connection to the Town Center. This should not deter the concept of providing a lower volume route option for



Airport Road looking east from the Route 50 intersection.

bicyclists to connect this corridor to the Town Center, but options for creating the connection for the last few hundred yards will need to be investigated and efforts should be made to make this low-cost, higher-impact option a reality.

## Gateway Enhancements

The North Section at Route 50 is the gateway to Freemans Bridge Road from the north. The area generally between the intersection and the end of the runway fencing (ending before Oliver's Café) is envisioned to undergo median gateway treatments, particularly with the construction of a roundabout at the intersection.

It is proposed that this area be transformed to include a raised planted median, the same as the one developed in the South Section, to serve as a visual cue that travelers are entering Freemans Bridge Road. If a roundabout is not constructed, the gateway elements, sidewalk and sidepath can and should still be installed.

Again, such an improvement will create a sense of place. It will help set the tone for drivers to expect something different when entering the corridor – a feeling that should

enhance the awareness of the potential for other users along the corridor.

## Middle Section

Constraints increase here due to roadway width reduction compared to the South Section. Vehicle volumes remain on the high-end (18,875) though speeds, according to the count done by the Town in June 2017, showed the 85th percentile speed was under the 40-mph speed limit in this location. Nonetheless, based on vehicle volumes, the desire to provide a safe facility for all users, provide design consistency along the corridor, and eliminate the need to transition from one-way on-street facilities to two-way separated facilities, a sidepath is also recommended for this section.

## Southern Section

This section of the corridor includes a 5-lane cross section. Vehicle speeds - informally found by driving the corridor numerous times and corroborated through public input at the first Public Workshop - were found to be above the speed limit, though no recent speed counts are available to confirm this finding. This section also has the highest vehicle volumes in the corridor (25,400). This section features a direct connection to the existing multi-use trail to Scotia and just to the south of the Study Area, a raised sidewalk on the western side of Freemans Bridge. A gateway treatment is proposed in this location to be constructed within the existing crosshatch painted area just north of Freemans Bridge. The Maple Avenue intersection area is the only one where a change in the number of travel lanes is proposed. As such, a detailed assessment of the preferred concept with the lane changes is provided below.



Example of a curbed, wide, grassy planted median on Erie Boulevard in Schenectady, NY.



Example of a raised median on a 4-lane roadway in Buffalo, NY.



Freemans Bridge Road Railroad Crossing - this crossing is in bad shape and is scheduled to be upgraded in the near future.





The section of Freemans Bridge Road is unique in that it has 4 travel lanes and a center lane or turn lane.

The Mohawk-Hudson Bike-Hike Trail from FBR to Scotia also needs rehabilitation. Development of an underpass raised platform to reduce potential closures of the bike path due to flooding inundation, the debris left behind, and that reduces maintenance needs related to flooding should be considered.

Related to the underpass improvements, pedestrian safety improvements across Freemans Bridge Road at the foot of Freemans Bridge should be provided for the existing on-road pedestrian crossing that is utilized instead of the underpass. This would include prioritization of the recommendation to construct a planted median as shown in the Concept Plan, addition of a painted crosswalk, pedestrian crossing signs on each vehicular approach, and potentially an RRFB, Hawk, or similar pedestrian-activated signal.

### Removal of a northbound lane of Freemans Bridge Road at Maple Avenue

The Consultant Team recommends removal of one northbound through-lane in advance of the intersection with Maple Avenue. Today, a lane drop occurs after the intersection, resulting in a merge that occurs immediately after the signal and thus resulting in a significant imbalance in lane usage prior to the intersection. Drivers familiar with the corridor today avoid the middle lane and instead use the left-most lane so they do not have to merge left following the intersection. This feature was expressed as a concern by multiple Public Workshop attendees and there have been several comments about crash rates at Sarnowski Drive by the Study Advisory Committee. The included crash map (see Chapter 3) shows this site as a higher crash location. This proposal will result in a reduction to a single lane just north of Maple Avenue, or alternatively use of the existing right lane as a turn lane to access Stewart's.

Because the lane "drops out" anyway, such a move is unlikely to have a major impact on vehicle circulation but would nonetheless result in significant safety benefits at the Freemans Bridge Road/Maple Avenue intersection, through a reduced cross section (i.e. shortening east-west pedestrian crossing distances) and by clarifying that once a motorist has passed north through the Freemans Bridge Road gateway after crossing Freemans Bridge that the roadway is not intended to be a multi-lane speedway but rather a tamer Complete Street.

Based on an assessment of the traffic model, the Consultant Team does not anticipate a significant decrease in Level of Service by this change (see anticipated operational impacts discussion further into this section regarding northbound vehicle queuing in a 95th percentile worst-case scenario), and we believe it might also help improve safety outcomes at Sarnowski Drive through traffic calming measures further south on FBR.

### Northbound Approach to Maple Avenue Details

The following description includes:

- Detailed description of the treatment proposal at Maple Avenue intersection;
- Traffic volumes during AM and PM weekday peak hours;
- Projected operational results through Synchro modeling of today's condition and the preferred alternative (e.g. one northbound lane removed); and
- Diagrams showing lane configurations, signal timing, and phasing under existing and proposed conditions at the intersection under existing traffic volumes as well as under future projected traffic volumes.

**Synchro Model Results:** While the Synchro model projects a slight deterioration in operational results (most notably during the PM peak) utilizing current volumes, the results generally do not create a condition with unacceptable levels of delay or congestion (see anticipated operational impacts note below regarding northbound vehicle queuing in a 95th percentile worst-case scenario). In fact, during most times of the day, it is likely that traffic operations will see almost no material change that would be observed by the average motorist. In exchange for this fairly minimal impact, the Consultant Team sees an opportunity to reduce roadway width (and in concert reduce vehicle speeds due to motorist perception of the roadway) and potentially bring increased safety outcomes in the form of reduced crash rates and severities and shorter pedestrian crossing distances, along with the introduction of green infrastructure.

Looking forward to future projected conditions, there is a noticeable increase in delay at Maple Avenue northbound, however this is a trade-off that the Town believes is acceptable to accomplish the Complete Streets objectives of this project. While the Level of Service (LOS) and amount of delay increases and is notable in the chart, the reality is that the delay is not all that severe – it is less time than required to get a coffee in the morning, walk from your car to your office, or likely from your house to your mailbox at the end of the driveway or to get through a toll booth during rush hour. It is with this perspective that the additional potential delay in the projected future condition at Maple Avenue is considered as a rational trade-off to create the desired Complete Streets concept and provide mobility options for everyone. Delay is all about perspective – an additional half-minute is really not a lot in the scheme of a commute home, even a local trip – and this added delay is only projected for peak hours – not all times of the day. Recommended changes include the following:

- The northbound approach towards Maple Ave is reduced from 2 through lanes + 1 right-turn lane to 1 through lane + 1-right-turn lane.
- The existing left-most through lane remains in place.
- The existing right-most through lane is converted into a right-turn only lane to Maple Ave
- This lane is carried back to the intersection with Sunnyside Road, providing two receiving lanes on Freemans Bridge Road just north of this intersection (as exists today).
- The existing right-turn only lane is removed from the vehicle network and space is used for plantings and sidewalk installation.
- The stub bike lane is removed from northbound approach, and curb associated with sidewalk construction extends to the west edge of what is today the stub bike lane.

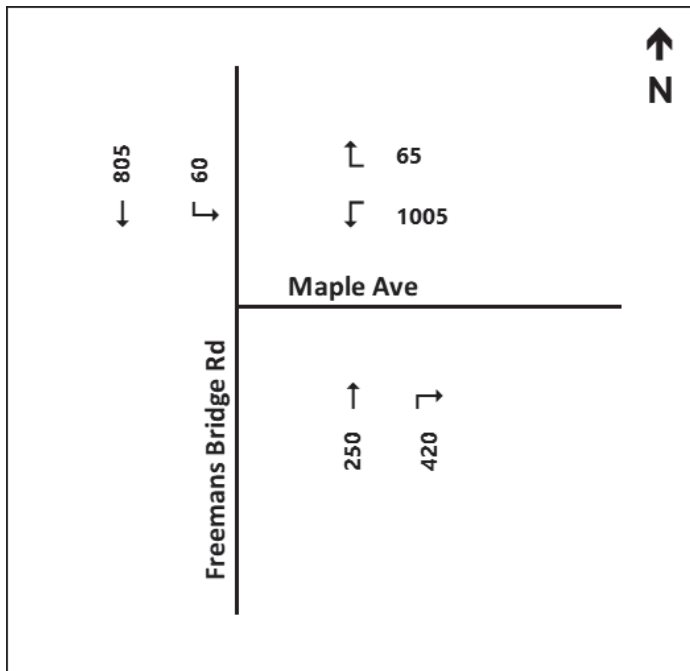
Note: The bike facility is relocated to a sidepath as part of a continuous 2-way bike facility.

- There are no changes proposed to the southbound geometry (2 through lanes + 1 left-turn lane).
- Sidepath installation occurs on the west side of Freemans Bridge Road.
- Crosswalks are added to north, south, and east legs of intersection.
- As a result, the northbound right-turn only lane no longer receives solid green right-turn arrow during Maple Ave green phase to accommodate pedestrians using the south crosswalk.

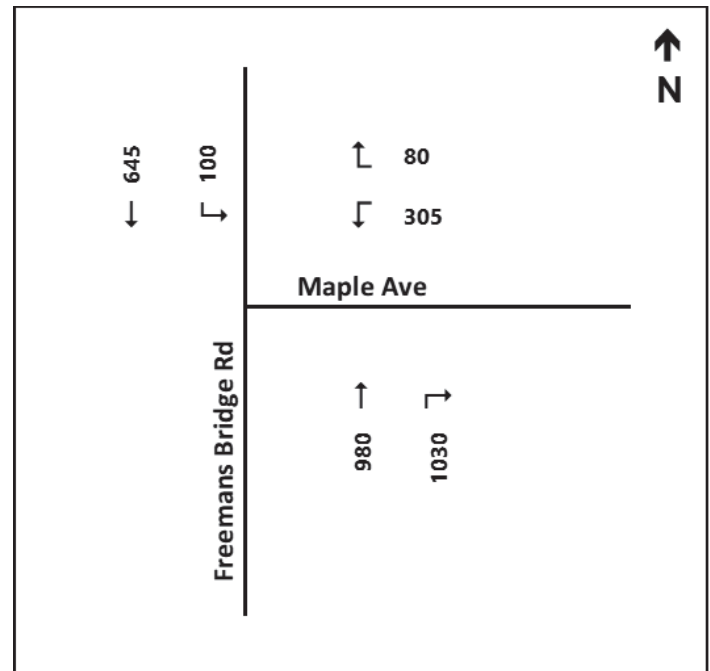


Freemans Bridge Road & Maple Avenue Existing Intersection. (NY Statewide Digital Orthoimagery Program)





Left: Weekday AM Peak Hour.



Right: Weekday PM Peak Hour.

- The right lane north of Maple Avenue is removed and this section of the road is reduced to a single lane northbound.
- The conceptual diagrams (see Page 73) overlaying an aerial of the intersection illustrates proposed lane configuration for this planning level study.
- Should the proposal merit additional investigation, upon implementation more detailed, geometric designs and lane marking plans would need to be prepared in conjunction with other civil design drawings of Phase 1 of the FBR Complete Streets treatment along the southern portion of the study corridor.

### Anticipated Operational Impacts

- There is a slight deterioration in Level of Service and anticipated delay per Synchro model (most notably during the PM peak).
- The northbound approach modelled from LOS B to LOS D during PM peak.
- Overall the intersection changes from LOS B to LOS C during PM peak, but remains at LOS B in AM peak under existing and proposed condition.
- The Synchro model projects a 95th percentile queue length for northbound through movement of approximately 950 feet during PM peak.
- The modelled queue length would exceed the distance between Maple Ave and Sunnyside Road (approx. 800 feet).

- However, the Synchro model assumes that each vehicle takes up 25 feet in length in the queue, which equates to 38 vehicles in the 95th percentile queue.
- The 25-foot assumption is very conservative, especially in a scenario of greatest congestion. Using a still conservative 20-foot queue space requirement per vehicle, the 95th percentile queue length would be 760 feet, which is within the block of Freeman's Bridge Road between the two intersections at Maple Ave and Sunnyside Road.
- This modelled queue length would only occur during the 5% worst times during the PM peak hour; at a vast majority of the day, the queue length would certainly not intrude back to the Sunnyside Road intersection.
- Signal timing adjustments could be pursued, if necessary, if unacceptable queueing lengths do result following implementation.

### Existing Traffic Volumes

Information to the right was extracted from the 2015 Traffic Evaluation [of] Freeman's Bridge Road conducted by Creighton Manning Engineering (CME). During the morning, volumes are highest in the westbound direction (from Maple to Freeman's Bridge Road) and the reverse holds during the evening peak hour. Further discussion of traffic volumes is available in Chapter 3.

With the proposed northbound lane drop under the Preferred Alternative, the northbound approach in particular does experience an increase in vehicle delay compared to

Tables 4 & 5: Existing and Preferred Alternative with *Existing* Traffic Volumes

	Weekday AM Peak Hour									
Intersection & Approach	Existing					Preferred Alternative with Existing Traffic Volumes				
	Lane Group	v/c Ratio	Delay (sec)	LOS	Queue Length (ft)	Lane Group	v/c Ratio	Delay (sec)	LOS	Queue Length (ft)
Freemans Bridge Road & Maple Avenue										
Westbound	LR	0.69	17.3	B	321	LR	0.75	21.7	C	376
Northbound	T	0.33	27.1	C	104	T	0.55	30.3	C	225
	R	0.34	0.9	A	15	R	0.61	6.5	A	76
	Approach		10.7	B		Approach		15.4	B	
Southbound	L	0.18	18.4	B	50	L	0.19	16.5	B	49
	T	0.68	23.9	C	277	T	0.63	20.9	C	277
	Approach		23.6	C		Approach		20.6	C	
	Intersection		17.7	B		Intersection		19.7	B	
Notes: L = Left Turn, T= Through, R = Right Turn, DefL = Defacto Left Turn; LOS = Level of Service.										

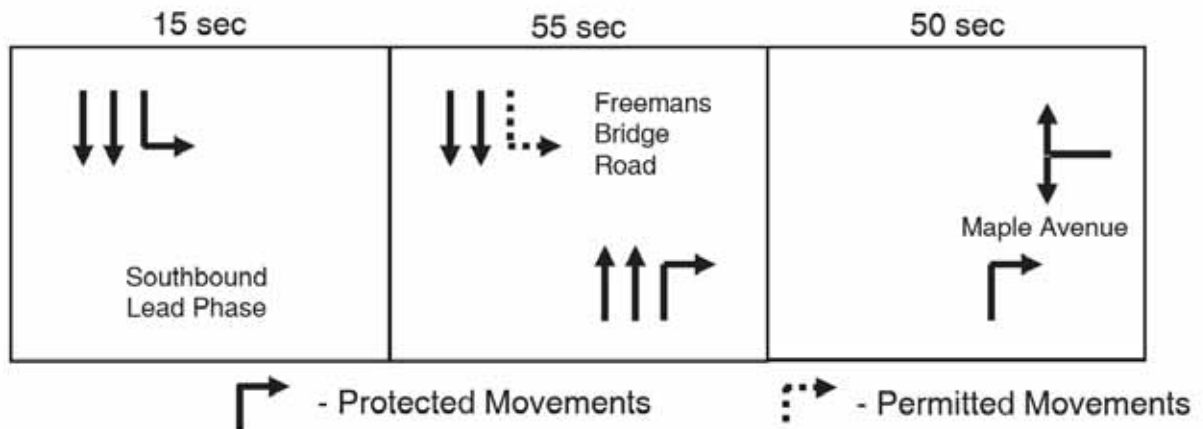
	Weekday PM Peak Hour									
Intersection & Approach	Existing					Preferred Alternative with Existing Traffic Volumes				
	Lane Group	v/c Ratio	Delay (sec)	LOS	Queue Length (ft)	Lane Group	v/c Ratio	Delay (sec)	LOS	Queue Length (ft)
Freemans Bridge Road & Maple Avenue										
Westbound	LR	0.42	25.3	C	145	LR	0.64	35.5	D	151
Northbound	T	0.60	19.9	B	423	T	1.00	48.5	D	950
	R	0.77	6.4	A	271	R	0.96	29.0	C	754
	Approach		13.0	B		Approach		38.5	D	
Southbound	L	0.36	12.7	B	68	L	0.51	18.2	B	61
	T	0.33	10.1	B	194	T	0.28	5.4	A	101
	Approach		10.5	B		Approach		7.1	A	
	Intersection		13.9	B		Intersection		30.7	C	
Notes: L = Left Turn, T= Through, R = Right Turn, DefL = Defacto Left Turn; LOS = Level of Service.										

the existing condition, most notably during the Weekday PM peak hour (LOS B to LOS D). However, the overall intersection would only change from LOS B to LOS C in the PM peak hour and would remain at LOS B during the AM peak hour (and presumably the impact would be minimal at most other times of day when traffic volumes are equally as light or lighter).

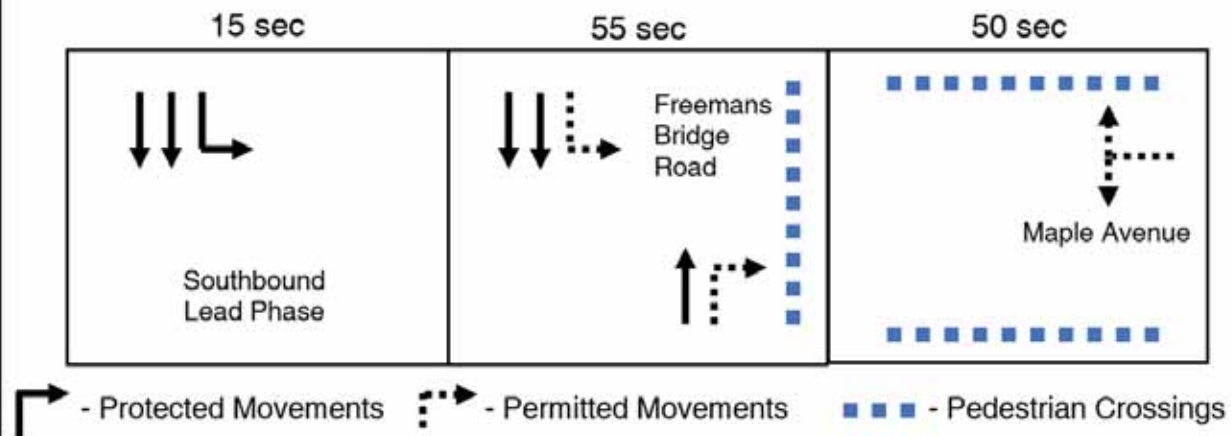
*All things considered, the results of the Preferred Alternative has a fairly minimal impact on traffic operations – the approach still functions acceptably with under 1 minute of average delay at peak times, and far less at all other times of day.*



### Existing Signal Timing/Phasing: Freemans Bridge Road & Maple Avenue



### Proposed Signal Timing/Phasing: Freemans Bridge Road & Maple Avenue



A summary of lane configurations, signal timing, and phasing is presented above under existing conditions and under the proposed preferred alternative. The existing signal phasing plan would be modified slightly. With the addition of crosswalks at the intersection, the existing northbound "overlap" phase would no longer be feasible. Additionally, turning vehicles would have to yield to pedestrians in the crosswalk; therefore, these turning movements would be modified from protected to permitted.

### Testing of Preferred Alternative with Projected Future Traffic Volumes

A project coordination meeting was held with Town of Glenville staff, NYSDOT, CDTC, and the Consultant Team on 1/17/2018. One of the outcomes of the meeting was to look at projected future traffic volumes (not just existing volumes) under the preferred alternative. A review of the 2015 CME Traffic Evaluation for Freemans Bridge Road found that a

0.5% annual background growth rate for traffic volumes was applied over 10 years. These factors were already in place in the Synchro model received. As discussed, the analysis up until now had been focused on conditions on the ground today. (Note: the volumes applied for "today" e.g. 2017/2018 were approximated based in 2015 volumes in the CME Study.

Based on this review and discussions at the meeting, the analysis below was undertaken. It applies the CME 10-year projected volumes via 0.5% annual growth rate to estimate potential operational impacts as of 2027 at the subject intersection of Freemans Bridge Rd and Maple Ave.

The tables at right show weekday AM and PM peak hour results. The left side shows the existing configuration (with 2 northbound through lanes and 1 northbound right turn lane) and the right side shows the preferred alternative configuration (with 1 northbound through lane removed).

The tables show a similar pattern to the results found using existing traffic volumes. There are no notable issues in the preferred alternative during the less busy AM peak, but the PM peak shows similar deterioration in operations, particularly for the northbound approach. In this case, the northbound through movement shows LOS E (note: compared to LOS D in the preferred alternative when using today's traffic volumes). Similarly, the 95th percentile queue length as modeled shows a value of 1,041 feet which is over the 800-foot distance between the Maple Avenue and Sunnyside Road intersections. This would indicate spillback into the intersection at Sunnyside Road.

However, the Synchro model assumes that each vehicle takes up 25 feet in length in the queue, which equates to 42 vehicles in the 95th percentile queue in the preferred alternative in the year 2027 (note: the model showed 38 vehicles in the worst-case queue of 950 feet as of today under the preferred alternative).

Again, the 25-foot assumption is very conservative, especially in a scenario of greatest congestion. Using a still conservative 20-foot queue space requirement per vehicle, the 95th percentile queue length would be 833 feet. This is just above the distance of the block of Freemans Bridge Rd between the two intersections at Maple Avenue and

Tables 6 & 7: Existing and Preferred Alternative with *Future* Traffic Volumes

	Weekday AM Peak Hour									
Intersection & Approach	Existing Configuration with Future 2027 Traffic Volumes					Preferred Alternative with Future 2027 Traffic Volumes				
	Lane Group	v/c Ratio	Delay (sec)	LOS	Queue Length (ft)	Lane Group	v/c Ratio	Delay (sec)	LOS	Queue Length (ft)
Freemans Bridge Road & Maple Avenue										
Westbound	LR	0.71	18.1	B	360	LR	0.76	22.2	C	425
Northbound	T	0.34	28.2	C	109	T	0.58	32.6	C	236
	R	0.35	1.0	A	15	R	0.62	6.6	A	77
	Approach		11.1	B		Approach		16.3	B	
Southbound	L	0.19	19.2	B	52	L	0.21	17.9	B	51
	T	0.73	26.3	C	294	T	0.68	23.6	C	295
	Approach		25.8	C		Approach		23.2	C	
	Intersection		18.9	B		Intersection		21.0	C	
Notes: L = Left Turn, T= Through, R = Right Turn, DefL = Defacto Left Turn; LOS = Level of Service.										

	Weekday PM Peak Hour									
Intersection & Approach	Existing Configuration with Future 2027 Traffic Volumes					Preferred Alternative with Future 2027 Traffic Volumes				
	Lane Group	v/c Ratio	Delay (sec)	LOS	Queue Length (ft)	Lane Group	v/c Ratio	Delay (sec)	LOS	Queue Length (ft)
Freemans Bridge Road & Maple Avenue										
Westbound	LR	0.44	26.7	C	153	LR	0.66	36.0	D	160
Northbound	T	0.65	22.2	C	452	T	1.06	66.8	E	1041
	R	0.84	9.8	A	391	R	1.01	42.2	D	841
	Approach		15.8	B		Approach		54.2	D	
Southbound	L	0.41	14.3	B	71	L	0.54	19.8	B	68
	T	0.34	10.7	B	205	T	0.30	5.7	A	110
	Approach		11.2	B		Approach		7.6	A	
	Intersection		16.1	B		Intersection		40.9	D	
Notes: L = Left Turn, T= Through, R = Right Turn, DefL = Defacto Left Turn; LOS = Level of Service.										





This is where the existing right turn lane would become a sidewalk and the right through-lane would become a right turn lane.

Sunnyside Road. It is also the worst-case queue during the most congested hour of the day; at a majority of the time, the queue will be shorter.

Similar to the findings under existing volumes, this analysis using 2027 estimated traffic volumes shows:

- The modelled queue length would only occur during the 5% worst times during the PM peak hour; at a vast majority of the day, the queue length would certainly not intrude back to the Sunnyside Road intersection.
- Signal timing adjustments could be pursued if necessary if unacceptable queueing lengths do result following implementation.
- Furthermore, the growth projection is just that: a projection. Adjustments can be made as conditions change moving forward and drivers may also adjust their own behavior to adapt to actual conditions in the future.

Overall, while the Synchro model projects a slight deterioration in operational results (most notably during the PM peak), the results generally do not create a condition with unacceptable levels of delay or congestion. Like the projection made for the present day, during most times of the day in the 2027 scenario, it is likely that traffic operations will see almost no material change that would be observed by the average motorist. In exchange for this fairly minimal impact, the Consultant Team sees an opportunity to reduce roadway width (and in concert reduce vehicle speeds due to motorist perception of the roadway) and potentially bring increased safety outcomes in the form of reduced crash rates and severities and shorter pedestrian crossing distances, along with the introduction of green infrastructure.

## Analysis of a Modified Preferred Alternative Configuration for North of the Maple Avenue Intersection

One item discussed was to analyze changing the Preferred Alternative for the rightmost lane (northbound Freemans Bridge Road) from a right-turn only lane to a through and right lane. The Synchro results of this move actually show worse northbound PM peak LOS and queue lengths in all scenarios (2017 and 2027); this is likely the result of the heavy demand for the right-turn onto Maple Ave and accompanying friction with the few vehicles that are modeled as going straight here. As a result, the Consultant Team is confident the preferred alternative configuration presented would strike the best balance in potential benefits vs. limiting operational impacts.

The result of all this analysis is a recommendation that the stretch of road between Sunnyside Road and Freemans Bridge Road change to become the location where the northbound lanes transition from two through-lanes to one, and that this single lane northbound be carried through the intersection and north to where the road is currently only one northbound lane. The preferred future alignment is shown in the top image to the right. Two other options are shown below the preferred alignment.

This change will not only improve safety at Maple Avenue, it will improve safety north of the intersection with Maple Avenue as it would eliminate the merge occurring where there are also turning movements into and out of both Stewart's and Sarnowski Drive.

## Bicycle Accommodations

On-street bicycle lanes are absolutely not the preferred treatment for a cross section with vehicle volumes over





This schematic shows the preferred concept with one lane north of Maple Avenue. Sidewalk and grass strip will replace the lane.



Left: Maintains all lanes north of the intersection.

Right: Right lane becomes a turn lane for Stewart's.

- The recommendations in this study are conceptual in nature and do not commit NYSDOT, Town of Glenville, CDTC, or Schenectady County to the proposed project(s).
- The concepts presented in this illustration may need to be investigated in more detail before any funding commitment is made.
- Undertaking additional engineering or other follow up work will be based upon funding availability.

*Note: Though Freeman's Bridge Road north of Maple Avenue is part of the Middle Section of the Corridor, the lane redesign proposal north of Maple Avenue is directly tied to the southern section design and thus included in the southern section write-up.*





### Recommendations

- 1 A multi-use path can be installed in the wide planted area to provide accommodations for bicyclists and pedestrians. Paths should feature lighting and be well marked at intersections and driveways.
- 2 A bus pull-out, while not ideal in an urban setting, is appropriate along an arterial corridor to reduce weaving from motorists. Bus stops should always be accessible for all users.
- 3 Narrowing travel lanes can help reduce travel speeds while maintaining vehicle capacity.
- 4 Defined turning lanes are preferable to bi-directional turning lanes (where possible). A curbed median can also provide a pedestrian refuge.
- 5 If insufficient space exists for a multi-use path, the addition of continuous sidewalk in a strip commercial corridor can dramatically improve pedestrian safety and mobility. Sidewalks/paths should be provided on both sides of the roadway if possible.



A buffered bicycle lane is an appropriate treatment for commercial strip corridors that feature travel speeds under 40 mph. With higher speeds and volumes (particularly on multi-lane roadways) a striped bicycle lane does not provide a low-stress facility that is comfortable for all users.

*Example Image:* The image at left from the 2017 New Jersey Complete Streets Design Guide (<http://njbikeped.org/wp-content/uploads/2017/05/Complete-Streets-Design-Guide.pdf>) quite effectively shows the overall cross section design that this Concept Plan is generally promoting for consideration along Freemans Bridge Road. This design provides a sidepath along one side of the road and a sidewalk along the other side with street trees, lighting and a mixed use landscape consistent with small businesses close to the road and larger big-box stores set further back as they currently are with Lowe's and Walmart.

25,000 and the 40-mph posted speed limit in this segment (or the field view assessed actual speeds) based on the charts above. A sidepath or separated bike lane is a preferred design option for safety concerns and certainly for user friendliness and drawing in bicyclists who may be "interested but concerned" (e.g. over 60% of the population). The Consultant Team believes that a separated facility such as a sidepath on the western side of FBR would be a welcome extension of the existing trail and show Town dedication to the use of the trail – another selling point for a future trail improvement funding application.

## Gateway Enhancements

The South Section at the foot of Freemans Bridge is the gateway to Freemans Bridge Road and the Town of Glenville from the south. The area generally between the foot of the bridge and the beginning of the Maple Avenue turn lane consists of minimal curb cuts, 4-travel lanes and a minimally-used center turn lane.

It is proposed that this area generally be transformed from an unused painted median to a low-maintenance raised planted median that serves as a visual cue that travelers are entering the Town. A left turn lane would be required into

the State Boat Launch and the Lighthouse Restaurant and Hotel use. Further consideration of whether or not to allow left turn lanes would be required as it would also modify the center turn lane improvement design.

Such an improvement will help enhance the sense of place. It will help set the tone for drivers to expect something different when entering the corridor. This gateway feature should generally be replicated at the north end of the corridor where Freemans Bridge Road meets Route 50, especially when the roundabout is constructed.

## Corridor-Wide Recommendations

### Transit Recommendations

- Opportunities for bus stops are located in Chapter 5 - Map #12. Installation of adequate pedestrian infrastructure is vital to the ability to provide transit in the corridor and for the siting of bus stop locations. The locations shown on the map represent locations that generally provide adequate area to create a pull-off and that are centrally located to capture riders from many different businesses and opportunity areas.

- Given that buses currently run empty along Freemans Bridge Road headed north to other areas and to the Maxon Road garage headed south, there is seemingly an opportunity to talk with CDTA about adding stops along the corridor.

## Land Use and Zoning Recommendations

The following recommendations for land use and zoning will assist in creating a “sense of place” along Freemans Bridge Road. The recommendations will support the idea of enhancing economic development by revising zoning to permit a better mix of uses that can transform the corridor into a walkable and bikeable live/work/play location.

- Review setback requirements along the Freemans Bridge Road Corridor, as there is significant variation in setbacks between older structures and newer ones, and ensure that zoning standards provide the desired setback distance to make this a more pedestrian-oriented corridor.
- Consider retail sizes along the Corridor—is big box or smaller-scale retail preferred? This preference can help further refine whether square footage requirements for commercial are desired and what type of commercial is likely to come in to the corridor.
- Rezone to permit mixed-use development along Freemans Bridge Road. Mixed-use zoning promotes more activity throughout the day and enhances the ability to create a better sense of place.
- Review and update the 2004 Landscape Manual as-needed. The landscape standards should require new

landscaping to be installed at the time of development per the Town’s requirements. Waivers for design type elements should be eliminated as the ability to install these elements after-the-fact is much more difficult. Currently a 3-foot grass strip is required. The Concept Plan uses a 4-foot grass strip to accommodate street trees (this width will create a more successful environment for street trees).

- Update the sidewalk width requirement in regulations and the 2004 Town of Glenville Design Manual. It is recommended that the current standard be changed from a 5-foot to a 6-foot minimum for ADA accessibility.
- Consider adding lighting standards to the zoning ordinance.
- While new development is mostly found along the frontage on Freemans Bridge Road, the bulk of the development potential is in large lots one parcel (or more) back from the road. A zoning assessment for this area to determine if the zoning is appropriate to encourage additional development should be undertaken.
- The access management recommendations in Chapter 5 could be added to the Subdivision and Land Development Ordinance.
- Given that the 100-year floodplain is located near Mohawk River and around Freemans Bridge Road/ Maple Avenue intersection, resiliency measures and requirements for new development in these areas should be considered.



Freemans Bridge crossing the Mohawk River.





New development along the river adjacent to the NYSDEC boat launch and kayak dock.

## Streetscape Recommendations

A consistent streetscape landscape design, varying where necessary to handle constraints, is a key element of Complete Streets that can be easily implemented on many of the parcels throughout the corridor - particularly those with large grassy areas between structures/parking and Freemans Bridge Road. Installation of landscaping should be done as part of a comprehensive Complete Streets Concept Plan landscaping plan for the corridor. While piecemeal installment of landscaping can be done and installment should be done whenever possible, it should be done consistent with a detailed plan so as to not create a conflict with another element of the Concept Plan.

Related to landscaping installation is lighting installation. Lighting along the corridor should also be installed consistent with a plan that creates a consistent design along the corridor. A review of the 2003 Town of Glenville Design Manual is suggested to confirm whether the recommendations in the document are still desired for the Town.

In addition, lighting across Freemans Bridge would help to not only increase the sense of place and enhance gateway design, but it would improve safety for pedestrians crossing the bridge at night. The City of Schenectady has undertaken an effort to light up bridge underpasses and while their efforts are not the same situation as Freemans Bridge (i.e. lighting above the bridge vs. below) the rationale is the same – increased visibility and safety (as well as being a streetscape/design feature). Coordination with the City, Metroplex, National Grid, and others regarding lighting Freemans Bridge could be undertaken to build off the work they have already begun and create some consistency with their efforts.

Other streetscape amenities such as banners hanging from light fixtures (as in the photo below), hanging baskets with flowers or other live plantings, planters, benches, trash receptacles, and bike racks will add to the corridor's sense of place. Again, a consistent look and design will enhance the corridor's identity. Opportunities for decorative, low maintenance crosswalks should also be considered during the engineering phase of this project.



Light fixture and banner in the Town Center area. A similar lighting style is preferred for the Freemans Bridge Road corridor to bring about a consistent design scheme.

## Bicycle & Pedestrian Signage

As there is little to no bicycle (or pedestrian) signage in the corridor, it is recommended that additional signage be added to provide additional wayfinding throughout the Corridor (and ultimately throughout the Town to connect to other bicycle and pedestrian infrastructure).

## Maintenance Recommendations

As part of the implementation of Complete Streets improvements, future maintenance needs must be considered. Like any addition to the public realm, be it a building, park or sidewalk or sidepath, there is a maintenance element that will come about once new infrastructure is installed. The planning process for this project included discussion regarding likely maintenance needs and some options for undertaking maintenance but a decision on maintenance was not determined - it is just too early in the process and the needs may vary by location along the corridor. That said, it is likely that some type of maintenance district will be needed. Discussions regarding maintenance are expected to continue and decisions on how to maintain the new proposed infrastructure elements are expected to be made as the implementation process continues. Some options for maintenance that were discussed include the following:

- Property owner maintenance or a maintenance district: The Town can request or require that property owners maintain infrastructure running across their property. This option should include obtaining input and feedback from property owners as they would be directly impacted by such a requirement.
- Leverage development projects: Municipalities work with and negotiate with developers on proposed project all the time. This is one of the best options for installing new Complete Streets elements. This plan, and

additional future planning work, will help improve knowledge about the desired future design of the corridor and ensure expectations for implementing Complete Streets elements are known.

- Develop a Business Improvement District (BID) or similar local operation: While a BID itself is a specific taxing authority that can be difficult to establish, local governments and businesses who want to see Complete Streets (and other) changes progress can work together to plan, fund, and implement specific improvements on a voluntary basis. An "Adopt FBR" program or business-owner run maintenance group or program could be established to help assist with maintenance.
- Sponsorship: Given that there are several small businesses, and a few very large businesses along the corridor, it is possible that there is an opportunity to get sponsors to provide funding and/or staffing to help with maintenance needs. This would be different than a BID, though it could be part of an "Adopt FBR" program, and would be completely voluntary. This could include anything from financial donation to donation of a sidewalk and trail plow vehicle, to volunteering staff to help undertake maintenance.

There may be other options and opportunities for undertaking maintenance but it is likely that some form of public-private partnership will be necessary to ensure that maintenance needs are addressed year-round. Maintenance is a future need that needs to be addressed as part of the implementation effort.



Route 50 is a signed bike route. Additional bicycle and pedestrian wayfinding signage is needed throughout Town.





This newly constructed sidepath on County-owned River Road in Niskayuna shows how a path can be located close to the street.

## Additional Sidepath Details

The next several pages provide images and details regarding the sidepath and potential buffer treatments. Buffer types can range from a raised concrete barrier or bollards, to a jersey barrier, simple planted area, planters, or a bio-swale. The installation of buffers with a green infrastructure or stormwater retention element are preferred by the Town and will help to achieve a related sustainability goal as part of the Complete Streets implementation process. This element will also help improve the potential for grant funding. The following sidepath details is sourced from *FHWA Small Town and Rural Multimodal Networks*.

### Definition of a sidepath

- A sidepath is a bidirectional shared use path located immediately adjacent and parallel to a roadway.
- Sidepaths can offer a high-quality experience for users of all ages and abilities as compared to on-roadway facilities in heavy traffic environments, allow for reduced roadway crossing distances, and maintain rural and small-town community character.

### Benefits of sidepaths

- Completes networks where high-speed roads provide the only corridors available.
- Fills gaps in networks of low-stress local routes such as shared use paths and bicycle boulevards.
- Provides a more appropriate facility for users of all ages and abilities than shoulders or mixed traffic facilities on roads with moderate or high traffic intensity.

- Encourages bicycling and walking in areas where high-volume and high-speed motor vehicle traffic would otherwise discourage it.
- Maintains rural character through reduced paved roadway width compared to a visually separated facility.
- Very supportive of rural character when combined with vegetation to visually and physically separate the sidepath from the roadway.
- Sidepaths offer a low-stress experience for bicyclists and pedestrians on network routes otherwise inhospitable to walking and bicycling due to high-speed or high-volume traffic.

### Sidepath Widths

- Sidepath width impacts user comfort and path capacity. As user volumes or the mix of modes increases, additional path width is necessary to maintain comfort and functionality.
- The minimum recommended pathway width is 10 ft. In low-volume situations and constrained conditions, the absolute minimum sidepath width is 8 ft.
- Provide a minimum of 2 ft. clearance to signposts or vertical elements.

### Roadway Separation

- Separation from the roadway should be informed by the speed and configuration of the adjacent roadway and by available right-of-way as illustrated in Figure 4-9.
- At crossings the preferred minimum separation width is 6.5 ft. Minimum separation distance is 5 ft.

- Operational and safety concerns exist where sidepaths cross driveways and intersections. Design crossings to promote awareness of conflict points, and facilitate proper yielding of motorists to bicyclists and pedestrians.

## Design Strategies

- Collision risk increases as the speed and volume of the parallel roadway increase. The 2012 *AASHTO Bike Guide* lists a variety of design strategies for enhancing sidepath crossings including:
  - Reduce the frequency of driveways.
  - Design intersections to reduce driver speeds and heighten awareness of path users.
  - Encourage low speeds on pathway approaches.
  - Maintain visibility for all users.
  - Provide clear assignment of right-of-way with signs and markings and elevation change.

## Design Details

- Maintain physical separation of the sidepath through the crossing. Sidepath separation distance may vary from 5 ft. to 24 ft. Refer to FHWA graphic on page 81.
- Use small roadway corner radii to enforce slow turning speeds of 20 mi/h or less. On a high-speed roadway, a deceleration lane may be necessary to achieve desired slow turning speeds.
- The roadway and path approaches to an intersection should always provide enough stopping sight distance to obey the established traffic control, and execute a stop before entering the intersection (2012 *AASHTO Bike Guide*).

- Configure crossings with raised speed table or “dustpan” style driveway geometry to create vertical deflection of turning vehicles. This physically indicates priority of path travel over turning or crossing traffic and helps reduce the risk associated with bidirectional sidepath use.
- Where possible, include a raised median island on the cross street to provide additional safety and speed management benefits.
- Use crosswalk markings to indicate the through crossing along the pathway. Continental crosswalk markings are preferred for increased visibility. At low-volume residential driveways, crosswalk markings may be omitted.
- Use stop or yield line markings in advance of the crossing to discourage encroachment into the crosswalk area.

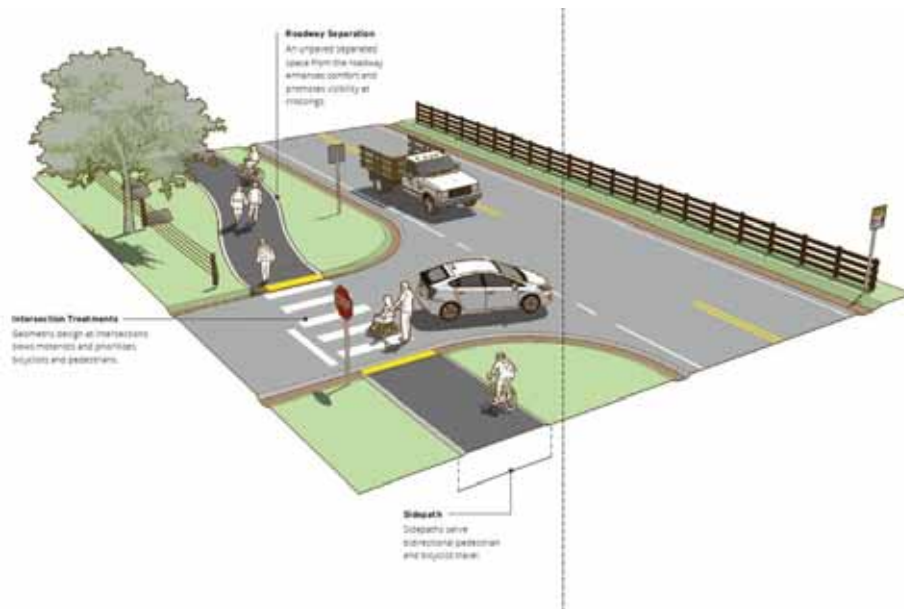
## Minor Street Crossings

- Give sidepaths the same priority as the parallel roadway at all crossings. Attempts to require path users to yield or stop at each cross-street or driveway promote noncompliance and confusion, and are not effective. Geometric design in these cases should promote a high degree of yielding to path users through geometric design.
- Landscaping, barriers, or other visual obstructions should be low to provide unobstructed sight of the crossing from the major street. Both motorists and path users should have a clear and unobstructed view of each other at intersections and driveways.

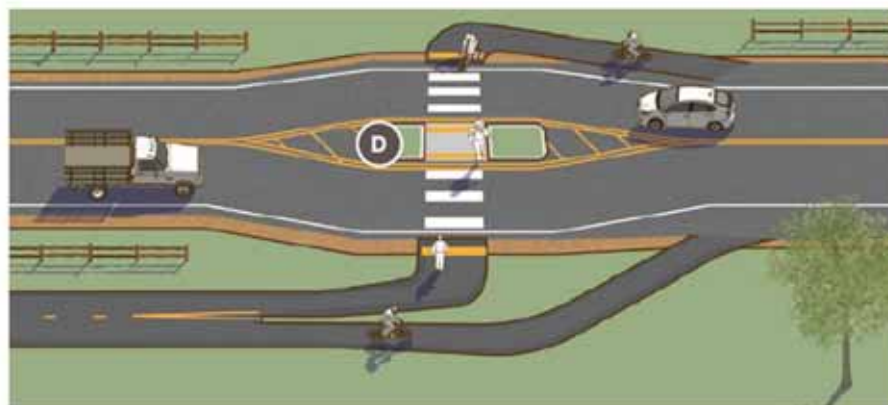


The sidepath along Freemans Bridge Road is envisioned, where feasible, to be set back from the road like on River Road @ Knolls Atomic Power Laboratory in Niskayuna. However it will include bio-swales and green infrastructure, again where feasible.



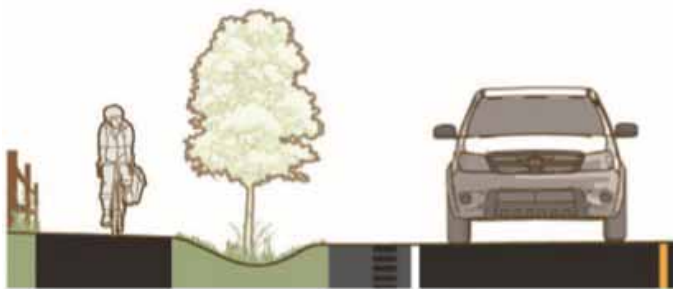


**Figure 4-11.** Separation distance should be selected in response to speed and traffic intensity. The pathway may need a shift in horizontal alignment in advance of the crossing to achieve desired separation distance. As speeds on the parallel roadway increase, so does the preference for wider separation distance.



**Figure 4-12.** Transition from a sidepath on one side to shoulders on each side of the road.

Source: FHWA Small Town and Rural Multimodal Networks.



**Figure 4-18.** Separated bike lanes may be separated by an unpaved roadway separation, and a vertical element. When configured as directional facilities, separated bike lanes should be provided on both sides of the roadway.



**Figure 4-19.** Separated bike lanes may be configured on an existing roadway surface by using a physical barrier such as a curb or median to separate the bikeway from the roadway.



**Figure 4-20.** Separation from the sidewalk is valuable for reducing unwanted pedestrian encroachment into the bike lane. The use of physical separation with vertical elements, unpaved separation, or detectable edges may be more effective than visual delineation.

FHWA Small Town and Rural Multimodal Networks – Separation Options



Separated facility on State Route 146 over the Mohawk River - Niskayuna



Separated facility on I-890 over the Mohawk River - Rotterdam

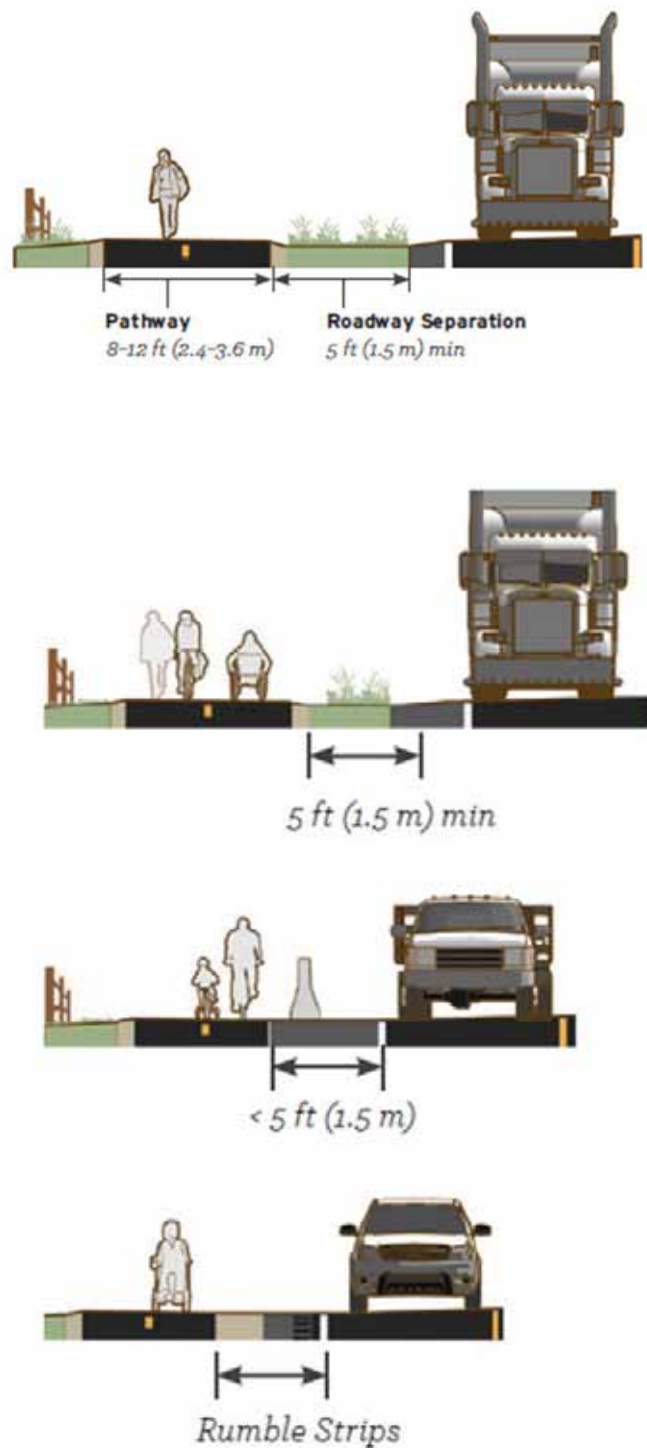
### Sidepath Separation Distance at Road Crossings

Adjacent Road Speed Limit (Mi/h)	Recommended Sidepath Separation Distance at Crossings
< 25 mi/h	6.5 ft (2.0 m)
35–45 mi/h	6.5–16.5 ft (2.0–5.0 m)
≥ 55 mi/h	16.5–24 ft (5.0–7.0 m)

*\*Separation distance may vary in response to available right of way, visibility constraints and the provision of a right turn deceleration lane.*

Source: FHWA Small Town and Rural Multimodal Networks.





**Figure 4-9.** Where a minimum of 5 ft. (1.5 m) unpaved separation cannot be provided (top), A physical barrier may be used between the sidepath and the roadway (center). In extremely constrained conditions for short distances, on-roadway rumble strips may be used as a form of separation (bottom).

Source: FHWA Small Town and Rural Multimodal Networks.

- Consider using a R10-15 RIGHT TURN YIELD TO PEDESTRIANS at street crossings with right turn interactions.

### Connections with On-Street Bikeways

- Where a sidepath terminates, it may be necessary for path users to transition to a facility on the opposite side of the road.
- Designs should consider the desire for natural directional flows, and the potential for conflicts with adjacent traffic. Use median islands and horizontal deflection of the roadway travel lanes to slow motor vehicle traffic and offer improved crossing conditions for path users.

## Freemans Bridge Bike & Pedestrian Connector Recommendation

One unique aspect of the Southern Section is that it abuts Freemans Bridge, which is one of only a few Mohawk River bridge crossings. It lies at the foot of new development on the Glenville riverfront and across the river from where the road becomes Erie Boulevard - home to a casino and future retail, restaurants, and residences. Given the importance of this connector both for vehicles, bicycles and pedestrians; it is logical to extend the defined Study Area to look at improvements on the bridge itself that will enhance mobility across the Mohawk River for all users – but in particular bicyclists and pedestrians.

This major connector is a vital (missing/official) link to directly connect the Glenville trail from Freemans Bridge Road to the Village of Scotia to the regional trail system. This past year, a newly developed Maxon Road trail extension was constructed from the Mohawk-Hudson Bike-Hike Trail to Mohawk Harbor, including an underpass under Freemans Bridge in Schenectady. This trail now provides the potential to somewhat easily and quickly connect Glenville

to the regional trail system without having to venture across Freemans Bridge on the south side (Schenectady side) on foot or a bicycle.

To make this connection, the Consultant Team recommends that a two-way separated bike lane with vertical buffer be created on the west side of the bridge to connect to the two trail underpasses that exist on each side of the bridge (see example separated bike lane images from locations within Schenectady County on the previous page). Based on our analysis of the bridge, there are a few primary changes required to make this a reality. The first is a restriping of the bridge to recommended travel lane widths of 11'. The second is the creation of the bike lane by utilizing both the excess lane width area that was created by restriping and the existing raised sidewalk area. Because the sidewalk is currently raised, the third change will require the existing roadway area to be used for the bike lane to be raised to match the existing sidewalk. These changes should provide the width necessary to create a bike lane which would be raised above the vehicle travel lane(s) and separated by a barrier. It is notable that such changes can likely be accomplished with limited if any impacts on traffic capacity on the bridge itself.

## Summary

The Town believes that the importance of creating a Complete Street along the Freemans Bridge Road Corridor is vital to maintaining and enhancing quality-of-life for residents and businesses along the corridor – now and into the future. The value in providing facilities for all modes and users brings about a future condition that creates a better tomorrow for the corridor—and while there are trade-offs whenever changes are made to our infrastructure, the benefits from enhanced overall mobility in a growing corridor and Town are seen to outweigh the negatives such as decreased LOS (measured in seconds, not minutes!) and additional maintenance needs.



Freemans Bridge over the Mohawk. The bike/pedestrian path underpass can be seen going under the north side of the bridge.



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# GATEWAY CONCEPTS

South Section



# EXISTING CONDITIONS – SOUTHERN GATEWAY

## DETAILS

Commercial &  
Undeveloped Land

Restaurant

Hotel

State Boat Launch

5-lane Cross Section with  
Median

Existing Multi-Use Path

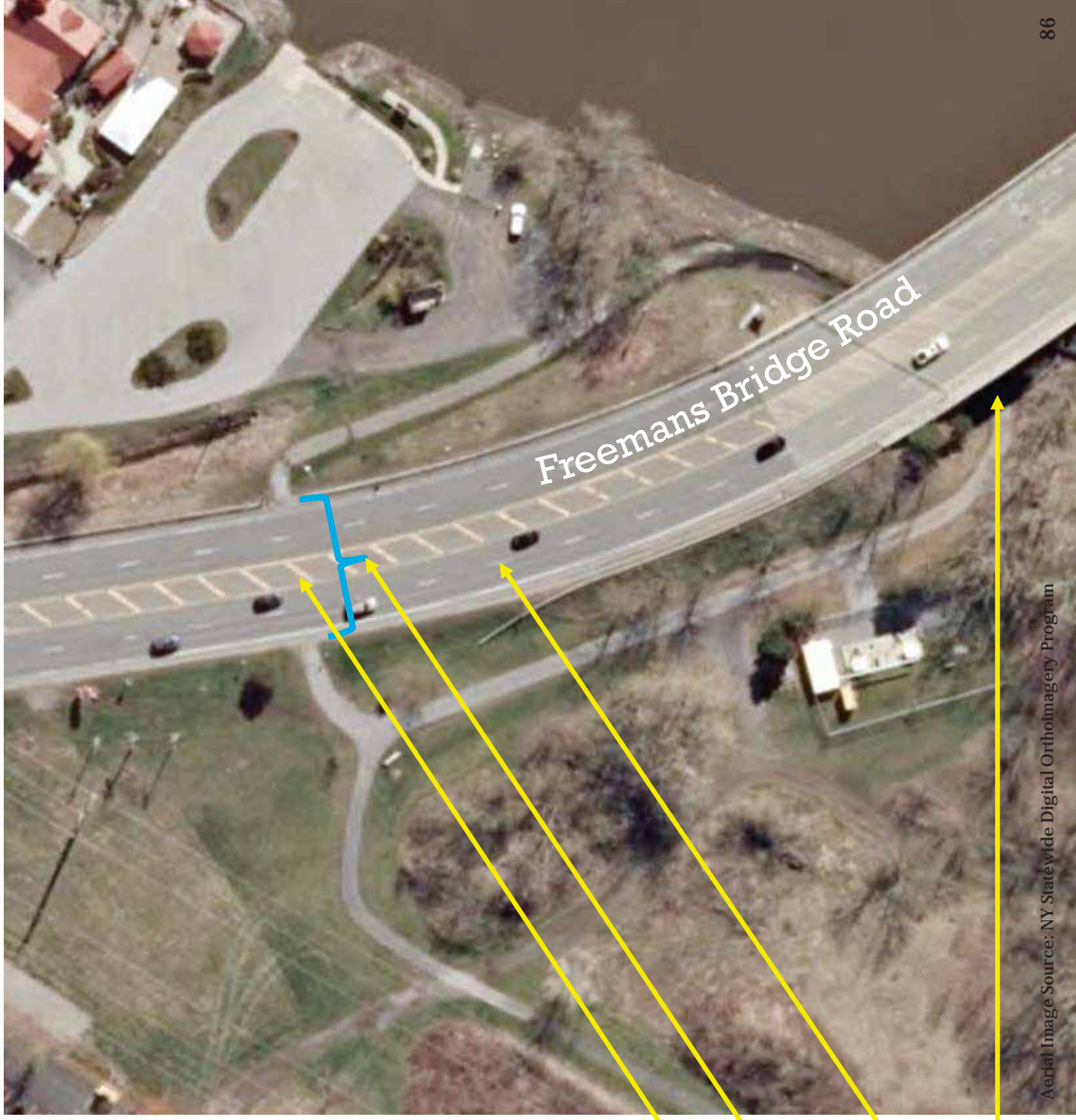
Existing underpass for bike  
& pedestrian use

Missing Crosswalk  
at signed pedestrian  
road crossing

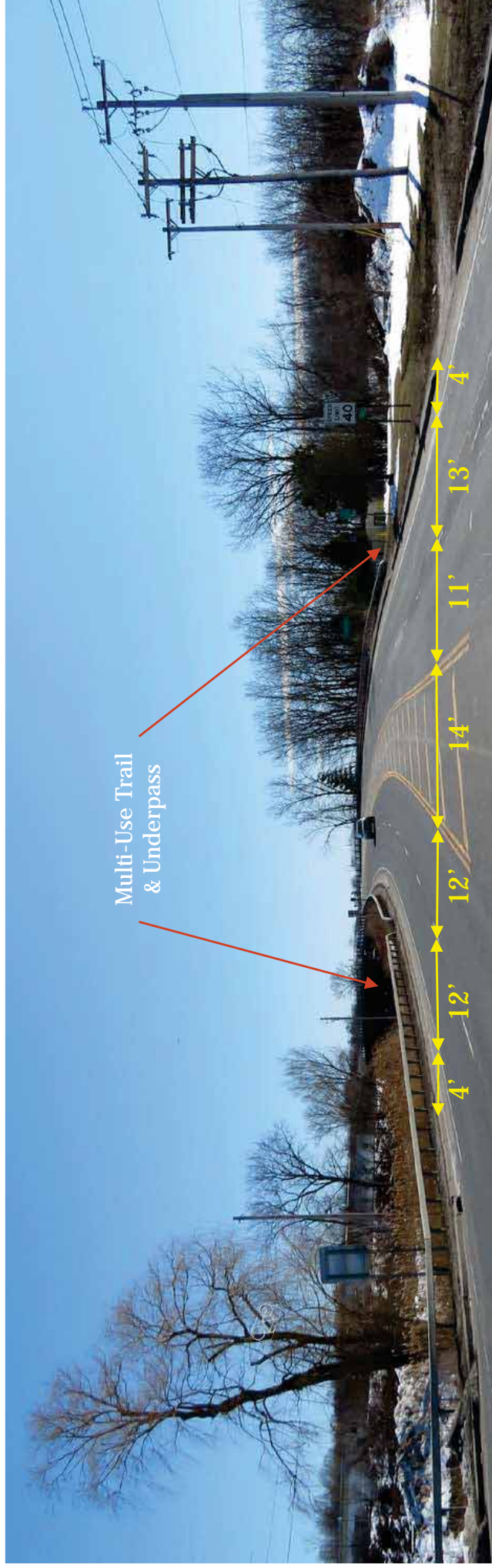
Significant  
Crossing  
Width

High Observed  
Vehicle Speeds

Non-vehicular  
underpass



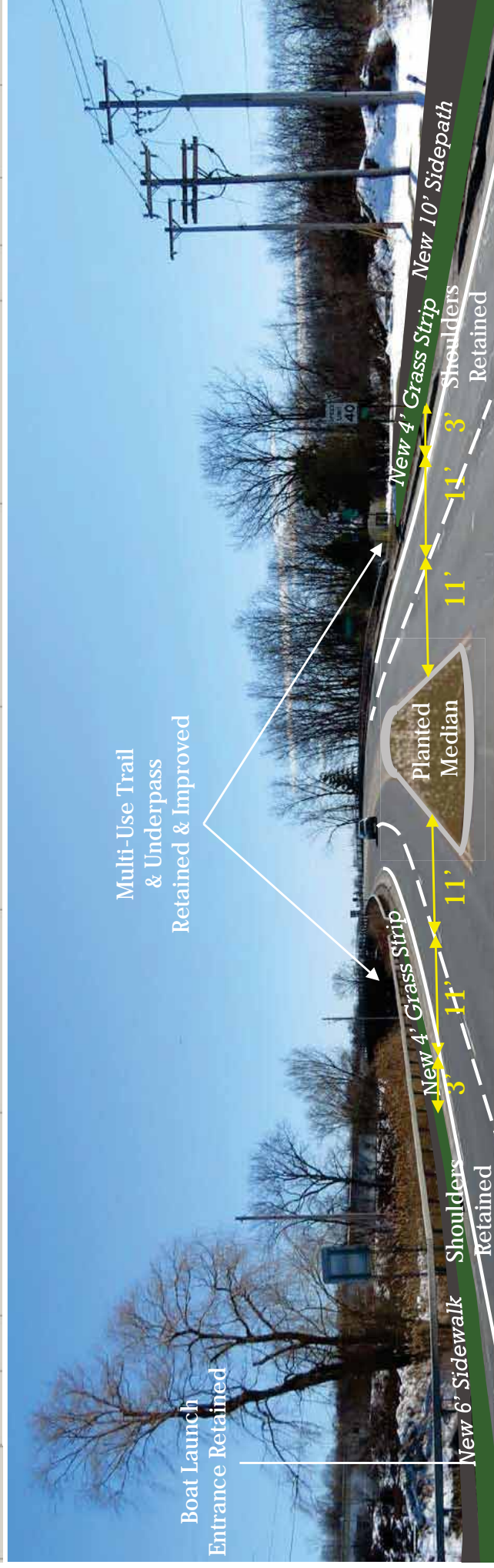
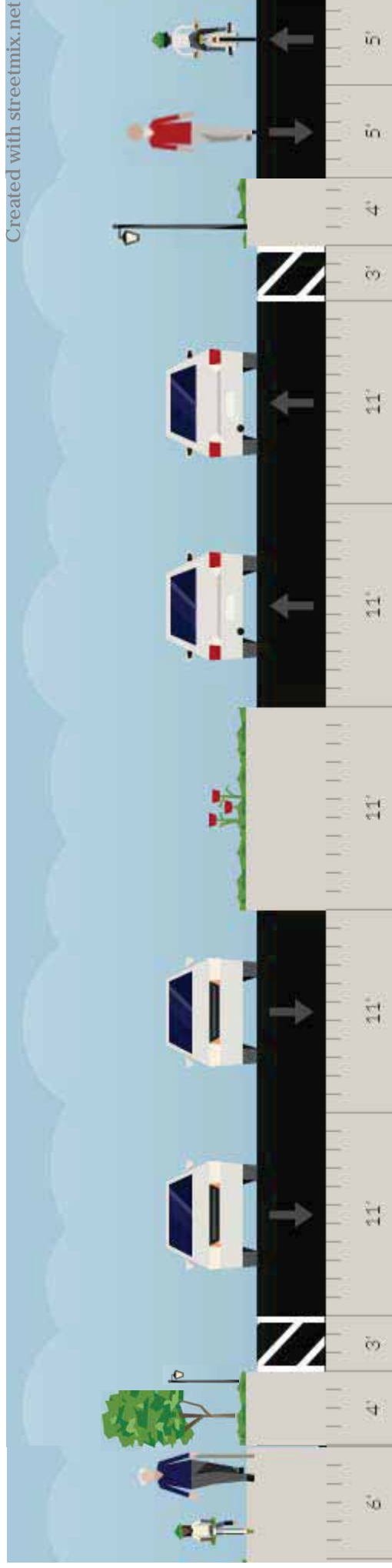
# EXISTING CONDITIONS – SOUTHERN GATEWAY





# CONCEPTUAL FUTURE POTENTIAL CROSS SECTION

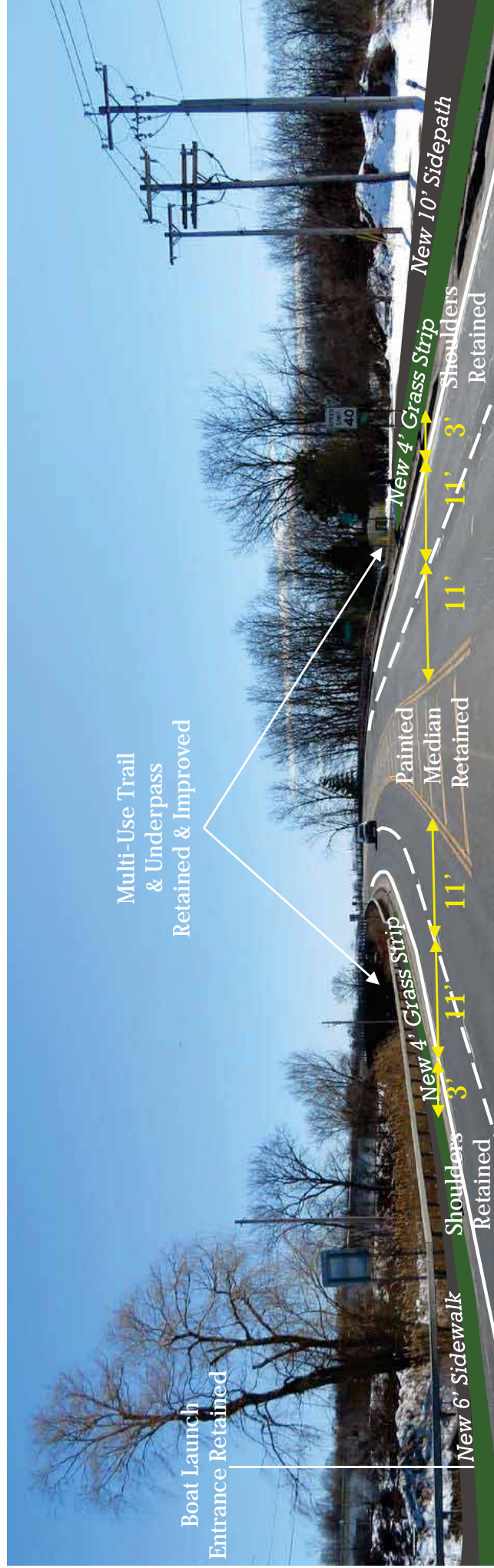
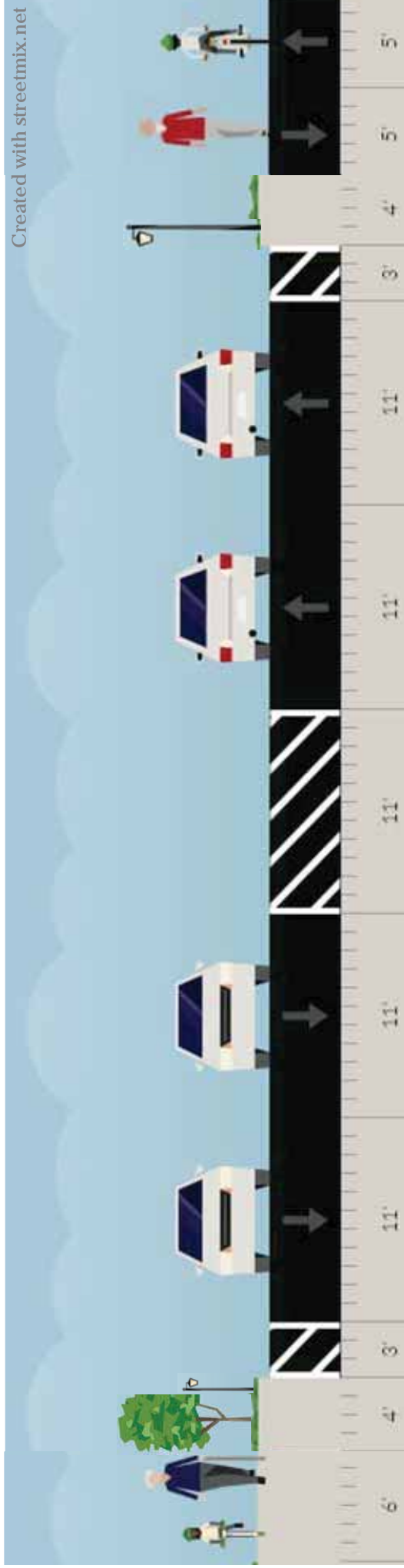
## @ GATEWAY WITH PLANTED MEDIAN



- The recommendations in this study are conceptual in nature and do not commit NYSDOT, Town of Glenville, CDTC, or Schenectady County to the proposed project(s).
- The concepts presented in this illustration may need to be investigated in more detail before any funding commitment is made.
- Undertaking additional engineering or other follow up work will be based upon funding availability.

# CONCEPTUAL FUTURE POTENTIAL CROSS SECTION

## @ GATEWAY WITH PAINTED MEDIAN



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# SUNNYSIDE ROAD INTERSECTION CONCEPT

South Section

# EXISTING CONDITIONS – @ SUNNYSIDE ROAD

## DETAILS

Commercial, Undeveloped  
& Residential Land Uses

Offset Intersection

Left Turn lanes North- and  
Southbound

Signalized Intersection

Driveway used as entrance  
to Hotel

Beginning of right turn lane  
to Maple Avenue

No Pedestrian or Bicycle  
Infrastructure

Offset  
Intersection

Very Wide Curb  
Cut

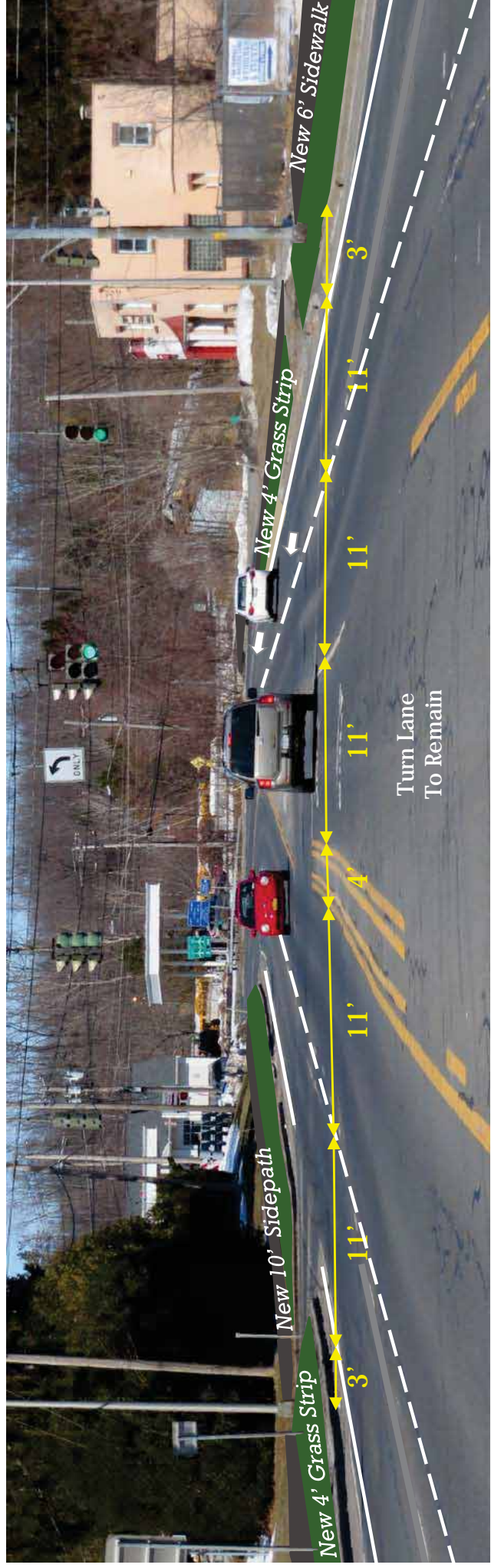
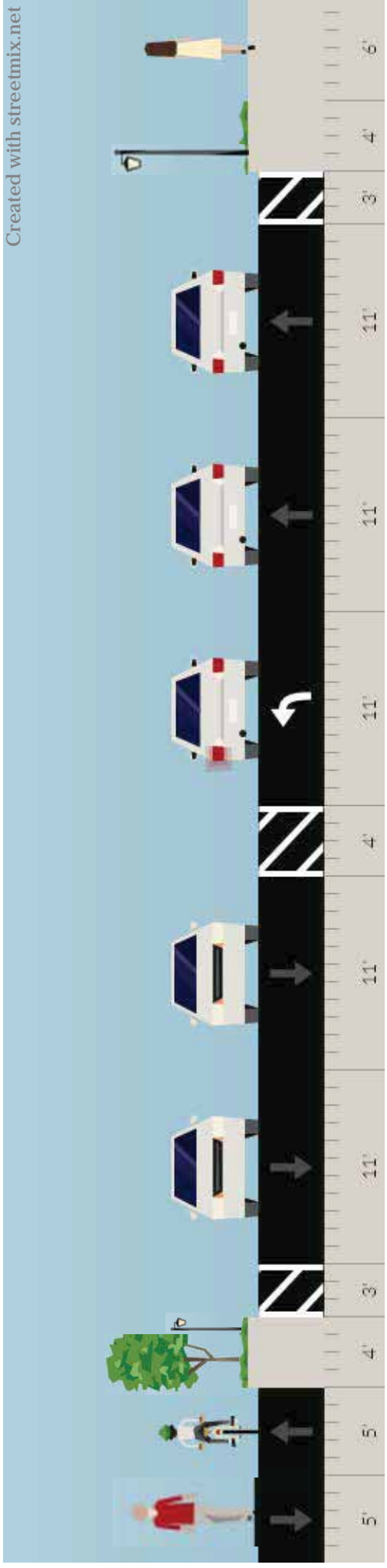




# EXISTING CONDITIONS - @ SUNNYSIDE ROAD



**@SUNNYSIDE ROAD**



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# **NORTHBOUND APPROACH TO MAPLE AVENUE CONCEPT**

South Section

## DETAILS

## Commercial & Undeveloped Land Uses

## Structures Close to the Street

# Major Intersection with Maple Avenue

## Left Turn Lane Southbound

## Signalized Intersection

# Right Turn Lane to Maple Avenue

Northbound FBR Bicycle Lane

## Bicycle Lane/Stub

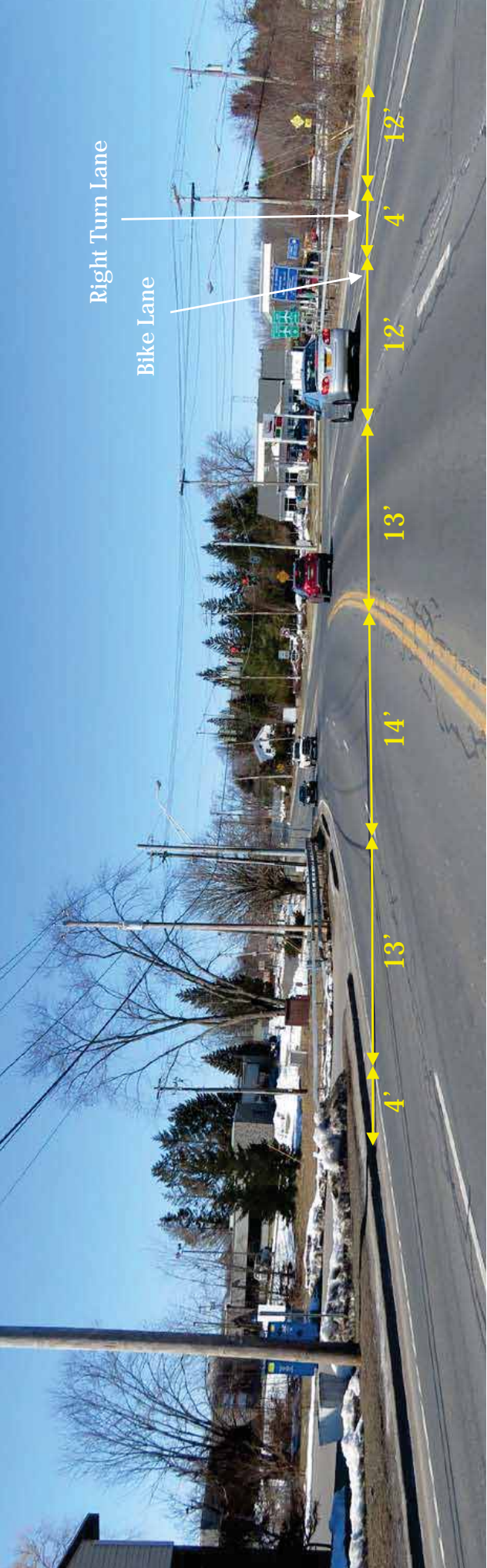
## Right Turn Lane

## Two northbound through-lanes

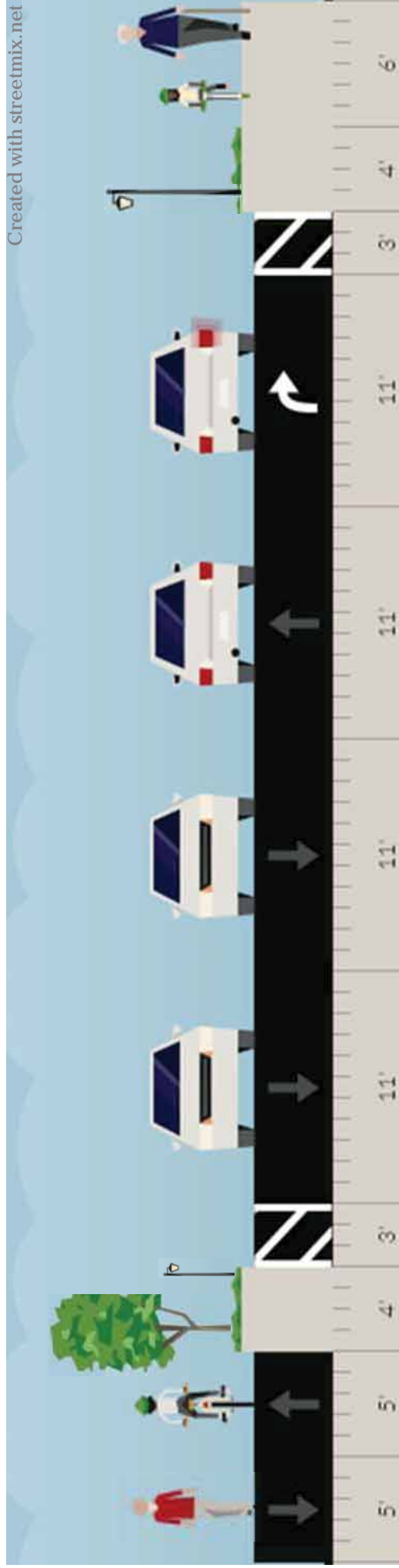




# EXISTING CONDITIONS – MAPLE AVE. APPROACH



# CONCEPTUAL FUTURE POTENTIAL CROSS SECTION @ MAPLE AVE. APPROACH



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# NORTH OF MAPLE AVENUE CONCEPT

Middle Section

# EXISTING CONDITIONS – NORTH OF MAPLE AVE.

## DETAILS

Commercial &  
Undeveloped Land Uses

Structures Close to the  
Street

Major Intersection with  
Maple Avenue

Left Turn Lane Southbound

Signalized Intersection

Two northbound lanes  
merge into one lane

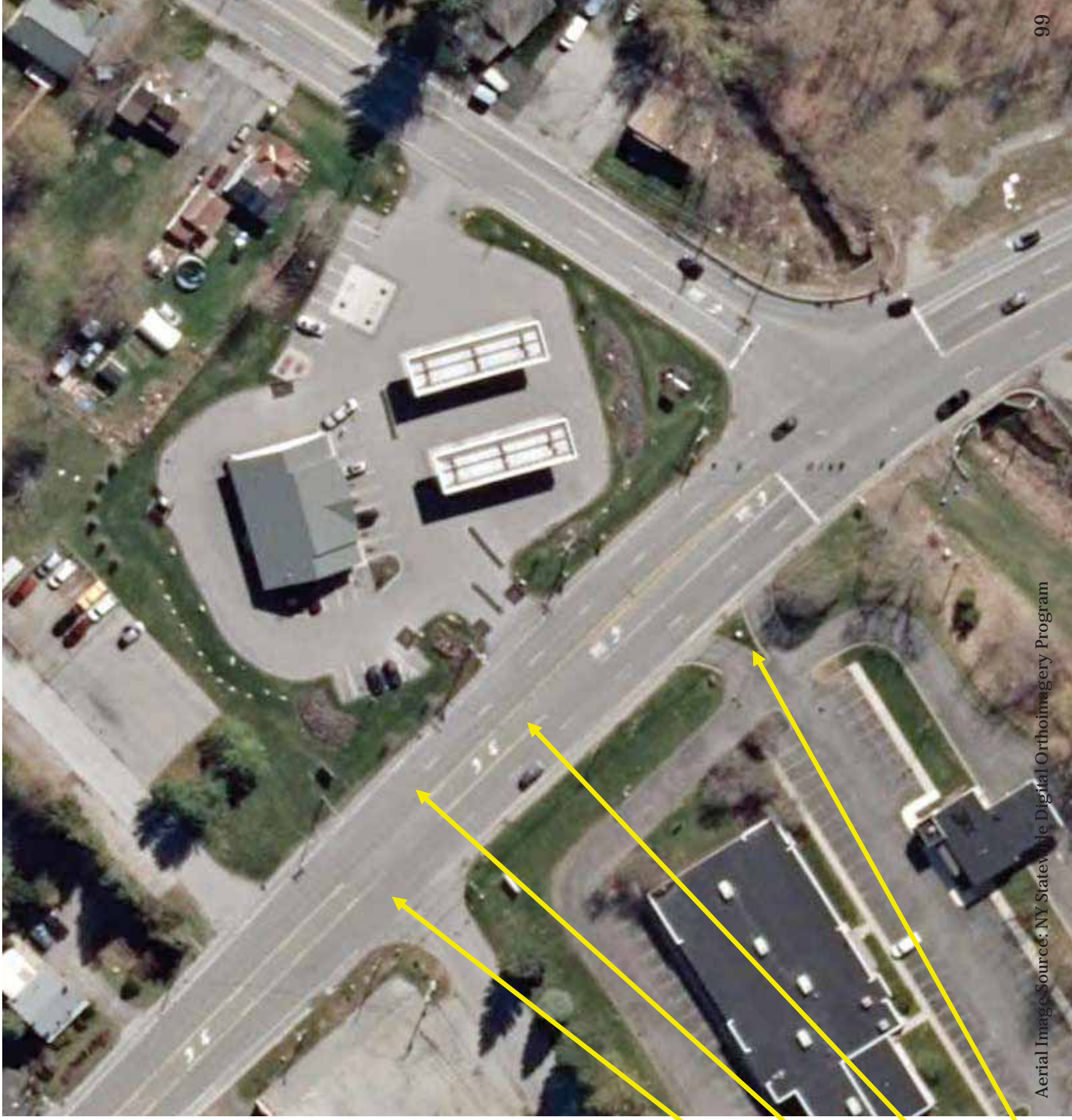
Major turning movements  
into Stewart's and  
Sarnowski Drive

Two lanes begin  
southbound

Challenging  
northbound merge

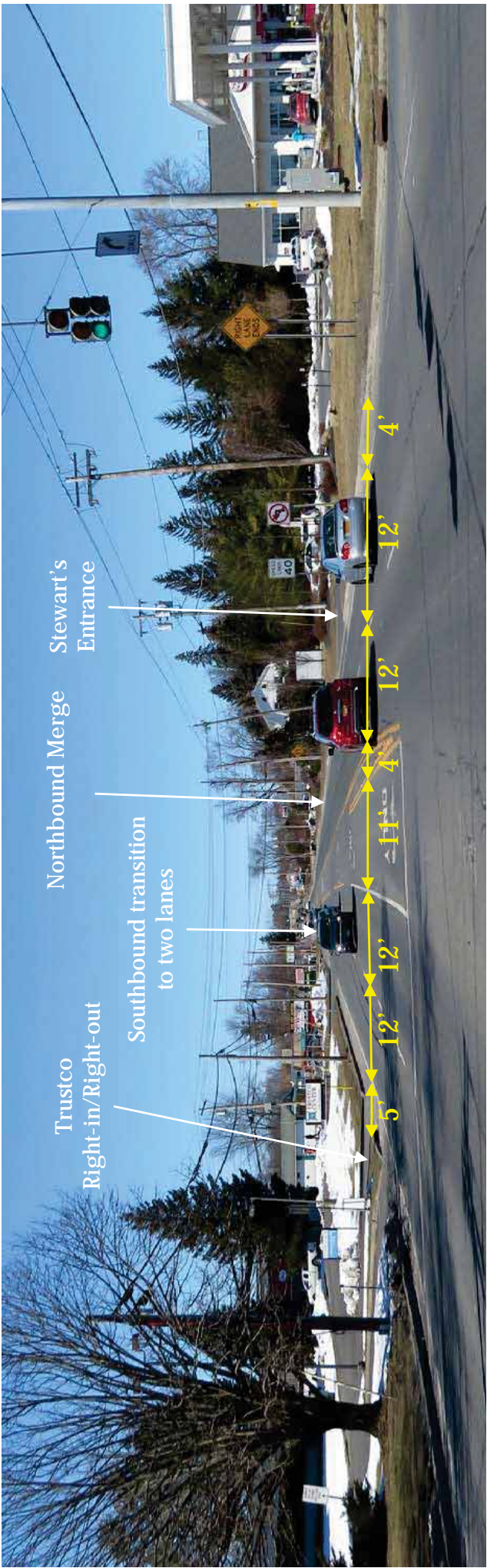
Significant  
turning  
movements

Right-in/Right-  
out access only



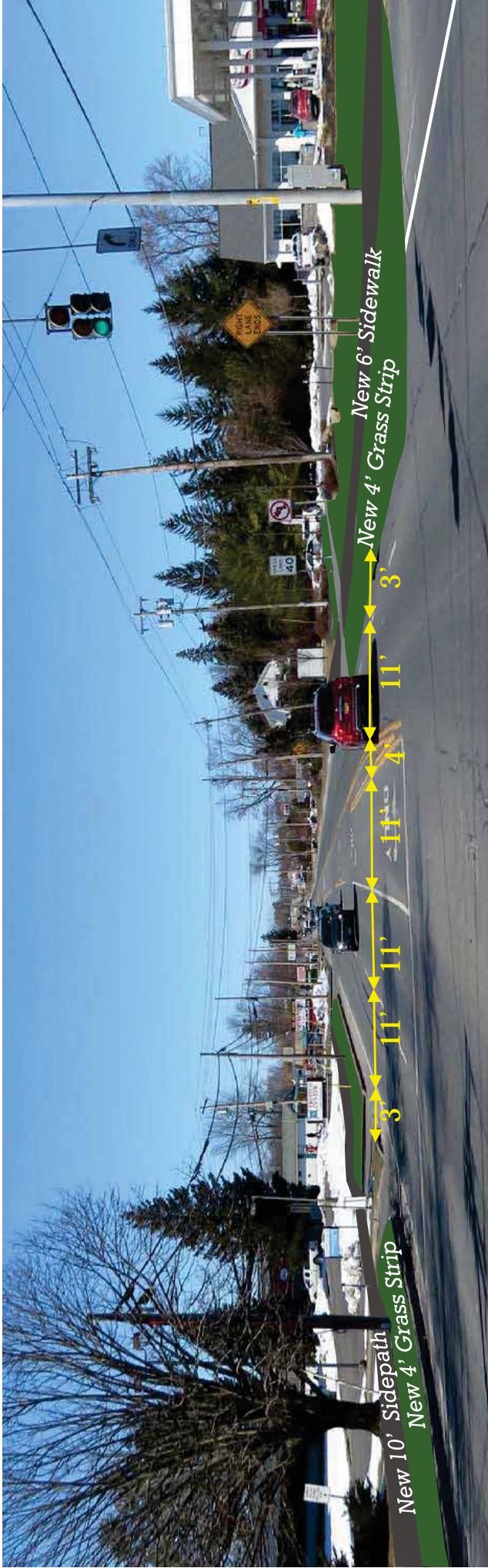
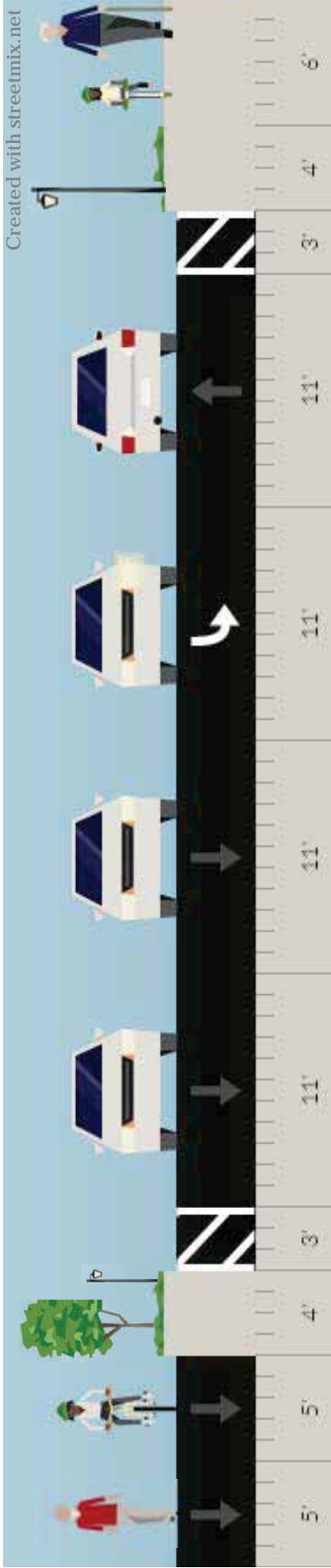


# EXISTING CONDITIONS – NORTH OF MAPLE AVE.



# CONCEPTUAL FUTURE POTENTIAL CROSS SECTION

## NORTH OF MAPLE AVE.



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# TWO-LANE CROSS SECTION CONCEPT

Middle Section

# EXISTING CONDITIONS – TWO-LANE CROSS SECTION

## DETAILS

Primarily commercial land  
uses with some  
undeveloped land

Structures close to the  
Street

Railroad Crossing

Railroad crossing is in poor  
condition

Signalized intersections to  
the north and south

Railroad  
Crossing

Shoulder  
Narrows



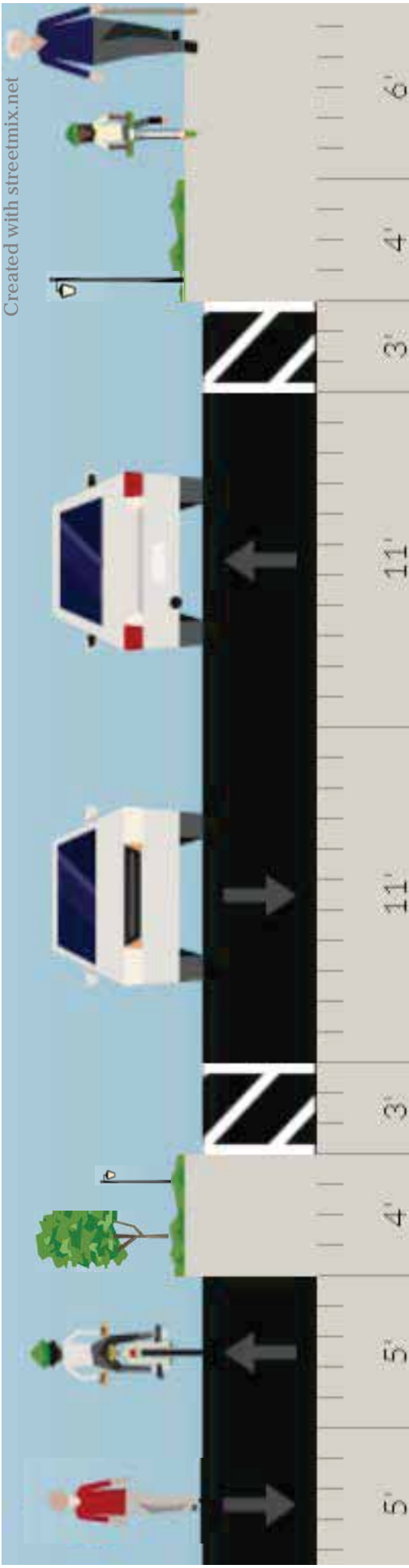


# EXISTING CONDITIONS – TWO-LANE CROSS SECTION



# CONCEPTUAL FUTURE POTENTIAL CROSS SECTION

## TWO-LANE CROSS SECTION



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# THREE-LANE CROSS SECTION CONCEPT

Middle Section

# EXISTING CONDITIONS — THREE-LANE CROSS SECTION

## DETAILS

Primarily commercial land  
uses with some  
undeveloped land

Structures close to the  
Street

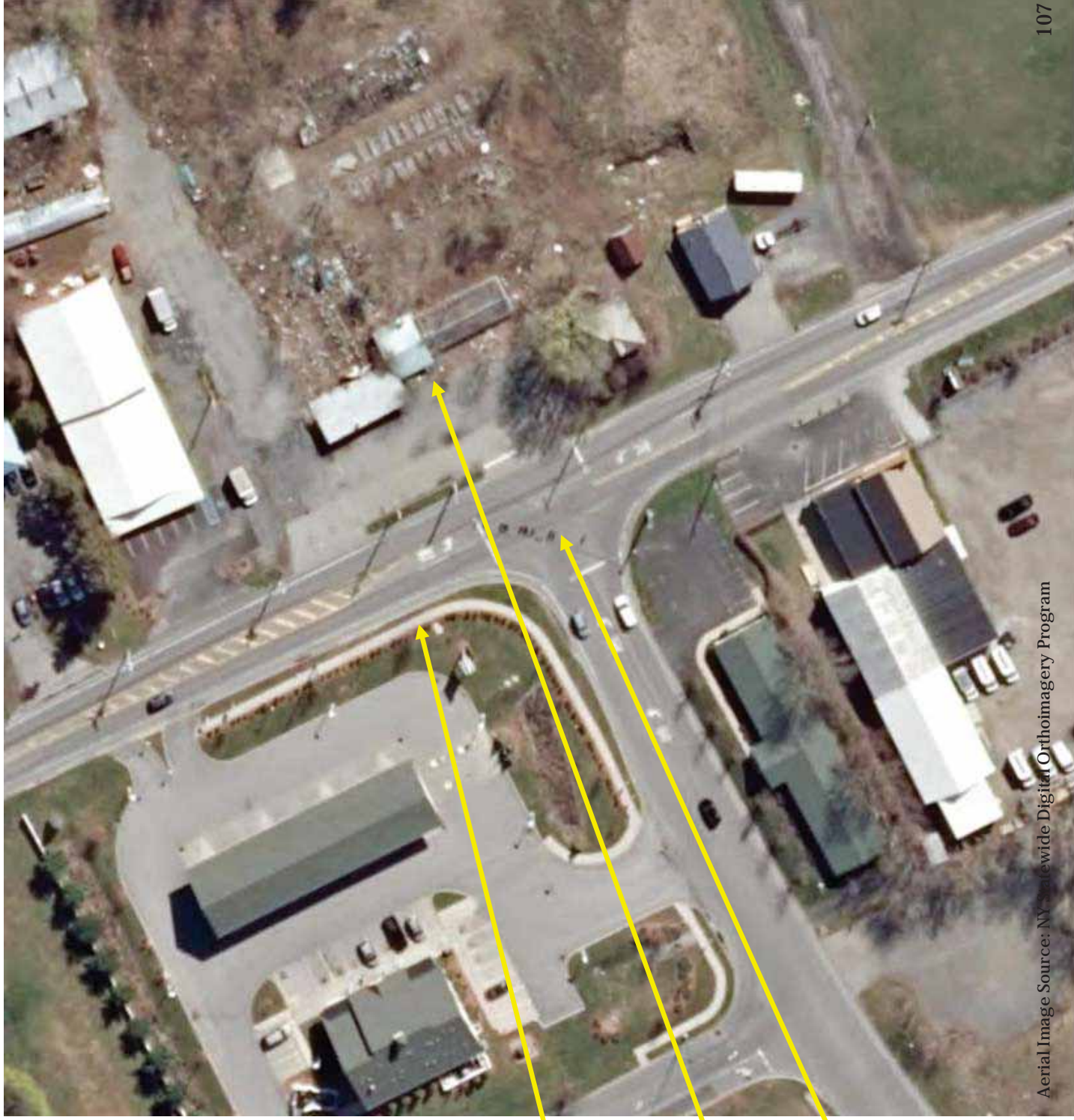
Signalized intersection at  
Dutch Meadows Lane

New development across  
from Dutch Meadows Lane  
not shown on this aerial

Only Existing  
Sidewalk on the  
Corridor

New  
Development

Signalized  
Intersection





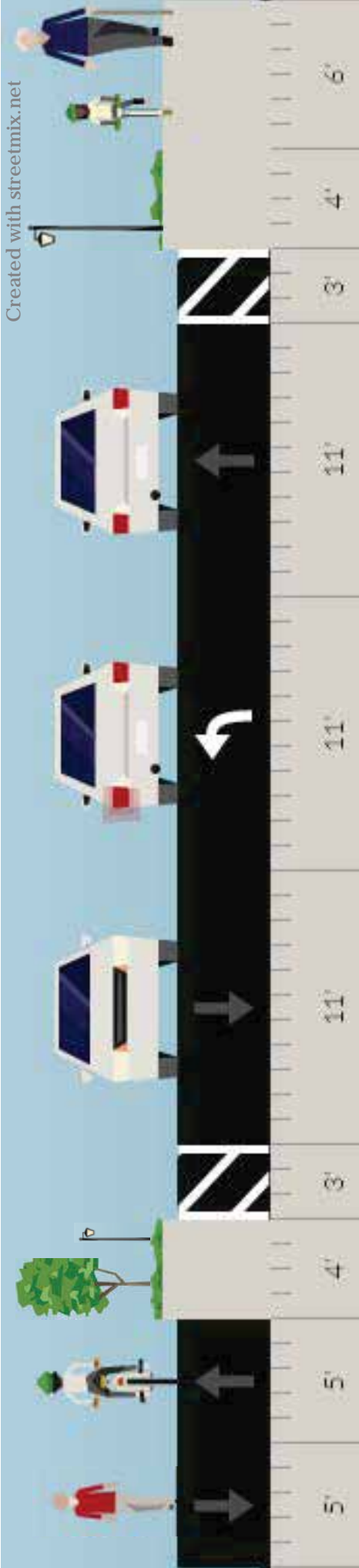
# EXISTING CONDITIONS — THREE-LANE CROSS SECTION





# CONCEPTUAL FUTURE POTENTIAL CROSS SECTION

## THREE-LANE CROSS SECTION



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# TWO-LANE CROSS SECTION CONCEPT

North Section

# EXISTING CONDITIONS – TWO-LANE CROSS SECTION

## DETAILS

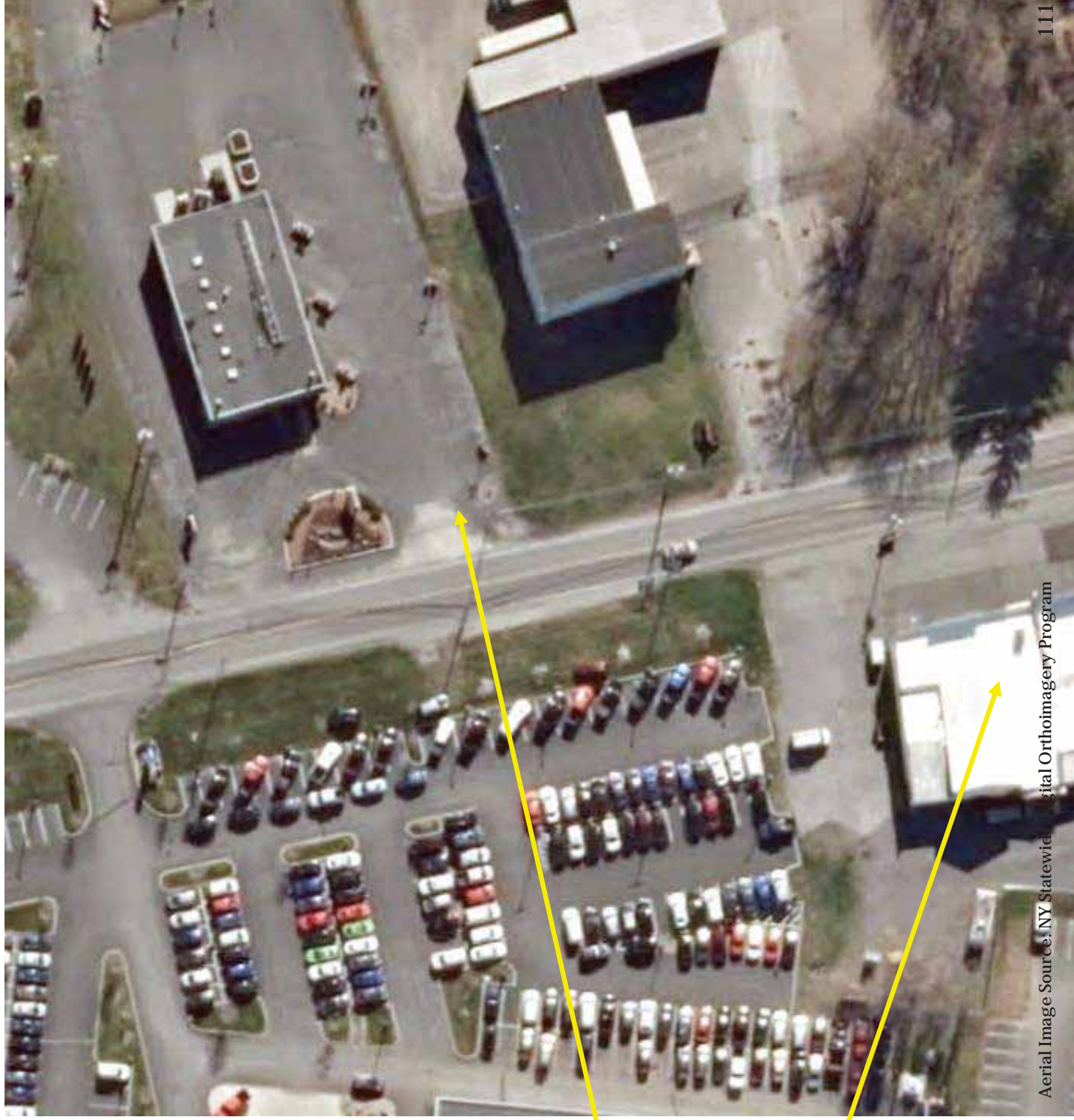
Commercial land uses

Structures generally set back from the street

Signalized intersection at  
Route 50

Buildings  
Setback from  
the Road

This Building is  
Close to the Road



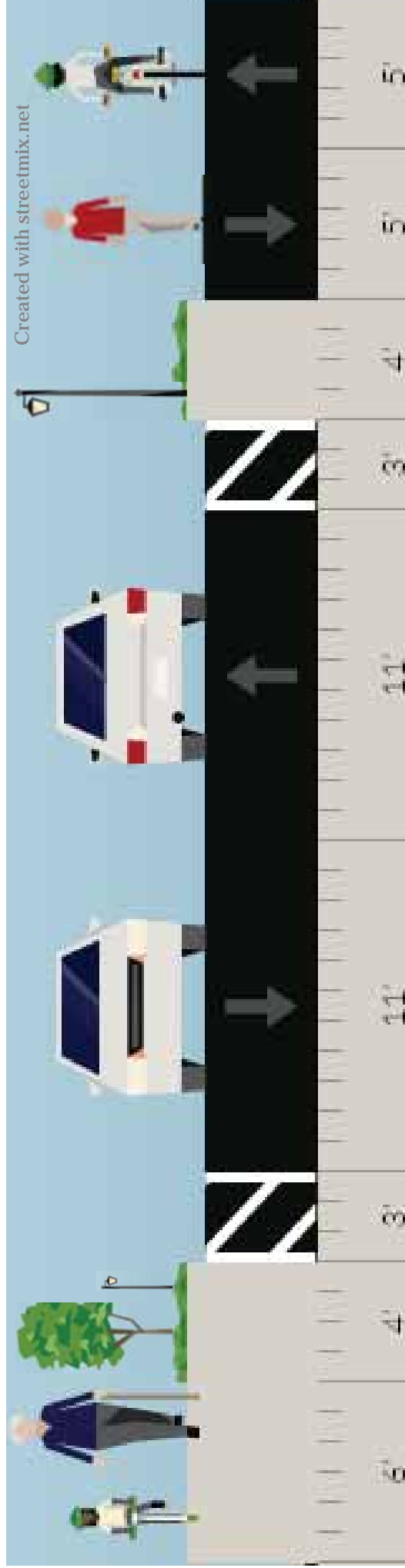


# EXISTING CONDITIONS – TWO-LANE CROSS SECTION



# CONCEPTUAL FUTURE POTENTIAL CROSS SECTION

## TWO-LANE CROSS SECTION



- The recommendations in this study are conceptual in nature and do not commit NYS DOT, Town of Glenville, CDTC, or Schenectady County to the proposed project(s).
- The concepts presented in this illustration may need to be investigated in more detail before any funding commitment is made.
- Undertaking additional engineering or other follow up work will be based upon funding availability.



# GATEWAY CONCEPT

North Section

# EXISTING CONDITIONS — NORTHERN GATEWAY

## DETAILS

Commercial land uses

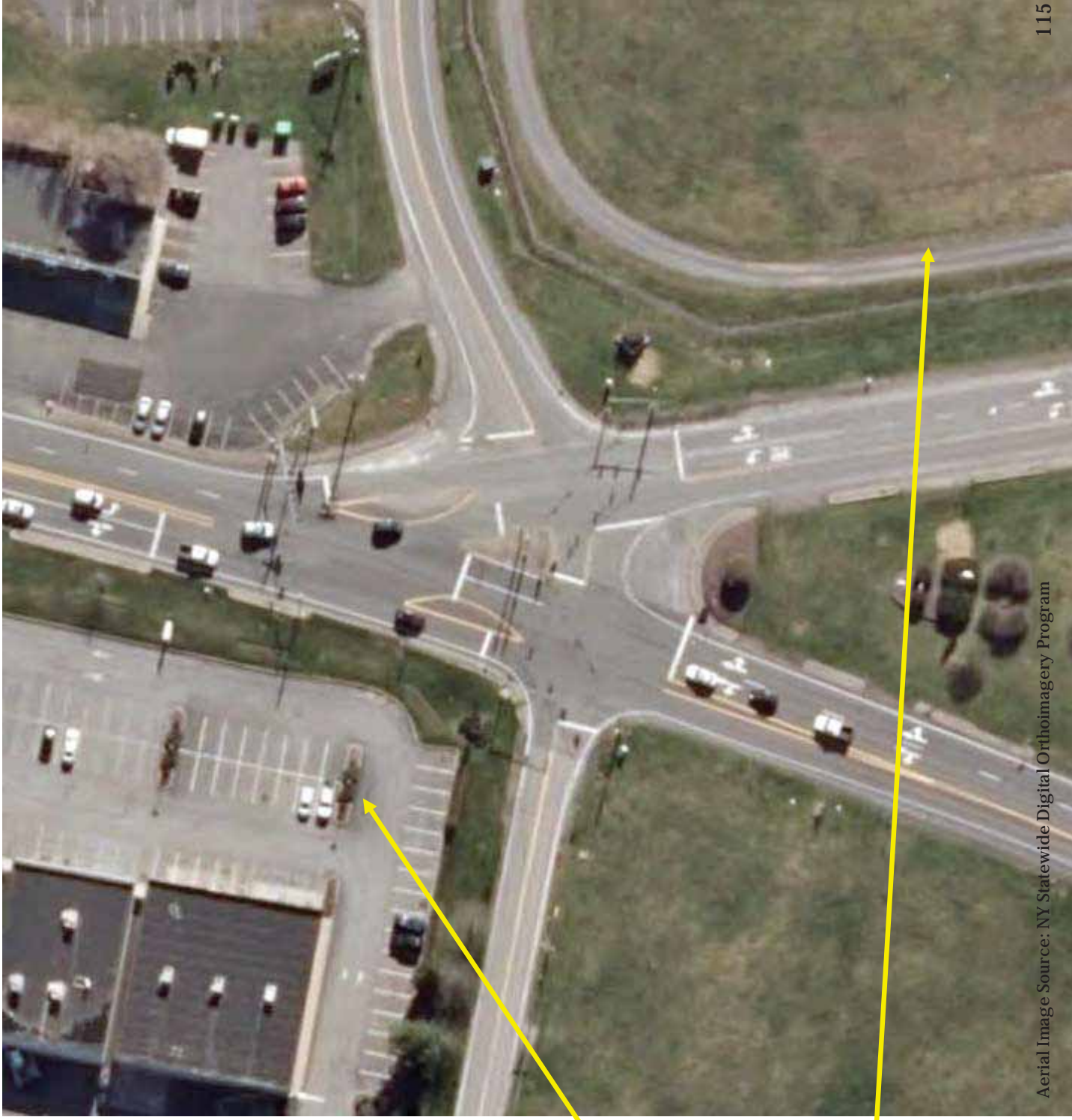
Structures generally set back from the street

Signalized intersection at Route 50

5-leg intersection with left turns permitted on each road

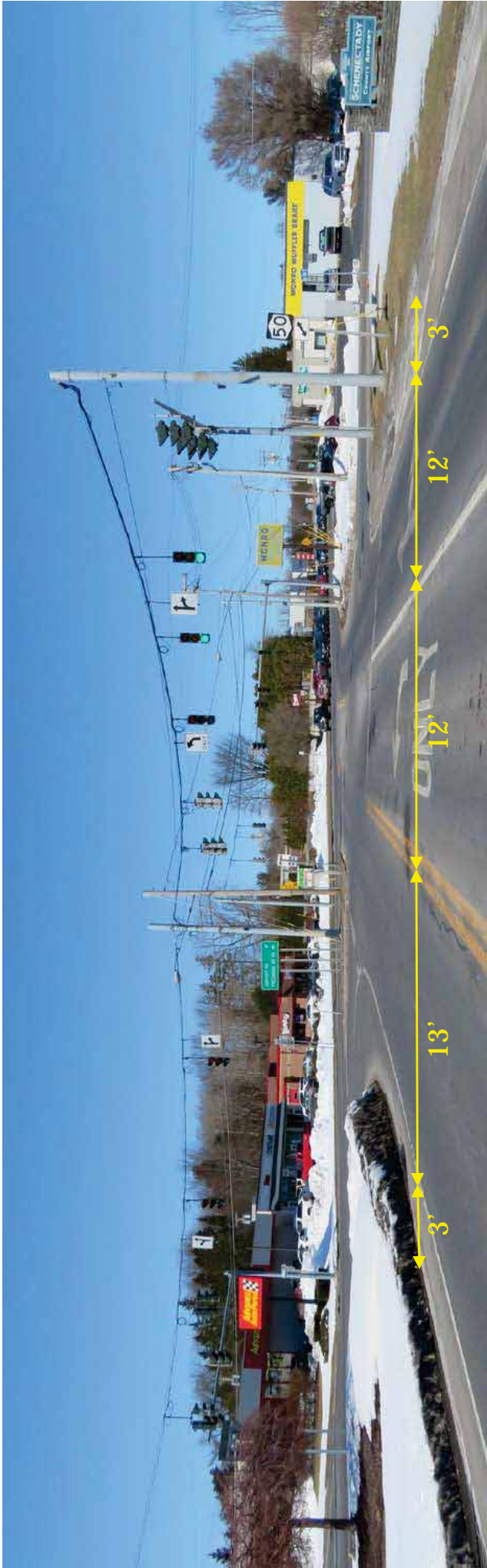
Buildings Setback from the Road

Schenectady County Airport abuts Freemans Bridge Road



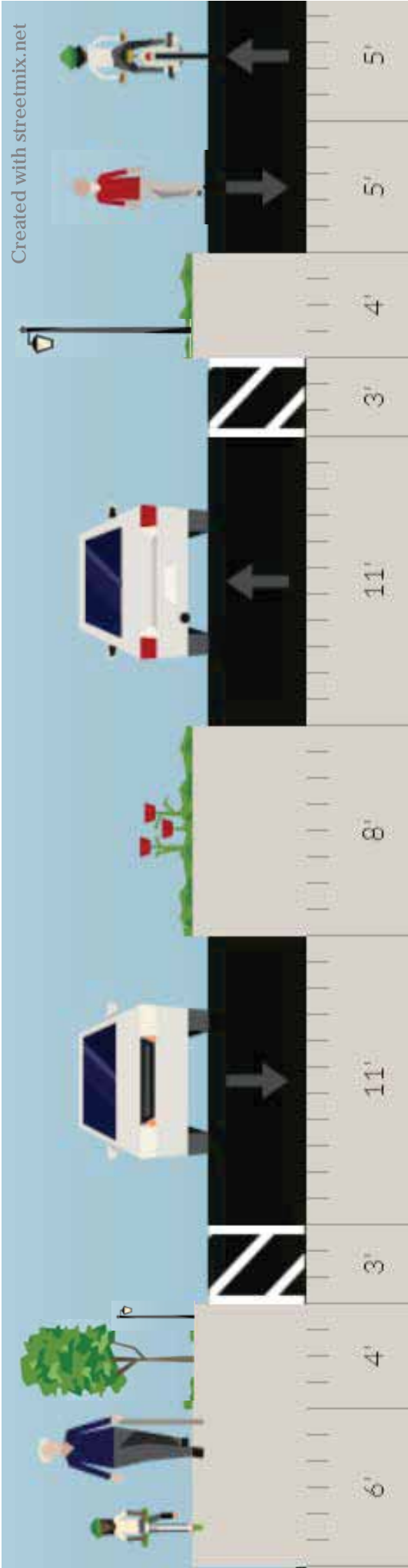


# EXISTING CONDITIONS — NORTHERN GATEWAY



# CONCEPTUAL FUTURE POTENTIAL CROSS SECTION

## NORTHERN GATEWAY WITH ROUNDABOUT



- The recommendations in this study are conceptual in nature and do not commit NYSDOT, Town of Glenville, CDTC, or Schenectady County to the proposed project(s).
- The concepts presented in this illustration may need to be investigated in more detail before any funding commitment is made.
- Undertaking additional engineering or other follow up work will be based upon funding availability.



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# CHAPTER 5

## Access Management & Green Infrastructure



Freemans Bridge Road looking east where a shared right-in/right-out driveway serves multiple businesses.



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# Chapter 5



## Access Management

According to the FHWA website ([https://ops.fhwa.dot.gov/access\\_mgmt/what\\_is\\_accsmgmt.htm](https://ops.fhwa.dot.gov/access_mgmt/what_is_accsmgmt.htm)), Access Management is "...the proactive management of vehicular access points to land parcels adjacent to all manner of roadways...These techniques include: Access Spacing...Driveway Spacing...Safe Turning Lanes...Median Treatments...[and] Right-of-Way Management." Additionally, the website notes that "In areas of dynamic land development, it is important for jurisdictions to develop access management standards that achieve a balance between property access and functional integrity of the road system. Studies show that implementing access management provides three major benefits to transportation systems: Increased roadway capacity; Reduced crashes; and shortened travel time for motorists."

The Town of Glenville does not have access management guidelines defined in the current zoning ordinance. That said, Section 270-107 *Review Factors* which guide site plan review applications includes subsection (B) which notes one of the review factors as "The adequacy and arrangement of vehicular access and circulation, including intersections, road widths, curbing, and traffic controls. Consideration will also be given to the project's traffic elements and how they relate to adjacent uses." This section also includes subsection (C) which states "The adequacy and arrangement of pedestrian and bicycle access and circulation, including separation of pedestrian traffic from automobile traffic, the placement and usefulness of on-site sidewalks and

walkways, the accommodation for pedestrians at adjacent street intersections, and overall pedestrian and bicyclist safety and convenience."

This Chapter is intended to discuss potential considerations and be a starting point for the development of more defined guidelines or regulations for implementing access management along the corridor. These guidelines or regulations would apply to new development proposals but can also be considered to make improvements along the Freemans Bridge Road corridor on existing developed sites in cooperation with land owners.

The considerations and ideas herein are generally supported by recommendations from the Town of Glenville Comprehensive Plan, specifically Part 2. Goals, Section H. Transportation, and specific references to Freemans Bridge Road recommendations throughout the Plan which note the incorporation of access management techniques as part of the planning/zoning decision-making process. In addition, Section 8, Transportation, lists adoption of access management strategies within the Town's zoning ordinance for the Freemans Bridge Road corridor as a goal.

The rationale for incorporating Access Management into local regulations is ensure that they are considered and implemented during the land development process. As a part of a local regulation, access management will need to be part of a development proposal unless the requirement is waived or when an applicant meets some other criteria. Incorporation of standards or requirements into local regulations is a vitally important element of access





Driveways can be consolidated through access management to improve traffic flow and safety for all users.

management if such actions are to be effective and consistently required.

The discussion below provides a summary listing of access management techniques. Some, if not many, of these techniques are already in place and have been implemented in some locations, however this effort seeks to reinforce the importance of access management. As a low-cost and typically unnoticed design feature, access management typically requires minimal up-front costs to implement (through code and land development process changes) but can provide significant benefits to both safety and traffic flow.

## Access Management

There are several reasons to consider access management in this study. Specifically, FHWA notes several key access management principles on their website (See references in the text box to the right). There are eight distinct benefits of access management which are directly relevant to the Freemans Bridge Road corridor and this study. Access management:

- Preserves integrity of the roadway system
- Improves safety and capacity
- Extends functional life of the roadways
- Preserves public investment in infrastructure
- Preserves private investment in properties
- Provides a more efficient (and predictable) motorist experience
- Improves “though” times through a corridor
- Improves aesthetics (less pavement, more greening)

There is a wealth of information already available regarding access management, including the following:

CDTC – New Visions Regional Transportation Plan:

<http://www.cdtcmpo.org/documents-reports/new-visions-regional-transportation-plan>

NYS DOT – POLICY and STANDARDS for the Design of Entrances to State Highways: [https://www.dot.ny.gov/divisions/engineering/design/dgab/hdm/hdm-repository/HDM\\_Ch\\_5\\_Appendix\\_5A.pdf](https://www.dot.ny.gov/divisions/engineering/design/dgab/hdm/hdm-repository/HDM_Ch_5_Appendix_5A.pdf)

FHWA – Safe Access is Good for Business: [https://ops.fhwa.dot.gov/publications/amprimer/access\\_mgmt\\_primer.htm](https://ops.fhwa.dot.gov/publications/amprimer/access_mgmt_primer.htm)

FHWA – Benefits of Access Management: [https://ops.fhwa.dot.gov/access\\_mgmt/docs/benefits\\_am\\_trifold.htm](https://ops.fhwa.dot.gov/access_mgmt/docs/benefits_am_trifold.htm)

FHWA – Access Management Principles Presentation: [https://ops.fhwa.dot.gov/access\\_mgmt/presentations/am\\_principles\\_intro/index.htm](https://ops.fhwa.dot.gov/access_mgmt/presentations/am_principles_intro/index.htm)

TRB Access Management Manual (2014):  
Available in print form only. TRB does link to the Center for Transportation Research and Education (CTRE) at Iowa State University for their Access Management Handbook which is available online:  
<http://www.ctre.iastate.edu/Research/access/amhandbook/index.htm>

In addition, the CTRE Iowa Access Management Handbook (See reference box on previous page) states that the goal of a local access management effort is to reduce traffic conflicts through three basic elements:

- Limiting the number of conflict points that a vehicle may experience in its travel
- Separating conflict points as much as possible (if they cannot be eliminated); and
- Removing slower turning vehicles that require access to adjacent sites from the through traffic lanes as efficiently as possible

With these ideas in mind, the following access management options are recommended for consideration. We have developed the below summary to include a high-level checklist for use during a land development proposal or as an initial assessment for access management implementation on existing sites.

Given that the Town Code does not incorporate access management regulations currently, all the following ideas can potentially be incorporated into the code for Freemans Bridge Road (or the Town overall, if desired).

- ✓ Can the proposed development utilize an existing driveway from a physical perspective?
- ✓ Can the proposed development utilize an existing driveway from a legal perspective?
- ✓ Does the site just need a reduced curb width to better define ingress & egress?
- ✓ Can the site physically access a lower-classification roadway?
- ✓ Can the site legally (ROW, deed restrictions, etc.) access a lower-classification roadway?



Example right-in/right-out well-defined access to a commercial structure in Malta, NY





Connecting adjacent properties can be done throughout the corridor, including in the northern end near Route 50.

## Driveway Access & Width Needs

Generally, limit the number of driveways to only one per property unless it is demonstrated that a second is needed due to capacity or safety needs. Close extra curb cuts if not needed.

For locations that have a driveway connection to a lower-classification roadway, consideration should be given to making the entrance on the higher-classification road (i.e. Freemans Bridge Road) right-in/right-out only, forcing left turns to utilize the lower-classification road, make left turns at an intersection and thus reducing potential conflict points on the more congested corridor.

## Connection of Adjacent Properties

Encourage connections between adjacent properties using cross-access easements, access driveways, or stub-outs. These should be used to connect developments that are proposed, if an adjacent property is developed, or delineate where properties should connect when future development occurs on an adjacent site. These connections should also be considered for existing sites where cross-access makes sense and will provide an opportunity to keep "local" traffic off Freemans Bridge Road.

Connecting adjacent properties can reduce the number of necessary curb-cuts minimizing the potential conflict points and enhance both safety and corridor mobility. If several locations are connected, especially if connected to a corner lot, traffic can utilize the cross-access drives to use a lower-classification roadway for ingress/egress, particularly for left turns.

Connections should be utilized to minimize the need for new driveway access to Freemans Bridge Road, or potentially to remove an existing access in favor of a shared

driveway to be used by two or more sites. They should also consider both vehicular and non-vehicular connectivity needs and opportunities.

- ✓ Is it physically feasible to connect to an adjacent parcel? Is this going to be simple or require significant engineering/design?
- ✓ Is there more than one connection possible? Will this site be able to extend to more than one adjacent site?
- ✓ Are there any legal issues (ROW, deed restrictions, etc.) to consider?
- ✓ Can such a connection remove an existing or potential Freemans Bridge Road driveway?
- ✓ Is there adequate room to provide both vehicular and bike/pedestrian infrastructure? Even with a sidewalk at the street, people are likely to take the shortest route for pedestrian facilities.

## Shared Parking

Shared parking is the ability of more than one site, business, or entity to share a parking lot among several uses that typically do not all require parking at the same time. In doing so, each use does not individually need to provide all the parking typically required for the use. There must be enough parking for each use when needed, but shared parking takes advantage of the different peak times of each use to lower the total number of spaces required of all uses sharing a lot. A single lot serving multiple uses that require parking at the same time, like a shopping center, is a form of shared parking, but the parking requirements are not reduced as these uses all typically require parking at the same time.

Often these lots are shared among uses that have variable parking needs throughout the day – unlike say, an office building where workers generally all show up in the morning and leave in the evening. Uses typically include local government buildings, libraries, restaurants, smaller retail or service uses, and mixed-use, particularly where there are apartments above retail or commercial.

- ✓ Is it feasible to provide shared parking in close proximity to all proposed uses that will share parking?
- ✓ Are the uses complimentary in terms of parking need throughout the day?
- ✓ Are there any legal issues (ROW, deed restrictions, etc.) to consider?  
Are all parties willing to sign a contractual agreement to share parking, maintenance responsibilities, etc.?
- ✓ Can shared parking remove an existing or potential Freemans Bridge Road driveway?
- ✓ What are the benefits of shared parking over separated parking in this situation?



Example of a shared parking lot with for a several uses with screening along the sidewalk (Lakeland, FL).





Example of where a hybrid or frontage-type road could be located to provide alternative access off Freemans Bridge Road.

## Frontage Road

These access roads – in front or in back - can be developed between multiple businesses to connect them via a more defined travel-way than is typically found with cross-access driveways.

These can be developed as a “frontage road” which is an additional route that would technically run parallel to Freemans Bridge Road in front of buildings or drive lanes behind structures or through larger parking lots. There is a quasi/modified hybrid example of this type of road in the Freemans Bridge Road corridor along the frontage of Walmart. This road accesses more than one business but primarily is a driveway for Walmart which makes it somewhat of a hybrid Frontage Road.

Opportunities exist to provide access to other properties between Freemans Bridge Road and this hybrid Frontage Road. It could be extended to the south to provide development in this area access to Dutch Meadows Lane and potentially restrict existing access along Freemans Bridge Road to right-in/right-out. It could also potentially be expanded to the north for the land behind Central Plumbing and Heating Supply and potentially be used to provide delivery access to the Supply store, removing delivery truck left turns from Freemans Bridge Road.

Ownership and development of frontage roads can come in many forms. These roads could, and when possible really should, be constructed as part of development proposals but when such a road or extension is needed and brings about a valuable public benefit, public funding could be considered. Ownership is a consideration that is best left to Town officials who can weigh the trade-offs of public vs. private ownership and maintenance responsibilities.

- ✓ Is it feasible to provide a frontage road or access road?
- ✓ If so, where is the appropriate location?
- ✓ Are there any legal issues (ROW, deed restrictions, etc.) to consider?
- ✓ Will a frontage road or access road connect to cross-access driveways?
- ✓ What are the benefits of a frontage road or access road?

## Medians

Medians are areas between opposite lanes of traffic – typically considered to be more than just a double-yellow painted line delineating opposing directions of traffic. There are several different types of medians – painted, raised, landscaped, paved, wide, narrow, continuous, etc. These are effective in conveying the message of where travel should and should not occur, but they do not stop someone from utilizing the space in a way that is not intended.

Raised medians on the other hand are medians that extend vertically from the road surface. These can be low paved or concrete mountable elements, curbed, and paved areas, barriers (Jersey barrier or bollard), grassy or landscaped area. Medians prevent vehicles from crossing the road and keep vehicles from making left turns, except where explicitly permitted by providing physical breaks in the median. Medians are proposed at the gateway locations to the Freemans Bridge Road corridor.

Medians should be considered regarding a long-term corridor-wide access management plan/vision and future land use plan as medians are a significant element in site access and thus often dictate what types of land uses/layouts are possible/desirable.

- ✓ Is it feasible to provide a median?
- ✓ If so, where is the appropriate location(s)?
- ✓ Is there enough ROW?
- ✓ What are the maintenance requirements for a median?
- ✓ What are the benefits of a median?



Example of a raised, planted narrow median in Buffalo, NY.



Example of a low, planted wide median in Schenectady, NY.





Example of corner clearance where signs and vegetation do not block views of the sidewalk or road at the curb cut.

## Corner Clearance

Corner clearance minimizes conflicts between driveways and intersections. Driveways should not be allowed in the clearance area as these limits sight lines. In cases where a driveway is permitted, it should be limited to right-in and right-out turning movements.

Carefully consider landscaping/plantings and signage locations in relation to vehicle visibility from the driveway to the street as signs and/or landscaping on an adjacent property, particularly if nearby, can have an impact in visibility even though it is off-site. The projected height of landscaping should be considered so that a problem does not come about in the future when vegetation is full-size.



How much corner clearance is needed for a site? What do the Town standards require? Can these requirements be met?



What is the location of landscaping/plantings and signage?



Example of a clear corner where the structures and trees are located close to the road but behind the area that should remain clear for visibility at the intersection.

## Complete Streets

Related to Access Management is the principle of Complete Streets. Complete Streets refer to a set of street design concepts that ensures that all users are safely accommodated regardless of how they travel or what their special needs may be (see the *NYSAMPO Complete Streets Fact Sheet*).

This is a Complete Streets Study and the design recommendations look forward to a future where Freemans Bridge Road is accessible for all users, as opposed to currently where it is primarily automobile-oriented.

One of the first steps that can be taken by a municipality to help ensure Complete Streets are considered and/or implemented, depending on the policy language, is to adopt a Complete Streets Policy that helps to ensure the right-of-way is planned, designed, and constructed, operated and maintained to provide safe access for all users. In addition, better coordination between departments help ensure infrastructure improvements are coordinated (i.e. when a water pipe is replaced, and the road is repaved, that is a good time to adjust striping on the road or possibly undertake shoulder repaving/widening).

There are also potential efficiencies in using municipal staff instead of contractors – for example municipal staff can often clear, grade, and seed and area where sidewalks will be constructed, leaving the sidewalk installation to a professional contractor.

Development projects can be leveraged to help implement Complete Streets (and access management) through the design review process. A Business Improvement District, local development corporation, volunteer organization, or similar operation could be used/developed where local

government and businesses to work together to implement specific improvements on a voluntary basis.

There are many published and online resources available that provide detailed information regarding Complete Streets. See the project Toolkit document for more information – [www.townofglennville.org](http://www.townofglennville.org) as well as the following:

CDTC – New Visions Regional Transportation Plan:  
<http://www.cdtcmpo.org/documents-reports/new-visions-regional-transportation-plan>

NYSAMPO Fact Sheets:  
[http://nysmpo.org/wordpress/?page\\_id=1548](http://nysmpo.org/wordpress/?page_id=1548)

NYS DOT Complete Streets Webpage:  
<https://www.dot.ny.gov/programs/completestreets>

National Complete Streets Coalition:  
<https://smartgrowthamerica.org/program/national-complete-streets-coalition/>

American Planning Association Complete Streets Resource Database:  
[planning.org/research/streets](http://planning.org/research/streets)

Institute of Transportation Engineers (Designing Walkable Urban Thoroughfares):  
[library.ite.org/pub/e1cff43c-2354-d714-51d9-d82b39d4dbad](http://library.ite.org/pub/e1cff43c-2354-d714-51d9-d82b39d4dbad)

NYS Complete Streets Act:  
<https://www.nysenate.gov/legislation/bills/2011/s5411/amendment/a>

USDOT (A Residents Guide for Creating Safe and Walkable Communities):  
[https://safety.fhwa.dot.gov/PED\\_BIKE/ped\\_cmunity/ped\\_walkguide/residents\\_guide2014\\_final.pdf](https://safety.fhwa.dot.gov/PED_BIKE/ped_cmunity/ped_walkguide/residents_guide2014_final.pdf)



Example of a suburban Complete Street in Ithaca, NY that includes vehicle travel lanes, bike lanes, sidewalks, and crosswalks.



# Town of Glenville Freemans Bridge Road Complete Streets Corridor Study

Map #12

## Access Management & Transit Stop Locations



This map was made by Planning4Places, LLC & Sam Schwartz Consulting. It is not for official use and should be used for planning purposes only. Data was derived from Schenectady County Department of Economic Development and Planning and the NY Statewide Digital Orthoimagery Program.



Sam Schwartz

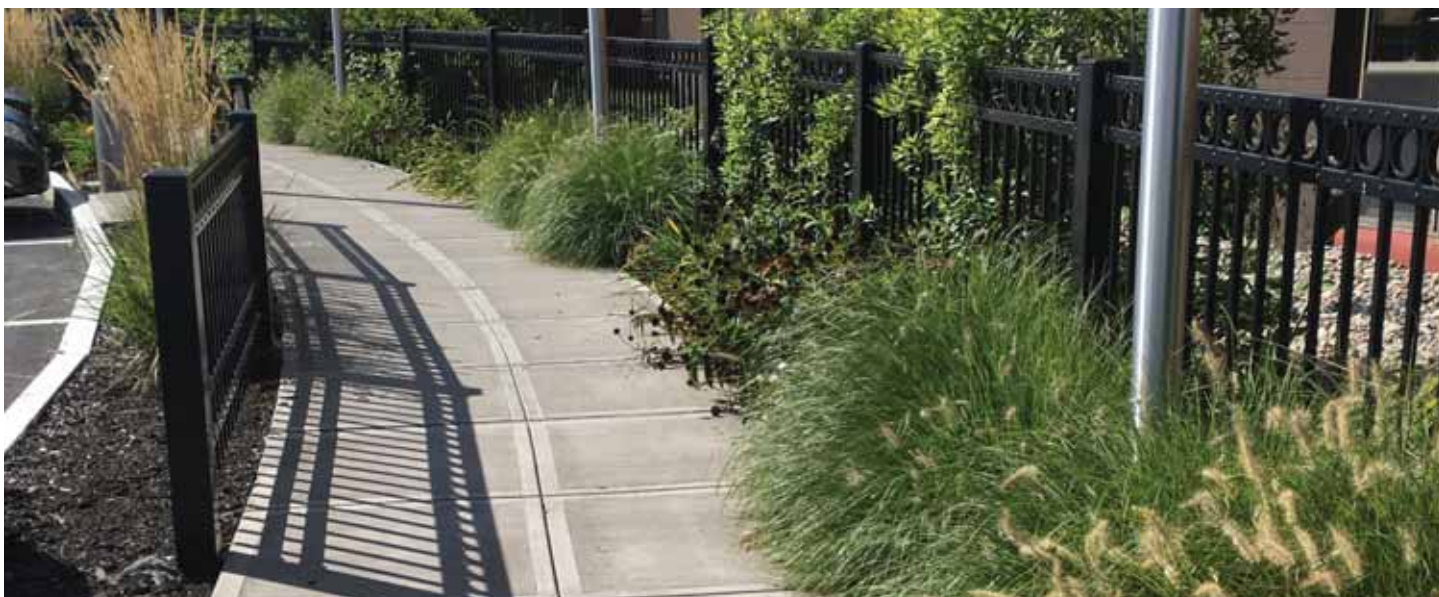
## Concept Plan Recommendations

There are many proposed access management ideas and recommendations that can be undertaken in the Freemans Bridge Road Corridor. The map to the left shows and labels each of the recommendations that have come out of this planning effort.



Right-in/right-out driveways that serve multiple businesses are an effective, relatively low-cost access management improvement.





Green Infrastructure can be placed virtually anywhere if engineered properly and adjacent to a sidewalk is a prime location.

## Green Infrastructure

The following section provides an overview of what green infrastructure is, what types of opportunities exist within the corridor, and a discussion of the locations that such infrastructure improvements could be located. The materials contained herein are intended as a presentation of “best practices” and potential opportunities. Any design element must undergo proper planning, design and engineering to ensure that the specific techniques are appropriate and viable for a particular location.

### What is Green Infrastructure?

The 2013 American Planning Association Report Green Infrastructure: A Landscape Approach presented that green infrastructure is “a landscape approach to green infrastructure requires considering not only how infrastructure could improve water or air quality but also how, say, a rain garden, constructed wetland, or greenway might engender a sense of community identity.” This Complete Streets Concept Plan is looking to improve the quality-of-life through improvements in mobility for all users, but to provide enhancements and add-on value that can be brought about through the construction/conversion process that will enhance the natural environment and help the Town meet and exceed any stormwater goals or requirements, particularly as they relate to MS4.

The inclusion of this discussion on green infrastructure serves two purposes: one is a key goal identified by the stakeholder group (SAC) related to looking for opportunities to create a “green” corridor and focus on sustainability. The second is that green infrastructure can itself be used to calm traffic and provide better separation between motor vehicles and non-motorized users, along with creating desirable gateway treatments at either end of Freemans Bridge Road.

There is a wealth of information already available regarding green infrastructure, including the following:

CDRPC – Green Infrastructure Toolkit:

<http://cdrpc.org/programs/water-quality/green-infrastructure-toolkit/>

American Planning Association: PAS Report - Green Infrastructure: A Landscape Approach: *Available to APA Members*

Smart Growth America – Implementing Complete Streets/ Sustainable Complete Streets:

<https://smartgrowthamerica.org/resources/complete-and-green-streets/>

NACTO – Urban Street Stormwater Guide:

<https://nacto.org/publication/urban-street-stormwater-guide/streets-are-ecosystems/complete-streets-green-streets/>

The proposed Concept Plan redesign of the corridor will also enhance the sense of place through strategic improvements known as “placemaking.” This simply is the concept that when you enter a place, you should be able to tell it is a unique and specific place – it doesn’t look like “Anytown USA” and in this case, is a place that people look at and will say – “this is Freemans Bridge Road”.

CDRPC, the Capital District Regional Planning Commission, is leading the way in the Capital Region when it comes to green infrastructure implementation. CDRPC’s efforts have been focused on the “Albany Pool Communities” which includes Albany, Troy, Rensselaer, Cohoes, Watervliet and the Village of Green Island and specific issues related to stormwater in these communities. Their work, however, has

direct applicability to most any green infrastructure efforts and coordinating green infrastructure-related efforts across the Capital Region is a way to capitalize on the knowledge already obtained and bring about some consistency in implementation through proven techniques already in place.

Much of the following information comes from the CDRPC Green Infrastructure Toolkit. This New York State Department of State Local Government Efficiency Program-funded toolkit (part of the Albany Pool Communities' Project) provides a wealth of information that is local and thus directly relevant.

The CDRPC Toolkit summarizes a few key green infrastructure practices including the following:

- The rate and volume of stormwater runoff increases as land is developed with additional roofs, streets, and other impervious areas.
- Green infrastructure practices (stormwater management) reduce the volume of stormwater runoff (RRv) and reduce pollutants in stormwater discharges from a site.
- Green infrastructure practices reduce impervious areas and directly reduces the RRv. For storms of up to 1", most, of the rain that falls on pervious areas is retained with the soils, vegetation, or in small depressions. In contrast, almost all the rain that falls on impervious surfaces results in runoff.
- Green infrastructure infiltration practices allow stormwater to seep into the ground rather than run off the site (this is the preferred method).
- There are specific plants and soils that are used in green infrastructure practices to help manage stormwater.

- Other green infrastructure practices remove pollutants and slow down the rate of discharge through the use of temporary storage.

Green infrastructure practices applicable for use in the Freemans Bridge Road Corridor are listed below. Summaries of these practices are detailed in the next section. Additional details are available in the Toolkit, which is included in the Plan Appendix, and online at [www.cdrpc.org](http://www.cdrpc.org).

#### Impervious Area Reduction Practices:

- Tree Planting
- Disconnect Impervious Areas
- Green Roofs
- Porous Pavement

#### Infiltration Only Practices

- Infiltration Basin
- Infiltration Trenches
- Infiltration Chambers and Drywells
- Shallow Soil System

#### Infiltration or Flow Through Practices

- Porous Pavement
- Vegetated Swale
- Bioretention Practices
  - Rain Gardens
  - Stormwater Planters
  - Bioretention Areas

#### Rainwater Harvesting

- Rain Barrels and Cisterns

#### Flow Through Only Practices

- Dry Swale



Simple techniques like breaks in islands allow for drainage to access areas more viable for Green Infrastructure installation.





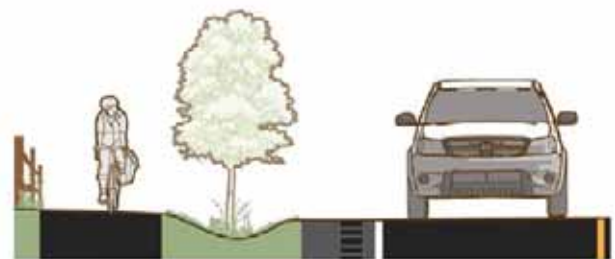
Pervious pavers can be used to allow rainwater to seep into the ground where it lands and not end up as runoff.

## Recommended Green Infrastructure Opportunities with the Implementation of Complete Streets Infrastructure Improvements

While there are many possibilities for green infrastructure improvements along the Freemans Bridge Road Corridor, only some of those detailed in the CDRPC Toolkit are generally implementable through Complete Streets infrastructure improvements. Many of the other options can, and should, be assessed and for consideration by property owners and through the land development process. While each of these options are grouped by category, many, if not all, can be combined to create a green infrastructure system that incorporates several different elements. The elements that are directly relevant to Complete Streets infrastructure implementation efforts include the following:

### *Impervious Area Reduction Practices*

**Tree Planting:** Trees can be a positive addition to any green infrastructure improvement program as they absorb water and help to stabilize the soil. The CDRPC guide requires that trees be planted within 10’ of the impervious area, at a minimum of 2” caliper for deciduous trees and 6’ tall for evergreen trees.



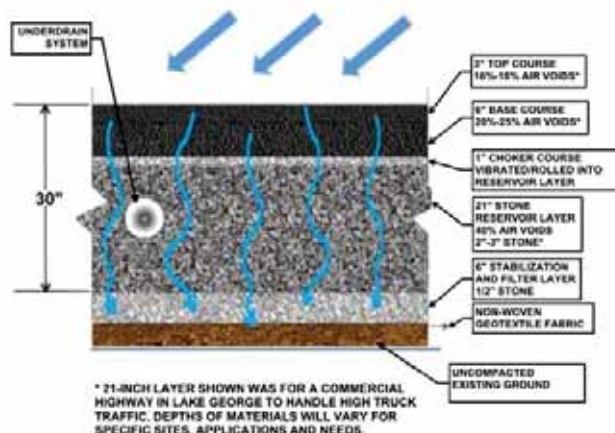
**Figure 4-18.** Separated bike lanes may be separated by an unpaved roadway separation, and a vertical element. When configured as directional facilities, separated bike lanes should be provided on both sides of the roadway.

FHWA Small Town & Rural Multimodal Network Guide

**Porous Pavement:** Porous pavement can take many forms but in general this term is used to refer to pavement that is permeable. This is in contrast to the types of materials most often used for sidewalks, roads, parking lots, trails, etc., which are typically impermeable. The types of porous pavement can include:

- Porous asphalt.
- Porous concrete.
- Permeable Pavers – concrete or clay bricks where water flows through the joints.
- Porous pavers – typically grid of concrete or plastic with grass or stone infill.
- Pervious pavers – manufactured permeable pavers.

For the purposes of developing a sidepath, porous asphalt is the most feasible option while for a sidewalk, porous concrete would be recommended. However, there may be instances where a unique or more intricate trail/design material is warranted, such as at a transition point from the trail or sidewalk to, possibly, a connection to a private business. In these situations, pavers may be desirable or warranted.



Porous pavement graphic provided in the CDRPC Green Infrastructure Toolkit.



Examples of porous parking lots: This one is in Malta, NY.



Verizon - Glenville. Note the shiny impervious surface.



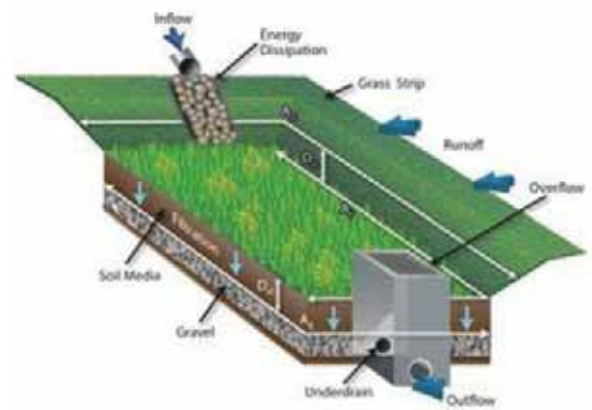


To the casual observer this GI element doesn't look any different than any other garden. (Photo courtesy of CDRPC)

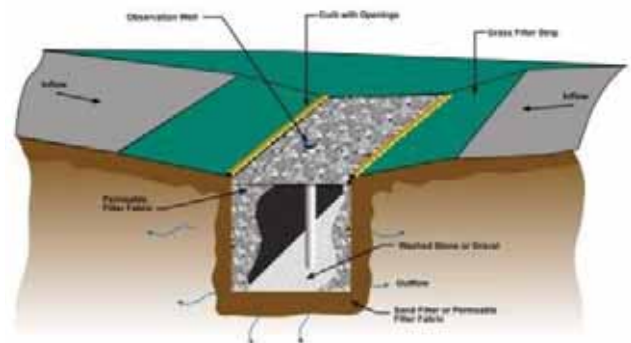
### Infiltration Only Practices

(Note: The graphics on this and the adjacent page are from the CDRPC Green Infrastructure Toolkit and used with permission from CDRPC)

**Infiltration Basin:** A round or more linear swale, typically covered by grass.

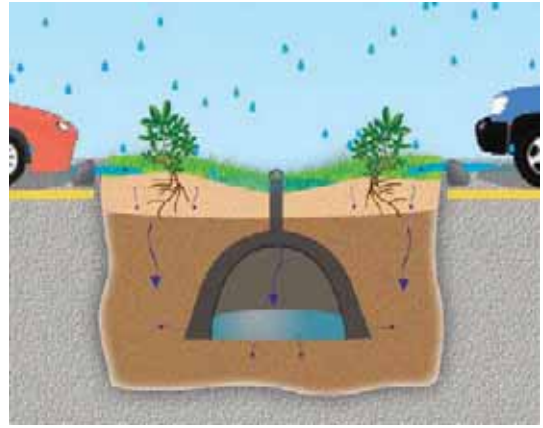


**Infiltration Trenches:** Open graded stone trench with grass or peastone surface.

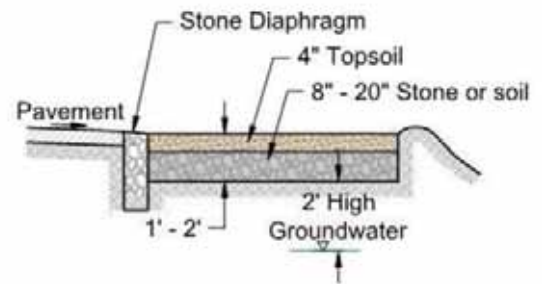




**Infiltration Chambers and Drywells:** These are subsurface structures that increase the available runoff storage volume. They are typically made of concrete or plastic surrounded by sand or stone and they can be located under paved surfaces including parking lots and roads.



**Shallow Soil System:** Similar to an infiltration trench with a larger area of shallow infiltration stone or permeable soil.



Green Infrastructure planters can be placed in areas with space constraints. (Photo courtesy of CDRPC)





Vegetated non-curbed swale located along Marietta Place in Albany, NY. (Photo Courtesy of CDRPC)

### *Infiltration or Flow-Through Practices*

**Porous Pavement:** Porous Pavement is also considered an infiltration or Flow-Through Practice.

**Bioretention Practices:** These practices typically involve both water retention or flow control as well as selection of water-tolerant and native plants & associated soils which are combined to retain and treat stormwater. The preferred application is to develop bioretention as an infiltration element, but they can also be designed to be a flow through element. These elements are used for many applications including along sidewalks/trails, parking lots and driveways or roads.

**Bioretention Areas & Vegetated Swales:** These are the most likely applications to be installed along the new sidewalk and sidepath. These areas are intended to catch, and retain (infiltrate, if feasible), runoff. It is envisioned that, conceptually, these would be installed between the road and sidepath or sidewalk the length of the new infrastructure to capture and retain, infiltrate, or at least slow the speed of runoff that comes both from Freemans Bridge Road and the sidewalk, subject to soil, slope, and engineering requirements.

Where these could not be installed between the sidewalk/sidepath and road, consideration should be given to working with the property owner to look at installing these between the new feature and the property owner(s)' parking lot or business. Regardless of location, consideration should always be given to identifying the most viable option to collect runoff from the road, sidewalk/sidepath, and adjacent property to ensure a systematic approach to stormwater runoff.



Picture of a vegetated curbed swale at Glimmerglass State Park - NY.

Bioretention areas include many different options, including being unlined or lined with curbing and designed to provide a ponding depth of 6"-12". These areas include 2.5' – 4' soil media which provides for infiltration when adequate soils are present but can be designed as a flow through using an underdrain to a storm sewer when necessary. Pretreatment is important when covering larger areas, as would likely be required for an application along the length of Freemans Bridge Road, unless the application was an infiltration type and segmented to not connect along significant lengths of Freemans Bridge Road. This option is used for treatment of up to 5 acres (thus the need to potentially segment bioretention areas from one another).

### Location, Location, Location

The ability to reasonably install green infrastructure improvements, particularly as part of this concept plan, are dependent on a number of factors including property ownership, slope(s), soil conditions, area available for such infrastructure, and funding availability.

### The CDRPC Toolkit

The CDRPC Toolkit is intended to supplement the NYSDEC Stormwater Management Design Manual (Design Manual). Practices and definitions included in the Design Manual are acceptable for use on some smaller sites. <http://cdrpc.org/programs/water-quality/green-infrastructure-toolkit/>

### Additional Useful Resources

The New York State Department of Environmental Conservation (NYSDEC) and the local Municipal Separate Storm Sewer (MS4) requirements apply to projects that disturb more than 1 acre.

<http://www.dec.ny.gov/chemical/43150.html>

<http://www.dec.ny.gov/chemical/29072.html>

<https://www.conservationfund.org/our-work/strategic-conservation-planning>

<http://www.lcbp.org/2017/06/green-infrastructure-stormwater-management-2017-rural-roads/>

[https://www.epa.gov/sites/production/files/2015-10/documents/gi\\_munichandbook\\_green\\_streets\\_0.pdf](https://www.epa.gov/sites/production/files/2015-10/documents/gi_munichandbook_green_streets_0.pdf)

<https://www.epa.gov/green-infrastructure/operation-and-maintenance-green-infrastructure-receiving-runoff-roads-and>

<https://www.dot.ny.gov/programs/greenlites>

<https://www.sustainablehighways.org>



Left: New bio-retention planter (so new vegetation is not yet planted) in new pervious sidewalk at Monument Square in Troy, NY – 2016. Note the cut in the concrete to allows water to enter the planter. Right: This parking island at Glimmerglass State Park outside Cooperstown, NY has recessed curbs cuts every ~20' and a bio-retention basin in the middle instead of grass or mulch. Native perennial grasses and groundcover require little maintenance.



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# CHAPTER 6

## Implementation



Existing Mohawk-Hudson Bike-Hike Trail running parallel to and under Freemans Bridge at the southern end of the corridor.



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# Chapter 6



Implementation is a multi-pronged process, some of which is beginning in the southern section through the LWRP effort.

## Introduction

This chapter provides details on implementation of the Complete Streets Concept Plan. Included below is a strategy matrix detailing major elements of the Concept Plan and the anticipated timeframe to develop each element, anticipated project partners, and potential funding sources.

Following the implementation matrix is a trade-off matrix. This graphic details the general benefit level of specific improvements (significant, moderate or minimal) against certain criteria that are anticipated as being addressed through the concepts. It also assesses Concept Plan improvements to the project goals developed early in the planning process.

Finally, this Chapter provides a high-level cost estimate for the major elements being proposed through the Concept Plan for the Study Area and a summary listing of potential funding opportunities. The cost estimate include costs to construct the sidepath, sidewalks, ADA curb ramps, crosswalks, and installation of pedestrian push buttons. It does not include the cost of elements such as curbing, fixing existing crumbling shoulders, or site-work to existing sites where access management techniques may change the layout of the entrances to a business. These costs would need to be considered during a design phase where a comprehensive assessment of the desired future design of the road for curb cuts and curbing would be addressed in concert with green infrastructure and other typical design considerations.

The funding opportunities summary provides a listing of sources that the Town of Glenville can consider pursuing to help with implementation of the Complete Streets Concept Plan. These sources include federal, state and “other” categories that can potentially assist in funding improvements including sidewalks, multi-use sidepaths, geometric improvements, signalization, and green infrastructure.

This funding summary is intended to provide a guide to possible sources. The current funding climate for transportation projects is very competitive with significantly more funding needs than available dollars. As such, applications for funding need to be submitted to the right program, at the right time for the project, and with the strongest possible sales pitch for why the project is important to the community.

While this plan recommends advancing recommendations and projects as a top priority for the Town it also recognizes that there are almost certainly competing interests Town-wide for funding applications that would be submitted to the same funding source (particularly with the CFA/REDC funding lines). As such, it is incumbent on the Town, business owners, and citizens to consider how best to prioritize projects and funding needs across all programs within the Town so that applications from the Town are not competing with themselves.





Implementation of Complete Streets concepts will require a proactive & coordinated approach.

## Implementation Strategy

The Implementation Strategy Matrix, found to the right, lists the recommendation/potential project, some detail on each project, an anticipated implementation timeframe, potential implementation partners, and potential funding sources and assistance for Concept Plan Improvements.

Implementation can be done through many different methods - public, private, and through public-private partnerships. A primary objective of implementation in this corridor is to work with developers as property is developed/redeveloped to ensure that the elements detailed in this plan are incorporated into projects located within the corridor.

Developments in the corridor should be required to provide the recommended Concept Plan elements as part of the development process even if it results in an "island" such as an unconnected sidewalk or sidepath segment. It will be connected eventually and can be used as a catalyst to undertake improvements on adjacent and nearby lots. It is always tougher to install these elements after a project is completed - even if the appropriate land area is set aside.

Beyond active or likely development sites, public-private partnerships are likely to be a major part of implementation of the concepts as all of the land fronting along the corridor is privately owned. While public dollars and work will likely be required to construct elements that are on property not proposed for development/redevelopment, the coordination and cooperation of landowners is vital to ensuring a smooth and coordinated process can take place.

At a higher level of analysis, there is a somewhat logical potential progression for implementation should it be done on a larger-scale through public projects and funding. This

process will generally relate to the three different sections of the corridor south, middle and north as follows:

Phase 1: Implementation in the southern section. This is already underway through the design effort being completed under the LWRP effort. There has been significant people-focused development along the riverfront with construction of the hotel and a captive audience that would be likely to walk to nearby destinations - but currently cannot easily do so.

Phase 2: Implementation in the middle section. There is a somewhat substantial amount of property for sale in the middle section of the corridor and through coordination with property development/redevelopment efforts, much of the Concept Plan may be able to be implemented. Additionally, this is where the bulk of the potential pedestrian-traffic businesses are currently located so connecting these businesses to other parts of the corridor, particularly the waterfront, seems to be a logical phase 2 approach.

Phase 3: Implementation of the northern section. While this section has some smaller pedestrian-traffic type businesses and is located nearby neighborhoods located on and west of Route 50 that would benefit from concept implementation along the corridor, it is also the section of the corridor that has some challenges. It is home to many businesses that are generally not going to be utilized by foot traffic. It also includes the northern terminus of the corridor where a roundabout is proposed. The roundabout is a major proposed infrastructure improvement which could easily impact exactly how the concept is implemented. This has been noted in the Concept Plan Chapter as a significant consideration and is a major part of why this section is seen as the last of three Phases from a high-level assessment.

Table 8: Implementation Matrix

This following table details the projects identified during the Concept Plan Planning Process. It includes details about each project, likely implementation partners, potential funding sources, and the timeline for implementation.

Recommendation/ Potential Project	Description	Anticipated Timeframe	Implementation Partners	Potential Funding Sources & Assistance
Replace railroad crossing across travel lanes	Replace the existing crossing which is currently in poor condition.	Near-Term	NYS DOT, Town of Glenville, Railroad, Others	This project is currently proposed to be constructed
Install sidewalk & multi-use sidepath crossing & pedestrian gates @ railroad crossing	Install a sidewalk and multi-use sidepath over the railroad tracks with pedestrian gates.	Near-Term	NYS DOT, Town of Glenville, Railroad, Others	Railroad, NYSDOT, HSIP, TAP
Install crosswalks	Install crosswalks at intersections along Freemans Bridge Road.	Near-Term to Longer-Term	NYS DOT, Town of Glenville, Property Owners	NYS DOT, TAP, Developers, Town of Glenville
Install sidewalk	Install sidewalk along Freemans Bridge Road.	Near-Term to Longer-Term	Town of Glenville, Property Owners, NYSDOT	CFA/REDC, TIP, TAP, Developers
Install multi-use sidepath	Install multi-use sidepath along Freemans Bridge Road.	Near-Term to Longer-Term	Town of Glenville, Property Owners, NYSDOT	CFA/REDC, TIP, TAP, Developers
Install Pedestrian Signals/Timers	Install pedestrian signals/timers at intersections with crosswalks.	Coordinated with crosswalk installation	NYS DOT, Town of Glenville	NYS DOT, Developers, Town of Glenville
Maple Avenue northbound approach lane realignment	This project will move northbound merge on Freemans Bridge Road to south of Maple Avenue and create single lane north of Maple Ave.	Longer-Term	NYS DOT, Town of Glenville, Property Owners	CFA/REDC, TIP, Developers
Install street lights	Install street lights along the entire length of Freemans Bridge Road. A design & layout/spacing plan for installation should be created. Installation should follow construction of sidewalk and sidepath	Near-Term to Longer-Term	NYS DOT, Town of Glenville, Property Owners	NYS DOT, NYSEDA, Developers, Town of Glenville
Install Gateway Treatment(s)	Install gateway treatments at the north and south ends of the corridor to create a "sense of place" for the corridor. Installation at the south end can happen at any time, the north end should be coordinated with the proposed roundabout	Moderate- to Longer-Term	NYS DOT, Town of Glenville	TIP, CFA/REDC, TAP
Install Green Infrastructure	Install green infrastructure in coordination with the construction of new Concept Plan elements such as a sidewalk or multi-use sidepath	Coordinated with other infrastructure design & construction	NYS DOT, Town of Glenville, Property Owners, Developers	Developers, NYSEDEC, TAP
Consolidate Driveways and create shared driveways for multiple users/uses	One of the key elements of the Concept Plan is to improve safety. Consolidating many of the existing driveways into shared driveways is a key element of the overall safety of vehicular and non-vehicular users.	Some driveways could be consolidated in the short-term, others may require more time	NYS DOT, Town of Glenville, Property Owners, Developers	CFA/REDC, TIP, TAP, Developers
Install "Frontage Road"	A Frontage Road could not only provide alternative vehicular access to businesses, it could potentially remove curb cuts from Freemans Bridge Road.	This is a moderate- to longer-term project	Town of Glenville, Property Owners, Developers	Developers, CFA/REDC, TIP
Install aesthetic enhancement elements such as planters, flags, street trees, etc.	Install aesthetic enhancements to finish-out the visual improvement(s) that will give Freemans Bridge Road its unique "sense of place."	This is an on-going effort that can begin anytime	Town of Glenville, Property Owners, Developers	Town of Glenville, Developers, CFA/REDC





Changes to just about anything come with trade-offs that must be considered—transportation is no different.

## Recommendation Summary: Trade-Off Matrix

In order to evaluate the recommendations, a trade-off matrix which compares the recommendations to the project goals was created. The Study Advisory Committee felt that comparing the project goals to the recommended improvements, in addition to specific improvement measures, could assist in prioritizing improvements.

Measures of effectiveness of the recommendations are categorized into three benefit levels: minimal, moderate, and significant.



Table 9: Trade-Offs Matrix

	Specific Improvements										Relationship to Project Goals					
	Increases Overall Corridor Safety	Increases Vehicular Safety	Increases Pedestrian Safety	Increases Bicycle Safety	Increases Pedestrian Mobility	Increases Bicycle Mobility	Improves Vehicular Mobility	Decreases Public Sector Maintenance Requirements	Decreases Vehicle Delay	Improves Corridor Aesthetics	Goal 1: Improve Pedestrian Infrastructure and Conditions along the Corridor	Goal 2: Improve Bicycling Infrastructure & Conditions along the Corridor	Goal 3: Improve Safety, Better Manage Congestion, and Implement Access Management	Goal 4: Increase the Potential for Transit Service to Destinations along the Corridor	Goal 5: Incorporate Green Infrastructure and Sustainability into Future Work along Freemans Bridge Road	Goal 6: Provide Amenities that give Freemans Bridge Road an Identity
Replace railroad crossing across travel lanes	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Install ped. crossing & gates @ RR crossing	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Install crosswalks	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Install sidewalk	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Install multi-use sidepath	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Install Pedestrian Signals/Timers	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Freemans Bridge Road to south of Maple Avenue and create single lane north of Maple Ave.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Install street lights	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Install Gateway Treatment(s)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Install Green Infrastructure	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Consolidate Driveways	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Install "Frontage Road"	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Install Beautification elements such as planters, flags, street trees, etc.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Significant Benefit  
 Moderate Benefit  
 Minimal Benefit





Implementation will require funding but an investment in Complete Streets is an investment in improved quality-of-life.

## Concept Plan Cost Estimates

Order-of-magnitude (planning-level) cost estimates are provided for the Concept Plan. These estimates are based from the NYSDOT Quick Estimator Reference - Upstate and are intended to give a sense of potential costs for major elements proposed. Further refinement through design and engineering will refine these rough cost estimates further.

## Potential Funding Sources

There are many potential funding sources that the Town of Glenville can pursue to help with implementation of the Complete Streets Concept Plan. These sources can potentially assist in funding improvements including sidewalks, multi-use sidepaths, geometric improvements, signalization, and green infrastructure.

While several programs are listed below, many of which are directly referenced in the project Implementation Matrix, it is important to note that generally speaking these programs break-down into three general categories:

- Federal - which will be programmed through NYSDOT & CDTC,
- State - which generally runs through the CFA/Regional Economic Development Council (REDC) process, and;
- "Other" potential sources - includes Metroplex, current property owners, developers, foundations or contributions/donations, and an business improvement district or similar setup. These "Other" potential sources were not identified in the implementation matrix explicitly as they are not funding streams or agencies with a specific mandate to provide funding and assistance for transportation projects – but they are very viable potential project partners for certain aspects of

the Concept Plan and related recommendations. Metroplex, for example, has been investing in the county for years to spur economic development projects. The Town of Glenville is within the Metroplex Service Area and is eligible to work with the Authority to investigate any potential assistance the Authority may be able to provide.

### Federal

- FHWA Surface Transportation Block Grant Program (STBG): includes a set-aside for what was formerly known as Transportation Alternatives (TAP) – FHWA or (TAP) – 2016 NYSDOT guidance
- FHWA Highway Safety Improvement Program (HSIP), which includes a set-aside for the Railway-Highway Crossings (Section 130) Program
- USDOT Better Utilizing Investments to Leverage Development (BUILD) Discretionary Grants program (replacement for the TIGER grant program)

### State

- NYSDOT Complete Streets funding summary (references federal programs)
- NY State Consolidated Local Street and Highway Improvement Program (CHIPS)
- NY State Environmental Facilities Corporation Green Innovation Grant Program (GIGP) – supports projects that utilize unique stormwater infrastructure design and create cutting-edge green technologies. Grant provides minimum of 40%, maximum of 90% of total eligible project costs.

- NY State Cleaner, Greener Communities Program (CGC)
- Regional Economic Development Council – Water Quality Improvement Project (WQIP) – funds projects that directly address documented water quality impairments.

## Local/Other Potential Sources

- Schenectady Metroplex Development Authority
- Private Developers (Site development could fund or construct parts of the Concept Plan. These incremental efforts could be implemented through escrow of funds which will be used at a later date for construction or by construction of segments as part of a development)
- Foundation Grants
- Individual Contributions
- “Adopt FBR” Program
- Improvement District or similar structure

## Cost Estimate Calculation

The NYSDOT Quick Estimator - Upstate was used to create planning-level cost estimates.

The Quick Estimator calculation for major items can be found on the next page.

Other Potential Elements Not Calculated*	Unit	Unit Price	Other Potential Amenities*	Unit	Unit Price
Concrete Curbing	LF	\$82	Bike Rack	EA	\$500
Wooden Bollard	EA	\$250	Metal Furniture (6' Bench with Back)	EA	\$1,065
Low Height Retaining Wall	SF	\$75	Metal Round Planter (30" dia x 24" h)	EA	\$610
Raised Crosswalk	EA	\$15,000	Metal Outdoor Trash Can (Flat Lid)	EA	\$629
Small Single Post-Mounted Sign	EA	\$825	Ornamental Streetlights	EA	\$3,000

\* Other Potential Elements Not Calculated - Prices taken from NYSDOT Quick Estimator Reference - Upstate (Feb. 2018)

\* Other Potential Amenities - Unit Prices based on costs from ULINE - April 2018. (Items H-2891BL, H-3019, H-3020, H-2865) with the streetlight estimate provided based on a review of several different vendor options.

### Notes:

The sidewalk calculation provided by NYSDOT was for a 5' wide sidewalk. The cost estimate on the next page added a row (in blue text) to account for the additional cost of providing the plan recommended 6' sidewalk width.

Land acquisition, utility relocations, green infrastructure, and any required additional infrastructure (such as culverts) or retaining wall is not included in this cost estimate.



Table 10: NYSDOT Quick Estimator Reference - Upstate

Item No.	Item	Unit	Unit Price	Quantity	Subtotal	NYSDOT Item Numbers for Bid History	Note
608.01000015	Concrete Sidewalk (4" thick, 5' wide)	LF	145.00	7920	\$1,148,400.00	608.0101 - CONCRETE SIDEWALKS AND DRIVEWAYS 627.50140008 - CUTTING PAVEMENT 203.02 - UNCLASSIFIED EXCAVATION AND DISPOSAL 304.12 - SUBBASE COURSE, TYPE 2 633.14 - REMOVAL AND REPAIR OF HMA PAVEMENT 610.1403 - TOPSOIL - LAWNS 610.1602 - TURF ESTABLISHMENT - LAWNS 609.0401 - CAST-IN-PLACE CONCRETE CURB	Includes removal of the existing sidewalk, saw cutting, excavation, disposal, fill, subbase material, compaction, and the construction of the new sidewalk with associated curbing, patching and repairs to affected asphalt and concrete, topsoil, establishing turf and finish work. All material and labor required to perform these tasks is included. DOES NOT include required adjustments to utilities
(This row was added to the template - it is not part of the original estimator)	Cost increase to account for additional 1' width in sidewalk	LF	30.00	7920	\$237,600.00	See Above	See Above
608.0111002	Multilane Asphalt Path (10' wide)	LF	63.00	7920	\$498,960.00	608.020102 - HMA SIDEWALKS DRIVEWAYS AND BICYCLE PATHS	Includes all prep of subgrade, sawcutting and tack coat, grading and leveling courses. DOES NOT include curbing, grading or turf establishment. NOTE: Prices have been volatile in recent years.
608.0105--09 608.0105NN15	ADA Curb Ramp	EA	3,650.00	90	\$328,500.00	608.0101 - CONCRETE SIDEWALKS AND DRIVEWAYS 627.50140008 - CUTTING PAVEMENT 203.02 - UNCLASSIFIED EXCAVATION AND DISPOSAL 304.12 - SUBBASE COURSE, TYPE 2 633.14 - REMOVAL AND REPAIR OF HMA PAVEMENT 610.1403 - TOPSOIL - LAWNS 610.1602 - TURF ESTABLISHMENT - LAWNS 609.04 - CAST-IN-PLACE CONCRETE CURB (AS DETAILED) 608.2 - DETECTABLE WARNING UNIT	Includes demolition, saw cutting, excavation, disposal, fill, subbase material, compaction, construction of the new curb ramps, landings and associated curbing, detectable warning units, repairs to affected asphalt and concrete, topsoil, establishing turf on disturbed areas, and finish work. NOTE: There are significant variations in the complexity and price of curb ramps. This figure represents an average.
685.20000015 (Pavement Markings)	LS Type (Ladder) Crosswalk	EA	1,200.00	22	\$26,400.00	685.01 - WHITE EPOXY REFLECTORIZED PAVEMENT SYMBOLS - 635.0103-15 MILS CLEANING AND PREPARATION OF PAVEMENT SURFACES	Assume 700 LF of 4" striping per crosswalk. Includes application, removal and covering of pavement lines, letters, symbols, stop bars, crosswalks and any other markings, and any required cleaning and preparation of the surface to receive the markings
680.01030015	New pedestrian signal with push buttons	EA	7,000.00	14	\$98,000.00	680.510501 - PULLBOX, RECTANGULAR 680.520108 - CONDUIT, METAL STEEL, ZINC COATED, 3" ASSEMBLY 680.8142 - PEDESTRIAN SIGNAL POST TOP MOUNTED 680.730514 - SIGNAL CABLE, 5 CONDUCTOR, 14 AWG 206.03 - CONDUIT EXCAVATION AND BACKFILL, INCLUDING SURFACE RESTORATION 680.6708 - TRAFFIC SIGNAL POLE -TOP MOUNT, 8FT MOUNT HEIGHT 680.81310010 - AUDIBLE PEDESTRIAN SIGNAL (includes button and sign) 680.813103 - PEDESTRIAN SIGNAL SECTION, TYPE 1, 12 INCH 680.813104 - INSTALL LED PEDESTRIAN SIGNAL MODULE	Includes demolition, saw cutting, excavation, disposal, fill, topsoil, establishing turf on disturbed areas, repairs to affected asphalt and/or concrete as necessary, traffic signal systems, and components (removed and or supplied / installed), traffic signal systems wiring, including vehicle detection (removed and or supplied / installed), furnishing electrical service, finish work, and any required adjustments to utilities.
610.10000015	Landscape Development (Establishing turf)	SY	13.00	2640	\$34,320.00	610.1602 - TURF ESTABLISHMENT - LAWNS 610.1403 - TOPSOIL - LAWNS	Price is for the establishment of turf, but spec includes pruning of trees and/or shrubs, removal of trees and/or stumps, erosion control measures (including check dams, silt fence and mulch), and the establishment of any plants; finish work, and required adjustments to utilities.
% WZTC based on project complexity		10%	Percentage	1	\$237,218.00		
% for Incidents, Inflation and Contingencies		20%	Percentage	1	\$474,436.00		
		Total Construction Cost =			\$3,083,834.00		
% for Survey		10%	Percentage	1	\$308,383.40		
\$10,000 + 10% for Design (adjust for project complexity)		10%	Percentage	1	\$318,383.40		
% for Construction Inspection (adjust for project complexity)		15%	Percentage	1	\$462,575.10		
		Total Project Cost =			\$4,173,175.90		

Additional cost information for design features can be found in "Costs for Pedestrian and Bicyclist Infrastructure Improvements," UNC Highway Safety Research Center, October 2013

[http://xetana.bsrc.unc.edu/cms/downloads/Countermeasure%20Costs\\_Report\\_Nov2013.pdf](http://xetana.bsrc.unc.edu/cms/downloads/Countermeasure%20Costs_Report_Nov2013.pdf)

Updated: Feb 2018

# APPENDICES

- Photo Log
- Toolkit
- Survey Results
- Policies & Ordinances
- Environmental Justice
- Environmental Mitigation
- Planning & Environmental Linkages Checklist



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# APPENDIX A

## . Photo Log



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# Photo Log



The Freemans Bridge Road Complete Streets Concept Plan existing conditions documentation effort included multiple site visits early in the project as well as a Study Advisory Committee kickoff meeting tour of the corridor.

During the tour, participants discussed specific opportunities, constraints, and issues related to the corridor today and in the vision of Freemans Bridge Road as a Complete Street in the future.

This photo log documents conditions at the start of the project and assists in discussions of Complete Streets implementation by providing the Study Advisory Committee, stakeholders, and the public with a quick-reference document detailing the physical characteristics of the corridor.

This document and the photos herein show specific elements within the corridor as well as the general character of segments of the corridor. In addition to these photos, the use and review of aerial images can complement any assessment of the physical characteristics along Freemans Bridge Road.



Study Advisory Committee Members discussing the railroad crossing on Freemans Bridge Road.



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## Freemans Bridge/Southeastern Section of the Corridor



Freemans Bridge looking north toward Glenville



Mohawk-Hudson Bike-Hike Trail segment  
underpass under Freemans Bridge Road



Mohawk-Hudson Bike-Hike Trail segment on the  
southbound side of Freemans Bridge Road



Mohawk-Hudson Bike-Hike Trail segment on the  
northbound side of Freemans Bridge Road





NYS Boat Launch and Scenic Overlook on the Mohawk River - adjacent to trail underpass



Freemans Bridge looking south from Glenville



4-lane cross section with center turn lane just north of Freemans Bridge



Looking north past entrance to NYS boat launch, hotel, restaurant & businesses



A bicycle lane is provided between the two northbound lanes and the Maple Avenue right turn lane



Looking north - north of Maple Avenue where the 2 northbound lanes merge into 1 lane



Looking north at the approach to the Lowes intersection



Looking south at the Lowes intersection





## Central Section of the Corridor



Looking south on Freemans Bridge Road at the  
Lowes intersection



Looking east at the Lowes access road



Undeveloped land fronting on the Lowes access  
road



Undeveloped land behind Lowes



Private driveway that connects the Lowes access road to Sunnyside Road



Lowes Access road looking east to Freemans Bridge Road



Lowes access road pedestrian infrastructure and streetscaping



Sidewalk termination at the western end of the Lowes access road





Sidewalk segment with crosswalk and pedestrian signal...though placed in the sidewalk



Freemans Bridge Road looking north from Goldstock's Sporting Goods



Freemans Bridge Road looking north over the railroad crossing



Railroad crossing - note the condition of the crossing



Railroad crossing shoulder - southbound traffic oncoming



Railroad crossing looking east



Freemans Bridge looking south from railroad crossing



Land for sale on the northbound side of Freemans Bridge Road adjacent to the railroad crossing





Vacant land currently part of the Former Kenco Chemical Company, Inc State Superfund cleanup



Vacant land currently part of the Former Kenco Chemical Company, Inc State Superfund cleanup



Freemans Bridge looking north on the approach to Dutch Meadows Lane



The only sidewalk segment along Freemans Bridge Road - looking south at the Speedway toward the intersection with Dutch Meadows Lane



Sidewalks located along Dutch Meadows Lane  
behind the Speedway



Deteriorating narrow sidewalk located along  
Dutch Meadows lane adjacent to Walmart



Property across from Dutch Meadows Lane -  
proposed for redevelopment



Freemans Bridge Road looking north - north of  
Dutch Meadows Lane





## Northern Section of the Corridor



Freemans Bridge Road looking north at Paul Perry Kitchens driveway



Freemans Bridge Road looking north in front of Central Plumbing and Heating



Freemans Bridge Road looking north at Randy's Tire & Service Center & residential homes



Freemans Bridge Road looking north at the Mohawk Honda Car Dealership



Looking north in front of Mohawk Ambulance Service



Looking north in front of Enterprize Auto Sales



Freemans Bridge Road looking north at the Freemans Bridge Road /Route 50 intersection



Freemans Bridge Road/Route 50 intersection looking west from Airport Road



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# APPENDIX B

## . Toolkit



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# Town of Glenville Complete Streets Toolkit

## What are Complete Streets?

Streets for everyone -  
no matter who they are or how they travel.

**C**omplete Streets are in demand and take many forms. They refer to a set of street design concepts that ensures that all users are safely accommodated regardless of how they travel or what their special needs may be (NYSAMPO Fact Sheet).

A Complete Street design can significantly improve safety and reduce pedestrian-related crashes. It can also help reduce congestion, provide more efficient travel within the community, and spur economic development (NYSAMPO Fact Sheet).

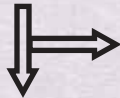
According to a 2010 Future of Transportation National Survey, 66% of Americans wanted more transportation options so that they have the freedom to choose how to get where they need to go.

The same survey also found that 73% of Americans felt that they had no choice but to drive as much as they do while at the same time 57% would like to spend less time in their car.

Complete Streets improve mobility for the young and old. An AARP study showed that 47% of older Americans said it was unsafe to cross a major street near their home. 56% of those older Americans expressed strong support for adoption of Complete Streets policies. Finally, in August 2011 Complete Streets in New York State took on an increased level of importance with the passage of the Complete Streets Act (SO5411A/AO8366).

## Who Benefits?

**A**nswer: EVERYONE



100% of children under 16 do not drive - that's 19% of the population of the Town of Glenville. (2010)

1.8% of workers (250 total) 16+ do not have access to a vehicle in Glenville. (2016)

4.1% of workers in Glenville 16+ walked, biked, or took public transit. (2016)

(2010 U.S. Census & 2016 ACS)

## Why do we need Complete Streets?

**Safety:** Pedestrian crashes decrease significantly with complete streets improvements.

**Mobility:** Provides options for everyone.

**Economic Development:** Proven to increase private sector investment, support and grow jobs & the economy.

**Social Equity:** People have more control over expenses. Transportation is the 2nd largest expense for families.

**Health:** We are moving without moving!



FROM THIS...  
(EXISTING FREEMANS BRIDGE RD)

TO THIS...  
(SIDEWALKS & BIKE LANES)



## What's Inside?

Resources.....	2
Funding .....	3
Freemans Bridge Road Project...	4

## About CDTC

**T**he **Capital District Transportation Committee (CDTC)**, the funding agency for development of this Toolkit, is the designated Metropolitan Planning Organization (MPO) for the Capital District. The CDTC carries out federal requirements for cooperative transportation planning and programming within the metropolitan area surrounding the Albany-Schenectady-Troy and Saratoga Springs urbanized areas. [www.cdtcmopo.org](http://www.cdtcmopo.org)





## Why Implement Now?



To make the needs of ALL USERS the default for everyday transportation planning practices.



An AARP study on Complete Streets and the Aging of America found that 56% of respondents expressed STRONG SUPPORT for adoption of Complete Streets policies.



50% of trips are less than 3 miles, 28% OF TRIPS ARE LESS THAN 1 MILE...yet 65% of these trips are driven (2009 National Household Travel Survey). A 2012 CDC study found that 46% of people will walk 1 mile to a religious gathering or school and 35% will walk to work.



WE ARE MOVING WITHOUT MOVING! The Centers for Disease Control recommends 22 minutes of walking per day...the average person in America, including drivers, gets 6 minutes per day (Evaluation of Public Transportation Health Benefits, T. Litman).



TO SAVE MONEY IN THE LONG RUN: In general, infrastructure improvements & enhancements aren't getting any cheaper and planning/coordinating infrastructure investments across all departments should reduce costs overall.

*Complete Streets increase the opportunity for travel along corridors by all users...*

## Online Resources

### What is the safety benefit?

Pedestrian crash analysis findings show that approximately 15% of fatal crashes between 2005 and 2014 involved pedestrians.

### Pedestrian Crash Reduction Potential:

- 88% with sidewalks
- 69% with hybrid beacons
- 46% with medians
- 45% with road diets

### What is the health benefit?

There are wide-ranging benefits from implementing Complete Streets. There is currently a health crisis in this country highlighted by the following statistic:

**60%** of people are at risk for diseases associated with inactivity:

- Diabetes
- High Blood Pressure
- Other Chronic Diseases

### CDTC Committee(s): Complete Streets; Bicycle & Pedestrian:

<http://www.cdtcmpo.org/committees/advisory-committees-2>

### NYS DOT Complete Streets Webpage:

<https://www.dot.ny.gov/programs/completestreets>

### NYSAMPO Fact Sheets:

[http://nysmpo.org/wordpress/?page\\_id=1548](http://nysmpo.org/wordpress/?page_id=1548)

### National Complete Streets Coalition:

<https://smartgrowthamerica.org/program/national-complete-streets-coalition/>

### American Planning Association Complete Streets Resource Database:

[planning.org/research/streets](http://planning.org/research/streets)

### Institute of Transportation Engineers (Designing Walkable Urban Thoroughfares):

[library.ite.org/pub/e1cff43c-2354-d714-51d9-d82b39d4dbad](http://library.ite.org/pub/e1cff43c-2354-d714-51d9-d82b39d4dbad)

### NYS Complete Streets Act:

<https://www.nysenate.gov/legislation/bills/2011/s5411/amendment/a>

### USDOT (A Residents Guide for Creating Safe and Walkable Communities):

[https://safety.fhwa.dot.gov/PED\\_BIKE/ped\\_cmnty/ped\\_walkguide/residents\\_guide2014\\_final.pdf](https://safety.fhwa.dot.gov/PED_BIKE/ped_cmnty/ped_walkguide/residents_guide2014_final.pdf)

## Other Published Resources

AASHTO/FHWA Green Book: Guide for the Development of Bicycle Facilities

FHWA Flexibility in Highway Design

ITE Urban Street Geometric Design Handbook

NACTO Urban Street Design Guide; Urban Bikeway Design Guide

AARP Public Policy Institute: Planning Complete Streets for an Aging America

APA Complete Streets: Best Policy and Implementation Practices

NCHRP Report 616: Multimodal Level of Service Analysis for Urban Streets

NYC Street Design Manual



## Low/No-Cost Options

Complete Streets is about using existing resources differently!

Special funding is not necessarily needed. Thinking ahead and coordinating efforts can result in noticeable changes and improvements with little to no additional funding needed.

- Work with local agencies & utilize existing expertise: the Capital District Transportation Committee, New York State Department of Transportation, Capital District Regional Planning Commission, and Schenectady County.
- Attempt to find efficiencies using municipal staff - for example staff could do some of the work typically done by contractors (clearing, grading or seeding).
- Intersection improvements are often low(er) cost upgrades that can be easily implemented (crosswalk striping, crosswalk buttons & timers, etc.).
- Restripe roadways to provide adequate width for bike lanes.
- Plan for, design, and construct sidewalks as part of planned drainage, grading roadway widening, or development projects.

## Funding Opportunities

While coordination and planning ahead can provide significant positive impacts and reduce the need for special or additional funding, it isn't always possible.

There are several funding sources typically utilized to fund Complete Streets projects including the following:

**Regional Economic Development Councils (REDC):**  
<https://regionalcouncils.ny.gov/content/capital-region>

**Consolidated Funding Application (CFA):** <https://apps.cio.ny.gov/apps/cfa/>

**NYSDOT Transportation Alternatives Program (TAP) & Congestion Mitigation and Air Quality Improvement Program:** <https://www.dot.ny.gov/TAP-CMAQ>

**Highway Safety Improvement Program (HSIP):**  
<https://www.dot.ny.gov/divisions/operating/osss/highway/improvement-program?nd=nysdot>

Additionally, there are opportunities and options for working with others directly engaged with/within the Town:

**Leverage planned development projects:** Municipalities work with developers to bring about the best project(s) possible all the time, often implementing Complete Streets elements. With known expectations and a well conceived plan, implementing comprehensive Complete Streets policies can be seamlessly integrated.

**Business Improvement District (BID) or similar operation:** While a BID itself is a specific taxing authority that can be difficult to establish, there is nothing saying that local government and businesses who want to see Complete Streets (and other) changes progress can't work together to plan, fund, and implement specific improvements on a voluntary basis.

## Complete Streets Policies

Policies ensure that the right-of-way is planned, designed, constructed, operated, and maintained to provide safe access for all users.

There are many examples of policies that have been adopted and implemented throughout the Capital Region and New York State.

- Town of Niskayuna, NY
- Town of Bethlehem, NY
- City of Saratoga Springs, NY
- City of Troy, NY
- City of Cohoes, NY

Copies of policies in NYS have been collated and are available on the NYSDOT website:

<https://www.dot.ny.gov/programs/completestreets>

*Note: Paper copies of the above referenced local policies can be viewed by visiting the Glenville Planning Department.*

*CDTC has an active Complete Streets Advisory Committee. Information on this Committee can be found on their website:*

[www.cdtcmo.org/page/66-project-programs/complete-streets/52-complete-streets-advisory-committee](http://www.cdtcmo.org/page/66-project-programs/complete-streets/52-complete-streets-advisory-committee)

*Additional information on where policies have been developed across the U.S. can be found on the Smart Growth America website:*

[www.smartgrowthamerica.org](http://www.smartgrowthamerica.org)



#### Contact Information



Glenville Municipal Center  
18 Glenridge Rd., Glenville, NY 12302  
Phone: 518-688-1200  
Fax: 518-384-0140  
[www.townofglenville.org](http://www.townofglenville.org)

Chris Koetzle, Town Supervisor  
Kevin Corcoran, Town Planner



One Park Place, Main Floor  
Albany, NY 12205  
Phone: 518-458-2161  
Fax: 518-729-5764  
[www.cdtmpo.org](http://www.cdtmpo.org)

Christian P. Bauer,  
Senior Transportation Planner

## What is the Freemans Bridge Road Complete Streets Concept Plan?

Currently, Freemans Bridge Road (NY Route 911F) adequately serves the needs of motor vehicles. However, alternative modes of transportation, including cycling and walking, are accommodated less so.

This Plan analyzes the existing conditions and researches alternatives for future street design and land use controls that will enable safe, attractive, and comfortable access and travel for all users of Freemans Bridge Road.

The Plan will provide a roadmap for implementing future land use and transportation planning policies that integrate safety improvements, minimize environmental impacts, encourage economic growth, and build a Complete Street that is safe, convenient and comfortable for all ages and abilities using any mode of transportation. The Plan will continue to advance the goal of making the Town more viable for non-automobile travel and make the corridor a more walkable, livable, and healthy place to live, work and play.

This Plan is being developed with guidance from local residents and business owners, as well as other key stakeholders in the corridor to ensure widespread discussion and consideration of users, landowners, and interested parties located within the Freemans Bridge Road corridor.

#### Glossary

**Road Diet:** Removing travel lanes from a roadway and utilizing the space for other uses and travel modes.

**Hybrid Beacon (Pedestrian):** A pedestrian-activated warning device located on the roadside on mast arms over midblock pedestrian crossings. Also known as a High Intensity Activated Crosswalk (HAWK) .

**Median:** Longitudinal barriers used to separate opposing traffic on a divided highway.

### Complete Streets Considerations & Examples of Best Practices



Sometimes just paint and restriping are needed.



Public transit is an integral component.



Simple changes can make a big impact.



Separated facilities require significant expenditure but provide significant benefits.



Side paths can be an effective option when constraints limit work along the roadway.



Not every location can provide everything ...some improvements are better than none.

# APPENDIX C

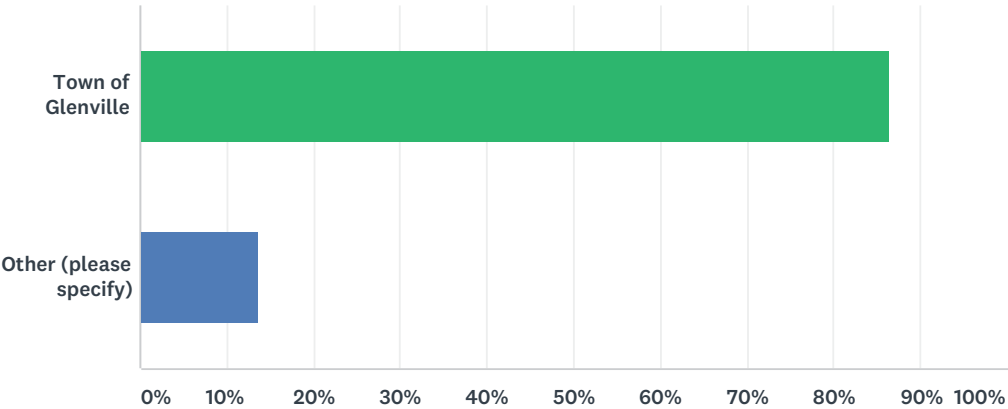
## . Survey Results



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# Q1 Where do you live?

Answered: 526 Skipped: 0

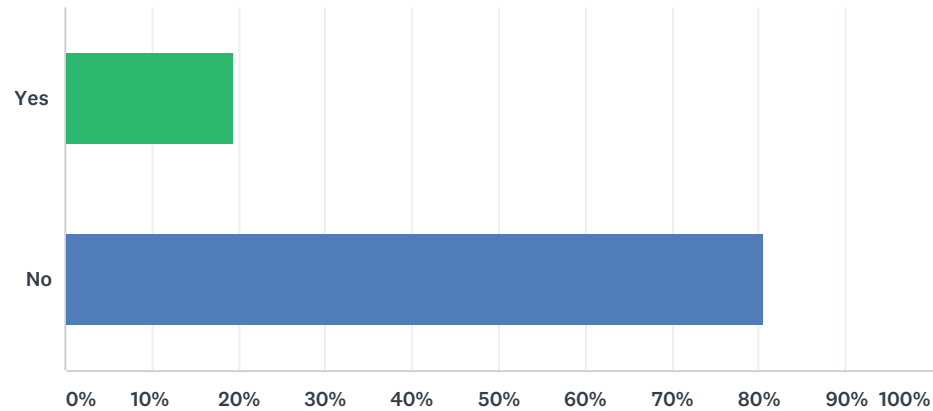


ANSWER CHOICES		RESPONSES	
Town of Glenville		86.50%	455
Other (please specify)		13.50%	71
TOTAL			526



Q2 Do you work in Glenville?

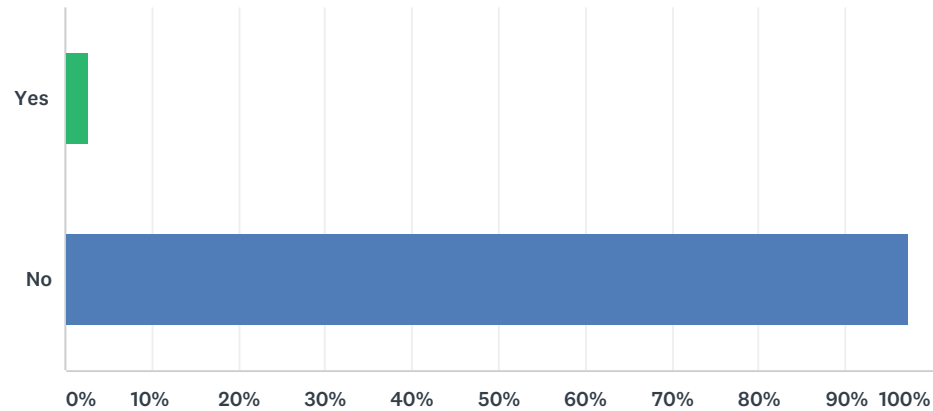
Answered: 526    Skipped: 0



ANSWER CHOICES		RESPONSES	
Yes		19.39%	102
No		80.61%	424
TOTAL			526

Q3 Do you work on Freemans Bridge Road?

Answered: 526 Skipped: 0

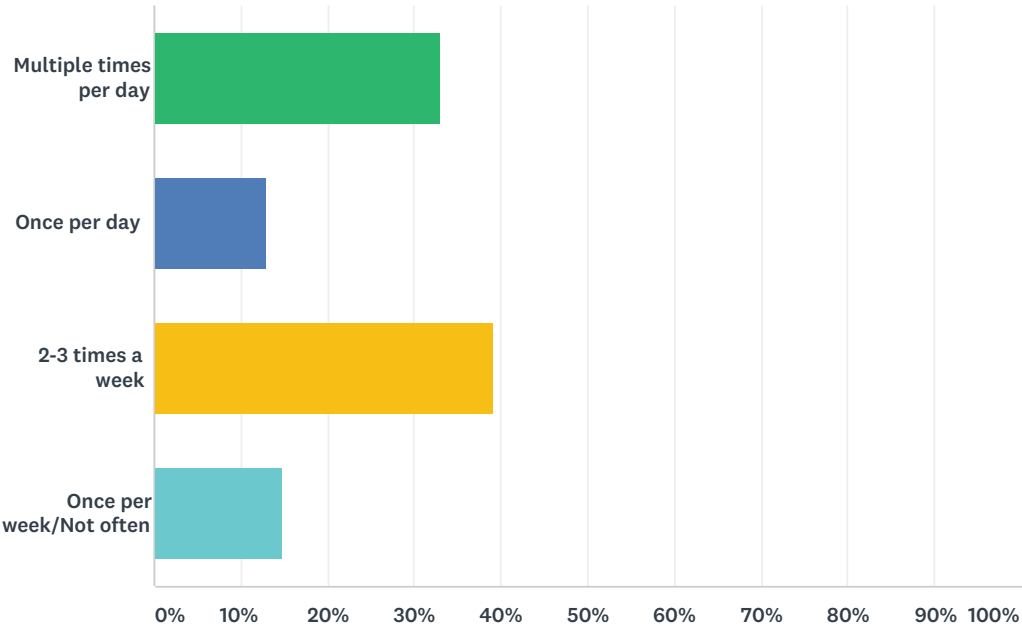


ANSWER CHOICES		RESPONSES	
Yes		2.66%	14
No		97.34%	512
TOTAL			526



Q4 How often do you use Freemans Bridge Road?

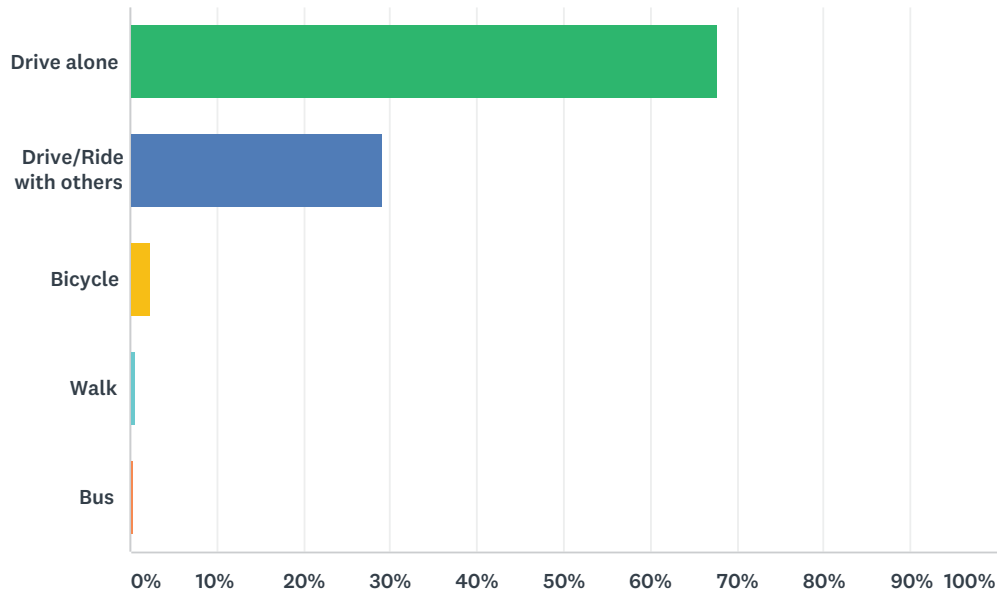
Answered: 526 Skipped: 0



ANSWER CHOICES	RESPONSES	
Multiple times per day	33.08%	174
Once per day	12.93%	68
2-3 times a week	39.16%	206
Once per week/Not often	14.83%	78
TOTAL		526

## Q5 How do you usually travel along Freemans Bridge Road?

Answered: 526 Skipped: 0

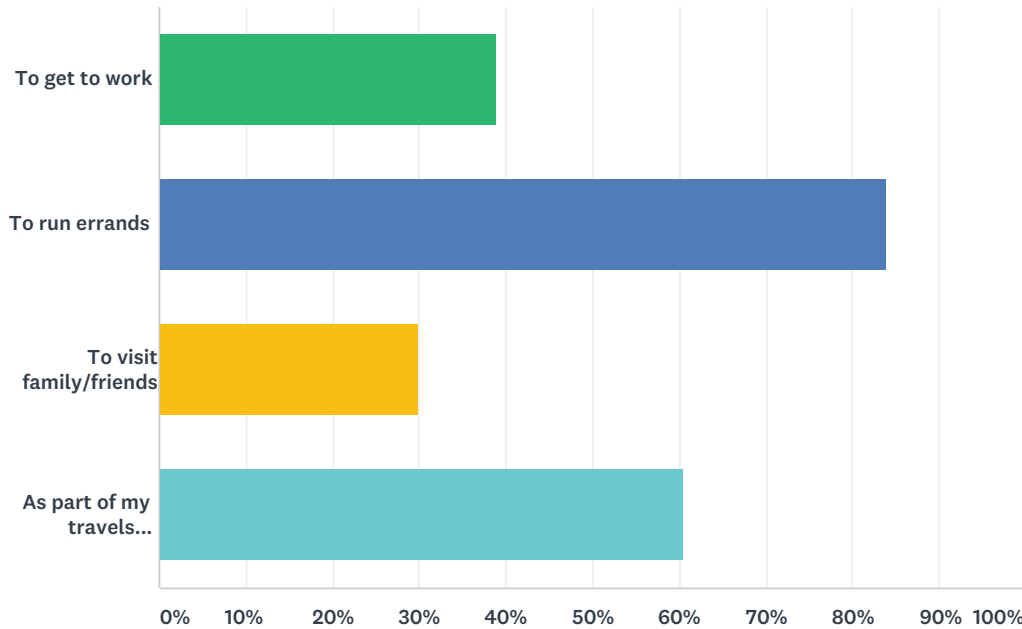


ANSWER CHOICES	RESPONSES	
Drive alone	67.68%	356
Drive/Ride with others	29.09%	153
Bicycle	2.28%	12
Walk	0.57%	3
Bus	0.38%	2
TOTAL		526



## Q6 For what reasons do you use Freemans Bridge Road? (Please select all that are applicable)

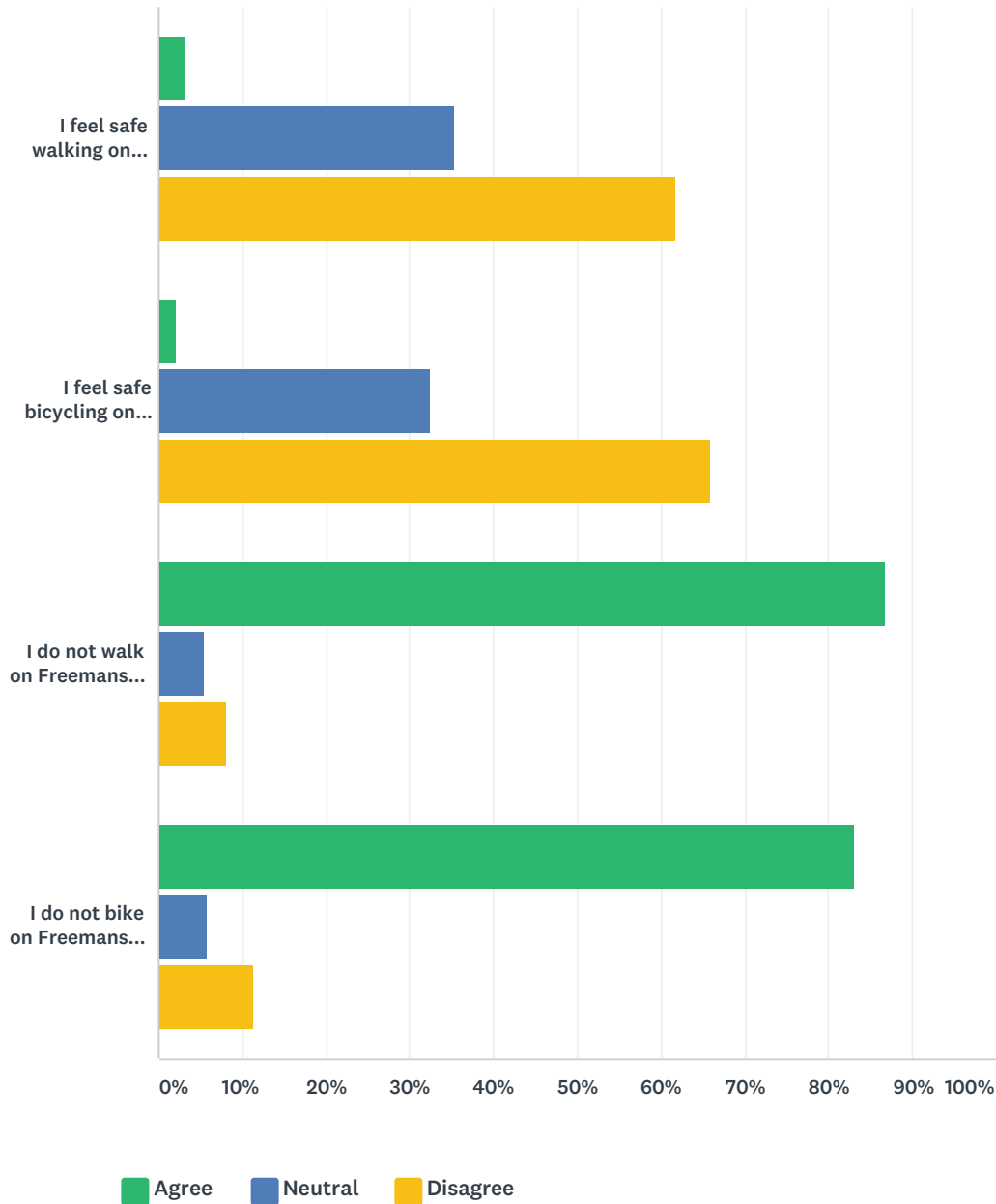
Answered: 517 Skipped: 9



ANSWER CHOICES	RESPONSES	
To get to work	38.88%	201
To run errands	83.95%	434
To visit family/friends	29.98%	155
As part of my travels elsewhere	60.54%	313
Total Respondents: 517		

## Q7 Do you agree or disagree with the following statements about traveling along Freemans Bridge Road?

Answered: 526 Skipped: 0

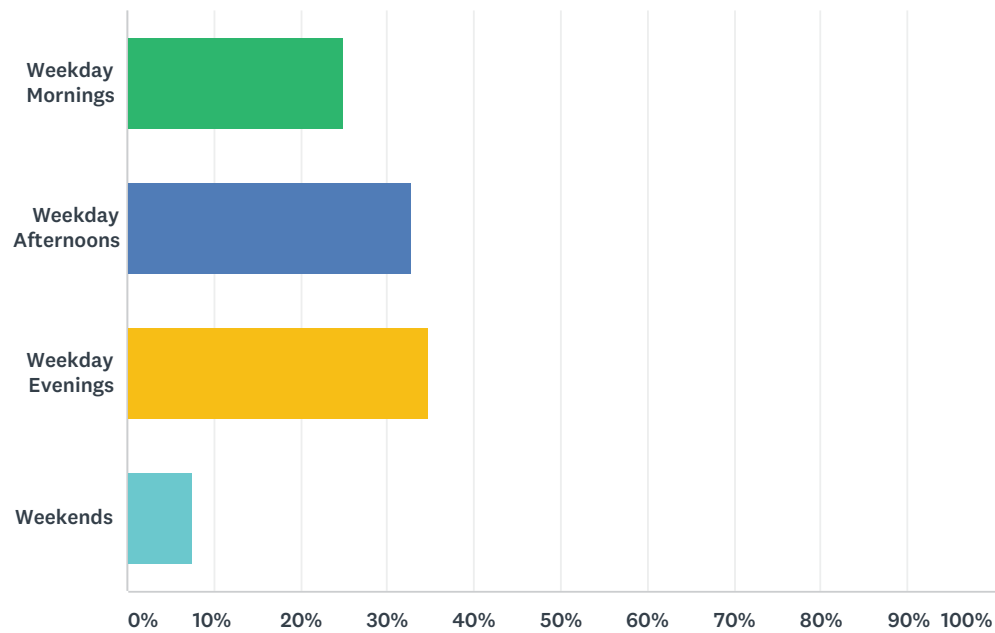


	AGREE	NEUTRAL	DISAGREE	TOTAL RESPONDENTS
I feel safe walking on Freemans Bridge Road	3.05% 14	35.29% 162	61.66% 283	459
I feel safe bicycling on Freemans Bridge Road	2.19% 10	32.39% 148	65.86% 301	457
I do not walk on Freemans Bridge Road	86.92% 452	5.38% 28	8.08% 42	520
I do not bike on Freemans Bridge Road	83.08% 432	5.96% 31	11.35% 59	520



Q8 When do you see the most traffic on Freemans Bridge Road?

Answered: 511    Skipped: 15



ANSWER CHOICES	RESPONSES	
Weekday Mornings	24.85%	127
Weekday Afternoons	32.88%	168
Weekday Evenings	34.64%	177
Weekends	7.63%	39
TOTAL		511

Q9 What do you like most about the Freemans Bridge Road? What do you like the least? (Please be specific and provide location/landmark/reference points when possible)

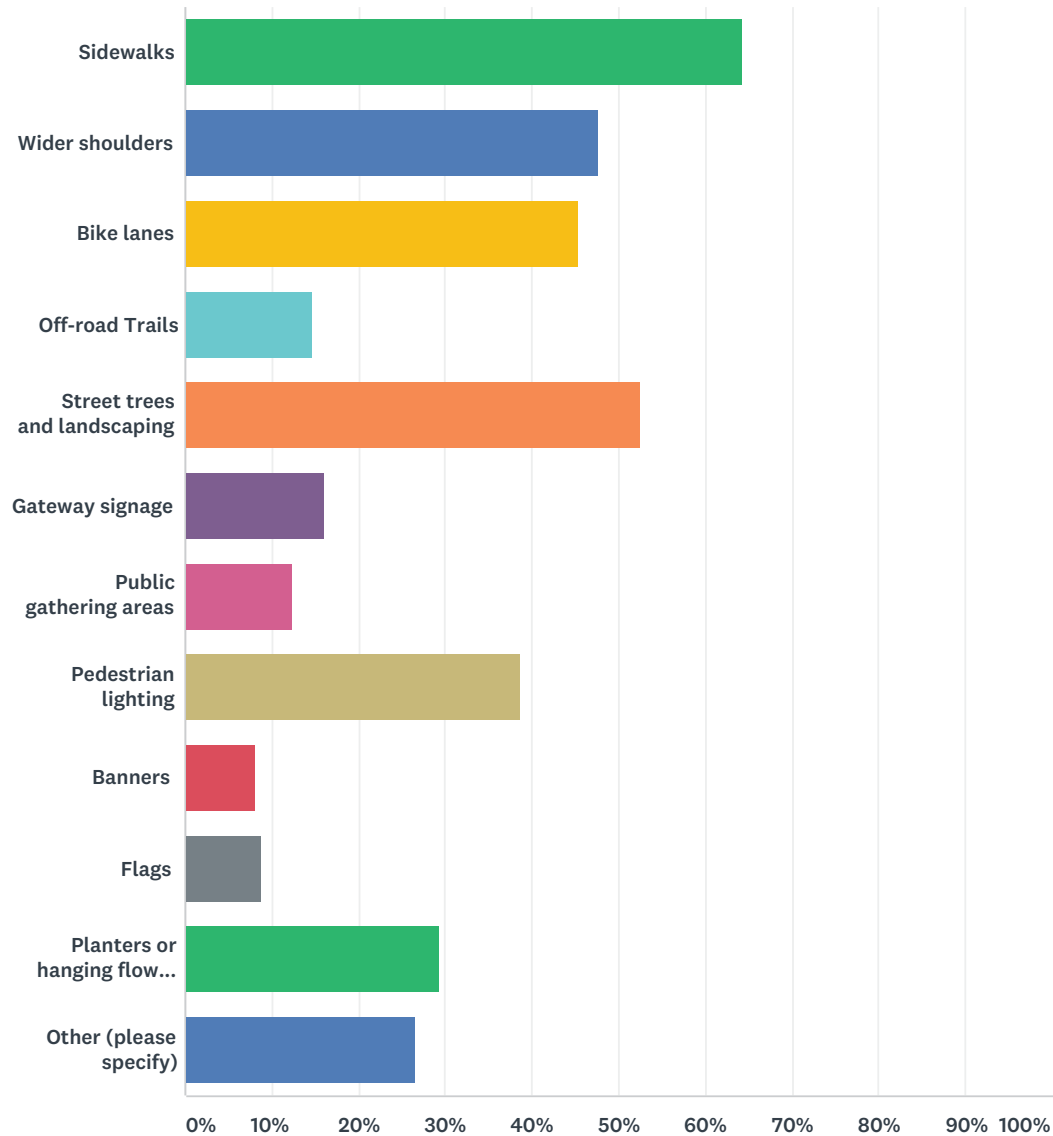
Answered: 317   Skipped: 209

*Written comments available upon request from the  
Town Economic Development & Planning Department*



## Q10 What specific improvements would you like to see on the Freemans Bridge Road corridor?

Answered: 500 Skipped: 26



ANSWER CHOICES	RESPONSES	
Sidewalks	64.20%	321
Wider shoulders	47.80%	239
Bike lanes	45.40%	227
Off-road Trails	14.60%	73
Street trees and landscaping	52.60%	263
Gateway signage	16.20%	81
Public gathering areas	12.40%	62

## Town of Glenville Freemans Bridge Road Complete Streets Concept Plan Survey

Pedestrian lighting	38.80%	194
Banners	8.20%	41
Flags	8.80%	44
Planters or hanging flower baskets	29.20%	146
Other (please specify)	26.60%	133
Total Respondents: 500		



## Q11 If you would like to be added to a project email notification list, please provide your contact information below:

Answered: 148 Skipped: 378

ANSWER CHOICES	RESPONSES	
Name	97.30%	144
Company	0.00%	0
Address	0.00%	0
Address 2	0.00%	0
Town/Village/City/Organization	86.49%	128
State/Province	0.00%	0
ZIP/Postal Code	0.00%	0
Country	0.00%	0
Email Address	98.65%	146
Phone Number	0.00%	0

# APPENDIX D

- Policies &  
Ordinances



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## Town of Niskayuna

### Complete Streets Resolution

WHEREAS, "Complete Streets" are defined as roadways that enable safe and convenient access for all users, including bicyclists, pedestrians of all ages and abilities, motorists, movers of commercial goods, and public transportation; and

WHEREAS, streets that support and invite multiple uses and include safe, active and ample space for pedestrians, bicycles, and public transportation, are more conducive to the public life and efficient movement of people than streets designed primarily to move automobiles and trucks;

WHEREAS, promoting pedestrian, bicycle and public transportation travel as an alternative to the automobile reduces negative environmental impacts, promotes healthy living, and is less costly to the commuter; and

WHEREAS the full integration of all modes of travel in the design of streets and highways will increase the capacity and efficiency of the road network, reduce traffic congestion by improving mobility options, limit greenhouse gas emissions, and improve the general quality of life; and

WHEREAS, many studies show that when roads are better designed for bicycling, walking and transit use, more people choose these options; and

WHEREAS, section 331 of the Highway Law of the State of New York encourages municipalities to consider complete street design features in the planning, design, construction, reconstruction and rehabilitation of local transportation projects, and

WHEREAS, the Town of Niskayuna established a Complete Streets Committee on June 30, 2016 via Resolution 2016-158, to study areas of Town where Complete Streets solutions could be implemented and advise the Town Board or Planning Board as to the best practices for such implementation; and

WHEREAS, the Complete Streets Committee has recommended that this Town Board establish a Complete Streets Policy to guide the actions of the various Niskayuna Boards and Department Staff during their faithful discharge of duties;

NOW, THEREFORE, BE IT RESOLVED, the intent of the Town of Niskayuna Complete Streets Policy is to give bicyclists, pedestrians, motorists and mass transit equal consideration in the planning and design of all new street construction and street reconstruction undertaken by the Town.

BE IT FURTHER RESOLVED, it is also the intent of the Town of Niskayuna Complete Streets Policy to recognize that local Town streets with low vehicle volumes and slow travel speeds safely and efficiently accommodate bicyclists and pedestrians. However, principal Town roads that are characterized as having high vehicle volumes and high travel speeds, and are important for bicycle and pedestrian travel to access and connect to destinations in and adjacent to the Town, shall be considered for Complete Streets treatment.

4. The Town supports and encourages the Planning and Zoning Board, the Conservation Advisory Council, the Tree Council and the Complete Streets Committee to share ideas between each other and implement Complete Streets solutions to private projects undergoing reviews and approvals whenever possible.
5. The Town supports the promotion of bicycling and walking for health, fitness, transportation and recreation through events, programs and other educational activities, which benefit residents, students, businesses and visitors of all ages and abilities. These activities can be coordinated with the Complete Streets Committee, other Town Committees and Departments, local bicycle clubs, schools, health organizations and other partners



BE IT FURTHER RESOLVED, that the Town Board hereby resolves to establish a Complete Streets Policy as follows:

1. The appropriate Town Departments, including the Engineering and Highway Departments, shall consider the safe and efficient accommodation of bicyclists and pedestrians in all new street construction and street reconstruction undertaken by the Town of Niskayuna.

- In addition, where the need for bicyclist and pedestrian facilities has been established or is defined in Town planning documents, Town Departments shall consider the addition of safe bicyclist and pedestrian facilities in new street construction and street reconstruction undertaken by the Town of Niskayuna. The addition of the bicyclist and pedestrian facilities shall be consistent with the scope of the improvement project, context sensitive to the surrounding environment, and shall not be disproportionate with the cost of the larger project.
- Bicyclist and pedestrian facilities are defined as improvements that are above and beyond the normal space, surfaces, pavement markings, and signing that would routinely be incorporated into street design and maintenance for the accommodation of bicyclists and pedestrians. These facilities shall include but not be limited to sidewalks, curb cuts and ramps, marked crosswalks, pedestrian actuated signals, paved shoulders, bicycle route signing, bicycle lanes, bicycle parking facilities, and shared use paths.
- Bicycle and pedestrian facilities may be planned, designed, developed and maintained in accordance with guidelines adopted by the United States Department of Transportation (USDOT), New York State Department of Transportation (NYSDOT), and the American Association of State Highway and Transportation Officials (AASHTO) or other guidelines approved by the Town of Niskayuna.
- Additionally, the Town may consider the use of traffic calming applications as an alternative to bicycle and pedestrian facilities. Traffic calming applications help to physically or psychologically calm motor vehicle traffic behaviors, thereby aiding in the development of a safe environment for bicycle and pedestrian travel.
- If a Town Department determines that the inclusion of bicycle and/or pedestrian facilities are unable to be accommodated on a roadway or within Town right-of-way proposed for construction or reconstruction, the appropriate Department Head shall provide said determination in writing, with supporting documentation, to the Town Board for their information during the review of the project.

2. Furthermore, the Town encourages the NYSDOT and Schenectady County to consider a Complete Streets approach when constructing or reconstructing their respective streets within the Town of Niskayuna.

3. The Town will provide a balanced enforcement of the New York State Vehicle and Traffic Law for motorists, pedestrians and bicyclists. This will include enforcement of pedestrian's right-of-way in crosswalks, bicyclists riding with traffic and all modes sharing the road safely.

RESOLUTION NO. 30

TOWN BOARD  
TOWN OF BETHLEHEM  
RESOLUTION  
COMPLETE STREETS

WHEREAS, a goal of the Town of Bethlehem Comprehensive Plan is to improve mobility – the ability of people, regardless of age and status, to engage in desired activities throughout the Town; and

WHEREAS, the Town of Bethlehem Comprehensive Plan recommends maintaining and enhancing bicycle and pedestrian connections within neighborhoods, and between neighborhoods and hamlet centers;

WHEREAS, the Town of Bethlehem has established a pathways committee (PaTHs 4 Bethlehem) to explore bicycle and pedestrian facility connections and address issues; and

WHEREAS, bicycling and walking are important forms of transportation and recreation in our community; and

WHEREAS, bicycling and walking contribute to health, fitness, neighborhood vitality, social interaction, and economic development; and

WHEREAS, the full integration of all modes in the design of streets and highways will increase the capacity and efficiency of the road network, reduce traffic congestion by improving mobility options, limit greenhouse gas emissions, and improve the general quality of life; and

WHEREAS, educating the public about safety, health and mobility are part of being a quality community; and

WHEREAS, Complete Streets are defined as facilities that are designed and operated to enable safe and efficient access for all users. Persons with disabilities, pedestrians, bicyclists, motorists and transit riders are able to safely and efficiently move along and across a complete street.

NOW, THEREFORE, BE IT RESOLVED, the intent of the Town of Bethlehem Complete Streets Policy is to recognize bicyclists and pedestrians as equally important as motorists in the planning and design of all new street construction and street reconstruction undertaken by the Town.

BE IT FURTHER RESOLVED, it is also the intent of the Town of Bethlehem Complete Streets Policy to recognize that local Town streets with low vehicle volumes and slow travel speeds safely and efficiently accommodate bicyclists and pedestrians. However, principal Town roads that are characterized as having high vehicle volumes and high travel speeds, and are important for bicycle and pedestrian travel to access and connect to destinations in and adjacent to the Town, shall be considered for Complete Streets treatment.

BE IT FURTHER RESOLVED, that the Town Board hereby resolves to establish a Complete Streets Policy as follows:

**Engineering:** The Highway Superintendent shall consider the safe and efficient accommodation of bicyclists and pedestrians in all new street construction and street reconstruction undertaken by the Town of Bethlehem.

1. In addition, where the need for bicyclist and pedestrian facilities has been established or is defined in Town planning documents, including but not limited to the Bicycle and Pedestrian Priority Network identified by the PaTHs 4 Bethlehem Committee, the Highway Superintendent shall consider the addition of safe bicyclist and pedestrian facilities in new street construction and street reconstruction undertaken by the Town of Bethlehem. The addition of the bicyclist and pedestrian facilities shall be consistent with the scope of the improvement project, context sensitive to the surrounding environment, and shall not be disproportionate with the cost of the larger project.

2. Bicyclist and pedestrian facilities are defined as improvements that are above and beyond the normal space, surfaces, pavement markings, and signing that would routinely be incorporated into street design and maintenance for the accommodation of bicyclists and pedestrians. These facilities shall include but not be limited to sidewalks, curb cuts and ramps, marked crosswalks, pedestrian actuated signals, paved shoulders, bicycle route signing, bicycle lanes, bicycle parking facilities, and shared use paths.

3. Bicycle and pedestrian facilities may be planned, designed, developed and maintained in accordance with guidelines adopted by the United States Department of Transportation (USDOT), New York State Department of Transportation (NYSDOT), and the American Association of State Highway and Transportation Officials (AASHTO) or other guidelines approved by the Town of Bethlehem.

4. Whereas, if the Highway Superintendent determines that the inclusion of bicycle and/or pedestrian facilities are unable to be accommodated on a roadway or within Town right-of-way proposed for construction or reconstruction, he/she shall provide said determination in writing, with supporting documentation, to the Town Board for their information. Education and

**Encouragement:** The Town supports the promotion of bicycling and walking for health, fitness, transportation and recreation through events, programs and other educational activities, which benefit residents, students, businesses and visitors of all ages and abilities. These activities can be coordinated with the PaTHs 4 Bethlehem Committee, other Town Committees and Departments, local bicycle clubs, schools, health organizations and other partners.

Furthermore, the Town encourages the NYSDOT and Albany County to consider a Complete Streets approach when constructing or reconstructing their respective streets in the Town.

**Enforcement:** The Town will provide a balanced enforcement of the New York State Vehicle and Traffic Law for motorists, pedestrians and bicyclists. This will include enforcement of pedestrian's right-of-way in crosswalks, bicyclists riding with traffic and all modes sharing the road safely.



Additionally, the Town may consider the use of traffic calming applications as an alternative to bicycle and pedestrian facilities. Traffic calming applications help to physically or psychologically calm motor vehicle traffic behaviors, thereby aiding in the enforcement of a safe environment for bicycle and pedestrian travel.

On a motion by Mrs. Dawson, seconded by Mr. Kotary, and by a vote of 5 for, 0 against and 0 absent, this RESOLUTION was adopted on August 12, 2009.

## LOCAL LAW NO. 2 FOR THE YEAR 2017

Members of Common Council Christopher M. Briggs, William J. Smith, Donald Russell, William R. McCarthy, Stephen A. Napier Jr., and Randy S. Koniowka ask for unanimous consent for the introduction and passage of the following Ordinance:

### A LOCAL LAW AMENDING ARTICLES VII & XIV OF CHAPTER 285 OF THE CITY CODE FOR THE CITY OF COHOES, NEW YORK, CREATING A COMPLETE STREETS POLICY.

NOW THEREFORE, Be it enacted by the Common Council of the City of Cohoes as follows:

Section 1. Chapter 285, Article VII, is hereby amended to create Section 285-48.1 entitled Complete Streets to read as follows:

§ 285-48.1.

#### A. DEFINITION OF COMPLETE STREETS

*"Complete Streets"* means streets that are designed and operated to enable safe access for all users, in that pedestrians, bicyclists, motorists, and public transportation users of all ages and abilities are able to safely move through the transportation network.

#### B. COMPLETE STREETS POLICY

1. The city shall design, build, operate, and maintain a safe, reliable, efficient, integrated, and connected multimodal transportation network that will provide access, mobility, safety, and connectivity for all users.
2. Complete Streets design will promote improved health, economic growth, public safety, recreational opportunity, and social equality throughout the City of Cohoes, and will ensure that the safety and convenience of all users of the transportation system are accommodated, including pedestrians, bicyclists, users of mass transit, people of all ages and abilities, motorists, emergency responders, freight providers, and adjacent land users.

#### C. SCOPE OF COMPLETE STREETS APPLICABILITY

1. All city-owned transportation facilities in the public right-of-way including, but not limited to, streets, bridges, and all other connecting pathways shall be designed, constructed, operated, and maintained so that users of all ages and abilities can travel safely and independently.
2. All privately constructed streets, parking lots, and connecting pathways shall adhere to this policy.
3. The city shall foster relationships with the State of New York, neighboring communities and counties, and business and school districts to develop facilities and accommodations that further the city's complete streets policy and continue such infrastructure beyond the city's borders.
4. The city shall approach every phase of every transportation project as an opportunity to create safer, more accessible facilities for all users. These phases include, but are not limited to: planning, programming, design, right-of-way acquisition, construction, construction engineering, reconstruction, operation, and maintenance funded by the City of Cohoes, the State of New York, utility companies, and all private development. Other changes to transportation facilities on streets and rights-of-way, including capital improvements, re-channelization projects, and maintenance, must also be included.
5. A project's compliance with this policy shall be determined based on the filing of a Complete Streets Checklist Form.

#### D. EXCEPTIONS

1. All exceptions to this policy must be reviewed and approved by the City Building and Planning Department and/or Department of Engineering and be documented with supporting data that indicates the basis for the decision. Such documentation shall be made publicly available.
2. Exceptions may be considered for approval when:
  - a) An affected roadway prohibits, by law, use by specified users (such as interstate freeways or pedestrian malls), in which case a greater effort shall be made to accommodate those specified users elsewhere,



including on roadways that cross or otherwise intersect with the affected roadway;

- b) The activities are minor maintenance activities designed to keep assets in serviceable condition (e.g. mowing, cleaning, sweeping, spot repair, and surface treatments such as chip seal or interim measures);
  - c) The City Engineer issues a documented exception concluding that the application of Complete Streets principles is unnecessary, unduly cost prohibitive, or inappropriate because it would be contrary to public safety; or
  - d) Other available means or factors indicate an absence of need, including future need.
3. The City Departments of Building and Planning and/or Engineering, shall submit quarterly reports to the Mayor's Office summarizing all exceptions granted in the previous quarter. These reports shall be submitted after the end of the quarter, and shall be posted online.

#### E. DESIGN STANDARDS

1. The city shall adopt state transportation design standards as well as adapt, develop, update, and adopt interdepartmental policies, urban design guidelines, zoning, and performance standards and other guidelines based upon resources identifying best practices in urban design and street design, construction, operations, and maintenance. These resources include, but are not limited to: the New York State Department of Transportation Highway Design Manual, New York State Department of Transportation Specification Book, the AASHTO Green Book, AASHTO Guide for the Planning, Designing and Operating Pedestrian Facilities, AASHTO Guide for the Development of Bicycle Facilities, ITE Designing Walkable Urban Thoroughfares: A Context Sensitive Approach, NACTO Urban Bikeway Design Guide; Manual on Uniform Traffic Control Devices, and U.S. Access Board Public Right-of-Way Accessibility Guidelines. When fulfilling this Complete Streets policy the city will follow the design manuals, standards, and guidelines above, as applicable, but should be not precluded from considering innovative or nontraditional design options where a comparable level of safety for users is present or provided.
2. Designs for all projects will be context-sensitive, considering adjacent land uses and local needs and incorporating the most up-to-date, widely accepted, ADA compliant design standards for the particular setting, traffic volume and

speed, and current and projected demand. Each project must be considered both separately and as part of a connected network to determine the level and type of treatment necessary for the street to be complete.

#### F. IMPLEMENTATION AND REPORTING

1. The City of Cohoes shall view Complete Streets as integral to everyday transportation decision-making practices and processes. To this end:

- a) One Year Outcomes:

- 1) Complete Streets Checklist Form. The City of Cohoes shall adopt or design a complete streets checklist form to be filled out during a project review to determine compliance with this policy.
- 2) Staff Training. The City of Cohoes will train pertinent city staff on the content of the Complete Streets principles and best practices for implementing the policy.
- 3) Streets Manual. The City of Cohoes will create and/or adopt a Complete Streets Design Manual to support implementation of this policy.
- 4) Funding. The City of Cohoes will actively seek appropriate sources of funding to implement Complete Streets policy.
- 5) Reporting. The relevant departments, agencies, or committees shall report on the annual increase or decrease for each performance measure contained in this ordinance compared to the previous year(s). This report will be presented to the Mayor's Office and made available to the public.
- 6) Coordination. The City of Cohoes will utilize interdepartment project coordination to promote the most responsible and efficient use of fiscal resources for activities that occur within the public right-of-way.

- b) Three Year Outcomes

- 1) Inventory. The City of Cohoes and the Complete Streets Advisory Board will maintain a comprehensive inventory of the pedestrian and bicycling facility infrastructure integrated with the



city's database and will prioritize projects to eliminate gaps in the sidewalk and bikeway networks.

- 2) Education. The City of Cohoes shall promote complete streets education in partnership with bicycling, disabled, youth, and elderly communities, the school district, and the police department.
- 3) Capital Improvement Project Prioritization. The City of Cohoes will reevaluate Capital Improvement Projects prioritization to encourage implementation of bicycle, pedestrian, and transit improvements.

c) Five Year Outcomes

- 1) Revisions to Existing Plans and Policies. All relevant departments, agencies, or committees will incorporate complete streets principles into all existing plans, manuals, checklists, decision trees, rules, regulations reviews, approvals, and programs as appropriate including, but not limited to, Comprehensive Plans, Economic Development Plans, Bicycle and Pedestrian Master Plans, Transit Plans, Snow Emergency Plans, Sidewalk Maintenance Plans, and other appropriate plans, manuals, rules, regulations, and programs.
- 2) Other Plans. The City of Cohoes will prepare, implement, and maintain a Bicycle and Pedestrian Master Plan, a Safe Routes to School Plan, and Americans with Disabilities Act Transition Plan, a Street Tree and Landscape Master Plan, and a Lighting Master Plan.
- 3) Storm Water Management Plan. The City of Cohoes will prepare and implement a plan to transition to sustainable stormwater management techniques along our streets.

G. PERFORMANCE MEASURES

1. The City of Cohoes shall measure the success of this Complete Streets policy using, but not limited to, the following performance measures:
  - a) Number of people reached through bicycle and pedestrian education programs;



- b) Total miles of bike lanes and bike sharrows;
  - c) Linear feet of new or repaired pedestrian accommodations;
  - d) Number of new ADA compliant curb ramps installed along city streets;
  - e) Crosswalk and intersection improvements;
  - f) Percentage of transit stops accessible via sidewalks and curb ramps;
  - g) Rate of crashes, injuries, and fatalities by mode; and
  - h) Rate of children walking or bicycling to school.
2. Unless otherwise noted above, within six months of ordinance adoption, the city shall create individual numeric benchmarks for each of the performance measures included, as a means of tracking and measuring the annual performance of the ordinance. Quarterly reports shall be posted online for each of the above measures

Section 2. Chapter 285, Article XIV, Section 285-126 of the City Code is hereby amended to create Subsection 285-126B(33) to read as follows:

§ 285-126B(33).

All forms and information pursuant to the Complete Streets requirements under § 285-48.1 of this code are sufficient to establish compliance with the same.

Section 3. This Local Law shall take effect immediately.

Approved as to form this 28<sup>th</sup> day of February 2017.



Brian S. Kremer  
Corporation Counsel

Local Law No. 2 for the Year 2017  
February, 28 2017  
Page 7

Engrossed and signed by the President of the Common Council and attested by the Clerk  
of the Common Council this 28 day of February 2017.

Sari H. Yarb  
Clerk

Theresa W. Byrd  
President

I hereby approve the foregoing Local Law of the Common Council.

February 28, 2017  
Date

[Signature]  
Mayor of the City of Cohoes

**ORDINANCE AMENDING THE CODE OF THE CITY OF TROY, BY CREATING A NEW  
CHAPTER 271 ENTITLED COMPLETE STREETS**

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**Chapter 271: COMPLETE STREETS**

Sec.271-1. Definition of Complete Streets.

Sec. 271-2. Complete Streets policy.

Sec. 271-3. Scope of Complete Streets applicability.

Sec. 271-4. Exceptions.

Sec. 271-5. Design standards.

Sec. 271-6. Performance measures.

Sec. 271-7. Implementation and reporting.

**Sec. 271-1. Definition of Complete Streets.**

*"Complete Streets"* means streets that are designed and operated to enable safe access for all users, in that pedestrians, bicyclists, motorists and public transportation users of all ages and abilities are able to safely move through the transportation network.

**Sec. 271-2. Complete Streets policy.**

The city shall design, build, operate and maintain a safe, reliable, efficient, integrated and connected multimodal transportation network that will provide access, mobility, safety, and connectivity for all users. In addition, the city will appoint a citizen run Complete Streets Advisory Board to whom quarterly reports on upcoming projects, and previously awarded exceptions, will be furnished.

Complete Streets design will promote improved health, economic growth, public safety, recreational opportunity, and social equality throughout the City of Troy, and will ensure that the safety and convenience of all users of the transportation system are accommodated, including pedestrians, bicyclists, users of mass transit, people of all ages and abilities, motorists, emergency responders, freight providers and adjacent land users.

**Sec. 271-3. Scope of Complete Streets applicability.**

- All city-owned transportation facilities in the public right-of-way including, but not limited to, streets, bridges and all other connecting pathways shall be designed, constructed, operated, and maintained so that users of all ages and abilities can travel safely and independently.
- All privately constructed streets, parking lots, and connecting pathways shall adhere to this policy.
- The city shall foster partnerships with the State of New York, neighboring communities and counties, and business and school districts to develop facilities and accommodations that further the city's complete streets policy and continue such infrastructure beyond the city's borders.



- The city shall approach every phase of every transportation project as an opportunity to create safer, more accessible facilities for all users. These phases include, but are not limited to: planning, programming, design, right-of-way acquisition, construction, construction engineering, reconstruction, operation and maintenance funded by the City of Troy, the State of New York, utility companies and all private development. Other changes to transportation facilities on streets and rights-of-way, including capital improvements, re-channelization projects and maintenance, must also be included.
- A project's compliance with this policy shall be determined based on the filing of a Complete Streets Checklist Form.

#### **Sec. 271-4. Exceptions.**

All exceptions to this policy, must be reviewed by the Complete Streets Advisory Board and approved by the City Departments of Engineering and/or Planning and Development, and/or the Planning Commission, and be documented with supporting data that indicates the basis for the decision. Such documentation shall be made publicly available.

Exceptions may be considered for approval when:

- An affected roadway prohibits, by law, use by specified users (such as an interstate freeways or pedestrian malls), in which case a greater effort shall be made to accommodate those specified users elsewhere, including on roadways that cross or otherwise intersect with the affected roadway;
- The activities are minor maintenance activities designed to keep assets in serviceable condition (e.g. mowing, cleaning, sweeping, spot repair, and surface treatments such as chip seal or interim measures);
- The City Engineer issues a documented exception concluding that the application of Complete Streets principles is unnecessary, unduly cost prohibitive, or inappropriate because it would be contrary to public safety; or
- Other available means or factors indicate an absence of need, including future need.

The City Departments of Engineering and/or Planning and Development, and/or the Planning Commission shall submit quarterly reports to the Complete Streets Advisory Board and the Mayor's Office summarizing all exceptions granted in the preceding quarter. These reports shall be submitted after the end of the quarter, and shall be posted on-line.

#### **Sec. 271-5. Design standards.**

The city shall adopt state transportation design standards as well as adapt, develop, update and adopt inter-departmental policies, urban design guidelines, zoning and performance standards and other guidelines based upon resources identifying best practices in urban design and street design, construction, operations and maintenance. These resources include, but are not limited to: the New York State Department of Transportation Highway Design Manual, New York State Department of Transportation Specification Book, the AASHTO Green Book; AASHTO Guide for the Planning, Designing and Operating Pedestrian Facilities; AASHTO Guide for the Development of Bicycle

Facilities; ITE Designing Walkable Urban Thoroughfares: A Context Sensitive Approach; NACTO Urban Bikeway Design Guide; Manual on Uniform Traffic Control Devices; and US Access Board Public Right-of-Way Accessibility Guidelines. When fulfilling this Complete Streets policy the City will follow the design manuals, standards and guidelines above, as applicable, but should not be precluded from considering innovative or nontraditional design options where a comparable level of safety for users is present or provided.

Designs for all projects will be context-sensitive, considering adjacent land uses and local needs and incorporating the most up-to-date, widely accepted, ADA compliant design standards for the particular setting, traffic volume and speed and current and projected demand. Each project must be considered both separately and as part of a connected network to determine the level and type of treatment necessary for the street to be complete.

## **Sec. 271-6. Implementation and reporting.**

The City of Troy shall view Complete Streets as integral to everyday transportation decision-making practices and processes. To this end:

### **One Year Outcomes**

- **Complete Streets Advisory Board.** The City will establish a Complete Streets Advisory Board made up of citizen appointees and interdepartmental city employees to oversee the implementation of this policy. The Complete Streets Advisory Board will include members of at least three city departments including Engineering, Public Works, Housing and Community Development, Economic Development, Zoning and Planning, Parks and Recreation, Code Enforcement and the Police Departments from the City of Troy. The committee should include citizen representatives from the bicycling, disabled, transit users, youth and elderly communities and other advocacy organizations, as relevant. This committee will meet quarterly and provide a written report to the Mayor's Office evaluating the City's progress and advise on implementation;
- **Complete Streets Checklist Form.** The City and the Complete Streets Advisory board shall adopt or design a complete streets checklist form to be filled out during a project review to determine compliance with this policy;
- **Staff Training.** The City will train pertinent City staff on the content of the Complete Streets principles and best practices for implementing the policy;
- **Streets Manual.** The City will create and/or adopt a Complete Streets Design Manual to support implementation of this policy;
- **Funding.** The City will actively seek sources of appropriate funding to implement Complete Streets;
- **Reporting.** The Complete Streets Advisory Board or other relevant departments, agencies, or committees shall report on the annual increase or decrease for each performance measure contained in this ordinance compared to the previous year(s). This report will be presented to the Mayor's Office and made available to the public.
- **Coordination.** The City will utilize inter-department project coordination to promote the most responsible and efficient use of fiscal resources for activities that occur within the public right of way;

### Three Year Outcomes

- **Inventory.** The City and The Complete Streets Advisory Board will maintain a comprehensive inventory of the pedestrian and bicycling facility infrastructure integrated with the City's database and will prioritize projects to eliminate gaps in the sidewalk and bikeways networks;
- **Education.** The City shall promote complete streets education in partnership with bicycling, disabled, youth and elderly communities, the school district and the police department); and
- **Capital Improvement Project Prioritization.** The City will reevaluate Capital Improvement Projects prioritization to encourage implementation of bicycle, pedestrian and transit improvements;

### Five Year Outcomes

- **Revisions to Existing Plans and Policies.** All relevant departments, agencies, or committees will incorporate Complete Streets principles into all existing plans, manuals, checklists, decision-trees, rules, regulations reviews, approvals and programs as appropriate including but not limited to Comprehensive Plans, Economic Development Plans, Bicycle and Pedestrian Master Plans, Transit Plans, Snow Emergency Plans, Sidewalk Maintenance Plans and other appropriate plans, manuals, rules, regulations and programs;
- **Other Plans.** The City will prepare, implement and maintain a Bicycle and Pedestrian Master Plan, a Safe Routes to School Plan, an Americans with Disabilities Act Transition Plan, a Street Tree and Landscape Master Plan, a Lighting Master Plan;
- **Storm Water Management.** The City will prepare and implement a plan to transition to sustainable storm water management techniques along our streets;

### Sec. 271-7. Performance measures.

The City of Troy and the Complete Streets Advisory Board shall measure the success of this Complete Streets policy using, but not limited to, the following performance measures:

- Number of people reached through bike/ped education programs.
- Total miles of bike lanes. (bike sharrows?)
- Linear feet of new or repaired pedestrian accommodations.
- Number of new ADA compliant curb ramps installed along city streets.
- Crosswalk and intersection improvements.
- Percentage of transit stops accessible via sidewalks and curb ramps.
- Rate of crashes, injuries, and fatalities by mode.
- Rate of children walking or bicycling to school.

Unless otherwise noted above, within six months of ordinance adoption, the city shall create individual numeric benchmarks for each of the performance measures included, as a means of tracking and measuring the annual performance of the ordinance. Quarterly reports shall be posted on-line for each of the above measures.



Approved as to form, May 15, 2014

ORD. #35

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*Ian H. Silverman*, Corporation Counsel

# **City of Saratoga Springs Complete Streets Policy**

**Prepared by Shared Access Saratoga**

**ADOPTED MAY 1, 2012**

**SCOTT JOHNSON, MAYOR**

**JOHN FRANCK, COMMISSIONER OF ACCOUNTS**

**MICHELE MADIGAN, COMMISSIONER OF FINANCE**

**CHRIS MATHIESEN, COMMISSIONER OF PUBLIC SAFETY**

**ANTHONY SCIROCCO, COMMISSIONER OF PUBLIC WORKS**



**Shared Access Saratoga  
Members and Partners**

City of Saratoga Springs Planning & Economic Development  
City of Saratoga Springs Police Department  
City of Saratoga Springs Public Safety  
City of Saratoga Springs Engineering Office  
Safe Routes to School  
Saratoga County Chamber of Commerce  
Downtown Special Assessment District  
City of Saratoga Springs Commissioner of Finance  
County Supervisor  
Cool Cities  
Bonacio Construction  
Sustainable Saratoga  
Elan Planning, Design & Landscape Architecture  
Saratoga Healthy Transportation Network  
Saratoga Hospital  
AARP  
Sustainable Skidmore  
Capital District Transportation Authority  
Tri- State Transportation Campaign  
Citizens

*Organizational Assistance provided by Peter Glassman, Mediation Matters*



## Executive Summary

Shared Access Saratoga is a local organization focused on promoting and encouraging access for all modes of transportation for all users throughout the City of Saratoga Springs. Over a period of nine months in 2011, Shared Access Saratoga worked toward completing a municipal Complete Streets Policy document, to help the City of Saratoga Springs continue to move forward as a community that provides meaningful shared access.

Shared Access Saratoga has drawn on the expertise of its membership, which includes a broad mix of partners and stakeholders such as the City of Saratoga Springs Departments of Planning, Engineering, and Public Safety; Safe Routes to School; the Saratoga Healthy Transportation Network; the Downtown Special Assessment District; Skidmore College; AARP; Saratoga Hospital; Sustainable Saratoga; the Capital District Transit Authority; the development community; professional planners; local neighborhood associations; and elected officials.

In August, 2011, Governor Cuomo signed the statewide Complete Streets bill into law. This law requires that complete streets design guidelines be considered for the planning, design, construction, reconstruction, and rehabilitation of roadways receiving federal or state funding. This state law is indicative of the attention and progress that the Complete Streets effort has made in recent years.

The Complete Streets Policy encompasses the design, planning, and operations of transportation systems in the City, and will accommodate and encourage travel by cyclists, pedestrians of all ages and abilities, and public transportation users, in accordance with established best practices. The implementation of a Complete Streets Policy can improve the economic vitality of the community, and its fiscal requirements can be addressed and mitigated through updated planning practices. In addition, the policy allows for documented exceptions where costs cannot be mitigated.

A complete streets community promotes a number of community benefits including enhanced quality of life, improved community health, reduced dependence on automobiles, and less reliance on fossil fuels. It is time for Saratoga Springs to take the next step in promoting shared access for its citizens by adopting a complete streets policy.

The following Complete Streets Policy identifies a vision for complete streets in the City of Saratoga Springs and describes a series of guiding principles. The policy provides a rationale for complete streets and also articulates the health, safety, environmental, economic and fiscal benefits of complete streets. Finally, the policy identifies a set of recommended action items for immediate and long-term implementation of the policy.

## **City of Saratoga Springs Complete Streets Vision**

With the signing of the Complete Streets Law by Governor Cuomo, statewide attention is being given to the complete streets programs, which improve the safety, health and vibrancy of New York State communities. The City of Saratoga Springs Complete Streets Policy will encourage the development of a complete streets network throughout the City to create a more balanced transportation system. The Complete Streets Policy shall be consistent with and assist in achieving the goals and recommendations set forth in the City's Comprehensive Plan and other policy documents. The Policy shall ensure that new and updated public and private projects are planned, designed, maintained and operated to enable safe, comfortable and convenient travel to the greatest extent possible for users of all abilities including pedestrians, bicyclists, motorists and transit riders.

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## Preamble

In August 2011, New York Governor Andrew Cuomo signed the “Complete Streets” bill into law. This bill, which passed unanimously in both the State Senate and State Assembly, requires that Complete Street design guidelines be considered for the planning, design, construction, reconstruction and rehabilitation of roadways receiving federal or state funding. Typical design features include, but are not limited to, sidewalks, bike lanes, lane striping, shared roadway signage, crosswalks, traffic calming, and bus pull outs. Such guidelines are intended to provide convenient access and mobility to all users including motorists, pedestrians, bicyclist, and public transit users. The law took effect mid-February 2012.

The concept of complete streets is not new, but it is becoming increasingly more integrated into new projects and the regular maintenance or rehabilitation of local transportation systems. In fact, the New Urban Network<sup>i</sup> estimates that over 15 municipalities in New York State have adopted local complete streets laws and at least 25 states have implemented some form of complete street policy.<sup>ii</sup>

## Vision

With the signing of the Complete Streets Law by Governor Cuomo, statewide attention is being given to the concept of complete streets, which impacts the safety, health and vibrancy of New York State communities. The City of Saratoga Springs Complete Streets Policy will encourage the development of a complete streets network throughout the City to create a more balanced transportation system. The Complete Streets Policy will assist in achieving the goals and recommendations set forth in the City’s Comprehensive Plan and other policy documents. The Policy shall ensure that new and updated public and private projects are planned, designed, maintained and operated to enable safe, comfortable and convenient travel to the greatest extent possible for users of all abilities including pedestrians, cyclists, motorists and transit riders.

## Objectives and Guiding Principles

- A. Encourage collaboration among City departments to develop a comprehensive intermodal transportation system during project planning, implementation and maintenance.
- B. Incorporate locally sensitive “best practices” from United States Department of Transportation, Federal Highway Administration, American Association of State Highway & Transportation Officials, Institute of Transportation Engineers, NYS Department of Transportation, Americans with Disabilities Act and other appropriate entities to enable citizens to safely travel by all transportation modes, including walking, biking and transit ridership.
- C. Promote the safe use of a multi-modal transportation system by increasing the awareness of all users through an appropriate educational program for residents, property

owners, visitors, developers and City staff. The educational program should be designed to enhance the concept of sharing the road.

D. Reinforce collaboration with partners at the local, school district, county, state and federal levels to ensure appropriate connectivity for all travel modes.

## **Rationale for Complete Streets**

The integration of land use and transportation is critical to the livability of a community and region. In a highly competitive global economy, regions and communities must learn to address each in a balanced manner to maintain a high quality of life for existing and future residents, businesses and visitors. The Capital Region is currently undergoing significant increases in employment and population related to nano-technology and other industries. This growth is attracting new residents and employees who have an expectation for a high quality of life, which includes a walkable, bikeable and vibrant community. Ensuring complete streets are consistently provided within the community contributes to this high quality of life.

Complete Streets designs a routine approach for accommodating alternative travel modes for multiple users, regardless of age or ability. This results in a balanced transportation system providing choices of where people can go and how they can get there. Complete streets may include elements such as defined pedestrian and bicycle spaces, street trees and benches, pedestrian scaled lighting, and transit stop shelters. These elements allow people to safely walk to the library, take the bus to the grocery store or bike to the park. Such elements provide the capacity to increase bicycle, pedestrian and transit use of the street system, which would positively impact the physical health and safety of the community, the environmental quality of our neighborhoods and the economic vitality of the City.

It should be recognized that the City of Saratoga Springs has accomplished many steps in achieving a complete streets goal. The City has, and requires, a compact land use pattern supports alternative transportation options such as walking, cycling and transit use. The City also has a variety of cultural, economic, civic and historic destinations in close and convenient proximity for visitors and residents alike. The City also currently has numerous complete street components incorporated within its private development approval process such as requirements for sidewalks, curbs, street trees, and bicycle parking.

While the City of Saratoga Springs has made progress in addressing the needs of users in specific areas, there is room to more thoroughly “complete the street” throughout the City. Adopting a complete streets policy will allow the City to progress even further in providing safe, convenient access for all users and all modes of transportation. Additional rationale for complete streets related to health, safety, the environment, economic vitality and fiscal impact is described below.

## **Health**

Public health officials have become increasingly aware of our nation's declining physical fitness and the resulting increase in diseases such as diabetes and obesity. Much research has been conducted to identify a link between auto-dependent sprawl and an increase in sedentary lifestyle diseases. Research indicates that countries that invest in a more multi-modal transportation system (walking, cycling, transit) have higher rates of cycling and walking as well as lower rates of obesity. It is believed that the most practical and effective way to improve public fitness is to increase walking and cycling.<sup>iii</sup> Walking and biking can decrease the risk of diseases related to inactivity such as asthma, hypertension and obesity. In addition to its health benefits, walking and biking decrease automobile dependence, in turn improving environmental quality, sustainability, roadway conditions and the economy.

One way to increase walking and biking in a community is to provide safe opportunities to do so. Providing for complete streets will assist in creating safe options and opportunities for walking and biking.

## **Safety**

A generation ago, walking and bicycling to school or work was a common practice. Today, however, the number of people walking and cycling to local destinations has dwindled. A major factor in this trend is a concern for safety. Providing well-defined pedestrian and bicycle facilities coupled with an educational program is the most effective way to help address the safety concerns often raised.

## **Environment**

Increasing greenhouse gas levels are negatively impacting the earth. Carbon dioxide is the primary greenhouse gas and for every gallon of gasoline burned, 20 pounds of carbon dioxide emissions are produced.<sup>iv</sup> The auto-centric manner in which our communities have grown is a critical factor in the consumption of carbon-based fuels in the U.S. Implementing a complete streets policy can have a positive impact on our environment by reducing the community's reliance on a vehicular mode of transport and offering other viable transportation options such as walking, bicycling and public transit.

The Mayor and City Council also recognized the significance of greenhouse gas on our environment. The City Council previously passed the Healthy Transportation Resolution, clearly defining the Council's intentions which are included and reflected within this complete streets policy. In 2009, the City Council took action by joining the U.S. Conference of Mayors Climate Protection Agreement. Most recently in December 2011, the City became a Climate Smart Community.

## **Economic Vitality**

Additionally, the choices that result from a complete streets policy can improve and maintain the economic vitality of the City. The downtown area will continue to be a target for growth



and tourism in the region, which will help maintain the rural character of the City's outer district by focusing growth in the downtown. Streets accommodating pedestrian and bicycle activity are welcoming and encourage residents and visitors to linger at local businesses. This creates the potential for residents and visitors to patronize the City's numerous shops and restaurants. By reinforcing a compact urban development form and encouraging non-vehicular traffic, the concept of the "City in the Country," as outlined in the adopted Comprehensive Plan, can be maintained while providing for increased tax base.

### ***Fiscal Impact***

Designing complete streets is not additional work for planners, architects and engineers; it is different work. The practitioners of these disciplines have in the past been asked to solve a particular problem – namely, safely and efficiently moving the maximum number of cars past a given point in the shortest time. The Complete Streets Policy simply redefines the problem. Under this Policy, these professionals are required to use their knowledge and skills to design roads and a street network that safely and efficiently moves all users, motorized and non-motorized. The fiscal impact is mitigated by the implementation of best practices, prevention of delays in the design process and elimination of the need for costly retrofits.

Studies show the costs associated with the routine accommodation of alternative transportation modes (i.e. walking, cycling and transit) generally represent a small percentage of a community's overall budget. The resources that are spent represent a long-term investment in the financial and physical health of the City.

### **Policy Implementation**

A Complete Streets Checklist shall be completed by the Project Sponsor for all municipal and private projects that impact City Streets. This document shall list complete streets basic practices that have been integrated into the project design and how user groups including pedestrians, bicyclists, motorists and transit riders are accommodated. It will also list if any user groups were not accommodated and the reasons why.

Transparency and public access to user group accommodations on all city street projects will be key in tracking the City's progress long term. The Checklist will assist in tracking the City's progress and the information will assist in understanding the challenges in implementing complete streets throughout the City. This document should be completed at the beginning of any design or application process and be kept on file in the City Planning and Economic Development Office for easy access.

### **Recommended Action Items**

#### **Immediate Action Items**

1. The City Council shall appoint the Shared Access Advisory Board (SAAB) to provide input on public projects to further the City's complete streets philosophy. SAAB will be solely

advisory in nature and will consist of seven members. One technical member shall be chosen by each City Council member. Participation by, or communication with technical City staff including Planning, Public Safety, and Department of Public Works is strongly encouraged. Two additional members shall be citizens-at-large appointed by the Mayor and may be representatives from local organizations related to healthy transportation and the promotion of a sustainable community (examples may include Bikeatoga, formerly the Saratoga Healthy Transportation Network or Sustainable Saratoga). The members shall be appointed for two year terms, with staggered appointments. At large members appointed to the SAAB should be selected based upon their interest and experience in sustainable approaches to transportation and community planning. SAAB would meet a minimum of four times per year and on an as-needed basis as called on by the City Council, at the inception of public transportation projects, or upon request by the Land Use Boards. SAAB meetings would be open to the public and would allow for public input.

2. Develop a “Complete Streets” checklist for all public and private projects for review during the project planning and design phase. The checklist may also be used for applications before the Land Use Boards for the review of private development projects. SAAB, in conjunction with the Planning Office and Land Use Boards, will develop the checklist. This information will reside in the Planning and Economic Development Office.

3. Provide information about the City’s complete streets policy, SAAB and information compiled with Complete Streets checklists on the City’s website for easy public access.

4. Identify current regulations within the City’s Zoning Ordinance and Subdivision Regulations that are consistent with a “complete streets” approach to roadway and streetscape development. Provide recommendations to further enhance guidelines and requirements for private development projects. Also identify possible amendments to the zoning ordinance and subdivision regulations that can further support complete streets. Shared Access Saratoga's 2011 *Complete Streets Policy Audit* prepared by Elan Planning, Design & Landscape Architecture could be a starting point for this action item.

### **Short Term Action Items (Two Year Plan)**

5. Cooperate with the Saratoga Springs School District to achieve shared goals related to Safe Routes to School within the City. The City of Saratoga Springs’ Complete Streets Policy will promote a fully-connected transportation network for all modes of transportation. While not every street can be designed perfectly for every user, the development of Safe Routes to School supports the goals of the Complete Streets Policy. It would also allow for “an interwoven array” of shared streets which adequately serve all modes of transit. In order to define this array, Shared Access Saratoga could assist in creating a Safe Routes To School “sharrows” map and related costs, as is currently being implemented in Albany NY.

6. Incorporate complete streets into the City's routine street maintenance and improvements. It would also be recommended that complete street components for public projects be incorporated in the 6-year Capital Plan, where appropriate and be included in the Mayor's Capital Committee efforts related to the City's operational budget. Utilize the data gathered from Complete Streets checklists to assist in tracking the incorporation of complete streets or highlighting geographic areas in the City where focused maintenance may be needed.
7. Promote the safe use of a multi-modal transportation system by increasing the awareness of all users through an appropriate educational program. The Shared Access Advisory Board could lead this effort with assistance from the Planning Office, appropriate local organizations, and the school district. Additionally, City staff are strongly encouraged to attend periodic workshops and training to remain well-informed of changes in the field.
8. Seek grant opportunities to assist in implementing the City's complete streets policy.

#### **Mid Term Action Items (Four Year Plan)**

9. Review the Complete Streets Policy and assess the success of its implementation in the City. This could be a joint effort with the Planning Office and SAAB that may also include input from the public on the policy's success. The review should include considerations for modifications or improvements in the approach to providing complete streets.
10. Conduct a comprehensive complete streets audit examining the accessibility, safety, connectivity and quality of place for an area in the City that includes key community features and destinations. The Planning Office could lead this effort in coordination with appropriate City departments, relevant City committees, the City's Land Use Boards and SAAB. This information could be incorporated into a complete streets gap analysis map and a future Bicycle, Pedestrian and Public Transit Plan. Coordination with the Capital District Transportation Authority (CDTA) would be critical in the creation of a Public Transit Plan effort.
11. Identify a dedicated funding mechanism for future transportation projects, such as linking sidewalks and safe routes to school, to implement actions supporting a complete streets policy.

#### **Long Term Actions Items (Six Year Plan)**



12. Complete a Bicycle, Pedestrian and Public Transit Plan including a map, illustrating gaps in pedestrian, bicycle and transit friendly components. The results of the complete street audit could be the basis for this plan and could assist in identifying complete streets needs and priorities within the City. Such a plan may also include recommendations for enforcement throughout the City related to complete streets.

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<sup>i</sup> The New Urban Network is a New Urban News publication dedicated to providing news and analysis on compact, mixed use development. <http://newurbannetwork.com/about-us>

<sup>ii</sup> "NYS Complete Streets Bill Passes Unanimously," New Urban Network, June 21, 2011.

<http://newurbannetwork.com/article/nys-complete-streets-bill-passes-unanimously-14898>

<sup>iii</sup> If Health Matters: Integrating Public Health Objectives in transportation Planning. Todd Litman. Victoria Transport Policy Institute. Aug. 2009.

<sup>iv</sup> Growing Cooler: Evidence on Urban Development and Climate Change. Reid Ewing, et al. Urban Land Institute.

# APPENDIX E

- Environmental Justice

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## **Environmental Justice**

### **Introduction**

Per federal requirements, the Capital District Transportation Committee (CDTC) undertakes an analysis of Environmental Justice in all Community and Transportation Linkage Planning Program (Linkage Program) initiatives to evaluate if transportation concepts and recommendations impact Environmental Justice populations. Impacts may be defined as those that are positive, negative and neutral as described in CDTC's Environmental Justice Analysis document, published December 2017. The goal of this analysis is to ensure that both the positive and negative impacts of transportation planning conducted by CDTC and its member agencies are fairly distributed and that defined Environmental Justice populations do not bear disproportionately high and adverse effects.

This goal has been set to:

- Ensure CDTC's compliance with Title VI of the Civil Rights Act of 1964, which states that "no person in the United States shall, on the basis of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance,"
- Assist the United State Department of Transportation's agencies in complying with Executive Order 12898 stating, "Each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."
- Address FTA C 4702.1B TITLE VI REQUIREMENTS AND GUIDELINES FOR FEDERAL TRANSIT ADMINISTRATION RECIPIENTS, which includes requirements for MPOs that are some form of a recipient of FTA, which CDTC is not.

### **Data and Analysis**

CDTC staff created demographic parameters using data from the 2010 United States Census as well as data from the 2010-2014 American Community Survey (ACS). Threshold values were assigned at the census tract level to identify geographic areas with significant populations of minority or low-income persons. Tracts with higher than the regional average percentage of low-income or minority residents are identified as Environmental Justice populations. Minority residents are defined as those who identify themselves as anything but white only, not Hispanic or Latino. Low-income residents are defined as those whose household income falls below the poverty line.

The transportation patterns of low-income and minority populations in CDTC's planning area are depicted in Table 1, using the commute to work as a proxy for all travel. The greatest absolute difference between the defined minority and non-minority population is in the Drive Alone and Transit categories: The non-minority population is 17.9% more likely to drive alone, slightly more likely to work at home, 9.8% less likely to take transit, and is also less likely to carpool, walk, or use some other method to commute. The greatest absolute difference between the defined low-income population and

the non-low-income population follows the same trend, with the non-low-income population 19.9% more likely to drive alone and 10.6% less likely to commute via transit.

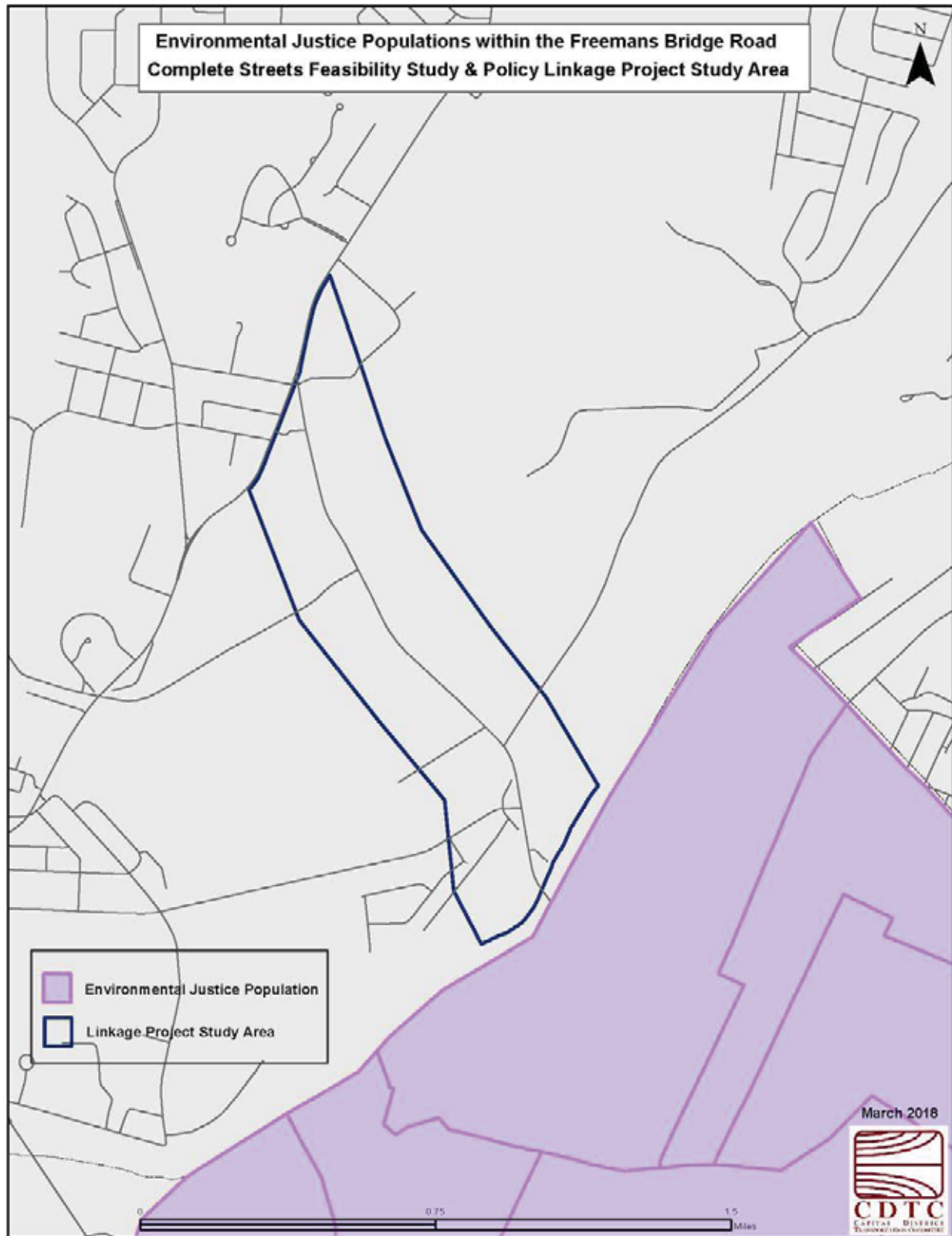
**Table 1. Commute Mode 4-County NY Capital Region**

<b>By Race/Ethnicity</b>	<b>Drive Alone</b>	<b>Carpool</b>	<b>Transit</b>	<b>Other</b>	<b>Walk</b>	<b>Work at Home</b>
All Workers (16+)	80.5%	7.7%	3.3%	1.2%	3.6%	3.7%
White Alone Not Hispanic or Latino	83.3%	7.1%	1.8%	1.1%	2.9%	3.9%
<b>Minority</b>	<b>65.4%</b>	<b>10.5%</b>	<b>11.6%</b>	<b>2.1%</b>	<b>7.5%</b>	<b>2.9%</b>
<b>By Income</b>	<b>Drive Alone</b>	<b>Carpool</b>	<b>Transit</b>	<b>Other</b>	<b>Walk</b>	<b>Work at Home</b>
At/Above 100% Poverty Level	82.3%	7.6%	2.7%	1.2%	2.7%	3.6%
<b>Below 100% Poverty Level</b>	<b>62.4%</b>	<b>9.7%</b>	<b>13.3%</b>	<b>1.9%</b>	<b>9.2%</b>	<b>3.5%</b>
<b>By Age</b>	<b>Drive Alone</b>	<b>Carpool</b>	<b>Transit</b>	<b>Other</b>	<b>Walk</b>	<b>Work at Home</b>
<b>16-19 Years</b>	<b>58.4%</b>	<b>14.6%</b>	6.0%	3.1%	<b>15.6%</b>	2.4%
20-64 Years	81.3%	7.5%	3.2%	1.2%	3.2%	3.6%
65+ years	81.7%	5.3%	2.2%	0.9%	2.3%	7.6%
<b>By English Ability</b>	<b>Drive Alone</b>	<b>Carpool</b>	<b>Transit</b>	<b>Other</b>	<b>Walk</b>	<b>Work at Home</b>
Speak English Very Well	71.5%	11.0%	4.9%	1.8%	6.8%	3.9%
Speak English Less than Very Well	68.0%	13.2%	5.6%	2.2%	7.6%	3.4%
<b>By Disability Status</b>	<b>Drive Alone</b>	<b>Carpool</b>	<b>Transit</b>	<b>Other</b>	<b>Walk</b>	<b>Work at Home</b>
Without any Disability	81.1%	7.4%	3.0%	1.2%	3.6%	3.6%
<b>With a Disability</b>	<b>69.7%</b>	<b>11.6%</b>	<b>7.6%</b>	<b>2.2%</b>	<b>4.2%</b>	<b>4.7%</b>
<b>By Gender</b>	<b>Drive Alone</b>	<b>Carpool</b>	<b>Transit</b>	<b>Other</b>	<b>Walk</b>	<b>Work at Home</b>
Male	80.8%	7.3%	2.9%	1.5%	4.0%	3.6%
Female	80.3%	8.0%	3.7%	1.0%	3.3%	3.7%

Data: CDRPC, from American Community Survey 2014 5-year estimates, tables S0802, B08105H, B08101, B08122, S0801, B08113, and S1811. Other includes taxi, motorcycle, and bicycle.

Map 1 provides an overview of the Freemans Bridge Rd. Complete Streets Concept Plan study area. The Freemans Bridge Rd. Complete Streets Concept Plan study area is not included in the Environmental Justice area based on the study area Census Tracts having a higher than regional average percentage of minority and/or low income residents. There is an Environmental Justice area southwest of the study area, located in the City of Schenectady, across the Mohawk River.

# Map 1





Consideration for public input in the planning process was given in the following ways:

- A project website was developed and updated to display and advertise information about the study.
- Two formal public participation opportunities were provided.
- Public comment was accepted throughout the study process.
- Final products will be posted to CDTC's website, the Town of Glenville's website, the project website, and on social media.

## **Conclusion**

CDTC defines plans and projects with a primary or significant focus on transit, bicycling, walking, or carpool as being "positive". As the primary purpose of the Freemans Bridge Rd. Complete Streets Concept Plan is to develop transportation recommendations to accommodate all users along Freemans Bridge Rd, adjacent to an Environmental Justice area, it has been determined that the Concept Plan will have a positive impact on the affected populations. The study makes recommendations for alternative design concepts toward creation of a built environment that is more welcoming to all users. If implemented, the recommendations will provide positive benefits for Environmental Justice populations adjacent to the study area.

# APPENDIX F

## . Environmental Mitigation

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## Environmental Mitigation

### Introduction

Per federal requirements, the Capital District Transportation Committee (CDTC) undertakes an Environmental Features Scan in all Community and Transportation Linkage Planning Program (Linkage Program) initiatives. The Environmental Features Scan identifies the location of environmentally sensitive features, both natural and cultural in relation to project study areas. Although the conceptual planning stage is too early in the transportation planning process to identify specific potential impacts to environmentally sensitive features, the early identification of environmentally sensitive features is an important part of the environmental mitigation process. It should also be noted here that as specific projects advance through the project development process, the applicable NEPA and SEQRA regulations requiring potential environmental impact identification, analysis and mitigation will be followed by the implementing agencies as required by federal and state law. CDTC is not an implementing agency.

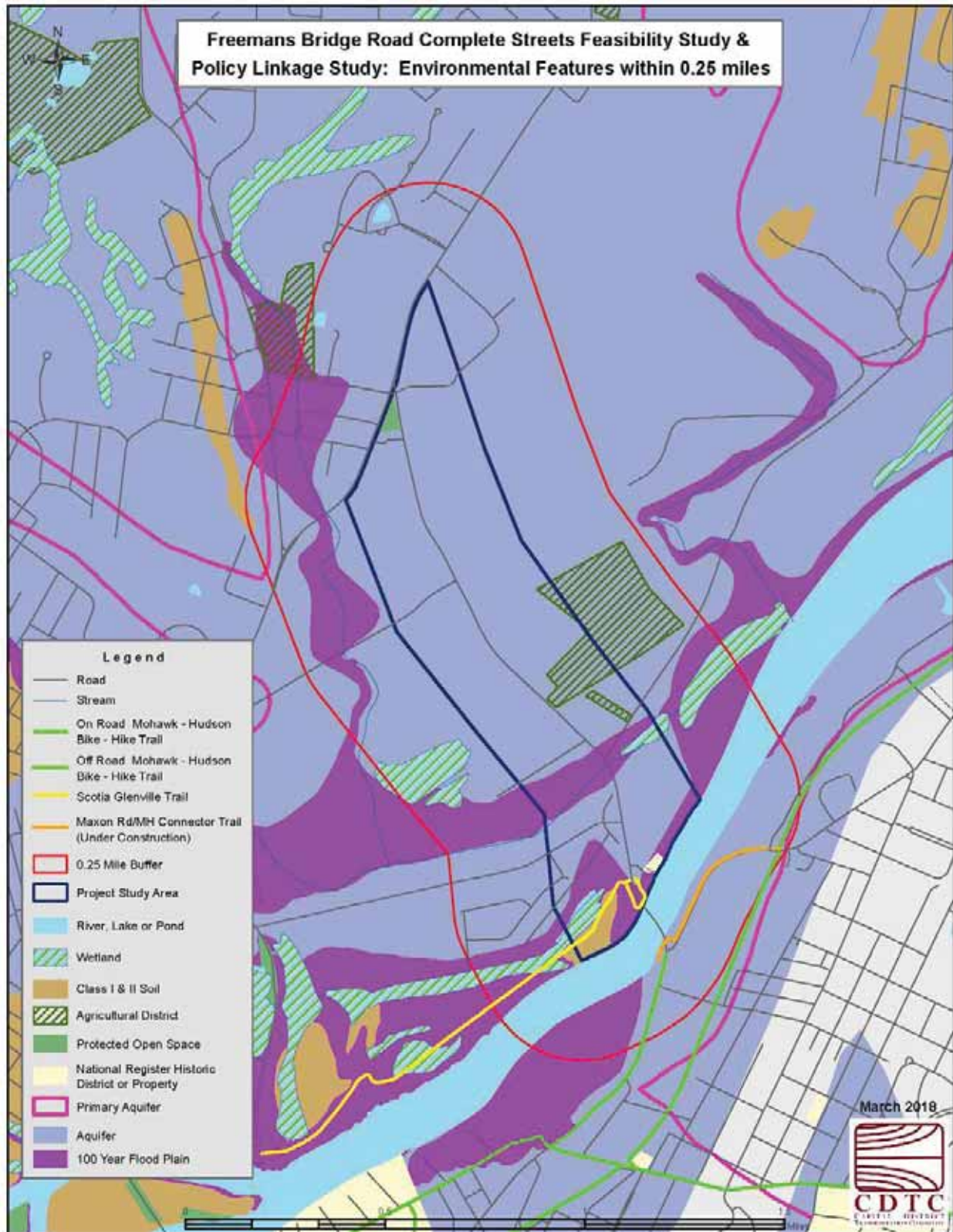
### Data and Analysis

CDTC staff relies on data from several state and federal agencies to maintain an updated map-based inventory of both natural and cultural resources. The following features are mapped and reviewed for their presence within each study area as well as within a quarter mile buffer of the defined study area boundary.

- sole source aquifers
- aquifers
- reservoirs
- water features (streams, lakes, rivers and ponds)
- wetlands
- watersheds
- 100 year flood plains
- rare animal populations
- rare plant populations
- significant ecological sites
- significant ecological communities
- state historic sites
- national historic sites
- national historic register districts
- national historic register properties
- federal parks and lands
- state parks and forests
- state unique areas
- state wildlife management areas
- county forests and preserves
- municipal parks and lands
- land trust sites
- NYS DEC lands
- Adirondack Park
- agricultural districts
- NY Protected Lands
- natural community habitats
- rare plant habitats
- Class I & II soils

Map 2 provides an overview of the environmentally sensitive (cultural and natural) features located within the Freemans Bridge Rd. Complete Streets Concept Plan study area as well as within a quarter mile buffer of the defined study area boundary.

## MAP 2



## **Conclusion**

The following environmentally sensitive features have been identified within a quarter mile of study area:

- River, Lake, or Pond
- Wetland
- Class I & II Soil
- Agricultural District
- Protected Open Space
- National Register Historic District or Property
- Primary Aquifer
- Aquifer
- 100 Year Flood Plain

The Freemans Bridge Rd. Complete Streets Concept Plan makes recommendations for alternative design concepts toward creation of a built environment that is more welcoming to all users. If implemented, the recommendations will have no known impact on the environmentally sensitive features in the study area.



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# APPENDIX G

- Planning &  
Environmental  
Linkages  
Checklist

## **Planning and Environmental Linkages Checklist**

For some CDTC Linkage Studies, a Planning and Environmental Linkages Checklist (PEL) is completed. The PEL process represents an approach to transportation decision making that considers aspects of the National Environmental Policy Act (NEPA), such as environmental, community, and economic goals, early in the planning stage and carries them through project development, design, and construction. While the project did consider some of these goals, the PEL checklist was determined to be not applicable for this study for the following reasons:

- One of the primary goals of the study was to develop cross sections that to the maximum extent possible stayed within existing right-of-way
- The projects proposed currently have no allocated funding

All applicable future planning, design, and construction phases will need to comply with NEPA. The Freemans Bridge Road Complete Streets Concept Plan document examined several other NEPA related topics, such as Environmental Justice and Environmental Mitigation, and should be consulted as a resource for future efforts.





