

Route 31 Corridor Study



TOWN OF MACEDON, NEW YORK
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28 East Main Street // 200 First Federal Plaza // Rochester, NY 14614-1909



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Executive Summary

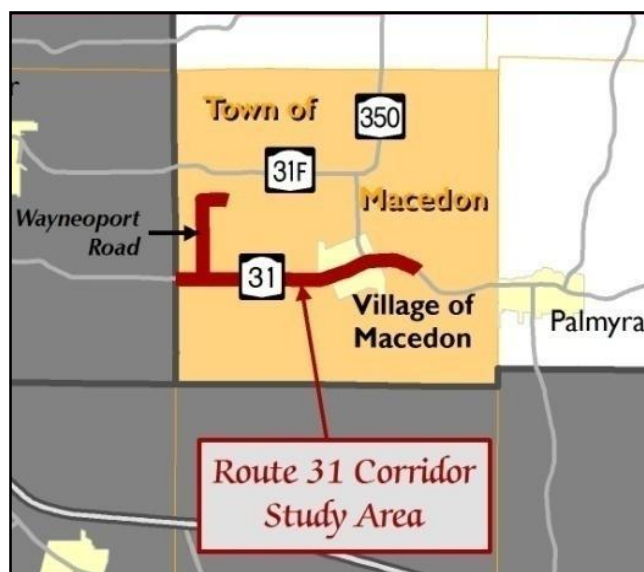
A. OVERVIEW

New York State Route 31 is the primary east-west transportation corridor in the Town and Village of Macedon. Located in the southwest corner of Wayne County, Macedon is a key gateway into the county from Rochester's eastern suburbs. It is also traversed by the Erie Canal, the Erie Canalway Trail, and a major CSX freight line. Collectively, these corridors form an important identity for Macedon and present a variety of multi-modal interfaces including bridges, at-grade rail crossings, and trail access points.

The NYS Route 31 corridor in particular is home to the majority of the town and village's commercial businesses. These include restaurants, large- and medium-scale national retailers, offices, light industrial and warehousing operations, and entertainment/recreation-oriented businesses. There are also several small-scale shops in the heart of the village. The corridor has experienced significant change in recent years, especially around the intersections with Wayneport Road and Canandaigua Road. Moderate residential growth in the Town, as well as Walworth (Gananda) to the north and Farmington to the south, has helped spur the growth of retailers in the corridor.

These changes have contributed to growing concern over the canal bridges at Wayneport Road and Canandaigua Road, which are immediately north of NYS Route 31. Both bridges are single-lane structures with increasing traffic volumes and various structural issues. Much the same, NYS Route 31 itself has a limited capacity as a two-lane highway, and development in the area has forced the Town and NYSDOT to monitor traffic levels and consider the need for improvements.

Figure ES-1. Study Area context.



The Route 31 Corridor Study is a project funded by the Genesee Transportation Council (GTC) through the Unified Planning Work Program (UPWP). The UPWP is the program of federally-funded transportation planning activities to be undertaken each year by GTC staff, its member agencies, and other jurisdictions in the Genesee-Finger Lakes Region. The Town of Macedon is a member of GTC and, through this planning process, is taking a proactive approach to addressing growth in the corridor.

This Study examines existing and projected traffic levels along NYS Route 31, as well as potential impacts to the Wayneport Road bridge. It contains numerous recommendations for managing change in the corridor as well as improving the overall character and sense of place for visitors and residents. In particular, the Town and NYSDOT consider the addition of new travel lanes to NYS Route 31 as the least desirable alternative to managing the transportation system. Therefore, this Study provides guidance for managing new development to avoid traffic levels that would not be supported by the existing infrastructure.

B. STUDY COMPONENTS

The Route 31 Corridor Study consists of the following chapters.

I. Introduction

This chapter presents a brief overview of the Study Area and summarizes the purpose of the project. The goals and objectives of the project are to:

- Develop a comprehensive land use strategy;
- Improve traffic management and safety;
- Preserve open space and rural character while allowing for appropriate growth in designated areas;
- Encourage non-motorized modes of transportation (bicycle and pedestrian);
- Enhance linkages with the Erie Canal corridor, especially the Erie Canalway Trail;
- Strive for a cohesive aesthetic character, providing a greater sense of local identity;
- Explore the feasibility of various options that address the Wayneport Road bridge over the canal;
- Maximize existing infrastructure – in particular, avoid the need for additional travel lanes on NYS Route 31 through a more strategic approach to land use and traffic management; and
- Identify short- and long-term projects that meet these goals and objectives.

Finally, this chapter summarizes the public participation component of the project, which included several Steering Committee meetings and two public meetings.

2. Existing Conditions

In order to make informed recommendations for the NYS Route 31 Corridor, an in-depth analysis of existing conditions is necessary. Various topics are examined in this Chapter such as demographics, natural features, land use patterns, market trends, and current peak hour traffic volumes. This chapter also includes an examination of the Wayneport Road bridge's structural conditions. The one-lane bridge has been given a General Recommendation of "5", indicating that overall the bridge is in good condition. Although some structural issues exist, it is not expected to be slated for extensive repairs or replacement in the near future. There are also some safety and convenience concerns related to the bridge's single-lane configuration and proximity to an active at-grade railroad intersection. The purpose of the bridge analysis in this Study, including current conditions in Chapter 3 and alternatives analysis in Chapter 5, is to examine the feasibility of various options that address these concerns.

Figure ES-2. Excerpt from Existing Land Use Map.



The retail market analysis contained in Chapter 2 indicates that there is an outflow of sales beyond the Study Area. Analysis of resident's spending patterns compared to existing retail stores suggests that the corridor could support more than 300,000 square feet of additional retail space. While this estimate may be high, it does illuminate that the retail presence in the corridor will likely continue to expand in the near future. This conclusion, coupled with the existing traffic volume data and recent residential development trends, provides the foundation for the Town to strategically plan for future growth along NYS Route 31.

3. Future Land Use Plan and Build-Out Analyses

The Future Land Use Plan is a blueprint for future development in the NYS Route 31 Corridor Study Area. It provides recommendations for the location of new development, broken down into four basic land use categories:

- Agriculture, Open Space, & Parks;
- Residential;
- Retail; and
- Office & Flex Space.

In addition to recommendations on the location of future development in each of these categories, this Chapter provides basic guidance on the design of these uses so as to improve the character of the corridor and to manage traffic distribution more safely and efficiently. This guidance, in conjunction with more in-depth recommendations in Chapter 4, provides the Town with the foundation for updating their zoning code.

Chapter 3 also contains a series of build-out analyses, or hypothetical growth scenarios. These scenarios give insight into the amount of land available for development, the impact of market trends on the corridor, and the relationship between land use change and traffic operations.

A full build-out scenario is examined, looking at how much development would occur if the Study Area were completely built out. This hypothetical development is limited to the areas designated in the Future Land Use Plan, i.e. focusing retail growth around Wayneport Road and Canandaigua Road intersections. Other constraints are applied, including no new development on publicly-owned land, wetlands or other sensitive environmental features, and areas where development already exists.

The analysis concludes that there is enough land available for about 1,100 new residential units and 3 million square feet of retail space. This amount of development is of course not likely to occur in the near future, but it demonstrates how much land is available for development within the confines of the Future Land Use Plan. Considering those constraints are considerably more focused than the current zoning map, this illustrates the need for the Town to revise their zoning code and map to be consistent with goals of this Study. More specifically, a revised zoning district map will be an effective tool in managing the traffic generated by new development in order to avoid the costly infrastructure investments that often come with unplanned growth.

In addition to the full build-out scenario, Chapter 3 includes two market-based build-out scenarios. Different levels of development are examined based on the results of the market analysis in Chapter 2, recent residential development trends, and discussions with local commercial realtors. Each development scenario yields certain levels of additional traffic, which were applied to existing traffic levels to understand the impact on the system's operations. Ultimately, a hypothetical combination of new development was identified that represents a "tipping point" at which the roadway may need to be expanded. This scenario, which amounts to about a 20 to 30 percent increase in traffic beyond current conditions, consists of:

- 95 single family residences;
- 108 apartment units;
- 60,000 square feet of retail space from Phase I of the Macedon Shopping Center (MSC)
- 60,000 square feet of additional retail space (includes 21,000 square feet from Phase II of the MSC); and
- 40,000 square feet of office space.

Additional development beyond that point begins to push the system into the likelihood of numerous unacceptable traffic conditions, which may warrant a five lane section of roadway rather than the current two- to three-lane configuration. While a “tipping point” can be found using these combinations of land uses, it should be noted that different combinations may result in a threshold that comes earlier or later than the threshold identified above. In any case, the exercise provides a general sense of how much development could trigger the need for a significant investment in the roadway, which both the Town and NYSDOT have expressed is the least desirable alternative.

4. Corridor Design Recommendations

Chapter 4 provides extensive recommendations for improving conditions in the corridor. These recommendations are grouped into the following categories:

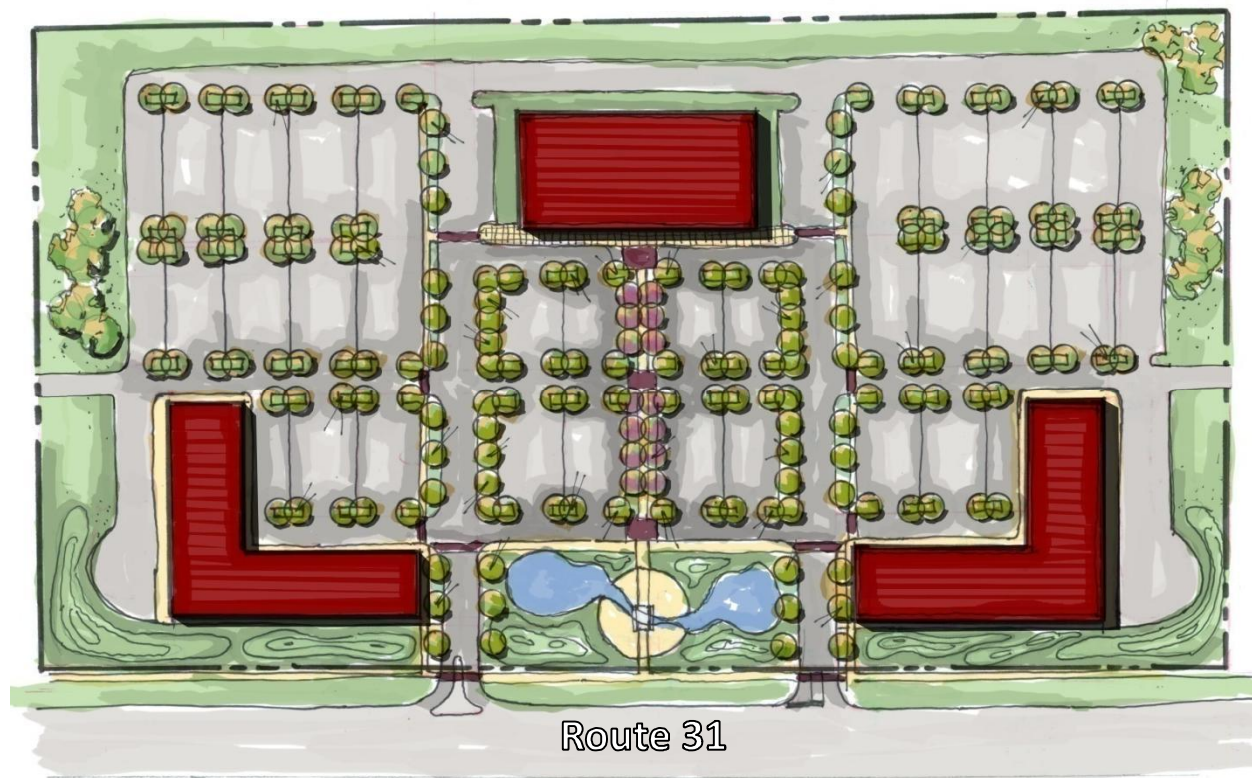
- Character and aesthetics;
- Safety and operations;
- Pedestrian and bicycle accommodations; and
- Zoning improvements.

The character of a roadway corridor is defined in part by the physical features in the public right-of-way. Recommended improvements to the right-of-way are centered around three primary nodes. At the Wayneport Road and Canandaigua Road intersections, the Study presents ideas for improved landscaping, lighting, and lane configurations. At the Western Village Gateway, photo-simulations are provided that show similar improvements to the streetscape, but at a more pedestrian scale to complement the character of the village (see Figure ES-3).

Figure ES-3. Photo-simulation of improvements to the Western Village Gateway showing trees, signage, lighting, landscaped median, and pedestrian crosswalk.



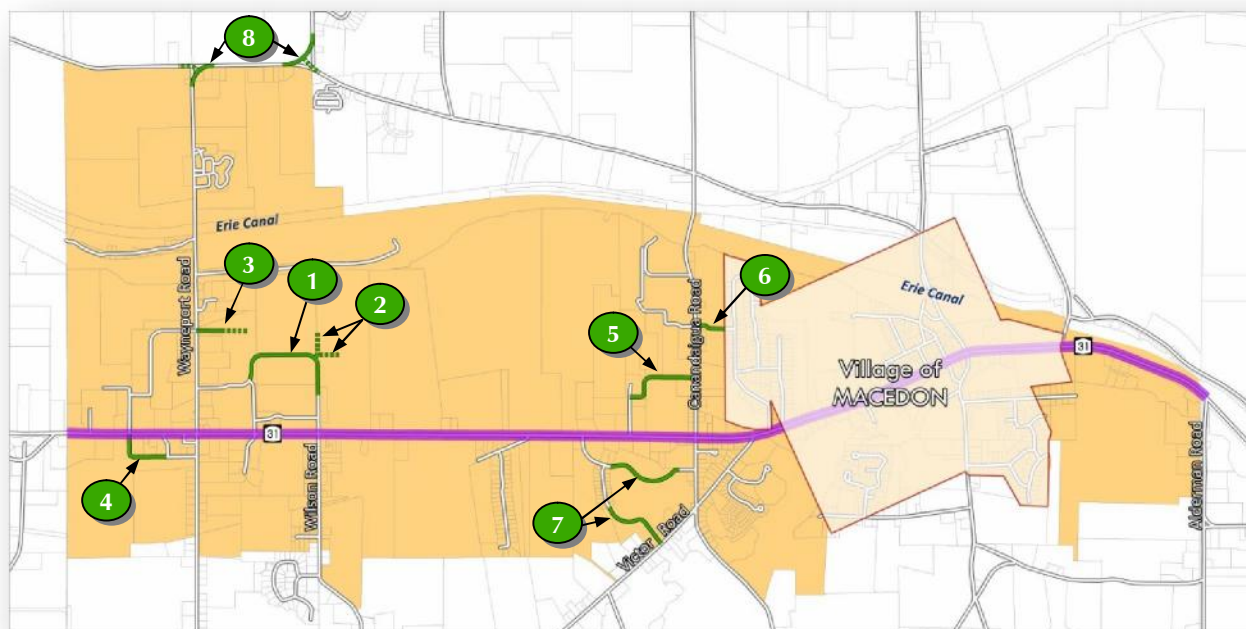
Figure ES-4. Fictitious site plan depicting best practices in corridor site design.



The design of commercial sites and buildings outside of the right-of-way also contributes to the character of the corridor. This Study outlines basic principles for site design, safety and operations, traffic calming, and architectural treatments that will impact the overall health and sense of place of the Study Area. Key principles, some of which are illustrated in Figure ES-4, include:

- Shallower building setbacks to help define the roadway edge, which in turn forces parking to the side or rear of the site (for small- or medium-scale development) and encourages greater architectural detailing on buildings;
- Sidewalk connections throughout new development;
- Provision of cross-access between adjacent properties to reduce turns onto NYS Route 31 and encourage greater integration among businesses;
- More landscaped medians and other plantings in large parking lots to break up the visual impact of the asphalt and to improve permeability;
- Minimum spacing for driveways and corner clearances;
- Consideration of various cross access or parallel access roads throughout the corridor (see Figure ES-5);
- Reduction of minimum required parking spaces; and
- Refined requirements to encourage high-quality and appropriately-scaled signage.

Figure ES-5. Recommended cross-access connections (see Chapter 4 for a full description of each).



Finally, Chapter 4 presents concepts for multi-use trails and sidewalks that would enhance the recreation and non-motorized transportation opportunities in the corridor. The Erie Canalway Trail, a nationally renowned trail corridor, traverses the Town and Village of Macedon and connects residents to surrounding communities. This trail could be enhanced by the development of additional trails along the former trolley line (parallel to NYS Route 31), along Ganargua Creek, and connecting the former trolley line to Bullis Park and the Erie Canal. The Study also recommends that the village's sidewalk network on NYS Route 31 be extended west to the Canandaigua Road intersection and east to West Wayne Plaza.

5. Wayneport Road Bridge Feasibility Analysis

As mentioned above, the Wayneport Road bridge over the Erie Canal has generated some concerns from the community related to its single-lane configuration, which can potentially discourage through traffic to access the nearby commercial node at NYS Route 31, its proximity to an at-grade railroad crossing, the lack of pedestrian access despite the nearby Erie Canalway Trail, and the age of the structure. Chapter 3 examines the current conditions of the bridge, while Chapter 5 examines the feasibility of various improvement alternatives.

The following alternatives were explored (see Figure ES-6), with cost estimations in parentheses:

- Major bridge rehabilitation (\$1.5 to \$3.0 million), including a sub-alternative of a new pedestrian bridge (\$1.0 to \$1.5 million), as rehabilitation of the existing structure would not address the lack of safe pedestrian access;
- Bridge replacement, either with a girder bridge (\$5.0 to \$7.0 million) or truss bridge (\$8.0 to \$10.0 million); and
- Railroad grade separation (\$5.0 to \$7.0 million), which would keep the existing bridge but elevate the northern approach to be above the railroad grade.

Figure ES-6. Summary of bridge alternatives considered

Benefits and challenges are examined for each alternative, including issues related to review by the New York State Historic Preservation Office. While it is not the purpose of this Study to provide an official recommendation for the bridge, it does contain valuable information that is the foundation of future decision making. It also provides the Town of Macedon with a more informed and comprehensive look at the pros and cons of each alternative.

6. Implementation Plan and Conclusion

The various recommendations provided in this Study are summarized in Table 6-1, found at the end of Chapter 6. Planning-level cost estimates are provided for each item, as well as potential funding sources and likely involved parties. Specific improvements are grouped into the following categories:

- Land Use / Regulatory;
- NYS Route 31 and Wayneport Road Intersection (aesthetics);
- NYS Route 31 and Canandaigua Road Intersection (aesthetics);
- Western Village Gateway;
- Safety and Operations;
- Sidewalks and Crosswalks;
- Bicycle and Pedestrian Accommodations; and
- Canal bridge (Wayneport Road and Canandaigua Road) and Railroad Crossing Alternatives.

Among the numerous recommendations, eight are identified as High Priority Actions that the Town and Village should consider undertaking in the next few years. Listed below, they represent an immediate need and are the critical first steps necessary in order to make follow-on projects more effective.

1. Perform traffic signal warrant analyses (NYS Route 31 at Macedon Parkway and Wilson Road)
2. Monitor future development and its impact on appropriate speed posting
3. Examine feasibility of proposed multi-use trails
4. Update the town zoning code
5. Enhance the western village gateway
6. Install curbing at Lowe's right-only exit
7. Install bike signage on NYS Route 31
8. Lobby NYSDOT for future canal and railroad crossing bridges at Canandaigua and Wayneport roads

Note that for all improvements made within the NYSDOT-owned right-of-way, additional studies and documentation would be required by the NYSDOT in order to justify the transportation benefits and costs at the time of implementation.

This Study contains numerous recommendations related to land use patterns, the form of development, traffic safety and operations, and regulatory strategies. It also contains tools such as benchmarks for future build-out of the corridor and planning-level estimates for physical improvements. The build-out analyses, in particular, illustrate the need for managing growth and development in order to avoid significant investments in expanding NYS Route 31, an outcome seen as undesirable by both the Town and NYSDOT. Collectively, these resources will help the community reach its goal of creating a unique, safe, and vibrant corridor, one that serves as a respectful gateway to the historic village and a regional center for shopping and employment.

CHAPTER 1:



INTRODUCTION

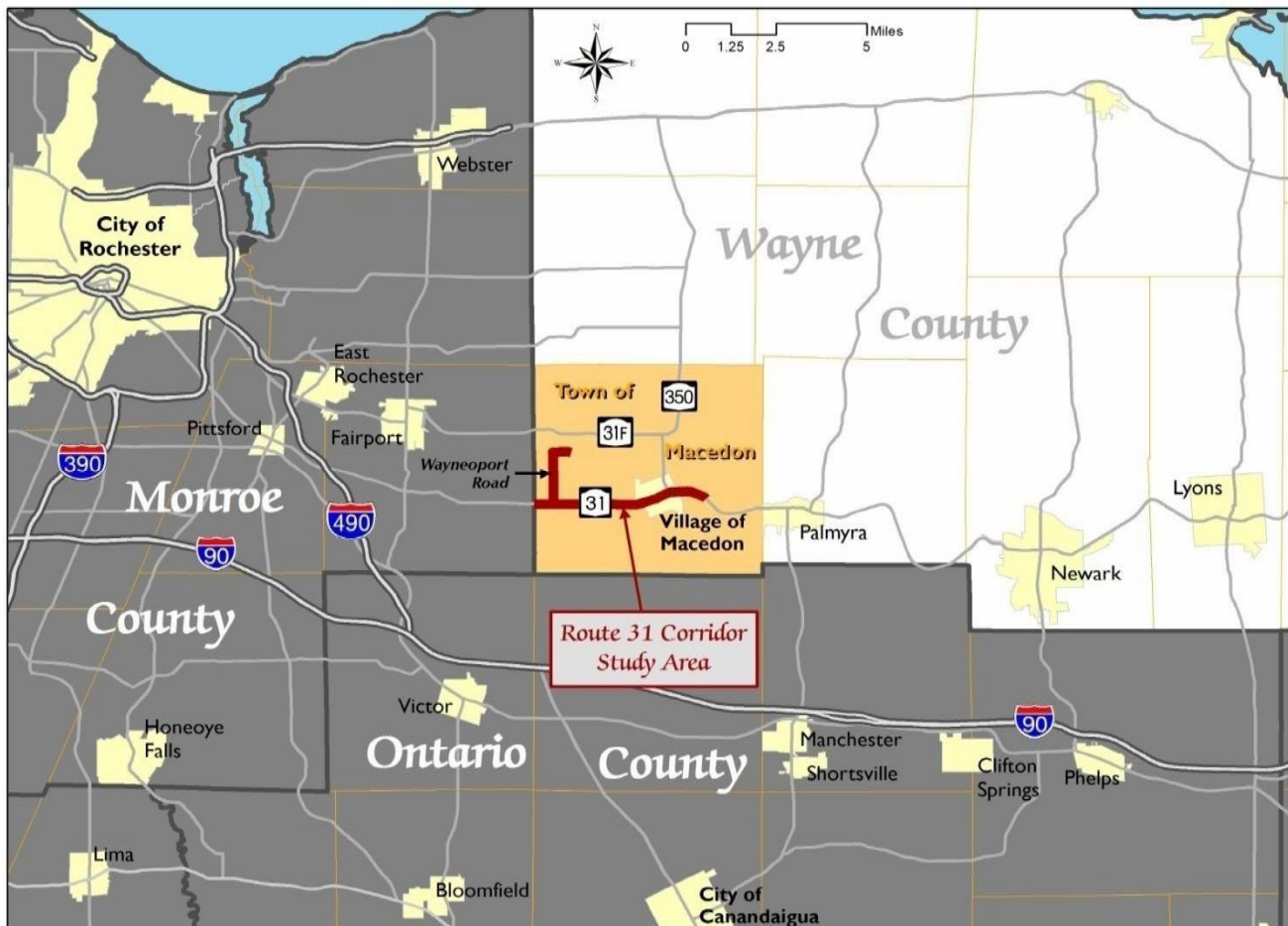
1.1 Project Overview

The Route 31 Corridor Study (hereafter referred to as “the Study”, “the Study Area” or “the corridor”) was conducted by the Town of Macedon in partnership with affected local, regional, and state stakeholders. Funding for the Study was provided by the Genesee Transportation Council (GTC) through the Unified Planning Work Program (UPWP). The UPWP is the program of federally-funded transportation planning activities to be undertaken each year by GTC staff and communities throughout the Genesee-Finger Lakes Region.

The Study Area spans 4.9 miles along NYS Route 31 in the Town of Macedon, including all of NYS Route 31 in the Village of Macedon (see Figure 1-1 below). The western edge of the Study Area is the Monroe-Wayne County line, while the NYS Route 31 and Alderman Road intersection is the eastern edge. This corridor is a gateway into Macedon and southern Wayne County for the Greater Rochester region.

The Study Area also includes properties adjacent to the roadway to the north and south, as land use planning is a significant component of the Study. On the north side, this land stretches to the Erie Canal, making it a dynamic corridor with regional significance. Finally, the Study Area includes Wayneport Road, between NYS Route 31 and Quaker Road, and its adjacent properties. This segment was included to examine the impact of Wayneport Road’s single-lane bridge over the Erie Canal on traffic and development in the NYS Route 31 corridor.

Figure 1-1. Study Area context.



This portion of the Town of Macedon in the Study Area has large areas of open space with farms and rural residences. There are also a few residential subdivisions, but most of the recent development has been commercial in nature. Numerous retail establishments exist around the NYS Route 31 intersections with Wayneport Road and Canandaigua Road. Several small-scale industries and offices exist in these nodes as well, adding to the employment base of the region. The Village of Macedon, although relatively small compared to other villages in the area, has a distinct downtown which has a notably different character than the more recently developed, automobile-oriented commercial development in the town.

Sporadic development patterns have impacted the agricultural and rural residential character of the corridor as well as the safety and efficiency of the corridor's transportation system. Not unlike other transportation corridors throughout New York State, the land use policy applicable to the corridor does not necessarily support the transportation objectives of the community or the New York State Department of Transportation (NYSDOT). The Study seeks to provide guidance and an underlying level of continuity that will preserve community character, enhance the corridor's safety and traffic flow, and encourage more strategic and efficient land use patterns.

1.2 Project Goals

According to the FY 2010-2011 UPWP, the purpose of the Route 31 Corridor Study is "to identify opportunities for improved pedestrian, bicyclist, and motorist safety along the NYS Route 31 corridor in the Town and Village of Macedon, including assessing the feasibility of replacing the Wayneport Road bridge." More specifically, the goals and objectives of the project are to:

- Develop a comprehensive land use strategy
- Improve traffic management and safety
- Preserve open space and rural character while allowing for appropriate growth in designated areas
- Encourage non-motorized modes of transportation (bicycle and pedestrian)
- Enhance linkages with the Erie Canal corridor, especially the Erie Canalway Trail
- Strive for a cohesive aesthetic character, providing a greater sense of local identity
- Explore the feasibility of various options that address the Wayneport Road bridge over the canal
- Maximize existing infrastructure – in particular, avoid the need for additional travel lanes on NYS Route 31 through a more strategic approach to land use and traffic management
- Identify short- and long-term projects that meet these goals and objectives

Ultimately, this Study seeks to assist the Macedon community in creating a unique, safe, and vibrant corridor, one that serves as a respectful gateway to the historic village and a regional center for shopping and employment.

1.3 Public Participation

The Route 31 Corridor Study provides a comprehensive approach to land use and transportation management that the Town and Village of Macedon can use as a decision-making guide for future policies and investments. The process of developing the Study included multiple opportunities for public involvement, comment, and discussion. These included two public meetings, several Steering Committee meetings, and the availability of draft documents and maps on the Town website.

The Steering Committee consisted of nine members, including representatives of the Town, Village, County, GTC, NYSDOT, and residents at large. The group met a total of five times during the 14-month planning process. The Steering Committee focused on reviewing and supplementing draft documents developed by the consultant team, along with making key decisions that impacted the final study recommendations.

CHAPTER 2:



EXISTING CONDITIONS

2.1 Introduction

The following section examines existing environmental, physical, demographic and market conditions of the NYS Route 31 Corridor Study Area. It reviews the natural and community resources, community demographics, existing land use, existing traffic conditions, and Wayneport Road bridge conditions. This section also includes a retail market analysis, which is the basis for build-out scenarios for the Study Area. All of this information is considered in the development of recommendations for future traffic management and land use policy in the corridor.

2.2 Natural & Community Resources

A. TOPOGRAPHY (MAP 1, all maps can be found at the end of Chapter 6)

The primary topographical features in Wayne County are drumlins formed from glacial flow. Northwest New York State has one of the highest concentrations of drumlins in the U.S.

Beginning on the western end of the corridor in the Town of Macedon, the topography is at an elevation of approximately 150 feet above sea level. Elevations ranging from 130 to 145 feet are constant along the Erie Canal, but there are various elevations as high as 225 feet above sea level. The highest maximum elevation is located north of Wilson Road and NYS Route 31 in the Town of Macedon. The Village of Macedon is predominately flat, with one rise of 180 feet north of NYS Route 31/Main Street and another south of NYS Route 31 and west of Erie Street.

The study corridor has an elevation difference of approximately 105 feet. There are a few drumlins which create dramatic rises and drops that define particular areas, a result of glacial movement. Despite the elevation change and the presence of drumlins, NYS Route 31 itself is largely flat through the Study Area.

There are very few locations in the corridor with slopes greater than 15 percent. Slopes of this magnitude tend to be problematic for development, as intensive erosion controls are necessary. Of the few areas that have steep slopes, none have a direct impact on the roadway itself.

B. WATERBODIES (MAP 2)

1. Streams and Creeks

The largest watercourse and most important drainage channel in the Study Area is the Erie Canal, which runs west to east, parallel to NYS Route 31. Other primary creeks include the Ganargua Creek and Trap Brook. All streams and creeks in the Study Area flow into Erie Canal, which is coexistent with portions of the Upper Seneca River, which leads to the Oswego River and drains into Lake Ontario.

2. Watersheds

A watershed is defined as the area of land that drains into a particular water body. The Village of Macedon and the section of the Town in the Study Area drain into the Finger Lakes Watershed. Three main water bodies, a tributary of Red Creek, the Erie Canal and Ganargua Creek, receive direct and channeled run-off from the surrounding land. All three flow east to the Oswego River, which runs north to Lake Ontario and ultimately drains all of the Finger Lakes Watershed.

3. Floodplains

A floodplain is flat land that experiences occasional flooding. Floodplains provide erosion control and flood control by storing and slowly releasing floodwaters. Floodplain vegetation can also positively impact water quality, trapping sediments and capturing pollutants before they are carried off downstream. Floodplains also provide groundwater recharge by storing floodwaters and promoting aquifer infiltration. Floods and floodplains are generally defined according to their statistical frequency of occurrence. For example, a “100-year floodplain” is an area that is subject to a one percent or greater chance of flooding in any given year. The Federal Emergency Management Agency (FEMA) maintains digital mapping records of floodplains. According to FEMA’s Flood Insurance Rate Mapping, the majority of the 100-year floodplains follow Ganargua Creek, Erie Canal, and a tributary of Red Creek.

4. Wetlands

Wetlands are an important resource because they provide flood protection and remove sediment and contaminants from water. They also provide habitat for wildlife. In order to protect and preserve wetland habitat, the New York State Department of Environmental Conservation (NYSDEC) regulates wetlands that are 12.4 acres (5 hectares) or greater. There are 14 NYSDEC designated wetlands, encompassing 229 acres, in the Study Area. The State requires permits for activities which could alter or impact wetlands. Developers should contact the DEC office for permitting information.

C. TRANSPORTATION (MAP 3)

1. Roadways

NYS Route 31 is the major corridor in the region, and is considered a gateway to Wayne County from the Greater Rochester area. It is a two-lane principal arterial that travels east-west through the Town and Village of Macedon. There are approximately 12-foot wide travel lanes and varying shoulder widths. NYS Route 31 includes some on-street parking in the Village of Macedon.

Wayneport Road is a county road owned and maintained by Wayne County running north-south from the Wayne-Ontario County line to Quaker Road. There are approximately 10-11 foot wide travel lanes and 3-foot shoulder widths.

2. Railroads

The CSX Railroad line runs east-west north of the Erie Canal. The line provides commercial service. There is also a spur that extends off the main line to NYS Route 350 in the Village of Macedon, north of Pliant Corporation. Amtrak’s Empire Service also uses this track, with the nearest passenger station in Rochester.

3. Transit Service

The Rochester Genesee Regional Transportation Authority provides transit service to Macedon via Route #92 twice daily. The Route travels through Lyons, Newark, Palmyra, Macedon, Perinton, Eastview Mall, Bushnell’s Basin, and East Rochester, downtown Rochester and Kodak Park. The fare is \$1.00 per trip and the Macedon stop is located at the West Wayne Plaza Park and Ride.

The Wayne Area Transportation Service, Inc. (WATS), which is a subsidiary of the Rochester Genesee Regional Transportation Authority, has one route in the Study Area. The NYS Route 31 Shuttle, which runs from Lyons through Newark, Palmyra and Macedon, has two scheduled routes per day. There are

stops at the Macedon Village Hall, Macedon Town Hall, Macedon Commons, and Macedon Plaza. Customers can pick up the shuttle at a stop, or flag down the WATS bus anywhere along the route. The fare is \$1.00 per trip and \$.50 for seniors, disabled persons and children between the ages of 5-11.

4. Trails

The Erie Canalway Trail is an important recreational resource for Western New York and for the Village in particular. The trail runs east-west on the north side of the Canal, parallel to NYS Route 31, and passes two locks in the Town and Village of Macedon, numbers 29 and 30, both of which are developed with small parks. Statewide, the Canalway Trail system includes more than 150 miles of existing trails.

D. AGRICULTURE & SOILS (MAP 4)

According to Real Property Classifications for Wayne County, there are four parcels totaling 286 acres within the Study Area utilized for active agricultural purposes such as crops, fruits, vegetables and livestock. Only one of the properties, between Wayneport and Wilson Roads, fronts NYS Route 31.

About half of the parcels within the Study Area are also located within an agricultural district. The vast majority of lands within the Study Area are considered prime agricultural soils. According to the United States Department of Agriculture, prime farmland is defined as the land best suited to food, feed, forage, fiber, and oilseed crops. Prime farmland produces the highest yields with minimal inputs of energy and economic resources, and farming it results in the least damage to the environment.

There is a small portion of land which would be considered prime agricultural land, if it were drained. This land is located between Beebe Road and Wilson Road, south of NYS Route 31, and north of NYS Route 31 east of Wayneport Road. Other small areas exist, mostly on lands already developed.

The physical properties of soils can help determine the type of development that can easily occur on a given parcel of land. Hydric soils, defined as soils that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part, are found primarily along creeks, streams, and other waterbodies, as well as in low-lying areas. These types of soils are more susceptible to ponding and can also indicate the potential presence of wetlands. Development on hydric soils may require more in-depth engineering to minimize potential hazards, such as flooding, that could lead to property damage. There are hydric soils in the Study Area near minor tributaries, Ganargua Creek, and the Erie Canal.

E. WATER & SEWER SERVICE (MAP 5)

Wastewater is typically treated in one of two ways within a community – through municipal sanitary sewer service or individual septic tanks. The Village owns and maintains the sewer system in the village. There is a Sewer Treatment Plant in the Village as well. The Town owns sewers serving the town, and they are maintained by the Wayne County Water and Sewer Authority. The majority of these pipes are located along NYS Route 31. They also extend 1,800 feet north along Wayneport Road. The Town's wastewater treatment plant has a capacity of 750,000 million gallons per day (MGD). The Town is entitled to 500,000 MGD of that capacity while the Village has 250,000 MGD. Dry weather flows are roughly between 300,000 and 400,000 MGD, so it is expected that the system can handle additional users.

Public water is provided by the Wayne County Water and Sewer Authority. According to the 1999 Town Comprehensive Plan, the Authority has long-term water contracts with the Town of Ontario and the Monroe County Water Authority to provide water for resale to public water customers in Macedon. The transmission line along NYS Route 31 was upgraded to 16 inches, and available water supply and transmission capacity is considered sufficient to service future development. Wayneport Road has a 12

inch main line and also could support additional users. Map 5 shows the location of water service in the Study Area.

2.3 Demographic & Community Profile

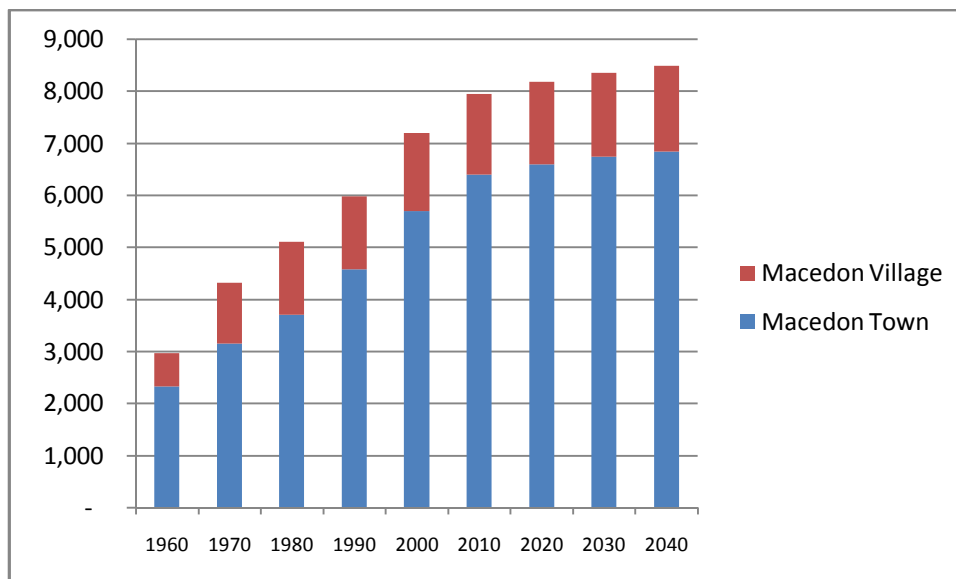
The demographic and community profile for the NYS Route 31 Corridor Study highlights key demographic data for the Study Area, as well as the individual communities located along the corridor. The evaluation of demographic data is an important factor in determining future policies and decisions regarding land use, growth and development, infrastructure, and community services. The demographic analysis is important to gain an understanding of the growth or decline of the region to better allocate future resources.

A. POPULATION¹

Wayne County experienced a population growth of 37.9% between 1960 and 2000. By 2040 Wayne County is expected to have a population of 99,173, representing a 5.8% growth rate between 2000 and 2040. Between 1960 and 2000, the Town of Macedon grew by 142%, from 2,972 to 7,192.² According to Claritas data, there has been a 3% growth in population between 2000 and 2008, and slight growth of 1.4% is projected for the Town over the next five years.

The population of the Village has been relatively stable since 1980. In 2000, the population was 1,496. According to Claritas, there has been a 1.5% decline in population between 2000 and 2008. An additional decline of less than 1% is projected over the next five years. Figure 2-1 shows population changes for both municipalities in 10-year increments from 1960 through 2040.

Figure 2-1. Population Change by Municipality, 1960-2040



Source: Genesee/Finger Lakes Regional Planning Council

¹ The population figures are from the U.S. Census Bureau. There are two sources for population projections, the Genesee Finger Lakes Regional Planning Council and Claritas. These sources have minor differences based on different methodology, but are generally in accord.

² The Town of Macedon population includes the population of the Village of Macedon.

B. HOUSEHOLDS

According to the U.S. Census, the number of households in the Town of Macedon increased from 2,599 in 1990 to 3,236 in 2000, representing a 24.5% increase. The Village had 493 households in 1990 and 558 in 2000, a 13.2% increase. Estimated projections for 2009 identify a 3% increase in households in the Town of Macedon and a 1.5% decrease in households in the Village since 2000. This number is expected to increase an additional 1.4% in the Town and decrease 0.8% in the Village by 2013.

The rate of growth in households along the corridor is occurring at a slower rate than in the United States as a whole; the U.S. experienced a 7.8% increase in the number of households between 2000 and 2007. The rate of household growth nationwide is expected to increase an additional 4.9% between 2007 and 2012. The average household size in 2000 for the Town and Village of Macedon was 2.64 persons, slightly higher than the national average household size of 2.59.

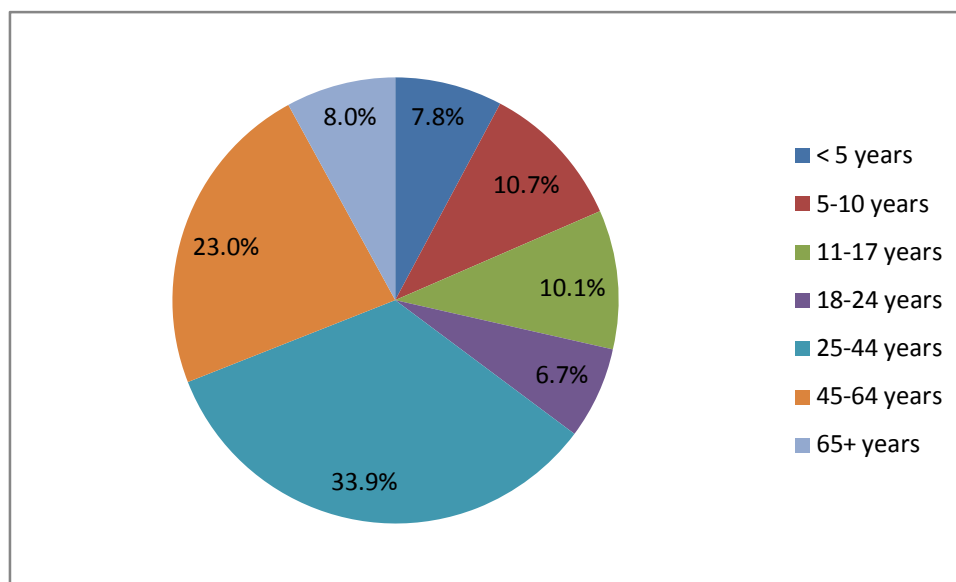
C. AGE

The age of residents within a community or project Study Area is important because it provides an additional level of information that should be factored into decisions regarding land use and transportation issues. The potential land use needs and objectives may vary significantly for each age group within a community.

According to 2000 census data, 7.8% of the population the Town of Macedon is under the age of 5, with approximately 28.6% of the total population aged 17 and under. Approximately 8% of the population is over the age of 65, with those between the ages of 18 and 64 accounting for 63% of the population.

The median age for persons living in the Town and Village is 37.8 and 38.1, respectively. Five years from now, the median population for both municipalities is expected to be 39.1. The population along the corridor is slightly older than the population of the U.S. as a whole. The median age of persons in the United States is 36.7 years and is expected to increase to 37.6 by 2013.

Figure 2-2. Age Distribution of Residents, Macedon, New York, 2000



Source: US Bureau of the Census

D. EDUCATION

The level of educational attainment in a community is an important characteristic to consider. Education statistics may be used by a business as an indicator of the age and skills of the workforce. Since 1960, the percentage of New York State residents receiving a degree from a four-year college has doubled to approximately 20%.

Approximately 88.7% of residents in the Town of Macedon and Village of Macedon, aged 25 and older, have received their high school diploma. This figure is higher than the national average of 80.4% for the same population group.

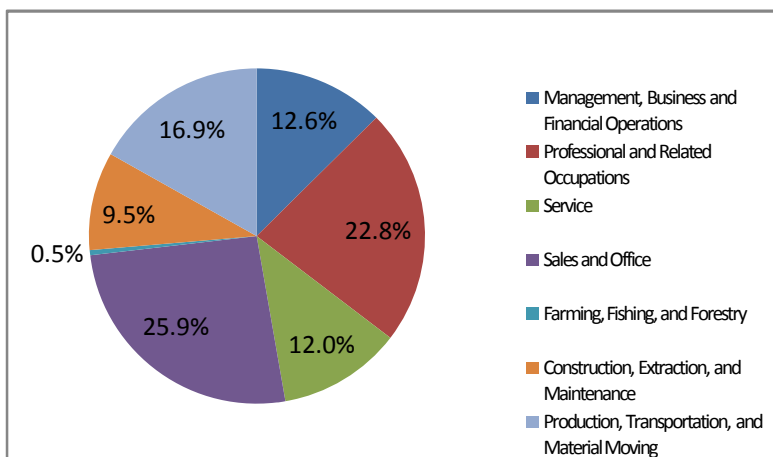
Approximately 6.7% of the population residing along the corridor, over the age of 25, has earned a Master's, Professional, or Doctorate Degree, while 14.6% have earned a Bachelor's Degree. These figures are notably lower than the United States as a whole. Current year estimates for the United States indicate that 8.9% of the population over age 25 has earned a Master's, Professional, or Doctorate degree, while 15.7% have earned a Bachelor's Degree.

E. EMPLOYMENT

Employment is a key economic indicator within a community. Employment creates wealth for both workers and contributes to economic stability to the area. It also increases the percentage of home ownership within a community and influences social progress. Employment changes along the corridor are similar to those from throughout the nation and New York State as employment trends show a shift from manufacturing-based jobs to service-based jobs.

Within the United States, 47.2% of the population is estimated to be over the age of 16 and employed. Within the Town and Village of Macedon, 57.2% of the population is estimated to be employed and over the age of 16. The highest percentage of employees are white collar workers employed in the occupational category defined as "Sales and Office" (25.9%). This is followed by occupations associated with "Professional and Related Occupations" (22.8%). Only 0.5% of employed persons in the Town and Village of Macedon are employed in the occupational category of "Farming, Fishing, and Forestry." The figure below identifies the percentage breakdown of all occupational categories for employed persons residing within the corridor Study Area. There has been a considerable amount of retail growth in the study corridor since the 2000 Census. The 2010 Census will likely reflect a shift in occupation as a result of jobs created by Lowe's and Wal-Mart.

Figure 2-3. Occupational Categories, Residents of the Town of Macedon, 2008



Source: US Bureau of the Census

Within the United States, the occupational categories of “Sales and Office” (26.7%) and Professional and Related Occupations” (20.3%) are the most popular employment sectors. Nationally, 0.7% of all employed persons are employed under the occupational category of “Farming, Fishing, and Forestry.”

There are a variety of stores and businesses in the Study Area, such as:

- Wal-Mart
- Maurice’s
- Filers Power Sports
- McLouth Automotive Sales
- Reliant Credit Union
- Lowe’s
- Advanced Auto Parts
- Dollar General
- JD Chapman Insurance
- Macedon Collision
- Pliant Corporation
- Shumann Construction
- Pal-Mac Medical Center
- Chase Bank
- Brownstone Physical Therapy
- Macedon Veterinary Care
- Shiff’s Automotive Repair

F. UNEMPLOYMENT

Unemployment figures are an important component to the larger picture of the general economic health of a community. Unemployment will always exist, but a lower unemployment rate indicates a healthy economic atmosphere.

The Bureau of Labor Statistics provides unemployment data for areas with a population of 25,000 or more. Because neither the Town nor the Village of Macedon meet that threshold, the unemployment rate for Wayne County was reviewed to gain a better sense of unemployment trends in the region and the overall economic health of the region.

In January 2009, the unemployment rate for New York State was 7.6%, which was the same as the national unemployment rate. A preliminary estimate of the unemployment rate at the county level was 9.3% in January 2009, which is 1.7% higher than New York State.

Table 2-1 shows the variations in the unemployment rates in Wayne County and New York State from January 2008 through January 2009. The rise in unemployment reflects the significant loss of jobs as a result of the economic downturn in the United States.

**Table 2-1. 2008-2009 Unemployment Rates,
Wayne County and New York State, 2008-2009³**

Month	Unemployment Rates	
	Wayne County	New York State
January 2008	6.1%	5.3% (d)
February 2008	6.6%	5.0% (d)
March 2008	6.5%	5.0% (d)
April 2008	5.4%	4.5% (d)
May 2008	5.3%	4.9% (d)
June 2008	5.4%	5.1% (d)
July 2008	5.4%	5.5% (d)
August 2008	5.3%	5.6% (d)
September 2008	5.7%	5.7% (d)
October 2008	5.6%	5.7% (d)
November 2008	6.3%	6.1% (d)
December 2008	7.6% (p)	6.8% (d)
January 2009	9.3% (p)	7.6%

Source: US Bureau of Labor Statistics

G. INCOME

The average household income in Wayne County in 2008 was \$63,958, which is lower than the national average household income of \$67,918. The average household income in Macedon is projected to increase 9.7% over the next five years, to \$70,142. Comparatively, the United States is projected to have an 11.7% increase in average household income.

H. HOUSING

Housing and home ownership are also important indicators of an area's overall economic health and stability. High rates of home ownership typically translate into more stable neighborhoods as homeowners take pride in their residences and tend to be more active within the community. In Wayne County, 78% of the total population owns their residence, compared to the entire country, which has a home ownership rate of 67%.

According to 2008 data, owner-occupied rates are higher in Macedon than in Wayne County, New York State, or the United States as a whole. The Town and Village combined have an owner-occupancy rate of 81.1%.

In the Town of Macedon, the vacancy rate for housing units averages 4.5%. The Village vacancy rate is 3.9%. This is considerably lower than the national rate of 9%.

³ d: Reflects revised population controls and model re-estimation.

p: Preliminary.

Approximately 20% of the houses in the Town of Macedon and 30% in the Village were constructed prior to 1939. As this is largely a commuter community, the majority of housing was built between 1960 and 1980.

According to 2000 Census data, the median value of a home in the United States was \$119,600. For the same period, the median value of a home in the Town of Macedon was \$99,100. The Village median value for homes in 2000 was \$91,000.

2.4 Land Use

A. EXISTING LAND USE (Map 6)

The Route 31 Corridor Study area includes portions of the Town and Village of Macedon in Wayne County. Land use is described using the New York State Office of Real Property Services uniform classification system. This simple system of classification consists of three-digit numeric codes in nine categories. Categories are composed of divisions, the second digit, and subdivisions, the third digit (see Table 2-2).

Table 2-2. Property Classifications

Code	Property Class	Parcels		Area	
		Count	% of Total	Acreage	% of Total
000	No Data	13	0.18%	8	0.2%
100	Agriculture	4	0.35%	286	7.2%
200	Residential	836	73.85%	1442	36.1%
300	Vacant	142	12.54%	1261	31.6%
400	Commercial	95	8.39%	355	8.9%
500	Recreation & Entertainment	10	0.97%	138	5.0%
600	Community Services	9	0.80%	34	0.9%
700	Industrial	16	1.41%	72	1.8%
800	Public Services	14	1.24%	274	6.9%
900	Conservation & Parks	4	0.27%	123	1.6%
Totals		1,132	100.00%	3,994	100.0%

Source: NYS Office of Real Property Services

The Study Area consists of parcels in the vicinity of NYS Route 31 and Wayneport Road, as shown on Map 6. Within this 4.9-mile corridor, there are 1,132 parcels on almost 4,000 acres, with classifications in all nine categories. The NYS Route 31 corridor is predominantly a mixture of residential and commercial land uses along with some vacant and industrial properties.

I. Agriculture

Agricultural land is defined as property used for the production of crops or livestock, and includes vacant agricultural land as part of an operating farm, as well as fish, game and wildlife preserves.

Within the study corridor, only 4 parcels totaling 286 acres are coded as Agricultural. This accounts for 7.2 % of the corridor's acreage. As shown in Map 6, the tracts of agricultural lands in the Study Area are found in the Town of Macedon, to the north and south of NYS Route 31. There is only one parcel used

for agriculture directly adjacent to NYS Route 31. It is located on the south side, between Wayneport Road and Wilson Road.

2. Residential

Residential land is defined as property used for human habitation. Additionally, it includes year-round rural residences with 10 or more acres, seasonal residences, and mobile homes. Hotels and apartments are classified under the Commercial category.

Within the study corridor, nearly 74 % of the parcels are categorized as Residential, accounting for over 36 % of the corridor's land area. As can be seen in Map 6, residential land uses are distributed throughout the corridor, with the largest concentration in the Village of Macedon. The Village generally has smaller lot sizes, with a few larger parcels. Conversely, there are a few small lot developments in the Town of Macedon, such as along Wilson Road, Beebe Road, Brixton Drive and Victor Road. The rest of the residential parcels are larger.

3. Vacant

Vacant land is defined as property that is not in use, is in temporary use, or lacks permanent improvement, and includes abandoned agricultural land and swamps, marshes, rocky areas and vegetated areas not associated with forest lands. Vacant land should not have a negative connotation; it is undeveloped land which often contributes to open space and rural character.

Within the study corridor, more than 12% of the parcels are Vacant, covering 31.6% of the land area. As seen in Map 6, the greatest concentrations of vacant lands are located east and west of Wayneport Road and south of the Erie Canal. The Village of Macedon also has a considerable amount of land that is classified as vacant.

4. Commercial

Commercial land is defined as property utilized for the sale of goods and/or services, and includes living accommodations such as apartments and hotels, along with multipurpose buildings that either include, or have been converted from, a residence.

Within the study corridor, Commercial land uses account for roughly 8.3% of total parcels and 8.9% of total land area. For the most part, commercial land uses in the study corridor are concentrated along the major route of NYS Route 31. There are varying size and types of development. Some commercial developments, such as Lowe's and Wal-Mart, are large scale with expansive parking lots. Other buildings, such as many along Main Street in the Village of Macedon, are smaller storefronts close to the street.

5. Recreation and Entertainment

This classification is defined as property used by groups for recreation, amusement, or entertainment, and includes theaters, clubs, fairgrounds, racetracks, camping facilities, regardless of ownership.

There are 10 parcels on 138 acres within the study corridor classified as Recreation and Entertainment. This includes Spinners Fun Center and the athletic fields behind Macedon Elementary School.

6. Community Services

Community Services properties are classified as those being used for the well being of the community, and include libraries, churches, schools, government buildings, cemeteries, and some roadways.

There are nine parcels categorized as Community Services, covering 34 acres of land. This includes the Town and Village Halls, as well as the Macedon Village Cemetery on Erie Street.

7. Industrial

Industrial lands are categorized as properties used for the production and fabrication of durable and nondurable man-made goods, and include offices associated with an adjacent industrial activity, mining and quarrying, and pipelines utilized by non-utility companies.

There are 16 parcels categorized as Industrial covering 72 acres of land within the study corridor. The largest of these is Pliant Corporation at NYS Route 31 and NYS Route 350 in the Village of Macedon. There are also several industrial uses north of NYS Route 31 on Wayneport Road.

8. Public Service

Public Service lands are defined as property used to provide services to the general public, and include public and private utilities, bus and train stations, and railroads.

The study corridor contains approximately 274 acres of public services lands distributed among 14 parcels. The largest parcel is the High Acres Land Fill, which is north of the Erie Canal on Wayneport Road. Only a portion of the lands classified as Public Service along Wayneport Road are actively utilized by the land fill operation. The rest are slated for future expansion. This category also includes Gravino Park in the Village, as that property is shared by a wastewater treatment plant.

9. Conservation & Parks

This classification includes reforested lands, preserves, and private hunting and fishing clubs, and includes state, county and local parks. There are four parcels classified in this category, totaling 123 acres. Properties include Bullis Park, Macedon Canal Park, and two conservation easements in a residential subdivision off Victor Road.

B. ZONING (Map 7)

Both the Town and Village of Macedon have zoning laws in place. In the Town, the western portion of the corridor includes Office/Research Manufacturing, General Commercial, and Lower Density Residential classifications. Commercial/Business zones are located at the intersection of Wayneport Road and NYS Route 31, as well as in the Village of Macedon. A complete summary of all land use regulations in the corridor is found in Appendix A.

2.5 Corridor Traffic Analysis

The information utilized for the transportation component of this Study was obtained from a variety of available sources and documents including but not limited to the Genesee Transportation Council (GTC), New York State Department of Transportation (NYSDOT), Wayne County, the Town of Macedon, and the Village of Macedon. Additional data were collected from the field.

A. ROADWAYS

New York State (NYS) Route 31 is considered a gateway to Wayne County from the Greater Rochester area. It extends from west to east through the Town and Village of Macedon. This study focuses on the NYS Route 31 corridor from the Wayne-Monroe County line to just west of Alderman Road. The Study Area also includes portions of Wayneport Road and intersections on Canandaigua Road, Ontario Center Road, and Macedon Center Road. The Study Area roadways are briefly described in the following text.

1. NYS Route 31

NYS Route 31 travels from west to east through the Town and Village of Macedon. It is owned and maintained by NYSDOT, and is classified as a Principal Arterial. Highway boundaries are classified as with access, meaning that private driveways for developments and residents are allowable by permit. Though the highest density of driveways is found within the Village of Macedon, continued strip development to the west in recent years has led to an increase in the number of accesses and potential points of vehicular conflict.

The roadway consists of one 12-foot lane in each direction with auxiliary turn lanes at intersections. Shoulders are generally eight to ten feet wide along the corridor. There are some curbed segments within the Village of Macedon. Also within the Village of Macedon's downtown, there are nine-foot wide parking lanes. The posted speed limit varies from 55 to 45 miles per hour (MPH) outside of the village limits and is 30 MPH inside the Village of Macedon. In 2008 the NYSDOT completed a rehabilitation project within the Study Area in which the asphalt pavement was resurfaced, intersection turn lanes were added, pavement markings were upgraded, signing was replaced, and new traffic signals were installed.

2. Wayneport Road (CR 306 and CR 206)

Wayneport Road extends from the southern Wayne-Ontario County line to Quaker Road. Wayneport Road carries County Road (CR) 306 south of NYS Route 31 and CR 206 to the north. It is owned and maintained by Wayne County and classified as a Local Road. It generally has one ten to 11-foot wide travel lane in each direction with shoulders that average 3 feet wide. The posted speed limit is 45 MPH south of NYS Route 31, 45 MPH from NYS Route 31 to the Erie Canal, and 55 MPH from the Erie Canal to Quaker Road. The asphalt pavement surface is in good condition based on field observation. The segment between NYS Route 31 and East Park Road was recently upgraded along with the construction of the adjacent Lowe's home improvement store and NYS Route 31 improvements and includes paved shoulders with a concrete gutter.

Wayneport Road crosses over the Erie Canal via a one-lane, two-way bridge that is owned and maintained by NYSDOT. There are no traffic control devices present to meter alternating one-way traffic (e.g. stop signs or a traffic signal) at either end of the bridge. Drivers must approach the structure, look for opposing traffic, and proceed when the deck is clear. The one-lane bridge is considered a deterrent to increased vehicular and truck traffic between NYS Route 31 and Quaker Road. The existing Wayneport Road Bridge is discussed in greater detail at the conclusion of this section.

3. Canandaigua Road (CR 308)

Canandaigua Road travels north to south connecting NYS Route 31 with NYS Route 31F within the Study Area. The facility is owned and maintained by Wayne County and is classified as a Local Road. It has one ten-foot wide travel lane and a one to two-foot wide shoulder in each direction. The posted speed limit is 45 MPH to the south of NYS Route 31 and 40 MPH to the north. The asphalt pavement surface is in good condition based on field observation. Canandaigua Road also crosses the Erie Canal via a one-lane, two-way bridge (BIN 4437220) that is owned and maintained by NYSDOT. A maximum weight limit restriction of five tons is posted for the bridge.

4. Ontario Center Road (NYS Routes 31F and 350)

Ontario Center Road also travels north to south. It carries NYS Routes 31F and 350 from NYS Route 31 to Macedon Center Road. The highway is owned and maintained by the NYSDOT and classified as a Minor Arterial within the study limits. The roadway generally has one 12-foot wide travel lane in each direction with a ten-foot shoulder. The posted speed limit is 30 MPH within the village and 55 MPH elsewhere. The existing pavement structure is an asphalt overlay on a Portland Cement Concrete base. The pavement surface condition is in good condition based on field observation.

5. Macedon Center Road (NYS Route 31F)

Macedon Center Road (NYS Route 31F), although technically outside of the Study Area, has an impact on traffic flow in the Town of Macedon. The highway is owned and maintained by the NYSDOT and classified as a Rural Minor Arterial. It has one 12-foot wide travel lane in each direction and eight-foot wide shoulders. The posted speed limit is 55 MPH. The asphalt pavement surface condition is in good condition based on field observation.

B. INTERSECTIONS

Select intersections within the project area were examined as part of this study. The existing lane configurations at each location are depicted on Map 3. Traffic control and available storage lengths are summarized in the following text. Queue storage lengths were measured in the field.

- NYS Route 31 and Macedon Parkway (Lowe's Access)
- NYS Route 31 and Wayneport Road
- NYS Route 31 and the Wal-Mart driveway
- NYS Route 31 and Wilson Road
- NYS Route 31 and Canandaigua Road
- NYS Route 31 at Ontario Center Road (NYS Routes 31F and 350)
- Wayneport Road and Wilkinson Road
- Wayneport Road and Quaker Road
- NYS Route 31F and NYS Route 350

I. NYS Route 31 and Macedon Parkway (Lowe's Access)

NYS Route 31 and Macedon Parkway meet at a three-legged "tee" intersection. The southbound approach on Macedon Parkway is stop controlled. The eastbound left turn lane has 430 feet of queue storage. The westbound right turn lane includes 350 feet of queue storage. The exclusive southbound left and right turn lanes include approximately 95 feet of queue storage space.

2. NYS Route 31 and Wayneport Road

The four-legged intersection of Wayneport Road and NYS Route 31 is controlled by an triggered, two-phase, three-color traffic signal system. The eastbound and westbound exclusive left turn lanes have 480 feet and 500 feet of queue storage, respectively. The southbound exclusive right turn lane has approximately 90 feet of storage available.

3. NYS Route 31 and the Wal-Mart Driveway

NYS Route 31, the Wal-Mart driveway, and a private road intersect at a four-legged intersection. It is controlled by an actuated, two-phase, three-color traffic signal system. The eastbound and westbound exclusive left turn lanes have a queue storage length of 510 feet and 115 feet, respectively. The westbound exclusive right turn lane on NYS Route 31 has an available queue storage length of 420 feet. There is approximately 180 feet of queue storage available in the southbound left and right turn lanes on the Wal-Mart driveway.

4. NYS Route 31 and Wilson Road

NYS Route 31 and Wilson Road meet at a four-legged, unsignalized intersection. The Wilson Road northbound and southbound approaches are controlled by stop signs. The intersection now includes eastbound and westbound exclusive left turn lanes on NYS Route 31, constructed as a result of the Macedon Shopping Center located north of NYS Route 31. A westbound exclusive right turn lane was also constructed to service the shopping center. There is approximately 100 feet of queue storage available in the southbound right turn lane on North Wilson Road. There are no exclusive turn lanes on the northbound approach of this intersection.

5. NYS Route 31 at Canandaigua Road

There is a four-legged intersection under the control of an actuated, two-phase, three-color traffic signal system at the juncture of NYS Route 31 and Canandaigua Road. The eastbound dedicated left turn lane has approximately 225 feet of queue storage available. The eastbound right turn lane has 165 feet of storage. The westbound exclusive left turn lane has 195 feet of queue storage. The exclusive right turn lane on the northbound approach to NYS Route 31 has 70 feet of vehicle storage available.

6. NYS Route 31 and Ontario Center Road (NYS Routes 31F and 350)

The intersection of NYS Routes 31, 31F, and 350 is controlled by an actuated, two-phase, three-color traffic signal system. The eastbound approach on NYS Route 31 includes an exclusive left turn lane with 160 feet of queue storage. There is also a westbound dedicated left and right turn lanes with 200 feet and 180 feet of queue storage available, respectively. The northbound and southbound approaches to the intersection each have an exclusive left turn lane. Available vehicle storage lengths are 80 feet and 90 feet in the northbound and southbound directions, respectively.

7. Wayneport Road and Wilkinson Road

Wayneport Road and Wilkinson Road meet at an unsignalized, four-way intersection. Stop control is provided on the Wilkinson Road approaches, eastbound and westbound. Each approach has a single lane serving all possible movements.

8. Wayneport Road and Quaker Road

Wayneport Road and Quaker Road meet at an unsignalized, three legged intersection. A stop sign controls traffic on the northbound Wayneport Road approach. All approaches to the intersection consist of a single lane serving all possible movements.

9. NYS Route 31F and NYS Route 350

The intersection of NYS Route 350 and NYS Route 31 is controlled by an actuated, two-phase, three-color, traffic signal system. All approaches include an exclusive left turn lane and a lane shared by through movements and right turns. The eastbound and westbound left turn lanes have available queue storage lengths of 110 feet and 425 feet, respectively. The northbound and southbound left turn lanes have 450 feet and 120 feet of queue storage available, respectively.

C. TRAFFIC SPEED & VOLUMES

I. Vehicular Speeds on NYS Route 31

Vehicular operating speeds observed on NYS Route 31 within the study limits range from 60 to 35 MPH. On average, drivers travel three to five MPH above the posted limit. The method used to observe prevailing speeds was the test vehicle method (floating car method) as prescribed in the Institute of Transportation Engineers' Traffic Engineering Handbook. Observations were made during both the peak and off peak periods. It was noted that vehicle speeds in the section from the Monroe-Wayne County line to east of Wilson Road are impacted by traffic signals and vehicles turning into and out of the commercial sites. Outside of the commercial areas, vehicle speeds are influenced by the relatively straight alignment, wide shoulders, and a lack of side visual friction.

2. Existing Traffic Volumes

Existing traffic volumes were compiled to assess the quality of operations and to provide a basis for the examination of changes that could potentially affect traffic volumes and patterns in the future. Traffic volume data were obtained from a variety of sources including previous approved traffic impact studies for local developments, Wayne County, the NYSDOT, and new counts conducted specifically for this study.

Average Daily Traffic (ADT) volumes were obtained from the NYSDOT Traffic Data Viewer (available online) for New York State touring routes. Continuous 24-hour volume counts were also conducted by the Wayne County Highway Department on select local roadways. The location of these counts and the 2009 ADT volumes are shown on Map 3.

Manual turning movement counts were conducted at all nine Study Area intersections on Tuesday and Wednesday, March 24 and 25, 2009 between 7:00 AM and 9:00 AM. Counts were also taken at six of the nine Study Area intersections on Tuesday March 24, 2009 between 4:00 PM and 6:00 PM. These times were chosen to evaluate what are typically the highest periods of daily commuter traffic.

Evening peak period data for the remaining three locations were available from recent, accepted traffic impact studies for local developments. An annually compounded growth rate of one percent per year was applied to volumes adapted from these studies to estimate volumes in 2009. Selection of this rate was based upon an analysis of historic traffic growth patterns on NYS Route 31 throughout the Study Area and data from the most current NYSDOT Traffic Volume Report. This rate is consistent, or slightly more

conservative than the background growth rate assumed by several recent, approved traffic impact studies for local developments.

All new turning movement counts were recorded in 15-minute intervals to enable the identification of the peak hour and traffic peaking characteristics within that hour. Data regarding the percent of truck traffic were also collected. The morning peak hour was found to occur between 7:00 AM and 8:00 AM. The evening peak period took place between 4:45 PM and 5:45 PM. Volumes were summarized and balanced where appropriate. Traffic flow diagrams for both the morning and evening peak hour are presented on Maps 13 and 14 (Appendix C).

Manual turning movement counts were also conducted between 11:00 AM and 1:00 PM at the Macedon Parkway (Lowe's Access) and Wal-Mart drive intersections on Saturday March 21, 2009. Retail traffic generally peaks during the Saturday mid-day time frame. These counts were supplemented with data from recent, accepted traffic studies for local developments to cover the NYS Route 31 corridor between Macedon Parkway and Canandaigua Road. The Saturday mid-day peak hour was found to occur between 11:45 AM and 12:45 PM. A traffic flow diagram for the Saturday mid-day peak period is presented on Map 13 (Appendix C).

A traffic impact study for the Lowe's home improvement store was prepared in May 2006 and contained projections of the volume of traffic expected to approach NYS Route 31 on Macedon Parkway during the weekday evening and Saturday mid-day (retail) peaks after opening in 2008. Based upon data collected in 2009 during the weekday evening and Saturday mid-day peak periods, the actual volume of traffic on the Macedon Parkway approach is approximately 50 percent lower than that projected by the previous study. See Section 2.5 D for further discussion of conditions on this approach.

Similarly, a traffic impact study for the Macedon Shopping Center was prepared in November 2007 and contained a projection of the volume of traffic expected to approach NYS Route 31 on the Wal-Mart driveway after the completion of the shopping center's Phase I in 2008. Based upon the data collected in 2009, the southbound approach to NYS Route 31 on the Wal-Mart driveway is carrying 25 percent more traffic than expected.

It is important to note that the mitigation for Phase I of the Macedon Shopping Center has been completed. The mitigation includes construction of North Wilson Road which connects to NYS Route 31 immediately across from Wilson Road and construction of turn lanes on NYS Route 31 as described in the Existing Traffic Operations section (2.5 D) of this report. The North Wilson Road extension is opened to traffic with cross-access provided between the Wal-Mart and Macedon Shopping Center. Therefore Wal-Mart and Macedon Shopping Center traffic is expected to utilize both of these access the Wal-Mart driveway and North Wilson Road to access NYS Route 31, especially upon full build-out and occupancy.

D. EXISTING TRAFFIC OPERATIONS

The existing traffic operations analysis establishes a baseline for examining the effects of potential future changes within the Study Area that may affect traffic volumes and patterns. The overall operation of a transportation network is dependent upon the ability of its roadway segments and intersections to accommodate the movement of vehicles, bicyclists, and pedestrians. The ability of a roadway or intersection to meet demand is measured in terms of capacity. The industry standard is outlined in the Highway Capacity Manual (HCM), published by the Transportation Research Board in 2000. The methodology defines the ability of roadways and intersections to accommodate traffic using an indicator called Level of Service (LOS). LOS is a qualitative measure describing how motorists and passengers perceive factors influencing the degree of congestion. These factors include travel time, volume, speed, and delay. LOS range from A to F. Level of Service A represents excellent operating conditions while LOS F describes highly congested conditions with substantial delays. At urban intersections, LOS D or

better is generally considered acceptable under peak traffic conditions. LOS C is generally desirable as a minimum in rural locations.

Synchro (version 7) was utilized to complete the traffic analysis for this study. Synchro is a computer software program, approved by NYSDOT, designed for the analysis of roadway corridors including signalized and unsignalized intersections. Traffic signal timing and phasing information was collected in the field. Timing and phasing sheets have also been requested by the Town of Macedon from the NYSDOT. The existing condition analyses will be reviewed and updated as necessary upon receipt of that information. The analysis results for existing conditions with full build-out of the Macedon Shopping Center are summarized below.

In general, there is adequate capacity at the Study Area intersections to accommodate the level of traffic demand. With the exception of the southbound left turn from Macedon Parkway (Lowe's Access) to eastbound NYS Route 31 and the northbound and southbound left turns from Wilson Road to NYS Route 31, all lane groups at signalized intersections and critical movements at unsignalized intersections are operating at LOS C or better. The results are in agreement with field observations that suggest a vehicle can travel the entire NYS Route 31 corridor without significant delay. When stopped at a traffic signal, queued traffic on NYS Route 31 is able to clear within one cycle. Queues observed on signalized minor street approaches to the corridor generally extended no more than three to five vehicles deep. All were able to clear within one signal cycle.

Drivers on unsignalized approaches must wait for an acceptable gap in NYS Route 31 traffic to complete their maneuver. Based on the Synchro LOS analysis of existing conditions with full build out of the Macedon Shopping Center, notable delays (LOS F and greater than one minute per vehicle) are expected on the Wilson Road approaches to NYS Route 31 during the weekday evening and Saturday mid-day peak hours. The analysis is conservative, in that, full build-out of the Macedon Shopping Center is included, although, to date, the project is not complete. The analysis indicates that at full build-out the intersection should be reviewed to study the need for a traffic signal.

The traffic mitigation recommended in the Macedon Shopping Center Traffic Impact study has been constructed at the intersection of NYS Route 31 and Wilson Road including left turns in both directions on NYS Route 31 and a westbound right turn lane for traffic entering the shopping center. However it does not appear that installation of all underground conduit and pullboxes required for a future signal at the intersection was completed as part of the intersection upgrade as recommended in the traffic impact study.

The NYS Route 31, Macedon Parkway (Lowe's Driveway) and Wilson Road Intersection Study, August 31, 2009 indicates acceptable delays at these intersections without full build-out of the Macedon Shopping Center. The delay study showed acceptable peak hour vehicle delays with averages less than 37 seconds. Peak hour LOS was observed to be LOS D or better except for the Macedon Parkway left turn movement during the PM peak hour, which is at the low end of the LOS E range, very near to LOS D.

Existing delays with the addition of Macedon Shopping Center traffic are also impacting southbound left turning traffic on Macedon Parkway, but to a lesser extent than at the Wilson Road intersection. This condition was anticipated by the traffic impact study for the Lowe's home improvement store under stop control conditions. Mitigation recommended by the Lowe's traffic impact study included the installation of an actuated, two-phase, three-color traffic signal with a westbound right turn overlap. Additional continuous 24-hour traffic counts and completion of a signal warrant analysis per the National Manual on Uniform Traffic Control Devices should be conducted to establish the need for a traffic signal at this intersection when the Macedon Shopping Center project is completed.

Table 2-3. Weekday Morning and Evening Level of Service and Delays
2009 Existing Conditions

Number	Intersection	Approach		2009 AM		2009 PM	
				LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
1	NYS Route 31 and Macedon Parkway (Lowe's Access) (Unsignalized)	Eastbound	L	B	10	A	9
		Southbound	L	E	35	F	106
		Southbound	R	-	-	B	14
2	NYS Route 31 and Wayneport Road (Signalized)	Eastbound	L	A	8	A	8
		Eastbound	TR	A	7	B	16
		Westbound	TR	A	6	A	9
		Westbound	L	B	13	A	8
		Northbound	LTR	C	23	C	26
		Southbound	LT	B	18	C	28
		Southbound	R	A	6	A	7
		Overall		B	12	B	15
3	NYS Route 31 and the Wal-Mart driveway (Signalized)	Eastbound	L	A	5	A	9
		Eastbound	TR	A	5	B	14
		Westbound	L	A	4	A	5
		Westbound	T	A	7	A	8
		Westbound	R	A	2	A	2
		Northbound	LTR	B	16	B	15
		Southbound	L	B	17	C	25
		Southbound	R	A	8	A	6
		Overall		A	7	B	12
4	NYS Route 31 and Wilson Road (Unsignalized)	Eastbound	L	A	10	A	10
		Westbound	L	A	8	A	10
		Northbound	LTR	F	62	F	214
		Southbound	LT	F	77	F	>300
		Southbound	R	C	15	B	14
5	NYS Route 31 and Canandaigua Road (Signalized)	Eastbound	L	A	10	B	11
		Eastbound	T	A	10	C	24
		Eastbound	R	A	3	A	2
		Westbound	L	A	7	B	18
		Westbound	TR	B	17	B	11
		Northbound	LT	C	24	C	35
		Northbound	R	A	7	A	7
		Southbound	LTR	B	11	C	24
		Overall		B	15	B	20

6	NYS Route 31 at Ontario Center Road (NYS Routes 31F and 350) (Signalized)	Eastbound	L	A	8	A	9
		Eastbound	TR	A	9	B	12
		Westbound	L	A	7	A	7
		Westbound	T	B	11	A	8
		Westbound	R	A	2	A	2
		Northbound	L	B	14	B	18
		Northbound	TR	A	8	B	12
		Southbound	L	B	19	C	23
		Southbound	TR	A	6	A	9
		Overall		B	10	B	11
7	Wayneport Road and Wilkinson Road (Unsignalized)	Eastbound	LTR	B	11	B	13
		Westbound	LTR	B	11	B	11
		Northbound	LTR	A	0	A	0
		Southbound	LTR	A	1	A	1
8	Wayneport Road and Quaker Road (Unsignalized)	Westbound	LT	A	6	A	7
		Northbound	LR	B	12	B	11
9	NYS Route 31F and NYS Route 350 (Signalized)	Eastbound	L	A	8	A	6
		Eastbound	TR	A	5	A	9
		Westbound	L	A	8	A	9
		Westbound	TR	A	7	A	7
		Northbound	L	A	8	A	10
		Northbound	TR	A	7	A	6
		Southbound	L	A	6	A	9
		Southbound	TR	A	4	A	8
		Overall		A	7	A	8

**Table 2-4. Saturday Mid-Day Level of Service and Delays
2009 Existing Conditions**

Number	Intersection	Approach		2009 Saturday Mid-Day	
				LOS	Delay (sec/veh)
1	NYS Route 31 and Macedon Parkway (Lowe's Access) (Unsignalized)	Eastbound	L	A	10
		Southbound	L	F	165
		Southbound	R	B	14
2	NYS Route 31 and Wayneport Road (Signalized)	Eastbound	L	A	8
		Eastbound	TR	B	11
		Westbound	TR	A	7
		Westbound	L	B	10
		Northbound	LTR	B	14
		Southbound	LT	B	19
		Southbound	R	A	6
		Overall		B	11
3	NYS Route 31 and the Wal-Mart driveway (Signalized)	Eastbound	L	D	36
		Eastbound	TR	B	13
		Westbound	L	A	6
		Westbound	T	B	12
		Westbound	R	A	2
		Northbound	LTR	B	12
		Southbound	L	C	24
		Southbound	R	A	5
		Overall		B	15
4	NYS Route 31 and Wilson Road (Unsignalized)	Eastbound	L	A	10
		Westbound	L	A	9
		Northbound	LTR	F	131
		Southbound	L	F	>300
		Southbound	R	B	13
5	NYS Route 31 and Canandaigua Road (Signalized)	Eastbound	L	B	16
		Eastbound	T	C	21
		Eastbound	R	A	3
		Westbound	L	B	14
		Westbound	TR	C	21
		Northbound	LT	B	12
		Northbound	R	A	4
		Southbound	LTR	B	12
		Overall		B	16

E. SAFETY CONSIDERATIONS

Crash summaries for the most recent three year period of available data along the NYS Route 31 corridor have been requested by the Town of Macedon through the NYSDOT. A cursory review of the crash data and a summary of any specific safety concerns revealed will be added to this document upon receipt of that information.

In 2007 the NYSDOT performed a Priority Investigation Location (PIL) study of the intersection at NYS Route 31 and Canandaigua Road covering the period from January 2001 through December 2003. The majority (45 percent) of the accidents involved right angle collisions. Most took place during daytime hours. Non-reportable crashes accounted for 91 percent of the total accidents. Non-reportable crashes are those for which the total dollar value of damage is less than \$1,000, no motorist report is filed, or no dollar value of vehicular damage is entered into the report. The remaining crashes involved personal injury. There were no fatalities or property damage only events within the data set. The intersection crash rate of 0.59 crashes per million entering vehicles (c/mev) was higher than the average rate of 0.38 c/mev for similar locations statewide.

The Village of Macedon's NYS Route 31 Circulation, Accessibility, and Parking Study contained a crash analysis for NYS Route 31 within the village limits covering the period from July 2004 through June 2007. In general that study found that approximately one-third of the crashes resulted in at least one personal injury. In addition, the majority of all crashes within the village were attributable to following too closely, unsafe speed, driver inattention, or failure to yield the right-of-way. The overall crash rate along NYS Route 31 within the Village of Macedon was found to be lower than the average rate for similar facilities statewide. No clusters of crashes were identified.

Another intersection of concern is at Beebe Road. This roadway approaches NYS Route 31 at an acute angle. Anecdotal information and field observations suggest that sight distance may be a problem at this intersection.

F. TRUCK TRAFFIC

The Genesee Transportation Council (GTC) has designated the NYS Route 31 corridor within the study limits as one carrying significant truck traffic. Roadways with significant truck traffic are defined as those with an average daily truck traffic more than 20% above the regional average. Traffic from the Waste Management High Acres landfill likely contributes to this condition.

Field observations suggest truck traffic is heaviest on NYS Route 31, NYS Route 350, and NYS Route 31F within the Study Area. The intersections along this route appear sufficiently designed to accommodate truck turning movements. Based on 2004 data from the NYSDOT, NYS Route 31 carries 15 percent trucks on a 24 hour (daily) basis. Based on 2006 data from the NYSDOT, NYS Route 31F (Macedon Center Road) carries 11 percent trucks while NYS Routes 31F and 350 (Ontario Center Road) carry 14 percent trucks on a 24 hour (daily) basis. The majority of truck traffic is experienced during off peak periods.

Data collected during the peak hour traffic periods in 2009 indicates that truck traffic on NYS Route 31 accounts for between two and three percent of the total volume during the AM and PM peak hours. Truck traffic on Ontario Center Road (NYS Routes 31F and 350) accounts for four to five percent of the total volume during the same peak hour periods. Truck traffic accounts for one to three percent of the total volume at the intersection of Ontario Center Road and Macedon Center Road (NYS Routes 31F and 350) during the AM and PM peak hours.

G. PEDESTRIAN & BICYCLIST ACCOMMODATIONS

The Study Area is well developed with a broad range of land uses including residential, commercial, service, industrial, and public development. Local generators of pedestrian traffic include commercial buildings along NYS Route 31, the Erie Canalway Trail, and residential areas of the Village of Macedon.

Sidewalks exist along NYS Route 31 within the Village of Macedon. They are maintained by the Village Department of Public Works. They are generally four to five feet wide exclusive of additional snow storage area downtown. The sidewalks are generally in fair to good condition based upon field observation. There are no sidewalks along NYS Route 31 outside the village limits.

NYS Route 31 is part of NYS Bicycle Route 5. Statewide, this facility links the Buffalo region with the Albany area. Bicyclists also share the pavement with motorized vehicles within the study limits. As stated in the Village of Macedon's Circulation, Accessibility, and Parking Study, existing shoulders within the Study Area are generally adequate for bicyclist accommodation with the exception of those areas adjacent to the Ontario Center Road (NYS Routes 31F and 350) intersection.

The New York State Canalway Trail System is comprised of a network of more than 260 miles of existing shared-use, recreational trails across upstate New York. The Western New York segment of the Canalway Trail runs through the Study Area. This segment is designated as a National Recreation Trail and has numerous access points, primarily where local roads intersect. Trail users include hikers, bicyclists, cross-country skiers, horseback riders, and snowmobilers (in some sections). Trail surfaces include pavement, stone dust, and gravel. Within the Study Area, the sole access across the Erie Canal that complies with Americans with Disabilities Act Accessibility Guidelines (ADAAG) is located at O'Neil Road. There are also access points at Wayneport Road, Canandaigua Road, and Ontario Center Road (NYS Routes 31F and 350).

There are no direct connections between NYS Route 31 and the Canalway Trail at the eastern end of the Study Area. Members of the Steering Committee have noted that boaters occasionally dock across from the West Wayne Plaza, cross a grassy area, and traverse NYS Route 31 to reach the retail center. There is no formal pedestrian crossing at this location.

H. PARKING

There is no on-street parking along NYS Route 31 outside the Village of Macedon. Parked vehicles are accommodated in off-street lots specifically dedicated to each neighboring land use. Within downtown Macedon there is a segment of NYS Route 31 with nine-foot wide parking lanes. The wide expanse of pavement is a vestige of drive-in, diagonal parking that once existed along the roadside. Similar configurations still exist in other Erie Canal towns including Palmyra and Medina.

I. RAILROADS

A dual track runs along the north side of the Erie Canal throughout the Study Area. The corridor is owned by CSX, which operates a Class 1 Freight Railroad service (Class 1 railroads are primary corridors, carrying interstate traffic and generating annual revenues in excess of \$250 million.) In addition, AMTRAK operates a Class VI Passenger Service under a shared use agreement with CSX. The corridor is heavily used, with approximately 55 Class 1 freight trains and 7 Class VI passenger trains passing each day.

The tracks cross Wayneport Road at-grade just north of the Erie Canal. The crossing is controlled by a two quadrant signal gate arm device with flashing warning lights. The crossing is in fair condition based upon field observation.

The southern track divides into two for a total of three tracks heading eastbound along the Erie Canal, east of Wayneport Road. All three tracks cross Canandaigua Road via two separate at-grade crossings. The crossings are controlled by two, two quadrant signal gate arm devices with flashing warning lights.

Just west of Canandaigua Road, two of the three tracks turn northeastward and continue as the CSX mainline. The third track continues parallel to the Erie Canal. The single railroad track crosses Ontario Center Road (NYS Routes 31F and 350) via an at-grade crossing. The crossing is controlled by a two quadrant signal arm with flashing warning lights. The crossing condition appears to be deteriorating based on field observation. NYS Routes 31F and 350 are grade separated over the two remaining tracks further north.

2.5 Wayneport Road Bridge

A. OVERVIEW

The Wayneport Road Bridge (BIN 4437230) was built in 1912 as part of Barge Canal Section 8, Contract No. 49, to carry Wayneport Road over the Erie Canal. Nearly one hundred years later, the bridge remains very much unchanged. The 183-ft long single span Baltimore (aka Petit) style through-truss is perched atop skewed concrete abutments and is preceded by approach embankments. From the north, the relatively flat profile of Wayneport Road climbs over 16 feet at a five percent grade, then traverses the Erie Canal at zero grade, and then falls away to the south at a 1.45 percent grade. Previously maintained by NYSCC, NYSDOT currently owns, inspects, and maintains the bridge. The last major rehabilitation occurred in 1989 (Contracts D252356 and D253074) at which time the backwalls, pedestals, bearings, deck framing, and approach & bridge railing were removed & replaced, miscellaneous steel repairs were performed, and the bridge was painted.

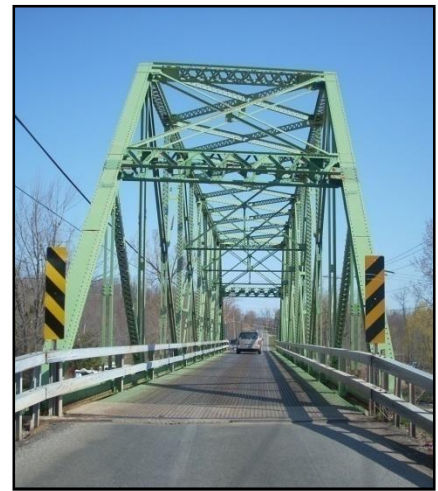


Figure 2-4. Wayneport Road Bridge



Figure 2-5. Wayneport Road Bridge over Erie Canal

B. BRIDGE CONDITION SUMMARY

Bridge condition is documented using a variety of methods, each with a specific purpose in evaluating a bridge and comparing it to the statewide and federal bridge inventories.

The key metrics by which a bridge is measured include:

- Biennial Inspection
- Flagged Conditions
- Condition Rating
- Federal Sufficiency Rating
- Load Rating
- Vulnerability Assessments

Each of these is described in detail below, followed by a specific evaluation of the Wayneport Road bridge.

- **Biennial Inspection** – In New York State, bridge inspectors assess all of a bridge's individual parts at least every two years. The NYSDOT condition rating scale ranges from 1 to 7, with 7 being in new condition and a rating of 5 or greater considered as good condition.

The most recent biennial inspection was conducted by NYSDOT Region 4 in 2008, at which time inspectors noted several elements (see Table 2-5) showing advanced deterioration or that were no longer functioning as originally designed; these elements were rated 4. A rating of 4 is considered by many bridge owners to be the first sign that a condition exists that may need to be addressed.

Table 2-5. Summary of 2008 Biennial Bridge Inspection; Ratings of 4 or Less

Category	Element	Rating	Description
Abutment	Joint With Deck	4	At the begin approach, the joint with deck has +/- 4 feet of the concrete armoring angle missing at the left side and the exposed concrete is spalled. This is most likely the result of vehicle and snow plow impact against the backwall and joint due to the settlement of the approach.
Approach	Drainage	4	There is a +/- 6 inch high buildup of debris under the guide rail at all four approach quadrants that channels highway runoff along the edge of shoulder, especially at end right. At both approaches the drainage rates 4. This buildup is likely the result of lack of maintenance to remove the continual accumulation of debris.
Approach	Settlement	4	At the begin approach, the asphalt pavement has settled +/- 1 1/2 inches that creates a definite bump for vehicles crossing the bridge. At the end approach, settlement rates 5. The lack of structural approach slabs may be a contributing factor to this settlement.
Approach	Erosion	4	At the begin left approach, the embankment adjacent to the guide railing has erosion over a +/- 15 foot length where +/- 4 to 9 inches of the guide railing post soil plates are exposed. Elsewhere the erosion rates 5 or higher.
Approach	Guide Railing	4	At the end left approach, the box beam to corrugated beam guide railing transition has a broken cable. Elsewhere the guide railing rates 5 or higher.

Table 2-5. Summary of 2008 Biennial Bridge Inspection; Ratings of 4 or Less

Category	Element	Rating	Description
Superstructure	Structural Deck	4	The grating-to-sleeper welds throughout the center +/- 90% width of the deck over the entire span length are cracked and/or broken. The grating rides up and down 1/16 of an inch with passing traffic and there is visible wear in spots on bottoms of carrying bars and on tops of upper flanges of sleepers. This condition frequently occurs on metal grating deck bridges.
Superstructure	Paint	4	The paint area has +/- 5% of the paint is missing allowing ongoing rusting. Another +/- 5% of the painted area has rust bleed through which is concentrated in areas at or below the roadway. Elsewhere the paint appears oxidized and dull.

In summary, inspectors assigned a General Recommendation of “5” to the bridge, indicating that overall the bridge is in good condition. The primary members and substructures are in good condition and do not need major repairs. Bridge load capacity is not reduced by the deterioration, but some parts of the bridge (such as approach elements listed above, deck elements, etc.) may need extensive repairs. The bridge may require repainting because of corrosion starting on steel members.


Bergmann Associates visited the bridge on April 24, 2009, and found no evidence of new or changed conditions from those presented in the Biennial Inspection Report.

- **Flagged Conditions** – When inspectors find a deficiency that requires a timely response, a “flag” is issued. “Red” flags are issued for deficiencies involving critical structural components, “Yellow” flags identify conditions that are less critical, and “Safety” flags are issued for conditions that present a safety hazard to the public.

A review of the bridge folder and recent biennial inspection reports revealed two yellow flags and one safety flag in the last three biennial inspections. The Yellow Flags documented cracked welds in the metal grating and section loss in and around truss to floorbeam connections. The cracked welds are being monitored, and a revised load rating has been recommended to confirm the capacity of those elements with flagged section loss. This load rating has not yet been completed. A safety flag had been issued for missing signage warning the travelling public of the single lane over the bridge, the vertical clearance restrictions, and the “R” posting; all these signs have been replaced.

- **Condition Rating** – The Condition Rating (CR) of a bridge is a numerical value from 1.000 (poor) to 7.000 (excellent) which NYSDOT calculates to represent an overall assessment of the condition of a bridge. NYSDOT defines a “deficient” bridge as one with a State condition rating less than 5.0. A “deficient” condition rating does not necessarily mean that a bridge is unsafe rather it indicates the deterioration has progressed to a level that requires corrective maintenance or rehabilitation to restore the bridge to its fully functional, non-deficient condition.

The computed condition rating reported in the 2008 biennial inspection report is 4.951, a shade below the 5.0 “deficient” rating. Further examination of NYSDOT’s records refines this designation to “Functionally Obsolete”, meaning that the deficiency is primarily one of bridge geometry not meeting modern standards, as opposed to a reduction in structural capacity.

- Federal Sufficiency Rating – The Sufficiency Rating (SR) of a bridge is a numerical value from 0.0 (poor) to 100.0 (excellent) which FHWA uses to provide an overall assessment of a bridge's condition and represents both structural and functional adequacies. The 2008 Sufficiency Rating for the Wayneport Road Bridge is 63.1. Structures with a Sufficiency Rating of 50.0 or less are eligible for funding for replacement while structures with a Sufficiency Rating between 50.0 and 80.0 are eligible for funding for rehabilitation.
- Load Rating – A revised load rating has not been performed since the 1989 rehabilitation, at which time the bridge rated for a 28 ton three-axle truck (HS15.5); the load rating is controlled by the rating of the trusses. For existing bridges, the standard is HS-20; for new bridges the standard is HS-25. The bridge currently is R-Posted, which indicates that based on design or condition, the bridge does not have the reserve capacity to accommodate most vehicles over legal weights, but can still safely carry legal weights. 
- Vulnerability Assessments – NYSDOT's Bridge Safety Assurance (BSA) program provides a systematic method to identify and reduce the vulnerability of the states bridges to all potentially significant modes of failure. There are six standard vulnerability assessments for bridges and the result in ratings of "low", "medium" and "high" vulnerability. The bridge folder contained documentation of the following BSA vulnerabilities:
 - Hydraulic (1994) – Vulnerability to failure due to scour or flood-related forces was determined to be "low", and the consequence would be limited to partial collapse. No action is required to mitigate this vulnerability.
 - Overload (1995) – Vulnerability to failure due to large/overload vehicles is "high", and the consequence could include catastrophic failure, resulting in a recommendation of Safety Program. This means that remedial work to reduce the vulnerability does not need immediate priority but waiting for Capital Program action would be too long. This vulnerability has been addressed by the R-posting.
 - Steel Details (1995) – Vulnerability to failure due to undesirable details and/or poor condition is "medium", and the consequence could include catastrophic failure, resulting in a recommendation of Capital Program. This risk can be tolerated until a normal capital construction project can be implemented to address the presence of Class E welds, fatigue-prone details, and noted section loss.
 - Collision (1996) – Vulnerability to failure due to collision by vehicle, boat, or train is "low", and the consequence of such an event would be limited to structural damage. No action is required to mitigate this vulnerability.
 - Seismic (1995) – The vulnerability to failure due to earthquake is "low", and even though the consequence could include catastrophic failure, no action is required to mitigate this vulnerability.
 - Concrete Details – Because the superstructure is completely of steel construction, there is no vulnerability to failure due to undesirable details and/or poor condition.

C. OTHER CONSIDERATIONS

I. Non-Standard / Non-Conforming Features

The following features are known or suspected to not meet current design standards:

- Number of Lanes – Existing conditions provide one lane of traffic across the bridge; current standards require two lanes of traffic be carried across the bridge.

- Bridge Width – Existing conditions provide 14 feet, 2 inches between the bridge rails; current standards require 28-foot clear distance
- Load Rating – the existing rating is HS15.5; the current standard for a bridge rehabilitation is HS20 and for a bridge replacement project is HS25.
- Sight Distance – the combination of steep north approach grade and flat grade across the bridge create conditions that restrict sight distance. There are anecdotal reports that the steep approach grades are difficult to traverse when snow covered resulting in stuck vehicles.
- Vertical Clearance – 16 feet, 6 inches vertical clearance is required for thru-trusses; the existing bridge provides 13 feet, 4 inches.
- Railing – the approach and bridge rail is non-conforming with current standards.

2. Geotechnical / Foundation

The bridge is supported by concrete solid gravity abutments, each founded on over 120 Class B round timber piles. The driven length of piles is unknown based on the available record drawings; the original design drawings note that pile length was to be determined based on driven test piles. Based on review of the bridge folder and our site visit, no evidence of abutment movement, settlement, or rotation is present, and the foundations are functioning as intended for the current bridge configuration.

A review of nearby bridges also crossing the canal confirms that all are also founded on piles. Bridges of similar vintage to Wayneport Road (Canandaigua Road over the Erie Canal, BIN 4437220; Quaker Road over the Erie Canal, BIN 4437210; Walworth Road over the Erie Canal, BIN 4437200) are all supported on concrete gravity abutments founded on timber piles. Bridges that have been replaced with modern construction (Lyndon Road Bridge over the Erie Canal & RR, BIN 4443010; NYS Route 31F over the Erie Canal, BIN 4022190) are supported by concrete substructures on steel H-pile foundations.

3. Relationship to NYS Barge Canal & Canalway Trail

The bridge meets all current standards for vertical (15 feet, 6 inches) and horizontal clearance (75-foot wide navigation channel, 123 feet bank to bank) related to the NYS Barge Canal, and inquiries to the NYS Canal Corp did not reveal any conflicts between the bridge and navigation on the canal.

The Canalway Trail generally runs along the north bank of the Canal however at the north bridge approach the roadway embankment blocks this trail alignment. At this location, the trail turns north to a parking area, crosses Wayneport Road at-grade and continues along West Canal Drive before returning to an alignment along the north Canal bank.

Currently no sidewalks exist on the Wayneport Road Bridge. The narrow single-lane bridge configuration, poor sight distance and the open steel grating bridge deck do not provide for safe pedestrian and bicycle access across the bridge for users attempting to use the Canalway Trail.

4. Relationship to CSX Railroad Tracks

An at-grade railroad crossing is located on Wayneport Road Bridge approximately 500 feet from the north bridge approach. There have been no reported accidents at these tracks in recent years and current queue lengths of southbound traffic waiting to cross the single lane bridge do not back up to the railroad crossing. However the railroad tracks are very active and there are anecdotal reports that after long waits at the railroad crossing, southbound vehicles will cross the single lane bridge in “platoons” of multiple cars rather than obeying the courteous single car crossing “rule” which results in frustrated northbound travelers.

5. Historic Considerations

The Programmatic Agreement Concerning Bridges Over the National Register Eligible New York State Canal System documents that although the Wayneport Road Bridge is not individually eligible for protection under Section 106 of the National Historic Preservation Act, it is a “contributing component” of the Historic Canal System, and therefore eligible for protection. This means that the relevant agencies have agreed to place a high priority on maintaining this structure, and have committed to exhausting all other options prior to proposing a replacement structure. This commitment requires expending greater resources for preservation than would normally be allocated before considering replacement of the existing structure. Any plans for bridge repair or replacement work would require prior approval by the NYS Historic Preservation Office.

In addition to the bridge and current Barge Canal being eligible for protection, there is some evidence that remnants of the original Clinton's Ditch and the Enlarged Canal of the 1840's still exist along Wayneport Road just south of the bridge. These features, if confirmed, would also receive protection under Section 106 of the National Historic Preservation Act.



Figure 2-6. Suspected Remnants of Clinton's Ditch and the Enlarged Canal (towpath and rock wall)

6. Environmental Assessment

There are several environmental conditions within the vicinity of the bridge that may be important considerations for any proposed rehabilitation or replacement of the bridge. These conditions are briefly described below. Any disturbance or work that may affect these resources shall be evaluated for impacts. Permitting and/or mitigation could be required.

- NYSDEC Surface Water Classification: Class C (fishable waterways, primary and secondary recreational use)
- NYSDEC Navigable Waterway: Yes, NYS Canal
- NYSDEC Designated Wetlands: Yes

Table 2-6. State Protected Wetlands within 100 Feet of Wayneport Road Bridge (see Map 2)

Wetland ID	Wetland Class	Wetland Size (Acres)	Location
PR-2	1	674.1	south side of bridge
MA-16	2	82.1	northeast of bridge

- Threatened/Endangered Species: State records indicate a “rare animal” may exist at the project site (no additional information). Wayne County Federal records include – Bald eagle (Delisted), Bog Turtle (Threatened), Indiana Bat (Endangered -Summer Only), Eastern Prairie Fringed Orchid (Historic, Threatened)

- Flood Plain: Bridge is located in 100-year flood boundary (FIRM panel 361230 0012 C, Town of Macedon, NY)
- Parks and Recreation Facilities: Erie Canalway National Heritage Corridor
- Hazardous Materials: no record of asbestos containing materials or lead-based paint were documented in the bridge folder, however our experience with structures of this vintage has been that lead-based paint is nearly always a concern, regardless of past mitigation efforts. In addition, the bridge should be screened for possible ACM's, as these are often found in joint filler materials, bearings, and sometimes paint.

7. Utilities

There are several utilities along the Wayneport Road corridor, and specifically at the bridge. These include numerous overhead utilities parallel to both sides of Wayneport Road that cross the canal very near to the bridge. Underground water utilities are also present, primarily along the east side of the road and crossing to the west side at discrete locations. There is an electric transmission line parallel to the north side of the canal that spans over Wayneport Road. Within the railroad ROW are two buried fiber-optic utilities.

2.7 Retail Market Analysis

A. OVERVIEW

The potential for future growth and development along the corridor most likely varies among elected officials, residents and business owners, depending on their individual perspective. A realistic estimate of future economic growth should be based on local knowledge as well as historical economic data and recent trends. The following analysis compares the historical data regarding purchases by area residents to sales by area businesses and approximates what types and sizes of various retail uses that could be supported along NYS Route 31. This analysis provides a basis for the subsequent conceptual build-out scenario for the study corridor, when paired with local knowledge about the types of goods and services desired by residents, demographic projections for the area, land use policy, and environmental constraints.

The NYS Route 31 corridor has many existing goods and services including grocers, florists, building supplies, auto sales, auto repair, book sales and restaurants, among others. Current retail and commercial space includes older shopping plazas, such as West Wayne Plaza and the shopping plaza at the intersection of Canandaigua Road and NYS Route 31 in the Town of Macedon, as well as the historical village commercial setting in the Village of Macedon.

New retail construction has occurred in the corridor in recent years. In 2007, a Lowe's and Wal-Mart opened east of the Wayne County line in the Town of Macedon. There is a new commercial shopping plaza west of Wal-Mart and a few additional undeveloped outparcels adjacent to NYS Route 31. A CVS and Dunkin Donuts were recently completed on NYS Route 31 near Canandaigua Road. At the time of this analysis, a few vacancies existed. Recently, the P&C grocery store at the shopping plaza at the intersection of Canandaigua Road and NYS Route 31 closed. There are several vacancies in the Village and a department store vacancy in West Wayne Plaza.

B. METHODOLOGY

I. Trade Areas

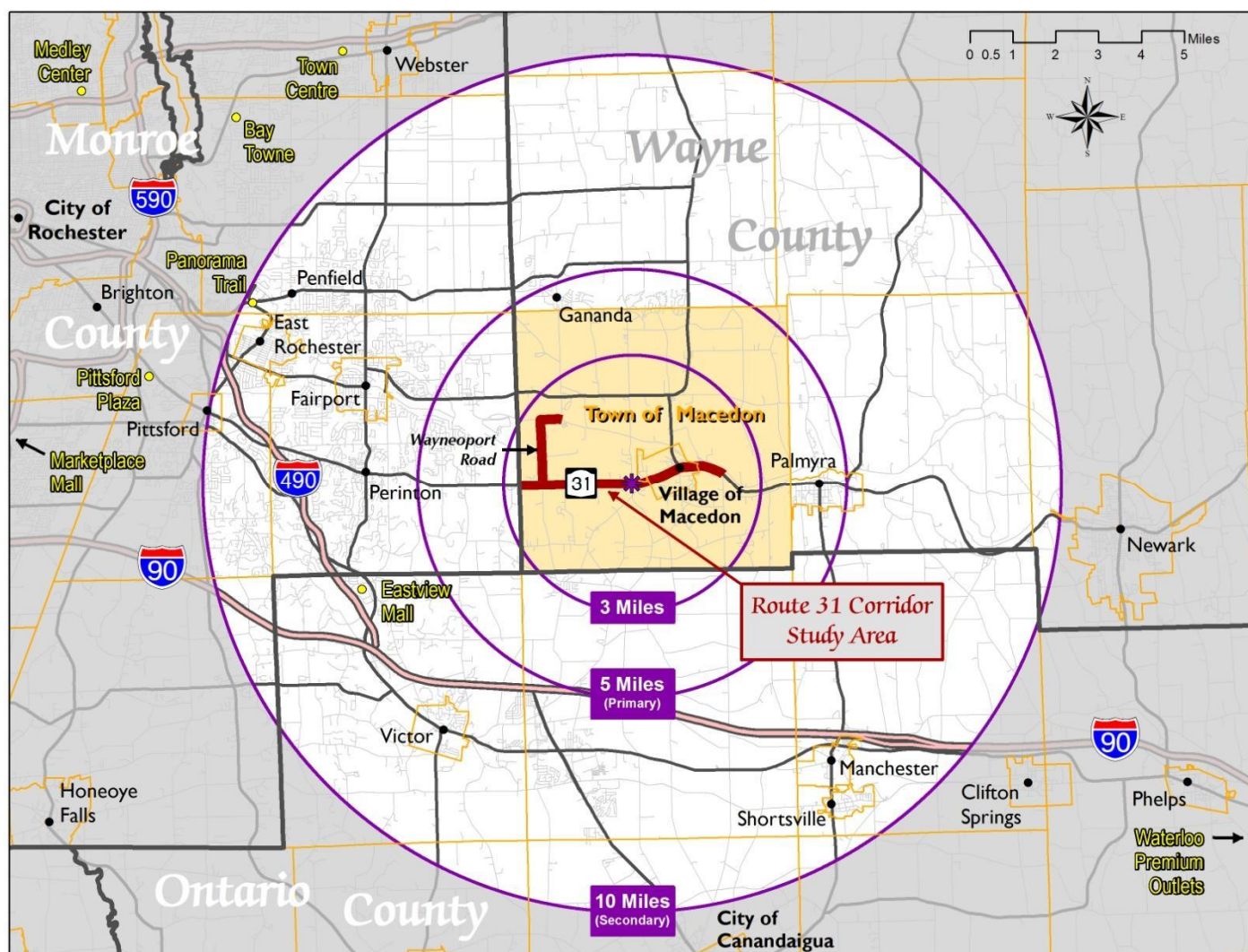
In order to effectively evaluate the potential opportunities, this retail market analysis examined two trade areas around the center of the project corridor. Trade areas can be determined through a variety of

methods, including drive times, the location of competing uses, and geographic radii. Drive times and geographic radii were similar, so the following radii were chosen to include known competing uses. Figure 2-7 shows the primary and secondary trade areas. The categories are outlined below:

- **Primary Trade Area:** A five mile radius from the intersection of Canandaigua Road and NYS Route 31 in the Town of Macedon
- **Secondary Trade Area:** A ten mile radius from the intersection of Canandaigua Road and NYS Route 31 in the Town of Macedon, excluding the Primary Trade Area
- **Opportunities for Macedon to become a Retail/Service Destination:** The analysis also looked at a three mile radius from the intersection of Canandaigua Road and NYS Route 31 in the Town of Macedon to determine if there were any goods or services with higher sales figures than household expenditures. This would indicate that people are traveling from outside of the trade area to make specific purchases, and that Macedon could potentially become a destination for a type of product or service.

The term “Study Area” is also used in this section, and refers to the project limits.

Figure 2-7. Primary and Secondary Trade Areas



2. Data Collection

Numerous sources and methods were used to gather qualitative and quantitative market information:

- CB Richard Ellis 2009 Market Outlook: CB Richard Ellis is a Fortune 500 company that analyzes international retail, office, industrial, and hotel markets.
- Claritas Inc.: Claritas is a global information and media company that offers geographically specific information, including demographic, expenditure, retail sales, and other consumer data.
 - Market supply data is derived from the 2002 U.S. Census of Retail Trade (CRT) and updated by accounting for changes in business sales activity using wage and employment data from the U.S. Bureau of Labor Statistics (BLS) and local sales tax data. The County level values are allocated down to block groups based on employments counts from the Claritas Business Facts ® database. Market demand data is derived from the Consumer Expenditures Survey (CEX) from the BLS. This results in Block Group level potential retail sales estimates by the North American Industry Classification System (NAICS).
 - Demand estimates are produced by developing regression models of household expenditures for a wide range of goods and services. These household level models are combined with Claritas current-year demographic estimates to create geographic estimates of potential household demand for products and services. In order to ensure that the potential demand estimates are aligned with expenditures at the macro level, control totals are introduced into the development process. These control totals are obtained through Global Insight, which is the premier source of information at the national level. Trade association data is also a part of the control process and it serves as a measure of expenditures in specific industries.

3. Assumptions & Considerations

The existing conditions along the corridor, as well as the demographic data presented for communities along the corridor, have an influence over how to best interpret the retail data and findings presented within this report. The following trends and considerations were considered to interpret the retail market data presented below:

- The Village of Palmyra is the only commercial node, other than the primary trade area (five-mile radius), within the Study Area.
- There are five major commercial nodes within 20 miles of the corridor. These include Marketplace in Henrietta, Eastview in Victor, Town Centre in Webster, Medley Centre in Irondequoit, and Pittsford Plaza.
- There are six smaller commercial nodes nearby: Penfield at Routes 250 and 441, Panorama Trail in Penfield, Routes 31 and 250 in Perinton, the Village of Fairport, and Webster at Ridge Road and Route 404 (Bay Towne).
- Additionally, the Waterloo Premium Outlets are located 30 miles (or 35 minutes) away from the Town of Macedon. The outlet mall offers many discount retail stores and draws visitors from Upstate New York and Canada.
- Just north of the Study Area is Gananda, a significant population center within Wayne County. Although it is close to the emerging retail opportunities on NYS Route 31 in Macedon, anecdotal evidence suggests that Gananda residents shop in Penfield rather than Macedon because of the lack of a direct route. The effects of barriers, such as the single-lane canal bridge and the need for two turns to get to the corridor, will be examined in this study.

C. DATA RESULTS

I. Retail Sales & Expenditures

According to Claritas data, there was a \$277 million opportunity gap in the primary trade area in 2008 (Table 2-7). This figure was derived by subtracting the total retail sales in 2008 for businesses in the primary trade area, which was \$241 million, from the total consumer expenditures, which was \$518 million. This means that households in the primary trade area travelled outside of the five mile radius to purchase \$277 million worth of goods or services. If these goods and services were offered in the primary trade area, there is a potential that some of these outflow sales could be captured.

Table 2-7. Demand, Supply and Outflow Sales, 2008
Macedon, New York

Store Category	Demand (Consumer Expenditures)	Supply (Retail Sales)	Outflow Sales
Total Retail Sales, including Eating and Drinking Places	\$518,755,383	\$241,021,711	\$277,733,672

2. Retail Sales & Leakage

Next, the store categories with the highest level of outflow sales in the primary trade area and the secondary trade area were analyzed to estimate retail sales leakage and the potential for recaptured sales. Store categories are organized by the North American Industry Classification System (NAICS), which is the standard used by Federal statistical agencies in classifying business establishments. There are 13 business categories:

1. Building Material, Garden Equipment Stores
2. Clothing and Clothing Accessories Stores
3. Electronics and Appliance Stores
4. Food and Beverage Stores
5. Food Services and Drinking Places
6. Furniture and Home Furnishings Stores
7. Gasoline Stations
8. General Merchandise Stores
9. Health and Personal Care Stores
10. Miscellaneous Store Retailers
11. Motor Vehicle and Parts Dealers
12. Non-Store Retailers
13. Sporting Goods, Hobby, Book, Music Stores

In the primary Study Area (five-mile radius), nine of these categories showed potential for expansion. In Table 2-8, the primary trade area outflow sales and the secondary trade area outflow sales are shown in the column labeled Outflow Sales. To estimate the Potential Recaptured Sales, shown in the right columns of Table 2-8, potential capture rates were estimated. These percentages were developed for each store category to estimate how much of those outflow sales could potentially be captured if a new store located in the primary trade area. The low and high potential recaptured sales estimate was calculated by multiplying the primary and secondary outflow sales by the low and high potential capture rates. *The analysis indicates an opportunity for new or existing businesses in the primary trade area to capture between \$55 million and \$105.5 million of expenditures from residents in nine store categories.*

Table 2-8. Retail Potentials by Store Category, 2008

Store Category	Outflow Sales		Potential Capture Rates				Potential Recaptured Sales	
			Primary		Secondary			
	Primary	Secondary	Low	High	Low	High	Low	High
Miscellaneous Store Retailers	\$4,981,123	\$17,980,226	25%	40%	5%	10%	\$2,144,292	\$3,790,472
Electronics and Appliance	\$9,519,414	\$1,344,942	40%	60%	20%	40%	\$2,514,348	\$4,278,495
Furniture and Home Furnishings	\$9,952,324	\$2,400,674	40%	60%	20%	40%	\$3,225,765	\$4,701,132
Health and Personal Care	\$13,087,458	(\$6,396,423)	30%	50%	5%	15%	\$3,926,237	\$6,543,729
Clothing and Accessories	\$24,099,284	(\$42,102,612)	25%	40%	5%	10%	\$3,614,893	\$9,639,714
Gasoline Stations	\$27,542,124	\$57,935,319	25%	40%	5%	10%	\$9,782,297	\$16,810,382
Food Service and Drinking	\$28,026,841	(\$7,171,122)	30%	60%	20%	35%	\$7,006,710	\$14,013,421
General Merchandise	\$36,198,410	\$73,993,618	25%	50%	5%	10%	\$10,939,363	\$21,878,726
Building Material, Garden Equipment	\$37,474,285	\$88,571,718	20%	40%	5%	10%	\$11,923,443	\$23,846,886
Total	\$190,881,263	\$186,556,340					\$55,077,347	\$105,502,955

Source: Claritas, Inc.

The remaining four categories not included in Table 2-8 either had supply surpluses in the primary trade area, large supply surpluses in the secondary trade area, or they had an opportunity gaps less than \$2 million.

For example, an analysis of consumer spending patterns shows that people in the primary trade area spent \$9.9 million at sporting goods, hobby, book and music stores in 2008. There was approximately \$5.7 million in sporting goods, hobby, book and music store sales in the primary trade area in 2008, suggesting that some people traveled out of the primary trade area to purchase products in this category. While there appears to be an opportunity for \$4.1 million in supply in the primary trade area, the secondary trade area had a \$22.8 million surplus in this store category in 2008. This was a result of expenditures of \$45.1 million and sales of \$67.9 million. As shown in Table 2-9, the overall consumer expenditures and retail sales in this store category resulted in a surplus of \$18.6 million in the primary and secondary trade areas.

Table 2-9. Retail Surplus by Store Category, 2008

Store Category	Outflow Sales		
	Primary	Secondary	Combined
Non-Store Retailers	(\$7,283,777)	\$97,630,996	\$90,347,219
Sporting Goods, Hobby, Book, Music Stores	\$4,189,461	(\$22,865,880)	(\$18,676,419)
Food and Beverage Stores	\$42,838,485	(\$94,448,229)	(\$51,609,744)
Motor Vehicle and Parts Dealers	\$43,398,628	(\$169,273,529)	(\$125,874,901)
Total	\$83,142,797	(\$188,956,642)	(\$105,813,845)

Source: Claritas

D. CONCLUSIONS

The next and perhaps most important aspect of this retail market analysis is the translation of retail sales figures into actual retail square footages. Table 2-10 identifies the amount of square footages that could be supported along the corridor. The square footages for retail categories with outflow sales could reasonably be supported along the corridor based on current consumer spending patterns. Overall, the data suggests that the corridor may be able to support an additional 345,000-684,000 square feet of new retail space. As the table indicates, this large figure would likely be a combination of several small and mid-sized businesses in different store categories.

It is important to note that this study is not necessarily recommending this amount of new development *should* occur. Rather, this exercise examines supply and demand relationships to understand how much development *could* occur based on historical household expenditures and business sales data.

Table 2-10. Buildable Square Feet per Store Type, 2008
Macedon, New York

Store Category	Potential Recaptured Sales (from Table 2-8)		Average Sales per SF	Buildable SF per Store Type	
	Low	High		Low	High
Miscellaneous Store Retailers*	\$2,144,292	\$3,790,472	\$130.00	16,495	29,157
Electronics and Appliance*	\$2,514,348	\$4,278,495	\$200.00	12,572	21,392
Furniture and Home Furnishings*	\$3,225,765	\$4,701,132	\$130.00	24,814	36,163
Health and Personal Care	\$3,926,237	\$6,543,729	\$510.00	7,699	12,831
Clothing and Accessories	\$3,614,893	\$9,639,714	\$140.00	25,821	68,855
Gasoline Stations*	\$9,782,297	\$16,810,382	\$140.00	50,201	100,401
Food Service and Drinking*	\$7,006,710	\$14,013,421	\$253.00	27,695	55,389
General Merchandise*	\$10,939,363	\$21,878,726	\$124.00	88,221	176,441
Building Material, Garden Equipment*	\$11,923,443	\$23,846,886	\$130.00	91,719	183,438
Total	\$55,077,347	\$105,502,955		345,234	684,068

Source: Claritas and ULI, Dollars and Cents of Shopping Centers, 2008, Median Sales Volume per Square Foot of GLA

* Median sales per square foot data unavailable for these store categories. Estimates are based on a comparison of median sales per square foot and total rent per square foot for similar businesses with total rent per square foot for each store category.

The following section further examines the potential recaptured sales analysis and provides suggested industries or stores that might locate in the Study Area. Typical store sizes are shown in Table 2-11 for reference.

Table 2-11. Typical Store Size, 2008

Store	Approximate Square Footage
Typical "Main Street" Shop	1,000-3,000 SF
McDonalds	3,500 SF
Walgreens	18,000 SF
Radio Shack	2,500 SF
Best Buy	20,000-30,000SF
Raymour & Flanigan	35,000-70,000SF
Kohl's	88,000 SF
Target	134,000 SF
Wal-Mart	140,000-240,000 SF

1. Miscellaneous Store Retailers

Establishments in this subsector include art dealers, gift stores, tobacco stores, florists, used merchandise stores, manufactured home dealers, and pet and pet supply stores, among others. Based on the square footage estimate, there is potential for 16,500-29,000 SF of additional space in the primary or secondary trade area. Since this category encompasses many different types of stores, it is difficult to make a recommendation for what type of business or size of building could locate in the Study Area. For the purposes of this study, the type of development is not as significant as the amount of space that could potentially be added to the study corridor.

2. Electronics & Appliance

This type of store includes new electronics and appliances. Establishments in this subsector often operate from locations that have special provisions for floor displays requiring special electrical capacity to accommodate the proper demonstration of the products.⁴ The staff includes sales personnel knowledgeable in the characteristics and warranties of the line of goods retailed and may also include trained repair persons to handle the maintenance and repair of the electronic equipment and appliances.

Based on the square footage estimate, there is potential for 12,500-21,300 SF. For reference purposes, a typical Radio Shack is 2,500 SF and a Best Buy is 20,000-30,000 SF.

There is not an electronic store in the corridor, except for Infinite Audio, which caters to car audio, auto security systems, customs and tuning. Wal-Mart also has an electronics department; however its electronics sales are reflected under General Merchandise and not in the Electronics and Appliance Store category. There are several electronics and appliance stores outside of the secondary trade area (10-mile radius), but this does not impede the potential for another to locate in the corridor, especially since Wal-Mart draws retail traffic from a large circumference.

3. Furniture

Another good possibility for Macedon is a Furniture and Home Furnishings Store. There currently are no furniture stores in the study corridor. According to the market analysis, there is a potential for 24,800-36,000 SF of space for this type of retail store. A locally-owned or national chain dealer, such as Raymour and Flanigan, could fit into this footprint.

4. Health & Personal Care

This type of store is characterized by retail health and personal care merchandise. Staff may include pharmacists, opticians, and other professionals engaged in retailing, advising customers, and/or fitting the product sold to the customers' needs. Based on the square footage estimate, there is only potential for 7,000-10,900 SF. A typical Walgreens is 18,000 SF. Health and Personal Care stores contain products that are typically considered a convenience good; therefore customers typically do not drive great lengths to make a purchase. There is a CVS and Wal-Mart in the corridor. For all of these reasons, the potential for additional stores is not high.

5. Clothing & Accessories

This category includes men's, women's and children's clothing, as well as shoes, jewelry and leather goods. Based on the square footage estimate, there is potential for an additional 25,000-68,500 square feet of clothing and accessory retail space. It is important to mention that Wal-Mart has a clothing department.

⁴ <http://www.census.gov/cgi-bin/sssd/naics/naicsrch>

Its clothing sales are reflected under General Merchandise and not in the Clothing and Accessories Store category. Also, since this data was collected, a new clothing store (Maurice's) and shoe store (the Shoe Department) have opened in Macedon Plaza next to Wal-Mart.

6. Gasoline Stations

This category includes gasoline stations with or without convenience stores. According to this analysis, there is a potential for 50,000-100,000 SF of space in the primary Study Area. There are several outparcels that could be developed as gasoline stations along NYS Route 31.

7. Food Services & Drinking

Though there are several local and chain restaurants in the study corridor, the outflow sales and consumer demand data indicates additional supply would be supported. Based on the square footage estimate, there is potential for 27,000-55,000 SF.

8. General Merchandise

This category includes department stores, discount department stores, warehouse clubs, and supercenters. The \$74 million sales outflow from the secondary trade area in Table 2-8 could reflect purchases made in the primary Study Area or just over the border of the 5-mile radius at a Wal-Mart or Target in Eastview, Route 250 or Route 441. A closer analysis of the data, along with a comparison to 2009 data, would reveal whether or not the corridor could support another general merchandise store. There is a Wal-Mart in the primary trade area, another Wal-Mart planned in Victor, and two Targets in the secondary trade area. It is possible that a Target or Kohl's, which is in line with the 88,000-176,000 SF buildable square feet estimate, could locate in the corridor.

9. Building Equipment and Garden Material

This store category, which is comprised of establishments retailing new building materials and supplies, had an \$88.5 million sales outflow in the secondary trade area in 2008. In addition to Lowe's, the corridor includes the Wayside Garden Center.

According to the market analysis, there is a potential for 91,000-183,000SF of space for this type of retail store. This figure is derived from the difference between expenditures and retail sales in the 5-10 mile radius, and could reflect purchases by residents living in the secondary trade area at the NYS Route 31 Lowe's in the primary trade area. It also does not reflect a full year of sales at Lowe's in Macedon, which opened in 2008.

A closer analysis of the data, along with a comparison to 2009 data, would reveal whether or not the corridor could support a supplier that sells materials for contractors that Lowe's does not carry. There is a \$6.3 million opportunity gap in Lawn, Garden Equipment Supply stores, which is a subset of Building Equipment and Garden Material.

10. Local Economic Specialization

Claritas data compares expenditures (demand) and retail sales (supply) to estimate the potential gap or surplus of a product or service. Another way to evaluate this data is that a surplus indicates that shoppers are traveling into the trade area to purchase a particular product or service.

An additional analysis was conducted for the 0-3 mile radius from Canandaigua Road and NYS Route 31 to determine if Macedon is a destination for any particular type of business. The data indicates that the corridor may be a destination for automobiles and recreational vehicles.

Automobiles

The NYS Route 31 corridor is home to several automobile dealers, including McLouth Chevrolet, a locally owned dealership that has been in business for almost 50 years. C&L Auto Sales is located in the Village of Macedon. It is possible that automotive sales could become a niche service for Macedon. However, there is competition from other dealerships on Route 441 in Penfield.

Recreational Vehicles

There are several recreational vehicle dealers in the corridor, selling motorcycles, boats, and personal watercraft, including Filers Power Sports. Although there are other dealers outside of the corridor, there is the potential for Macedon to establish itself as a destination in the Rochester/Finger Lakes area for these products.

CHAPTER 3:



FUTURE LAND USE PLAN & BUILD-OUT ANALYSES

3.1 Future Land Use Plan

A. INTRODUCTION & PURPOSE

Future land use planning seeks to identify a preferred development pattern that respect current uses while recognizing future needs and demands. It also identifies specific areas and resources in the corridor which should be preserved and protected as they currently exist. While land use planning does help to guide and direct development, it will also help to create a common vision for the NYS Route 31 Corridor in Macedon. The character of the corridor and its sense of place are directly tied to its land uses and the relationships between each of them.

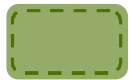
The Future Land Use Plan developed for the NYS Route 31 Corridor Study is intended to guide the form and location of development. It was developed from a regional perspective, considering the impacts that each specific area or node has on the Town and Village of Macedon, as well as neighboring communities. It is intended to identify where specific development types and patterns are most appropriate and it supports the goals and objectives identified in this Study. A strategic approach to land use policy is critical to avoiding undesired impacts to traffic, safety, community character, and the environment.

Ultimately, Macedon should consider revising its zoning code to be consistent with the spirit of this Future Land Use Plan. While zoning regulations are tied to specific parcels, the edges of the future land use categories are intentionally drawn irrespective of property lines and should be interpreted as flexible. The refinement of land use recommendations, as well as identifying specific land use categories and permitted uses, is a more detailed exercise that is a function of future zoning code updates.

B. FUTURE LAND USE CATEGORIES (MAP 8, all maps can be found at the end of Chapter 6)

As shown on Map 8, four future land use categories are established in the NYS Route 31 corridor Study Area. Each land use category is described in more detail below. Accompanying each description are photos from outside of the corridor which exemplify the desired character of each land use area and demonstrate desirable design techniques. Future Land Use categories include:

- Agriculture, Open Space, & Parks
- Residential
- Retail
- Office & Flex Space



I. Agriculture, Open Space, & Parks

The purpose of this category is to preserve large lots of farmland or undeveloped land that is outside of the activity centers where NYS Route 31 intersects with Wayneport and Canandaigua Roads. Although substantial commercial development has taken place along the NYS Route 31 corridor, future development is encouraged to locate and infill around existing development concentrations in order to preserve the remaining rural character. Some residential development may be appropriate in these areas, although it should be of a low density consistent with the historic settlement



pattern of this farming community. This category also includes active and passive parklands that would be enhanced by multi-use trail connections. Finally, the Erie Canal is an important natural feature that runs the length of the corridor. Its scenic and natural assets, including wetlands and forested lots, should be preserved to retain rural character and natural appeal.

Recommended land uses:

- Farms
- Agriculture support services
- Parks
- Single-family homes (low density, minimum lot size of 10 acres, perhaps greater)



2. Residential

The Residential land use category includes existing neighborhoods and areas where future housing should be concentrated. In keeping with recent developments near the edge of the Village of Macedon, it is recommended that larger residential subdivisions utilize a cluster design, featuring a high density pattern of lots surrounded by open space easements. This approach preserves important natural features, offers passive recreation opportunities for residents and can reduce the visual impact of development in the corridor. The Town should avoid the proliferation of multiple individual homes along road frontages, as they do not maximize the use of the land, create conflicts with active farms, increase turning movements on and off of roads, and can, over time, deteriorate the rural character of the area.

Recommended land uses:

- Single-family homes (clustered where possible)
- Multi-family homes
- Apartments
- Water-dependent uses (along Erie Canal)
- Farms



3. Retail

This category is intended to recognize existing retail development, including businesses offering goods and services, and identify location for these land uses to expand. Retail is primarily recommended to cluster around the NYS Route 31 intersections with Wayneport Road and Canandaigua Road. This will help to conserve open space and rural character, maximize infrastructure



investments, and allow new stores to benefit from the presence of existing stores. This land use strategy, when coupled with best practices for access management, can reduce congestion and improve safety, as compared to more conventional, sprawling development. Retail development in these areas should primarily consist of large and medium scale stores, with smaller building footprints recommended around the Canandaigua Road intersection. Design elements, such as architecture, landscaping, site plans, and signage, should create an aesthetically appealing experience that is appropriate in scale and form, and provides pedestrian connectivity internally and with surrounding land uses where feasible.

Recommended Land Uses:

- Retail goods and service stores
- Restaurants
- Recreation & entertainment



4. Office & Flex Space

The Office and Flex Space category is intended to attract a greater employment base to serve Macedon and surrounding communities, all in close proximity to residences, retail alternatives and other complementary services. Traditional office development is encouraged, as well as flexible commercial real estate, or “flex space”, which has a distinct advantage over traditional industrial or office space by preventing an over investment in single-purpose structures that lack the ability to adapt to a changing marketplace. Flex space is popular amongst companies that require greater security and anonymity or need the ability to quickly transition square footage between office, warehousing, and light industry without the expense of relocation. The design of sites and buildings in this area should provide a safe, convenient, and high-quality experience for employees and business clients, and should create an aesthetically appealing employment node. Buildings should be a mixture of single- and multi-story structures with a unique identity and cohesive architectural character. All future development in this category should utilize best practices for access management, including consideration of cross access roadways and driveways.

Recommended Land Uses:

- Offices
- Warehousing
- Light industry and manufacturing
- Flexible space buildings



3.2 Full Build-Out Analysis

A. OVERVIEW & PURPOSE OF BUILD-OUT ANALYSES

A build-out analysis was conducted for residential and commercial/industrial development based on available land and expected future demand. This analysis is important to provide the Town of Macedon with precise, realistic, and programmatic solutions for future traffic management within the NYS Route 31 corridor. This exercise was consistent with the recommendations of the Future Land Use Plan outlined in the previous section. The goal was to estimate potential development in the NYS Route 31 corridor in order to provide an estimate for future traffic demand. In order to meet this goal, multiple iterations, or scenarios, of the build-out process were necessary. This section describes the methodology and results of the full build-out scenario.

Build-out analyses are used to illustrate how development will occur within a given community by determining how much land is available for development, how much development can occur, and what consequences may result when complete build-out of available land occurs. Build-out analyses are based on three primary factors:

- The location of existing development;
- Current zoning, proposed zoning changes, or future land use plans; and
- The amount of anticipated growth based either on available land or market conditions.

Once the analysis is completed, the impact of potential development on future traffic operations can be determined and the costs of growth can be quantified. This can also include evaluating how new residents will impact existing municipal sewer treatment facilities or schools, whether additional commercial development will negatively impact traffic, or the extent to which natural resources and the services they provide are preserved. As noted above, the build-out analyses conducted for this study focus primarily on impacts to traffic.

To begin the process, a full build-out scenario was created to determine how much development could be accommodated by available land, regardless of actual development pressure or landowner intention. This base-level scenario, which is not connected to a specific time-frame, was then refined to reflect market trends and other factors over the next ten years, resulting in market-based build-out scenarios (see Section 3.3).

B. METHODOLOGY FOR FULL BUILD-OUT SCENARIO

To conduct the full build-out analysis for the NYS Route 31 corridor in the Town of Macedon, a geographic information system (GIS) was developed using parcel, zoning, and existing development data to determine current and potential density for both residential and commercial/industrial development. Additionally, build-out densities were modified by incorporating additional data layers including environmental features and publicly-owned land. The methodology for determining this full build-out scenario is composed of three primary steps:

- Identifying future land use areas (see Section 3.1), along with associated development controls;
- Identifying locations of existing residential and commercial/industrial development; and
- Calculating residential and commercial/industrial build-out potential for undeveloped parcels.

A discussion of each can be found on the next page.

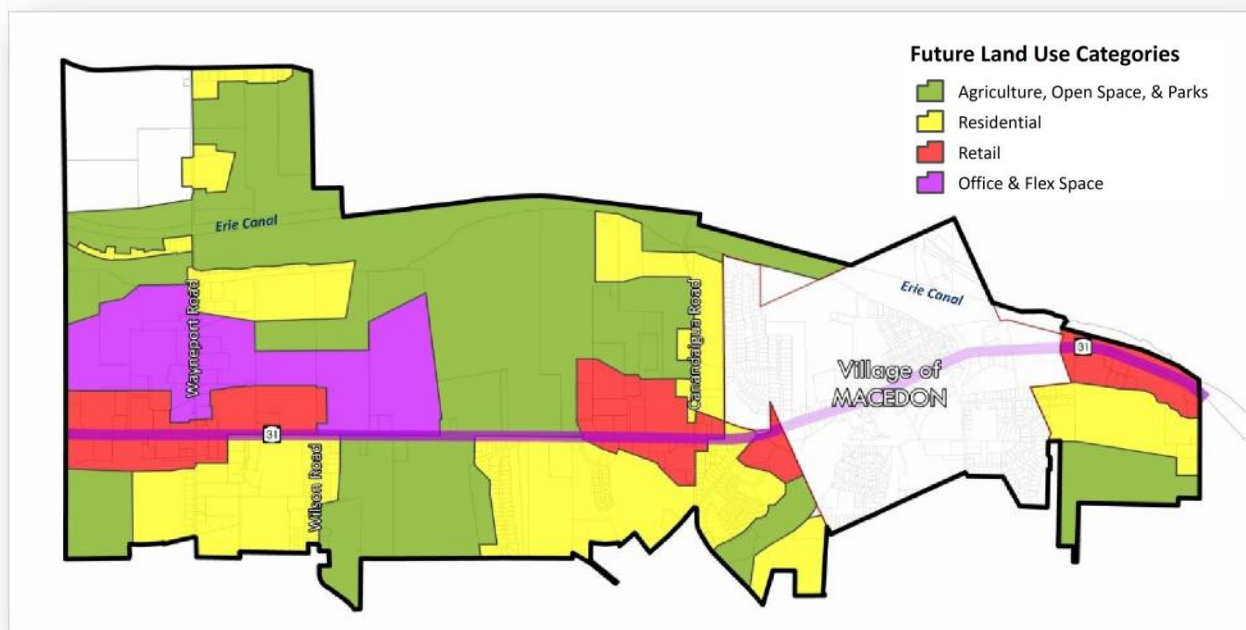
I. Identify Future Land Use Areas and Development Controls

The full build-out analysis for the NYS Route 31 corridor in the Macedon was conducted according to the Future Land Use Plan, as identified in Section 3.1 and on Map 8. The Plan is intended to be a representation of the community's vision for development patterns, considering where various land use types are today and where such uses should be encouraged in the future. It is not intended to purely reflect existing land uses or current zoning district designations. Other factors that were considered include impacts to the transportation system and community character, the need for goods and services, preservation of environmental and cultural features, and the relationship between neighboring land uses.

Table 3-1 provides the development controls associated with each of these four future land use categories. These regulations, minimum lot sizes in particular, are not based on the current zoning code, but rather are recommended numbers that should be considered in order to meet the goals of this Study and each land use category. For example, the purpose of the Agriculture, Open Space, & Parks category is to preserve active farmland within this area. The current zoning allows for single-family homes with a minimum lot size of 40,000 square feet. This existing regulation does little to actively protect farmland, so a more assertive approach of 20-acre minimum lot sizes is recommended for this future land use category. The location of these categories within the corridor is provided in Figure 3-1.

Table 3-1. Future Land Use Development Controls

	Minimum Lot Size (acres)	Maximum Lot Coverage	Maximum Building Height (feet)	Parking Space Size (square feet)
Agriculture, Open Space, & Parks	20.0	--	--	--
Residential	0.6	--	--	--
Retail	0.5	45%	35	350
Office & Flex Space	1.0	25%	48	350

Figure 3-1. Future Land Use Categories

In addition to the development controls associated with the four future land use categories identified in Table 3-1, several areas were removed from this analysis as they are unlikely to be developed given their current uses. These areas include:

- Parcels owned by the Palmyra-Macedon Central School District;
- Parcels owned by Waste Management;
- Parcels owned by the Town or Village of Macedon; and
- Parcels classified as parks or other conservation areas according to the New York State Office of Real Property Services (NYSORPS) uniform classification system

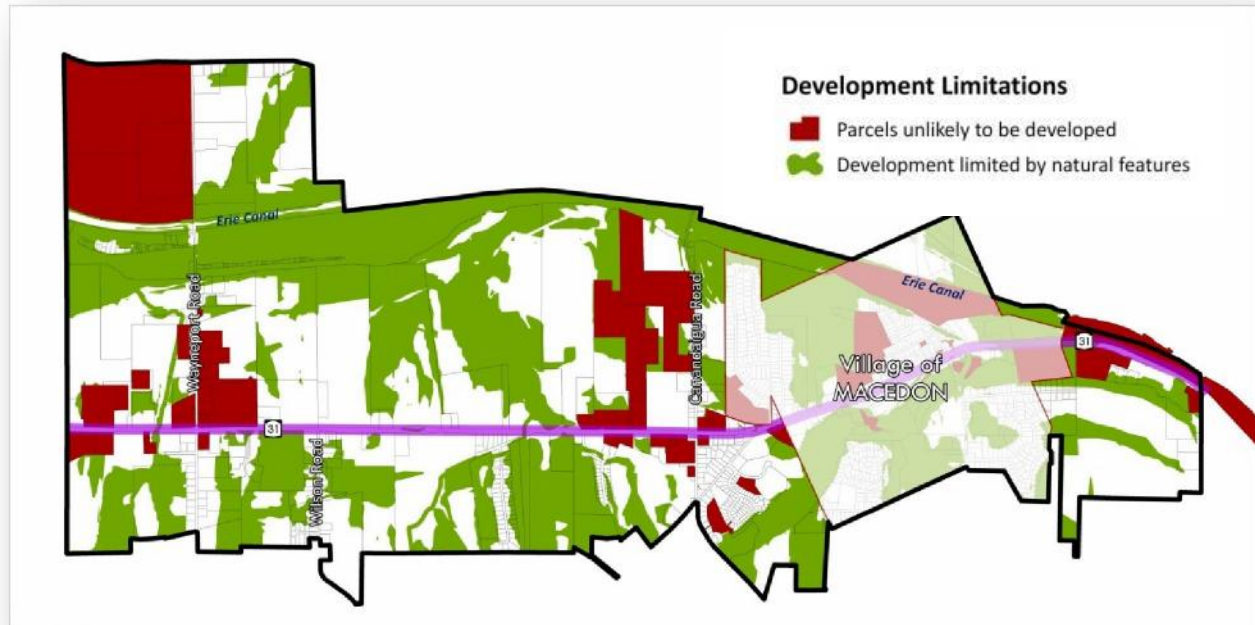
Finally, certain natural features were identified as areas where development is not recommended to occur. These areas include:

- NYSDEC wetlands and the associated 100-foot buffer;
- Special Hazard Flood Areas;
- Slopes greater than 15 percent;
- Large, contiguous wooded areas; and
- Areas within 50 feet of streams and creeks.

While development is not recommended in these areas, land within them can count towards the total development density of a particular parcel. If, for example, a proposal in the Residential area includes development of a 30-acre parcel into single-family residences, the 0.6-acre minimum lot size would allow for 50 units to be developed. If NYSDEC wetlands cover 10 acres of the parcel, 50 units can still be developed; however, these units must fit into the 20 acres not covered by wetlands, resulting in a smaller lot size.

Figure 3-2 provides the location of those areas not recommended for development. While it may appear to be a large percentage of the Study area, this exercise demonstrated that there is substantially more land available for development than will likely occur in the foreseeable future.

Figure 3-2. Areas not Recommended for Development

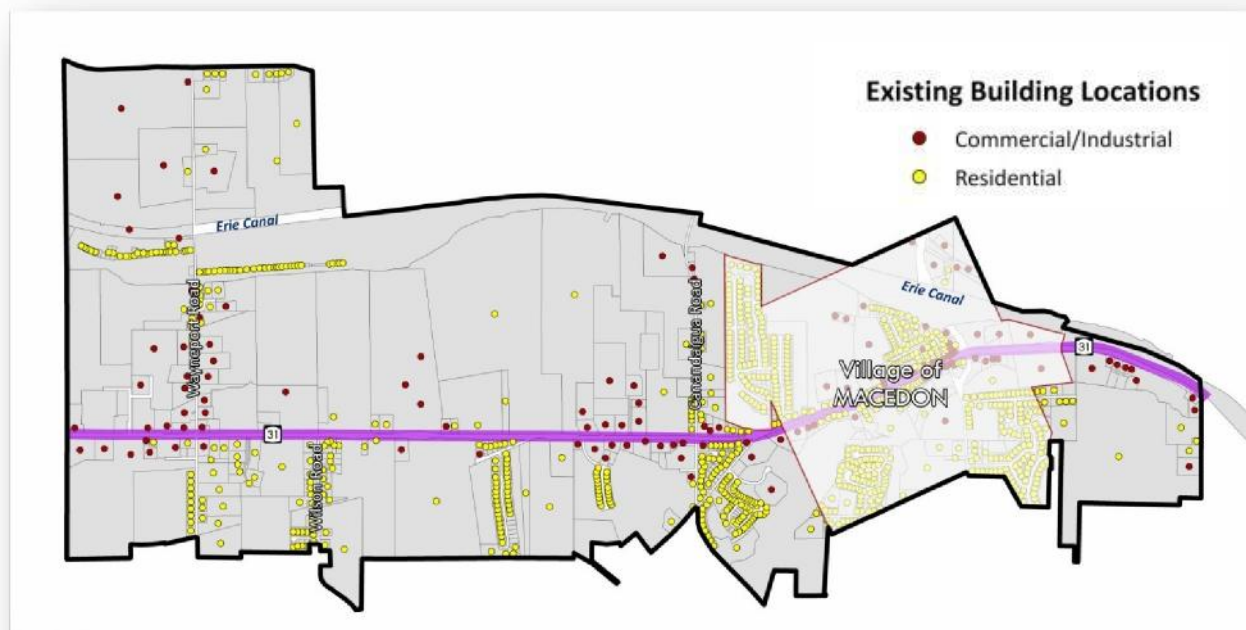


2. Identify Locations of Existing Development

To determine those areas where development can potentially occur, parcels where development currently exists were first identified. This process involved using parcel boundary data and the associated NYSORPS property classification codes. It also yielded a certain amount of land on already developed parcels that could potentially be developed. The property classification codes used for each development type, as well as the number of parcels in each, are identified in Table 3-2 (see Figure 3-3 for the locations of existing development).

Table 3-2. Development Types and Property Classifications Codes

	NYSORPS Property Classification Codes	Number of Parcels/Buildings
Residential	100s and 200s	842
Commercial	400s, 500s, 600s, and 800s	126
Industrial	700s	17

Figure 3-3. Existing Residential and Commercial/Industrial Buildings

3. Calculate Build-Out Potential

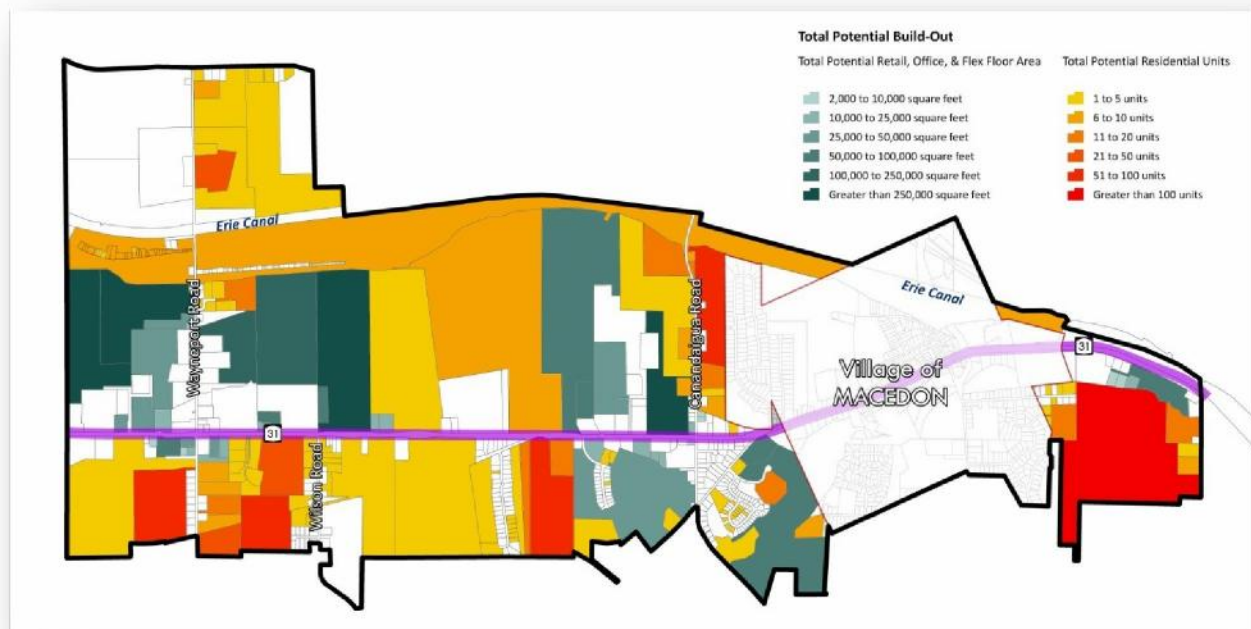
The final step in the analysis is to calculate the potential residential and commercial/industrial development that can occur within the Study Area. Using the developable acreage and development controls associated with each land use category, the potential number of residences and potential square footage of retail, office, and flex space was calculated. The results of the full build-out analysis provide the amount of potential development at full build-out of the land, with no associated time frame. They do not account for the amount of development that is considered likely within a particular time frame such as five, ten, or 20 years. The full build-out scenario thus serves as a benchmark to understand the amount of land physically available for development, even under a managed growth approach found in the Future Land Use Plan. As such, the results of the full build-out analysis must be refined using projected growth data, housing starts, and market demand projections. This exercise is found in Section 3.3.

C. RESULTS OF FULL BUILD-OUT ANALYSIS

Based on the results of the full build-out analysis conducted for the NYS Route 31 corridor in the Town of Macedon, more than 1,000 new residential units and almost three million square feet of new retail/commercial/office and flex space can be built within the Study Area (see Table 3-3 and Figure 3-4). Considering the Future Land Use Plan is a more conservative approach to development than existing zoning districts, the Town should strongly consider revising its zoning code and map. For example, the Town currently designates 1,280 acres within the Study Area as the Office/Research/ Manufacturing District. The Future Land Use Plan, a much more conservative land use strategy, allows only 390 acres, but has enough land for 1.4 million square feet of development, an amount not likely in the foreseeable future. Therefore, some of the land currently designated for this kind of development may be better suited to an open space district, which conserves farmland and focuses development around existing centers of activity.

Table 3-3. Full Build-Out Analysis Results by Future Land Use Category

	Total Developable Acreage	Number of Potential New Residences	Total Floor Area of Potential New Commercial/Industrial Space (square feet)
Agriculture, Open Space, & Parks	1,502	44	0
Residential	358	1,068	0
Retail	931	0	1,508,638
Office & Flex Space	391	0	1,426,669
TOTALS	3,181	1,112	2,935,307

Figure 3-4. Full Build-Out Analysis Results by Parcel

3.3 Market-Based Build-Out Analyses

A. BUILD-OUT BY LAND USE

As previously noted, the results depicted in Table 3-3 represent the conditions that would exist if every parcel was developed to its fullest potential. Obviously, this level of development is highly unlikely in the foreseeable future. To provide a more accurate assessment of potential development, these values were revised based on several sources, as outlined below. The development totals listed below can reasonably be expected to occur within the NYS Route 31 corridor in the Town of Macedon between 2010 and 2019. These numbers should be interpreted as on the high end of likely development. This is not an exact science, it is a planning-level projection that can be used to anticipate growth and plan for necessary investments in infrastructure.

1. Residential

Residential build-out was determined using the average number of houses and apartments built per year in the Town over the past 25 years, then further refined using the number of expected units in two proposed developments near the intersection of Canandaigua and Victor Roads. Based on this information, the Study Area could potentially see the following residential development in the next ten years:

- 95 single family residences
- 108 apartment units

2. Retail

Potential retail development was determined from the Retail Market Analysis, as shown in Section 2.7 of the Existing Conditions Chapter. This number represents the amount of retail sales that could reasonably be supported under current market conditions within the Study Area (that is not currently taking place), given the spending patterns of those living in the trade area. Based on the Retail Market Analysis, the Study Area could potentially see the following development in the next ten years, in addition to the 60,000 square feet of retail recently built at the Macedon Shopping Center:

- 345,000 square feet of retail space

3. Office/Flex Space

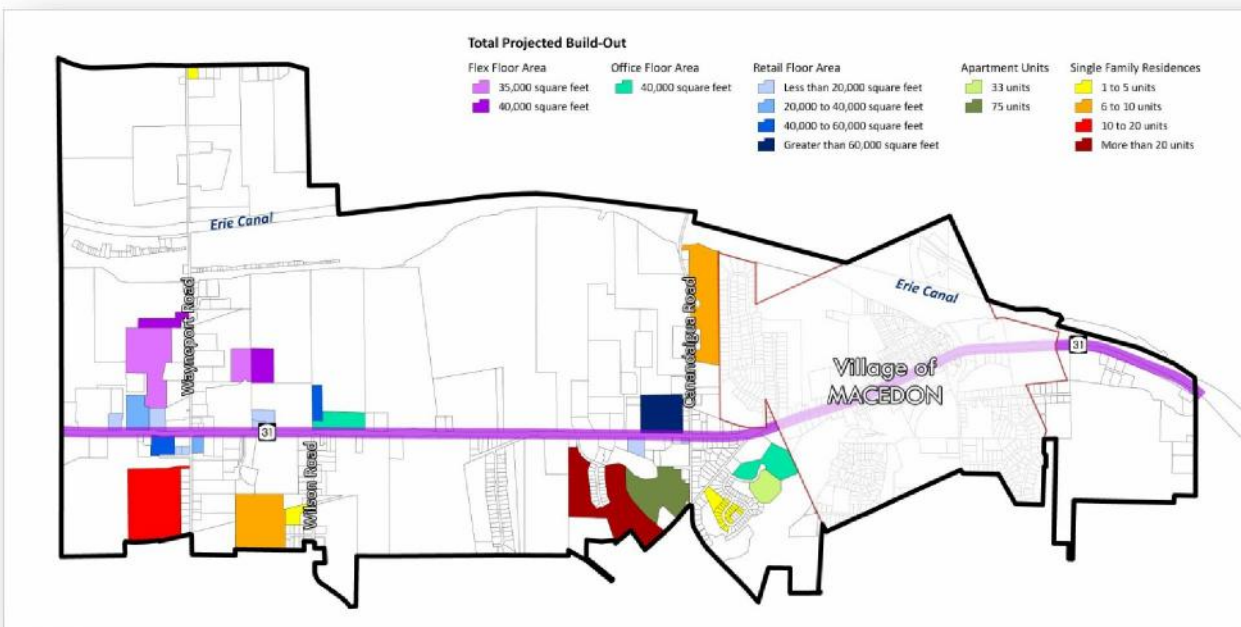
Potential office and flex space development is a bit more difficult to project, as historic trends of this land use type are limited in the corridor and typically associated with an industrial use. Additionally, the Study Area is not regionally known as a concentration of office or light industrial space. To understand the likelihood of office or flex space being developed in this area, discussions were held with Town officials and local commercial realtors. These sources indicated that future office or flex space will likely result from organic growth of existing businesses or new businesses with a connection to Macedon or this part of Wayne County. The following numbers represent an optimistic outlook for these land use types:

- 80,000 square feet of office space
- 150,000 square feet of flex space

The locations of this new development were based on existing land use and a desire to locate near existing retail and industrial areas where transportation and municipal infrastructure are present (see Figure 3-5).

Figure 3-5. Total Projected Build-Out

This figure should not be interpreted as a plan for development, nor does it take into account the development plans, if any, of landowners. Rather it is an example scenario of how expected levels of development might disperse in the corridor.



These projected build-out locations were then used to examine future traffic conditions within the NYS Route 31 corridor in the Town of Macedon in 2019. More information regarding this traffic analysis can be found on the following pages.

B. IMPACT ON TRAFFIC OPERATIONS

I. Overview

Using the market-based build-out data from the previous page, new vehicular trips were calculated and added to current traffic volumes to identify capacity issues at the end of the build-out time frame in 2019. The purpose of this exercise was to determine the approximate “tipping point” at which an increase in traffic volumes will create enough congestion to warrant investment in improving the capacity of the roadway facility.

An analysis of traffic operations at the Study Area intersections was performed using the traffic analysis software *Synchro*. The software was utilized to determine the Level of Service (LOS) for the subject intersections. *Synchro* implements the methods of the Transportation Research Board’s Highway Capacity Manual for signalized and unsignalized intersection analyses to determine the LOS. The factors used in determining the LOS include travel time, volume, speed, and delay. LOS range from A to F, with LOS A representing excellent operating conditions and LOS F describing highly congested conditions with substantial delays. At urban and suburban intersections, LOS D or better is generally considered acceptable under peak traffic conditions.

2. Market-Based Build-Out Scenario I – Traffic Impacts

Based on the market-based projections outlined above, the following levels of development are expected to occur within the NYS Route 31 corridor in the Town of Macedon by 2019:

- 95 single family residences;
- 108 apartment units;
- 60,000 square feet of retail space from Phase I of the Macedon Shopping Center (MSC)
- 345,000 square feet of additional retail space (includes 21,000 square feet from Phase II of MSC);
- 80,000 square feet of office space; and
- 150,000 square feet of flex space.

These figures represent Build-Out Scenario I, and should be interpreted as the high end of potential development. This much development would result in an approximately 60 to 70 percent increase in traffic beyond current conditions, depending on the given point along the corridor.

Scenario I Results

The current capacity (number of lanes, intersection configurations, intersection traffic control, etc.) of the NYS Route 31 corridor is inadequate to accommodate the level of traffic demand expected with Build-Out Scenario I, as shown on Figure 3-5. Tables D-1 and D-2 in Appendix D show the peak hour LOS analysis results at the Study Area intersections with current geometry and traffic control. Build-Out Scenario I traffic flow diagrams for the weekday morning, weekday evening and Saturday mid-day peak hours are presented on Maps 16, 17 and 18 (Appendix D).

The Build-Out Scenario I analysis shows that all of the intersections along NYS Route 31 corridor would operate at LOS E or worse during both weekday PM and Saturday Mid-day peak traffic conditions, or peak hours. The remaining study intersections at Wayneport Road and Wilkinson Road, Wayneport Road and Quaker Road, and at NYS Route 31F and NYS Route 350 operate at LOS B or better for both the weekday AM and weekday PM peak hours. These intersections would not require mitigation under Scenario I.

Potential Mitigation and Resulting Intersection Performance

A five lane section of roadway, from the county line to at least the eastern edge of the village, would be required on NYS Route 31 to accommodate Build-Out Scenario I. This would require one additional through lane in both the eastbound and westbound directions with a center two-way left turn lane and/or median treatment between intersections. Tables D-3 and D-4 in Appendix D show the peak hour LOS at the Study Area intersections with the following mitigation measures: a five lane section on NYS Route 31 and traffic signals installed at the Macedon Parkway (Lowe's access) and Wilson Road intersections with NYS Route 31.

The Build-Out Scenario I with mitigation analysis as described above shows that all of the intersections along NYS Route 31 corridor would operate at LOS D or better during both the weekday and Saturday Mid-day peak hours. As described below, some individual intersection movements are projected to experience LOS E or worse after implementation of mitigation improvements.

NYS Route 31/Macedon Parkway

This unsignalized intersection is projected to operate at LOS F during the weekday PM and Saturday Mid-day peak hours with long delays. This condition could be mitigated with the installation of a

simple two-phase traffic signal and one additional through lane in both the eastbound and westbound directions on NYS Route 31.

NYS Route 31/Wayneport Road

This intersection is projected to operate at LOS F on all approaches during the weekday PM and Saturday Mid-day peak hours. Mitigation would include one additional through lane in both the eastbound and westbound directions on NYS Route 31 and the addition of a northbound right turn lane. Other improvements would be adjusting the phasing of the signalized intersection by adding a protected left turn phase for the eastbound and westbound directions. Individual movements are projected to operate at LOS D or better after implementation of improvements, except that the eastbound through/through-right lanes and southbound left/through lane would operate at LOS E during the weekday peak hour. During the Saturday Mid-day peak hour, the northbound and southbound left/through lanes would also operate at LOS E.

NYS Route 31/Wal-Mart Driveway

This intersection is projected to operate at LOS F on the eastbound and westbound approaches during the weekday PM and Saturday Mid-day peak hours. Mitigation would include one additional through lane in both the eastbound and westbound directions on NYS Route 31. It is recommended that the signalized intersection be modified from a simple two-phase to include an eastbound protected left phase for high vehicle volumes entering the Wal-Mart Superstore. After mitigation is implemented, individual movements are projected to operate at LOS D or better with the exception of the southbound left/through lane which would operate at LOS E during the weekday PM and Saturday Mid-day peak hours.

NYS Route 31/Wilson Road

This unsignalized intersection is projected to operate at LOS E or worse for the weekday PM and Saturday Mid-day peak hours. The recommended mitigation for this intersection would be the installation of a traffic signal. Mitigation would also include one additional through lane in both the eastbound and westbound directions on NYS Route 31 and left turn arrows for the left turn pockets on NYS Route 31. Individual movements are projected to operate at LOS C or better after implementation of improvements with the exception of the eastbound and southbound left/through lanes, which would operate at LOS E or worse during the weekday PM and Saturday Mid-day peak hours.

NYS Route 31/Canandaigua Road

Under Scenario I build-out conditions, this intersection is projected to operate at LOS D or better during the weekday PM and Saturday Mid-day peak hours. The mitigation required includes construction of one additional through lane in both the eastbound and westbound directions on NYS Route 31 and a left and right turn lane on the southbound approach. Other improvements include modifying the traffic signal from a simple two-phase to include left turn arrows on all four approaches. Individual movements are projected to operate at LOS D or better after implementation of improvements with the exception of the southbound through approach lane which would operate at LOS E during the weekday PM peak hour. In addition, the eastbound and northbound left would operate at LOS E during the Saturday Mid-day peak hour.

NYS Route 31/Ontario Center Road (Routes 31F and 350)

This intersection is projected to operate at LOS F on the eastbound approach and LOS D or better on all other approaches for the weekday PM and Saturday Mid-day peak hours. This condition could be mitigated with the construction of one additional through lane in both the eastbound and westbound directions on NYS Route 31 and construction of right turn lanes on the eastbound and southbound approaches. It is projected that individual movements will operate at LOS D or better after implementation of improvements with the exception of the eastbound and southbound left lanes which would operate at LOS E or worse for the weekday PM peak hour.

3. Market-Based Build-Out Scenario II – Traffic Impacts

Build-Out Scenario I contained a level of development over the next ten years that would cause several intersections to fail from a capacity standpoint, requiring significant investment in expanding the roadway, adjusting signal timing, and adding turning lanes. Knowing this is possible in the next ten years given a market-based projection of potential development, a second build-out scenario was performed in order to better understand this failure. Build-Out Scenario II attempts to identify a certain “tipping point”, or the amount of development that would cause the corridor to perform poor enough to warrant upgrades. This exercise contains many instances of approximations and assumptions. Although these decisions are based on industry standards and best professional judgment, the results should be interpreted as a planning-level tool to more adequately prepare for future development and its impacts.

Among the various land uses examined for potential growth, residential units were considered to be based on the most reliable data. Although the retail, office, and flex space figures utilized reliable sources as well, the project team concluded that if a reduction in development was sought for a second build-out scenario, it would likely come from commercial categories. In particular, the 345,000 square feet of retail space resulting from the Retail Market Analysis was recognized as optimistic, given the recent development of Wal-Mart and Lowe’s in the Study Area.

The following figures represent a reduced level of development over the next ten years that was examined in order to more accurately identify the “tipping point” of traffic generation:

- 95 single family residences;
- 108 apartment units;
- 60,000 square feet of retail space from Phase I of the Macedon Shopping Center (MSC)
- 121,000 square feet of additional retail space (includes 21,000 square feet from Phase II of the MSC); and
- 40,000 square feet of office space.

The difference between Scenario I and Scenario II is a reduction in retail development by 224,000 square feet, a reduction in office space by 40,000 square feet, and the removal of 80,000 square feet of flex space development. These figures represent Build-Out Scenario II, a more modest projection of potential development compared to Scenario I and the point at which operation failures become more likely. This much development would result in an approximately 20 to 30 percent increase in traffic beyond current conditions, depending on the given point along the corridor.

Scenario II Results

Build-Out Scenario II traffic flow diagrams for the weekday morning, weekday evening and Saturday mid-day peak hours are presented on Maps 19, 20 and 21 (Appendix D). Tables D-5 and D-6 in Appendix D show the Scenario II peak hour LOS at the Study Area intersections with existing intersection geometry and traffic signals installed at the Macedon Parkway and Wilson Road intersections.

The Scenario II analysis shows there are a few failing conditions in the corridor and numerous intersection movements that are borderline acceptable from a capacity standpoint. This suggests that the “tipping point” at which the corridor warrants upgrades is at or near the development levels found in this scenario.

It should be noted that the concept of a “tipping point” is not a precise benchmark, as several factors come into play when determining if infrastructure investments are warranted. These include available funding,

political and public support, other competing priorities, and the somewhat subjective nature of making decisions based on LOS analysis. Additionally, Scenarios I and II represent certain combinations of land uses based on market analysis and professional judgment. It is difficult to predict what combinations will materialize in the future, and these different combinations will result in unique traffic impacts to the corridor. However, the exercise represents a starting point and a basis for better understanding the impacts of growth on the corridor.

Intersection Performance

All of the intersections along the NYS Route 31 corridor would operate at LOS D or better during both weekday PM and Saturday Mid-day peak hours including the Canandaigua Road intersection with adjustments to signal timings. Individual movements at the Wayneport Road, Wal-Mart Driveway, Wilson Road, and Canandaigua Road intersections would operate at LOS E or worse, even with the installation of traffic signals at the Macedon Parkway and Wilson Road intersections. Therefore, a five lane section is recommended on NYS Route 31 from Wayneport Road to at least Canandaigua Road to accommodate this level of development. This would require one additional through lane in both the eastbound and westbound directions with a center two way left turn lane and/or median treatment between intersections.

NYS Route 31/Wayneport Road

Development levels found in Scenario II, when applied to the existing facility, would result in the eastbound through/right, westbound left and northbound left/through/right approach lanes operating at LOS E or worse during the weekday PM and Saturday Mid-day peak hours. The eastbound left approach lane would operate at LOS F during the Saturday Mid-day peak hour.

NYS Route 31/Wal-Mart Driveway

This intersection's eastbound left approach lane would operate at LOS E or worse during the weekday PM and Saturday Mid-day peak hours. The eastbound through/right approach lane would operate at LOS E during the weekday PM peak hour.

NYS Route 31/Canandaigua Road

This intersection's eastbound left lane would operate at LOS E during the weekday PM and Saturday Mid-day peak hours. The eastbound through lane would operate at LOS E during the weekday PM peak hour. The northbound left/through approach lane would operate at LOS E or worse during the weekday PM and Saturday Mid-day peak hours. Additionally, NYSDOT is examining the possibility of closing the Quaker Road at-grade railroad crossing. From a regional perspective, the closing of this route could potentially push more traffic through the NYS Route 31 and Canandaigua Road intersection, especially the northern and eastern legs.

4. Market-Based Build-Out Conclusions

Build-Out Scenario II results in some failing conditions and numerous turning movements that are borderline acceptable levels of service. *Synchro* analysis determined that if approximately 60,000 square feet of retail development were removed from this scenario, the failing conditions become acceptable. Therefore, the roadway's current capacity could adequately handle the amount of development in Scenario II, less approximately 60,000 square feet of retail development. Additional development beyond that point begins to push the system into the likelihood of numerous unacceptable traffic conditions, which may warrant a five lane section of roadway. This amount of development is illustrated in a hypothetical manner on Map 10, Route 31 Corridor Plan (see Section 6.3).

While a “tipping point” can be found using these combinations of land uses, it should be noted that different combinations may result in a threshold that comes earlier or later than Scenario II’s threshold. In any case, the exercise provides a general sense of how much development could trigger the need for a significant investment in the roadway, which both the Town and NYSDOT have expressed is the least desirable alternative.

Monitoring of future retail, office, and residential development will be important to maintain good levels of traffic operations. Traffic volume Maps 19, 20 and 21 (Appendix D) can be utilized in conjunction with traffic studies performed for each new future development to manage traffic volumes and traffic operations into the future. This is particularly the case if an upgrade to a five lane section on NYS Route 31 is not the preferred direction of the Town and Village of Macedon. Traffic studies for each new development will be important to continually monitor conditions over the next ten years and into the future. Additionally, as further development occurs, capacity analyses should be performed for intersecting roads, especially Wayneport Road and Canandaigua Road, to ensure their safe and efficient operation. Developers will need to mitigate all impacts to the highway that result from their development.

5. Traffic Impacts on Wayneport Road Bridge

An analysis of traffic operations at the one-lane canal bridge on Wayneport Road was performed using the traffic simulation software *SimTraffic* for the 2009 existing traffic conditions, as well as the Market-Based Build-Out Scenarios I and II. *SimTraffic* offers a microscopic simulation of traffic flow considering interaction between driver and vehicle characteristics, geometry, and traffic control. Analysis using *SimTraffic* offers a method of assessing vehicle delay and queuing. The purpose of the analysis is to determine vehicle delays and queuing at the existing Wayneport Road Bridge under projected 2019 traffic conditions. Of particular importance, because of the proximity of the CSX at-grade railroad crossing, located approximately 500 feet to the north of the bridge, is traffic queuing of southbound traffic to determine if traffic will back up to the railroad.

Tables 3-4, 3-5 and 3-6 show the peak hour data for average delay, average queue length and 95th percentile queue length for existing conditions, Build-Out Scenario I, and Build-Out Scenario II.

The analysis shows minor impacts during the AM peak hour and moderate impacts during the Saturday mid-day peak hour. The most significant impact is expected to occur during the PM peak hour, between the Scenario II level of development and the Scenario I level of development. Average peak hour delays increase from less than 20 seconds to more than one minute. The length of vehicle queues is also projected to increase sharply. The two-way volume during the PM peak hour projected for the Scenario II is approximately 480 vehicles. For Scenario I, the two-way traffic volume is projected to be approximately 700 vehicles.

A comprehensive review of peak hour queuing is recommended when the two-way volume reaches 500-600 vehicles to study the adequacy of spacing between the bridge and railroad crossing. Traffic surges at this level of traffic volume may pose a safety hazard, with stopped traffic backing up to the railroad line. Traffic volumes should be monitored carefully in the future because they will help drive the need for a two-lane bridge. Signalizing operations at the bridge is expected to exacerbate queuing, which is not recommended because of the proximity of the railroad line to the north.

Table 3-4. AM Peak Hour Traffic Operations at Wayneport Road Bridge

Direction of Traffic Flow	Traffic Operations at Bridge	AM Peak Hour		
		2009 Existing Conditions	2019 Build-Out Scenario II	2019 Build-Out Scenario I
NB	Average Delay (seconds)	8.2	9	10.3
	Average Queue Length (feet)	28	31	36
	95 th Percentile Queue Length (feet)	58	64	68
SB	Average Delay (seconds)	7.5	7.7	8.4
	Average Queue Length (feet)	33	31	38
	95 th Percentile Queue Length	73	58	81

Table 3-5. PM Peak Hour Traffic Operations at Wayneport Road Bridge

Direction of Traffic Flow	Traffic Operations at Bridge	PM Peak Hour		
		2009 Existing Conditions	2019 Build-Out Scenario II	2019 Build-Out Scenario I
NB	Average Delay (seconds)	12	16	74
	Average Queue Length (feet)	53	61	223
	95 th Percentile Queue Length (feet)	95	110	457
SB	Average Delay (seconds)	10	12	69
	Average Queue Length (feet)	45	56	216
	95 th Percentile Queue Length (feet)	83	96	388

Table 3-6. Saturday Peak Hour Traffic Operations at Wayneport Road Bridge

Direction of Traffic Flow	Traffic Operations at Bridge	Saturday Peak Hour		
		2009 Existing Conditions	2019 Build-Out Scenario II	2019 Build-Out Scenario I
NB	Average Delay (seconds)	11.2	11.2	17.3
	Average Queue Length (feet)	39	49	72
	95 th Percentile Queue Length (feet)	71	87	148
SB	Average Delay (seconds)	8.2	8.2	13.4
	Average Queue Length (feet)	38	41	76
	95 th Percentile Queue Length (feet)	64	91	135

CHAPTER 4:



CORRIDOR DESIGN RECOMMENDATIONS

4.1 Overview

The Town and Village of Macedon have an opportunity to actively plan for the future of the NYS Route 31 Corridor. As an emerging commercial area in Rochester's eastern suburbs, there exists potential for additional commercial and residential development. Intentional partnerships and policies among the Town, Village, County, State, and developers can yield a form of development that is of a higher quality than conventional growth while retaining the integrity of the transportation system. The relationship between land use and transportation is evident as the recent retail build up around the Wayneport Road and Canandaigua Road intersections has changed the driver's experience on NYS Route 31. Potential negative impacts from additional growth can be mitigated through careful management of the transportation system and strategic land use policy. Specific recommendations related to the form of development and roadway improvements are found in this section.

In general, it is important that specific investments are made with the entire corridor in mind. The Town and Village recognize that the NYS Route 31 corridor is a multi-modal corridor including the Erie Canal, Canalway Trail, CSX Railroad, and associated bridges. The design of each system affects the others and must be planned for as a whole. For example, the NYSDOT has indicated that rehabilitating the Canandaigua Road bridge over the Canal and/or removing the at-grade railroad crossing at Quaker Road are possible investments in the near future. Given the limited resources of all parties involved, it is imperative that such projects take into consideration the needs of the entire network, including other canal bridges and railroad crossings in the area.

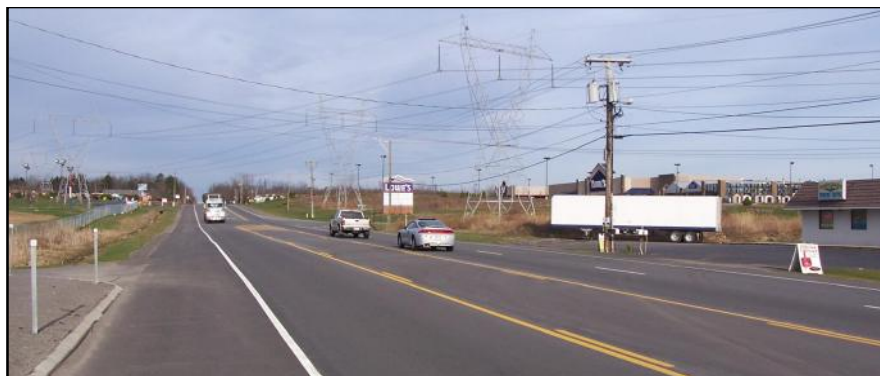
These critical relationships are important to the quality of life in the Town and Village of Macedon. As the NYS Route 31 corridor continues to emerge as an important commercial area, local officials should embrace opportunities to safeguard infrastructure while creating a unique sense of place and destination for residents and visitors. The recommendations below demonstrate the importance of both utilitarian (safety and operations) and design (character and aesthetics) investments.

4.2 Character & Aesthetics

The build-out analyses in the previous section provide guidance on roadway investments that may be necessary should certain levels of development materialize. In the meantime, there are improvements that can be made to the corridor regardless of how much change occurs in the future. Examination of existing

traffic conditions concluded that limited investments are necessary to improve the corridor's ability to handle current traffic levels. These recommendations are found in the Safety and Operations section below. However, several investments can be made to improve the visual character of NYS Route 31. These enhancements can add to the corridor's sense of place as travelers enter Wayne County and eventually the Village of Macedon.

Figure 4-1. NYS Route 31 looking west from Wayneport Road intersection



A. RIGHT-OF-WAY AESTHETICS

The character of a roadway corridor is defined by the physical features in the public right-of-way, not just the style of development on adjacent private property. NYS Route 31 is currently a two-lane roadway with occasional turning lanes and ample shoulders. Like most state highways in a rural or suburban setting, it contains no intentional visual elements outside of utilitarian signage and striping.

The improvements suggested in the following graphics will help define the character of the corridor, especially around the Wayneport Road and Canandaigua Road intersections. The corridor should be viewed as a series of nodes (see Figure 4-3), with each playing a unique role yet having unifying visual elements. Traveling west to east, the nodes are:

✱ *NYS Route 31 and Wayneport Road*

From the County line to Wilson Road, this stretch of NYS Route 31 serves as a gateway into Wayne County. It is a destination for large-scale retail and various small businesses/industries.

✱ *NYS Route 31 and Canandaigua Road*

From Brixton Drive to the western village line, this segment marks the transition into the Village of Macedon. It plays an important role in defining the character of the Macedon community, and provides important goods and services to residents. While the Wayneport Road area may have more of a regional draw, the Canandaigua Road node has smaller-scale development and should be designed to complement the Village. This includes provision for pedestrian and bicycle connections, as several residential generators are within close proximity.

✱ *NYS Route 31 and Drumlin Drive*

This intersection is located at the western village line, although the perception of entering the village has limited definition at this time.

✱ *NYS Route 31 and Ontario Center Road (Routes 31F and 350)*

This intersection represents the heart of the Village, which stretches roughly from the Town Hall / Library Complex to the Quaker Road intersection. This Study makes limited recommendations to improvements in this segment, as the Village recently completed a Circulation, Accessibility, and Parking (CAP) Study. Detailed design recommendations are put forth in the CAP Study that are consistent with the goals of this Study. These include improvements to parking, streetscaping, and overall safety.

✱ *NYS Route 31 and Quaker Road*

Similar to Drumlin Drive, this intersection marks the eastern village line but has limited cues that signal the entrance to Macedon.

Figure 4-2. Village of Macedon CAP Study

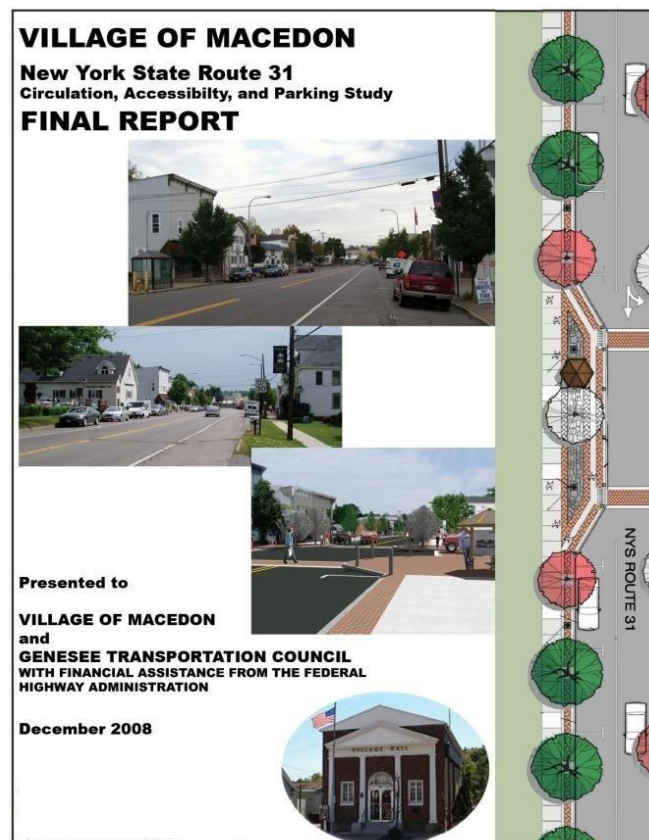
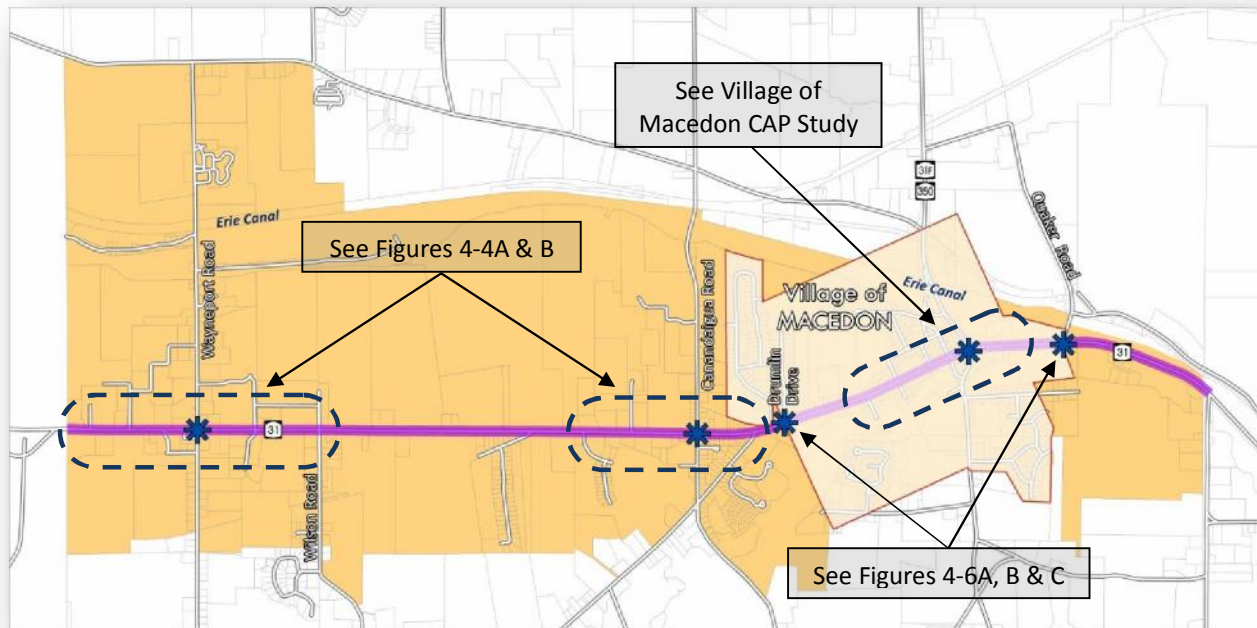


Figure 4-3. Distinct nodes in the NYS Route 31 Corridor require a unique approach while incorporating unifying elements and a sense of transition from town to country



Each of these nodes should be examined for potential enhancements to their aesthetic character. This can be accomplished through public investments in the right-of-way and improving design standards for future private development. In addition to the character and aesthetic benefits, streetscaping components such as lighting and trees can add “visual friction” to the corridor. The proximity, density, complexity, and scale of visual elements along a roadway have been shown to have a greater impact on travel speeds than the posted speed limit.

For example, a driver traveling east across the county line will perceive a change from a rural setting (between Aldrich Road and Pannell Road) to a commercial setting (restaurants, stores, and recreational businesses). The expectation that these land uses will create more traffic (turning, stopping, etc.) than the previous segment tends to decrease the average driver’s speed. The additional visual elements suggested in this section will further contribute to that phenomenon with the goal of improving safety while creating a sense of place. Specific improvements are illustrated in the graphics on the following pages.

The photo-simulations in Figures 4-4A and 4-4B suggest some basic improvements that can be made within the confines of the current right-of-way and without changing the number or dimensions of travel lanes. Figures 4-5A and 4-5B show how these same changes would appear with a five-lane configuration, should significant development occur resulting in expansion of the roadway. Note that in both cases, sidewalks are not included due to the lack of adjacent sidewalk systems and pedestrian generators (see Section 4.4 for more information). The Town, County, and State should continue to maintain the integrity of the shoulders for use by bicyclists and pedestrians.

It should be noted that both the Town and NYSDOT strongly prefer keeping the current lane configurations on NYS Route 31. The addition of more travel lanes, as depicted in Figures 4-5A and 4-4B, is not a desirable goal. Therefore, land use and traffic patterns should be managed carefully to avoid having to consider such a costly investment.

Figure 4-4A. Photo-simulation of improvements to existing **three-lane configuration**.
(Note: Lighting and landscaping elements are only recommended for limited stretches around commercial areas. The remainder of the corridor should retain its rural character.)

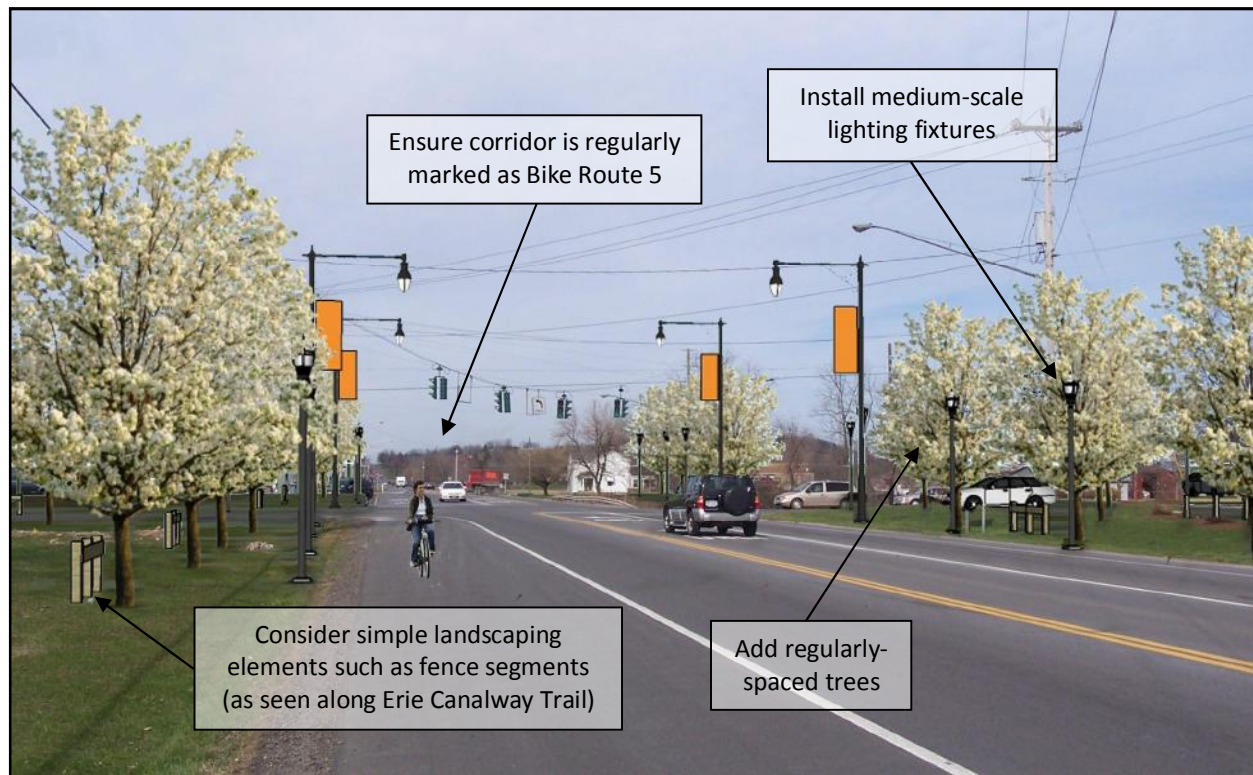


Figure 4-4B. Plan view rendering of improvements to existing **three-lane configuration**.



Figure 4-5A. Photo-simulation of improvements to a **five-lane configuration**.

(Note: The Town and NYSDOT believe that expanding Route 31 to this configuration is the least desirable alternative for the future of this roadway. Development and traffic should be managed carefully to avoid having to invest in such a design, which would have a dramatic effect on community character.)



Figure 4-5B. Plan view rendering of improvements to existing **five-lane configuration**.

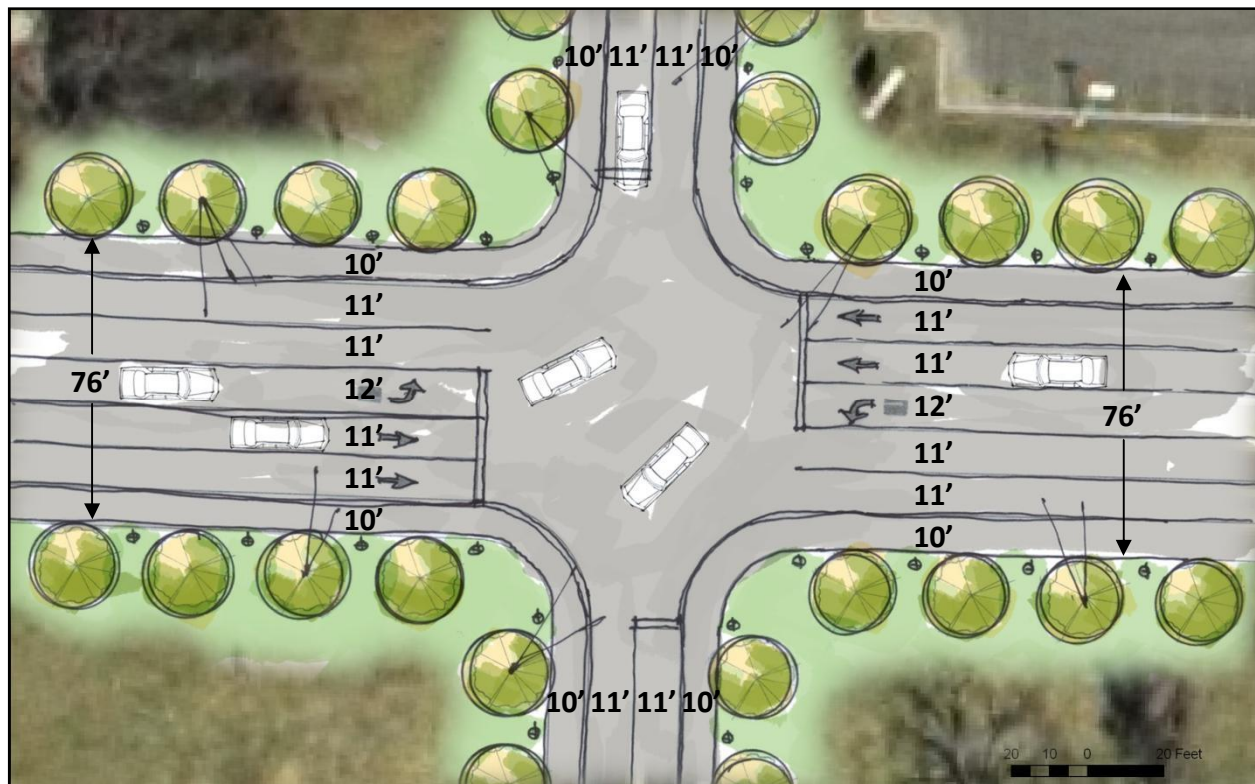
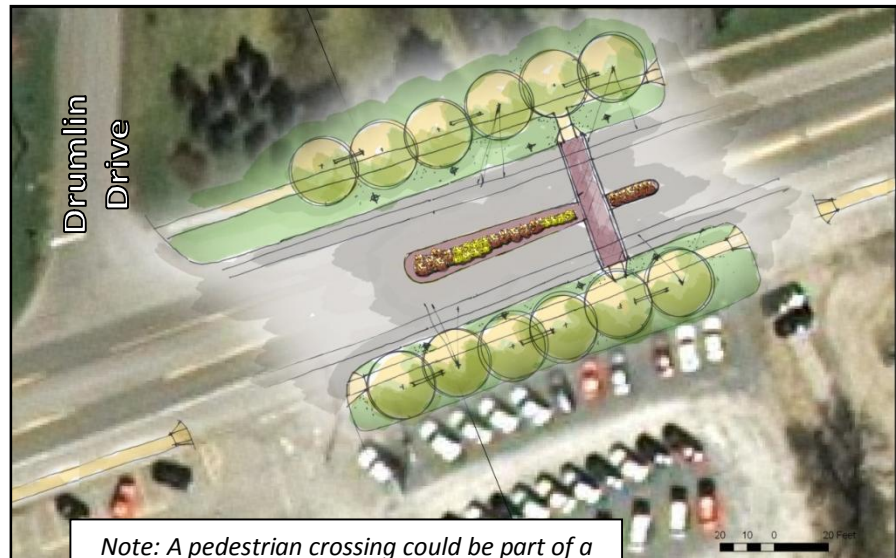


Figure 4-6A. Photo-simulation of improvements to the **Western Village Gateway** showing trees, signage, lighting, landscaped median, and pedestrian crosswalk (see note below).



Figure 4-6B. Plan view rendering of improvements to the **Western Village Gateway**.



Note: A pedestrian crossing could be part of a larger "Village Loop" of sidewalks from one end of the village to the other. It would require a gap study to determine the safest location.

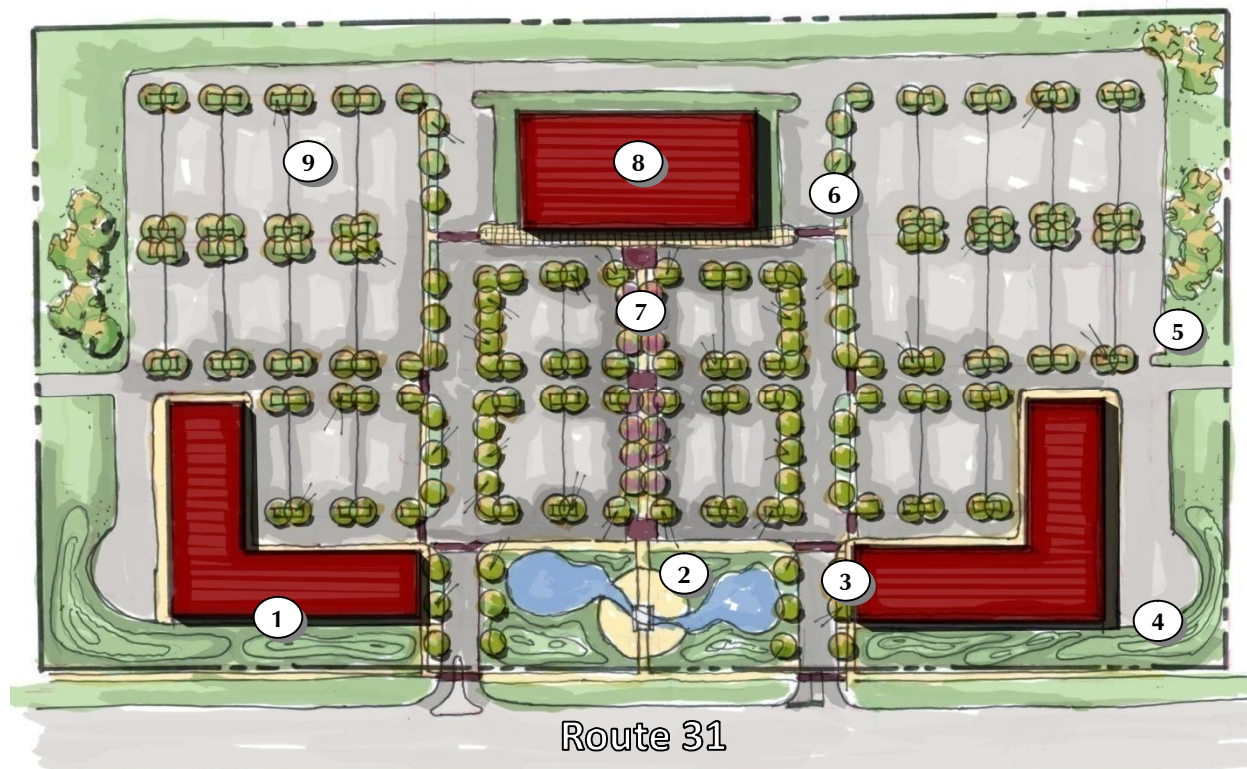


Figure 4-6C. Axonometric rendering of improvements to the **Western Village Gateway**.

B. SITE DESIGN BEST PRACTICES

The site plan depicted below provides general best practices for site design along a primary roadway corridor. The Town and Village of Macedon should refer to these guidance principles whenever reviewing site plans for the corridor. Some of these principles can be codified and enforced through a set of design standards or using incentive zoning. Ultimately, the key to achieving a higher quality design is flexible discourse between the municipality and the developer, where creativity is encouraged and the Town/Village's goals are clear.

Figure 4-7. Fictitious site plan depicting best practices in corridor site design (see notes below).



1. Shallow building setback (in this case, 50 feet) improves definition of NYS Route 31 corridor
2. Storm water facility integrated as major site design element
3. Sidewalk connection from building entrances to street
4. Berming and screening of loading areas from NYS Route 31 corridor
5. Cross access to adjacent parcels limits trips and turning movements on NYS Route 31
6. Crosswalk and sidewalk connections from buildings to parking areas
7. Direct pedestrian link between street, major design element, and primary anchor
8. Primary development anchor retains direct line of sight to street
9. Parking rooms of less than 200 cars defined by landscape medians

Conventional site design practices place the majority of the buildings at the rear of the site, with parking fronted on the street. As can be seen above, by moving buildings closer to the street, the roadway corridor is better defined (1). The pedestrian entrance to the store would face the parking lot, making the street side the functional rear of the building. However, simple architectural treatments such as windows, signage, and a decorative cornice line will make the view from the street attractive (see Figure 4-8). This technique offers an opportunity to create a unique atmosphere and identity for the development based upon improved architectural design of the buildings.

The utilization of storm water facilities as primary design elements also improves the presence of the property on the roadway corridor (2). While conventional design does not provide for enhanced pedestrian connectivity, best practices call for well-defined crosswalks and sidewalks linking parking areas to building entrances and with the roadway corridor (3, 6 & 7). Figure 4-9 illustrates this design feature.

A sidewalk connection to adjacent roadways is recommended for all development between the Canandaigua Road intersection and the West Wayne Plaza area, as they are in walking distance of residential areas. However, this pedestrian connection to NYS Route 31 around the Wayneport Road commercial area (Lowe's, Wal-Mart, etc.) is not recommended at this time due to a lack of nearby residences and the lack of a sidewalk on NYS Route 31.

Improved vehicular connectivity between adjacent properties should be provided via cross access drives (5). This approach improves the safety and operations along NYS Route 31, but is also one technique in encouraging developers to view their parcel as part of a larger community. Conventional development is often piecemeal and gives little consideration to the greater community context. This approach leads to inefficient use of land, congestion and safety issues, and the gradual degradation of community character.

Lastly, best practices can retain the prominent status of development anchors (8), while limiting the negative impacts associated with the vast areas of parking via the placement of parking rooms throughout the site (9). This approach is important because it allows large-scale retailers, or “big box” stores, to place their loading operations in the rear of the building, a practice that would be problematic if such a building were built close to the roadway. Taken together, these elements improve pedestrian and vehicular circulation while improving the aesthetics and long-term viability of development.

Figure 4-8. Example of retail store built closer to the street with architectural treatments on the façade facing the street (parking and pedestrian entrance are on the side)



Figure 4-9. Example development with extensive pedestrian circulation, both internally and externally



4.3 Safety & Operations

One of the purposes of this Study is to evaluate the infrastructure investments required to address the traffic impacts resulting from the Town and Village's vision for the NYS Route 31 Corridor. To achieve this vision, the community and NYSDOT will have to proactively manage the roadway system as development is considered. This section outlines a series of recommendations for improving safety and operations in the corridor. Certain items are illustrated on Map 10, Route 31 Corridor Plan.

A. TRAFFIC CALMING

Traffic calming is a common technique used to address safety, congestion, and community character concerns. It involves a combination of mainly physical measures that help reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users. The goal of these measures is to manage traffic volumes and speeds in sensitive areas and increase driver attentiveness. As discussed earlier, various studies have concluded that the average driver's speed through a given roadway segment is influenced more by the visual environment than the actual posted speed limit. Elements that contribute to this "visual friction" include building setbacks, number and density of access points, trees and other landscaping, road and lane widths, and the presence of sidewalks, especially when pedestrians are common.

For several years, many communities across the country have been using traffic calming measures successfully. However, careful consideration should be given to the systematic effects of specific measures, including reduced accessibility for local residents, the impact of higher traffic volumes, and altered travel patterns resulting from the changes that may affect other area roadways. While this Study makes preliminary recommendations for Macedon to consider, a detailed examination of existing travel patterns and the effect of various traffic calming tools on the Macedon area should be conducted prior to implementing a given project. Traffic calming measures should be implemented carefully as a systematic approach to traffic and speed management.

The following features are recommended for calming traffic in the Study Area.

I. Speed Reduction Measures

Over the past ten years, beginning at Wayne County's western line and proceeding easterly along the NYS Route 31 corridor, commercial development has increased the number of access points to the state highway and likewise the number of potential conflict points. Increased development has also resulted in an additional traffic signal located at the Wal-Mart access driveway. Several of the other commercial access points currently operate as un-signalized intersections, most notably the Macedon Parkway (Lowe's entrance) and Wilson Road intersections.

While this planning-level Study does not include an in-depth analysis of speeds, a preliminary look at traffic conditions and the adjacent environment suggests the western portion of the Study Area may warrant a speed reduction. It should be noted that a reduction in the posted speed will be most effective when done in conjunction with other traffic calming techniques.

NYSDOT recently lowered the speed limit between the Monroe County line and Wilson Road to 50 MPH. The Town and NYSDOT should continue to monitor development in this segment of the Study Area to see if a further reduction is warranted. There are currently 21 driveways and four intersections in this 5,530-foot segment, an average of 220 feet between potential turning movements. As stipulated by the NYSDOT Corridor Management Bureau, the recommended minimum spacing between driveways for a 50 MPH zone is 440 feet. Of the 23 lengths of road between driveways or intersections in this speed

zone, 17 do not meet this minimum distance standard. If the speed limit were changed to 45 MPH, the number of “non-conforming” driveways would be reduced to 12 out of 23.

Although driveway spacing is not the only factor in determining the appropriate speed limit, it is a reflection on the land use pattern of an area. As development and traffic volumes continue to grow in this corridor, careful attention should be made to the level of delay for exiting and entering traffic at the unsignalized access points and the potential for increased accidents. In the future, consideration should be given to further reducing the posted speed to 45 MPH. As part of that process, NYSDOT should take into account the observations, goals, and specific recommendations of this Study.

Throughout the corridor, access management techniques such as parallel and shared access roads should continue to be advanced as development occurs. This will help limit the number of potential conflict points along NYS Route 31 and relieve congestion. The Town has already demonstrated the foresight to plan for parallel and shared access roads, and should continue to do so for future development. Working with NYSDOT, the Town should manage new development to avoid degrading the highway’s Level of Service. Developers will need to mitigate all impacts to the highway that result from their development.

2. Building Setback and Landscaping Features

Speed reduction measures along rural arterials, where large building setbacks, wide lanes (greater than 11 feet) and wide shoulders (greater than six feet) exist, often receive a limited change in behavior from the typical motorist. It was noted that vehicle speeds in the section from the Monroe-Wayne County line to east of Wilson Road are impacted by traffic signals and vehicles turning into and out of the commercial sites. Outside of the commercial areas, vehicle speeds are influenced by the relatively straight alignment, wide shoulders, and a lack of “visual friction”.

The Town Zoning Code requires a minimum 100-foot setback for commercial buildings on NYS Route 31. This leaves the adjacent roadside area open and devoid of “visual friction.” As shown in the various figures in this section, such as 4-4A and 4-6A, the introduction of design elements such as landscape treatments, smaller-scale street lighting, and reduced building setbacks (i.e. 50 feet) will produce a visual affect of roadway narrowing and interest. This coupled with consideration of lower speed postings will effectively reduce actual driver speeds.

3. Traffic Signal Warrants Study

As outlined in the Existing Conditions Chapter, no changes in the current roadway geometrics (number of lanes, lane widths, alignment and/or lane designation) are presently recommended. As growth and development occurs, additional through and turning lanes and coordinated signal operation along the corridor may be necessary to mitigate the degradation in roadway operations that would also come with increasing traffic volumes. As the Macedon Shopping Center is completed, a traffic signal warrant analysis is recommended to study the need for installing traffic signals at the Macedon Parkway and at Wilson Road. If warranted, the signals should be installed and coordinated with the existing signals at Wayneport Road and the Wal-Mart driveways. Regular evaluation of the corridor should be undertaken to ensure efficient operation of the corridor.

4. Turning Restrictions

Anecdotal evidence suggests that drivers using the right-turn only exits from the Lowe's site often turn left, disregarding the left-turn restrictions. This would suggest that long delays noted at Macedon Parkway for eastbound vehicles are encouraging this movement. As noted above, there is not currently a traffic signal at Macedon Parkway and a traffic signal warrant study is recommended. A signal at this location may reduce the number of illegal left turn movements from Lowe's. To reinforce this turn restriction, curbing should be considered for installation as shown in Figure 4-10. However, if curbing is installed at the right turn only exit but a signal is not installed at Macedon Parkway, the current long delays at peak hours of travel may be exacerbated.

Figure 4-10. Photo-simulation of curbs installed at right turn only exit from Lowe's



5. Wayneport Road Canal Bridge & Railroad Crossings

As is noted in Chapter 5, the sight distance over the Wayneport Road Bridge is restricted in both the northbound and southbound directions due to the steep highway approach grades coupled with the flat grade across the bridge. This requires caution by motorists when crossing the bridge as they may need to yield to opposing vehicles, causing queues to develop for both southbound and northbound traffic. Vehicle queues in some cases may extend to the railroad crossing, located approximately 500 feet north of the bridge. Additionally, given the length and frequency of trains through this major rail corridor, southbound vehicle queues can back up waiting for a train, and then move as a platoon to the one-lane bridge over the canal. The existing congestion and sight distance problems at the bridge can be compounded by these large platoons. This is also a safety concern given the proximity of the railroad tracks to the bridge.

6. Truck Traffic

Traffic counts conducted by NYSDOT in 2006 indicate that truck traffic, four axles or more on Routes 31, 31F and 350 typically range from 10 percent to 15 percent of the total 24-hour volume of traffic on these routes within the Study Area. The Waste Management High Acres Landfill, located in the northwest part of the Study Area, is open for operation from 7 a.m. to 4 p.m. Studies have shown that trucks bound for the landfill average around 250 per day. Due to the operation of the landfill and restrictions on County, Town and Village roads, trucks use Routes 31F and 350 to access the site. A majority of the large trucks (semi tractor-trailers) originate from the east of the Study Area. Those originating from the west do not travel through the Study Area, as they would have to use the single-lane Wayneport Road bridge.

Based on the available truck volume counts and landfill operational data, it is estimated that if truck traffic was able to access the landfill from the east via NYS Route 31 and Wayneport Road, approximately 100 trucks would use this route resulting in 200 truck trips per day between 7 a.m. and 4 p.m. These 200 trucks per day would be travelling on NYS Route 31 through the Village of Macedon, which may be a concern because of the potential impacts on the character of that community. Should the bridge be replaced with a two-lane bridge with current highway load ratings, there should be a consideration of whether additional truck traffic may utilize this route to the landfill by the parties involved.

B. ACCESS MANAGEMENT

Well-designed access systems enhance mobility and safety, help preserve community character, advance economic development goals, and protect the substantial public and private investment in roads and land use developments. Comprehensive access management is an effective approach for advancing these community goals. It strives to help balance the competing needs of mobility and land access.

Access management does more than preserve safety and efficiency of travel. It is also intended to further the orderly layout and use of land, through greater coordination and consistency of land use and transportation decisions; protect community character and conserve community assets by promoting well-designed road and access systems that encourage, and support existing corridor and growth objectives. It is recommended that access management guidelines outlined below be considered for implementation on NYS Route 31 in the Town of Macedon in partnership with other stakeholders whose interest and involvement supports these efforts.

I. Driveway Spacing & Corner Clearances

Reasonable spacing between driveways is important to safety and capacity of roadways, as well as the appearance of the corridor. Several studies on the safety effects of access spacing have found that crash rates increase as access density increases.⁵ This is because a surplus of access points leads to numerous traffic conflicts that increase driver decision making. These access spacing guidelines are design to help insure greater compatibility between land development and the road serving that development. Currently, more than two-thirds (30 out of 44) of all driveways in the corridor, outside of segments with a 55MPH posting, do not meet the minimum spacing requirements outlined below. All future access connections on this NYSDOT roadway should meet or exceed these requirements, as stipulated by NYSDOT Corridor Management Bureau. Separation between access connections on NYS Route 31 should be based upon the posted speed limit, but can be reduced when they prove impractical.

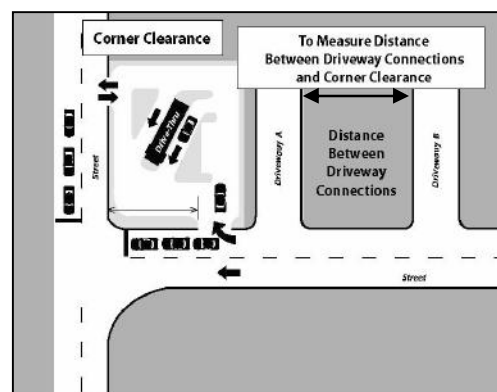
Table 4-1. NYSDOT standards for spacing between driveways

Posted Speed Limit	Driveway Spacing
35 MPH or Less	125 feet
36 MPH – 45 MPH	245 feet
Greater than 45 MPH	440 feet

If the connection spacing guidelines cannot be achieved, before approval of closer spacing is considered, joint use driveways and cross-access easements would provide a better solution than closer spacing. A traffic analysis should be performed to demonstrate whether a closer spacing would exceed roadway safety and/or operation benefits.

Corner clearance is the distance from a public or private driveway or road to the nearest intersection. It is typically measured from the closest edge of the pavement of the intersection to the driveway along the travelled way (see Figure 4-11). Corner clearance standards preserve adequate sight-distance at intersections and mitigate conflicts with queued vehicles or turning vehicles at the adjacent intersection.

Figure 4-11. Driveway spacing & corner clearance dimensions



⁵ NCHRP Report 3-51, #420.

It is recommended to consider every feasible option to provide side road access rather access onto NYS Route 31 unless such is infeasible. Access for corner lots should meet or exceed corner clearance standards to maintain good traffic operations at intersections, as well as the safety and convenience of access to corner properties. Where minimum spacing cannot be met, and when no other alternative exists, the Town may consider allowing an access connection along the property line farthest from the intersection, but in that case, should consider a directional connection (e.g., right-in only). A future consideration should be to require sufficient corner lot sizes to provide for sufficient corner clearances on street frontage.

2. Joint and Cross Access & Reverse Frontage

Sharing access points to adjacent properties on major highways improves safety by reducing the number of conflict points and separating conflict areas. Additionally, longer spacing between driveways reduces the need for deceleration lanes and improves traffic flow. To enhance the sharing of access along NYS Route 31, cross easements between properties can offer alternative access and circulation which will reduce the need for drivers to re-enter the highway and reduce the turning movements at these adjacent intersections (see Figures 4-12 and 4-13). Adjacent commercial or office properties and compatible major traffic generators (i.e. shopping plazas, office parks, apartments, etc.) should provide a cross-access drive and pedestrian access ways to allow circulation between sites, though this is often difficult when adjacent businesses are not owned by the same property owner.

Inter-parcel connections should be provided to facilitate the local movement of traffic and minimize demand for local trips on the highway. Based on consultation with the NYSDOT, inter-parcel access may take the form of direct driveway connections or reverse frontage roads. Providing frontage on an interior access road rather than from the major roadway is called reverse frontage. Parallel roadways to NYS Route 31 that also act as cross-access roads open up properties to access to the side streets and give frontage to these interior developments. Adjacent businesses with shared parking should be encouraged to reduce the overall number of parking spaces in recognition of that sharing agreement.

Alternative access to residential areas and adjacent areas with compatible uses offers should be encouraged as well. For example, connecting Canandaigua Road and Kemp Drive utilizing the existing stub street can redirect some traffic through the signalized intersection and reduce turning movements at NYS Route 31 and Kemp Drive. This would result in other benefits, as discussed further below.

Figure 4-12. Example of well-planned joint access, cross access, and shared parking

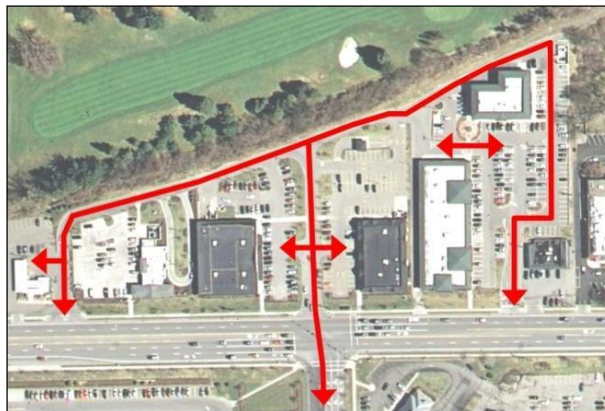


Figure 4-13. Example of unplanned development with no shared access or parking

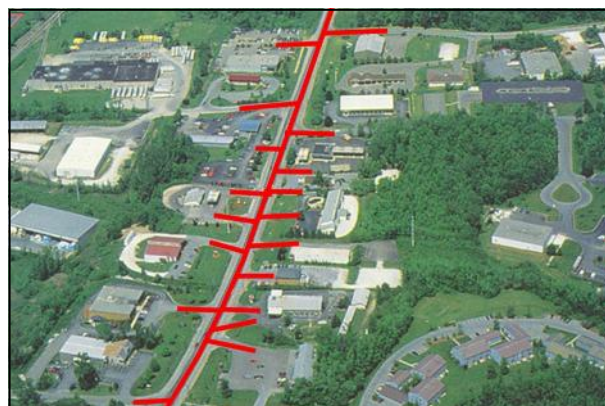
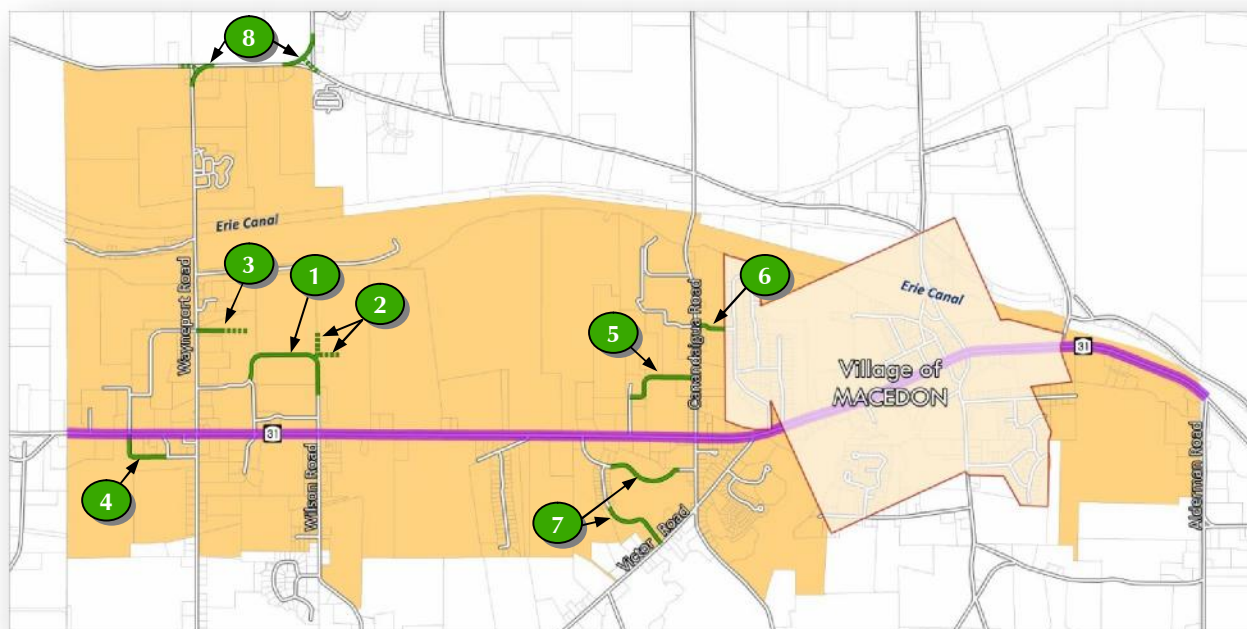


Figure 4-14. Recommended cross-access connections

Several cross access and parallel connections are recommended, as listed below and shown on Figure 4-14, to improve accessibility and overall circulation. In all cases, the roadway investments should be coordinated with local landowners. Major parallel access routes were explored in the corridor, such as connecting Wayneport Road and Canandaigua Road via an extension of Canal Drive East. However, this would be a significant investment in infrastructure that is not warranted given current conditions. Should substantial development materialize in the near future, it is expected that new traffic signals at the Macedon Parkway and Wilson Road intersections, additional turning lanes in select locations, reconfiguration of signal timing, and the connections listed below would be sufficient mitigation to meet the demands of the corridor.

1 Rear access behind the Wal-Mart Site and North Wilson Road

The construction of a roadway behind the current Wal-Mart Store that would connect to North Wilson Road and the Macedon Shopping Center would offer alternative access to Wayneport Road. The Town has already planned for this roadway and should continue to pursue its completion. Once in place, it would also open up development opportunities on the north side of the road. As shown on the Future Land Use Plan (Map 8), this area of the corridor would be suitable for offices, flex space, or light industrial development.

2 Extension to the rear access behind Wal-Mart/Wilson Road Connection

Extension of the rear access road listed in #1 above to the east and/or north would further open up land for compatible development and offer frontage opportunities as well to those developments.

3 Cross-access connection between Lowe's and North Wilson Road

The Town has plans for the extension of North Wilson Road to connect behind the Wal-Mart site. Once built, consideration can be given to an additional connection to Wayneport Road across from the recently built East Park Drive, which provides access to the Lowe's site. This may open up additional land for development, as identified in the Future Land Use Plan.

4 Extension of Carlson Lane

Carlson Lane currently has a stub-out in place so that it could be extended to the west to connect with Macedon Center Parkway. This future connection would ensure that development on this corner of the Wayneport Road / NYS Route 31 intersection will have consolidated access across from the entrance to Lowe's.

5 Alternative connection between Canandaigua Road and Commons Parkway

Currently, Commons Parkway outlets onto NYS Route 31 just to the west of Canandaigua Road. Some light industry and small businesses reside on Commons Parkway, whose employees utilize NYS Route 31 in order to access Canandaigua Road. With this direct connection to Canandaigua Road, some traffic volume would be removed from the Canandaigua Road intersection. Should the large farm east of Commons Parkway be developed, it could also utilize this access road and avoid installing an additional access point onto NYS Route 31.

6 Connect Canandaigua Road with Kemp Drive

As mentioned earlier, a connection with Kemp Drive would provide an alternative access to NYS Route 31 westbound or to Canandaigua Road northbound for residents. Additionally, this would encourage future residential development on this parcel to be connected with the existing neighborhoods and provide vehicular and pedestrian access directly into Bullis Park. Presently, residents of this neighborhood have to drive one to two miles to get to this park which is less than a quarter mile away.

Figure 4-15. Recommended connection between Kemp Drive and Canandaigua Road



7 Cedar Creek Roads

These roads have been shown by a developer as part of their proposal, Cedar Creek. This would open up land for development, offer alternative access to NYS Route 31 and Victor Road, and may remove some volumes from the NYS Route 31 and Canandaigua Road intersection.

8 Wayneport – West Walworth Road intersection realignments

In order to smooth out the north-south connection between Gananda and the commercial area around Wayneport Road and NYS Route 31, these two intersections could be realigned. It would create a new set of turns for east-west traffic along Quaker Road. There is a substantial wetland on the northwest corner of Quaker Road and West Walworth Road, making this realignment a challenge. The Town and County should explore alternatives for enhancing this north-south corridor while mitigating impacts to the wetland or other environmental concerns.

4.4 Bicycle & Pedestrian Accommodations

A. BICYCLE & PEDESTRIAN PLANNING

Bicycle and pedestrian transportation planning involves examining non-motorized traffic *generators* (or origins) and *destinations* and the *infrastructure* that connects these places. *Generators* typically include residential areas, while *destinations* include retail districts, employment centers, and parks or natural areas. Non-motorized *infrastructure* includes multi-use trails, sidewalks, roadway shoulders, and the signage or other amenities that make these facilities a safe and enjoyable experience.

A given component can simultaneously be considered a *generator*, a *destination*, and a piece of *infrastructure*. The Erie Canalway Trail is a classic example. In the NYS Route 31 corridor, the Canalway Trail is a *destination* in that residents of the area may seek to access the trail for both long and short trips. It is also a non-motorized traffic *generator*, as long distance users may disembark from the trail at various points in Macedon, seeking goods, services, or other recreational opportunities in the community. Finally, the trail itself is a critical piece of *infrastructure* in both the local and regional non-motorized network.

The NYS Route 31 Corridor Study Area is currently lacking notable bicycle or pedestrian *infrastructure* other than the Canalway Trail and a limited sidewalk network in the village. The predominately rural Study Area contains limited residential concentrations (*generators*), with the largest being in the village and immediately to its west around Canandaigua Road. There is an emerging retail sector (*destinations*), with growth seen around Wayneport Road and Canandaigua Road intersections. The village's Central Business District, albeit small in scale, would be considered a *destination* as well. Lastly, the Study Area contains several employers, most notably on Wayneport Road north of NYS Route 31.

Investment in non-motorized *infrastructure* is driven by the demand for travel between *generators* and *destinations*. As described above, there are several *generators* and *destinations* within the Study Area, although not at concentrations seen in urban or other suburban communities. However, it is important to consider that the Erie Canalway Trail and, to a lesser extent, State Bicycle Route 5, have regional significance. Therefore, examination of the demand for non-motorized connectivity must consider factors beyond the immediate Study Area.

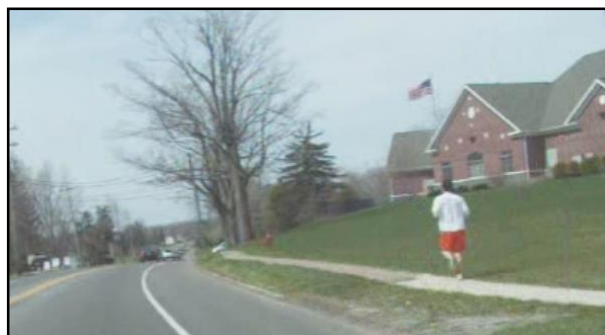
The Town and Village of Macedon should be cognizant of the need for bicycle and pedestrian accommodations in all of their planning activities. From site plans to community-wide plans, considering non-motorized travel facilities will help address sustainability, public health, economic development, and community character goals. The following improvements are recommended for consideration in the NYS Route 31 Corridor Study Area, as shown on Map 9.

B. SIDEWALKS (MAP 9, all maps can be found at the end of Chapter 6)

Sidewalks currently exist on the north side of NYS Route 31 in the village between the Ontario Center Road (Routes 350 and 31F) intersection and Drumlin Drive. On the south side of the road, the sidewalk stops short of Drumlin Drive and terminates across from the Town Hall and library. It is recommended that sidewalks be extended to the commercial area around Canandaigua Road on the west side of the village. This intersection is 1/3 of a mile from the Drumlin Drive / Kemp Drive neighborhood, 2/3 of a mile from the Town Hall and library, and one mile from the heart of the village. This sidewalk extension would further the goal of making this commercial area a distinct gateway that complements and is integrated with the village. It would encourage non-motorized travel for residents accessing these goods and services.

As part of this sidewalk extension, the Town and Village should explore potential locations for a crosswalk at the western village line. As shown in Figures 4-6A, B, and C, this crosswalk could include a landscaped median, a key component in creating a signature gateway to the village. A gap study would be required to examine the safety and appropriateness of any mid-block crossings. If installed, this crosswalk would complete a “Village Loop,” providing residents with a complete sidewalk network along NYS Route 31 for recreational and practical purposes.

Figure 4-16. Jogger using the sidewalk in front of Town Hall

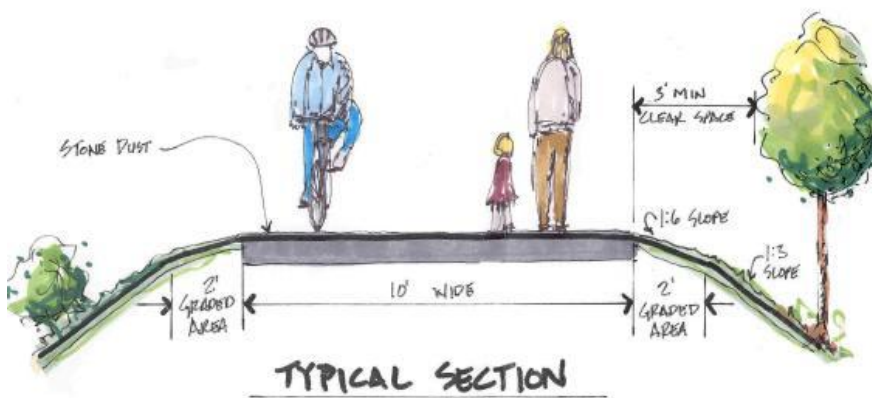


Finally, the Village and Town should consider investing in a sidewalk extension on the south side of NYS Route 31 connecting to West Wayne Plaza. Reinforcing a physical connection to the plaza may infuse some business to this struggling commercial area. Additionally, a crosswalk at the Quaker Road intersection would provide pedestrian access to the Erie Canalway Trail heading east. It was noted during the planning process that Erie Canal users, both on the waterway and the trail, are occasionally seen crossing NYS Route 31 in front of West Wayne Plaza. A crosswalk at Quaker Road would provide a safer crossing and encourage further use of the plaza.

C. MULTI-USE TRAILS (MAP 9)

Multi-use trails are facilities that accommodate a variety of users including joggers, hikers, bicyclists, and in-line skaters. Depending on the surrounding environment, the surface usually consists of either asphalt or stone dust. A typical trail cross section is shown in Figure 4-17. The Erie Canalway Trail is the most prominent example of a multi-use trail in the region. Rochester and its suburbs boast an extensive network of multi-use trails, unrivaled by any other Upstate New York city. The Town and Village of Macedon have an opportunity to expand this trail network, providing additional links for regional trail users as well as local residents. All trails should be designed to follow American Association of State Highway Transportation Officials (AASHTO) guidelines and meet the standards of the Americans with Disabilities Act (ADA).

Figure 4-17. Typical section of a stone dust multi-use trail



Rochester and its suburbs boast an extensive network of multi-use trails, unrivaled by any other Upstate New York city. The Town and Village of Macedon have an opportunity to expand this trail network, providing additional links for regional trail users as well as local residents. All trails should be designed to follow American Association of State Highway Transportation Officials (AASHTO) guidelines and meet the standards of the Americans with Disabilities Act (ADA).

The following trails are recommended for consideration within the Study Area.

I. Rochester, Syracuse, & Eastern (RS & E) Trolley Trail

This trail was recently completed in the Town of Perinton, terminating at Pannell Road. Extending the trail east to the Village of Macedon would link the community with the extensive trail system in Perinton to the west. The Town should work with the Genesee Transportation Council to include this concept in the Priority Trails Advancement (PTA), an annual program that funds trail feasibility studies in the Rochester area. The RS & E has already been identified as a conceptual trail in GTC's Regional Trails Initiative (RTI), making it a strong candidate for securing funding for a future round of the PTA program. A feasibility study would explore location alternatives, design considerations, and cost estimates for the trail. It should be noted that a multi-use trail through this corridor would require a safe crossing of NYS Route 31. A feasibility study would examine considerations such as crossing within the 45 MPH zone and/or at a signalized intersection.

2. Ganargua Creek Trail

This body of water parallels Route 31 to the south through the Village of Macedon. A trail would provide access to this scenic natural corridor for village residents, with potential for a future extension along the creek either to the east or the west. Consideration should be given to how this trail could connect to the RS & E Trolley Trail mentioned above, including examination of alternatives for safely crossing Route 31.

3. Trail connecting RS & E Trolley Trail to Bullis Park and the Erie Canal

Some publicly-owned land exists between the proposed RS & E Trolley Trail and the Erie Canal, including Bullis Park. Utilizing this land, a multi-use trail connection could be developed that links the Town's primary park with the larger trail system. Connections to the both the south side and north side of the Erie Canal should be explored, including improvements to the Canandaigua Road bridge to accommodate bicyclists and pedestrians. Given the potential connectivity of the three trails recommended in this section, consideration should be given to examining the entire corridor as part of the PTA.

Figure 4-18. Example of a trail crossing a town or county highway. Crossing a major highway like NYS Route 31 would require additional safety features and would likely be located at a signalized intersection.



D. ON-ROAD BICYCLING (MAP 9)

NYS Route 31 features generous shoulders (varying between eight and ten feet in width) in both directions to accommodate bicyclists. The roadway is designated as State Bike Route 5, and the Town and Village should work with the NYSDOT to ensure that signage is installed at regular intervals to increase awareness of this designation. There are currently only signs posted at the intersection with Ontario Center Road (Routes 31F and 350) and in front of County Line Raceway. Additionally, consideration should be given to installing “Share the Road” signage to increase driver awareness of this important regional corridor.

Perpendicular roads such as Wayneport Road and Canandaigua Road have narrower shoulders (average three feet in width), yet play an important role in connecting the NYS Route 31 corridor to the Erie Canalway Trail corridor. The Town should work with the Wayne County Highway Department to explore the feasibility of wider shoulders (recommended four feet wide) in priority locations, such as on Wayneport Road between NYS Route 31 and the canal. This segment should also be examined for the appropriateness of bike lanes, a more intentional treatment that would further encourage the non-motorized connection between the Canalway Trail and the retail destinations adjacent to Wayneport Road.

It should be noted, however, that the current Wayneport Road bridge has a grated deck and features narrow, one-way traffic. These conditions are not conducive to safely crossing the canal by bike. Investments in the shoulders along this roadway should be coordinated with any bridge improvements, should crossing the canal become safer for bicyclists. The feasibility of various alternatives for improving the Wayneport Road bridge is explored in Chapter 5. One of the alternatives explored includes a pedestrian bridge paralleling the existing bridge in order to provide safer access across the canal for bicyclists and pedestrians.

Figure 4-19. Bicyclist traveling eastbound on NYS Route 31



4.5 Zoning Recommendations

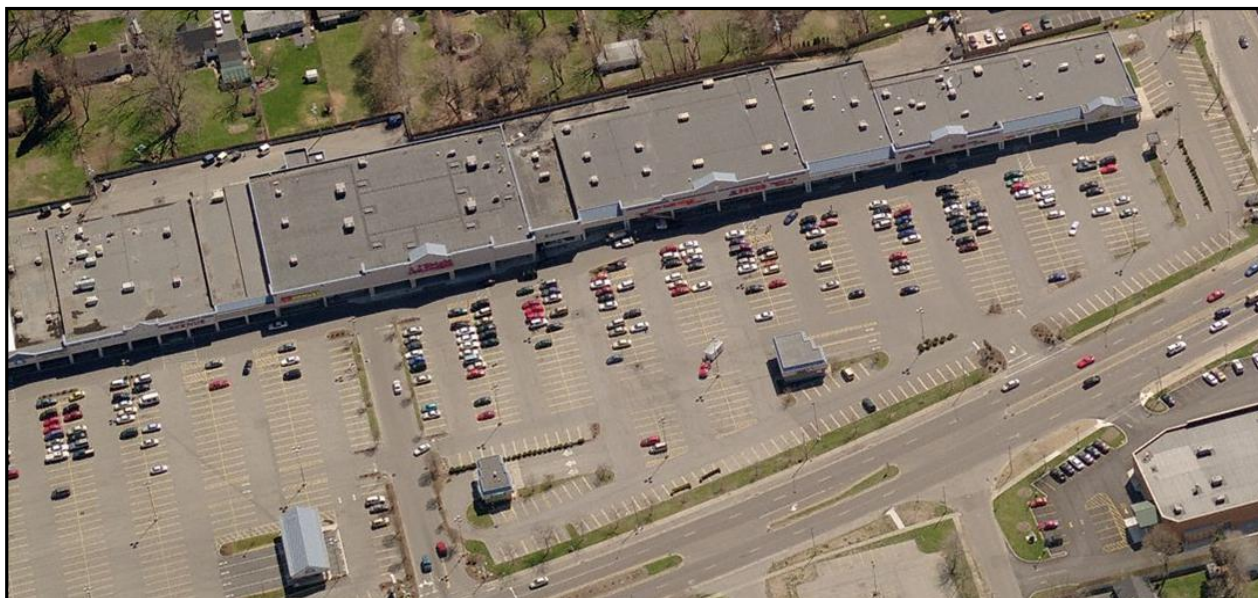
A. OVERVIEW

As discussed in Section 3.1, the Town of Macedon should revise their zoning code and associated map in order to reflect the Future Land Use Plan and other findings of this Study. While Section 3.1 addresses the land use component of zoning, and thus the zoning map, this section makes recommendations related to the form and design of future development. The Town should revise and expand the relevant sections of their zoning code in order to ensure development is consistent with the recommendations of this Study.

B. BUILDING SETBACKS & PARKING REQUIREMENTS

Conventional commercial development results in buildings that have significant setbacks from the roadway with ample parking in the front of the lot (see Figure 4-20). While this presents some conveniences, the consequences of this approach must be considered. Commercial corridors such as NYS Route 31 in Macedon contribute substantially to the first impression and identity of a community. Large expanses of parking, especially those not broken up by landscaping, have an impact on the perception of a commercial corridor. They communicate that automobiles, rather than pedestrians, are the primary concern in that area, and that aesthetics and character are given limited consideration. The extensive impermeable surfaces also have implications on the health of the environment. Finally, this arrangement is typically associated with large-scale national retailers which further inhibits the establishment of a unique, local identity. National retailers are increasingly willing to entertain higher standards of design, but the Town must be proactive in pursuing those standards.

Figure 4-20. Example of conventional retail development with expansive front-loaded parking and lack of street edge definition



The Town's zoning code should be revised to encourage or require parking to be located to the side or rear of buildings to the extent practical. This would be done in conjunction with a reduced requirement for building setbacks. As a compromise approach, some communities require rear or side parking but allow one or two rows of "convenience parking" in the front. In either case, if buildings are the prominent feature of a roadway corridor's edge, rather than parking lots, it will have a positive effect on the identity of that place. This approach can be accomplished while still allowing for ample parking and store visibility, as shown in Figures 4-7 and 4-21. This design is easier to achieve with small- and medium-scale retail, as their loading requirements are not substantial. Creative design is required to make this work for large-scale or "big box" retail, to ensure the visual impacts of loading operations are well screened.

Figure 4-21. Examples of higher-quality designs that include shallower setbacks that define the road edge and intersections, side and rear parking, shared access and parking, and architectural detailing. All developments shown are in major suburban corridors.



In addition to the location of parking and overall arrangement of commercial sites, the required number of parking spaces should be considered for revision. Conventional commercial development typically designs parking lots for the peak hours of the peak shopping season. This approach results in an overabundance of asphalt during the vast majority of the year. The Town should work with developers to design a more conservative number of spaces while retaining economic viability. Additionally, shared parking should be encouraged or required between adjacent businesses in order to further reduce the number of parking spaces needed (see also page 79, Joint and Cross Access).

The following parking and setback regulations are recommended in order to achieve a higher-quality of design and aesthetic in commercial areas of the corridor.

I. Building Setbacks

A range of 25 to 50 feet is recommended for the NYS Route 31 and Canandaigua Road commercial area. Around the Wayneport Road, where larger retailers are located, a range of 40 to 80 feet is recommended. The current requirement is a minimum of 100 feet for properties fronting on NYS Route 31. A range rather than a minimum will over time contribute to a more consistent street edge and prevent buildings from being built too far from the roadway. A few buildings in the corridor are already in this recommended range. Buildings that are closer to the street will require a greater attention to architectural detailing, which will contribute to the corridor's sense of place.

2. Parking Requirements

A range of 3.2 to 4.0 spaces per 1,000 square feet of building is recommended for most retail establishments. The current requirement is a minimum 4.5 spaces per 1,000 square feet, and Wal-Mart has 4.85 spaces per 1,000 square feet. As with the building setback, the range approach is more effective than simply a minimum. Traditionally, zoning codes put forth minimum parking and setback requirements to ensure there is *enough* parking and *enough* buffer from the road, respectively. Current best practices recommend that a range approach be utilized to ensure there is not *too much* of either. Additionally, the requirement should be based on square feet of the total building footprint rather than sales floor area, as the former is an easier metric for the Town to review. Shared parking should be encouraged or required.

C. SIGNAGE

Another component in encouraging higher-quality development is commercial signage. The size and location of signs has an impact on the perception of a commercial corridor and thus the community. The farther a building is setback from the road, the larger the sign will typically be. This approach contributes to the often negative connotation of “commercial strip”. In contrast, the prominent visual features of a typical Main Street area are the buildings themselves, even though their signage may be the same proportion to those in a more suburban setting. The scale and design of village signage is not necessarily appropriate for the commercial areas in the Town of Macedon, but a more modest scale should be considered in conjunction with changes to building setbacks and parking requirements.

For wall-mounted signs, the current limit is one square foot per linear foot of building façade. This proportion-based approach is acceptable, but a cap should be placed on the size. For example, the Wal-Mart's front façade is approximately 640 feet wide, which would make it eligible for a 640 square foot sign (i.e. 20 feet high by 32 feet long). This is an extreme example that is unlikely to occur, but it illustrates how a cap on the size is appropriate, especially if new buildings are placed closer to the roadway. It is recommended that a maximum size of between 100 and 150 square feet be used in this corridor.

Ground signs, also known as a pylon or freestanding signs, are allowed to be up to 20 feet high and 24 square feet in size in the Town. Many national retailers, including Wal-Mart, have stores with ground signs as short as eight or ten feet and no larger than 16 square feet. These modest-sized signs, when designed and located properly, will have no adverse impacts on a store's visibility, and can lessen the visual impact of large-scale development on the corridor.

Figure 4-22. Example of appropriately-scaled roadside ground sign.



D. LANDSCAPING

Landscaping regulations apply to ground-level treatments such as trees, plantings, and earthen berms. They are intended to add natural elements to a manmade setting, while improving the visual interest of a site. In particular, landscaping regulations can set requirements for the amount of landscaped medians to be placed in a parking lot, or the amount of roadside plantings to be installed to reduce the visual impact of parking lots as seen from the corridor.

The current Town code has very little specific requirements for landscaping on commercial properties. As an example, this resulted in the Wal-Mart parking lot containing several rows of parking that are 30 or more spaces long with no landscaping. It is recommended that the Town adopt more extensive landscaping standards to avoid this treatment. This may include a requirement for:

- Landscaped medians to create parking “rooms” with a maximum of 180 spaces in each
- Landscaped end islands for all parking configurations with at least 10 spaces that are surrounded entirely by drive aisles
- Landscaped end islands and/or mid-row islands such that no single row of parking exceeds 20 uninterrupted spaces

See Figure 4-7 and 4-23 for a visual representation of how these standards can break up the impact of large expanses of asphalt while still providing sufficient parking. Additional consideration should be given to specific landscaping requirements around property edges, especially along road frontages.

Figure 4-23. Examples of parking lot medians and end islands with landscaping. Contrast this landscaping treatment with the design shown in Figure 4-20.



CHAPTER 5:



WAYNEPORT ROAD BRIDGE FEASIBILITY ANALYSIS

5.1 Overview

When considering the future of the Wayneport Road Bridge, there are two basic alternatives. The first is to retain the existing structure and continue a program of bridge rehabilitation; the second is to replace the structure with a new crossing. Each of these options has its own merits as described on the following pages. Where costs are stated they are based on the following major assumptions:

- Estimate of Probable Construction Costs (stated in 2010 dollars)
- Right-of-Way Costs (assumed at \$4000/acre)
- Incidental Construction Costs (5%)
- Construction Contingency (25%)
- Preliminary & Final Design (10% to 20% of costs above)
- Construction Inspection (10% of costs above)
- Construction Phase Engineering (10% of costs above)

5.2 Alternative #1 – Major Bridge Rehabilitation

The first option to be considered is to retain the existing structure, undertake a major rehabilitation and continue a program of bridge maintenance and rehabilitation. A typical major rehabilitation project might include; cleaning and painting the structural steel truss, member specific structural steel repairs, localized concrete substructure repairs, and maintenance or repair of approach features (guide rail, pavement, etc). The concrete backwalls and steel deck framing were replaced in 1990 and both remain in good condition, so neither deck replacement nor major substructure repairs are anticipated in the near future.

This option presents the least impacts to surrounding properties and the environment and maintains the historic character of the crossing, presents the least initial cost of all options considered, and can be implemented relatively quickly and easily.

However, this option does nothing to improve the geometric restrictions of the single-lane, alternating one-way configuration which is a concern due to the proximity of the two sets of railroad tracks located some 500 feet north of the north bridge approach. These are very active tracks with some 50-60 trains a day, some occurring in succession. Traffic modeling of the various build out alternatives indicates that for the build out Scenario I during the PM peak hour southbound traffic queue lengths at the north end of bridge could reach the railroad tracks posing a dangerous condition. Additionally, there is anecdotal evidence that upon passage of a train, the entire southbound queue of vehicles that was stopped at the tracks then crosses the single lane Wayneport Bridge as a group rather than alternating in one to three car groups. This behavior, presumably due to driver frustration also creates an unsafe condition.

Although the current R-posting would most likely be removed after a major rehabilitation it is likely that a load posting would remain. This is a concern for emergency service access to the NYS Route 31 corridor from the north, especially with the 5 Ton load posting currently on the Canandaigua Road Bridge, leaving only the NYS Route 350 Bridge to the east and the Lyndon Road Bridge to the west with adequate load capacity. A stopped train on either of the roadways could further impede emergency access.

There are anecdotal reports of vehicles not being able to drive up the steep slopes during slippery winter conditions. Under this alternative the poor sight distance across the bridge and steep grades on the bridge's approaches could only be marginally improved unless significant highway work was done to Wayneport Road including the construction of retaining walls and/or the acquisition of right-of-way to accommodate a raised highway embankment.

Based on NYSDOT Region 4's past experience with rehabilitation of similar canal trusses (East Palmyra - Port Gibson Road, Galloway), a budgetary cost estimate for Alternative #1 is in the range of \$1.5 to \$3.0 million. As a comparison, NYSDOT anticipates the planned rehabilitation to the Canandaigua Road bridge will cost between \$1.5 and \$2.0 million.

The Bridge Rehabilitation alternative is the first preference of the *Programmatic Agreement Concerning Bridges over the National Register Eligible New York State Canal System* (hereafter referred to as the *Canal Bridge PA*) hierarchy (see the discussion below on Navigating the SHPO Process).

Figure 5-1. Wayneport Road Bridge looking northwest



A. SUB-OPTION A FOR ALTERNATIVE #1 – NEW PEDESTRIAN BRIDGE

Alternative #1, Bridge Rehabilitation, does not address the lack of safe pedestrian/bicycle access along Wayneport Road and specifically across the Canal to connect the Canalway Trail to the NYS Route 31 Corridor. Sub-Option A includes construction of a pedestrian bridge adjacent to the existing bridge as an add-on to Alternative #1. This addition to the rehabilitation alternative would improve pedestrian/bicycle access along Wayneport Road and would help to connect the Canalway Trail to the NYS Route 31 Corridor. The proposed pedestrian bridge should be located on the east side of the Wayneport Road Bridge to connect to the existing parking area north of the Canal and east of Wayneport Road, and to avoid impacts to already developed properties along Canal Drive West on the north side of the Canal and west of Wayneport Road. The pedestrian bridge should provide a 10 to 12 foot wide deck. A single span prefabricated steel truss on cantilever abutments with piles is an efficient structure type for this crossing.

A budgetary cost estimate for Sub-Option A is in the range of \$1.0 to \$1.5 million.

Figure 5-2. An example of a pedestrian truss bridge



5.3 Alternative #2 – Bridge Replacement

The alternative to Bridge Rehabilitation is Bridge Replacement. Under the Bridge Replacement Alternative, the existing structure would be completely removed. A replacement bridge would be located on the same horizontal alignment as the existing structure and would be supported by cantilever abutments on piles. The vertical profile would be improved to the extent possible to increase sight distance and alleviate the steep approach grades.

A wider superstructure would provide room for two travel lanes (11 or 12 feet wide), 6 foot wide shoulders to accommodate shared vehicle/bicycle use, and a single sidewalk (east side) for improved pedestrian mobility. The concern regarding the potential for southbound queuing at the bridge to back up onto the railroad tracks would be eliminated under this alternative.

The alternative would eliminate the R-posting. A consequence of the bridge replacement alternative is that a new structure would be capable of carrying heavier loads than the current structure which restricts heavy traffic on this segment of Wayneport Road. The Town should carefully consider the implications of allowing truck traffic on Wayneport Road, especially given the proximity of Waste Management's nearby High Acres Landfill. The use of Wayneport Road by these vehicles would likely imply their use of NYS Route 31 in the Village of Macedon, which is another condition that should be carefully examined.

The larger footprint of the Bridge Replacement Alternative will require additional right-of-way acquisitions, the potential for relocation of existing overhead utilities, and in general has more environmental and historic impacts.

Two versions of the Bridge Replacement alternative are considered:

A. ALTERNATIVE 2A – BRIDGE REPLACEMENT WITH GIRDER BRIDGE

A conventional girder bridge, similar to the Turk Hill Road Bridge over the Canal in Fairport (see Figure 5-3), would be the most cost efficient bridge replacement option. However, this structure type would not retain any of the historic character of the existing bridge, and is the last preference of the *Canal Bridge PA* hierarchy (see the discussion below on Navigating the SHPO Process).

A budgetary cost estimate for Alternative 2A is in the range of \$5.0 to \$7.0 million.

Figure 5-3. Turk Hill Road Bridge in Fairport



B. ALTERNATIVE 2B – BRIDGE REPLACEMENT WITH A TRUSS BRIDGE

A truss bridge would be more costly to build and maintain than a conventional deck girder bridge. However, for bridge replacement projects spanning the Canal, this structure type is preferred by the *Canal Bridge PA* hierarchy (see the discussion below on Navigating the SHPO Process). An example of where this process has been successfully negotiated is the Lyndon Road Bridge over the Canal in Fairport, NY, where an existing structure that had been closed to traffic was replaced with a modern truss bridge.

A budgetary cost estimate for Alternative 2B is in the range of \$8.0 to \$10.0 million.

Figure 5-4. Lyndon Road Bridge in Perinton



5.4 Alternative #3 – Railroad Grade Separation

A third option that could be considered for the future build-out scenarios is to raise the profile of Wayneport Road north of the canal to create a grade-separated crossing at the railroad. This option could be considered in addition to the bridge rehabilitation alternative or in addition to, or in lieu of either bridge replacement alternatives. This optional alternative has several benefits:

- Improved sight distance by eliminating the short, steep grade at the north approach to the bridge
- Improved pedestrian safety by allowing the Canalway Trail to pass under Wayneport Road

- Improved safety by eliminating the current at-grade rail crossing of Wayneport Road. There have been several accidents recently at the various at-grade crossings in the Town of the Macedon. These have been due to vehicles stranded and stuck on the tracks and driver inattention. No accidents have been identified on Wayneport Road.

Raising the profile of Wayneport Road could be accomplished with conventionally placed embankment with side slopes (requires additional ROW acquisitions) or fill retained by retaining walls on either side of the roadway. The existing rail corridor consists of two tracks; however for future high-speed rail expansion provisions for accommodating a third rail line would need to be studied further. A precast concrete structure is a good option to provide the required underpass for the railroad corridor and for the Canalway Trail.

A budgetary cost estimate for Alternative 3 is in the range of \$5.0 to \$7.0 million. This includes embankment with sloped sides (no retaining walls), roadway reconstruction, an underpass for three rail lines, an underpass for the Canalway Trail, and necessary ROW acquisition.

Figure 5-5. An example of a railroad underpass



Figure 5-6. Summary of bridge alternatives considered

5.5 Navigating the SHPO Process

Regardless of the bridge alternative selected to be progressed, the process will need to follow the *Canal Bridge Programmatic Agreement* which was developed by NYSDOT and various involved agencies (FHWA, NYSHPO) to streamline the progression of capital projects involving original bridges spanning the Canal. This section outlines the process that NYSDOT is required to follow to meet the requirements of Section 106 of the National Historic Preservation Act when considering work on a canal bridge. The *Canal Bridge Programmatic Agreement* can be distilled to two key points:

- NYSDOT will make every effort to rehabilitate key bridges representative of Erie Canal-era construction even if this means that additional funding must be committed when comparing the reasonableness of rehabilitation to replacement cost ratios.
- The historic significance of the Erie Canal and its contributing bridges has been determined worthy of additional investment in an intensified maintenance effort.

The simplified hierarchy of actions to be considered when considering a major capital project at an existing original canal bridge is as follows:

1. Bridge maintenance
2. Bridge rehabilitation
3. Minor widening of existing bridge
4. Relocation of existing bridge to another location on the Canal
5. Reuse of bridge elements on a new bridge
6. Bridge replacement with a new truss
7. Bridge replacement with a conventional structure

This hierarchy illustrates that the option to replace an existing original canal bridge is not a decision that is easily made. The alternatives investigation must proceed in order and justify dismissing before moving on to the next alternative. Basis for dismissal of an alternative can include; technical justification, vulnerabilities (e.g. safety issues), terrain, and adverse social, economic and economical impacts.

The coordination process with SHPO may be lengthy (the coordination process for the new Lyndon Road bridge was purported to be in the range of seven years) with no guarantee of the outcome. Therefore, the SHPO process should be commenced well before the construction of the new structure is desired to be completed.

5.6 Selecting the Preferred Bridge Alternative

Two north-south travel routes into the NYS Route 31 corridor exist within the Study Area including Wayneport Road to the west and Canandaigua Road to the east. This Study examined the range of bridge options available for the Wayneport Road Bridge as this roadway is deemed by the Town to be the more critical north-south travel route, especially as development in the project corridor continues.

Both the Wayneport and Canandaigua Road Bridges are owned by NYSDOT. Funding and the final decision making for a capital improvement project for either bridge rests solely with the NYSDOT, who has pledged to make such a decision in cooperation with their local partners.

Although both bridges are the same age and share the same basic geometry, there is a markedly clear difference in current condition of the Wayneport and Canandaigua Road Bridges as indicated by the load capacity ("R" Posted vs. 5 Tons), NYSDOT Condition Rating (4.9 vs. 3.9) and the FHWA Sufficiency Rating (63 vs. 31).

Additionally the Canandaigua Road Bridge has a history of "Red" and "Yellow" Structural Flags issued during the NYSDOT Biennial inspections (as opposed to just "Yellow" for the Wayneport Bridge), the bridge is 200 feet closer to the railroad tracks than the Wayneport Bridge and there is a history of overweight vehicles that continue to use the bridge despite the 5 ton load posting. As an example, on April 22, 2010 an overweight truck hit the top bracing of the truss and continued to cross the bridge. The truck was later found by State Police and the driver ticketed.

Due to its current condition, NYSDOT is currently progressing a project to either rehabilitate or fully replace the Canandaigua Road Bridge. Based on the current traffic volumes and proximity to the railroad tracks the NYSDOT is strongly looking at the replacement alternative. At this time there are no plans or funds available in the near future for a capital improvement project at the Wayneport Road Bridge due to its current good condition, especially relative to the Canandaigua Road Bridge.

At Canandaigua Road, the Town should continue to lobby NYSDOT for a two-lane bridge replacement alternative that also includes sidewalks on the bridge as well as improved shoulders on the bridge approaches to complement the bridge's sidewalk. If the rehabilitation alternative is ultimately selected, the Town should explore the feasibility of constructing an independent pedestrian bridge over the Canal, perhaps near Bullis Park.

At Wayneport Road, the Town should continue to monitor the condition of the bridge and lobby NYSDOT to include the bridge on the Transportation Improvement Program at some point in the future. With a renewed emphasis on the high speed rail corridor across NYS, funding sources may also be available to pursue the grade separated crossing alternative in lieu of the bridge replacement alternative (approximately the same total cost) which would mitigate the safety concerns associated with the existing at-grade crossing.

CHAPTER 6:



IMPLEMENTATION PLAN & CONCLUSION

6.1 Overview

The recommendations contained in this Study are summarized in Table 6-1 and shown on Map 10, Route 31 Corridor Plan. The table includes cost estimates for each item, involved parties such as NYSDOT or GTC, and potential funding sources. In some cases, the unit cost is more relevant than the total estimated cost for a given project. For example, the cost per linear foot of multi-use trail will be helpful if the Town or Village pursues only a segment of a particular trail concept.

Specific improvements are grouped into the following categories:

- Land Use / Regulatory
- NYS Route 31 and Wayneport Road Intersection (aesthetics)
- NYS Route 31 and Canandaigua Road Intersection (aesthetics)
- Western Village Gateway
- Safety and Operations
- Sidewalks and Crosswalks
- Bicycle and Pedestrian Accommodations
- Canal Bridge (Wayneport Road and Canandaigua Road) and Railroad Crossing Alternatives

It should be noted that the potential funding sources listed are subject to change. The programs and dedicated levels of funding made available by various agencies are in a constant state of flux. The Town and Village should continue to coordinate with the NYSDOT and Genesee Transportation Council (GTC) to stay abreast of changes to programs, as well as the applicability of these programs to a given project.

6.2 High Priority Actions

Many of the recommendations in this Study should be considered in the future, but are not critical to safety or operations at this time. For example, the aesthetic and gateway improvements at Wayneport Road will help the Town achieve its goal of creating a signature commercial corridor. These changes will also contribute to traffic calming efforts. However, they are not considered changes necessary to address any specific safety or congestion issues. Many of the recommendations should be examined for appropriateness if and when additional traffic materializes or if specific safety issues arise.

The following projects should be considered high priority next steps for the corridor. They represent an immediate need and are the critical first steps necessary in order to make follow-on projects more effective. The remaining projects listed in Table 6-1 represent a comprehensive strategy for addressing the goals of this corridor in the future. Beyond the consolidated list of projects in the table, the Town and Village should constantly refer to the various principles and best practices outlined and illustrated in this Study.

Note that for all improvements made within the NYSDOT-owned right-of-way, additional studies and documentation would be required by the NYSDOT in order to justify the transportation benefits and costs at the time of implementation.

A. PERFORM TRAFFIC SIGNAL WARRANT ANALYSES

As discussed on page 76, traffic signal warrant analyses should be performed at the NYS Route 31 intersections with Macedon Parkway and Wilson Road. These intersections are experiencing levels of delay that are considered problematic, especially if new development takes place in these locations.

There are commercial sites available at or near these intersections that will impact their performance if built out.

B. MONITOR FUTURE DEVELOPMENT AND ITS IMPACT ON APPROPRIATE SPEED POSTING

NYSDOT recently lowered the speed limit between the Monroe County line and Wilson Road to 50 MPH. The Town and NYSDOT should continue to monitor development in this segment of the Study Area to see if a further reduction is warranted. There are currently 21 driveways and four intersections in this 5,530-foot segment, an average of 220 feet between potential turning movements. As stipulated by the NYSDOT Corridor Management Bureau, the recommended minimum spacing between driveways for a 50 MPH zone is 440 feet. Of the 23 lengths of road between driveways or intersections in this speed zone, 17 do not meet this minimum distance standard. If the speed limit were changed to 45 MPH, the number of “non-conforming” driveways would be reduced to 12 out of 23. Although driveway spacing is not the only factor in determining the appropriate speed limit, it is a reflection on the land use pattern of an area. As this segment continues to develop, consideration should be given to further reducing the posted speed to 45 MPH. As part of that process, NYSDOT should take into account the observations, goals, and specific recommendations of this Study. Additionally, developers will need to mitigate all impacts to the highway that result from their development.

C. EXAMINE FEASIBILITY OF PROPOSED MULTI-USE TRAILS

As outlined in Section 4.4 C, the Study Area presents at least three opportunities for multi-use trails that will enhance non-motorized mobility and recreational opportunities in Macedon. The Town and Village should pursue a feasibility study through GTC’s Priority Trails Advancement (PTA) program to examine these concepts. Establishment of multi-use trails, especially lengthy facilities such as the proposed RS & E Trolley Trail extension, can take several years from conception to completion. A feasibility study performed through the PTA program is an important next step to build momentum on these exciting projects. Consideration should be given to examining these trails as a single entity that improves mobility through the NYS Route 31 and Erie Canal corridors.

D. UPDATE THE TOWN ZONING CODE

The Town Zoning code is in need of revision in order to further the goals of this Study. Section 3.1 examines land use issues in the corridor and recommends that the zoning district map be revised to reflect the vision expressed by the Future Land Use Plan (Map 8). Section 4.5 outlines enhancements that should be made to specific sections of the code in order to facilitate a higher quality design for commercial development. Over time and as development conforms to these new regulations, a new land use pattern will emerge that supports and enhances future efforts to improve safety and traffic calming in the corridor. This new form of development will also enhance corridor aesthetics and Macedon’s sense of place. Ideally, the Town would update its comprehensive plan prior to updating the zoning code. The comprehensive plan would cover many of the same issues as this Study but at a town-wide scale. This Study could be incorporated into the comprehensive plan as a distinct section.

E. ENHANCE THE WESTERN VILLAGE GATEWAY

As drivers enter the Village of Macedon near the Drumlin Drive intersection, there is little definition to the village edge. The transition from the Canandaigua Road commercial area into the heart of the village is gradual. Physical enhancements, as outlined in Figures 4-6A, B and C, will help create this definition and mark a distinct entrance into the village.

F. INSTALL CURBING AT LOWE'S RIGHT-ONLY EXIT

This represents a low-cost investment that could further inhibit drivers from illegally turning left onto NYS Route 31 from the Lowe's exit. While it will not completely prevent this maneuver, it should reduce the occurrence and therefore improve safety at this intersection. See Figure 4-10.

G. INSTALL BIKE SIGNAGE ON NYS ROUTE 31

NYS Route 31 is designated as State Bike Route 5, a major bicycle route through New York State. There are currently only three signs in the corridor designating it as such. Additional wayfinding signs should be installed at key intersections to promote State Bike Route 5 and to call driver attention to its presence. Similarly, consideration should be given to installing "Share the Road" signage along the corridor.

H. LOBBY NYSDOT FOR FUTURE CANAL AND RAILROAD CROSSING BRIDGES AT CANANDAIGUA AND WAYNEPORT ROADS

At Canandaigua Road, the Town should continue to lobby NYSDOT for a two-lane bridge replacement alternative that includes sidewalks as well as improved shoulders on the bridge approaches to complement the bridge's sidewalk. If the rehabilitation alternative is ultimately selected, the Town should explore the feasibility of constructing an independent pedestrian bridge over the Canal, perhaps near Bullis Park.

At Wayneport Road, the Town should continue to monitor the condition the bridge and lobby NYSDOT to include the bridge on the Transportation Improvement Program at some point in the future. With a renewed emphasis on the high speed rail corridor across NYS, funding may also be available to pursue the grade separated crossing alternative in lieu of the bridge replacement alternative (approximately the same total cost) which would mitigate safety concerns associated with the existing at-grade crossing.

6.3 Conclusion

The NYS Route 31 corridor in the Town and Village of Macedon contains a diverse collection of land uses that play a significant role in defining the character of this community. The corridor has seen significant change in the last 15 years, as the once quiet small town has emerged as an important retail and employment center in Wayne County and the southeast part of the Greater Rochester region. The Town has shown great foresight in pursuing a corridor-wide transportation and land use study, establishing itself as a leader and active partner as development continues to materialize in the corridor.

This Study contains numerous recommendations related to land use patterns, the form of development, traffic safety and operations, and regulatory strategies. It also contains tools such as benchmarks for future build-out of the corridor and planning-level estimates for physical improvements. The build-out analyses, in particular, illustrate the need for managing growth and development in order to avoid significant investments in expanding NYS Route 31, an outcome seen as undesirable by both the Town and NYSDOT. Collectively, these resources will help the community reach its goal of creating a unique, safe, and vibrant corridor, one that serves as a respectful gateway to the historic village and a regional center for shopping and employment.

This Study provides the necessary guidance to ensure investments are anticipated and maximized to the fullest extent possible. The Town and Village should continue to be proactive in their partnership with NYSDOT and other relevant agencies to advance these projects and achieve the overall vision for the corridor.

Table 6-1. Implementation Plan and Cost Estimates

PROJECT	UNIT	UNIT PRICE	QUANTITY	COST ESTIMATE ¹	INVOLVED PARTIES ²	POTENTIAL FUNDING SOURCES ^{3, 4}	NOTES
<i>Land Use / Regulatory</i>							
Update Town Zoning Code	EA	N/A	1	\$40,000 - 65,000	None	LWRP, municipal funds	See Section 3.1 and Section 4.5 for details.
<i>Route 31 and Wayneport Road Intersection</i>							
Lighting (medium-scale)	EA	\$3,000 - \$5,000	266	\$798,000 - \$1.33M	NYSDOT, developers	developer impact fees	Assumes every 30 feet from Lowe's right-only exit to Wal-Mart driveway. See Figure 4-4A & B.
Trees (deciduous ornamental)	EA	\$450 - \$500	266	\$120,000 - \$133,000	NYSDOT, developers	developer impact fees	Assumes every 30 feet from Lowe's right-only exit to Wal-Mart driveway. See Figure 4-4A & B.
Miscellaneous Landscaping	N/A	N/A	N/A	see note at right	NYSDOT, developers	developer impact fees	From Monroe County line to Wilson Road. Fencing shown is an example for visual purposes, therefore cost estimates were not developed. See Figure 4-4A & B.
<i>Route 31 and Canandaigua Road Intersection</i>							
Lighting (medium-scale)	EA	\$3,000 - \$5,000	266	\$798,000 - \$1.33M	NYSDOT, developers	developer impact fees	Assumes every 30 feet from Brixton Drive to Victor Road. See Figure 4-4A & B.
Trees (deciduous ornamental)	EA	\$450 - \$500	266	\$120,000 - \$133,000	NYSDOT, developers	developer impact fees	Assumes every 30 feet from Brixton Drive to Victor Road. See Figure 4-4A & B.
Miscellaneous Landscaping	N/A	N/A	N/A	see note at right	NYSDOT, developers	developer impact fees	From Brixton Drive to Victor Road. See Figure 4-4A & B. Fencing shown is an example for visual purposes, therefore cost estimates were not developed.
<i>Western Village Gateway</i>							
Lighting (medium-scale)	EA	\$3,000 - \$5,000	100	\$300,000 - \$500,000	NYSDOT, developers	developer impact fees	Assumes every 30 feet from Victor Road to McLouth Chevrolet. See Figures 4-6A, B, & C.
Trees (deciduous ornamental)	EA	\$450 - \$500	120	\$54,000 - \$60,000	NYSDOT, developers	developer impact fees	Assumes every 25 feet from Victor Road to McLouth Chevrolet. See Figures 4-6A, B, & C.
Landscaped Median (includes landscaping, see below for crosswalk estimate)	LF	\$100 - \$120	100	\$10,000 - \$12,000	NYSDOT, developers	developer impact fees	See Figures 4-6A, B, & C.
<i>Safety & Operations</i>							
Traffic Signal Warrant Analysis	EA	\$2,500	2	\$5,000	NYSDOT	Developer funding	Rte 31 @ Macedon Parkway & Wilson Road. See page 76.
Monitor development levels around Wayneport Road to ensure appropriate speed limit postings	N/A	N/A	N/A	N/A	NYSDOT	N/A	See page 75.
Curbing at Lowe's Right-Only Exit	LF	\$50	200	\$10,000	NYSDOT, landowner	Developer funding	See Figure 4-10.
Cross Access and Circulation Roads ⁵	LF	\$660	15,875	\$10.5M (see note at right)	NYSDOT, County, developers	Developer funding, municipal funds	Assumes two 11-foot lanes with 4-foot shoulders. Cost per linear feet is the more important figure, as not all roadways will necessarily be built and some will be paid for by the developer.
Expand Route 31 to 5 Lanes	LF	\$740	15,145	\$11.2M	NYSDOT	GTC TIP ⁷	From Monroe County line to Victor Road. Not recommended unless development levels warrant expansion. See page 61-62.
<i>Sidewalks & Crosswalks</i>							
West End Sidewalk (5-foot wide)	LF	\$40 - \$50	5,535	\$221,000 - \$277,000	NYSDOT	GTC TIP ⁷ , municipal funds	See page 82-83 and Map 9.
East End Sidewalk (5-foot wide)	LF	\$40 - \$50	2,872	\$115,000 - \$144,000	NYSDOT	GTC TIP ⁷ , municipal funds	See page 82-83 and Map 9.
Crosswalk at Canandaigua Road (10-foot wide)	LF	\$180 - \$250	55	\$10,000 - \$14,000	NYSDOT	GTC TIP ⁷ , municipal funds	See page 82-83 and Map 9.
Crosswalk at Western Village Gateway (10-foot wide)	LF	\$180 - \$250	55	\$10,000 - \$14,000	NYSDOT	GTC TIP ⁷ , municipal funds	See page 82-83 and Map 9.
Crosswalk at Quaker Road (10-foot wide)	LF	\$180 - \$250	40	\$7,000 - \$10,000	NYSDOT	GTC TIP ⁷ , municipal funds	See page 82-83 and Map 9.
<i>Bicycle & Pedestrian Accommodations</i>							
Multi-Use Trail Feasibility Studies	EA	\$40,000 - \$75,000	2	\$80,000 - \$150,000	GTC, Macedon Trails Committee, NYSDOT	GTC PTA	Recommend pursuing all three trail concepts in a single PTA Study, or at least combining Bullis Park connection into RS&E Trail Study. See page 83-84 and Map 9.
RS & E Trail ⁶ (stone dust, 10-foot wide)	LF	\$27 - \$30	17,000	\$459,000 - \$510,000	GTC, Macedon Trails Committee, NYSDOT	GTC PTA & TIP ⁷	Pannell Road to Kemp Drive. See page 84 and Map 9.
Ganargua Creek Trail ⁶ (stone dust, 10-foot wide)	LF	\$27 - \$30	13,000	\$351,000 - \$390,000	GTC, Macedon Trails Committee, NYSDOT	GTC PTA & TIP ⁷	Victor Road to Alderman Road. See page 84 and Map 9.
Bullis Park Trail ⁶ (stone dust, 10-foot wide)	LF	\$27 - \$30	2,120	\$57,000 - \$64,000	GTC, Macedon Trails Committee, NYSDOT	GTC PTA & TIP ⁷	See page 84 and Map 9.
State Bike Route 5 Signage	EA	\$130	2	\$260	NYSDOT	State funds	See page 85.
"Share the Road" Signage	EA	\$400	4	\$1,600	NYSDOT	State funds	See page 85.
Widen Shoulders on Wayneport Road	LF	\$52	3,790	\$197,000	County Highway	County funds	From Route 31 to canal bridge. See page 85.
Widen Shoulders on Canandaigua Road	LF	\$52	4,445	\$232,000	Town Highway	municipal funds	From Route 31 to canal bridge. See page 85.
<i>Canal Bridge and Railroad Crossing Alternatives</i>							
Lobby NYSDOT for appropriate solution at Canandaigua Road	N/A	N/A	N/A	N/A	NYSDOT, SHPO, NYS Canal Corp	N/A	See Chapter 5.
Select Bridge Rehabilitation Alternative for Wayneport Road (see options below)	N/A	N/A	N/A	N/A	County, NYSDOT, SHPO, NYS Canal Corp	N/A	See Chapter 5.
#1 - Major Bridge Rehabilitation	EA	N/A	1	\$1.5M - \$3.0M	County, NYSDOT, SHPO, NYS Canal Corp	GTC TIP ⁷	See page 92 and Figure 5-6.
Sub Option A - New Pedestrian Bridge	EA	N/A	1	\$1.0M - \$1.5M	County, NYSDOT, SHPO, NYS Canal Corp	GTC TIP ⁷	See page 93 and Figure 5-6.
#2A - Bridge Replacement with Girder Bridge	EA	N/A	1	\$5.0M - \$7.0M	County, NYSDOT, SHPO, NYS Canal Corp	GTC TIP ⁷	See page 94 and Figure 5-6.
#2B - Bridge Replacement with Truss Bridge	EA	N/A	1	\$8.0M - \$10.0M	County, NYSDOT, SHPO, NYS Canal Corp	GTC TIP ⁷	See page 95 and Figure 5-6.
#3 - Railroad Grade Separation	EA	N/A	1	\$5.0M - \$7.0M	County, NYSDOT, SHPO, NYS Canal Corp	GTC TIP ⁷	See page 95 and Figure 5-6.

HIGH PRIORITY ACTION

Notes

- ¹ Planning-level engineer's estimate of probable cost, provided in 2010 dollars. Contingency costs are not included. Estimates are rounded to the nearest \$1,000.
- ² In addition to the Town and/or Village of Macedon.
- ³ Sources and programs are in a constant state of flux. See page 103 for more information.
- ⁴ For all improvements within the NYSDOT-owned ROW, additional studies and documentation would be required by the NYSDOT in order to justify the transportation benefits and costs at the time of implementation.
- ⁵ Cost estimates are based on length of corridor and do not include ROW acquisition, creek crossings, or other amenities.
- ⁶ Cost estimates are based on length of corridor and do not include ROW acquisition, road crossings, creek crossings, or other amenities. Feasibility study through GTC's PTA program is recommended as a first step and should be considered a high priority action. Studies typically cost between \$40,000 and \$75,000.
- ⁷ GTC TIP funds include all Federal surface transportation programs including, but not limited to, TEP, STP, NHS, Highway Bridge Program, and others.

APPENDIX A:



SUMMARY OF ZONING REGULATIONS

1. Overview

This section serves to summarize the regulatory language and requirements of the zoning districts located in the NYS Route 31 corridor. Zoning is different from land use in that it represents the regulatory districts established by local governments. The official land use classifications, as defined by New York State Office of Real Property Services, are not the same as zoning districts. Therefore, the existing land use and zoning maps are not identical.

For the Village and the Town of Macedon, the existing zoning classifications for the entire municipality are listed, and those districts that fall within the Study Area are described in more detail. The overview will provide a foundation upon which land use recommendations can be made to correspond with the vision and goals developed as part of the corridor study process.

2. Town of Macedon – Zoning Ordinance

The Town of Macedon has ten zoning classifications as outlined below:

AR-40:	Agricultural/Residential District
R-30:	Residential District
R-22:	Residential District
GC:	General Commercial District
ORM:	Office/Research/Manufacturing District
TPD:	Totally Planned Development District
NCD:	New Community Development District
MHD:	Mobile Home District
CCO:	Canal Corridor Overlay District
FPO:	Floodplain Overlay District

All but the Mobile Home District and New Community Development District are included in the Study Area.

AR-40: AGRICULTURAL/RESIDENTIAL DISTRICT

Permitted principal uses are (1) single family dwellings, (2) the raising, storing and packing of field, garden, orchard, nursery and vineyard crops and their sale, and (3) the keeping, breeding and raising of cattle (including dairies), sheep, goats and horses.

Specially permitted uses include essential services (excluding power plants), commercial excavation operations, private airstrips, camping grounds, public and semipublic uses and buildings, small businesses, commercial recreation low-density uses, and planned business centers.

The minimum lot size area for a single-family dwelling is 40,000 SF. The minimum lot size area for duplexes is 60,000 SF.

R-30: RESIDENTIAL DISTRICT

Permitted principal uses are (1) single family dwellings, (2) the raising, storing and packing of field, garden, orchard, nursery and vineyard crops and their sale, and (3) the keeping, breeding and raising of cattle (including dairies), sheep, goats and horses.

Specially permitted uses include essential services (excluding power plants), commercial excavation operations, private airstrips, camping grounds, public and semipublic uses and buildings, small businesses, commercial recreation low-density uses, and planned business centers.

The minimum lot size area for a single-family dwelling is 30,000 SF. The minimum lot size area for duplexes is 45,000 SF.

R-22: RESIDENTIAL DISTRICT

The purpose of the R-22 Residential District is to provide an opportunity for new residential development to occur at medium densities in areas where water and sewer services are available, in locations where adequate highway facilities exist, commercial and business services are conveniently located and in areas where such densities will not adversely impact or create a burden for existing development. Permitted principal uses include (1) single-family dwellings not to exceed one principal structure per lot and (2) cluster residential developments of one-family detached dwellings.

Specially permitted uses include essential services (excluding power plants, maintenance buildings and storage yards), public and semipublic uses and buildings, and multiple-family developments.

The minimum lot size area for a single-family dwelling is 22,000 SF. The minimum lot size area for a 2-family dwelling is 33,000 SF. The minimum lot size area for cluster residential developments is 25 acres.

GC: GENERAL COMMERCIAL DISTRICT

Permitted uses include retail business establishments; personal service establishments; theaters and assembly halls; newspaper printing; the sale of new and used automobiles; bus and railroad stations; laundromats and dry cleaners; building supply and farm equipment stores and retail nurseries; electrical, heating, plumbing or woodworking shops; assembling, converting, altering, finishing, cleaning or any other processing of products; public markets; funeral parlors; hotels and motels; commercial storage buildings providing space for rent; veterinary animal clinics or offices with interior operations only; and other business uses similar in nature to the above.

Specially permitted uses include essential services (excluding power plants, maintenance buildings and storage yards); motor vehicle service stations and auto repair shops; car wash establishments; restaurants and taverns; off-street parking above and below ground; commercial recreation, high-density uses; commercial recreations, low-density uses, and; multiple-family developments.

ORM: OFFICE/RESEARCH/MANUFACTURING DISTRICT

Permitted principal uses include any use of industrial nature which involves only the processing, assembly, compounding or packaging of previously prepared or refined materials. Residential uses are prohibited.

Special uses include essential services (excluding power plants); motor vehicle service stations and auto repair shops; planned business centers; above and below ground off-street parking; commercial recreation, high-density uses; commercial recreations, low-density uses, and; solid waste landfills.

TPD: TOTALLY PLANNED DEVELOPMENT DISTRICT

The intent of the Totally Planned Development District is to provide flexible land use and design regulations so that large scale neighborhoods may be developed that incorporate a variety of residential

types and nonresidential uses. The minimum area for this type of district is 100 acres. Permitted uses include residential uses and service and other nonresidential uses, such as retail business establishments and person service establishments. Site plan approval is more involved than for other districts, due to the scale of this type of development.

FPO: FLOODPLAIN OVERLAY DISTRICT

The purpose of this overlay district is to regulate uses which create water or erosion hazards; protect against flood damage; control the alteration of natural floodplains, stream channels and natural protective barriers; control filling, grading, dredging and other development; regulate the construction of flood barriers which will unnaturally divert floodwaters; and qualify and maintain for participation in the National Flood Insurance Program.

CCO: CANAL CORRIDOR OVERLAY DISTRICT

The purpose of this overlay district is to encourage development along the Erie/Barge Canal corridor, preserving its historic nature, conserving the variety of extant wildlife and promoting public access to the canal corridor for the benefit of Town residents.

3. Village of Macedon – Zoning Ordinance

The Village of Macedon zoning ordinance was completed in 1989 and includes six zoning classifications:

- R-1: Residential District
- R-2: Residential District
- C: Commercial District
- I: Industrial District
- FP-O: Flood Plain Overlay Districts
- DT-O: Downtown Main Street Overlay Districts

R-1: RESIDENTIAL DISTRICT

The R-1 Residential District permits single family dwellings, not to exceed one principal structure per lot. Permitted accessory uses include duplexes. Specially permitted uses include: essential services excluding power plants, maintenance buildings, and storage yards; home occupations; windmills; public and semi-public uses and buildings, and; cluster residential development.

The minimum floor area for a one story building with 1-2 bedrooms is 800 SF. The minimum floor area for a one-story building with three or more bedrooms is 1,000 SF. The minimum floor area for a 1 ½ story building is 1,200 SF. The minimum floor area for a two story building is 1,500 SF. These requirements are for residential units in R-1 and R-2.

R-2: RESIDENTIAL DISTRICT

The R-2 Residential District permits single and two family dwellings, not to exceed one principal structure per lot, and duplexes. Specially permitted uses include: essential services excluding power plants, maintenance buildings, and storage yards; home occupations; windmills; public and semi-public uses and buildings, and; cluster residential development.

C: COMMERCIAL DISTRICT

The C-Commercial District permits retail business establishments and personal service establishments which are clearly of a neighborhood service character such as grocery stores, drug stores, clothing stores, hardware stores, beauty shops, theaters and assembly halls, and automobile sales (though some additional restrictions apply for auto sales). Special uses include essential services, motor vehicle service stations and car wash establishments, and adult entertainment businesses.

I: INDUSTRIAL DISTRICT

The I-Industrial District allows light industrial uses that do not result in or cause odor, noise, glare or vibration beyond the property line, hazard of fire or explosion, or violation of any environmental or health standard or regulations. Special uses include essential services, motor vehicle service stations and car wash establishments.

FP-O: FLOOD PLAIN OVERLAY DISTRICTS

The purpose of the Flood Plain Overlay District is to regulate uses that cause water or erosions hazards; require that uses vulnerable to floods be protected against flood damage at the time of initial construction; control the alteration of natural floodplains, stream channels and natural barriers; control filling, grading and dredging; regulate the unnatural diversion of floodwaters, and; qualify and maintain for participation in the National Flood Insurance Program. The overlay is located over all areas of special flood hazard in the Village of Macedon. Projects in this district require a Flood Plain Development Permit and undergo a different review process than projects not in the FP-O District.

DT-O: DOWNTOWN MAIN STREET OVERLAY DISTRICTS

The Downtown Main Street Overlay District is included in the zoning code but the Village Zoning Ordinance does not specify additional requirements or regulations for this district.

APPENDIX B:



SUMMARY OF RECENT PLANNING INITIATIVES

1. Town of Macedon, Comprehensive Plan, 1999

The Town completed a Comprehensive Plan in 1999. The plan identifies six community goals related to accommodating new development, preserving the rural character of the town, reinforcing historic patterns of land use, preserving agricultural land, and focusing commerce in the village core.

Other relevant objectives related to land use and transportation include the desire to:

- Maintain greenways along major streets;
- Direct retail development to appropriate locations based on intensity as measured by scale, traffic generation, operational characteristics, and population density;
- Improve north-south transportation;
- Limit direct road and driveway access to major streets; and
- Require provisions for pedestrian, bicycle and motor vehicle circulation including sidewalks and linkages between neighborhoods and from residential areas to educational and recreational facilities, shopping, and employment centers.

The plan outlines the need to direct new commercial and retail development to the Village and along the NYS Route 31 corridor and designates approximately 430 acres in the Land Use Plan to such commercial activities.

The 1999 plan also highlights that there is only one two-lane crossing over the Erie Canal, which limits the long-term accessibility of Gananda residents to services and facilities along NYS Route 31. The Plan recommends an additional bridge to improve north/south connectivity and to increase accessibility to commercial and recreational activities in the village.

2. Village of Macedon, Master Plan, 1996

This plan updated a 1971 Master Plan and, although outdated, indicates the Village's preferences regarding future growth in the Village. The plan discusses the need to alleviate traffic problems along NYS Route 31. The plan also discusses the impact of new large scale retail and commercial development, which has resulted in the Village business evolving into a service oriented district, with law offices, real estate brokers, doctors, dentists, insurance agents, etc. The Village aimed to stimulate economic development by opening up property along the Erie Canal to commercial development and also looked to draw Gananda residents into the Village to do business. Specific projects identified in the plan include:

- Open up the Erie Canal to commercial development;
- Improve street lighting and build more sidewalks;
- Development of a linear park from Gravino Park west to Poplar Street;
- Replace trees on Main Street in the business district;
- Mitigate congestion on NYS Route 31 on the west side of the Village;
- Install a traffic light at West Street and NYS Route 31; and
- Divert Erie Street South to the traffic light at NYS Route 350 (complete); and
- Widen the corner of NYS Route 31 and Erie Street South (complete).

3. Village of Macedon, New York State Route 31 Circulation, Accessibility and Parking Study, 2008

The Genesee Transportation Council and the Village of Macedon completed a circulation, accessibility and parking (CAP) study in 2008 which aimed to develop feasible transportation planning and design concepts to enhance the Village. The plan summarizes known issues and develops four alternatives and several additional parking and accessibility alternatives to improve safety, enhance the Village gateway, increase pedestrian accommodations, increase traveler exposure to storefronts and improve parking.

The preferred alternative includes:

- Modest streetscape improvements within the existing 8-10 foot wide pedestrian realm between the existing curb lines and building storefronts;
- Two 11-foot travel lanes;
- An 11-foot two way left turn lane delineated by the flush curb;
- Two five-foot bike lanes; and
- Two eight-foot parallel parking lanes defined by bulb-outs.

4. Long Range Transportation Plan (LRTP) for the Genesee-Finger Lakes Region: 2007-2027 Update, 2007

The LRTP was developed by the Genesee Transportation Council, which is the Metropolitan Planning Organization (MPO) for the nine-county area to guide transportation improvements in the region over twenty years. It provides the basis for the MPO's annual work program and seeks to advance the following seven goals:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency.
2. Increase the safety of the transportation system for motorized and non-motorized users.
3. Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and non-motorized users.
4. Increase the accessibility and mobility options available to people and freight.
5. Protect and enhance the natural environment, cultural heritage and community appearance, and promote energy conservation.
6. Promote efficient system management and operations.
7. Facilitate partnerships in planning, financing, and the execution of transportation initiatives.

APPENDIX C:



EXISTING TURNING MOVEMENT MAPS

APPENDIX D:



BUILD-OUT ANALYSES TABLES & MAPS

Table D-1. Weekday Morning and Evening Level of Service and Delays
2019 Market-Based Build-Out Scenario I Conditions

Number	Intersection	Approach		2019 AM		2019 PM	
				LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
1	NYS Route 31 and Macedon Parkway (Lowe's Access) (Unsignalized)	Eastbound	L	B	12	C	15
		Southbound	L	F	>300	F	>300
		Southbound	R	C	24	E	45
2	NYS Route 31 and Wayneport Road (Signalized)	Eastbound	L	D	42	F	259
		Eastbound	TR	B	12	F	297
		Westbound	L	A	7	D	43
		Westbound	TR	D	51	F	159
		Northbound	LTR	D	42	F	297
		Southbound	LT	C	27	F	131
		Southbound	R	B	11	B	16
		Overall		C	34	F	221
3	NYS Route 31 and the Wal-Mart driveway (Signalized)	Eastbound	L	C	28	F	310
		Eastbound	TR	A	8	F	268
		Westbound	L	A	4	A	6
		Westbound	T	B	17	F	158
		Westbound	R	A	1	A	2
		Northbound	LTR	B	20	B	15
		Southbound	L	C	29	D	48
		Southbound	R	A	8	B	18
		Overall		B	14	F	192
4	NYS Route 31 and Wilson Road (Unsignalized)	Eastbound	L	B	14	C	24
		Westbound	L	A	9	C	16
		Northbound	LTR	F	>300	F	>300
		Southbound	LT	F	>300	F	>300
		Southbound	R	D	28	F	198
5	NYS Route 31 and Canandaigua Road (Signalized)	Eastbound	L	C	33	F	>300
		Eastbound	T	B	11	F	140
		Eastbound	R	A	2	A	3
		Westbound	L	A	7	F	103
		Westbound	TR	C	35	C	34
		Northbound	LT	F	214	F	>300
		Northbound	R	A	9	B	15
		Southbound	LTR	C	20	F	>300
		Overall		D	49	F	>300

6	NYS Route 31 at Ontario Center Road (NYS Routes 31F and 350) (Signalized)	Eastbound	L	C	20	F	>300
		Eastbound	TR	B	13	F	96
		Westbound	L	A	8	B	14
		Westbound	T	C	22	B	19
		Westbound	R	A	2	A	2
		Northbound	L	B	20	D	49
		Northbound	TR	A	9	B	14
		Southbound	L	C	28	D	38
		Southbound	TR	A	9	B	18
		Overall		B	17	F	84
7	Wayneport Road and Wilkinson Road (Unsignalized)	Eastbound	LTR	B	11	C	18
		Westbound	LTR	B	11	B	13
		Northbound	LTR	A	0	A	0
		Southbound	LTR	A	1	A	2
8	Wayneport Road and Quaker Road (Unsignalized)	Westbound	LT	A	7	A	8
		Northbound	LR	B	13	B	14
9	NYS Route 31F and NYS Route 350 (Signalized)	Eastbound	L	B	11	A	8
		Eastbound	TR	A	6	B	13
		Westbound	L	A	9	B	13
		Westbound	TR	A	8	A	8
		Northbound	L	A	11	B	12
		Northbound	TR	A	8	A	10
		Southbound	L	A	6	A	10
		Southbound	TR	A	6	A	10
		Overall		A	8	B	11

Table D-2. Saturday Mid-Day Level of Service and Delays
2019 Market-Based Build-Out Scenario I Conditions

Number	Intersection	Approach		2019 Saturday Mid-Day	
				LOS	Delay (sec/veh)
1	NYS Route 31 and Macedon Parkway (Lowe's Access) (Unsignalized)	Eastbound	L	C	23
		Southbound	L	F	>300
		Southbound	R	F	58
2	NYS Route 31 and Wayneport Road (Signalized)	Eastbound	L	F	130
		Eastbound	TR	F	254
		Westbound	TR	E	67
		Westbound	L	F	247
		Northbound	LTR	F	117
		Southbound	LT	E	66
		Southbound	R	C	22
		Overall		F	210
3	NYS Route 31 and the Wal-Mart driveway (Signalized)	Eastbound	L	F	>300
		Eastbound	TR	F	232
		Westbound	L	A	6
		Westbound	T	F	209
		Westbound	R	A	2
		Northbound	LTR	B	14
		Southbound	L	E	61
		Southbound	R	C	28
		Overall		F	215
4	NYS Route 31 and Wilson Road (Unsignalized)	Eastbound	L	F	66
		Westbound	L	B	15
		Northbound	LTR	F	>300
		Southbound	L	F	>300
		Southbound	R	F	>300
5	NYS Route 31 and Canandaigua Road (Signalized)	Eastbound	L	F	>300
		Eastbound	T	E	80
		Eastbound	R	A	2
		Westbound	L	F	84
		Westbound	TR	F	96
		Northbound	LT	F	>300
		Northbound	R	B	13
		Southbound	LTR	F	>300
		Overall		F	>300

Table D-3. Weekday Morning and Evening Level of Service and Delays
2019 Market-Based Build-Out Scenario / Conditions with Mitigation Measures

Number	Intersection	Approach		2019 AM		2019 PM	
				LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
1	NYS Route 31 and Macedon Parkway (Lowe's Access) (Signalized) •Install simple two-phase signal •Additional EB and WB thru lanes	Eastbound	L	A	5	B	19
		Eastbound	T T	A	3	B	11
		Westbound	T T	A	1	A	8
		Westbound	R	A	0	A	2
		Southbound	L	D	45	D	51
		Southbound	R	B	14	B	14
		Overall		A	4	B	13
2	NYS Route 31 and Wayneport Road (Signalized) •Additional EB and WB thru lanes •Install exclusive NB right turn lane •Modify signal phasing to include protected left turns from Rte 31	Eastbound	L	A	9	D	40
		Eastbound	T TR	A	10	E	73
		Westbound	L	A	3	C	21
		Westbound	T TR	A	6	D	37
		Northbound	LT	D	54	D	52
		Northbound	R	A	9	A	5
		Southbound	LT	E	57	E	66
		Southbound	R	A	9	A	8
		Overall		B	14	D	53
3	NYS Route 31 and the Wal-Mart driveway (Signalized) •Additional EB and WB thru lanes •Modify signal phasing to include EB protected left turn	Eastbound	L	A	5	C	26
		Eastbound	T TR	A	3	C	27
		Westbound	L	A	2	A	8
		Westbound	T T	A	4	B	16
		Westbound	R	A	1	A	1
		Northbound	LTR	C	35	C	20
		Southbound	LT	D	51	E	56
		Southbound	R	B	12	A	6
		Overall		A	6	C	23
4	NYS Route 31 and Wilson Road (Signalized) •Install signal with protected left turns from Route 31 •Additional EB and WB thru lanes	Eastbound	L	A	9	E	57
		Eastbound	T TR	A	3	B	14
		Westbound	L	A	4	A	7
		Westbound	T T	A	12	B	17
		Westbound	R	A	2	A	2
		Northbound	LTR	D	35	C	25
		Southbound	LT	D	49	F	89
		Southbound	R	B	10	C	20
		Overall		B	11	C	22

5	NYS Route 31 and Canandaigua Road (Signalized) •Additional EB and WB thru lanes •Install exclusive SB left and right turn lanes •Modify signal phasing to include left turn arrows on all four approaches	Eastbound	L	B	14	D	36
		Eastbound	T T	B	18	C	29
		Eastbound	R	A	4	A	6
		Westbound	L	B	12	C	29
		Westbound	T TR	C	28	D	41
		Northbound	L	C	21	D	49
		Northbound	TR	B	17	C	32
		Southbound	L	B	19	C	26
		Southbound	T	C	35	E	57
		Southbound	R	B	11	B	12
		Overall		C	22	C	33
6	NYS Route 31 at Ontario Center Road (NYS Routes 31F and 350) (Signalized) •Additional EB and WB thru lanes •Install exclusive EB and SB right turn lanes	Eastbound	L	B	15	F	110
		Eastbound	T T	B	12	C	21
		Eastbound	R	A	3	A	1
		Westbound	L	A	8	B	12
		Westbound	T T	B	18	B	12
		Westbound	R	A	2	A	1
		Northbound	L	C	24	D	45
		Northbound	TR	B	12	C	22
		Southbound	L	C	35	E	70
		Southbound	T	C	21	D	36
		Southbound	R	A	6	B	14
		Overall		B	16	C	28

Table D-4. Saturday Mid-Day Level of Service and Delays
2019 Market-Based Build-Out Scenario / Conditions with Mitigation Measures

Number	Intersection	Approach		2019 Saturday Mid-Day	
				LOS	Delay (sec/veh)
1	NYS Route 31 and Macedon Parkway (Lowe's Access) (Signalized) •Install simple two-phase signal •Additional EB and WB thru lanes	Eastbound	L	F	87
		Eastbound	T T	B	12
		Westbound	T T	A	6
		Westbound	R	A	1
		Southbound	L	E	60
		Southbound	R	B	17
		Overall		B	18
2	NYS Route 31 and Wayneport Road (Signalized) •Additional EB and WB thru lanes •Install exclusive NB right turn lane •Modify signal phasing to include protected left turns from Rte 31	Eastbound	L	C	29
		Eastbound	T TR	C	25
		Westbound	L	C	22
		Westbound	T TR	C	23
		Northbound	LT	E	72
		Northbound	R	A	6
		Southbound	LT	E	67
		Southbound	R	B	13
		Overall		C	28
3	NYS Route 31 and the Wal-Mart driveway (Signalized) •Additional EB and WB thru lanes •Modify signal phasing to include EB protected left turn	Eastbound	L	C	32
		Eastbound	T TR	B	18
		Westbound	L	B	18
		Westbound	T T	D	55
		Westbound	R	A	4
		Northbound	LTR	B	18
		Southbound	LT	E	56
		Southbound	R	A	8
		Overall		C	33
4	NYS Route 31 and Wilson Road (Signalized) •Install signal with protected left turns from Route 31 •Additional EB and WB thru lanes	Eastbound	L	F	169
		Eastbound	T TR	B	12
		Westbound	L	A	9
		Westbound	T T	C	25
		Westbound	R	A	4
		Northbound	LTR	C	33
		Southbound	LT	F	121
		Southbound	R	C	26
		Overall		C	35

5	NYS Route 31 and Canandaigua Road (Signalized) •Additional EB and WB thru lanes •Install exclusive SB left and right turn lanes •Modify signal phasing to include left turn arrows on all four approaches	Eastbound	L	E	63
		Eastbound	T T	C	24
		Eastbound	R	A	5
		Westbound	L	C	28
		Westbound	T TR	D	48
		Northbound	L	E	72
		Northbound	TR	B	13
		Southbound	L	C	23
		Southbound	T	D	54
		Southbound	R	D	45
		Overall		D	39

Table D-5. Weekday Morning and Evening Level of Service and Delays
2019 Market-Based Build-Out Scenario II Conditions

Number	Intersection	Approach		2019 AM		2019 PM	
				LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
1	NYS Route 31 and Macedon Parkway (Lowe's Access) (Signalized) •Install simple two-phase signal	Eastbound	L	A	6	B	12
		Southbound	L	C	22	D	42
		Southbound	R	B	13	A	8
		Overall		B	11	C	28
2	NYS Route 31 and Wayneport Road (Signalized)	Eastbound	L	A	9	D	38
		Eastbound	TR	A	8	E	80
		Westbound	L	A	6	D	53
		Westbound	TR	B	15	B	18
		Northbound	LTR	C	25	E	76
		Southbound	LT	B	19	D	45
		Southbound	R	A	6	A	8
		Overall		B	13	D	53
3	NYS Route 31 and the Wal-Mart driveway (Signalized)	Eastbound	L	A	5	E	73
		Eastbound	TR	A	4	E	56
		Westbound	L	A	3	A	5
		Westbound	T	A	8	B	18
		Westbound	R	A	2	A	2
		Northbound	LTR	B	19	B	15
		Southbound	L	C	21	C	34
		Southbound	R	A	9	A	7
		Overall		A	7	D	38
4	NYS Route 31 and Wilson Road (Signalized) •Install simple two-phase signal	Eastbound	L	B	11	B	13
		Westbound	L	A	6	B	13
		Northbound	LTR	B	15	C	26
		Southbound	LT	B	20	D	53
		Southbound	R	A	7	A	9
		Overall		A	9	C	24
5	NYS Route 31 and Canandaigua Road (Signalized)	Eastbound	L	B	12	E	58
		Eastbound	T	B	11	E	64
		Eastbound	R	A	2	A	4
		Westbound	L	A	7	F	107
		Westbound	TR	C	22	B	19
		Northbound	LT	C	28	F	106
		Northbound	R	A	7	A	9
		Southbound	LTR	B	10	C	33
		Overall		B	17	D	50

6	NYS Route 31 at Ontario Center Road (NYS Routes 31F and 350) (Signalized)	Eastbound	L	A	9	B	17
		Eastbound	TR	A	9	C	23
		Westbound	L	A	7	B	12
		Westbound	T	B	11	B	11
		Westbound	R	A	2	A	2
		Northbound	L	B	15	C	24
		Northbound	TR	A	8	B	14
		Southbound	L	B	19	C	34
		Southbound	TR	A	6	A	10
		Overall		B	10	B	18
7	Wayneport Road and Wilkinson Road (Unsignalized)	Eastbound	LTR	B	10	B	14
		Westbound	LTR	B	10	B	12
		Northbound	LTR	A	0	A	0
		Southbound	LTR	A	1	A	1
8	Wayneport Road and Quaker Road (Unsignalized)	Westbound	LT	A	6	A	7
		Northbound	LR	B	11	B	12
9	NYS Route 31F and NYS Route 350 (Signalized)	Eastbound	L	A	8	A	7
		Eastbound	TR	A	5	B	11
		Westbound	L	A	8	A	10
		Westbound	TR	A	7	A	7
		Northbound	L	A	9	B	10
		Northbound	TR	A	7	A	7
		Southbound	L	A	6	A	9
		Southbound	TR	A	5	A	9
		Overall		A	7	A	9

Table D-6. Saturday Mid-Day Level of Service and Delays
2019 Market-Based Build-Out *Scenario II* Conditions

Number	Intersection	Approach		2019 Saturday Mid-Day	
				LOS	Delay (sec/veh)
1	NYS Route 31 and Macedon Parkway (Lowe's Access) (Signalized)	Eastbound	L	D	54
		Southbound	L	D	47
		Southbound	R	A	6
		Overall		C	22
2	NYS Route 31 and Wayneport Road (Signalized)	Eastbound	L	F	108
		Eastbound	TR	C	25
		Westbound	TR	C	22
		Westbound	L	C	30
		Northbound	LTR	E	68
		Southbound	LT	D	39
		Southbound	R	B	13
		Overall		C	30
3	NYS Route 31 and the Wal-Mart driveway (Signalized)	Eastbound	L	D	52
		Eastbound	TR	B	16
		Westbound	L	B	13
		Westbound	T	E	69
		Westbound	R	A	3
		Northbound	LTR	C	22
		Southbound	LT	E	59
		Southbound	R	B	15
		Overall		D	39
4	NYS Route 31 and Wilson Road (Signalized)	Eastbound	L	D	37
		Westbound	L	A	8
		Northbound	LTR	B	20
		Southbound	L	C	31
		Southbound	R	A	7
		Overall		B	19
5	NYS Route 31 and Canandaigua Road (Signalized)	Eastbound	L	E	55
		Eastbound	T	C	23
		Eastbound	R	A	2
		Westbound	L	B	17
		Westbound	TR	C	27
		Northbound	LT	E	59
		Northbound	R	A	5
		Southbound	LTR	B	14
		Overall		C	27

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