Feasibility Assessment and Design Recommendations

Route 104 Corridor Trail
Monroe and Wayne Counties, New York

Prepared for:

Genesee Transportation Council
City Place - 50 West Main Street - Suite 8112
Rochester, New York 14614
Telephone: 585.232.6240
Facsimile: 585.262.3106

Prepared by:

edr Companies
274 North Goodman Street
Rochester, New York 14607
Telephone: 585.271.0040
Facsimile: 585.271.0042

August 2011

edr COMPANIES

TABLE OF CONTENTS

Route 104 Corridor Trail Feasibility Study

APPENDICES

Route 104 Corridor Trail Feasibility Study

LIST OF FIGURES

Route 104 Corridor Trail Feasibility Study

LIST OF TABLES
Route 104 Corridor Trail Feasibility Study

EXECUTIVE SUMMARY
Route 104 Corridor Trail Feasibility Study

1

This report summarizes the analysis and preliminary design studies of the Route 104 Corridor Trail Feasibility Study. The Genesee Transportation Council (GTC) contracted with **edr** to conduct site analysis, assess feasibility, and produce concept-level planning and design for a multi-use trail in the Route 104 Corridor in the Towns of Webster, Ontario, Williamson, and Sodus in Monroe and Wayne Counties, New York. Preliminary cost estimates and guidelines for the design and implementation of the trail were prepared.

Financial assistance for the preparation of this report was provided by the Federal Highway Administration (FHWA) through GTC's Unified Planning Work Program (UPWP). The Genesee Transportation Council is solely responsible for its content and the views and opinions expressed herein do not necessarily reflect the official views or policy of the U.S. Department of Transportation. The Genesee Transportation Council assures that no person shall, on the grounds of race, color, national origin, disability, age, gender, or income status, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity. GTC further assures every effort will be made to ensure nondiscrimination in all of its programs and activities, whether those programs and activities are federally funded or not.

Overview. The purpose of the Route 104 Corridor Trail Feasibility Study is to assess the feasibility of developing a 17-mile Americans with Disabilities Act (ADA)-compliant multi-use trail within the highway right-of-way and/or parallel with New York State Route 104 (Route 104). Route 104 is a 182.41-mile long east–west state highway in Upstate New York. The study area for the Route 104 Corridor Trail begins at the eastern end of the existing Route 104 Trail in the Town of Webster and extends east through the Town of Ontario, the Town of Williamson, and part of the Town of Sodus, ending at the western boundary of the Village of Sodus.

With the growing national interest in active transportation and complete streets, this was a very interesting and timely case study. Incorporating an active transportation facility into a heavily auto-dependent environment made for a study that, in some ways, was a rural application of the complete streets approach to transportation planning. The project was guided by the following objectives:

1. Provide active transportation between community resources;
2. Provide universal access;
3. Maintain user safety;
4. Offer a high-quality user experience;
5. Protect and enhance existing resources; and
6. Emphasize sustainability & maintainability.

The planning process included outreach to both the general public and to key stakeholders. Representatives from all affected municipalities and from interested trail organizations served on the advisory committee. The general public was invited to two public information meetings, and meetings were held with stakeholders who may be affected by the proposed trail. The Route 104 Corridor Trail Feasibility Study builds on a number of previously completed planning initiatives in Monroe and Wayne Counties. The study has been conducted with bicyclists and pedestrians considered to be the primary user groups, but other trail users were also considered.

Inventory and Analysis. The feasibility study involved extensive inventory and analysis of existing conditions in the Route 104 Trail Corridor. The topics addressed include the physical and environmental conditions of the study area, property ownership, circulation and transportation, and an assessment of key issues. The following environmental conditions are summarized: topography, soils, ecological character, drainage and water-related issues, and land use.

Property ownership adjacent to the trail corridor was assessed, as well as easements and rights of way within the study area. A significant number of properties (and their associated driveways) are located in the area immediately adjacent to the Route 104 R.O.W. Other easements and rights of way were inventoried within the study area that could potentially be used to accommodate a multi-use trail. These include County Road 103/ Ridge Road, Ontario-Midland Railroad, and property that is owned/accessed by the Town of Ontario for trail development.

Over the past few years, the Town of Ontario has been developing an east-west trail across the Town. Town officials have negotiated access, used Town land, or acquired new properties to create 5.5 miles of multi-use trail. 3.6 miles are built or in development and 1.9 miles are in the process of negotiation. The planned Ontario trail extends from Dean Parkway in the west to just beyond Furnace Road in the east. Town officials expressed their desire to connect the Route 104 Corridor Trail to this trail, rather than create a parallel trail nearby.

In regards to circulation and transportation, the following characteristics were assessed during the study: pedestrian access, sidewalks, trails, roadways, intersections, and mass transit. All of the roads that intersect with Route 104 within the study area boundary were inventoried and assessed. The intersection summary includes ownership, functional classification, general physical and operational characteristics, and average daily traffic volume (ADT). Basic gap studies were conducted at four of the road crossings along the Railroad Trail/Town of Ontario Trail alignment. Roads were selected based on the ADT.

There are a number of factors to consider when locating a trail. Topography, soils, ecological character, habitat, drainage, wetlands, land use, destinations, property ownership, access, circulation and transportation are all matters that were evaluated. Of these factors, only a few presented significant constraints. Providing safe access to a trail located in the Route 104 R.O.W. did not seem promising once the constraints were mapped, which led to the consideration of other solutions.

Alternatives. The alternatives that are described in detail are not the alternatives that were anticipated at the beginning of the study. When it was determined that the right-of-way was not the best place for a trail, there was a need to think differently about possible solutions. The goal of the study – to have a safe corridor where non-motorized users could travel between Sodus and Webster – could be achieved in a few different ways.

Alternative 1 is a multi-use trail located in the expanded right-of-way of the Ontario Midland Railroad. In addition to being safer, the trail corridor is more scenic than Route 104. According to authorities at Ontario Midland, who operate in a corridor owned by Rochester Gas and Electric/Iberdrola USA, a 25-foot expansion of the railroad right-of-way is planned. The proposed trail could easily fit into this enlarged right-of-way, and would allow a public benefit to be associated with a right-of-way expansion that might be controversial to some landowners.

Alternative 2 offers an active transportation package that expands on the existing transportation network, which is a different type of solution altogether. Instead of creating a new trail, this alternative proposes a package of transportation enhancements that would make Ridge Road more bicycle and pedestrian friendly. The proposal is a rural application of complete streets principles, and though using a different approach, still achieves many of the objectives of the study. In addition to improvements to Ridge Road, this alternative recommends improving bicycle and pedestrian connections between Ridge Road and Route 104.

The other alternatives considered, which are not recommended, are multi-use trail alignments located on the north and the south sides of the Route 104 right-of-way. The proximity to Route 104 would allow for good access to many destinations, but the location would create a less desirable trail user experience. Trail users would have to deal with

truck traffic, noise, and air quality issues related to the highway. This alternative would have significant access and safety concerns related to the number of property owners and associated driveways. Drainage is also a concern. In addition, most of the destinations are located on the south side of the highway. Providing access to these destinations from a trail on the north side of Route 104 might create unsafe crossings.

A feasibility assessment matrix was developed to evaluate the different alternatives. The matrix utilizes the following criteria: environmental impacts, community connectivity, compatibility with other plans, public support, people to benefit from trail, ownership and access, safety, construction costs, and sustainability. Alternatives 1 and 2 both received a similar number of points (22 and 21 stars, respectively). The Route 104 R.O.W. Trails (North and South) received a similar number of points to the No-Build Alternative (16 and 15 stars, respectively).

Preferred Trail Alignment. The preferred trail alignment is Alternative 1, the Railroad Trail. The trail would begin where the existing Route 104 trail ends, at the southwestern corner of the intersection of Salt Road and Route 104. The trail would cross Salt Road and head north along the eastern side of Salt Road, traveling under Route 104 to the railroad right-of-way. At the railroad right-of-way, the trail would head due east along the northern side of the tracks for 1.25 miles until the trail reaches County Line Road and the Town of Ontario.

In the Town of Ontario, the trail continues in the railroad corridor for approximately one-half mile to Dean Parkway, where the trail heads north for 700 feet. At the intersection with Timothy Lane, the trail turns in an easterly direction, running adjacent to Timothy Lane. The trail then turns slightly to the north and continues in an easterly direction to Lakeside Road. From here, the trail trends slightly south while continuing in an easterly direction. At Slocum Road, the trail turns and heads in a northeasterly direction for approximately 0.7 miles in the RG&E utility corridor.

Approximately 400 feet from Kenyon Road, the trail turns due east for 350 feet, and then turns southeast/east across the old Town landfill. The trail crosses Ontario Center Road and travels due east along the long narrow pond in Casey Park to the park entrance at Knickerbocker Road. The trail continues to travel due east, after crossing Knickerbocker, for approximately 1,100 feet, then turns due south for about 700 feet. At this point, the trail turns to the east again and goes across Town land to Furnace Road. The trail heads south along Furnace Road for approximately 700 feet. From Furnace Road, the trail turns and heads to the east for about 2,200 feet. From this point, the trail heads south to the railroad corridor again, and continues for 0.80 miles to the town line at Fisher Road.

The 5.5-mile Williamson section of trail begins at Fisher Road and continues in the railroad corridor to Tuckahoe Road. A slight jog to the north or south will be necessary for 0.75 miles between Tuckahoe and Lake Avenue. At Lake Avenue, the trail jogs back to the north side of the railroad tracks and continues on to East Townline Road. (However, between Lake Avenue and East Townline Road, there are potential choke points that will need to be addressed in later design development phases.) From East Townline Road, the trail then travels 3.25 miles to the intersection of Route 104 and Route 88. This entire section is in the railroad corridor. The estimated cost for the entire trail development project, including design, construction and permitting can be seen in the following chart.

Town	Proposed Trail Length	Basic Trail Cost – Stone Dust, No Gateways	Enhanced Trail Cost – Asphalt and Gateways
Webster	1.4 miles	$504,914	$555,876
Ontario	6.8 miles	$2,493,425	$2,629,421
Williamson	5.5 miles	$2,560,907	$2,710,499
Sodus	3.3 miles	$1,716410	$1,826,592
Total	**17.0 miles**	**$7,357,767**	**$7,804,499**

Trail Design. A 10' wide trail, composed of either stone dust or asphalt, is recommended. Helical-pier boardwalks would be used to traverse federal and state wetlands, streams, and poorly drained areas. A drainage swale with native wet meadow plants would be located between the tracks and the trail to address drainage needs and to provide separation between trail users and the railroad tracks. An old field condition would be maintained in this area in order to keep open sight lines for safety and visibility. At a minimum, the trail would be located 50 feet away from the railroad tracks. Locating the trail in the railroad corridor maximizes natural resources, views, and rural scenic value. The trail is close enough to commercial areas to make it a useful transportation connector, but is far enough away from Route 104 to protect the safety of trail users, and to enhance the scenic quality of the trail.

Phasing. The proposed Route 104 Corridor Trail is a lengthy multi-use trail that passes through four different towns and two different counties, making it likely that the trail will be built in multiple phases. A phasing plan has been developed, with phases breaking at or near municipal boundaries. The first phase that will be necessary is someone to lay the groundwork for a multi-jurisdictional trail project. The trail will need a management structure, access agreements, and funding. After these pieces are in place, trail development can commence.

The following phasing plan seemed the most appropriate at the time of the study, but is subject to review as future conditions change.

1. Groundwork – management structure, access agreements, and funding.
2. The Town of Ontario, with sections of trail already built or under development, is the most logical location for "official" trail development to begin.
3. Once the trail is completed in the Town of Ontario, the next logical piece of trail to develop is the Webster segment. This section of trail will connect the existing Route 104 Trail to the portion of trail in Ontario.
4. The next phase of trail development will be the section located in the Town of Williamson. This segment would extend the trail from Webster through Ontario and Williamson.
5. The final phase of trail development would extend the trail into the Town of Sodus. This section would connect Webster and Sodus, and provide more than 23 miles of continuous trail. (23 miles includes the existing Route 104 Trail in Webster.)

After construction funding is acquired, the necessary environmental review and permitting would be completed for each phase before construction commences. It is important to remember that each trail segment should function as a stand-alone trail until the entire trail is connected. For this reason, trailheads and connections to existing streets have been identified for each phase. Each trailhead would have designated parking for approximately 10 cars, and a kiosk with trail maps and information.

In addition, as trail development may take a number of years, a combination of Alternatives 1 and 2 could be used to provide an interconnected active transportation corridor. The active transportation package, featuring a shared roadway along Ridge Road, could have an on-street connection to completed portions of the trail. For example, while one section is being completed, another town might opt to complete the less expensive improvements to Ridge Road while they seek funding for the trail. This would provide an interim route while the trail is completed.

Implementation. An implementation section is included in the report that addresses potential funding sources, trail construction standards, trail user guidelines, maintenance and management procedures, and a summary of factors not addressed during the study. When constructed, the Route 104 Corridor Trail will provide an exceptional active transportation facility in a heavily auto-dependent environment. This, in turn, will provide a myriad of benefits both for trail users, and for each community in which the trail will be located.

ACKNOWLEDGEMENTS

Route 104 Corridor Trail Feasibility Study

2

GENESEE TRANSPORTATION COUNCIL

Richard Perrin, Executive Director
Robert Torzynski, Program Manager

TRAIL ADVISORY COMMITTEE

Steve Beauvais, Project Manager, NYSDOT
Robert Torzynski, Program Manager, GTC
Sharon Lilla, Director, Wayne County Planning Department
Peter Evans, Wayne County Historian
Robert Kelsch, Supervisor, Town of Ontario
Edward Newman, Town of Ontario Trails
Steve LeRoy, Supervisor, Town of Sodus
Joseph Herbst, Town of Webster
James Hoffman, Supervisor, Town of Williamson
Valerie Fowler, Town of Williamson
Tom Hooker, Williamson Hikers
Lenore Youngman, Trail Works, Inc.

ENVIRONMENTAL DESIGN AND RESEARCH, LANDSCAPE ARCHITECTURE AND ENGINEERING, P.C. (edr)

274 North Goodman Street
Rochester, NY 14607
(t) 585-271-0040
(f) 585-271-0042
http://www.edrcompanies.com

INTRODUCTION
Route 104 Corridor Trail Feasibility Study

3

This report summarizes the analysis and preliminary design studies of the Route 104 Corridor Trail Feasibility Study. The Genesee Transportation Council (GTC) contracted with **edr** to conduct site analysis, assess feasibility, and produce concept-level planning and design for a multi-use trail in the Route 104 Corridor in the Towns of Webster, Ontario, Williamson, and Sodus in Monroe and Wayne Counties, New York. Preliminary cost estimates and guidelines for the design and implementation of the trail were prepared.

Financial assistance for the preparation of this report was provided by the Federal Highway Administration (FHWA) through GTC's Unified Planning Work Program (UPWP). The Genesee Transportation Council is solely responsible for its content and the views and opinions expressed herein do not necessarily reflect the official views or policy of the U.S. Department of Transportation. The Genesee Transportation Council assures that no person shall, on the grounds of race, color, national origin, disability, age, gender, or income status, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity. GTC further assures every effort will be made to ensure nondiscrimination in all of its programs and activities, whether those programs and activities are federally funded or not.

A. BACKGROUND AND PURPOSE OF STUDY

The purpose of the Route 104 Corridor Trail Feasibility Study is to assess the feasibility of developing a 17-mile Americans with Disabilities Act (ADA)-compliant multi-use trail within the highway right-of-way and/or parallel with Route 104. Please see Figure 1 for an illustration of the project location, and Appendix A for existing conditions photographs.

1. New York State Route 104

New York State Route 104 (Route 104) is a 182.41-mile long east–west state highway in Upstate New York (NYSDOT, 2009). The roadway spans six counties and enters the vicinity of four cities—Niagara Falls, Lockport, Rochester, and Oswego—as it follows a route that roughly parallels the southern shoreline of Lake Ontario, along a ridge of the old shoreline of Glacial Lake Iroquois (Wikipedia, 2011; Tesmer, 1981). The western terminus of Route 104 is at an intersection with NYS Route 384 in Niagara Falls, Niagara County, while its eastern terminus is at a junction with NYS Route 13 in the town of Williamstown, Oswego County. The portion of Route 104 between Rochester and the Village of Webster east of the city is a limited-access highway, and from Webster to Oswego, Route 104 is a super two highway (Ibid).

Route 104 and County Line Road Intersection, Webster & Ontario
Photo Credit: Microsoft Virtual Earth/Pictometry

In the Town of Webster, the expressway loosely parallels the southern edge of the Xerox campus to an exit with Salt Road, where it downgrades to a divided highway as it continues east to Basket Road and the Monroe–Wayne County line, partially delimited by NYS Route 404. In this area, Ridge Road and Route 104 split, and Ridge becomes a separate roadway just to the south. Route 104 continues east through Ontario, where it meets the northern terminus of NYS Route 350 in Ontario Center.

The four-lane divided highway continues east to Williamson, where the median separating the two directions of Route 104 comes to an end west of the hamlet of Williamson. In the center of the hamlet, Route 104 intersects the northern terminus of NYS Route 21. Route 104 narrows to two lanes east of Williamson as development along the route declines once more, giving way to open fields and thick forests. Near the center of Wayne County in the Town of Sodus, Route 104 serves as the northern terminus of NYS Route 88 northwest of the Village of Sodus. While NYS Route 88 heads east into the village, Route 104 bypasses Sodus to the north (Ibid).

2. Purpose of Study

The study area for the Route 104 Corridor Trail begins at the eastern end of the existing Route 104 Trail in the Town of Webster and extends east through the Town of Ontario, the Town of Williamson, and part of the Town of Sodus, ending at the western boundary of the Village of Sodus.

The project was guided by the following objectives:

7. Provide active transportation between community resources
8. Provide universal access
9. Maintain user safety
10. Offer a high-quality user experience
11. Protect and enhance existing resources
12. Emphasize sustainability & maintainability

B. COMMUNITY INVOLVEMENT

Planning of any kind cannot be done in a vacuum, and must be informed by local residents. GTC regularly identifies community participation as an objective in the *Long Range Transportation Plan for the Genesee-Finger Lakes Region*, which guides their planning efforts. The Plan states, "The transportation planning process should be conducted in as open and visible a manner as possible, encouraging community participation and interaction between and among citizens, professional staff, and elected officials."

Table 3.1 Chronology of Community Involvement

Date	What	Purpose
July 19, 2010	Committee Meeting	Project Kick-off
November 8, 2010	Committee Meeting	Presentation of Inventory and Analysis
December 1, 2010	Public Information Meeting	Project Introduction, Presentation of Inventory and Analysis, Solicit Input from Community Members
January 7, 2011	Stakeholder Meeting	Meeting and Tour with Ontario-Midland Railroad Management
March 14, 2011	Committee Meeting	Presentation of Alternatives
April 6, 2011	Stakeholder Meeting	Meeting and Trail Visit with Town of Ontario Officials
March and April 2011	Correspondence	Emails and phone calls with Rochester Gas and Electric (RG&E)
June 20, 2011	Committee Meeting	Presentation and Discussion of Final Recommendations
July 14, 2011	Public Information Meeting	Presentation of Final Recommendations, Solicit Input

The planning process for this study included outreach to both the general public and to key stakeholders. Representatives from all affected municipalities and from interested trail organizations served on the advisory committee. The general public was invited to two public information meetings, and meetings were held with stakeholders who may be affected by the proposed trail. Appendix B includes information related to public outreach.

C. RELATIONSHIP TO OTHER PLANS AND STUDIES

The goal of planning is to improve the welfare of people and their communities by creating more convenient, equitable, healthful, efficient, and attractive places for present and future generations (APA, 2011). Planning enables civic leaders, businesses, and citizens to play a meaningful role in creating communities that enrich people's lives (Ibid). In developing new plans, it is important to refer to plans and studies that have already been completed to evaluate how the new plan relates to existing plans. The Route 104 Corridor Trail Feasibility Study builds on the following previously completed planning initiatives in Monroe and Wayne Counties:

- Comprehensive Plan for the Town of Williamson, NY, 2010
- Town of Webster, NY Comprehensive Plan Update, 2008
- Town of Williamson, NY: Routes 21 and 104 Gateway Study, 2008
- Design Guidelines for the Historic Business Center in the Hamlet of Williamson, NY, 2007
- Town of Ontario, NY Comprehensive Plan, 2006
- A Community Based Vision Plan for the Hamlet of Williamson, NY, 2005
- Regional Trails Final Report and Action Plan: Phase Two – Non-TMA Region, 2004
- Wayne County Comprehensive Plan Public Opinion Survey, 2004
- Wayne County Recreationways Master Plan, 2001
- Town of Williamson Parks and Recreation Master Plan, 1999

Each of these plans and studies is summarized in Appendix I, and any relevance to the proposed Route 104 Corridor Trail study is described.

D. ALTERNATIVE TRANSPORTATION BENEFITS

Transportation accounts for more than thirty percent of U.S. carbon dioxide emissions (West, 2007). Alternative transportation, such as walking, bicycling, and taking public transportation, can help alleviate this problem. According to the American Public Transportation Association (APTA), public transportation in the United States saves approximately 1.4 billion gallons of gasoline and about 1.5 million tons of carbon dioxide annually (APTA, 2007). Walking and bicycling as a means of transportation reduces carbon dioxide emissions even further. Walking, bicycling and public transportation benefit the environment as well as personal health, finances, time, and stress. (See Appendix C for more details on alternative transportation benefits.)

E. TRAIL USER OVERVIEW

The Route 104 Corridor Trail will be used by bicyclists and pedestrians of all ages and skill levels. Emerging user groups, such as strollers, bicycle trailers, wheelchairs and adult tricycles, should also be considered as a possible trail user audience. In addition, the trail is likely to be used for winter activities, such as snowmobiling, snowshoeing, and cross-country skiing. Equestrians have also been considered as possible trail users. Certain sections of the trail, located away from Route 104, may be appropriate for equestrian use. The trail management entity will need to set policy regarding equestrian use in the future. Please see "Planning for Trail Users" in Chapter 5: Alternatives for more detailed information about trail user groups.

The feasibility study has been conducted with bicyclists and pedestrians considered to be the primary user groups. In general, bicycling is a growing mode of transportation for recreation and commuting. However, it is not currently a common way to travel to work in the study area. The 2000 and 2010 U.S. Census recorded the following data:

Table 3.2. Demographic Information

	Town of Webster	Town of Ontario	Town of Williamson	Town of Sodus
Total Number of Residents (2010)	42,641	10,136	6,984	8,384
Total Number of Residents (2000)	37,926	9,778	6,777	8,949
Population Change (2000-2010)	+ 12.4%	+ 3.7%	+ 3.1%	- 6.3%
Workers* Who Biked to Work	0	0	6 (0.2%)	0
Workers* Who Walked to Work	156 (0.8%)	71 (1.4%)	115 (3.6%)	91 (2.2%)
Workers* Who Work Within 20 Minutes Of Home	8,562 (46%)	2,048 (42%)	1,230 (40%)	1,622 (40%)
Residents Who Attend High School	2,361	600	509	517

* indicates workers who are over 16 years of age

In 2000, there were essentially no residents in the study area who biked to work. Approximately 1.4% of workers (over 16) in the study area walked to work. At least 40% of all workers (over 16) in the study area work within twenty minutes from home. These figures suggest an opportunity to increase walking and bicycle ridership to work with the proper facilities.

In addition, students are potential walkers and bicycle users. According to the 2000 U.S. Census, 3,987 residents of the towns in the study area attended high school. Elementary and middle school students can also walk and bike to school, but may require supervision.

At the time of this study, the 2010 Census data was being released by the U.S. Census Bureau. Not all of the data had been released when the study was completed, but total population for each town was available. With this data, it is possible to assess the latest population trends within the study area. With the exception of the Town of Sodus, the number of potential trail users has increased in each of the communities where the proposed trail would be located. At the western end of the trail corridor, the Town of Webster grew by 12.4%. The Towns of Ontario and Williamson grew more modestly, at 3.7% and 3.1%, respectively. At the eastern end of the trail, the Town of Sodus lost 6.3% of their population.

INVENTORY AND ANALYSIS
Route 104 Corridor Trail Feasibility Study

4

This section contains an inventory and analysis of existing conditions in the Route 104 Trail Corridor. The topics discussed in this section include the physical and environmental conditions of the study area, property ownership, circulation and transportation, and an assessment of key issues.

A. PHYSICAL AND ENVIRONMENTAL CONDITIONS OF THE STUDY AREA

This section describes the existing environmental conditions within the study area and in some instances, the surrounding area. Information is presented on topography, soils, ecological character, drainage and water-related issues and land use.

1. General Overview of Topography

The study area includes approximately 4,910 acres of land. Information regarding topography and soils was obtained from aerial surveys, on-site observations and existing published sources. Sources of information referenced include the Wayne County Soil Survey (U.S. Department of Agriculture [USDA], 1978) and the Monroe County Soil Survey (USDA, 1973), U.S. Geological Survey (USGS) topographic mapping, current and historical aerial photography, statewide bedrock geology mapping (NYS Museum/NYS Geological Survey, 1999a), and New York State surficial geology mapping (NYS Museum/NYS Geological Survey, 1999b).

The study area is located in the Erie Ontario Lowlands physiographic province of Wayne County and the Erie-Ontario Lake Plain region of Monroe County (USDA, 1978 & 1973). The topography of this physiographic area ranges from nearly level to gently sloping lake plain. The study area is located within the clay plains portion of this lowland area, characterized by nearly level, prairie-like areas of clayey soils (USDA, 1989). The topography in the study area is relatively flat with a gentle slope toward the north in the direction of Lake Ontario. Further south of the study area, the landscape becomes more undulated with numerous hilltops, which are in close proximity at the southeastern edge of the study area. Slopes range from 0 to 15 percent but are predominantly 0 to 3 percent. Elevations range from approximately 390 feet above mean sea level (amsl) between East Williamson and Sodus along the northern boundary of the study area to approximately 590 feet amsl in the southeast corner of the study area near Sodus. Generally the elevation along the corridor is approximately 410-430 feet amsl. See Figure 2 for more information.

Relatively flat topography provides gentle, easy terrain for all trail users. This will be desirable for any bicyclists wishing to use the route for commuting. In addition, the terrain will easily allow for an ADA-accessible trail. The terrain will not offer elevated viewpoints, but will still have scenic views when there are variations and openings in the vegetation.

2. Soils

The Soil Surveys of Wayne and Monroe Counties, New York (USDA, 1978 & 1973) have mapped general soil associations and soil types within the study area (see Tables 4.1 and 4.2). The soil surveys indicate that 16 soil associations, and 84 soil map units, are present within the study area. The dominant soil map units within the study area (as defined by coverage of greater than 250 acres) are Lockport and Brockport silty clay loams 0-3 percent slopes, Minoa very fine sandy loam, Appleton loam 0-5 percent slopes, and Hilton gravelly loam bedrock substratum 0-3 percent slopes.

Soils in the study area are variable, with drainage ranging from excessively drained to very poorly drained, depths generally deep, and parent materials including glacial lake deposits and glacial till. Soil textures in the study area are primarily silty loam and sandy loam. Table 4.1 lists the soil associations found within the study area and their characteristics. Table 4.2 summarizes the characteristics of the four dominant soil map units found in the study area.

Table 4.1. Soil Associations Within the Study Area[1]

Soil Association	Main Characteristics
Appleton-Lockport[2]	• Somewhat poorly drained • Deep and moderately deep soils • Medium textures and moderately fine textured soils • On glacial till plains • Formed in glacial till deposits
Madrid-Bombay	• Well drained and moderately well drained • Deep soils • Moderately coarse textured soils • On glacial till plains • Formed in glacial till deposits
Ira-Sodus	• Moderately well drained and well drained • Deep Soils • Moderately coarse textured soils that have fragipan • On glacial till plains • Formed in glacial till deposits
Madrid-Massena	• Well drained to poorly drained • Deep soils • Moderately coarse textured to medium textured • On undulating morainic areas of the till plain
Ontario-Hilton	• Well drained to moderately well drained • Deep soils • Medium-textured to moderately fine textured • On dissected till plains where drumlins are a prominent feature of the landscape
Lockport-Cazenovia-Lairdsville	• Somewhat poorly drained to well drained • Deep to moderately deep soils • Moderately fine textured to fine textured
Lima-Honeoye-Ontario	• Well drained to moderately well drained • 3 ½ - 6 feet deep • Medium textured to moderately fine textured
Riga-Brockport	• Well drained to somewhat poorly drained • Moderately deep • Moderately fine textured to fine textured
Benson-Honeoye	• Excessively drained to well drained • Shallow to deep soils • Medium textured
Sodus-Ira-Niagara	• Well drained to moderately well drained • Deep soils • Moderately coarse textured to medium textured

[1]Information gathered from the Soil Surveys of Wayne and Monroe Counties, New York (USDA, 1978 & 1973).
[2]This soil association covers the vast majority of the Study Area.

Table 4.2. Dominant Soil Map Units Within the Study Area[1]

Soil Map Unit	Main Characteristics
Lockport and Brockport silty clay loams 0-3 percent slopes (LoA)	• Somewhat poorly drained • Overlies shale bedrock • Depth to bedrock is 20 to 40 inches • On moderately low areas on bedrock-controlled landscapes
Minoa very fine sandy loam (Mn)	• Somewhat poorly drained • Depth to bedrock is >60 inches • On lake plains and deltas
Appleton loam 0-5 percent slopes (Ap)	• Somewhat poorly drained • Depth to bedrock is >60 inches • On footslopes and in moderately low areas on till plains
Hilton gravelly loam bedrock substratum 0-3 percent slopes (HoA)	• Moderately well drained • Overlies sandstone and limestone bedrock • Depth to bedrock is 40 to 60 inches • In slightly convex areas on till plains

[1]Information gathered from the Soil Surveys of Wayne and Monroe Counties, New York (USDA, 1978 & 1973).

Mink Creek, Looking North From Route 104, Williamson

The study area consists of numerous pockets of prime farmland soils as listed by the USDA, totaling 1,833 acres. Elnora loamy fine sand (map units ElA and ElB) and Hilton gravelly loam (map units HoA and HoB) are the most common prime farmland soils within the study area.

The Soil Surveys have classified the erosion hazard for each soil type as slight, moderate, or severe, and all of the soils within the study area have a slight erosion hazard. Soil drainage characteristics are variable, as previously mentioned, with approximately 19 percent of the study area well drained to excessively drained, 18 percent moderately well drained, and 56 percent somewhat poorly drained to very poorly drained (USDA, 1973 & 1978).

For trail planning purposes, the soils are fundamentally suitable for trail use. The soils in the study area should not present an erosion problem, but may have some drainage issues.

3. Ecological Character

On November 2, 2010, an **edr** ecologist visited the study area to specifically identify the dominant ecological communities, wildlife habitat and streams present within the study area. The following discussion summarizes the field inventory of existing cover types and habitat assessment. An examination of rare, threatened and endangered species, as well as a summary of invasive species is provided.

Inventory of Existing Cover Types. The study area is set amongst a significant regional transportation corridor. Please refer to Appendix J for more detail, but general community cover types include:

- Northern Deciduous Forest
- Riparian Forest and Forested Wetland
- Mixed Conifer and Northern Hardwood Forest
- Successional Old-Field
- Emergent Wetland
- Successional Shrubland
- Scrub Shrub Wetland
- Agricultural Land
- Developed/Disturbed Land

Rare Threatened and Endangered Species. A letter dated February 9, 2011 was sent by **edr** to the New York Natural Heritage Program. A response dated February 23, 2011, identified one State-protected fish species (historical record), in the study area. The Natural Heritage Report on Rare Species and Ecological Communities identified the Blackchin Shiner *(Notropis heterodon),* as having been seen in Salmon Creek in the Town of Williamson. This species has been ranked by the New York Natural Heritage Program as S1, meaning typically 5 or fewer occurrences. In addition, the New York Natural Heritage Program identifies this species as "critically impaired".

The Federally Listed Endangered and Threatened Species and Candidates Species list identifies the following plant and wildlife species on a countywide level for Wayne County: bald eagle (*Haliaeetus leucocephalus*), bog turtle (*Clemmys muhlenbergii*), Eastern prairie fringed orchid (historic) (*Platanthera leucophea*), and Indiana bat (*Myotis sodalis*). No federally listed plant or wildlife species are identified for the part of the study area located in Monroe County. Although more rigorous study is required to definitively conclude the presence or absence of these rare, threatened and endangered species, there were no observations of these species made during the site visit.

Invasive species. Invasive plant species are problematic in certain areas of the study area. Several invasive species such as common reed, honeysuckle, buckthorn, multiflora rose and privet are beginning to concentrate heavily in several upland and wetland areas in the study area. Common reed was the most prevalent invasive species observed in roadside ditches and in several of the wetlands and streams.

Habitat Assessment. The study area includes a variety of ecological community types. Wildlife observations throughout the study area during the site visit included Canada goose, mallard, great blue heron, whitetail deer including numerous tracks and trails, mink, American crow, red tailed hawk, various songbirds, and green frogs. Please refer to Appendix J for more detail, but the following habitat types can be seen in the study area: Mature Forest Habitat, Successional Forest Habitat, Wetland Habitat, and Successional Old Field Habitat. For trail planning, the variety of habitats and ecological cover types will provide opportunities for environmental education. The trail alignment should maximize scenic resources and opportunities to put trail users in contact with nature.

4. Drainage and Water-Related Issues

Federal and State Wetlands. There are federal and state designated wetlands within the study area based on preliminary review of both United States Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping and the NYSDEC freshwater wetlands mapping database.

Waters of the United States. Waters of the United States as defined by the United States Army Corps of Engineers (Corps), include all lakes, ponds, streams (intermittent and perennial), and wetlands. Wetlands are defined in Section 404 of the Clean Water Act as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions" (EPA, 2001). Jurisdictional wetlands are defined by the presence of three criteria: hydrophytic vegetation, hydric soils, and evidence of wetland hydrology during the growing season (Environmental Laboratory, 1987). However, it has been determined that the Corps does not have jurisdictional authority over waters that are "non-navigable, isolated, and intrastate" (EPA, 2001). Ultimately, the status of all delineated waters will be determined during a field visit with a Buffalo District Corps representative.

Review of NWI mapping indicates that there are 95 federally-mapped wetlands located within and adjacent to the study area. The federally mapped wetlands are identified in Figure 3. While many of these wetlands occur along streams and rivers, a number of them occur in depressional areas scattered throughout the study area.

New York State Freshwater Wetlands & Protected Streams. The Freshwater Wetlands Act (Article 24 and Title 23 of Article 71 of the Environmental Conservation Law) gives the NYSDEC jurisdiction over state-protected wetlands and adjacent areas (100-foot upland buffer). The Freshwater Wetlands Act requires the NYSDEC to map all state-protected wetlands (typically over 12.4 acres in size) to allow landowners and other interested parties a means to determine where state jurisdictional wetlands exist. Review of NYSDEC mapping indicates that there are 16 wetlands located within the vicinity of the study area that are regulated under Article 24 of the Environmental Conservation Law. The state-regulated wetlands are identified in Figure 3.

Under Article 15 of the Environmental Conservation Law (Protection of Waters), the NYSDEC has regulatory jurisdiction over any activity that disturbs the bed or banks of protected streams. In addition, small lakes and ponds with a surface area of 10 acres or less, located within the course of a stream, are considered to be part of a stream and are subject to regulation under the stream protection category of Article 15. Protected stream means any stream, or particular portion of a stream, that has been assigned by the NYSDEC any of the following classifications or standards: AA, AA(t), A, A(t), B, B(t) or C(t) (6 NYCRR Part 701). A classification of AA or A indicates that the best use of the stream is as a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The best usages of Class B waters are primary and secondary contact recreation and fishing. The best usage of Class C waters is fishing. Streams designated (t) indicate that they support trout, and also include those more specifically designated (ts) which support trout spawning. Classification D is unprotected waters and suitable for fishing and non-contact recreation.

These streams, along with all other perennial and intermittent streams in the study area, are also protected by the Corps under Section 404 of the Clean Water Act. No stream occurs within the study area that is regulated by Section 10 of the Rivers and Harbors Act of 1899 (navigable waters). All study area streams are classified by the NYSDEC as Class C waters, indicating that they are suitable for non-contact activities and supporting fisheries. Class C waters are not subject to regulation under the stream protection category of the Environmental Conservation Law, Article 15 (Protection of Waters) (See Figure 3).

A formal wetland delineation is needed to make a final determination of wetland and stream boundaries. The wetland delineation would need to be conducted according to the three-parameter methodology presented in the 1987 Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987) and the updated methodologies presented in the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (2009). A final determination of jurisdictional status can only be made after an on-site agency review of identified boundaries.

Stream Assessment. A preliminary stream assessment was conducted on November 2, 2010, by an **edr** ecologist. Stream characteristics such as morphology, gradient, channel bottom substrate, flow, instream conditions, and adjacent community type were recorded along reaches of the 14 main streams crossing the study area. For the purposes of reporting data and observations, Table 4.3 below provides a summary of the stream characteristics recorded at each reach.

Table 4.3. Stream Characteristics

Stream Name	DEC Stream Class	Channel Morphology		Gradient	Channel Substrate	Flow	Instream Conditions	Adjacent Community Type
Fourmile Creek W	C	Bank Width: Stream Width: Water Depth	10-15 ft. 6-8 ft. 2 in.-6 in.	Gentle	Cobble and Stone	Moderate	Perennial stream with cobble/stone substrate. Good riffle/run sequence with minimal bank erosion and overhanging vegetation.	Narrow riparian corridor (locust/maple) with adjacent residential areas and mowed lawns.
Fourmile Creek E	C	Bank Width: Stream Width: Water Depth	5-8 ft. 3-4 ft. 2 in.-4 ft.	Gentle	Silt, stone and Cobble	Gentle	Perennial stream with obscured vegetated banks and no sign of erosion.	Developed land on either side of stream in study area. Riparian forest buffers some of the adjacent development SW of study area.
Unnamed Stream 1	C	Bank Width: Stream Width: Water Depth	6 ft. 3 ft. 2 in.-6 ft.	Gentle	Silt and Sand	Gentle	Intermittent stream with obscured vegetated banks. No sign of erosion. Invasives present (reed).	Old-field/scrub shrub community with developed land adjacent.
Unnamed Stream 2	C	Bank Width: Stream Width: Water Depth	4-5 ft. 3-4 ft. 4-6 in.	Gentle	Silt, sand and vegetated substrate.	Gentle	Straightened intermittent channel with obscured vegetated banks.	Mowed lawn/ developed land.
Mill Creek	C	Bank Width: Stream Width: Water Depth	30-40 ft. 10-15 ft. 2 in – 1 ft.	Gentle	Silt, sand and cobble.	Gentle	Perennial stream. Vegetated banks with minimal signs of erosion.	Riparian forest including maple, locust, and willow.
Dennison Creek W.	C	Bank Width: Stream Width:	2 ft. 1 ft.	Gentle	Silt, sand and vegetated substrate.	Gentle	Intermittent stream with obscured vegetated banks and no sign of erosion. Common	Mowed lawn and developed land. (Electrical substation)

		Water Depth	2-4 in.				reed present on north side.	
Dennison Creek E.	C	Bank Width: Stream Width: Water Depth	6-8 ft. 2-4 ft. 4-6 in.	Gentle	Silt, sand and vegetated channel.	Gentle	Heavily vegetated intermittent stream (common reed and cattail).	Developed land (parking lots)
Unnamed Stream 3	C	Bank Width: Stream Width: Water Depth	6-8 ft. 2-4 ft. 2-6 in.	Gentle	Silt, sand and vegetated substrate.	Gentle	Heavily vegetated intermittent stream (goldenrod and cattail). Straightened channel geometry.	Developed land (mowed land and parking lots)
Bear Creek W.	C	Bank Width: Stream Width: Water Depth	10-15 ft. 4-6 ft. 4 in.–1 ft.	Gentle	Silt and sand.	Moderate	Perennial stream with almost completely vegetated and minimal erosion. Stream geometry altered due to adjacent development.	Narrow vegetative corridor (dogwood, spirea, reed, cattail and goldenrod) in developed landscape (plazas).
Bear Creek E.	C	Bank Width: Stream Width: Water Depth	10-15 ft. 4-6 ft. 4 in. – 1 ft.	Gentle	Silt, stone and Cobble	Moderate	Perennial stream with good riffle/run sequence and minimal bank erosion. Overhanging vegetation.	Expansive riparian corridor (maple, ash and locust).
Unnamed Stream 4	C	Bank Width: Stream Width: Water Depth	4-6 ft. 2-4 ft. 2–4 in.	Gentle	Silt, sand and vegetated substrate.	Gentle	Vegetated intermittent stream with obscure banks and no erosion.	Expansive riparian corridor (maple, ash and locust).
Salmon Creek	C	Bank Width: Stream Width: Water Depth	25 ft. 15-20 ft. 4-6 in.	Gentle	Silt, stone, cobble and vegetated substrate.	Gentle	Perennial stream with almost completely vegetated and minimal erosion. Stream geometry altered due to adjacent development.	Partial riparian corridor amongst developed landscape.
Unnamed Stream 5	C	Bank Width: Stream Width: Water Depth	10-12 ft. 4-6 ft. 4-6 in.	Gentle	Silt, sand and vegetated substrate.	Gentle	Vegetated intermittent stream (iris, cattail, jewelweed, rush and mint). Straightened channel geometry.	Developed land (mowed land and parking lots)
Mink Creek	C	Bank Width: Stream Width: Water Depth	10 ft. 4-6 ft. 4-6 in.	Gentle	Silt, stone and cobble.	Moderate	Heavily vegetated perennial stream (cattail). Expansive riparian corridor downstream.	Partial riparian and emergent wetland corridor amongst developed landscape.

General Characteristics of Study Area Streams. A stable stream can be generally defined as a stream that transports sediment load while maintaining stream geometry and does not aggrade or degrade (Rosgen, 1996). Although many of the streams within the study area have been engineered due to their proximity to Route 104, these streams seem to be in stable condition. Based on preliminary observations, in most cases no eroded, undercut banks were observed. A more detailed analysis is needed to accurately predict channel stability. Streams were assessed in close proximity to Route 104, but typically the waterways become more scenic and naturalized further away from the highway.

Salmon Creek, Looking North From Route 104, Williamson

As described in Table 4.3, on-site streams range in size and type from small intermittent channels (1-2ft.) to larger perennial streams (15-20 ft.). For the most part, stream banks observed were obscured and completely vegetated in a silt/sand substrate. The amount of silt/sand present does, however, indicate that increased sediment loading is taking place from some upstream erosion. Smaller intermittent streams in many cases are straightened due to adjacent development. The larger stream channels are wide and flat in a silt/sand/cobble substrate. As previously mentioned, development is present in and around many of the streams, and the riparian corridor and floodplain are greatly reduced, which decreases floodwater retention. In some instances, the larger streams are associated with floodplain forest offering good shading and cover for riparian/aquatic species. With the exception of a few small intermittent streams, sinuosity is generally more moderate in the stream reaches observed within the study area, and water depths shallower along a gentle stream gradient. In addition, streams with a larger riparian corridor have a more apparent natural riffle run sequence with increased stone/gravel bars creating riffles with long runs in several locations. For more information, please see Appendix D.

Salmon Creek, Looking South Towards Route 104, Williamson

For trail planning, there are a number of things to consider in relationship to waterways. When planning stream crossings, there are environmental impacts and permitting issues that should be minimized as much as possible. Stream crossings typically involve a structure, such as a boardwalk or bridge, which has associated cost impacts. Stream crossings have positive aspects, too. Bridges often become a landmark or destination along a trail corridor, which can help with wayfinding in a long, linear path such as the Route 104 Corridor Trail. Streams also offer opportunities for scenic views and environmental education. Potential flooding issues can be addressed with eco-swales, rain gardens and retention ponds.

5. Land Use

A snapshot of the existing land use can be illustrated by examining character zones and destinations along the Route 104 Corridor. In addition, Figure 5 (Sheets 1 and 2) illustrates existing land use in and around the study area.

Character Zones. The study area can be broken into six character zones, based primarily on land use, ecological character, and natural boundaries. The first character zone begins at the existing Route 104 trailhead, and ends at Salt Road in Webster. This zone is a focal point along the corridor, where the existing trail and the new trail will connect. The second character zone begins at Salt Road and ends at the County line between Wayne and Monroe Counties. The character of this zone is primarily mixed use commercial. The third character zone begins at the County line and ends at Furnace Road in the Town of Ontario. Zone 3 is primarily rural and undeveloped with heavier development and destinations located on the south side of Route 104.

The fourth character zone begins at Furnace Road in Ontario and ends at Tuckahoe Road in the Town of Williamson. This zone is primarily rural and undeveloped with a few significant nodes of development. The fifth character zone begins at Tuckahoe Road and ends at Pound Road, all within the Town of Williamson. The character of Zone 5 is a mix of commercial and residential uses. The sixth character zone begins at Pound Road in Williamson and ends at State Route 88 in the Town of Sodus. The character of this zone is rural farmland and mixed commercial. See Figure 7 for a map and Appendix A for photographs of existing conditions in the character zones.

Destinations. Throughout the Route 104 Corridor are a number of destinations. Some destinations are a point of interest that might generate visits from people who live outside the local area, while others are more common services that would be visited primarily by local residents. All of these destinations can be considered pedestrian generators, or destinations that are frequented by pedestrians. In general, they are clustered near the downtown of each municipality, but are also found scattered along Route 104. They include, but are not limited to:

- Retail plazas and commercial areas in Ontario, Williamson and Sodus that include grocery stores, shopping, and financial institutions;
- Schools in the Ontario, Sodus and Williamson school districts;
- Libraries: Ontario Public Library, Sodus Free Library, and the Williamson Free Library;
- Post offices in Union Hill, Ontario Center, Ontario, Williamson, and East Williamson;
- Places of worship: More than 25 were identified in and near the corridor
- Public parks: Irving R. Kent Park, Casey Park, Ontario Golf Course, B. Forman County Park, Williamson Town Park, and Beechwood State Park
- Wegman's Passport Destinations: Bicentennial Park, Casey Park, Sodus Wallington Trail, and the Williamson Town Loop Trail
- Major places of employment: Xerox Corporation, Mott's North America, Ginna Nuclear Power Plant, Williamson and Sodus Airport, and Heluva Good Cheese
- Significant travel destinations (in nearby vicinity): Historic Pultneyville, Sodus Point

These land uses are prime examples of pedestrian generators. It is important that residents and visitors are able to safely walk (or bike) to and between some of these corridor destinations. Figure 6 illustrates the existing destinations located along the Route 104 Corridor. Strong pedestrian connections between destinations are what sustain a thriving pedestrian environment. Trail planning should strive to improve access for all types of trail users, whether the trail is being used for adjacent destinations within one character zone, or to provide a connection between different zones. Trail planning should also be context sensitive, responding to the different character zones and destinations, but following current best practices and guidelines from FHWA, AASHTO, and NYSDOT.

B. PROPERTY OWNERSHIP

This section reviews property ownership along the trail corridor as well as easements and rights of way within the study area.

1. Adjacent Properties

This section examines property ownership along the trail corridor for properties potentially affected by the proposed alignment alternatives.

Immediately Adjacent to Route 104. A significant number of properties are located in the area immediately adjacent to the Route 104 R.O.W. The following chart identifies the number of property owners on the North and South sides of Route 104.

Table 4.4. Property Owners Adjacent to Route 104

Character Zone	Properties on the South Side of Route 104	Properties on the North Side of Route 104
Zone 1 - Trailhead	3 parcels	1 parcel
Zone 2 – Salt to County Line Road	32 parcels	2 parcels
Zone 3 – County Line to Furnace Road	96 parcels	44 parcels
Zone 4 – Furnace to Tuckahoe Road	18 parcels	3 parcels
Zone 5 – Tuckahoe to Pound Road	37 parcels	16 parcels
Zone 6 – Pound to State Route 88	70 parcels	13 parcels
Total Properties	**256 parcels**	**79 parcels**

The significant number of property owners adjacent to Route 104 (and their associated driveways) will create some potential difficulties in negotiating access to a trail in the Route 104 R.O.W., as well as potential safety hazards.

Town of Ontario. Over the past few years, the Town of Ontario has been developing an east-west trail across the Town. Town officials have negotiated access, used Town land, or acquired new properties to create several miles of multi-use trail. The Ontario trail extends from Dean Parkway in the west to just beyond Furnace Road in the east. Some segments are still being negotiated, but the Town has had reasonable success thus far. One highlight of this trail is the proximity to Casey Park. Town officials would like to connect the Route 104 Corridor Trail to this trail, rather than create a parallel trail nearby. This trail corridor is described in more detail in the following section.

2. Easements and Rights of Way

This section inventories easements and rights of way within the study area that could potentially be used to accommodate a multi-use trail.

New York State Route 104. The right of way for Route 104 could potentially be used to accommodate a multi-use trail, but a large number of property owners would be affected and involved. According to digital mapping, the existing R.O.W. varies between 790 feet at Salt Road in Webster and 130 feet at East Townline Road in Williamson. In general, the R.O.W. ranges between 150 and 200 feet wide. Due to this variability, certain portions of the R.O.W. are more able to accommodate a trail than other areas.

Town of Ontario Hiking Trail, Ontario

Town of Ontario Easements. The Town of Ontario has used Town land and has negotiated/ is negotiating access to a number of other properties. Together, these properties will accommodate a 5.5-mile trail corridor. Portions of the trail have been constructed, others have not. The trail corridor is described here and illustrated in Figure 13.

At the western end, the trail begins at Dean Parkway, approximately 800 feet north of Route 104. The trail runs in an easterly direction, adjacent to Timothy Lane behind Harbec Plastics. The trail turns slightly to the north and continues in an easterly direction to Lakeside Road, crossing Mill Creek along the way. From Lakeside Road, the trail trends slightly south while continuing in an easterly direction. Just to the west of Slocum Road, the trail crosses Dennison Creek (West).

At Slocum Road, the trail turns and heads in a northeasterly direction for approximately 3,750 feet (0.7 miles) in the RG&E utility corridor. In the utility corridor, the trail crosses Dennison Creek (East) and a small pond. Approximately 400 feet from Kenyon Road, the trail turns due east for 350 feet, and then turns southeast/east across the old Town landfill. The trail crosses Ontario Center Road and travels due east along the long narrow pond in Casey Park to the park entrance at Knickerbocker Road. The trail continues to travel due east after crossing Knickerbocker for approximately 1,100 feet, then turns due south for about 700 feet. At this point, the trail turns to the east again and goes across Town land to Furnace Road. The trail heads south along Furnace Road for approximately 700 feet. From Furnace Road, the trail turns and heads to the east for about 2,200 feet, crossing over the West and East branches of Bear Creek.

Ontario Midland Railroad. The right of way for Ontario-Midland Railroad has excellent potential to accommodate a multi-use trail. The existing R.O.W. is 100 feet and owned by Rochester Gas and Electric/Iberdrola USA. The railroad infrastructure is owned by Ontario-Midland Railroad. An expansion of the R.O.W. is planned to create a fall zone for trees, which would generate 25 feet on the North side of the existing R.O.W. Site analysis indicates that there are encroachments into the railroad R.O.W. that will need to be resolved prior to further trail development.

County Road 103/ Ridge Road. The public right-of-way for Ridge Road could be used to accommodate on-street or shoulder improvements. In general, there is not enough room to create a separate multi-use trail along the entire corridor, but the R.O.W. could be used to create an on-street, active transportation corridor. Possibilities might include bicycle lanes, a shared roadway arrangement, or a bicycle boulevard.

C. CIRCULATION AND TRANSPORTATION

The following section addresses pedestrian access, sidewalks, trails, roadways, intersections, and mass transit.

1. Pedestrian Access

Pedestrian access can be measured by Walk Score, an online tool that allows users to determine the walkability of a certain address based on the number of pedestrian generators in close proximity to that address. Walk Score calculates the walkability of an address by locating nearby pedestrian destinations such as stores, restaurants, schools, parks, etc.

Table 4.5. Walk Score Scale

Walk Score	Description	Explanation
90–100	Walkers' Paradise	Daily errands do not require a car.
70–89	Very Walkable	Most errands can be accomplished on foot.
50–69	Somewhat Walkable	Some amenities within walking distance.
25–49	Car-Dependent	A few amenities within walking distance.
0–24	Car-Dependent (Driving Only)	Almost all errands require a car.

Generally, the tool measures how easy it is to live without the use of an automobile, not how attractive the area is for walking. There are a number of factors, such as street design and safety, which contribute to walkability but are difficult to measure with an algorithm.

The Walk Score algorithm awards points based on the distance to the closest amenity in each category. Categories include: transit, grocery stores, restaurants, schools, coffee shops, libraries, parks, bookstores, drug stores, hardware stores, bars, movie theaters, fitness, and clothing & music stores. If the closest amenity in a category is within .25 miles, the system assigns the maximum number of points. The number of points declines as the distance approaches 1 mile, and no points are awarded for amenities further than 1 mile. Each category is weighted equally and the points are summed and normalized to yield a score from 0 to 100. The number of nearby amenities is the leading predictor of whether people walk.

Walk Score was used to evaluate the walkability of various points along the Route 104 Corridor. The following Walk Scores were obtained in November 2010.

Table 4.6. Walk Score Analysis Within the Study Area

Location	Score	Walk Score Description
Route 104 and Salt Road, Webster	9	Driving Only
Route 104 and Basket Road, Webster	22	Driving Only
Route 104 and County Line Road, Webster	15	Driving Only
Route 104 and Lakeside Road, Ontario	14	Driving Only
Route 104 and Slocum Road, Ontario	23	Driving Only
Route 104 and Ontario Center Road, Ontario	31	Car Dependent
Route 104 and Knickerbocker Road, Ontario	58	Somewhat Walkable
Route 104 and Furnace Road, Ontario	62	Somewhat Walkable
Route 104 and Fisher Road, Ontario	2	Driving Only

Route 104 and Salmon Creek Road, Williamson	2	Driving Only
Route 104 and Tuckahoe Road, Williamson	18	Driving Only
Route 104 and Lake Avenue, Williamson	45	Car Dependent
Route 104 and Pound Road, Williamson	22	Driving Only
Route 104 and East Townline Road, Williamson	12	Driving Only
Route 104 and Redman Road, Sodus	0	Driving Only
Route 104 and North Centenary Road, Sodus	3	Driving Only
Route 104 and Pratt Road, Sodus	0	Driving Only
Route 104 and Route 88, Sodus	15	Driving Only

The highest scores in the study area were found in the vicinity of Knickerbocker Road (58) and Furnace Road (62) in Ontario, and near Lake Avenue (45) in Williamson. The average Walk Score in the study area is 20. See Figure 7 for an illustration of the Walk Scores throughout the study area.

2. Sidewalk and Trail Connections

Connecting the proposed Route 104 Trail to existing and proposed active transportation corridors in the study area is critical to making it useful and effective for trail users. The following sections describe sidewalks and trails.

Sidewalks. Due to the rural nature of the Route 104 corridor, there are not many existing sidewalks in or adjacent to Route 104. Using field verification and aerial imagery available through Google Earth, sidewalks were noted in the following locations:

Table 4.7. Sidewalk Locations Within the Study Area

Location	Description[1]
Salt Road, Webster	Sidewalks are present on both sides of Salt Road. Sidewalks run south to Ridge Road, and north, stopping at San Jose Drive, the next street after Route 104.
Knickerbocker Road, Ontario	A sidewalk is present on the east side of Knickerbocker Road, between Route 104 and Ridge Road. The sidewalk is present on the south side of Route 104 only.
Northwest Corner of Route 104 and Lake Avenue Intersection, Williamson	A sidewalk is present in front of Rite Aid on the north side of Route 104 for about 350 feet between Lake Avenue and a driveway. A sidewalk also extends north from Route 104 along the Rite Aid property for about 200 feet.
Southeast Corner of Route 104 and Lake Avenue Intersection, Williamson	A sidewalk is present in front of Breen's Market on the south side of Route 104 for about 500 feet between Lake Avenue and Pearsall Street.
Northeast Corner of Route 104 and Lake Avenue Intersection, Williamson	A sidewalk is present in front of Mark's Pizzeria, Mobil and Burger King on the north side of Route 104 for about 500 feet between Lake Avenue and Pearsall Street.
Lake Avenue, Williamson	Sidewalks are present on both sides of Lake Avenue between Route 104 and Ridge Road into the hamlet of Williamson. The sidewalks are not continuous on the east side of Lake Avenue, and disappear in the vicinity of the fire hall. The sidewalks also continue from Ridge Road south to Williamson High School.

[1] Sidewalks were observed in March 2011, using the most recent aerial images available through Google Earth.

GTC and the Town of Williamson were working on a sidewalk inventory at the time of this study, but no further information was available.

Trails – Existing. The following trails are either in or adjacent to the study area.

Hojack Trail. The Hojack Trail is a 3.5-mile walking and biking trail in Webster from Lake Road to North Ponds Park on the rail bed of the abandoned Hojack Line. The Hojack Trail is relatively flat and follows the route of the abandoned Rome, Watertown and Ogdensburg Railroad line. Starting just northwest of North Ponds Park, the trail runs northwest through Webster through mostly wooded areas. After crossing an abandoned railroad bridge, trail comes to an end at Lake Road. The Hojack Trail connects to the existing Route 104 Trail through North Ponds Park.

Route 104 Snowmobile Trail. The Regional Trails Initiative Final Report & Action Plan – Phase 2 (2004) identifies the Route 104 Corridor State snowmobile trail (SS Trail #4), which runs from the Ontario-Williamson town line to the Wayne-Cayuga county line.

Route 104 Corridor Trail – Webster. The Route 104 Trail is a 6.1-mile paved path located in Webster, paralleling the Route 104 highway corridor. The trail runs from Salt Road in the east to Bay Road in the west. The Route 104 Corridor Trail from Webster to Sodus would directly connect to this trail at Salt Road.

Sodus-Wallington Rail Trail – A Wayne County Passport Trail, this flat and accessible four-mile multi-use trail runs from the intersection of Old Ridge Road and Geneva Road in Wallington (east of the Village of Sodus) to Sodus Point. This will connect to the planned future phase of the Route 104 Corridor Trail between Sodus and Wolcott.

Williamson Town Loop Trail. A 4.2-mile loop that traverses woods, fields, and village streets. There are wonderful views of Lake Ontario on a clear day and rolling farmlands from the top of "Herbert's Hill". Access to town, services and restaurants is available at several points. The loop can be accessed from Route 104 near Sundaze Ice Cream, and passes many important destinations: Williamson's High School, Middle School, Town Park, Main Street businesses, Library, and Town Hall. The Williamson Town Loop Trail would provide a trail loop that would feed people into the Route 104 Trail, and provide an alternate loop for people passing through.

Trails – Planned. The following trails are currently planned in or adjacent to the study area.

Chiller Line Trail – Webster to Penfield. The "Chiller Line" Trail would follow the proposed 10.1-mile Monroe County Water Authority "Chiller Line" corridor between Webster and Penfield. The Regional Trails Initiative Final Report & Action Plan – Phase 1 (2002) classified the "Chiller Line" Trail as a "planned long-term" project. The current status of this project is unknown.

Route 104 Corridor Trail – Sodus to Wolcott. The Regional Trails Initiative Final Report & Action Plan – Phase 2 (2004) classified the Sodus to Wolcott section of the Route 104 Trail as a "planned near-term" project which indicates the proposal has been identified in other local planning documents and is recommended for near-term implementation. The Route 104 Trail would be a multi-use trail parallel to the existing snowmobile trail (SS Trail #4).

Pultneyville to Marion Trail. The Pultneyville to Marion trail would run south from the hamlet of Pultneyville (in the Town of Williamson) to the northern terminus of the planned Newark to Marion trail. The goal is to have a non-motorized trail connecting these two historic hamlets, and ultimately, Lake Ontario and the Erie Canal via the proposed Newark to Marion Trail. This trail would intersect with the proposed Route 104 Corridor Trail in Williamson, but the intersection location is unknown at this time. At the time of this report, the Pultneyville to Marion trail was also being studied through GTC's 2010-2011 Priority Trails Advancement Program.

3. Roadways and Intersections

All of the roads that intersect with Route 104 within the study area boundary were inventoried and assessed. An intersection summary is shown in the following table, which includes ownership, functional classification, general physical and operational characteristics, and average daily traffic volume (ADT). Figures 8 and 9, as well as Appendix E illustrate traffic volume and road intersections in more detail.

Table 4.8. Intersection Analysis

Road Name	Ownership	Functional Classification [4]	Traffic Signals	ADT on Road at Intersection	ADT on Route 104 at Intersection	Crossing Type
Salt Road	Local Road, Town of Webster	N-Major Collector, S-Minor Arterial	2 at N. Ramp, 2 at S. Ramp	N – 3,036 [5] S – 4,640 [5]	37,070 [1]	Underpass
Basket Road	County Road 4, Monroe County	Local	4 at Route 104 Intersection	1,705 [5]	28,110 [1]	At Grade
County Line Road	County Road 2, Monroe County	Major Collector	4 at Route 104 Intersection	N – 1,697 [5] S – 1,125 [5]	28,790 [1]	At Grade
Dean Parkway	Local Road, Town of Ontario	Local	3 at Route 104 Intersection	Data Not Available	22,081 [2]	T - At Grade
Lincoln Road	County Road 200, Wayne County	Local	3 at Route 104 Intersection	2,681 [3]	22,081 [2]	T - At Grade
Lakeside Road	County Road 102, Wayne County	Local	4 at Route 104 Intersection	1,102 [3]	22,080 [1]	At Grade
Slocum Road	Local Road, Town of Ontario	Local	4 at Route 104 Intersection	Data Not Available	19,701 [2]	At Grade
Ontario Center Road	State Road 350	Major Collector	4 at Route 104 Intersection	6,250 [1]	19,700 [1]	At Grade
Knickerbocker Road	County Road 108, Wayne County	Local	4 at Route 104 Intersection	2,023 [3]	18,882 [2]	At Grade
Furnace Road	County Road 110, Wayne County	Local	4 at Route 104 Intersection	5,390 [3]	18,880 [1]	At Grade
Baldwin Road	Local Road, Town of Ontario	Local	Stop Signs for Baldwin Road	Data Not Available	14,270 [2]	T - At Grade, Eastbound Only
Cortland Drive	Local Road, Town of Ontario	Local	2 at Route 104 Intersection	Data Not Available	14,270 [2]	T - At Grade
Fisher Road	Local Road, Town of Ontario	Minor Collector	Stop Signs for Fisher Road	Data Not Available	14,270 [2]	At Grade
Spencer Speedway	Private Drive to Racetrack	Local	Stop Signs for Speedway	Data Not Available	14,270 [2]	T - At Grade
Salmon Creek Road	Local Road, Town of Williamson	Local	Stop Signs for S. Creek Road	868 [3]	14,270 [1]	At Grade

Road Name	Ownership	Functional Classification [4]	Traffic Signals	ADT on Road at Intersection	ADT on Route 104 at Intersection	Crossing Type
Tuckahoe Road	County Road 116, Wayne County	Local	Stop Signs for Tuckahoe Road	1,205 [3]	13,777 [2]	At Grade
Lake Avenue, Route 21, County Road 120	North - County Road 120, South - State Road 21	N-Minor Collector, S-Minor Arterial	4 and pedestrian signals at Route 104 Intersection	6,500 [1] 3,597 [3]	13,780 [1]	At Grade
Pound Round	Local Road, Town of Williamson	Local	4 at Route 104 Intersection	960 [3]	12,410 [2]	At Grade
East Townline Road	County Road 118, Wayne County	Local	Stop Signs for E. Townline Rd	1,593 [3]	12,410 [1]	At Grade
Redman Road	Local Road, Town of Sodus	Local	Stop Signs for Redman Road	Data Not Available	10,904 [2]	At Grade
Centenary Road	Local Road, Town of Sodus	Local	Stop Signs for Centenary Road	880 [3]	10,904 [2]	At Grade
Pratt / Bear Swamp Road	Local Road, Town of Sodus	Local	Stop Signs for Pratt Road	Data Not Available	10,904 [2]	At Grade
Route 88	State Road	Major Collector	Stop Signs for Route 88	4,720 [1]	10,900 [1]	At Grade

[1] Information gathered from NYSDOT Traffic Volume Report provided by Steve Beauvais and dated June 2009.

[2] Information gathered from GIS mapping used in Figure 5: Existing Traffic Volumes, which utilizes data from NYSDOT, August 2010.

[3] Information gathered from Wayne County Highway Traffic Counts, provided by Kevin Rooney, October 2010 and April 2011.

[4] Information gathered from the 2000 Rural Functional Classification Map: Wayne County, Region 4, NYSDOT, April 19, 2005.

[5] Information gathered from the Genesee Transportation Council, provided by Chris Tortora, March 2011.

4. Mass Transit

Wayne Area Transportation Service, Inc. (WATS) was developed by the Rochester Genesee Regional Transportation Authority (RGRTA) in cooperation with the Wayne County Board of Supervisors to provide public transportation to all the residents of Wayne County. According to WATS, most of the buses have bicycle racks. If a bicycle rack is not available, the patron can put their bicycle in the back of the bus. Out of approximately 50 bus stops, only four stops have bus shelters, but more are anticipated.

Route 104 Connector. The Route 104 Connector links Wayne County residents with the RTS Park & Ride in Webster. The route starts in Newark, heads north along Route 88 to Sodus, and then travels along Route 104 through stops in Sodus, Williamson, and Ontario, ending in Webster. Travel in the opposite direction is also available. The trips are designed for commuters, with stops occurring in the early morning and late afternoon.

Wayne County Loop Routes. In addition, three loop routes travel throughout Wayne County with regularly scheduled service Monday through Friday. All three loops are offered in clockwise and counterclockwise directions. All three loops traverse some portion of the Route 104 Trail study area.

D. ISSUES, OPPORTUNITIES, AND CONSTRAINTS

1. Key Issues

The following issues and opportunities were identified for the study area:

Access and Community Connectivity. The Route 104 Corridor Trail presents an opportunity to improve access in the northeastern part of Wayne County and increase connectivity between communities in Wayne and Monroe Counties. There are potential driveway conflicts and property access issues, but the overall vision of an active transportation corridor that parallels the automobile-dominated Route 104 is one that will provide many benefits to local residents.

Healthy Living to Address Preventable Health Problems. Open space and trails can play a key role in a healthy lifestyle, and offer tools for addressing preventable factors of various health problems. Poor diet and a lack of physical activity can lead to preventable health problems such as heart disease, diabetes, and cancer. The Route 104 Corridor Trail can be used to help promote an active lifestyle, whether the trail is used for active transportation and commuting, or for recreational pursuits, such as walking, biking, or cross country skiing.

Safety. Developing an active transportation route in the Route 104 corridor presents an opportunity to significantly improve safe non-motorized travel options for local residents. Portions of Route 104 and the Ontario-Midland Railroad corridor are used by pedestrians, bicyclists, and others. Neither of these corridors currently encourages bicycle or pedestrian travel due to the lack of bicycle accommodations and/or sidewalks, high speeds, and substantial truck traffic.

Sustainability. The option of using active transportation instead of a vehicle offers sustainable options for the residents of Wayne and Monroe Counties who regularly traverse the Route 104 Corridor. In addition, construction and maintenance of the Route 104 Corridor Trail could utilize a sustainable approach. Possible strategies include: ecologically sensitive maintenance practices, using locally available materials, utilizing reclaimed or recycled materials, and using materials that can be reused or reconfigured in the future, if necessary.

User Conflicts. People who participate in outdoor recreation activities do so because they hope to gain certain rewards or outcomes. The trail experience that is desired varies a great deal across activities, among people participating in the same activity, and even within the same individual on different outings. Proper trail design, layout and maintenance are essential for user safety and resource protection, and are important contributors to user satisfaction, too. User conflicts have been identified as a potential issue, particularly with respect to snowmobiles and equestrians. The Route 104 Corridor Trail will need to be designed and managed with varied users in mind.

2. Constraints

As the information in this chapter has illustrated, there are a number of factors to consider when locating a trail. Topography, soils, ecological character, habitat, drainage, wetlands, land use, destinations, property ownership, access, circulation and transportation are all matters that were evaluated. Of these factors, only a few presented significant constraints to the development of a trail in the Route 104 Corridor. Figure 11 illustrates these constraints: road crossings, stream crossings, wetland areas, concentrated truck traffic, and density of driveway and property conflicts. Providing safe access to a trail located in the Route 104 R.O.W. did not seem promising once the constraints were mapped. Due to the large number of driveways that would need to cross the trail and the corresponding potential for conflicts between trail users and driveway users, a trail that would be safe for users, cost effective, and pleasant to use was determined to be unfeasible in this location and the alternative was removed from further analysis. This led to the consideration of other alternatives, which are discussed in the following chapter.

This chapter describes the alternatives considered for the Route 104 Corridor Trail, and describes the potential trail user groups.

A. PLANNING FOR TRAIL USERS

The following section discusses different types of trail users, including bicyclists, pedestrians, emerging user groups, non-motorized winter sports enthusiasts, snowmobilers, and equestrians. Please also see Appendix F for a discussion of trail design and accessibility.

1. Bicyclists

On average, bicyclists require a minimum width of 40 inches to operate. A minimum width of four feet is necessary for any on-street bicycle facility whether it is designated as a bike lane or not. When bicyclists are traveling alongside motor vehicles, a width of five feet or more is suggested for bicyclists.

While the minimum operating space and bicycle facility width remains relatively the same between users, the skills, confidence and preferences of bicyclists vary largely. The challenge in planning for bicycle facilities is designing for the diversity of user skills. According to the Federal Highway Administration (FHWA), the Federal policy goal for bicycling is "to accommodate current use and encourage increased use, while enhancing safety."

The FHWA identifies the following types of bicycle users:

- Group A: Advanced Bicyclists
- Group B: Basic Bicyclists
- Group C: Children

Defining the bicyclist skill level through three groups and designing for the specific groups helps to refine roadway and path treatments. A description of the three different types of bicycle users by the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities is provided below.

Group A: Advanced Bicyclists. Group A is comprised of advanced or experienced riders who are generally using their bicycles as they would a motor vehicle. They are riding for convenience and speed and want direct access to destinations with minimal detours and delays. Advanced riders are typically comfortable riding with motor vehicles in traffic. They comprise the majority of the current users of collector and arterial streets and are best served by the following:

1. Direct and convenient access to destinations usually via the existing street and highway system.
2. The opportunity to operate at maximum speed with minimum delays.
3. Sufficient operating space on the roadway or shoulder to reduce or preferably eliminate the need for either the bicyclist or the motor vehicle operator to change position when passing.

Ideally for Group A riders, all roads would be "bicycle friendly."

Group B: Basic Bicyclists. Group B is comprised of basic adult and teenage riders who may also be using their bicycles for transportation purposes, such as getting to the store or visiting friends. Group B bicyclists are less confident of their ability to operate in traffic without special provisions for bicycles. Basic riders prefer to avoid roads with fast and busy motor vehicle traffic unless there is ample roadway width to allow easy overtaking by faster motor vehicles. Thus, basic riders are comfortable riding on neighborhood streets and shared use paths and prefer designated facilities such as bike lanes or wide shoulder lanes on busier streets. Some will develop greater skills and progress to the advanced level, but there will always be many millions of basic bicyclists. Group B bicyclists prefer:

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

Group B bicyclists would be best served by designated bicycle facilities on key routes through main travel corridors with lower volume rates and similar travel times.

Group C: Children. Group C bicyclists are children riding on their own or with their parents. This group may not travel as fast as their adult counterparts, but still require access to key destinations in their community, such as schools, convenience stores and recreational facilities. It is important to make sure children do not develop a false sense of security if they are encouraged to ride on a busy street. Group C bicyclists prefer the following:

1. Access to key destinations surrounding residential areas, including schools, recreation facilities, shopping, or other residential areas.
2. Residential streets with low motor vehicle speed limits and volumes linked with shared use paths and busier streets with well-defined pavement markings between bicycle and motor vehicles.
3. Well-defined separation of bicycles and motor vehicles on arterial and collector streets linked with shared use paths and other bicycle facilities.

Group C bicyclists would be best served by routes that provide access to key destinations, but keep them off of busy roads, as safety is more important than travel time.

2. Pedestrians

On average, two people walking side-by-side or passing one another generally require 4.67 feet of space, while two people in wheelchairs need a minimum of 5 feet to pass one another. While the minimum operating space and pedestrian facility width are relatively the same between users, the skills, confidence and preferences of pedestrians vary. These variations are mostly a result of differences in age and differences in physical, cognitive and sensory abilities.

The New York State Supplement to the National Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways 2003 Edition mandates that

crossings be designed to accommodate a walking speed of 3.5 feet per second. This walking speed should be used in the design of any crossing facility in the Route 104 Corridor Trail.

Although AASHTO does not classify pedestrians in the same manner that they do bicyclists, a similar hierarchy of ability levels is possible. Pedestrians can be described in the following groups:

- Group A: Advanced Pedestrians – highest mobility level
- Group B: Basic Pedestrians – moderate mobility level
- Group C: Limited Mobility Pedestrians – lowest mobility level

Group A: Advanced Pedestrians. Group A is comprised of advanced or experienced walkers or joggers who are generally using the sidewalks for exercise or to reach a destination. Advanced pedestrians are typically comfortable walking or jogging year round in all weather conditions, maneuvering around obstacles and other pedestrians, and crossing roads without adequate pedestrian crosswalk provisions. Sidewalks in disrepair or with minimal road buffers usually do not deter usage by Group A pedestrians. Group A pedestrians prefer:

- Direct and convenient access to destinations in a walk or jog of less than 45 minutes.
- The opportunity to walk or jog at varying speeds.
- Sufficient operating space on the sidewalk to reduce or eliminate the need to slow down when passing other pedestrians.
- Continuous sidewalks along the entire corridor.

Group B: Basic Pedestrians. Group B is comprised of basic adult and teenage walkers who use sidewalks for transportation purposes, such as getting to the store or visiting friends, and for moderate recreational use. Group B pedestrians typically walk from spring to fall, and will occasionally use well-plowed sidewalks during the wintertime. Group B pedestrians prefer:

- Comfortable access to destinations in a walk or jog of less than 20 minutes, preferably by a direct route.
- Well-maintained, well-lit, continuous sidewalks with a minimum width of five feet and buffers from roads.
- Marked crosswalks at intersections.
- Resting areas at least every 1000 feet.
- Sidewalks linking key destinations and neighborhood areas.

Group C: Limited Mobility Pedestrians. Group C is comprised of young children, seniors, and those with disabilities. This user group is often walking with supervision and/or assistance. In addition, support equipment, such as children's bicycles, strollers, and wheelchairs, is often used. They are walking to access key destinations or for moderate recreational purposes. Group C pedestrians use sidewalks mainly in good weather from spring to fall. Group C pedestrians prefer the following:

- Access to key destinations surrounding residential areas, including schools, recreational or community facilities, shopping, or neighbors, within a five to ten minute walk.
- Well-maintained, well-lit, continuous sidewalks with a minimum width of five feet and with moderate to large buffers from roads.
- Crosswalks with pedestrian signal operation.
- Resting areas at least every 500 feet.
- Sidewalks linking key destinations and neighborhood areas.

3. Emerging User Groups

The following section briefly summarizes a study conducted by Bruce Landis, Theodore Petrisch and Herman Huang and sponsored by the FHWA, "Characteristics of Emerging Road Users and Their Safety", Publication No. FHWA-HRT-04-103, printed in October 2004. According to recent research, emerging road and trail users constitute an increasing portion of transportation system users. With the development of new technologies and changing demographics, devices such as kick scooters, inline skates, hand cycles, and recumbent bicycles are becoming more common than they were even ten years ago. Electric personal transporter devices (e.g., the Segway™) are relatively new technologies that are now appearing on paths and roadways around the country. Additionally, the American population is aging, and the number of people using mobility assistive devices (such as manual wheelchairs, powered wheelchairs, and powered scooters) is increasing.

Emerging User Types include:

- Inline skates
- Kick scooters
- Strollers
- Recumbent bicycles
- Bicycle trailers
- Power wheelchairs
- Skateboards
- Electric bicycles
- Tandems
- Segway ™
- Manual wheelchairs
- Assistive power scooters
- Adult tricycles
- Hand cycles

With the increase in the number of emerging users comes a greater need to design and build suitable facilities. Many communities throughout the United States have adopted the AASHTO Guide to the Development of Bicycle Facilities as a standard for bike lane, shared roadway, and shared use trail design. As its title implies, the guide is written with bicyclists in mind, so its recommendations are based on the physical dimensions and operating characteristics of bicyclists. Emerging users have different characteristics from bicyclists, and as such, trails designed and built to accommodate bicyclists may not meet the needs of these emerging users.

The findings of this study demonstrate that there is great diversity in the operating characteristics of various road and trail user types. AAHSTO's design bicycle length of 6 feet and width of 30 inches were adequate for the majority of observed users. However, bicycle trailers and recumbent bicycles exceeded the design length. Power wheelchairs exceeded the design width. The recommended two-way trail width of 10 feet gave most users traveling single-file in opposite directions enough room to pass each other, though some only barely. The recommended two-way trail width of 10 feet was not wide enough for many user types to complete a three-point turn. The growing need to accommodate emerging users is not restricted to off-street shared use paths. The results of this research are valuable in determining how to better accommodate emerging user groups.

4. Non-Motorized Winter Sports Enthusiasts

With a lengthy season of winter weather, sports that take advantage of cold and snow are standard in Upstate New York. Popular non-motorized winter trail uses include cross-country skiing and snowshoeing. Other less frequently practiced types of non-motorized winter sports include dog sledding, snow biking (cycling, usually with a mountain bike, on snow and/or ice), skibobbing (using a bicycle-type frame attached to skis instead of wheels) and skijoring (cross-country skiers pulled by dogs). Winter trail uses are generally physically demanding, requiring endurance and skill. Winter sports enthusiasts can often utilize hiking, biking, or multi-use trails when they are covered with snow.

Cross country ski trails are designed specifically for skiing and are often a system of looped trails of varying difficulty over rolling terrain in a park-like setting. Other winter uses are often prohibited along designated ski trails unless there is space alongside the ski tracks for the additional use. Ski trails are, however, often compatible with a variety of summer uses. Many formal ski trails are groomed for skiers while other trails are designed for backcountry skiing without mechanized grooming. Narrow ski trails often restrict users to traveling in only one direction from the trailhead while wider ski trails are often groomed with two sets of tracks for two-way traffic. Cross country ski trails are often rated to signify their comparative level of difficulty.

While a linear trail may not be the preferred terrain for cross country skiers, it is likely that many skiers would utilize a trail in the Route 104 corridor. Cross country skiers were seen using the active Ontario-Midland railroad corridor, and it would be much safer to relocate their skiing activity to a multi-use trail.

Information on winter sports compiled from the NY Statewide Trails Plan, 2010 and the NJ Trails Plan Update, 2008.

5. Snowmobilers

New York State legislation created a dedicated fund to implement a statewide snowmobile program in 1985, administered by the NYS Office of Parks, Recreation and Historic Preservation (OPRHP). The NYS Snowmobile Program, funded through snowmobile registrations, provides for snowmobile trail grants, a law enforcement grant, a law enforcement snowmobile school, safety education, special event permits, accident reporting, snowmobile publications, grooming education, trail signage guidelines, and trail inspection oversight. Snowmobile registrations for the 2009-2010 season totaled 131,664.

The statewide snowmobile trail system, based on four classes of trails, traverses 47 counties and is maintained by approximately 200 clubs funded through 55 municipal sponsors. During the 2009-2010 season, $4,836,891 was budgeted for maintenance and development of this vast trail network of 10,423 miles, comprised of lands under the jurisdiction of OPRHP, DEC, NYS Canal Corporation, local governments, and many private landowners, whose insurance coverage is also provided by the NYS Snowmobile Program.

Several years ago, in an effort to clarify the overall statewide trail system, the OPRHP Snowmobile Unit began an inventory of trail types and mileages. As a result, the Snowmobile Unit produced a much more accurate depiction of actual trail mileage than had previously been available. To continue improving the accuracy of trail system information, OPRHP will be requiring that all state-funded trails be located using Geographic Information Systems (GIS) data or Global Positioning Systems (GPS) data for the 2010-2011 season. Trail miles will only be added if they meet criteria established in the Statewide Snowmobile Trail Plan and trail reroutes and connections will only be approved if verified by GIS or GPS. Figure 10 illustrates existing snowmobile trails in and around the study area.

Information on snowmobilers compiled from the NY Statewide Trails Plan, 2010.

6. Equestrians

Equestrians include youngsters, elders, leisure riders, professional riders, organized groups, novices, people with disabilities, and working ranchers. Riders recreate singly or in groups, and for many reasons--including pleasure, exercise, or challenge. Popular group trail events include social trips, competitive trail rides, and endurance races. Well-designed horse trails consider the setting of the trail system, the needs of all user groups, and the specific needs of stock and their riders.

In 2005, 3.9 million horses were used for recreation in the United States, more than a third of the country's 9.2 million horses (FHWA website, 2011). Many of the country's 2 million horse owners seek community and backcountry trail riding opportunities. Recreationists with physical challenges also turn to horses and mules to enjoy outdoor activities that would otherwise be unavailable to them.

Equestrians, or horseback riders, ride on a wide range of facilities. Therefore, equestrian trails encompass a variety of designated trails, paths, forest roads, abandoned rail rights of way, utility corridors and undeveloped lands, both public and private, that are open to recreational horseback riding. Trails for equestrian use are available in some state and county parks and federal recreation areas. Equestrian organizations, perhaps more so than other trail user groups, have created systems of equestrian trails on private land through agreements with the landowners. Horseback riding can take place on multi-use trails, where permitted.

Horses are prey animals, resulting in a natural instinct to run when frightened. For this reason, horses may be startled when they encounter unfamiliar users, such as bicyclists, hikers, ATVs, snowmobiles, and dog-walkers. Horseback riding can cause physical impacts to the trail surface and horse droppings affect the use of trails by others. Horseback riding typically requires more extensive trail head facilities than other trail uses, and may include trailer parking, water troughs, and mounting stations.

Information on equestrian activity compiled from the FHWA's Equestrian Design Guidebook for Trails, Trailheads and Campgrounds, and the NJ Trails Plan Update, 2008.

7. Potential Areas of Conflict Between Users

Multi-use trails, when they are well designed, carefully maintained, and effectively managed, are a significant community resource. However, trails can have a number of conflicts and challenges, which can be addressed by physical design and management responses. Potential conflicts along the Route 104 Corridor Trail include conflicts between different types of trail users, conflicts between motorists and trail users at road crossings, and conflicts between trail users and property owners. Appendix K discusses ways to manage conflict.

B. DEVELOPMENT AND ANALYSIS OF ALTERNATIVES

The alternatives presented in this section were developed by carefully evaluating the data gathered in the inventory and analysis phase. The alternatives that are described in detail are not the alternatives that were anticipated at the beginning of the study. By analyzing the opportunities and constraints presented by the corridor, the design team realized that there was a need to think differently about possible solutions. The goal of the study – to have a safe corridor where non-motorized users could travel between Sodus and Webster – could be achieved in a few different ways. The result is alternatives that differ from each other in significant ways.

Figure 11 illustrates some of the constraints that were documented during the inventory and analysis phase. Most of the inventory focused on the characteristics of the Route 104 right-of-way. However, during the analysis of the data that had been collected, the design team determined that the right-of-way was not the best place for a trail, primarily due to access and safety issues.

Alternative 1 is a multi-use trail in the Ontario-Midland Railroad right-of-way. In addition to being safer, the trail corridor is more scenic than Route 104. Alternative 2 offers an active transportation package that expands on the existing transportation network, which is a different type of solution altogether. The other alternatives considered were multi-use trail alignments located on the north and the south side of the Route 104 right-of-way, which are not recommended. These alternatives are all described in more detail in the following sections, and are illustrated in Figure 12.

1. Alternative 1: Railroad Trail

The first alternative is a multi-use trail located in the expanded right-of-way of the Ontario-Midland Railroad. This alternative would not be located in the Route 104 right-of-way, but instead would parallel Route 104 along the north side of the railroad. According to authorities at Ontario Midland, a 25-foot expansion of the railroad right-of-way is planned. The proposed trail could easily fit into this enlarged right-of-way, and would allow a public benefit to be associated with a right-of-way expansion that might be controversial to some landowners.

Existing Conditions, Ontario-Midland Railroad

Existing Railroad Conditions. This is not a heavily used railway corridor, as Ontario-Midland Railroad typically runs only once or twice a day and has a 25 mph speed limit. Trains run primarily on weekdays, but customers occasionally have weekend needs and Ontario-Midland will work to meet those needs, too. Ontario-Midland Railroad recently submitted a grant for track improvements in this area because their rail business has increased. In addition, RG&E uses the corridor to maintain the power feed grids to both Monroe and Wayne Counties.

Town of Ontario Trail Development. The trail would primarily follow the railroad right-of-way, but in the Town of Ontario, the trail would follow an alternate route. Town of Ontario officials have been in the process of developing a

Town of Ontario Trail, Casey Park

trail that roughly parallels the trail route. They wish to connect the Route 104 Corridor Trail to the 5.5-mile section of trail that is already under development. Some sections of the Ontario Trail are located on Town land, while other areas rely on access easements. A few sections of the trail have already been built, others sections have been negotiated but are not yet built, and still other sections are in the process of being discussed. This section runs from just east of Furnace Road in the east to Dean Parkway in the west.

Please see Figure 13 for an illustration of the trail development underway in the Town of Ontario, and Section B.2. in Chapter 4: Inventory and Analysis for a detailed description of the trail route.

Other Trail Alignment Details. For a short stretch in the Town of Williamson, the railroad right-of-way is not wide enough to accommodate a trail in the vicinity of Lake Avenue. Between Tuckahoe Road and Lake Avenue, the trail alignment will jog south from the railroad right-of-way to Railroad Avenue. A striped shoulder is recommended with accompanying 'share the road' signage.

Trail Design. A 10' wide trail, composed of either stone dust or asphalt, is recommended. Helical-pier boardwalks would be used to traverse wetlands, streams, and drainage areas. A drainage swale would be located between the tracks and the trail to address drainage needs and to provide separation between trail users and the railroad tracks. To provide a naturalized barrier, existing scrub-shrub vegetation would be left in the swale or native wet meadow plants would be planted where possible. At a minimum, the trail would be located 50 feet away from the railroad tracks. Locating the trail in the railroad corridor maximizes natural resources, views, and rural scenic value. The trail is close enough to commercial areas to make it a useful transportation connector, but is far enough away from Route 104 to protect the safety of trail users, and to enhance the scenic quality of the trail. Two designated north-south connections to Route 104 destinations are suggested. Please see Figures 12, 14, and 21 for illustrations of the proposed Railroad Trail.

Approvals. A trail plan would need to be approved by both Ontario-Midland and RG&E. A plan should be approved by Ontario-Midland, and then submitted to RG&E by Ontario-Midland. There will be requirements for clearance and security issues due to the high power feed lines from Ginna Nuclear Power Plant that run along the tracks. Regulations from agencies such as the Federal Railroad Administration, NYS Department of Transportation, and the NYS Public Service Commission would need to be addressed. However, conversations with both RG&E and Ontario Midland Railroad have been favorable. An agreement with both entities was not finalized, as the timing of such an endeavor is outside the scope of this project. But based on other local success stories, such as the Auburn Trail (built) and Ontario Trail Development (underway), this appears to be a feasible option.

Estimated Cost. $7,804,499 Please see Appendix H for more detail.

2. Alternative 2: Active Transportation Package

The second alternative is a very different solution to the need for a multi-jurisdictional active transportation corridor between Webster and Sodus. Instead of creating a new trail, this alternative proposes a package of transportation enhancements that would make Ridge Road more bicycle and pedestrian friendly. The proposal is a rural application of complete streets principles (see Appendix G). In addition to improvements to Ridge Road, this alternative recommends improving bicycle and pedestrian connections between Ridge Road and Route 104. These improvements are recommended along Furnace Road in Ontario and Lake Avenue in Williamson.

From the Monroe-Wayne County line to Route 88 in Sodus, Ridge Road is a two-lane road that roughly parallels Route 104, and is maintained by Wayne County. Ridge Road has less traffic than Route 104, and the traffic generally travels at slower speeds. These characteristics make Ridge Road a good candidate for a shared roadway.

Bicycle Improvements. AASHTO describes a shared roadway as "a roadway which is open to both bicycle and motor vehicle travel. This may be an existing roadway, street with wide curb lanes, or road with paved shoulders." Placing signs and pavement markings on Ridge Road will serve to advise motorists that bicycles are present. In most places, Ridge Road has existing road shoulders that can accommodate bicycle use. In some areas, additional striping may be necessary. Striped shoulders are not necessary for a shared roadway, but will provide additional room for cyclists and motorists to share space.

Existing Conditions, Ridge Road, Williamson

In some ways, a shared roadway on Ridge Road will function much like a rural bicycle boulevard. A bicycle boulevard is a low volume street that has been optimized for bicycle travel through traffic calming and diversion, signage and pavement markings, and intersection crossing treatments. Bicycle boulevards are shared roadway facilities that are comfortable and attractive to cyclists with a wide range of abilities and ages. Bicycle boulevards should be located on routes that serve major origins, destinations and travel corridors (often paralleling an arterial), and should be as direct and intuitive as possible.

However, a complete application of the bicycle boulevard concept is not recommended, as Ridge Road still has a fair amount of traffic. Traffic calming and diversion techniques are not suggested at this time, but signage and pavement markings would be used to make the movements of both motorists and bicyclists more predictable. In the future, striped bicycle lanes could be used to designate preferential or exclusive use by bicyclists. If bicycle lanes or additional striping were considered, the work should be done in accordance with standards outlined by AASHTO and the FHWA. See Figure 12 for an illustration of the route of Alternative 2.

Signage. The 2009 Manual on Uniform Traffic Control Devices (MUTCD) recommends using a Share the Road with Bicyclists sign assembly (W11-1 and W16-1). A "Share the Road" plaque is mounted below a bicycle warning sign, creating a sign assembly that advises drivers to watch for bicycle travel on the roadway. Section 9B.20 in the MUTCD states that guide signing for shared roadways should be similar to that described for Bike Route Guide signage. Signs may be provided along designated bicycle routes to inform cyclists of bicycle route direction changes, and to confirm route direction, distance, and destination. If used, signs may be repeated at regular intervals.

Bicycle parking. Bicycle parking is an important complement to on-street bicycle improvements. Bicycle racks and/or bicycle shelters are recommended for use in the Ridge Road corridor.

- Bicycle racks are intended for short-term storage periods between two and four hours, and are generally uncovered and unsupervised. Bicycle racks are appropriate outside a store, or for visitors to an office, building, park or government building.
- Bicycle shelters are intended for long-term storage periods between four and ten hours, and are desirable in pedestrian oriented areas. Covered bicycle shelters can be attractive streetscape features, and can provide informational signage, messages or maps. Bicycle shelters typically have a bicycle rack with a roof that is tall enough to accommodate an adult rider but low enough to keep rain and snow off the bicycles.

A detailed inventory of bicycle parking facilities is outside the scope of this study. However, bicycle parking is generally recommended in the commercial districts. Figure 6 illustrates destinations that exist in the study area, and the type and density of destinations could be used to roughly determine bicycle parking locations.

Pedestrian Improvements. In addition to bicycle facility improvements, the active transportation package includes improvements to pedestrian facilities, too. Pedestrian improvements are recommended for Ridge Road, as well as the Furnace Road and Lake Avenue connections to Route 104, and in select areas along Route 104 itself. Some basic improvements were identified and suggested in the cost estimate. These include basic piano key striping for east-west and north-south crosswalks at all major intersections along Ridge Road; new and expanded sidewalks along Lake, Furnace and Route 104; benches, and street trees. Figure 15 illustrates the possibility of providing expanded sidewalks along Route 104 that would be wide enough to accommodate both bicyclists and pedestrians.

However, a key part of this package is to conduct a detailed pedestrian inventory to determine what is needed to enhance the pedestrian environment. Again, the level of analysis needed to make detailed recommendations is outside the scope of this study. Possible pedestrian improvements include:

- Additional streetscape amenities, such as street trees, planters, trashcans, lighting, and benches;
- Additional alternative transportation amenities, such as bus shelters, bicycle racks, and bicycle shelters;
- Enhanced pedestrian crossings, using raised speed tables, curb ramps, tactile warning pavers, and/or decorative crosswalks;
- Signalization enhancements, such as leading pedestrian intervals and pedestrian countdown signals.

Approvals: On-street improvements. Many of the recommendations included in the active transportation package require the approval of different agencies and municipal boards. Ridge Road between Salt Road and the County line is locally maintained by the Town of Webster. Between the Monroe-Wayne County line and Route 88, Ridge Road is under the jurisdiction of Wayne County. Furnace Road is also under the jurisdiction of Wayne County. South of Route 104, Lake Avenue is under the jurisdiction of the New York State Department of Transportation (NYSDOT). NYSDOT approval may also be necessary for any changes on Ridge Road that intersect with State Roads. Approvals may also be needed from each municipality.

Approvals: Off-street improvements. Many of the recommendations do not require agency or municipal review and approval. Some recommendations may require review by municipal planning boards, as appropriate. Any sidewalk development is assumed to occur in the existing R.O.W. Sidewalk development may be new sidewalks in some areas, and expansion of existing sidewalks in other locations. Municipal approval is needed for sidewalks, but it is a fairly standardized process in most communities to plan, approve and install municipal sidewalks.

Estimated Cost. $1,930,120 Please see Appendix H for more detail.

3. Other Alternatives Considered

In addition to the alternatives already presented, trail alignments were also considered along the north and south sides of Route 104. Figure 11 illustrates constraints identified during the assessment of these two alternatives.

South Side Route 104 Trail. A multi-use trail was considered in the right-of-way on the south side of Route 104. Boardwalks would be used to traverse wetlands and streams. The trail could utilize and/or expand upon existing infrastructure (e.g. sidewalks) in developed areas. The proximity to Route 104 allows for good access to many destinations, but the location would be a less desirable trail user experience. Trail users would have to deal with truck traffic, noise, and air quality issues related to the highway. This alternative would have significant access and safety concerns related to the number of property owners and associated driveways. Drainage is also a concern.

North Side Route 104 Trail. A multi-use trail was considered in the right-of-way on the north side of Route 104. The details are similar to the trail previously described on the south side. However, most of the destinations are located on the south side of the highway. Providing access to these destinations would create too many unsafe crossings.

4. Feasibility Assessment Matrix

A feasibility assessment matrix was developed to assist the project team and the advisory committee in evaluating the different alternatives. The feasibility matrix utilizes the following criteria:

Table 5.1. Criteria Used in Trail Feasibility Assessment Matrix

Criteria	Description
1. Environmental Impacts	Does the trail preserve or positively influence natural resources, historic resources, scenic quality, air quality or water quality? (A)
2. Community Connectivity	Does the trail increase or improve access to activity centers and destinations? (A)
3. Compatibility with Other Plans	Is the trail compatible with local, regional or statewide plans? (A)
4. Public Support	Is there public support for the proposed trail? (A)
5. People to Benefit From Trail	How many people will benefit from the proposed trail? (A)
6. Ownership and Access	Are there likely to be land ownership or access issues within the proposed trail corridor?
7. Safety	Will the trail be safe for trail users, local residents, and motorists?
8. Construction Costs	How do the construction costs compare to other alternatives?
9. Sustainability	Does the trail reduce impacts to environmental resources, reduce energy consumption, reduce consumption of material resources, support healthy communities, and support sustainability during implementation?

Note: (A) indicates criteria that are taken from the FHWA Transportation Enhancement Program - Trail Project Rating Criteria.

The matrix uses stars (or points) to indicate how the trail alternative stands in relationship to the criteria. Each criterion could receive one to three points, with three points being the best. After all the criteria were evaluated, the trails could be compared based on the total number of points they had received. As Figure 16 illustrates, Alternatives 1 and 2 both received a similar number of points (22 and 21 stars, respectively). The Route 104 R.O.W. Trails (North and South) received a similar number of points to the No-Build Alternative (16 and 15 stars, respectively).

C. ACCESS, OWNERSHIP AND CONTINUITY

1. Access Points

Access to the Route 104 Corridor Trail should not present a problem. All trail alignment alternatives intersect a number of roads, which provide ample opportunities for accessing the trail. The active transportation package is primarily on-street improvements and would have unrestricted access. All of the alternatives would be integrated with existing infrastructure and would have connections to the existing transportation network. Where the proposed trail alignment crosses a road, there would be open access for trail users.

Access would be limited in order to keep unauthorized vehicles from entering the trail corridor, but managed in such a way that emergency vehicles could enter the trail when necessary. Small parking areas could be located at select locations where the trail crosses existing roads (see Chapter 6 and Figure 17 for proposed parking area locations). In addition, excess parking capacity in developed areas could serve as parking for trail users. Parking agreements would need to be negotiated in future trail development efforts.

The Route 104 Corridor Trail proposed in this study will connect to the existing Route 104 Trail that ends at Salt Road in Webster. All of the alternative trail alignments, as well as the active transportation package, are designed to provide continuity with the existing trail. In addition, existing plans suggest that a future section of the Route 104 Trail is planned from Sodus to Wolcott, linking the proposed trail with additional destinations.

2. Private Property Use and Acquisition

Land purchase is not recommended for either of the preferred alternatives. Therefore, a strategy for acquiring private property and/or public right-of-way is not needed to create a continuous ADA-compliant trail. In future design development phases, encroachments into the railroad right-of-way will need to be assessed. Several were noted during site analysis, but were not evaluated in detail.

3. Complete Streets

In addition to understanding the opportunities and constraints specific to the study area, we can look to the complete streets concept for solutions. According to the National Complete Streets Coalition (NCSC), complete streets are roadways designed and operated to enable safe, attractive, and comfortable access and travel for all users (NCSC, 2008). Pedestrians, bicyclists, motorists and public transport users of all ages and abilities are able to safely and comfortably move along and across a complete street. Complete streets also create a sense of place, improve social interaction, and generally increase land values of adjacent property.

Complete streets look different in different places. They must fit with their context and to the transportation modes expected (Laplante & McCann, 2008). Although no singular formula exists for a complete street, an effective one includes at least some of the following features (NCSC, 2009):

- sidewalks
- bike lanes
- wide shoulders
- plenty of crosswalks
- refuge medians
- bus pullouts
- special bus lanes
- raised crosswalks
- audible pedestrian signals
- sidewalk bump-outs (bulb-outs)

These features make a street safer and more pleasant for pedestrians and vehicles. A Federal Highway Administration safety review found that designing a street for pedestrian travel by installing raised medians and

redesigning intersections and sidewalks reduced pedestrian risk by 28% (NCSC, 2009). The practice of complete streets is not only about allocation of street space, but also about selecting a design speed that is appropriate to the street typology and location, and that allows for safe movements by all road users (Laplante & McCann, 2008). (See Appendix G for more details on complete streets.)

D. ROAD CROSSING GAP STUDIES

Basic gap studies were conducted at four of the road crossings along the Railroad Trail/Town of Ontario Trail alignment. Roads were selected based on the Average Daily Traffic (ADT) volume as presented in Table 4.8 in Chapter 4. Road crossings were selected that had the potential to be problematic. The gap studies verified that safe, at-grade road crossings were possible. Gap studies were conducted at times of peak traffic on Friday, May 20, 2011. A conservative crossing speed of 3 feet per second was used to evaluate each location. A usable gap is a gap that exceeds the time required for a pedestrian to cross the roadway.

Existing Conditions, Salt Road and Route 104, Webster

1. Crossing One: Salt Road, Webster

Salt Road is 55 feet wide (four lanes with painted island), with a speed limit of 40 mph. The gap study was conducted during rush hour on a sunny Friday afternoon. Using the road width, the average walking speed, and perception/reaction time, the crossing time for Salt Road is 21 seconds. In a 30 minute time period, there were 13 usable gaps, and 6 minutes of total usable gap time. The average gap time was 8 seconds, and the average usable gap time was 30 seconds.

2. Crossing Two: Ontario Center Road, Ontario

Ontario Center Road is 22 feet wide (two lanes), with a speed limit of 45 mph. The gap study was conducted during rush hour on a sunny Friday afternoon. Using the road width, the average walking speed, and perception/reaction time, the crossing time for Ontario Center Road is 10 seconds. In a 30 minute time period, there were 37 usable gaps, and 23 minutes of total usable gap time. The average gap time was 26 seconds, and the average usable gap time was 37 seconds.

3. Crossing Three: Furnace Road, Ontario

Furnace Road is 30 feet wide (two lanes), with a speed limit of 40 mph. The gap study was conducted during rush hour on a Friday morning. Using the road width, average walking speed, and perception/reaction time, the crossing time for Furnace Road is 13 seconds. In a 30 minute time period, there were 36 usable gaps, and 22 minutes of total usable gap time. The average gap time was 23 seconds, and the average usable gap time was 35 seconds.

4. Crossing Four: Lake Avenue, Williamson

Lake Avenue is 32 feet wide (two lanes), with a speed limit of 35 mph. The gap study was conducted during rush hour on a Friday morning. Using the road width, average walking speed, and perception/reaction time, the crossing time for Lake Avenue is 14 seconds. In a 30 minute time period, there were 37 usable gaps, and 19 minutes of total usable gap time. The average gap time was 19 seconds, and the average usable gap time was 31 seconds.

E. SEQR DOCUMENTATION AND PERMIT PROCESS

Development activity related to implementing the proposed project may involve adverse short-term and long-term impacts to water quality and significant habitats from construction activities. This study is a framework to minimize such impacts.

1. SEQR Documentation

The Route 104 Corridor Trail study is subject to SEQRA because the actions proposed may affect the environment. This study is an Unlisted Action because the trail will be used as public open space and over 2.5 acres will be disturbed. Thus, the following steps are recommended:

A. Complete Part I of a Full Environmental Assessment Form for circulation to the involved agencies.
B. Determine the significance of the environmental impact within 20 days.
C. If a Negative Declaration is determined, the lead agency must:
   - Prepare, file, publish and distribute the Negative Declaration. Every Negative Declaration must: identify the relevant areas of concern; thoroughly analyze the relevant concerns; and document the determination in writing, describing the reasons why the environmental concerns that were identified and analyzed will not be significant.
   - Maintain the file for public access.
D. If a Positive Declaration is determined, the following must be completed:
   - The lead agency must file a notice of the Positive Declaration.
   - A scope of the environmental issues may be prepared. Although not required, scoping is completed to address the environmental issues, which may be done by the lead agency, by the applicant, or by a consultant. If conducted, all involved agencies should participate in the scoping process. A draft scope should be given to anyone who has written to express project interest.
   - A draft environmental impact statement (EIS) must be prepared. The lead agency, project sponsor or their consultant can prepare the draft EIS.
     - The lead agency must determine acceptance of the draft EIS within 45 days. If adequate, the lead agency prepares, files, distributes and publishes a Notice of Completion.
     - Once the Notice of Completion of the draft EIS is filed, a public comment period begins for a minimum of 30 days.
     - A public hearing can be held. If a public hearing is held the following must be done: a Notice of Public Hearing must be prepared and filed; a notice must be published in the newspaper in the area of the potential impacts at least 14 days before the hearing, and the public comment period must continue for ten days following the hearing.
     - A final EIS must be prepared within 45 calendar days after the close of any hearings or within 60 days after following the draft EIS, whichever occurs last. The lead agency is responsible for the adequacy and accuracy of the final EIS.
     - Notice of Completion of the Final EIS must be prepared, filed, distributed and published.

Detailed instructions for each step of the SEQR review can be found at the New York Department of Environmental Conservation's website under regulations, Chapter VI: 617: State Environmental Quality Review. An additional SEQR review for each construction phase is not necessary.

2. Permit Process

The proposed Railroad Trail will require permitting and coordination with a number of different state and federal entities, including, but not limited to, the United States Army Corps of Engineers, NYS Department of Environmental Conservation, NY State Historic Preservation Office, United State Fish and Wildlife Service, and the New York Natural Heritage Program. The Active Transportation Package is primarily on-street improvements, and is unlikely to require any of the following permits.

Joint Application. Submittal of a Joint Application for Permit to both the United States Army Corps of Engineers (Corps) and the New York State Department of Environmental Conservation (NYSDEC) will be required prior to commencing construction of this project. It is anticipated that disturbance to both Waters of the United States and NYSDEC mapped wetlands and streams will occur as a result of the construction of this project. Prior to submitting a Joint Application for Permit, an on-site wetland delineation will need to be conducted, a wetland delineation report prepared, and a jurisdictional determination site visit conducted with the regulatory agencies involved.

NYS Department of Environmental Conservation. This project is likely to disturb greater than one acre of land and a Stormwater Pollution Prevention Plan (SWPPP) will be needed to obtain coverage under the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-10-001. Stormwater management practices set forth in a SWPPP should be designed to protect water quality, enhance operations and reduce maintenance. All measures and practices should comply with NYSDEC requirements. Prior written authorization from the NYSDEC is needed in order to proceed with construction activities that disturb more than 5 acres at a time.

In addition, NYSDEC regulations require a weekly site inspection by a licensed professional engineer (or representative) to review compliance with the prepared plans during construction. Site inspections must also be performed within 24 hours of any storm event exceeding ½ inch of rainfall.

NY State Historic Preservation Office. Coordination with the State Historic Preservation Office (SHPO) will be necessary to confirm the absence or presence of known archeologically sensitive areas, listed sites and eligible sites within the project area.

U.S. Fish & Wildlife Service. Coordination with the U.S. Fish & Wildlife Service will be necessary for potential impacts on federally listed rare, threatened or endangered wildlife species.

New York Natural Heritage Program. A letter of project intent was sent to the New York Natural Heritage Program to identify any State endangered and/or threatened wildlife and plant species and/or important ecological communities that are located in the project area boundary. A response was received and included only one historical record for a fish species (*Notropis heterodon* - blackchin shiner).

edr is capable of providing all the necessary services to assist the applicant through the permit process.

RECOMMENDATIONS
Route 104 Corridor Trail Feasibility Study

6

The following chapter includes information about the preferred trail alignment, design details, and project phasing.

A. PREFERRED TRAIL ALIGNMENT

The preferred alternative is the Railroad Trail as presented in the previous chapter. The Railroad Trail would be primarily located in the Ontario-Midland Railroad right-of-way. Unless otherwise specified, all road crossings will occur using an unsignalized, at-grade crosswalk. Please refer to Figure 17 for an illustration of the preferred trail alignment.

1. Webster

The trail would begin where the existing Route 104 trail ends, at the southwestern corner of the intersection of Salt Road and Route 104. The trail would cross Salt Road using an at-grade crossing at an existing traffic light. Based on the information obtained during the gap study, crossing enhancements (e.g. pedestrian signal) would be needed. The trail would head north for approximately 700 feet along the eastern side of Salt Road, traveling under Route 104 to the railroad right-of-way. The trail would cross Route 104 entrance ramps using enhanced crosswalks in existing crosswalk locations. The existing sidewalk would be expanded to 12 feet to accommodate the trail. At the railroad right-of-way, the trail would head due east along the northern side of the tracks for 1.25 miles until the trail reaches County Line Road and the Town of Ontario. At-grade road crossings of Basket Road and County Line Road, as well as a stream crossing of Four Mile Creek (West) will be necessary in this stretch of trail.

Possible trailhead and parking location: The vicinity of Salt Road and the Railroad R.O.W. is recommended for a trailhead location.

Cost Estimate: This section of trail is estimated to cost approximately $504,914. This preliminary figure includes expenses related to site preparation, 10' wide stone dust trail, boardwalks, sidewalk expansion, 1 stream crossing, drainage improvements, signage, site furniture, site restoration, and plantings. Also included are design and permitting fees, and an allowance for contingencies. See Appendix H for more detail.

2. Ontario

In the Town of Ontario, the trail begins at County Line Road and continues in the railroad corridor for approximately one-half mile to Dean Parkway, crossing Four Mile Creek (East) along the way. At Dean Parkway, the trail heads north for 700 feet. At the intersection with Timothy Lane, the trail turns in an easterly direction, running adjacent to Timothy Lane behind Harbec Plastics. The trail then turns slightly to the north and continues in an easterly direction to Lakeside Road, crossing Mill Creek along the way. From Lakeside Road, the trail trends slightly south while continuing in an easterly direction. Just to the west of Slocum Road, the trail crosses Dennison Creek (West).

At Slocum Road, the trail turns and heads in a northeasterly direction for approximately 3,750 feet (0.7 miles) in the RG&E utility corridor. In the utility corridor, the trail crosses Dennison Creek (East) and a small pond. Approximately 400 feet from Kenyon Road, the trail turns due east for 350 feet, and then turns southeast/east across the old Town landfill. The trail crosses Ontario Center Road and travels due east along the long narrow pond in Casey Park to the park entrance at Knickerbocker Road. The trail continues to travel due east after crossing Knickerbocker for approximately 1,100 feet, then turns due south for about 700 feet. At this point, the trail turns to the east again and goes across Town land to Furnace Road. The trail heads south along Furnace Road for approximately 700 feet. From Furnace Road, the trail turns and heads to the east for about 2,200 feet, crossing over the West and East branches of Bear Creek. From this point, the trail heads south to the railroad corridor again, and continues for 0.80 miles to the town line at Fisher Road.

Possible trailhead and parking location: Casey Park is recommended for a trailhead location, as there is already parking for existing recreational facilities.

Cost Estimate: This section of trail is estimated to cost approximately $2,493,425. This preliminary figure includes expenses related to site preparation, 10' wide stone dust trail, boardwalks, 6 stream crossings, drainage improvements, signage, site furniture, site restoration, and plantings. Also included are design and permitting fees, and an allowance for contingencies. See Appendix H for more detail.

3. Williamson

The Williamson section of trail contains a few choke points, but there are feasible routes around each spot. The Williamson section of the trail begins at Fisher Road and continues in the railroad corridor for 1.75 miles to Salmon Creek Road, crossing an unnamed creek along the way. The trail then crosses Salmon Creek, and continues in the railroad corridor for another 0.80 miles. At Tuckahoe Road, a slight jog to the north or south will be necessary to avoid railroad sidings just west of Lake Avenue. For 0.75 miles between Tuckahoe and Lake Avenue, the trail would be located in a striped shoulder on Railroad Avenue. If the striped shoulder is not preferred, another option is to negotiate trail access across private property north of the railroad.

At Lake Avenue, the trail returns to the north side of the railroad tracks and continues towards Pound Road, crossing another unnamed creek along the way. West of the Pound Road intersection, the trail may encounter a choke point at Mott's. It appears that trail access is possible, but it could be tight and there may be conflicts with tractor trailers accessing the property. For trail users to safely cross this section, measures would need to be employed to insure that trail users come to a complete stop at all driveways. Another option is to divert the trail between Lake Avenue and Pound Road. Trail users would cross Route 104 at the Lake Avenue traffic light, and then continue on a trail along the south side of Route 104 to Pound Road, where they would cross Route 104 at another existing traffic light.

At Pound Road, the trail returns to the north side of the railroad corridor and continues another 1.40 miles towards East Townline Road, crossing Mink Creek along the way. In the vicinity of East Townline Road, there is another potential choke point at Baldwin Richardson Foods. There are railroad sidings that may prohibit trail access through the area just west of East Townline Road. One option is to negotiate trail access further north across Baldwin Richardson Foods property, avoiding the vicinity of the production pond and railroad sidings. The trail would return to the railroad corridor along East Townline Road.

In the 5.5 miles of trail, there will be five at-grade road crossings. In this section, there are opportunities to intersect with the Williamson Town Loop Trail and the planned Pultneyville to Marion Trail.

Possible trailhead and parking location: The vicinity of Railroad Avenue and Tuckahoe Road is recommended for a trailhead location.

Cost Estimate: This section of trail is estimated to cost approximately $2,560,907. This preliminary figure includes expenses related to site preparation, 10' wide stone dust trail, boardwalks, 4 stream crossings, drainage improvements, signage, site furniture, site restoration, and plantings. Also included are design and permitting fees, and an allowance for contingencies. See Appendix H for more detail.

4. Sodus

The trail travels 3.25 miles from East Townline Road to Route 88. The entire section is in the railroad corridor, and there are three at-grade road crossings. The trail travels one-half mile from East Townline Road to the actual

Williamson-Sodus town line, then one-third of a mile between the town line and Redman Road. From Redman Road, the trail travels another 0.80 miles to Centenary Road, and then another 0.90 miles to Pratt Road. From Pratt Road, the trail continues another 0.80 miles along the railroad corridor to the intersection of Route 88 and Route 104, where the trail ends. The Village of Sodus is most safely accessed from the trail by continuing along the north side of Route 104 to Maple Street, where there is a signalized intersection. From the Maple Street intersection, there are sidewalks for pedestrians and on-street bicycle access to the Village.

Possible trailhead and parking location: A trailhead could potentially be located at the east end of the proposed trail. North of the Route 104 and Route 88 intersection is a used car dealership with an existing gravel road that could be used as an access point to the

Cost Estimate: This section of trail is estimated to cost approximately $1,716,410. This preliminary figure includes expenses related to site preparation, 10' wide stone dust trail, boardwalks, drainage improvements, signage, site furniture, site restoration, and plantings. Also included are design and permitting fees, and an allowance for contingencies. See Appendix H for more detail.

B. DESIGN DETAILS

The Route 104 Corridor Trail study was primarily focused on assessing the feasibility of locating the trail in a particular location. However, preliminary design decisions were made to allow for estimating cost. The following design elements are recommended.

1. Trail Design and Materials

A 10' wide trail, composed of either stone dust or asphalt, is recommended. Other trail surfaces, such as recycled asphalt, are also possible. Recycled asphalt pavement is becoming an accepted alternative for trail design. Depending on availability, this material should be considered as an option during construction design.

A drainage swale with native wet meadow plants would be located between the tracks and the trail to address drainage needs and to provide separation between trail users and the railroad tracks. An old field condition would be maintained in this area in order to keep open sight lines for safety and visibility. At a minimum, the trail would be located 50 feet away from the railroad tracks. Locating the trail in the railroad corridor maximizes natural resources, views, and rural scenic value. The trail is close enough to commercial areas to make it a useful transportation connector, but is far enough away from Route 104 to protect the safety of trail users, and to enhance the scenic quality of the trail. Figures 19 and 21 provide cross sections and illustrations that demonstrate typical trail construction and character.

The Route 104 Corridor Trail will be supportive of the local economy and an enhancement to local businesses. Alternative 1, the Railroad Trail will be designed and constructed with enough flexibility that additional sidings could be constructed along the north side of the tracks. Site specific solutions for re-routing trail segments at new sidings can be designed in the future as necessary. The trail is secondary to economic development, and will adapt to the needs of new and expanding businesses.

2. Boardwalks, Drainage Improvements and Stream Crossings

Helical-pier boardwalks are recommended to traverse federal and state wetlands, streams, and poorly drained areas. The helical-pier boardwalk system requires no placement of fill for foundation systems, which minimizes impacts and streamlines environmental permitting. Surface and sub-surface hydrology are unimpeded by the boardwalk

structure. Construction impacts are minimized by a leap-frog construction technique that allows the contractor to continuously stage equipment on the built boardwalk sections.

Post-construction monitoring of completed boardwalks indicates that vegetation continues to thrive, and small animals are able to move freely beneath the completed structures. The boardwalk is above grade and creates a micro-climate that can add diversity to overall site conditions. The shaded area beneath the boardwalk will retain soil moisture and a lower air temperature during the summer months. Depending on exposure, the ground beneath the boardwalk may be slower to thaw in the spring. Figure 18 provides typical boardwalk details and images.

The helical pier boardwalk system recommended for this project can be constructed with minimal environmental impacts, can accommodate light vehicles for emergency response and trail maintenance, and is suitable for ADA compliant multi-use trails built to AASHTO standards. However, other boardwalk systems are available. Construction costs for boardwalks can range from $15-$30 per square foot, depending on the foundation system, framing, decking material and railings. Helical pier boardwalks cost $27.50 per square foot, but the initial construction costs need to be weighed against long term stability, maintainability, safety, environmental impacts and ADA compliance. Lower cost boardwalk systems are often suitable for low volume recreational trails and footpaths in undeveloped areas, but they can be prone to flooding, and can be difficult places to maintain ADA accessibility.

Wetland locations are approximate based on on-site visual assessment, aerial mapping, and state and federal wetland mapping. Jurisdictional status is dependent on a site-specific wetland delineation. When the wetland delineation is conducted, it may be determined that there are marginal wetland areas that are suitable for a less structured wetland crossing. However, the helical pier boardwalk system provides a durable, reliable, and stable structure that is recommended for active transportation systems, and has been used in developing the cost estimate.

3. Gateways, Trailheads and Signage

Each entrance to the Route 104 Corridor Trail, as well as every at-grade road crossing, will require safety features. Aesthetic features, such as trail gateways, are also recommended to provide character.

Gateways. Each road crossing and trailhead presents an opportunity to define the character of the Route 104 Corridor Trail. Using the proximity to the Ontario-Midland Railroad as a guide, the preliminary design for aesthetic features reflects this railroad character. Trail gateways have been designed that utilize locally salvaged railroad materials. Pier caps could be constructed from local stone, recycled steel or salvaged railroad tie plates. Piers could be constructed from recycled railroad ties, with metal strapping used to define the structure. The gateways would welcome trail users as they enter the trail, and alert trail users that a road crossing is coming up. Figure 20 illustrates a proposed trail gateway.

Trailheads and Signage. One trailhead is proposed in each of the four phases/towns. Each trailhead should have parking for approximately ten cars, as well as an informational kiosk with trail maps. Figure 20 illustrates a preliminary design for a trail kiosk that is constructed from locally salvaged railroad materials, which would complement the gateways described previously. Figure 17 indicates proposed trailhead locations.

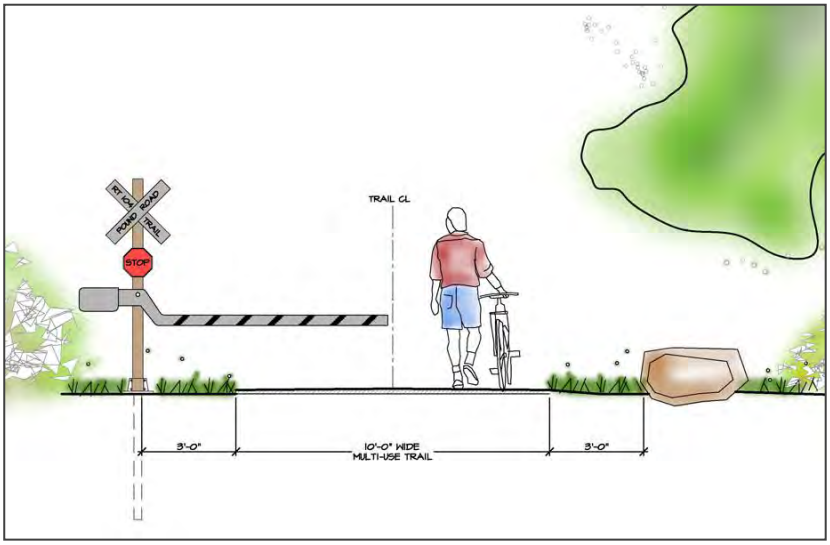
Other Signage. At each road crossing, signage is needed to instruct both motorists and trail users. Figure 20 illustrates a typical road crossing, and the associated signage. Road crossing signage should comply with the FHWA's Manual on Uniform Traffic Control Devices (MUTCD) and the American Association of State Highway Transportation Officials (AASHTO) Guidelines for the Development of Bicycle Facilities. In addition, the existing traffic signal at the proposed Salt Road crossing should be upgraded to include a pedestrian signal.

4. Site Furniture and Access Control

Site furniture and access control features are required to make the trail safe and comfortable.

Site Furniture. Locally sourced limestone slabs provide attractive, maintenance-free seating. Clusters of two or three boulders provide seating areas, which are recommended at approximately 500 feet apart. Bicycle racks are recommended in select locations. Fencing may be necessary in select areas, and has been included in the schematic cost estimate.

Access Control. Trail access control gates and striped crosswalks are recommended at each road crossing. The trail access gates can be a standard-issue gate, or the railroad theme could be used to inspire more interesting gates. Figure 20 (and the inset drawing) illustrate a preliminary design concept for a railroad-themed access gate. Crosswalk striping could follow a standard piano-key crosswalk pattern, or the striping could use a railroad-inspired pattern, too. Access to the trail needs to be limited to trail users and emergency vehicles, but does not need to receive the standard treatment.



Preliminary design concept for a railroad-themed access gate

5. Safety

According to the Rails to Trails Conservancy's report, *Rails with Trails: Design, Management, and Operating Characteristics of 61 Trails Along Active Rail Lines, p*lacing trails alongside active rail corridors can be an excellent method of securing land for safe, popular and effective trail development. Constructing a trail along an active railroad doubles the value a community derives from the rail corridor and provides citizens with an extra transportation choice. The report also notes that despite fears that rails-with-trails expose users to greater danger by their proximity to active rail lines, rails-with-trails appear to be just as safe as other trails. In fact, using a rail-with-trail may well be significantly safer than walking or cycling next to a busy main road and it may serve to keep people from walking on active railroad tracks.

The Route 104 Corridor Trail offers safety in other ways, too. Members of the snowmobiling community have been developing an evacuation plan for the 10-mile Emergency Planning Zone around Ginna Nuclear Power Plant in the event of a nuclear emergency and a snowstorm. A trail parallel to Route 104 could be used to evacuate motorists from Route 104 during any snow-related emergency. The Webster Ridge Runners Snowmobile Club has been working with Monroe County DOT and private landowners to negotiate access for a trail to accommodate this route.

C. PHASING

The Route 104 Corridor Trail is a lengthy multi-use trail that passes through four different municipalities. It is likely that the trail will be built in multiple phases. A phasing plan has been developed, with phases breaking at or near municipal boundaries. Figure 17 illustrates the recommended trail alignment and proposed phases for implementation.

1. Phase 1: Groundwork

The first phase that will be necessary is someone to lay the groundwork for a multi-jurisdictional trail project. The trail will need a management structure, access agreements, and funding.

Trail Management. With four towns and two counties involved, the trail committee will need to determine how future trail development will be managed. A trail management and/or ownership structure will need to be identified and formalized. Funding proposals, trail construction, and liability are all issues/activities that will need to be considered and handled by a trail manager. The trail could be managed by each town individually, or one town/organization could manage the trail for all the towns involved. Many trails cross through different jurisdictions, so there are other precedents for how the trail could be managed. The Auburn Trail, located in the Town of Victor, with portions in the Town and Village of Pittsford, and the Town of Perinton, is a local example.

Access Agreements. The preferred alternative is located primarily in the RG&E utility corridor. Preliminary discussions with Ontario-Midland Railroad and RG&E have been positive. However, approval from Ontario-Midland and an access agreement with RG&E will likely be necessary before trail development can be funded.

Funding. Before the trail can substantially move forward, funding will need to be secured. The Town of Ontario has been funding their own trail development, and other towns may wish to do the same. However, federal and state funds are available for trail development. The Route 104 Corridor Trail may be a good candidate for some of these funding sources, which are discussed in more detail in Chapter 7.

Trail Development. After these pieces are in place, trail development can commence. After construction funding is acquired, the necessary environmental review and permitting would be completed for each phase before construction commences. It is important to remember that each trail segment should function as a stand-alone trail until the entire trail is connected. For this reason, trailheads and connections to existing streets have been identified for each phase. Each trailhead would have designated parking for approximately 10 cars, and a kiosk with trail maps and information.

In addition, as trail development may take a number of years, a combination of Alternatives 1 and 2 could be used to provide an interconnected active transportation corridor. The active transportation package, featuring a shared roadway along Ridge Road, could have an on-street connection to completed portions of the trail. For example, while the Webster and Ontario sections are being completed, the Towns of Williamson and Sodus might opt to complete the less expensive improvements to Ridge Road while they seek funding for the trail. This would provide an interim route while the trail is completed.

The following phases seemed most likely at the time that the study was conducted. However, circumstances may change in the future, and the phasing plan may need to be adjusted.

2. Phase 2: Ontario

The Town of Ontario is already in the process of building their portion of the trail, so this section is the most logical location for "official" trail development to begin. The Town of Ontario has already developed a plan for approximately 5.5 miles of trail, of which 3.6 miles are built or in development and 1.9 miles are in the process of negotiation. The other portions of trail in the Town of Ontario would be located in the railroad R.O.W, for a total of 6.8 miles. The trail has not been constructed to the same design standards recommended in this report, but funding for this section of trail could be used to widen the trail to 10 feet and provide for the other amenities that are included in the trail development package, such as signage, trailheads, and benches.

3. Phase 3: Webster

Once the trail is completed in the Town of Ontario, the next logical piece of trail to develop would be the Webster segment. This 1.4-mile section of trail will connect the existing 6.1 mile Route 104 Trail to the portion of trail in Ontario, and would provide 14.3 miles of contiguous trail.

4. Phase 4: Williamson

The fourth phase of trail development will be the section located in the Town of Williamson. This 5.5-mile segment would extend the trail from Webster through Ontario and Williamson. This section of trail will be primarily located in the Ontario Midland Railroad R.O.W., except between Tuckahoe Road and Lake Avenue, where the trail will follow an alternate route. With the completion of Phase 4, the trail would provide 19.8 miles of continuous trail.

5. Phase 5: Sodus

The final phase of trail development would extend the trail into the Town of Sodus. This 3.25-mile section would connect Webster and Sodus, and provide more than 23 miles of continuous trail. The trail would terminate near the intersection of Route 104 and Route 88.

IMPLEMENTATION
Route 104 Corridor Trail Feasibility Study

7

This chapter discusses funding sources needed to implement the recommended trail alignment, as well as trail construction standards, user guidelines and operations and maintenance. Also included in this section is a summary of factors not addressed in this study.

A. POTENTIAL FUNDING SOURCES

Potential sources of funding for the Route 104 Corridor Trail include federal, state, local and private sources. All three types of funding are discussed briefly in the following sections.

1. Federal Sources

SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, formerly TEA-21 and ISTEA) – This program, which has been extended until September 30, 2011, is the latest multi-year, federal transportation legislation with many different funding programs for bicycle and pedestrian improvements. The following table shows a brief summary of the areas funded within the various programs. Please note that program requirements are likely to change when Congress takes action on the next surface transportation authorization. Additional information may be found at: http://www.fhwa.dot.gov/environment/bikeped/bp-guid.htm#bp4.

Table 7.1. Federal Bicycle/Pedestrian Funding Opportunities

	NHS	STP	HSIP	SRTS	TEA	CMAQ	RTP	FTA	TE	BRI	402	PLA	TCSP	JOBS	FLH	BYW
Bicycle and pedestrian plan		*				*						*	*			
Paved Shoulders	*	*	*	*	*	*				*					*	*
Signed bike route	*	*		*	*	*									*	*
Shared use path/trail	*	*		*	*	*	*			*					*	*
Single track hike/bike trail							*									
Spot improvement program		*	*	*	*	*										
Bicycle lanes on roadway	*	*	*	*	*	*		*	*	*					*	*
Bike racks on buses		*			*	*		*	*							
Bicycle parking facilities		*		*	*	*		*	*							*
Trail/highway intersection	*	*	*	*	*	*	*								*	*
Bike storage/ service center		*		*	*	*		*	*				*	*		
Sidewalks, new or retrofit	*	*	*	*	*	*		*	*	*					*	*
Crosswalks, new or retrofit	*	*	*	*	*	*		*	*						*	*
Maps		*		*		*					*					

	NHS	STP	HSIP	SRTS	TEA	CMAQ	RTP	FTA	TE	BRI	402	PLA	TCSP	JOBS	FLH	BYW
Signal improvements	*	*	*	*	*	*										
Curb cuts and ramps	*	*	*	*	*	*										
Traffic calming		*	*	*									*			
Coordinator position		*		*		*							*			
Safety/ edu position		*		*		*					*					
Police Patrol		*		*							*					
Helmet Promotion		*		*	*						*					
Safety brochure/book		*		*	*	*	*				*					
Training		*		*	*	*	*				*					

KEY

NHS	National Highway System	BRI	Highway Bridge Program
STP	Surface Transportation Program	402	State and Community Traffic Safety Program
HSIP	Highway Safety Improvement Program	PLA	State/Metropolitan Planning Funds
SRTS	Safe Routes to School Program	TCSP	Transportation and Community and System Preservation Pilot Program
TEA	Transportation Enhancement Activities	JOBS	Access to Jobs/Reverse Commute Program
CMAQ	Congestion Mitigation/Air Quality Program	RTP	Recreational Trails Program
FLH	Federal Lands Highway Program	FTA	Federal Transit Capital, Urban & Rural Funds
BYW	Scenic Byways	TE	Transit Enhancements

An example of one of these programs is the Congestion Mitigation and Air Quality (CMAQ) program. CMAQ is a Federal-Aid reimbursement program that provides funding for surface transportation and other related projects that contribute to air quality improvements and reduce congestion. Funding is available for areas that do not meet the National Ambient Air Quality Standards (non-attainment areas) as well as former non-attainment areas that are now in compliance (maintenance areas).

Examples of transportation control measures that qualify for funding include:

- improved public transit,
- traffic flow improvements and high-occupancy vehicle lanes,
- shared-ride services,
- bicycle/pedestrian facilities, and
- flexible work schedules.

2. State Sources

Recreational Trails Program – The Recreational Trails Program (RTP) is a State-administered, Federal assistance program to provide and maintain recreational trails for both motorized and non-motorized recreational trail use. RTP is a program of the NYSDOT administered by the Office of Parks, Recreation and Historic Preservation (OPRHP), but funds for the Recreational Trails Program are provided by FHWA. The RTP legislation requires that States use 40% of their funds apportioned in a fiscal year for diverse recreational trail use, 30% for motorized recreation, and 30% for non-motorized recreation. This grant requires a 20% matching fund commitment from the applicant at the time of application. http://nysparks.state.ny.us/grants/recreational-trails/default.aspx.

Environmental Protection Fund - Under the 2011-12 EPF budget, $12.3 million will be available for the acquisition, planning, development, and improvement of parks, historic properties, and heritage areas by municipalities and not-for profit organizations. New York State's Environmental Protection Fund has separate programs in the following areas: parks; historic preservation; heritage areas; acquisition; zoos, botanical gardens, and aquariums; snowmobile trails; and legislative initiatives. Applications for the highly competitive program will be available June 1. The due date for completed applications is **September 1, 2011**.

3. Local & Private Sources

Bonding – Bonds generate immediate financing and are appropriate for large-scale, permanent types of capital projects. General obligation bonds involve the taxing power of a municipality as it is pledged to pay the interest and principal to retire the debt.

Donations – Local clubs, interest groups, private developers and individuals should all be viewed as potential sources of money, services and labor for the development of new facilities and/or programs. The donor(s) determine what the funds would be used for. Property owners may also wish to donate land for public use/access.

Real Estate Taxes – The acquisition, development, operation and maintenance of the facilities may be partially supported by real estate tax revenue. Local tax revenues are the primary sources of maintenance and operating funds.

Sales Tax Increase – Municipalities may consider establishing a sales tax increase to generate general revenue for the acquisition and development of the facilities. In most areas, a tax increase for this purpose would require a public referendum and voter approval. This increase could be short-term or permanent.

The Foundation Center – The Foundation Center is the primary source of information on private funding sources, with information on over 40,000 foundations offering private monies. Grant information is delineated by geography, types of support, affiliations to facilitate research. Corporate giving and government funding sources can also be researched through the Foundation Center. For more information, please go to http://foundationcenter.org.

B. TRAIL CONSTRUCTION STANDARDS
(Derived from AASHTO "Development of Bicycle Facilities")

Class I bikeways (bike paths) are facilities with exclusive right of way, with cross flows by motorists minimized. Class I bikeways are typically described as serving "the exclusive use of bicycles and pedestrians." However, experience has shown that if significant pedestrian use is anticipated, separate facilities for pedestrians are one way to minimize conflicts. Motorized bicycles are prohibited on bike paths unless authorized by ordinance or approval of the agency having jurisdiction over the path. Likewise, all motor vehicles are prohibited from bike paths. Signing can strengthen these prohibitions.

1. Widths
Under most conditions, a recommended paved width for a two-way shared use path is 10'. In sensitive ecological areas, however, an 8' trail width is allowed where sight distance and trail alignment are good, expected trail use is low, and access by the occasional trail maintenance vehicle will not cause trail surface damage. Where heavy bicycle volumes are anticipated and/or significant pedestrian traffic is expected, the pavement width of a two-way path should be greater than 10', preferably 12' or more. Another important factor in determining the appropriate trail width is that bicyclists will tend to ride side by side on bike paths, necessitating more width for safe use.

A minimum 2' graded area with a maximum 1:6 slope shall be provided adjacent to both sides of the path. A 3' graded area is recommended to provide clearance from poles, trees, walls, fences, guardrails, or other lateral obstructions. Where the paved width is wider than the minimum required, the graded area may be reduced accordingly. However, the graded area is a desirable feature regardless of the pavement width.

2. Clearance to Obstructions
A minimum 8' horizontal clearance to obstructions shall be provided adjacent to the pavement. A 10' clearance is recommended. Where the pavement width is wider that the minimum required, the clearance may be reduced accordingly; however, an adequate clearance is desirable regardless of the paved width. If a wide path has pavement that is contiguous with a continuous fixed object (i.e. a block wall), a 4" white edge stripe, 12" from the fixed object, is recommended to minimize the likelihood of a bicyclist hitting it. On structures, the clear width between railings shall the same as the approaching paved path plus the minimum 2' clear areas. The vertical clearance to obstructions across a bridge or structure shall be 10'.

3. Striping and Signing
A yellow stripe may be used to separate opposing directions of travel. A centerline stripe is particularly beneficial in the following circumstances: a) where there is heavy use, b) on curves with restricted sight distance, and c) where the path is not lit and nighttime use is expected.

4. Intersections with Highways
Intersections are a prime consideration in bike path design. If alternate locations for a bike path are available, the one with the most favorable intersection conditions should be selected. Where motor vehicle cross traffic and bicycle traffic is heavy, grade separations are desirable to eliminate intersection conflicts. Where grade separations are not feasible, assignment of right of way by traffic signals should be considered. Where traffic is not heavy, stop or yield signs for bicyclists may suffice. Bicycle path intersections and approaches should be on relatively flat grades. Stopping sight distances at intersections should be checked and adequate warning should be given to permit bicyclists to stop before reaching the intersection, especially on downgrades.

When crossing an arterial street, the crossing should either occur at the pedestrian crossing, where motorists can be expected to stop, or at a location completely out of the influence of any intersection to permit adequate opportunity for bicyclists to see turning vehicles. When crossing at midblock locations, right of way should be assigned by devices such as yield signs, stop signs, or traffic signals that can be activated by bicyclists. Even when crossing within or adjacent to the pedestrian crossing, stop or yield signs for bicyclists should be placed to minimize potential for conflict resulting from turning autos. Where bike path stop or yield signs are visible to approaching motor vehicle traffic, they should be shielded to avoid confusion. In some cases, "Bike X-ing" signs may be placed in advance of the crossing to alert motorists. Ramps should be installed in the curbs, to preserve the utility of the bike path. Ramps should be the same width as the bicycle paths. Curb cuts and ramps should provide a smooth transition between the bicycle path and the roadway.

5. Design Speed
The proper design speed for a trail is dependent on the expected type of use and on the terrain. The minimum design speed for shared use path should be 20 mph. On unpaved paths, a lower design speed of 15 mph can be used. Similarly, where the grades or prevailing winds dictate, a higher design speed of 25 mph can be used. Installation of "speed bumps" or other similar surface obstructions, intended to cause bicyclists to slow down in advance of intersections or other geometric constraints, shall not be used. These devices cannot compensate for improper design.

6. Horizontal Alignment and Superelevation
The minimum radius of curvature negotiable by a bicycle is a function of the superelevation rate of the pathway surface, the coefficient of friction between the bicycle tires and the surface, and the speed of the bicycle. For most bicycle path applications, the maximum superelevation rate will be 3 percent. A straight 2% cross slope is recommended on tangent sections, and ADA guidelines require that cross slopes not exceed 2-3 percent. The minimum superelevation rate of 2% will be adequate for most conditions and will simplify construction. When transitioning a 3 percent superelevation, a minimum 25-foot transition distance should be provided between the end and beginning of consecutive and reversing horizontal curves.

7. Stopping Sight Distance
To provide bicyclists with an opportunity to see and react to the unexpected, a bicycle path should be designed with adequate stopping sight distances. The distance required to bring a bicycle to a full controlled stop is a function of the bicyclist's perception and brake reaction time, the initial speed of the bicycle, the coefficient of friction between the tires and the pavement, and the braking ability of the bicycle.

8. Lateral Clearance on Horizontal Curves
Bicyclists frequently ride abreast of each other on bicycle paths, and on narrow bicycle paths, bicyclists have a tendency to ride near the middle of the path. For these reasons, and because of the serious consequences of a head-on bicycle accident, lateral clearances on horizontal curves should be calculated based on the sum of the stopping sight distances for bicyclists traveling in opposite directions around a curve. Where this is not possible or feasible, consideration should be given to widening the path through the curve, installing a yellow center stripe, installing a curve ahead warning sign, or some combination of these alternatives.

9. Grades
Bike paths generally attract less skilled bicyclists, so it is important to avoid steep grades in their design. Bicyclists not physically conditioned will be unable to negotiate long, steep uphill grades. Since novice bicyclists often ride poorly maintained bicycles, long downgrades can cause problems. For these reasons, bike paths with long, steep

grades will generally receive very little use. The maximum grade recommended for bike paths is 5%. It is desirable that sustained grades be limited to 2% if a wide range of riders is to be accommodated. Steeper grades can be tolerated for short segments (i.e. up to about 500 feet). Where steeper grades are necessitated, the design speed should be increased and additional width should be provided for maneuverability.

10. Structural Section
The structural section of a bike path should be designed in the same manner as a highway, with consideration given to the quality of the base soil and the anticipated loads the bikeway will experience. It is important to construct and maintain a smooth riding surface with skid resistant qualities. Principal loads will normally be from maintenance and emergency vehicles. Expansive soil should be given special consideration and will probably require a special structural section. A minimum pavement thickness of 2 inches of asphalt concrete is recommended. Type "A" or "B" asphalt concrete (as described in Department of Transportation Standard Specifications), with ½ inch maximum aggregate and medium grading is recommended. Consideration should be given to increasing the asphalt content to provide increased pavement life. Consideration should also be given to sterilization of base soil to preclude possible weed growth through the pavement.

At unpaved highway or driveway crossings of bicycle paths, the highway or driveway should be paved a minimum of 10 feet on each side of the crossing to reduce the amount of gravel being scattered along the path by motor vehicles. The pavement structure at the crossing should be adequate to sustain the expected loading at that location.

11. Drainage
For proper drainage, the surface of a bike path should have a cross slope of 2%. Sloping in one direction usually simplifies longitudinal drainage design and surface construction, and accordingly is the preferred practice. Ordinarily, surface drainage from the path will be adequately dissipated as it flows down the gently sloping shoulder. However, when a bike path is constructed on the side of a hill, a drainage ditch of suitable dimensions may be necessary on the uphill side to intercept the hillside drainage. Where necessary, catch basins with drains should be provided to carry intercepted water across the path. Such ditches should be designed in such a way that no undue obstacle is presented to bicyclists. Culverts or bridges are necessary where a bike path crosses a drainage channel.

12. Barrier Posts
Barrier posts may be necessary at entrances to bike paths in order to prevent motor vehicles from entering the trail. When locating such installations, care should be taken to assure that barriers are well marked and visible to bicyclists, day or night (i.e. install reflectors or reflectorized tape). Barrier configurations that preclude entry by motorcycles generally present safety and convenience problems for bicyclists. Such devices should be used only where extreme problems are encountered.

Striping an envelope around a barrier is recommended. If sight distance is limited, special advance warning signs or painted pavement warnings should be provided. Where more than one post is necessary, 5-foot spacing should be used to permit passage of bicycle-towed trailers, adult tricycles, and to assure adequate room for safe bicycle passage without dismounting. Barrier post installations should be designed to be removable, permitting entrance by emergency and service vehicles.

13. Lighting
Fixed source lighting reduces conflicts along paths and at intersections. In addition, lighting allows the bicyclist to see the bicycle path direction, surface conditions, and obstacles. Lighting for bicycle paths is important and should be considered where riding at night is expected, such as bicycle paths serving college students or commuters, and at

highway intersections. Lighting should also be considered through underpasses or tunnels, and where nighttime security could be a problem. Depending on the location, horizontal illumination levels of 5 lux to 22 lux should be maintained. Light poles should meet the recommended horizontal and vertical clearances. Luminaires and poles should be at a scale appropriate for a pedestrian or bicycle path.

C. USER GUIDELINES

Non-motorized trails have become very popular, which has resulted in congestion and potentially hazardous situations. Regardless of whether you are bicycling, walking, jogging or skiing, if you follow the same set of rules as everyone else, your trip will be safer and more enjoyable. Help make the multi-use trails safe for everyone by using the following guidelines:

1. Be Courteous. All trail users, including bicyclists, joggers, walkers, wheelchairs, and skiers, should be respectful of other users regardless of their mode, speed, or level of skill.

2. Be Predictable. Travel in a consistent and predictable manner. Always look behind you before changing positions on the trail.

3. Don't Block the Trail. When traveling in a group with other trail users or your pets, use no more than half the trail so as not to block the flow of other users.

4. Keep Right. Stay as near to the right side of the trail as is safe, except when passing another user.

5. Pass On The Left. Pass others, going your direction, on their left. Yield to slower and on-coming traffic. Use hand signals to alert those behind you of your moves. Look ahead and back to make sure the lane is clear before you pull out and pass. Pass with ample separation and do not move back to the right until safely past. Remember: children and pets can be unpredictable.

6. Stopping. When stopping, move off of the trail. Beware of others approaching you from behind and make sure they know you are pulling over.

7. Give Audible Warning Before Passing. Give a clear signal by using voice, bell or horn before passing. Give the person you are passing time to respond. Watch for their reaction. So that you can hear signals, don't wear headphones on the trail.

8. Obey All Traffic Signs And Signals. Use extra caution where trails cross streets. Stop at all signs and intersections and be cautious when crossing driveways. When entering or crossing a trail, yield to traffic on the trail.

9. Use Lights At Night. Be equipped with lights when using a trail at any time from dusk to dawn. Bicyclists should have a white light visible from five hundred feet to the front and a red or amber light visible from five hundred feet to the rear. Other trail users should have white lights visible from two hundred fifty feet to the front, and a red or amber light visible from two hundred fifty feet to the rear.

10. Don't Use A Trail Under The Influence Of Alcohol or Drugs. Don't overestimate the safety of any trail. You may need all of your reflexes quickly, so it is important that they are not impaired.

11. Be Respectful Of Private Property. Trails are open to the public, but often the land on the side of the trail is private property. Please respect all property rights.

12. Clean Up Litter. Do not leave glass, paper, cans, plastic, or any other debris on or near a trail. If you drop something, please remove it immediately.

13. Recognize When You Have Outgrown Trails
Trails have engineering and design limits. If your speed or style endangers other users, check for alternative routes better suited to your needs. Selecting the right location is safer and more enjoyable for all concerned.

D. OPERATIONS AND MAINTENANCE
Guidelines for the operation and maintenance of the Route 104 Corridor Trail will help establish this pathway as a multi-use trail destination that can be managed and maintained safely and efficiently over the long term.

1. Operations
The operation of a trail consists of the day-to-day management of trail use. This includes law enforcement, marketing, special events, map and brochure updates, and other functional considerations. The specific policies regarding the operation of a trail will most likely be decided in advance of trail construction. After construction, a large part of trail operation consists of the day-to-day execution of those policies.

2. Maintenance
The maintenance of a trail includes the various activities involved in keeping the trail in a safe, usable condition. This includes numerous efforts ranging from mowing and brush removal to replacement of damaged signs or benches to reconstruction of the trail. Lifetime trail maintenance will place ongoing costs on the operating agency, and this should be considered during the trail planning and funding process.

In most cases, funding granted for trail construction cannot be applied to ongoing operations and maintenance. In order to maintain the quality of a newly constructed trail, local trail operators must plan for the continued maintenance of the facility.

3. Recommendations
These recommendations are designed to assist trail operators in the operation and maintenance of trail facilities, and should be viewed as guidelines. As guidelines, they have no legal requirement, and should be altered based on conditions specific to a particular operating entity or trail.

Establish an Operations and Maintenance Policy. Before the trail opens, the implementing group should set forth a policy document outlining specific rules pertaining to the trail and specific tasks that will be performed for its operation and maintenance. This policy will be the guide for the ongoing administration of the trail. The document should be unique to the particular community or trail to which it applies.

The Operations and Maintenance Policy may cover a wide range of issues. The following items should be major considerations in the policy.

- Permitted uses on the trail.
- Whether user fees will be collected, and in what manner (e.g. pay-as-you-go, trail passes).
- Marketing of the trail. Some communities may desire to reap the economic benefits of trails by actively marketing their facilities. The costs associated with marketing can vary greatly, depending on the intended audience and the intensity of the campaign.
- Policing and security on the trail. This may include the creation of an emergency response plan; provision for trail patrols through existing law enforcement or with special community bike patrols; or a plan for other safety measures such as emergency phones or call boxes.
- Liability. In many cases, existing laws will determine liability. The operating agency should fully understand the liability associated with the trail and verify that insurance is adequate.
- Encroachment. Some local agencies may take ownership of a corridor that is being encroached upon by adjacent landowners. This is particularly true of railroad corridors bounded by agricultural uses. The implementing agency should set forth definitive policies relating to existing and future encroachments.
- Snow removal. In mild winters, some users will expect hard-surfaced trails to be plowed for use throughout the season. The operating agency should determine whether or not it will perform this maintenance.
- Seasonal maintenance. The operating agency should determine who will perform this maintenance. In many cases, volunteers or existing clubs can groom trails.
- Cooperative maintenance agreements. In some cases, trail owners may wish to explore the possibility of partnering with other government entities or private organizations in the operation and maintenance of a trail. Any operations or maintenance agreements should be articulated in the operations and maintenance policy.
- Use of volunteers. Volunteers can be a cost-saving benefit for trail operators. They do, however, need to be supervised, and liability prevents their use in certain situations.
- Evaluation of trail conditions. Every trail should be evaluated on a regular schedule to identify the need for major and minor repairs. The operations and maintenance policy should delineate how often trail evaluations take place, preferably once a year.
- Short- and long-term maintenance program. See “Recommended Maintenance”

Recommended Maintenance. Different types of trails will differ greatly in their maintenance requirements. All trails however, will require a variety of maintenance activities at different points in their lives. Table 7.2 outlines some general guidelines for maintenance activities and the frequency at which they should be performed.

- "Frequency" refers to how often each maintenance item should be performed.
- "Maintenance" refers to the specific maintenance activity to be performed.
- "Performed by" refers to who may undertake the particular maintenance activity.

Table 7.2. Recommended Maintenance

Frequency	Maintenance	Performed by
As needed	Tree/brush clearing and mowing Sign replacement Map/signage updates Trash removal/litter clean-up Replace/repair trail support amenities (parking lots, benches, restrooms, etc.) Repair flood damage: silt clean-up, culvert clean-up, etc. Patching/minor regrading/stone dust replacement	Volunteers, trail operator
Seasonal	Planting/pruning/beautification Culvert clean-out Installation/removal of seasonal signage	Volunteers, trail operator
Yearly	Surface evaluation to determine need for patching or regrading Evaluate support services to determine need for repair or replacement	Trail operator
5-year	Repaint or repair trash receptacles, benches, signs, and other trail amenities, if necessary	Volunteers, trail operator
10-year	Resurface / regrade / restripe	Hired contractor, trail operator, volunteers
20-year	Replace / reconstruct trail	Hired contractor, trail operator, volunteers

The proposed Route 104 Corridor Trail will consist of both granular stone dust and boardwalk surfaces. Granular trails are less susceptible to freeze/thaw conditions, but may be severely impacted by runoff. After floods, heavy rains, or spring snowmelt, the trail surface may become rutted. If left alone, subsequent floods or rains will follow the same ruts, making them larger and more hazardous. The surface of granular trails should be periodically raked back into place to maintain a smooth surface for trail users. Flooding can be expected, and maintenance should be anticipated.

4. Maintenance Costs
Maintenance costs will vary greatly depending on the type of trail, amount of volunteer labor, construction quality, and available services. These costs, however, must be considered during the trail planning process, to ensure that trail owners can pay for the ongoing maintenance of the trails they develop.

Maintenance costs are rarely broken down into specific tasks such as those listed in Table 7.1. Most trails are maintained by an existing agency, such as a local or state park, public works, or maintenance department. Estimated costs, therefore, are broken down by the type of maintenance performed. There are three basic types of maintenance. Routine maintenance includes all the general activities, such as brush clearing, trash collection, and sweeping, that may take place on a regular basis throughout a season. Minor repairs refer to activities that can be expected every five years or so, such as amenity replacement, repainting, or re-striping. Major reconstruction refers to significant expenditures involving resurfacing or reconstruction. These activities are the most costly trail maintenance activities and should be planned for in advance.

Routine Maintenance. Typically, most of the routine maintenance of a trail facility will be performed by an existing agency or volunteer group. Local trail owners should be well equipped to include trail maintenance into their parks or public works maintenance budgets and activities. Activities that should be considered as routine maintenance include:

- Yearly facility evaluation to determine the need for minor repairs
- Tree and brush clearing
- Mowing
- Map/signage updates
- Trash removal and litter clean-up
- Repair of flood damage: silt clean-up, culvert clean-out, etc
- Patching, minor regrading, or stone dust replacement
- Planting, pruning, and general beautification

The yearly cost for routine maintenance depends on the maintenance capabilities already in place with the trail owner and the amount of volunteer labor used. In general, yearly routine maintenance costs can be estimated at $5,000 per mile. This figure does not include snow removal.

Minor Repairs. The need for minor repairs should be determined by a yearly facility evaluation (see Routine Maintenance, above). Minor repairs may include the following activities:

- Replacement, repair, or repainting of trail support amenities, such as signage, benches, trash receptacles
- Replacement of a portion of the trail
- Re-striping of trails

The cost for replacement, repair, or repainting of trail amenities is based on the initial cost of those amenities. Trail operators should maintain records of the general costs of trail amenities as a means of estimating future repair and replacement costs. If custom elements, such as lighting or benches are used in trail design, the trail owner should consider ordering extra elements at the time of construction and storing them for future use, thereby defraying the cost of single-runs later.

Re-striping of bike lanes on existing pavement will cost the same as the original striping. The trail owner should keep a record of the original bid to determine the price of re-striping a trail using contracted labor. In many cases, it is cost effective to perform re-striping along with other trail or highway maintenance. In such instances, the trail owner will be the best source of cost information.

Major Reconstruction. There is one activity considered to be major reconstruction, the complete replacement, regrading, and resurfacing of all trails. Complete replacement of a trail involves removing the existing trail, regrading the trail base, and resurfacing the facility. This kind of comprehensive maintenance will be necessary every 20 years, regardless of trail type. Even natural surface trails may need to be fully regraded after 20 years of use. Trail costs for reconstruction are the same as the cost of a new trail plus the cost of demolishing the existing trail. As with any major trail project, however, a detailed cost estimate should be performed during the project planning stages. The best guide for estimating the replacement cost of a trail is to consider the original construction cost.

A major cost such as trail replacement should be considered well in advance. It may be more difficult to secure large state or federal grants for trail reconstruction. Therefore, a trail owner should consider the eventual cost of trail replacement and financially prepare for that significant maintenance activity.

E. FACTORS NOT ADDRESSED IN STUDY

In the course of the *Route 104 Corridor Trail Feasibility Assessment and Design Recommendations* study, there were a few issues that were not addressed or resolved. These issues should be considered as the proposed trail moves into the next phase of development. The following issues need to be considered:

- Identify precisely where there are existing encroachments into the railroad R.O.W. and determine how to address each one.
- Continue discussions with Rochester Gas and Electric/Iberdrola USA and Ontario Midland Railroad regarding access, with the goal of finalizing access agreements.
- As the trail alignment is finalized and refined, other landowners may become involved if the trail alignment changes. Access agreements may be necessary, particularly as the choke points in Williamson are resolved.
- Environmental permitting is outlined in this report, and will be a critical undertaking in the next phase of trail development.
- Shared parking agreements may be necessary. The goal was to utilize existing infrastructure for trailheads and parking (where possible), but access to those locations will need to be formalized.

Alta Transportation Consulting, Northeast Greenways, and Larsen Engineers. August 2002. *Regional Trails Initiative: Phase 1 – Rochester TMA*. Prepared for the Genesee Transportation Council.

American Association of State Highway and Transportation Officials (AASHTO) *Guide for the Development of Bicycle Facilities*, 1999.

American Planning Association contributors. *What is Planning?* Retrieved on May 18, 2011 from http://www.planning.org/aboutplanning/whatisplanning.htm

Clark Patterson Associates, Northeast Greenways, and Trowbridge & Wolf. April 2004. *Regional Trails Initiative: Phase 2 – Non-TMA Region*. Prepared for the Genesee Transportation Council.

Federal Highway Adminsitration (FHWA) and the National Recreational Trails Advisory Committee contributors. Date Unknown. *Conflicts on Multiple-Use Trails: Synthesis of the Literature and State of the Practice.* Available at: http://safety.fhwa.dot.gov/ped_bike/docs/conflicts.pdf

FHWA contributors. *Equestrian Design Guidebook for Trails, Trailheads and Campgrounds.* Retrieved in March 2011 from http://www.fhwa.dot.gov/environment/fspubs/07232816/page04.htm

Genesee Transportation Council. *Genesee/Finger Lakes Region Traffic Data*. Provided via email correspondence with Chris Tortora, March 2011.

Genesee Transportation Council. *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2007-2027 Update.* Retrieved on May 18, 2011 from http://www.gtcmpo.org/AboutGTC/GoalsObjectives.htm

Landis, Bruce; Petrisch, Theodore; Huang, Herman. October 2004. *Characteristics of Emerging Road Users and Their Safety*, Publication No. FHWA-HRT-04-103. Sponsored by the FHWA.

Laplante, John and Barbara McCann. "Complete streets: We can get there from here," ITE Journal, May 2008.

Miner, Connie. November 2007. Funding Opportunities from Connie D. Miner & Co. Grant Consultants, 4818 Kraus Road, Clarence, New York, 14031, (716) 759-3336.

National Complete Streets Coalition brochure. March 2009.

National Complete Streets Coalition contributors. Retrieved in December 2008 from http://www.completestreets.org

NYS Museum/NYS Geological Survey, 1999b. *New York State surficial geology mapping.*

New York State Department of Transportation, June 2009. Traffic Volume Report for New York State.

New York State Department of Transportation, 2000 Rural Functional Classification Map: Wayne County, Region 4, NYSDOT, April 19, 2005.

New York State Office of Parks, Recreation and Historic Preservation. December 2010. *New York Statewide Trails Plan.*

Pedestrian and Bicycle Information Center contributors. Pedestrian and Bicycling information retrieved in December 2009 from http://www.bicyclinginfo.org and http://www.walkinginfo.org

Rails to Trails Conservancy and the National Park Service. November 2000. *Rails with Trails: Design, Management, and Operating Characteristics of 61 Trails Along Active Rail Lines*

Tesmer, Irving H.; Bastedo, Jered C. 1981. *Colossal Cataract: The Geologic History of Niagara Falls.* SUNY Press. p. 48.

The RBA Group and Community Trail Connection. January 2008. *New Jersey Trails Plan Update: A Vision and Action Plan for New Jersey's Future.* Prepared for the New Jersey Department of Environmental Protection and the New Jersey Department of Transportation.

U.S. Census contributors. *2000 and 2010 Census Data.* Retrieved in 2010 and 2011 from http://www.census.gov

U.S. Department of Agriculture, 1973. *Monroe County Soil Survey.*

U.S. Department of Agriculture, 1978. *Wayne County Soil Survey.*

Walk Score contributors. *Walk Scores*. Retrieved in November 2010 and March 2011 from http://www.walkscore.com

Wayne County Highway Department. *Wayne County Traffic Counts*. Provided via email correspondence with Kevin Rooney, October 2010.

Wikipedia contributors. *New York State Route 104.* Retrieved on April 5, 2011 from http://en.wikipedia.org/wiki/New_York_State_Route_104

APPENDIX A
Route 104 Corridor Trail Feasibility Study

EXISTING CONDITIONS PHOTOS

Prepared for GTC and the Towns of Ontario, Sodus, Webster, and Williamson, NY

ROUTE 104 CORRIDOR TRAIL - EXISTING CONDITIONS

Casey Park Trail, Looking West

Ore Bed Lake Trail, Looking West

East End of Ore Bed Lake, Looking West

Existing Ontario Trail

ROUTE 104 CORRIDOR TRAIL - EXISTING CONDITIONS

County Line Road, Looking East, Ontario

East of Dean Parkway, Looking East, Ontario

Knickerbocker Road, Looking West, Ontario

Existing Railroad Corridor

ROUTE 104 CORRIDOR TRAIL - EXISTING CONDITIONS

Lake Avenue, Looking West, Williamson

Railroad Character, Sodus

Railroad Character, Williamson

ROUTE 104 CORRIDOR TRAIL - EXISTING CONDITIONS

End of Existing Trail, Looking North Towards Route 104, Webster

End of Existing Trail, Looking South on Salt Road, Webster

Existing Trail, Looking West, Salt Road, Webster

Looking East Along North Side of Route 104, From Salt Road Intersection, Webster

Looking East Along South Side of Route 104, From Basket Road Intersection, Webster

Looking West Along Ridge Road and Route 104, Between Basket and County Line Road, Webster

ROUTE 104 CORRIDOR TRAIL - EXISTING CONDITIONS

Looking East Along Route 104 From Lincoln Road, Ontario

Looking West Along Route 104 From Furnace Road Intersection, Ontario

Looking West Along Route 104 From Slocum Road Intersection, Ontario

Looking East Along Route 104 From Entrance to Orchard Grove Village, Ontario

Looking West Across Eastbound Lanes, East of Salmon Creek Road, Williamson

Looking West Across Salmon Creek, Williamson

ROUTE 104 CORRIDOR TRAIL - EXISTING CONDITIONS

Looking East Along Route 104 From Lake Avenue, Williamson

Looking East Along Route 104 From Pearsall Street, Williamson

Looking West Along Route 104 Towards Lake Avenue, Williamson

ROUTE 104 CORRIDOR TRAIL - EXISTING CONDITIONS

Looking East Along Route 104 From Orbaker's Drive In, Williamson

Looking West Along Route 104 From Orbaker's Drive In, Williamson

Route 104 Character, Sodus

APPENDIX B
Route 104 Corridor Trail Feasibility Study

PUBLIC INPUT SUMMARY

Prepared for GTC and the Towns of Ontario, Sodus, Webster, and Williamson, NY

APPENDIX B
Route 104 Corridor Trail Feasibility Study

PUBLIC INPUT : PRESS RELEASES

News Release

(Tuesday, November 16, 2010) – The Town of Williamson will host a public meeting from 6 to 8 pm on Wednesday, December 1, 2010 at the Williamson Town Hall to discuss the Route 104 Corridor Trail Feasibility Study.

The study will assess the feasibility of developing a 16.5-mile multi-use trail within the highway right-of-way and/or parallel with Route 104. The trail would connect to the eastern end of the existing Route 104 Trail in the Town of Webster and extend east through the Town of Ontario, the Town of Williamson, and part of the Town of Sodus, ending at the western boundary of the Village of Sodus.

Project planners will be on hand to discuss the inventory and analysis that has been generated to date. **edr**, the landscape architectural consulting firm responsible for the study, is interested in receiving feedback from local residents prior to developing corridor recommendations. The Genesee Transportation Council (GTC) is funding the preparation of the report under its Unified Planning Work Program (UPWP). Financial assistance was provided in part by the Federal Highway Administration.

For more information, please contact:
Town of Williamson Supervisor James Hoffman at (315) 589-2038 - or -
edr Project Manager Tom Robinson at (585) 271-0040.

News Release

(Friday, June 24, 2011) – The Town of Williamson will host a public meeting from 6 to 8 pm on Thursday, July 14, 2011 at the Williamson Town Hall to discuss the Route 104 Corridor Trail Feasibility Study.

The study assesses the feasibility of developing a 16.5-mile multi-use trail parallel with New York State Route 104. The trail would connect to the eastern end of the existing Route 104 Trail in the Town of Webster and extend east through the Town of Ontario, the Town of Williamson, and part of the Town of Sodus, ending at the western boundary of the Village of Sodus.

Project planners will be on hand to discuss the recommended trail alignment and associated active transportation possibilities. **edr**, the landscape architectural consulting firm responsible for the study, is interested in receiving feedback from local residents prior to completing the study. The Genesee Transportation Council (GTC) is funding the preparation of the report under its Unified Planning Work Program (UPWP). Financial assistance was provided in part by the Federal Highway Administration.

For more information, please contact:
Town of Williamson Supervisor James Hoffman at (315) 589-2038 - or -
edr Project Manager Tom Robinson at (585) 271-0040.

APPENDIX B
Route 104 Corridor Trail Feasibility Study

PUBLIC INPUT : MEETING SIGN–IN SHEETS

Meeting Sign-in Sheet

Project: GTC 2008-2009 Priority Trails Advancement- Route 104 Corridor Trail Feasibility Study

Meeting: Steering Committee Meeting #1

Date: July 19, 2010

Name	Organization	Contact Info: Address, Email
Ed Newman	Town of Ontario Trail Committee	(585) 217-2450 enewman@rochester.rr.com
Jim Hoffman	Town of Williamson	315-589-2038 wmsnsny@rochester.rr.com
Valerie J. Fowler	Town of Williamson	315-589-2038 tewtow@aol.com
Steve LeRoy	Town of Sodus	315-483-4430 SMLEROY@ROCHESTER.RR.COM
Steve Beauvais	NYSDOT	(w) 585-272-3466 sbeauvais@dot.state.ny.us
Bob Kelsch	Town of Ontario Supervisor	(w) 315-524-7105 EXT 100 KELSCH@ONTARIOTOWN.ORG
Bob Torzynski	Genesee Transportation Council	(w) 585-232-6240 rtorzynski@gtcmpo.org

Meeting Sign-in Sheet

Project: GTC 2008-2009 Priority Trails Advancement- Route 104 Corridor Trail Feasibility Study

Meeting: Steering Committee Meeting #2

Date: November 8, 2010

Name	Organization	Contact Info: Address, Email
Lenore Youngman	Trail Works	LLYoungman@aol.com
Steve Beauvais	NYSDOT	sbeauvais@dot.state.ny.us
Bob Torzynski	GTC	rtorzynski@gtcmpo.org
Jim Heffman	Town of Williamson	WMSONSVAV@rochester.rr.com
Tom Hooker	Citizen	TOMTWH@CS.Com
Peter Evans	Trailworks Inc Wayne Cty Historian	Historian@co.wayne.ny.us pkevans@eznet.net

Meeting Sign-in Sheet

Project: GTC 2008-2009 Priority Trails Advancement- Route 104 Corridor Trail Feasibility Study

Meeting: Public Meeting #1

Date: December 1, 2010

Name	Organization	Contact Info: Address, Email	
Sob Torzynski	GTC	htorzynski@gtcmpo.org	
PETER EVANS	Wayne Co. Historian Williamson, TRAIL WORKS, INC.	Historian@co.wayne.ny.us	
Steve Beauvais	NYSDOT	sbeauvais@dot.state.ny.us	
Bob Kelsch	Town of Ontario	Kelsch@ontariotown.org	
Paul o SANDI SARACEN		PJSomid@Aol.com	

Meeting Sign-in Sheet

Project: GTC 2008-2009 Priority Trails Advancement- Route 104 Corridor Trail Feasibility Study

Meeting: Steering Committee Meeting #3

Date: March 14, 2011

Name	Organization	Contact Info: Address, Email	
Tom Robinson	EDR		
Bob Torzynski	GTC		
Bob Kelsch	Town of Ontario		
James D Hoffman	Town of Williamson		
Lenore Youngmen	Trail Works		
Peter Evans	Trail Works County Historian		

Meeting Sign-in Sheet

Project: GTC 2008-2009 Priority Trails Advancement- Route 104 Corridor Trail Feasibility Study

Meeting: Steering Committee Meeting #4

Date: June 20, 2011

Name	Organization	Contact Info: Address, Email
Sandi Saracen	Ontario Midland Railroad	PJSAMID@AOL.com
Paul Saracen	" "	" " 48 Belden Ave Sodus, NY 14551
Bob Torzynski	Genesee Trans. Council	rtorzynski@gtcmpo.org
Steve LeRoy	Town of Sodus	SMLEROY@ROCHESTER.RR.COM
Bob Kelsch	Town of Ontario	Kelsch@ontariotown.org
Peter Evans	WC Historian	Historian@co.wayne.ny.us
Tom Hooker	Williamson Historian	TOMTWH@CS.COM
Nicole Bader	EDR	
Tom Robinson	EDR	

Meeting Sign-in Sheet

Project: GTC Priority Trails Advancement - Route 104 Corridor Trail Feasibility Study

Meeting: Public Meeting #2

Date: July 14, 2011

Name	Organization	Contact Info: Address, Email
Sandi Saracen	Ontario Midland Railroad	48 Belden Ave Sodus, NY 14551 / PJSOMID@AOL.com
Paul Saracen	" " "	" "
Ora Rothfuss	Wayne Co. Planning	9 Pearl St Lyons ocothfuss@co.wayne.ny.us
Peter Evans	Trail Works Wayne Co. Historian	9 Pearl St Lyons, NY 14489 Historian@co.wayne.ny.us
Steve Beauvais	NYSDOT	1530 Jefferson Rd., Rodd. 14623 sbeauvais@dot.state.ny.us
Bob Torzynski	GTC	rtorzynski@gtcmpo.org
Lenore Youngman	Trail Works	LL Youngman@aol.com
Bob Bull	HPVA	uncle toro@hotmail.com
Jim Hoppe	TWMSCH	wmschsvp@rochester.rr.com

Meeting Sign-in Sheet

Project: GTC Priority Trails Advancement - Route 104 Corridor Trail Feasibility Study

Meeting: Public Meeting #2

Date: July 14, 2011

Name	Organization	Contact Info: Address, Email
Robert Kelsch	Town of Ontario	Kelsch@ontariotown.org
Alan VerBridge	Trail user	averbrid@rochester.rr.com
Tom Robinson	EDR	
Nicole Bader	EDR	

APPENDIX B
Route 104 Corridor Trail Feasibility Study

PUBLIC INPUT : WRITTEN COMMENTS

Zimbra **trobinson@edrcompanies.com**

+ Font Size -

104 corridor

From : Leigh Semilof <lsemilof@verizon.net> Tue, Nov 30, 2010 02:56 PM

Subject : 104 corridor

To : TRobinson@edrcompanies.com

Dear Mr. Robinson,
Regarding our conversation on a proposed rt 104 corridor along the NYstate right of way. My objections to the idea, as a business located along the route are as follows. Motorized traffic including snow sleds, motor bikes, and ATV's are physically destructive to ground and paved driveways. All one has to do is observe the verge of the road from Sodus to Wolcott to see evidence of this. As a property owner who attempts to maintain a high standard of appearance to my business, this would be difficult with the ruts, dust, and generalized destruction caused by heavy treads and wheeled vehicles. Furthermore, as a matter of liability, the land is technically owned by me even though the state has a right of way. In the event of an accident, my business would probably included in any legal action. Increased accessibility to the property after hours also leads to the increased possibility of theft or vandalism from either motorized or foot traffic. My further objection especially to motorized traffic after dark is the blinding effect of headlights coming at traffic particularly in the east bound lane from both west-bound cars and trucks, and west bound caravans of snow sleds. In heavy snow or rain, it becomes difficult to see the lines on the road. For those of us with poor night vision, it makes driving in the dark difficult and dangerous. It can be confusing when oncoming traffic is both left and right of your car.
Thank you for taking the time to consider my opinion.
Sincerely,
Leigh M. Semilof DVM .

Route 104 Corridor Trail
Public Meeting Comment Form
July 14, 2011

On behalf of the Genesee Transportation Council, **edr** is investigating the feasibility of creating a multi-use trail that parallels Route 104 between Webster and Sodus. Please take a few minutes and let us know if you have any ideas regarding the path of the future trail. Please let us know what you think about the plans presented tonight.

Excellent presentation:
some more excellent suggestions
came up.

Tom Robinson has been excellent to work with
throughout the full project.

Develop the approach to RGE as much
as possible.

Peter Evans

Please return comments to Tom Robinson at Environmental Design and Research (edr)
274 North Goodman Street – Rochester, NY 14607
Phone: 271-0040 Fax: 271-0042 trobinson@edrcompanies.com

August 2, 2011

RE: Route 104 Trail Study comments

My name is Todd Chapman, I am the President of the Webster Ridge Runners Snowmobile Club. I am submitting these comments in concern of the 104 Trail Study.

The idea of a trail along 104 is an area we are trying to develop not only for a recreational snowmobile trail but also as part of a developing evacuation plan for the 10 Mile EPZ zone of Ginna Power Plant in the event of a subsequent Nuclear Emergency and snowstorm. A trail parallel to 104 would be invaluable not only for recreational use but also for a potential evacuation of motorists along 104 for any snow related emergency.

Our club has contacted the Monroe County DOT for permission for a trail from Basket Rd east to Bay Rd. For now we will ask for private landowner permission between Basket Rd and Salt Rd and we are asking to use the 104 Bike Path from Salt Rd to Bay Rd.

If approved this would be a great start to developing a snowmobile trail from Bay Rd in Webster to Sodus which would also be great for the local economy.

Thank you for considering my comments.

Todd Chapman
President
Webster Ridge Runners

ALTERNATIVE TRANSPORTATION BENEFITS

Transportation accounts for more than 30 percent of U.S. carbon dioxide emissions (West, 2007). However, there are a number of alternative transportation possibilities, such as walking, bicycling, and taking public transportation. According to the American Public Transportation Association (APTA), public transportation in the United States saves approximately 1.4 billion gallons of gasoline and about 1.5 million tons of carbon dioxide annually (APTA, 2007). Walking and bicycling as a means of transportation reduces those figures even further. Walking, bicycling and public transportation offer benefits to the global environment as well as to personal health, finances, time, and stress.

A. Environmental Benefits

Only 14 million Americans use public transportation daily while 88 percent of all trips in the United States are made by car—and many of those cars carry only one person (West, 2007). Switching to alternative transportation reduces emissions of greenhouse gases and other pollutants that contribute to global warming, smog, and acid rain. Greenhouse gases are atmospheric gases, primarily carbon dioxide, methane and nitrous oxide, which trap the sun's heat, making the Earth a greenhouse. Emissions of greenhouse gases enhance the Earth's greenhouse effect contributing to climate change. Air pollution includes ground level ozone and fine airborne particles, as well as carbon monoxide, nitrogen oxides and sulphur oxides. This mix of substances is often called smog. (SES, 2007)

Half of the average person's greenhouse gas emissions are from transportation. Choosing alternative transportation is an easy way to reduce greenhouse gas emissions. Shorter trips, which are most suited to alternative transportation, are the least fuel-efficient and generate the most pollution per mile when a motor vehicle is used. (SES, 2007)

B. Health Benefits

The most valuable natural resource of any community is the health of the residents. In 2005, the Centers for Disease Control and Prevention (CDC) reported the following statistics:

- Obesity has risen significantly among adults in the last 20 years
- 30% of U.S. adults age 20 and older – over 60 million people – are obese
- The percentage of young people who are overweight has more than tripled since 1980
- 16% of young people age 6-19 years – over 9 million people – are considered overweight

In Upstate New York, childhood obesity trends exceed or match national trends. For example in 2004, twenty-one percent of Upstate New York 3rd graders were obese, which exceeds the national rate of 16% (Upstate NY, 2004). Childhood overweight and obesity is a precursor for adult obesity. The *Strategic Plan for The Prevention of Childhood Overweight and Obesity in Monroe County, NY 2007-2017,* cites "the physical environment and the lack of affordable and safe recreational venues for many children," as a factor in childhood overweight and obesity. The *Greater Rochester Health Foundation* and its task force has set the following goal to decrease childhood obesity:

- Reduce the prevalence of overweight and obesity, as measured by Body Mass Index (BMI), from 12,244 (15%) to 4,081 (5%) of Monroe County children ages 2-10 by 2017.

Increased physical activity and creating safe environments are strategies that will be employed to meet the goal.

Health care costs and insurance rates are escalating, causing serious impacts to the local economy. In 2000, health care costs associated with physical inactivity topped $76 billion (CDC, 2005). Lack of physical activity is a contributing factor to a growing number of serious illnesses and health problems among all age groups. Land use and building patterns exacerbate the problem by providing new neighborhoods that have few opportunities for

walking or biking. Lifestyles have become increasingly sedentary in a post-industrial society.

Despite the proven benefits, more than 50% of American adults do not get enough physical activity to provide health benefits (CDC, 2005). With this in mind, opportunities for exercise and healthful outdoor activity are more than expendable extras. Parks, trails, and open space resources take on new meaning and value. Opportunities for recreation and active transportation support the health and wellness of local residents, and have significant and quantifiable economic impacts. Active transportation, such as walking and bicycling, provides an opportunity to incorporate regular physical activity into the daily routine.

Regular physical activity has the benefit of helping a person to look and feel better, but also reduce the risk of disease. Unhealthy diet and physical inactivity can cause or aggravate many chronic diseases and conditions, including type 2 diabetes, hypertension, heart disease, stroke, and some cancers (CDC, 2005). Regular physical activity is an important component of a healthy lifestyle, and aids in the prevention of many chronic diseases, disabling conditions and chronic disease risk factors (CDC, 2007).

In addition, research studies have found that overweight and obese children have lowered academic achievement in standardized test scores (CA Dept of Ed, 2005). Also, findings in other studies show that children who are physically active perform better academically and miss fewer days of school (Dwyer, 1996). Bicycling provides an opportunity to simultaneously obtain the benefits of transportation and physical exercise.

C. Financial Benefits

In additional to health-related costs, operating a personal automobile is very expensive. Of every dollar earned, the average household spends 18 cents on transportation, 94% of which is for buying, maintaining and operating cars, the largest source of household debt after mortgages (APTA, 2007). The average vehicular commuter spends over $7,500 per year on commuting expenses, which include the cost of gas, vehicle wear and tear, vehicle maintenance, and insurance. In contrast, the average transit rider spends between $200 and $2600 annually on public transportation, depending on mileage traveled and other factors, such as transfers, distance, and parking charges (APTA, 2007).

For some households, alternative transportation can even reduce the need for additional cars, which can be a yearly expense between $5,000 and $11,800 (APTA, 2007). With the money saved on a vehicle, or even just the additional parking, fuel and maintenance required to commute in a vehicle, an active commuter can pay for transit expenses, purchase a good quality bicycle, or buy new walking shoes, with money left over.

D. Time and Stress Benefits

Alternative transportation can save time and reduce stress. Carpooling or taking a bus allows commuters to use the HOV lanes and by-pass traffic. Carpooling and mass transit also provide the passengers a break from driving and allow them to use their time in other ways like sleeping, reading, or doing work. Riding a bicycle allows a commuter to choose a less busy route and by-pass traffic lights. Walkers and cyclists see more of their community than stoplights, white lines and car bumpers, and benefit from the stress relief that accompanies physical exercise.

Studies have shown that the longer the regular commute, the greater amount of stress that a commuter feels. Stress often leads to fatigue, headaches, and irritable moods, which can subsequently affect work performance and household dynamics. Active transportation increases social interaction with the community. It is easier and less expensive to park a bike than a car, which further reduces the stress of commuting.

Sources:

American Public Transportation Association (APTA), May 2007, *Public Transportation Fact Book,* 58th Edition.

American Public Transportation Association website, October 2007. http://www.apta.com/media/facts.cfm

California Department of Education, April 2005. *A Study of the Relationship Between Physical Fitness and Academic Achievement in California using 2004 Test Results*; and Dwyer T., Sallis J.F., Blizzard L., et. al. Relation of academic performance to physical activity and fitness in children. *Pediatric Exercise Science*, 2001; 13:225-237.

Dwyer T., Blizzard L., Dean K. 1996. Physical activity and performance in children. *Nutritional Review*; 54(4, pt II):S27-S31.; Kennedy E, Davis C. U.S. Department of Agriculture School Breakfast Program. American Journal of Clinical Nutrition 1998; 67(4):798S-803S; and Geier AB, et. al. The relationship between relative weight and school attendance.

Greater Rochester Health Foundation, 2007. *Strategic Plan for The Prevention of Childhood Overweight and Obesity in Monroe County, NY 2007-2017.*

Saskatchewan Environmental Society (SES) website, October 2007. *Alternative Transportation.* http://www.environmentalsociety.ca/issues/alt-trans/index.html

Upstate New York, 2004. *Grade 3 Oral Health, Physical Activity and Nutrition Survey.*

U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, July 2005. Fact Sheet: *Preventing Chronic Diseases: Investing Wisely in Health – Preventing Obesity and Chronic Diseases Through Good Nutrition and Physical Activity.* Retrieved from website in October 2007.

U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. (Publish date unknown). Fact Sheet: *Promoting Active Lifestyles Among Older Adults.* Retrieved from website in October 2007.

West, Larry. October 2007. *Public Transportation: Fast Track to Fewer Emissions and Energy Independence.* http://environment.about.com/od/greenlivingdesign/a/public_transit.htm. Published by About.com, part of the New York Times Company.

APPENDIX D
Route 104 Corridor Trail Feasibility Study

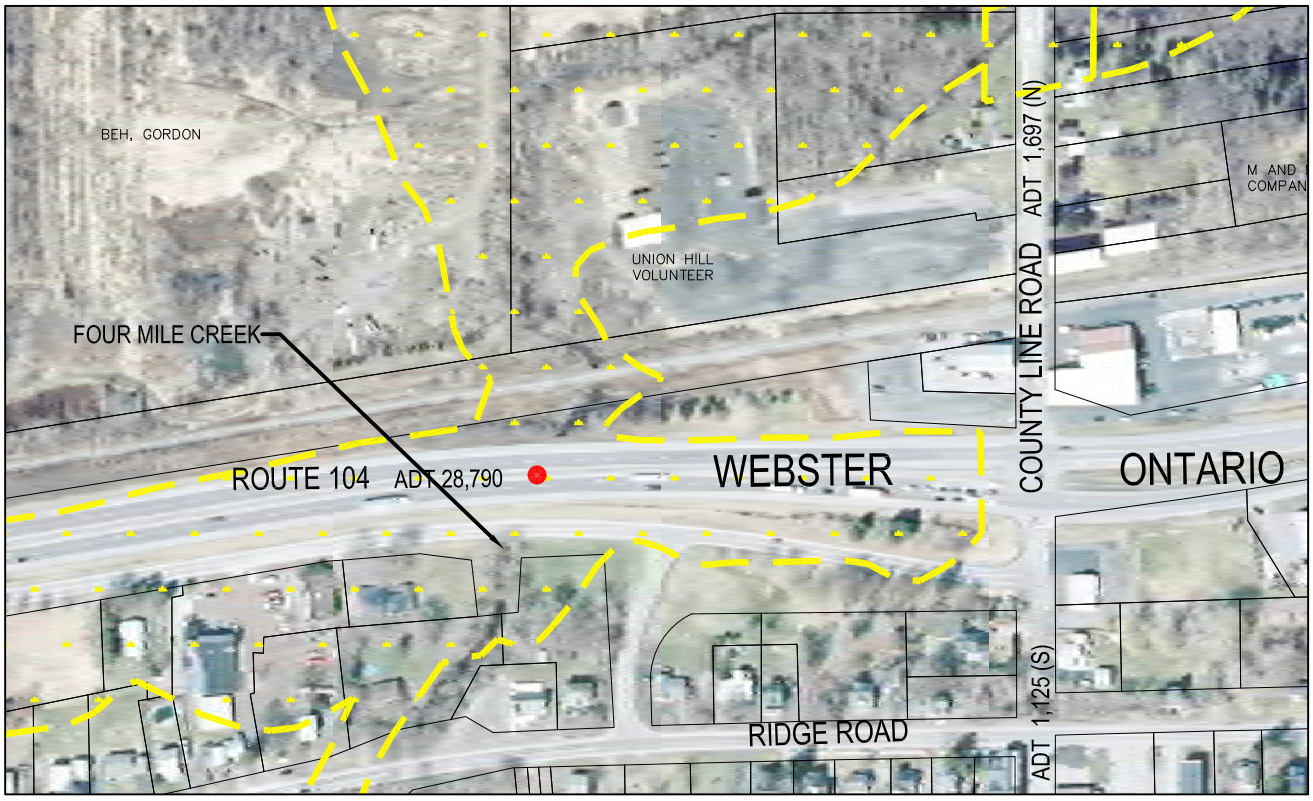
STREAM CROSSING ANALYSIS

Prepared for GTC and the Towns of Ontario, Sodus, Webster, and Williamson, NY

FOUR MILE CREEK (WEST)

MONROE COUNTY

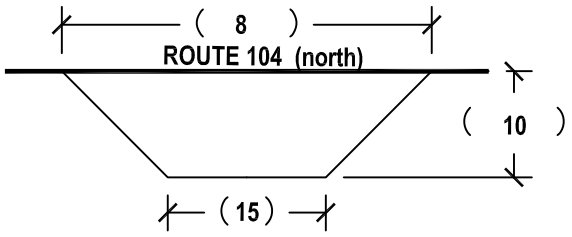
[N 43°13'20", W 77°22'31"] [128m]

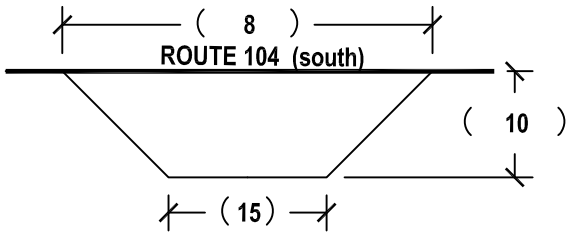


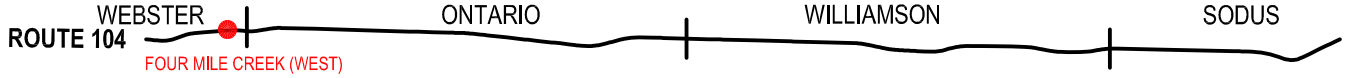
MUNICIPALITY	TOWN OF WEBSTER
DEC CLASSIFICATION	C- FISHING - CONTACT RECREATIONAL
TRIBUTARY OF	LAKE ONTARIO
CHARACTER NORTH	UNDEVELOPED
CHARACTER SOUTH	RESIDENTIAL
CONVEYANCE TYPE	10 FOOT DIAMETER PIPE
COMMENTS	CORRUGATED PIPE CULVERT, GOOD RIPARIAN HABITAT WITH GOOD FLOW. MINIMUM EROSION.

KEY:
DEC WETLAND
NWI WETLAND
FEMA FLOODPLAIN
STREAM CROSSING

0 150 300
GRAPHIC SCALE (IN FEET)







PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **STREAM CROSSING ANALYSIS**		DRAWING NUMBER: **D-01**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **5/4/2011**

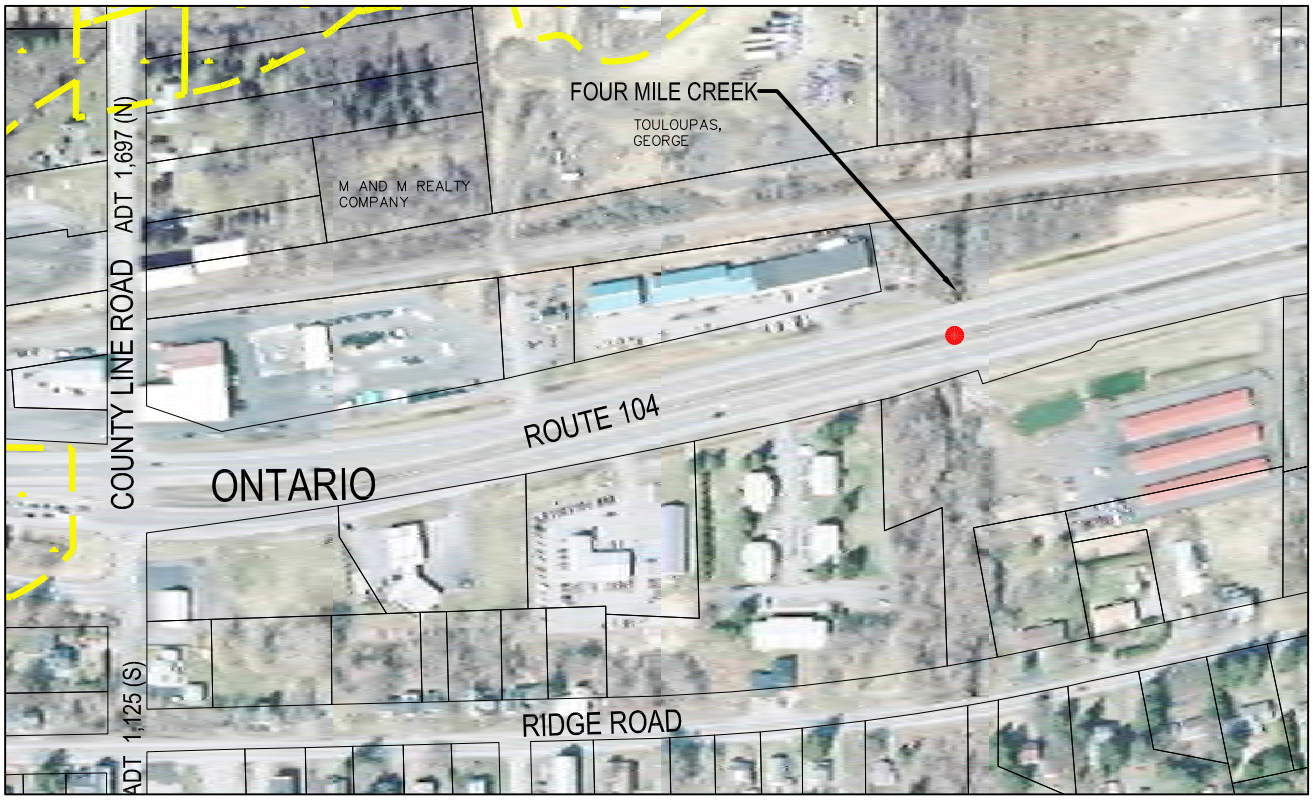
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-stream-xings.dwg

www.edrcompanies.com

FOUR MILE CREEK (EAST)

WAYNE COUNTY

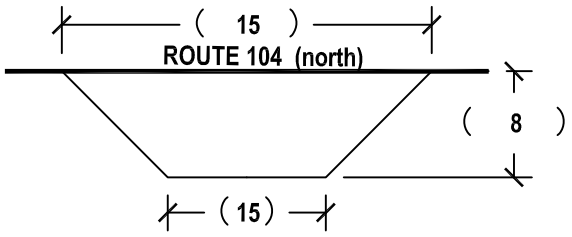
[N 43°22'04", W 77°37'00"] [127m]

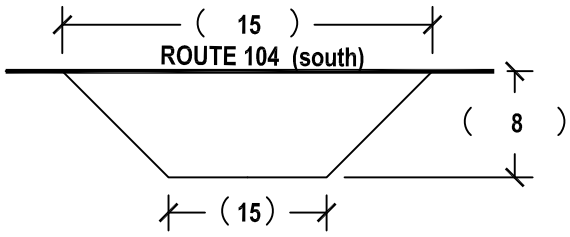


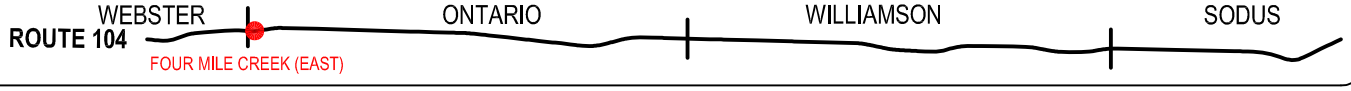
MUNICIPALITY	ONTARIO
DEC CLASSIFICATION	C- FISHING - CONTACT RECREATIONAL
TRIBUTARY OF	LAKE ONTARIO
CHARACTER NORTH	UNDEVELOPED
CHARACTER SOUTH	RESIDENTIAL
CONVEYANCE TYPE	8 FEET X 15 FEET BOX CULVERT
COMMENTS	CEMENT CULVERT WITH WING WALLS. PERENNIAL STREAM, BANKS OBSCURED. NO SIGNS OF EXCESSIVE EROSION. SILT STONE SUBSTRATE.

KEY:
DEC WETLAND
NWI WETLAND
FEMA FLOODPLAIN
STREAM CROSSING

0 150 300
GRAPHIC SCALE (IN FEET)







PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **STREAM CROSSING ANALYSIS**		DRAWING NUMBER: **D-02**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **5/4/2011**

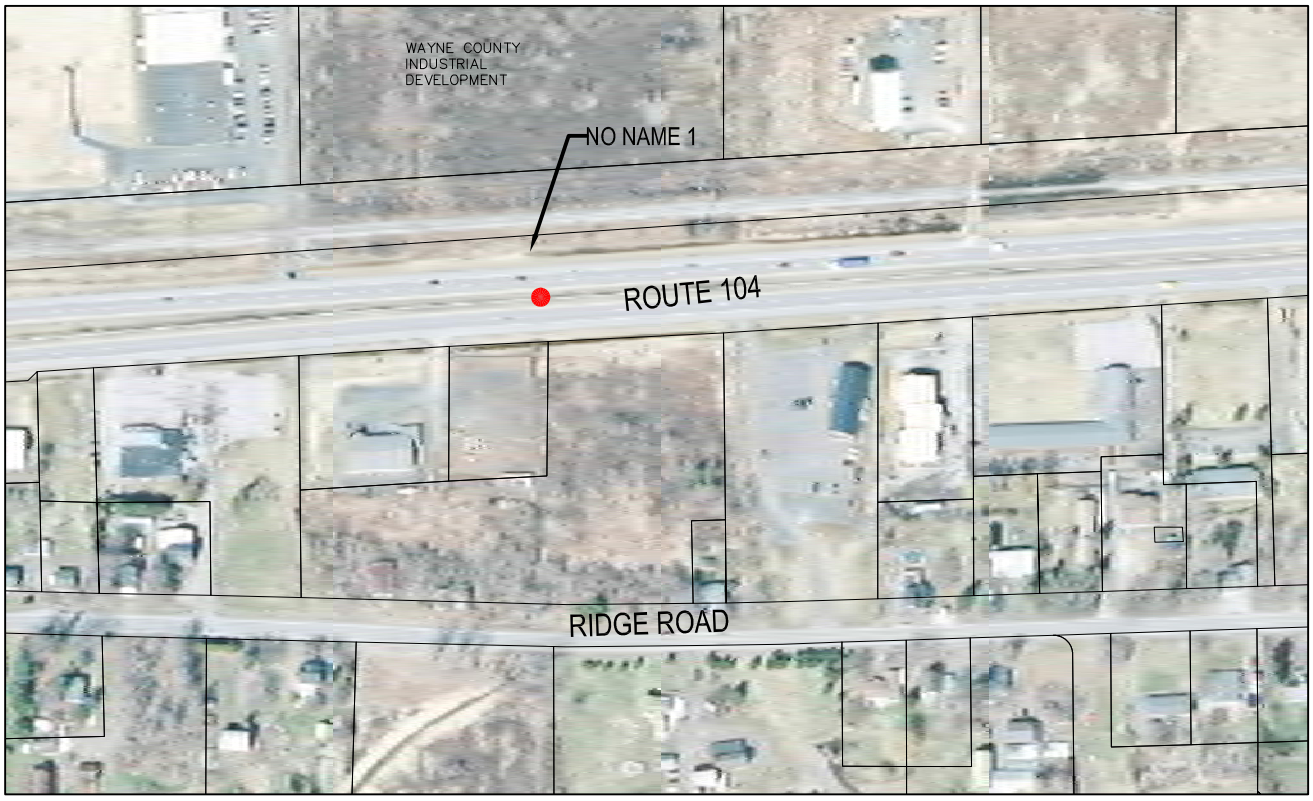
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-stream-xings.dwg

www.edrcompanies.com

NO NAME 1

WAYNE COUNTY

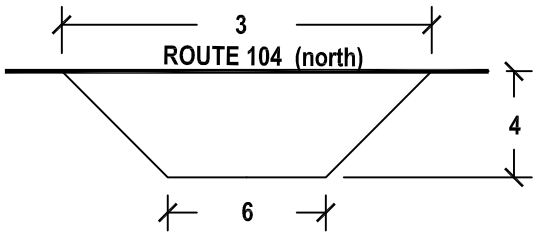
[N 43°13'31", W 77°21'34"] [130m]

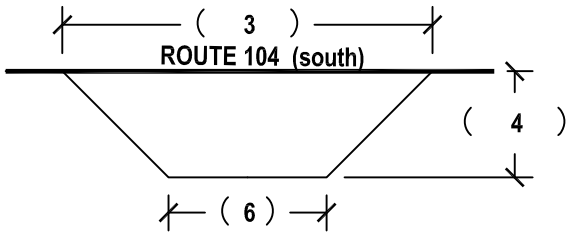


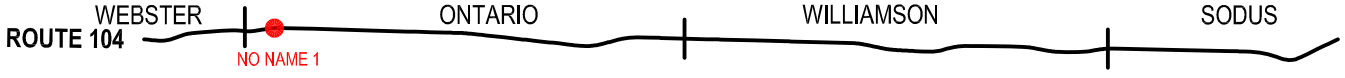
MUNICIPALITY	ONTARIO
DEC CLASSIFICATION	C- FISHING - CONTACT RECREATIONAL
TRIBUTARY OF	UNKNOWN
CHARACTER NORTH	UNDEVELOPED
CHARACTER SOUTH	RESIDENTIAL
CONVEYANCE TYPE	6 FEET X 3 FEET BOX CULVERT
COMMENTS	CEMENT CULVERT PIPE. STREAM IS INTERMITTENT. VEGETATED CHANNEL WITH OBSCURED BANKS. PHRAGMITES AND CATTAIL PRESENT.
LOCATION	APPROXIMATELY .25 MILES EAST OF DEAN PARKWAY

KEY:
DEC WETLAND
NWI WETLAND
FEMA FLOODPLAIN
STREAM CROSSING

0 150 300
GRAPHIC SCALE (IN FEET)







PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **STREAM CROSSING ANALYSIS**		DRAWING NUMBER: **D-03**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **5/4/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-stream-xings.dwg

www.edrcompanies.com

NO NAME 2

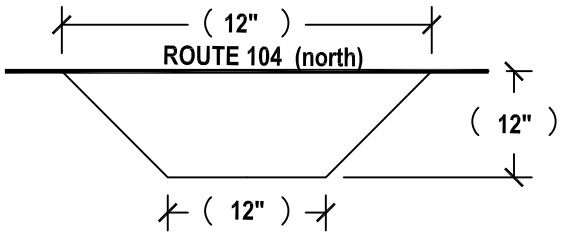
WAYNE COUNTY

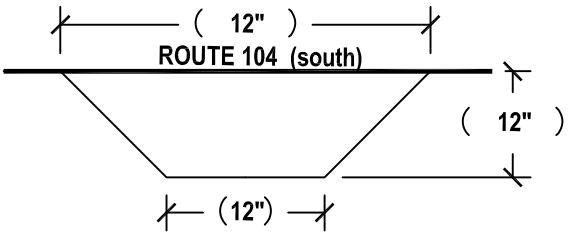
[N 43°13'33", W 77°21'02"] [130m]

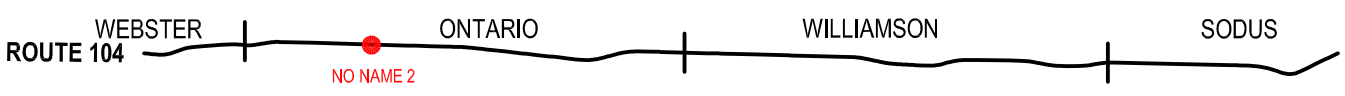
MUNICIPALITY	ONTARIO
DEC CLASSIFICATION	C- FISHING - CONTACT RECREATIONAL
TRIBUTARY OF	UNKNOWN
CHARACTER NORTH	AGRICULTURE
CHARACTER SOUTH	RESIDENTIAL
CONVEYANCE TYPE	12 INCH DIAMETER PIPE
ELEVATION BELOW RT. 104	2 FEET
COMMENTS	INTERNAL CHANNEL FLOWING INTO DITCH AT CULVERT. MAINTAINED AND OBSCURED BANKS.

KEY:
DEC WETLAND
NWI WETLAND
FEMA FLOODPLAIN
STREAM CROSSING

0 150 300
GRAPHIC SCALE (IN FEET)







PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **STREAM CROSSING ANALYSIS**		DRAWING NUMBER: **D-04**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **5/4/2011**

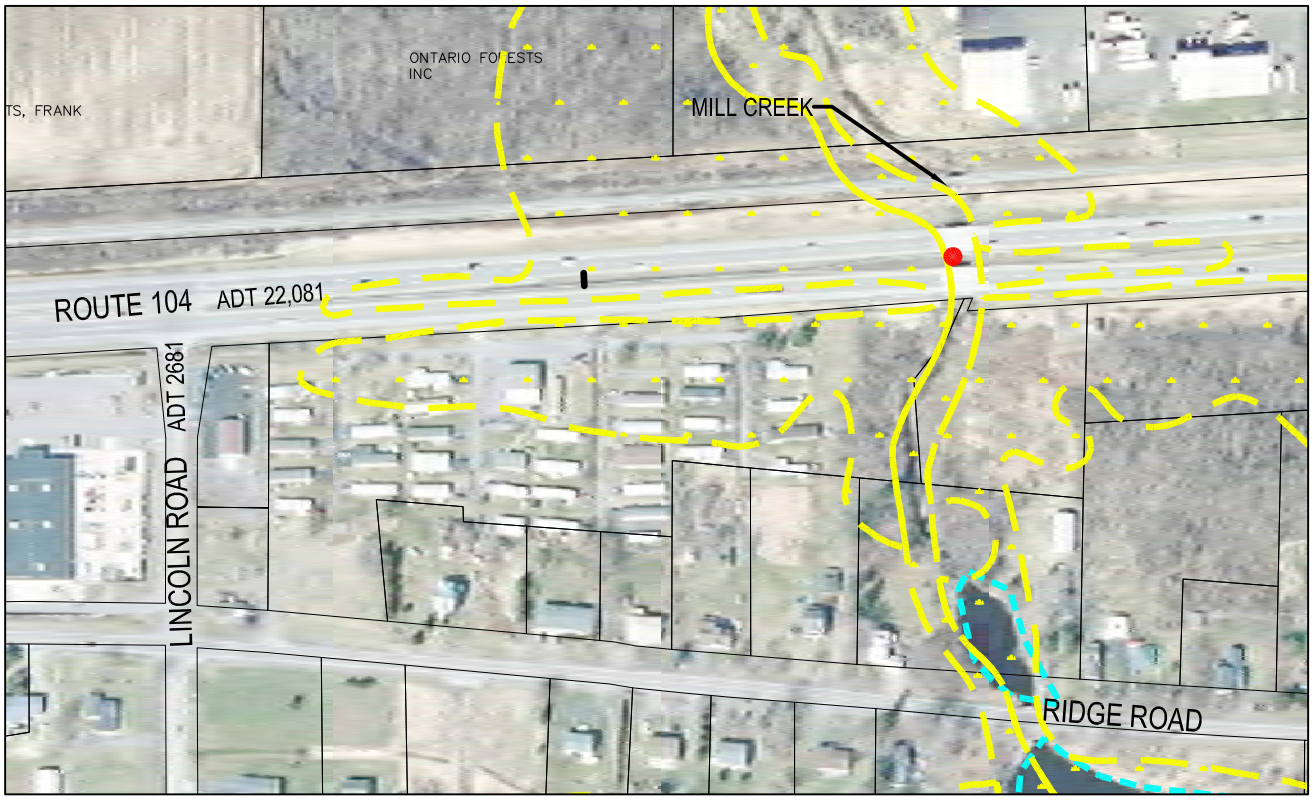
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-stream-xings.dwg

www.edrcompanies.com

MILL CREEK

WAYNE COUNTY

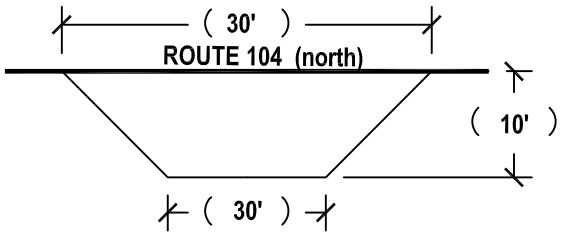
[N 43°13'33", W 77°21'02"] [130m]

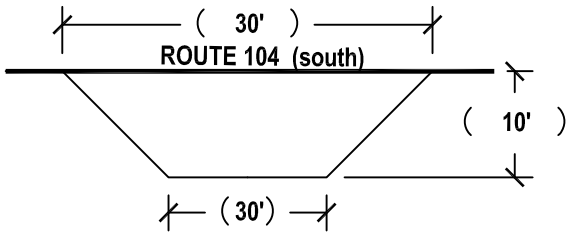


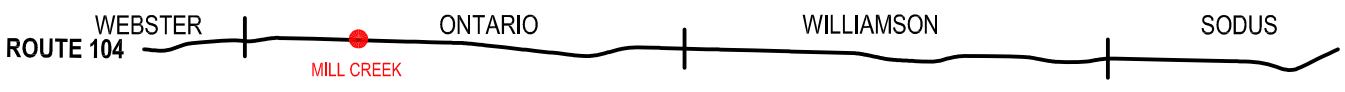
MUNICIPALITY	ONTARIO
DEC CLASSIFICATION	C- FISHING - CONTACT RECREATIONAL
TRIBUTARY OF	LAKE ONTARIO
CHARACTER NORTH	UNDEVELOPED
CHARACTER SOUTH	RESIDENTIAL
CONVEYANCE TYPE	30 FEET X 10 FEET BOX CULVERT
COMMENTS	BRIDGE AT MILL CREEK. PERENNIAL STREAM. DEVELOPED RIPARIAN CORRIDOR. PHRAGMITES IN DITCH NEAR ROAD(ROW). MAPLE / LOCUST / WILLOW IN RIPARIAN CORRIDOR

KEY:
DEC WETLAND
NWI WETLAND
FEMA FLOODPLAIN
STREAM CROSSING

0 150 300
GRAPHIC SCALE (IN FEET)







PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **STREAM CROSSING ANALYSIS**		DRAWING NUMBER: **D-05**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **5/4/2011**

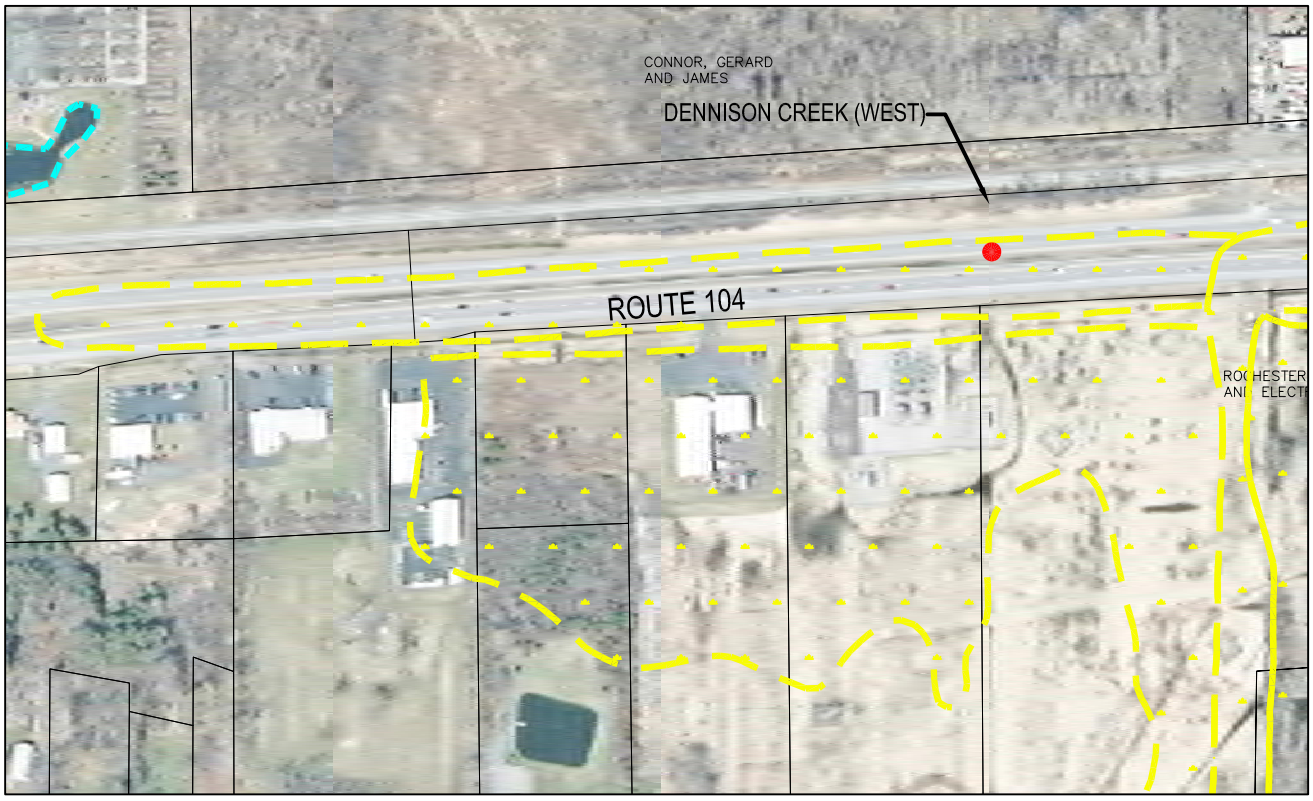
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-stream-xings.dwg

www.edrcompanies.com

DENNISON CREEK (WEST)

WAYNE COUNTY

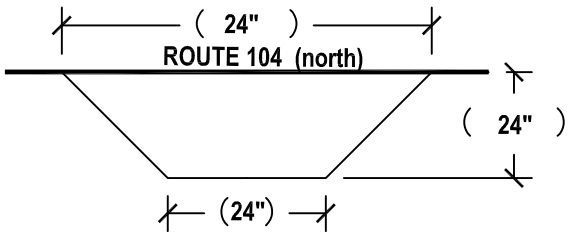
[N 43°13'36", W 77°19'48"] [127m]

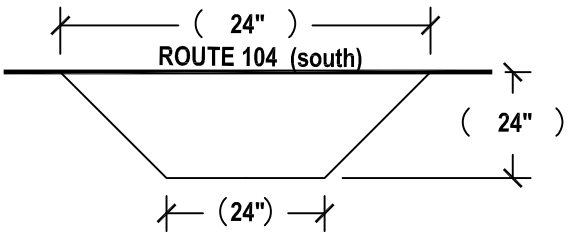


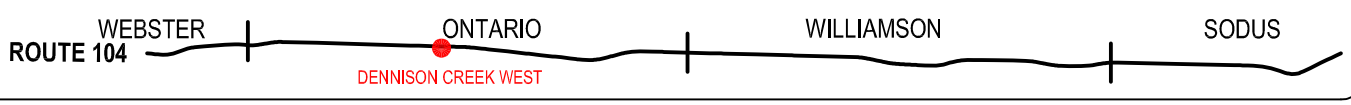
MUNICIPALITY	ONTARIO
DEC CLASSIFICATION	C- FISHING - CONTACT RECREATIONAL
TRIBUTARY OF	LAKE ONTARIO
CHARACTER NORTH	UNDEVELOPED
CHARACTER SOUTH	RESIDENTIAL
CONVEYANCE TYPE	24 INCH DIAMETER CORRUGATED METAL PIPE
ELEVATION BELOW RT. 104	4 FEET
COMMENTS	LITTLE CHANNEL AND DITCHES FLOWING INTO CULVERT. CATTAIL / SEDGES / BRUSH IN CHANNEL. CULVERT BLOCKED ON NORTH SIDE BY PHRAGMITES
LOCATION	.3 MILES WEST OF SLOCUM ROAD

KEY:
DEC WETLAND
NWI WETLAND
FEMA FLOODPLAIN
STREAM CROSSING

0 150 300
GRAPHIC SCALE (IN FEET)







PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **STREAM CROSSING ANALYSIS**		DRAWING NUMBER: **D-06**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **5/4/2011**

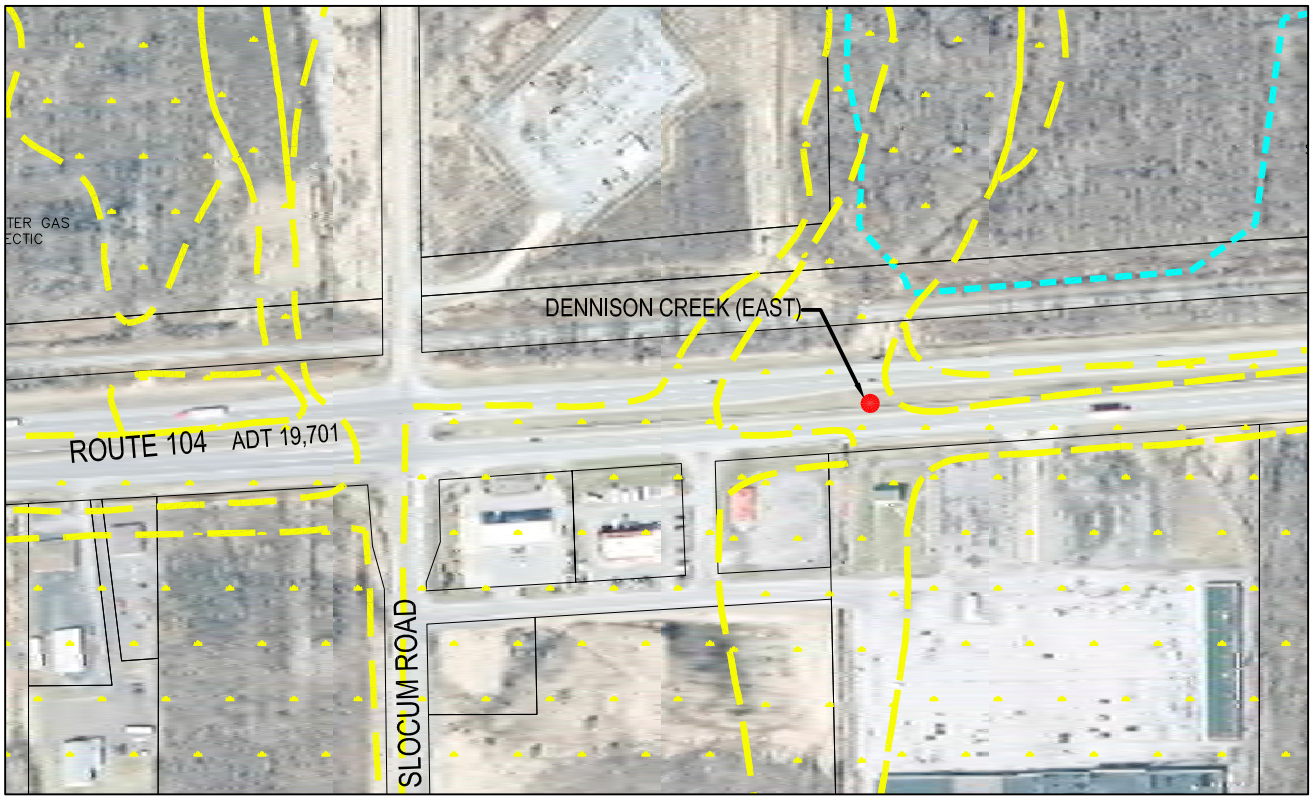
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-stream-xings.dwg

www.edrcompanies.com

DENNISON CREEK (EAST)

WAYNE COUNTY

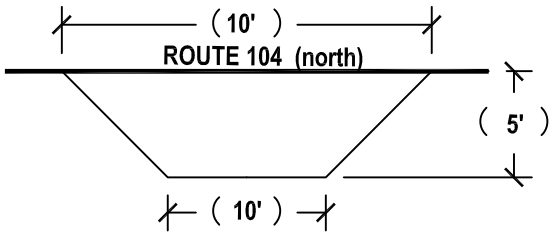
[N 43°13'36", W 77°19'48"] [127m]

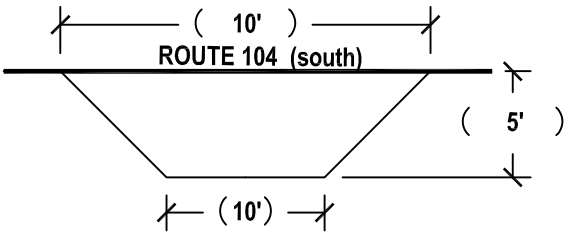


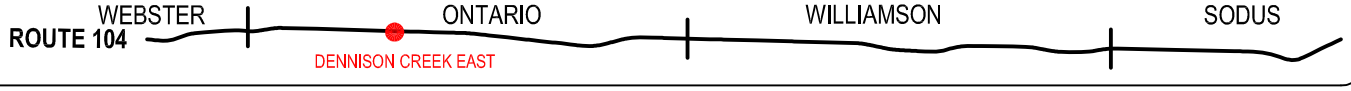
MUNICIPALITY	ONTARIO
DEC CLASSIFICATION	C- FISHING - CONTACT RECREATIONAL
TRIBUTARY OF	LAKE ONTARIO
CHARACTER NORTH	UNDEVELOPED
CHARACTER SOUTH	RESIDENTIAL
CONVEYANCE TYPE	10 FEET X 5 FEET BOX CULVERT
ELEVATION BELOW RT. 104	1 FOOT
COMMENTS	CHANNEL COMPLETELY VEGETATED WITH PHRAGMITES / CATTAIL.

KEY:
DEC WETLAND
NWI WETLAND
FEMA FLOODPLAIN
STREAM CROSSING

0 150 300
GRAPHIC SCALE (IN FEET)







PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **STREAM CROSSING ANALYSIS**		DRAWING NUMBER: **D-07**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **5/4/2011**

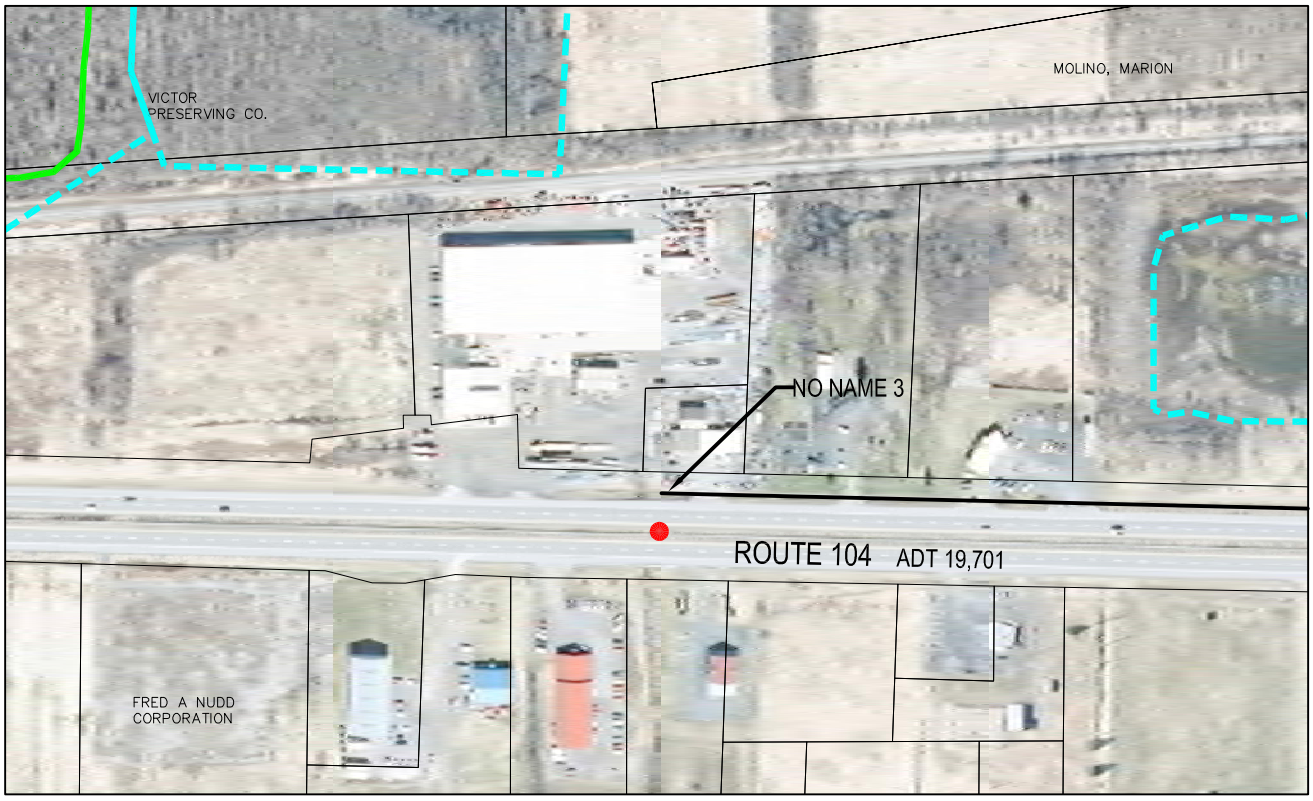
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-stream-xings.dwg

www.edrcompanies.com

NO NAME 3

WAYNE COUNTY

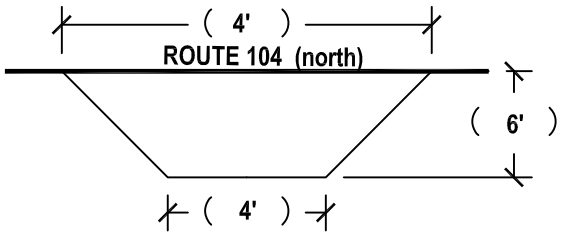
[N 43°13'39", W 77°17'44"] [128m]

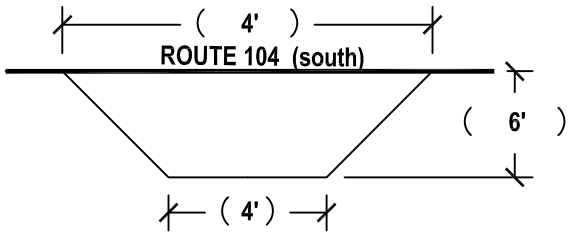


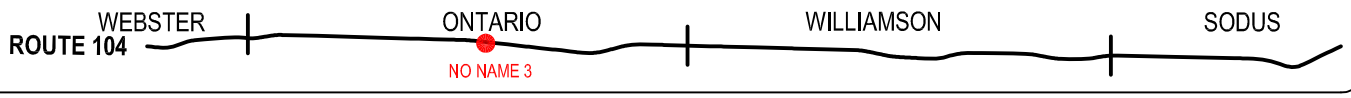
MUNICIPALITY	ONTARIO
DEC CLASSIFICATION	C- FISHING - CONTACT RECREATIONAL
TRIBUTARY OF	DENNISON CREEK
CHARACTER NORTH	BUSINESS
CHARACTER SOUTH	BUSINESS
CONVEYANCE TYPE	4 FEET X 6 FEET BOX CULVERT
COMMENTS	PERENNIAL CHANNEL. COMPLETELY VEGETATED WITH CATTAIL / SOLIDAGO
LOCATION	APPROXIMATELY .5 MILES WEST OF KNICKERBOCKER ROAD

KEY:
DEC WETLAND
NWI WETLAND
FEMA FLOODPLAIN
STREAM CROSSING

0 150 300
GRAPHIC SCALE (IN FEET)







PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **STREAM CROSSING ANALYSIS**		DRAWING NUMBER: **D-08**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **5/4/2011**

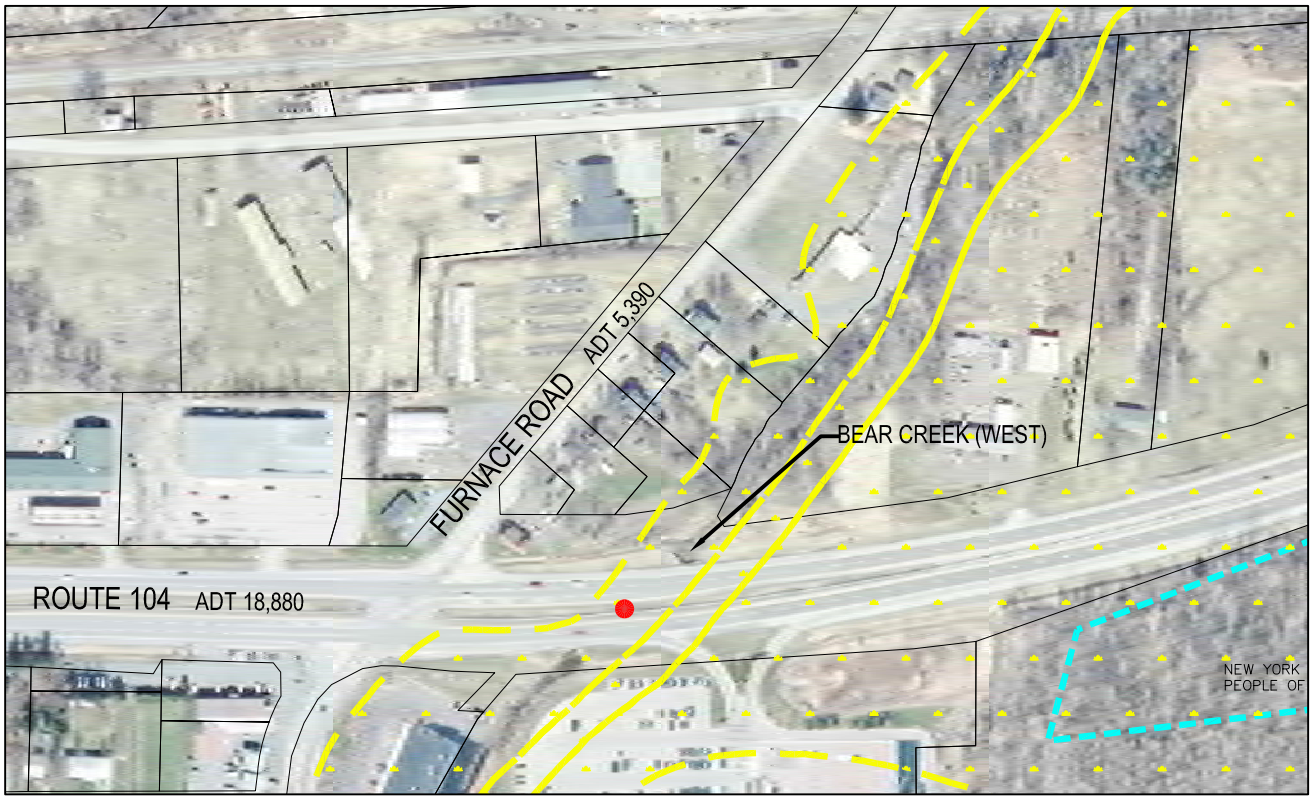
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-stream-xings.dwg

www.edrcompanies.com

BEAR CREEK (WEST)

WAYNE COUNTY

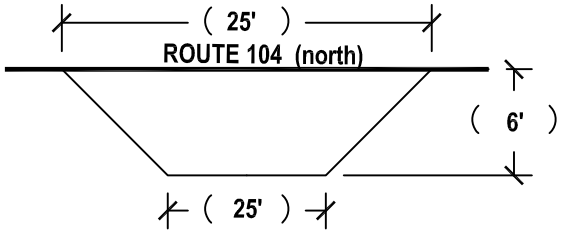
[N 43°13'38", W 77°16'49"] [124m]

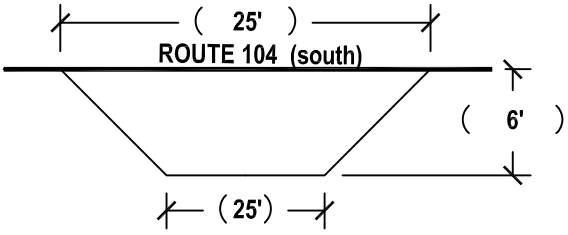


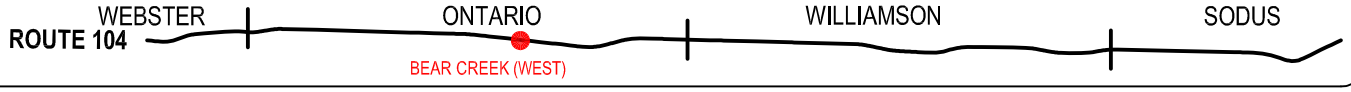
KEY:
DEC WETLAND
NWI WETLAND
FEMA FLOODPLAIN
STREAM CROSSING

0 150 300
GRAPHIC SCALE (IN FEET)

MUNICIPALITY	ONTARIO
DEC CLASSIFICATION	C- FISHING - CONTACT RECREATIONAL
TRIBUTARY OF	LAKE ONTARIO
CHARACTER NORTH	BUSINESS
CHARACTER SOUTH	BUSINESS
CONVEYANCE TYPE	10 FEET X 5 FEET DOUBLE BOX CULVERT
ELEVATION BELOW RT. 104	2 FEET
COMMENTS	STREAM IS PERENNIAL. SILT /SAND BASE. ALMOST COMPLETELY VEGETATED. CATTAIL, SOME PHRAGMITES, DOGWOOD, WILLOW SHRUBS ON BANKS, SPIREAS, RUSH, & SOLIDAGO.







PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **STREAM CROSSING ANALYSIS**		DRAWING NUMBER: **D-09**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **5/4/2011**

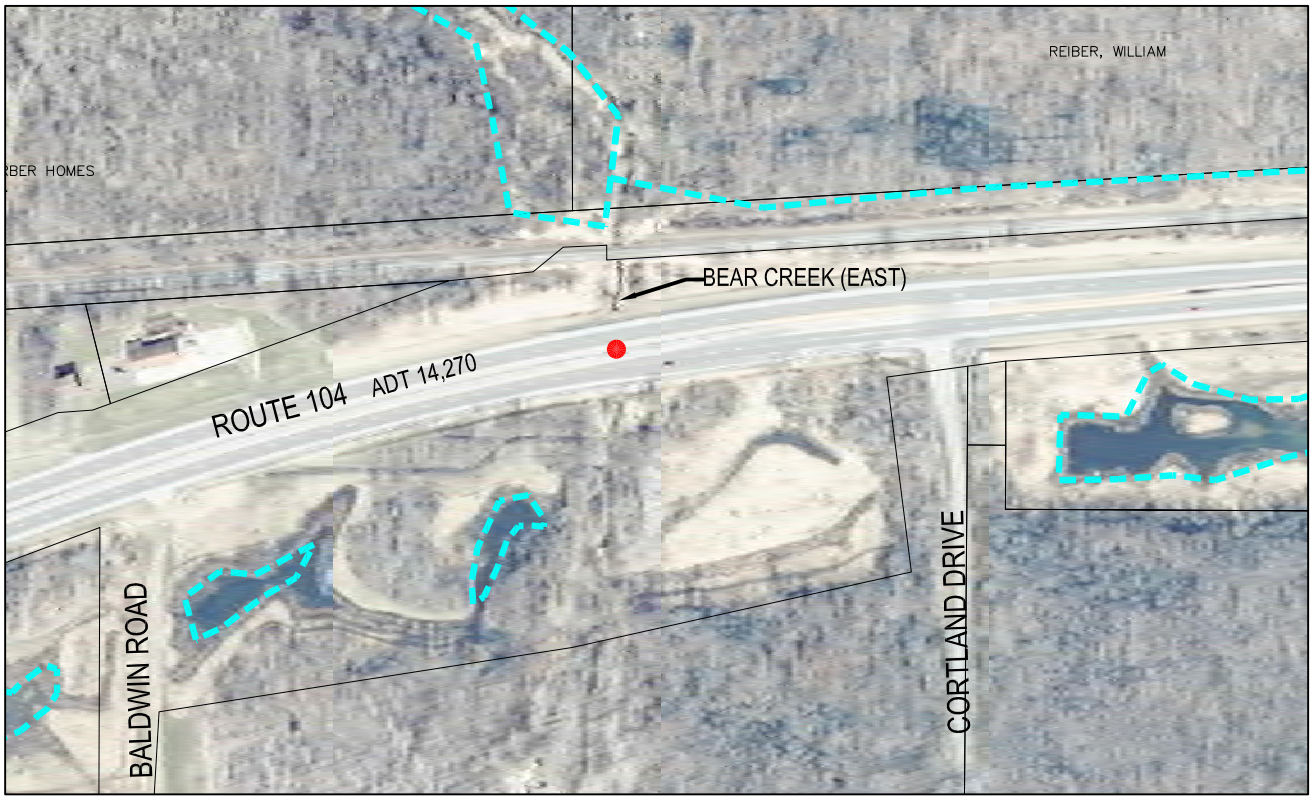
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-stream-xings.dwg

www.edrcompanies.com

BEAR CREEK (EAST)

WAYNE COUNTY

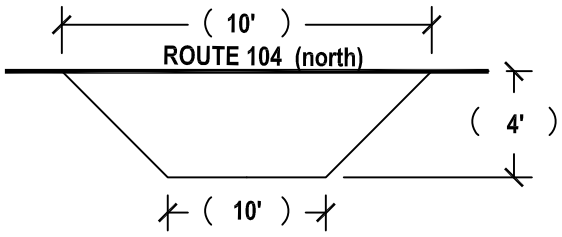
[N 43°13'38", W 77°16'49"] [124m]

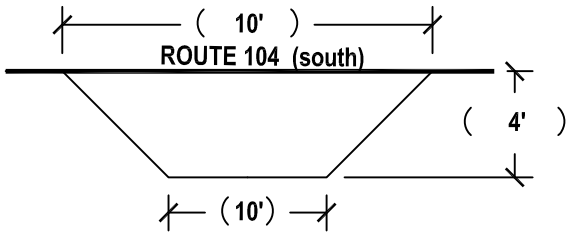


MUNICIPALITY	ONTARIO
DEC CLASSIFICATION	C- FISHING - CONTACT RECREATIONAL
TRIBUTARY OF	LAKE ONTARIO
CHARACTER NORTH	UNDEVELOPED
CHARACTER SOUTH	UNDEVELOPED
CONVEYANCE TYPE	10 FEET X 10 FEET BOX CULVERT
ELEVATION BELOW RT. 104	4 FEET
COMMENTS	PERENNIAL CHANNEL. GOOD RIFFLE SEQUENCE, VEGETATED BANKS. NO SEVERE EROSION. PART OF EXPANSIVE RIPARIAN CORRIDOR. SOLIDAGO/MAPLE/ASH/LOCUST FOREST. POSSIBLE SIGHTING OF MINK OR HERMINE.

KEY:
DEC WETLAND
NWI WETLAND
FEMA FLOODPLAIN
STREAM CROSSING

0 150 300
GRAPHIC SCALE (IN FEET)





PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **STREAM CROSSING ANALYSIS**		DRAWING NUMBER: **D-10**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **5/4/2011**

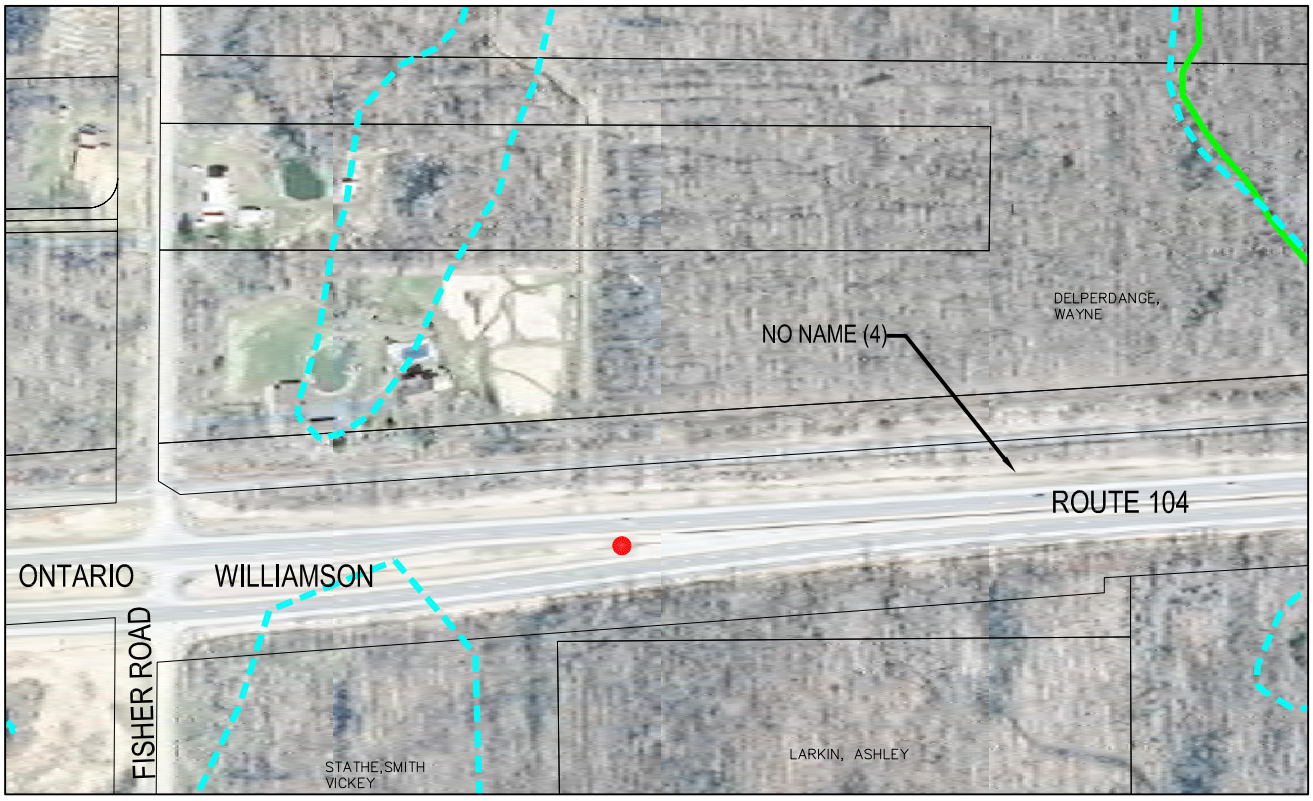
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-stream-xings.dwg

www.edrcompanies.com

NO NAME (4)

WAYNE COUNTY

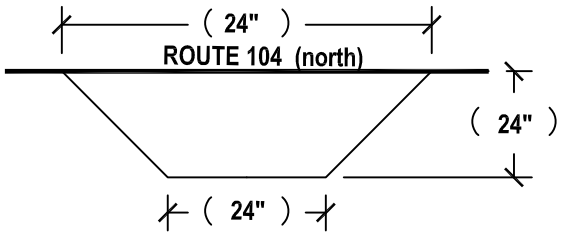
[N 43°13'52", W 77°14'47"] [125m]

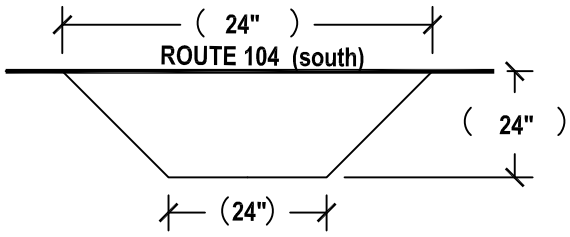


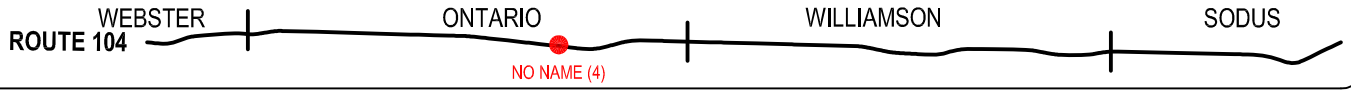
MUNICIPALITY	WILLIAMSON
DEC CLASSIFICATION	C- FISHING - CONTACT RECREATIONAL
TRIBUTARY OF	LAKE ONTARIO
CHARACTER NORTH	UNDEVELOPED
CHARACTER SOUTH	UNDEVELOPED
CONVEYANCE TYPE	24 INCH DIAMETER PIPE
ELEVATION BELOW RT. 104	3 FEET
COMMENTS	CORRUGATED STEEL PIPE

KEY:
DEC WETLAND
NWI WETLAND
FEMA FLOODPLAIN
STREAM CROSSING

0 150 300
GRAPHIC SCALE (IN FEET)







PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **STREAM CROSSING ANALYSIS**		DRAWING NUMBER: **D-11**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **5/4/2011**

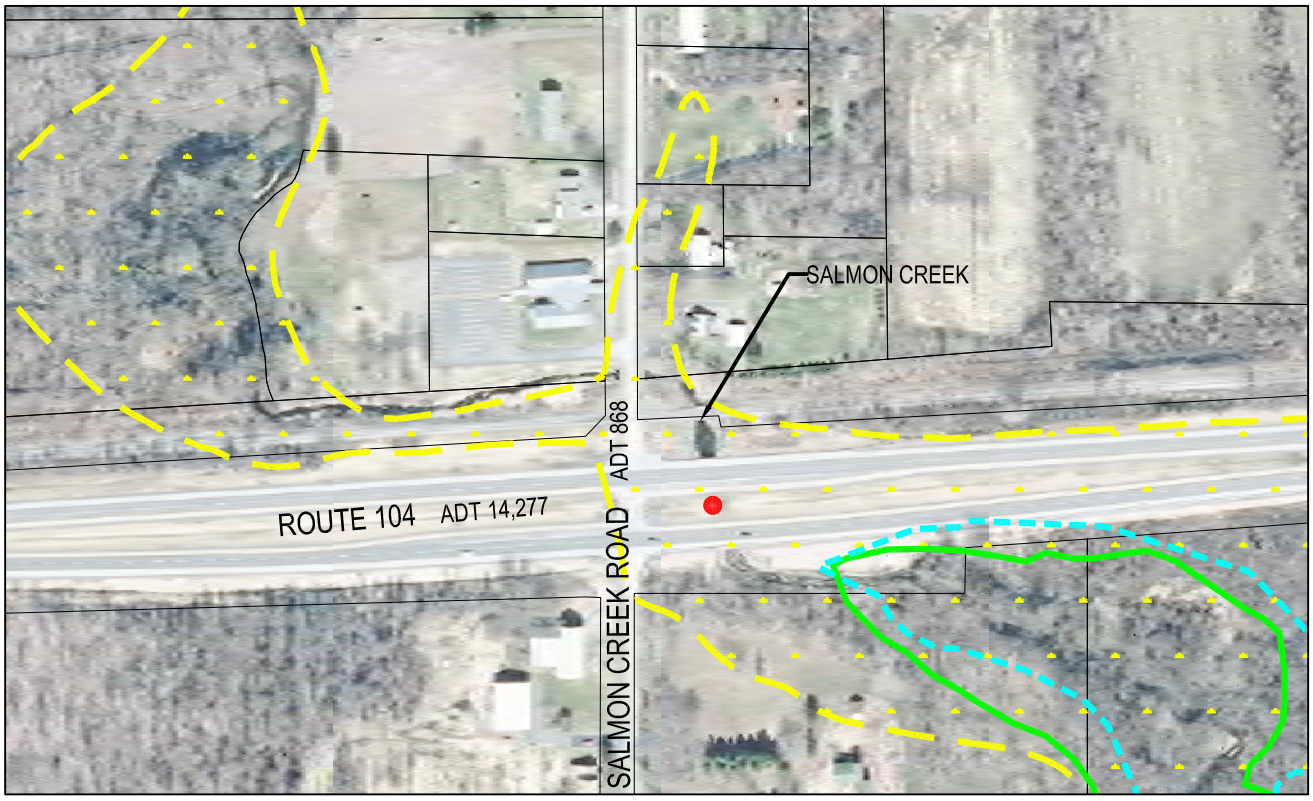
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-stream-xings.dwg

www.edrcompanies.com

SALMON CREEK

WAYNE COUNTY

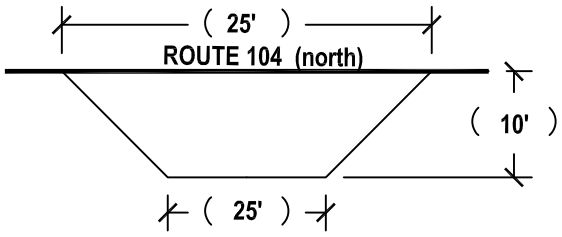
[N 43°13'57", W 77°13'02"] [125m]

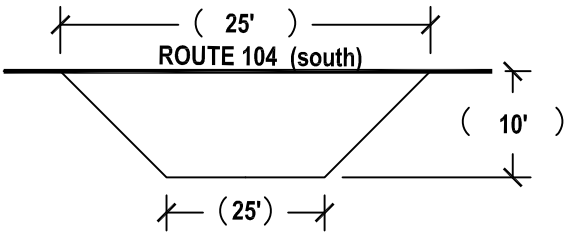


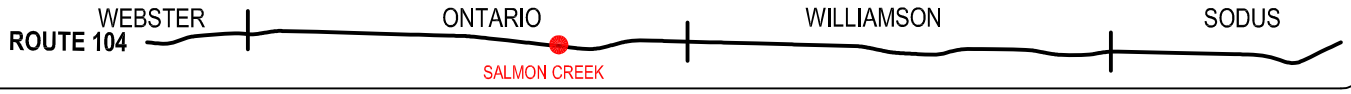
MUNICIPALITY	WILLIAMSON
DEC CLASSIFICATION	C- FISHING - CONTACT RECREATIONAL
TRIBUTARY OF	LAKE ONTARIO
CHARACTER NORTH	UNDEVELOPED
CHARACTER SOUTH	UNDEVELOPED
CONVEYANCE TYPE	25 FEET X 10 FEET BOX CULVERT
ELEVATION BELOW RT. 104	4 FEET
COMMENTS	LARGE BOX CULVERT. ASSOCIATED WITH SALMON CREEK. VEGETATED CHANNEL. REED CANARY GRASS / WILLOW / MAPLE ON BANKS.

KEY:
DEC WETLAND
NWI WETLAND
FEMA FLOODPLAIN
STREAM CROSSING

0 150 300
GRAPHIC SCALE (IN FEET)







PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **STREAM CROSSING ANALYSIS**		DRAWING NUMBER: **D-12**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **5/4/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-stream-xings.dwg

www.edrcompanies.com

NO NAME (5)

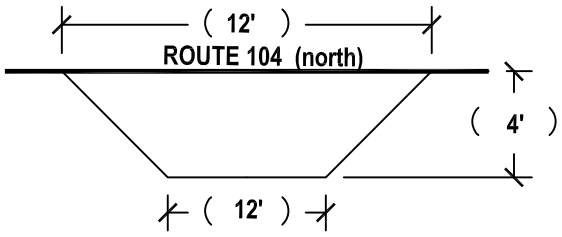
WAYNE COUNTY

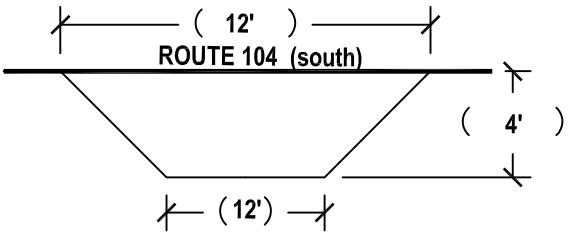
[N 43°13'58", W 77°11'06"] [126m]

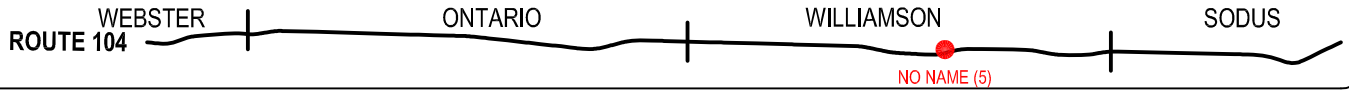
MUNICIPALITY	WILLIAMSON
DEC CLASSIFICATION	C- FISHING - CONTACT RECREATIONAL
TRIBUTARY OF	SALMON CREEK
CHARACTER NORTH	UNDEVELOPED
CHARACTER SOUTH	UNDEVELOPED
CONVEYANCE TYPE	12 FEET X 4 FEET BOX CULVERT
ELEVATION BELOW RT. 104	1 FOOT
COMMENTS	CHANNEL IS STRAIGHTENED DUE TO DEVELOPMENT. VEGETATED WITH CATTAIL, IRIS, JEWEL REED, MINT, RUSH.

KEY:
DEC WETLAND
NWI WETLAND
FEMA FLOODPLAIN
STREAM CROSSING

0 150 300
GRAPHIC SCALE (IN FEET)







PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **STREAM CROSSING ANALYSIS**		DRAWING NUMBER: **D-13**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **5/4/2011**

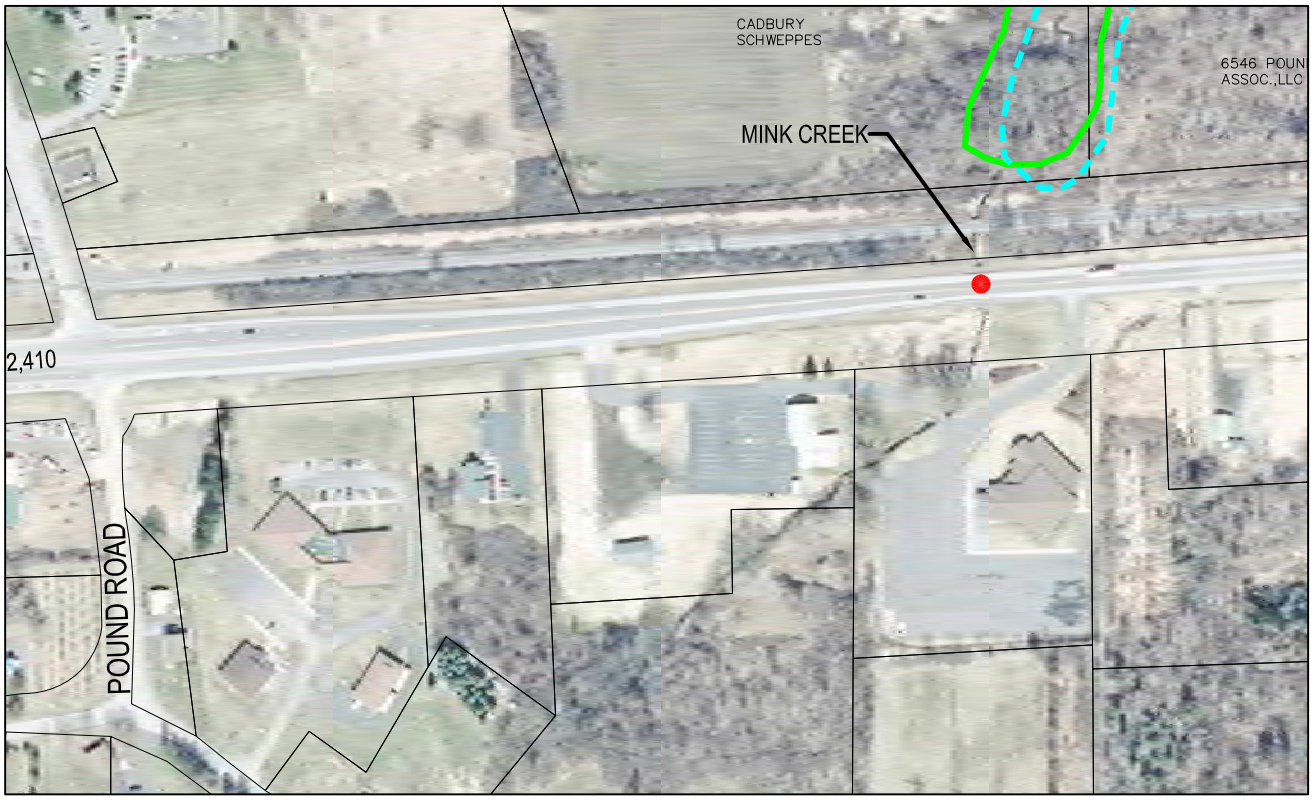
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-stream-xings.dwg

www.edrcompanies.com

MINK CREEK

WAYNE COUNTY

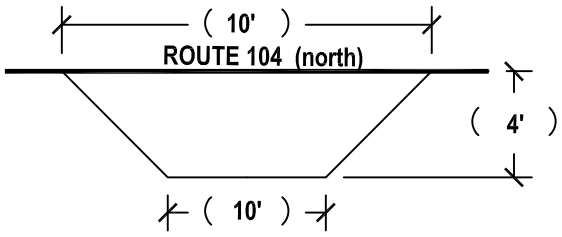
[N 43°14'07", W 77°09'59"] [126m]

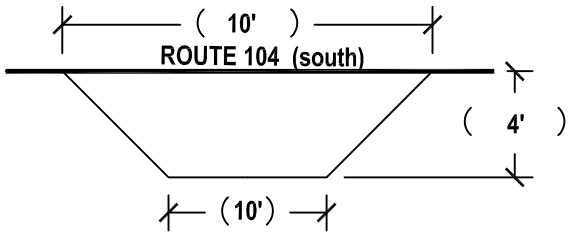


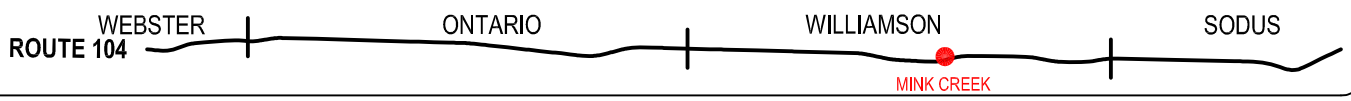
MUNICIPALITY	WILLIAMSON
DEC CLASSIFICATION	C- FISHING - CONTACT RECREATIONAL
TRIBUTARY OF	LAKE ONTARIO
CHARACTER NORTH	UNDEVELOPED
CHARACTER SOUTH	UNDEVELOPED
CONVEYANCE TYPE	10 FEET X 4 FEET BOX CULVERT
ELEVATION BELOW RT. 104	3 FEET
COMMENTS	COBBLE SILT STONE CHANNEL, ADJACENT RIPARIAN AND CATTAIL MARSH. CHANNEL IS WITHIN CATTAIL MARSH. RIPARIAN (WILLOW / MAPLE CORRIDOR) UP STREAM.

KEY:
DEC WETLAND
NWI WETLAND
FEMA FLOODPLAIN
STREAM CROSSING

0 150 300
GRAPHIC SCALE (IN FEET)







PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **STREAM CROSSING ANALYSIS**		DRAWING NUMBER: **D-14**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **5/4/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-stream-xings.dwg

www.edrcompanies.com

APPENDIX E
Route 104 Corridor Trail Feasibility Study

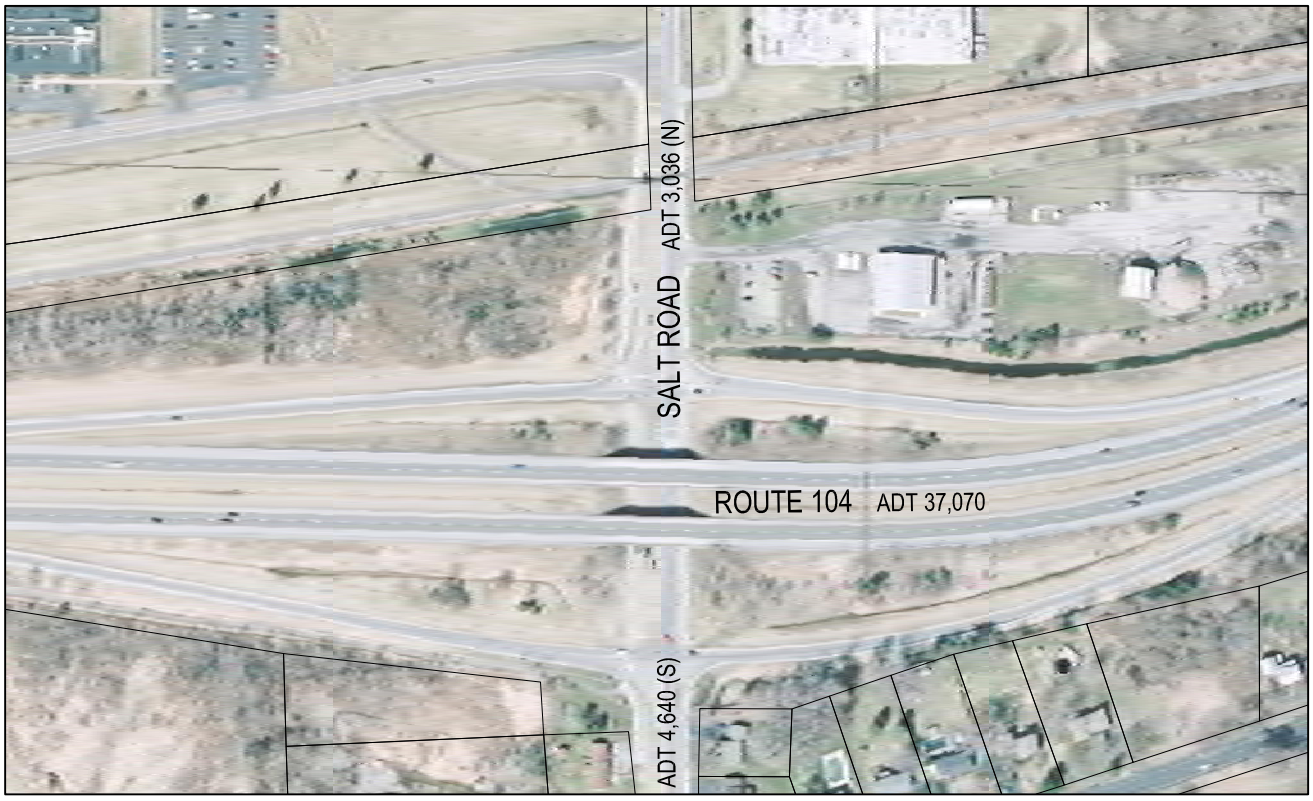
INTERSECTION ANALYSIS

Prepared for GTC and the Towns of Ontario, Sodus, Webster, and Williamson, NY

SALT ROAD

MONROE COUNTY

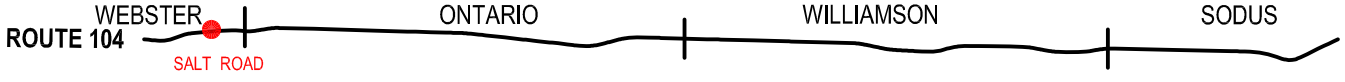
[N 43°13'12", W 77°24'0"] [128m]



MUNICIPALITY	MONROE COUNTY, TOWN OF WEBSTER
OWNERSHIP	LOCAL ROAD
CHARACTER NORTH	INDUSTRIAL
CHARACTER SOUTH	RESIDENTIAL
104 CROSSING TYPE	UNDERPASS
POINTS OF INTEREST	WEBSTER GOLF COURSE, 2.12 MILES NORTH
	KENT PARK ARBORETUM, 1.5 MILES NORTHEAST
TRAFFIC SIGNAL	2 AT NORTH RAMP 2 AT SOUTH RAMP
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.10 MILES
COMMENTS	SOUTH, LIMITED R.O.W. AND WETLANDS
	NORTH, NYS DOT FACILITY AND WETLANDS

0 150 300

GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-01**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

BASKET ROAD

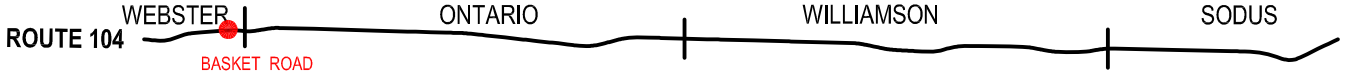
MONROE COUNTY

[N 43°13'21.5", W 77°23'14.3"] [129m]

MUNICIPALITY	MONROE COUNTY, TOWN OF WEBSTER
OWNERSHIP	COUNTY ROAD 4
CHARACTER NORTH	BUSINESS PARK
CHARACTER SOUTH	RESIDENTIAL
104 CROSSING TYPE	AT GRADE
POINTS OF INTEREST	KENT PARK ARBORETUM, 1.5 MILES NORTHEAST
TRAFFIC SIGNAL	4 AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.10 MILES
COMMENTS	SOUTH, LIMITED ROW AND WETLANDS
	NORTH, NYS DOT FACILITY AND WETLANDS

0 150 300

GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-02**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

COUNTY LINE ROAD

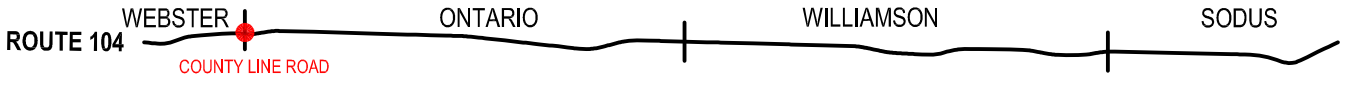
MONROE COUNTY

[N 43°13'25.4", W 77°22'32"] [131m]

MUNICIPALITY	MONROE COUNTY, TOWN OF WEBSTER
OWNERSHIP	COUNTY ROAD 2
CHARACTER NORTH	BUSINESS
CHARACTER SOUTH	RESIDENTIAL
104 CROSSING TYPE	AT GRADE
POINTS OF INTEREST	NO POINTS OF INTEREST NORTH OR SOUTH
TRAFFIC SIGNAL	4 AT ROUTE 104 INTERSECTION CORNERS
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.10 MILES
COMMENTS	PORTION OF ROUTE 404 TEES INTO COUNTY LINE SOUTH OF 104

0 150 300

GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-03**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

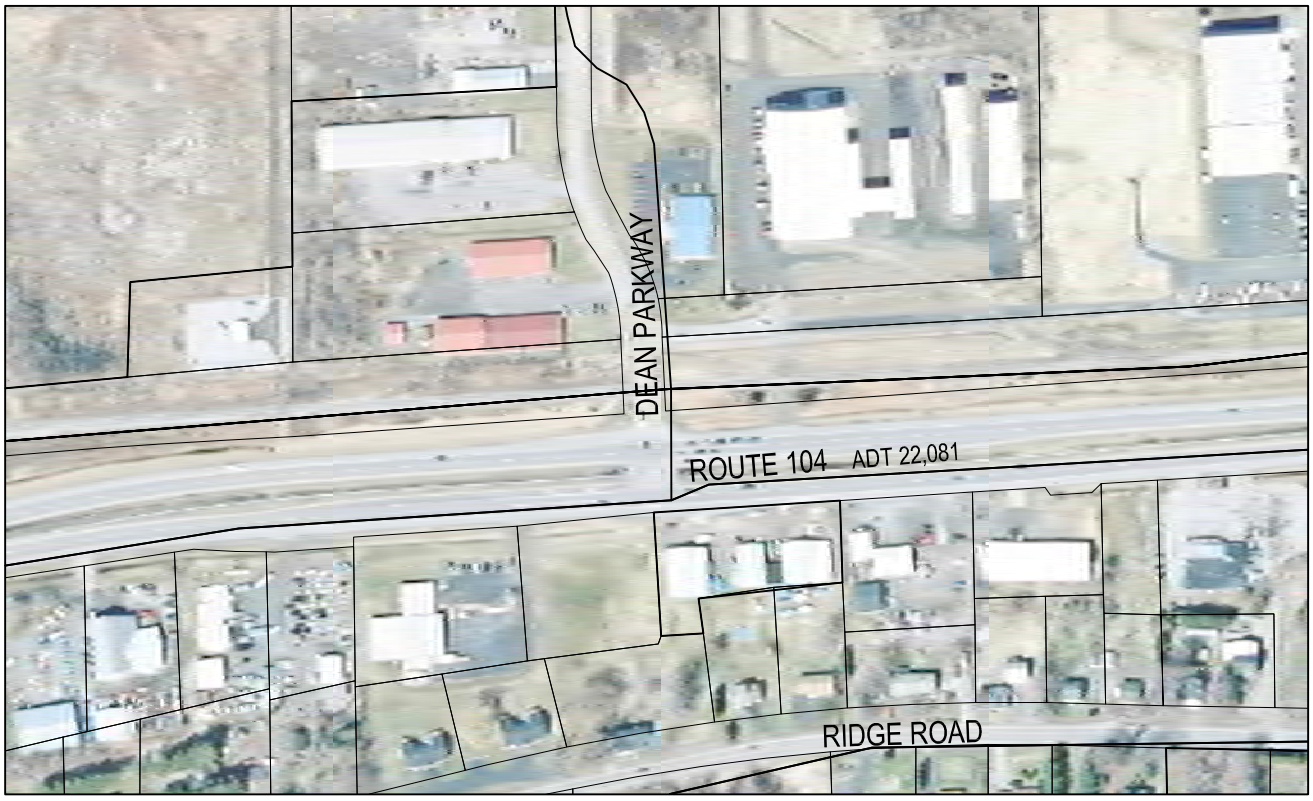
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

DEAN PARKWAY

WAYNE COUNTY

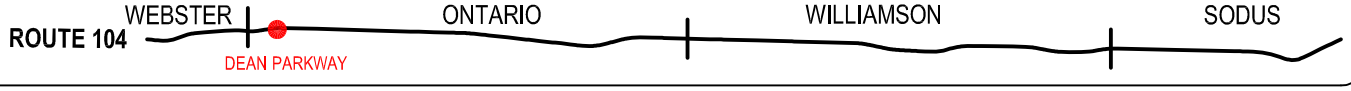
[N 43°13'30.5", W 77°21'52.5"] [129m]



MUNICIPALITY	WAYNE COUNTY, TOWN OF ONTARIO
OWNERSHIP	LOCAL ROAD
CHARACTER NORTH	BUSINESS
CHARACTER SOUTH	BUSINESS
104 CROSSING TYPE	TEE INTERSECTION FROM THE NORTH AT GRADE, EAST & WEST BOUND ACCESS
POINTS OF INTEREST	NO POINTS OF INTEREST NORTH OR SOUTH
TRAFFIC SIGNAL	3 AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.10 MILES
COMMENTS	ROAD DOES NOT PROCEED SOUTH OF 104

0 150 300

GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-04**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

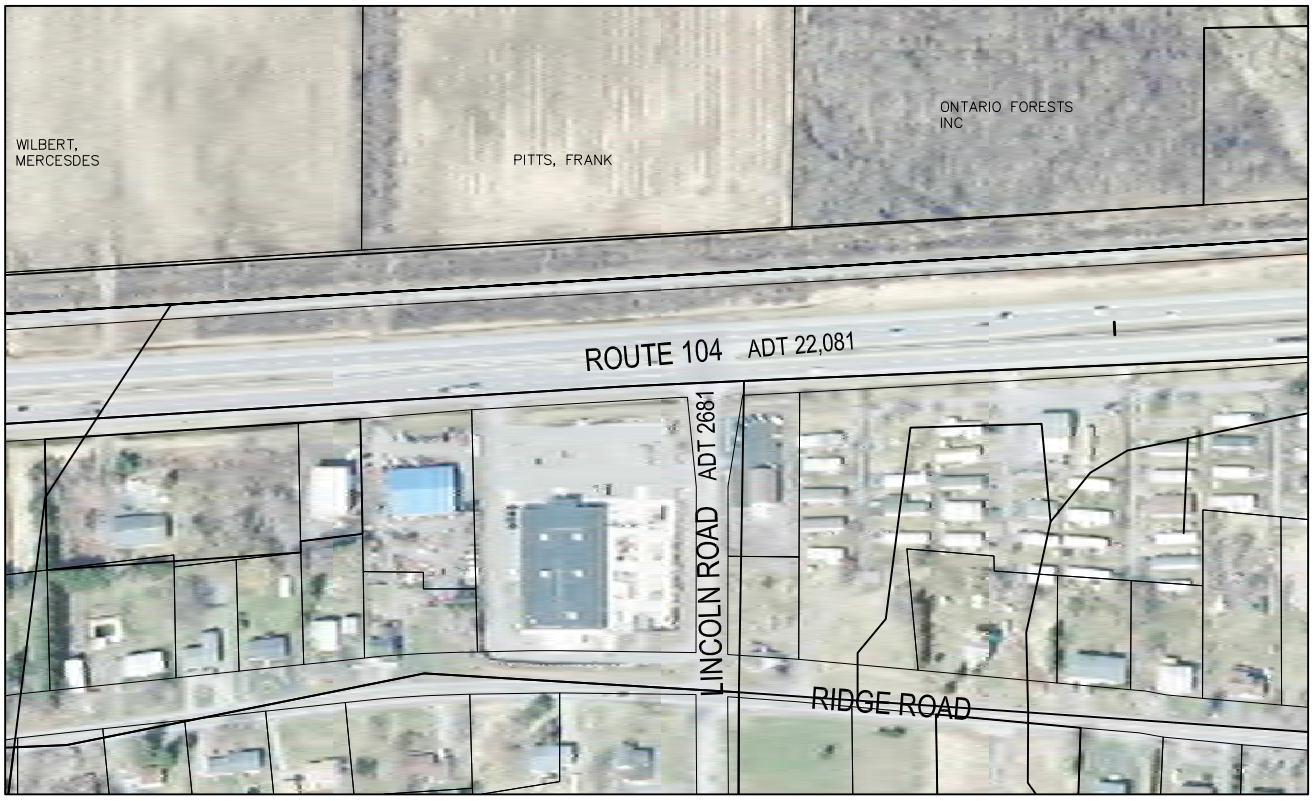
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

LINCOLN ROAD

WAYNE COUNTY

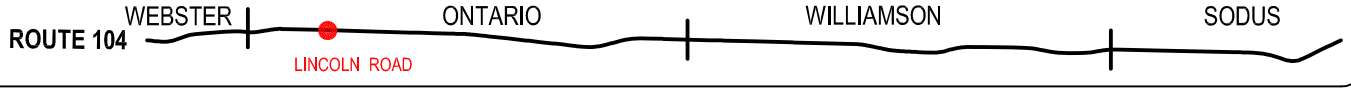
[N 43°13'34", W 77°20'48"] [130m]



MUNICIPALITY	WAYNE COUNTY, TOWN OF ONTARIO
OWNERSHIP	COUNTY ROAD 200
CHARACTER NORTH	UNDEVELOPED
CHARACTER SOUTH	RESIDENTIAL
104 CROSSING TYPE	TEE INTERSECTION FROM THE SOUTH AT GRADE, EAST & WEST BOUND ACCESS
POINTS OF INTEREST	NO POINTS OF INTEREST NORTH OR SOUTH
TRAFFIC SIGNAL	3 AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.10 MILES
COMMENTS	

0 150 300

GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-05**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

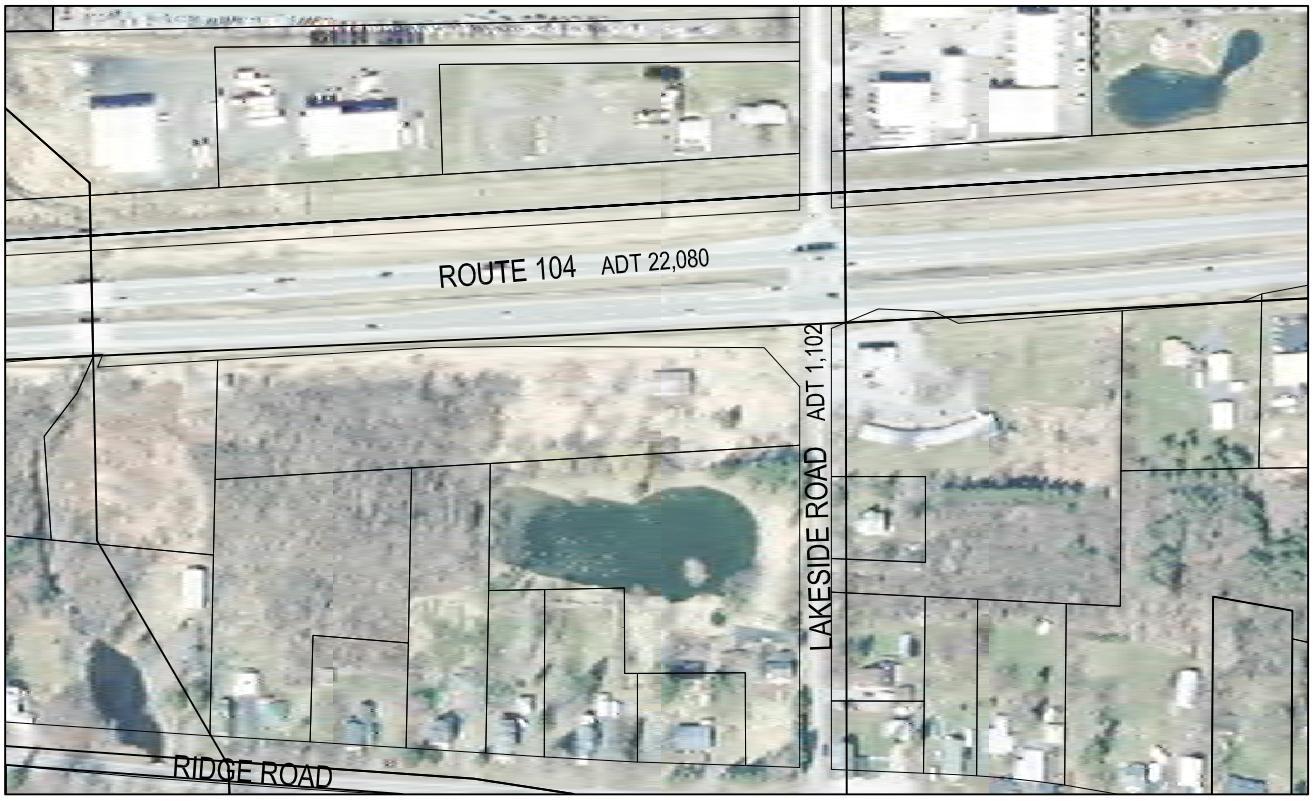
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

LAKESIDE ROAD

WAYNE COUNTY

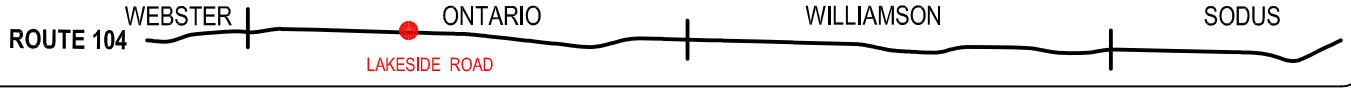
[N 43°13'35", W 77°20'16"] [129m]



MUNICIPALITY	WAYNE COUNTY, TOWN OF ONTARIO
OWNERSHIP	COUNTY ROAD 102
CHARACTER NORTH	BUSINESS
CHARACTER SOUTH	UNDEVELOPED
104 CROSSING TYPE	AT GRADE
POINTS OF INTEREST	NO POINTS OF INTEREST NORTH OR SOUTH
TRAFFIC SIGNAL	4 AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.10 MILES
COMMENTS	

0 150 300

GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-06**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

SLOCUM ROAD

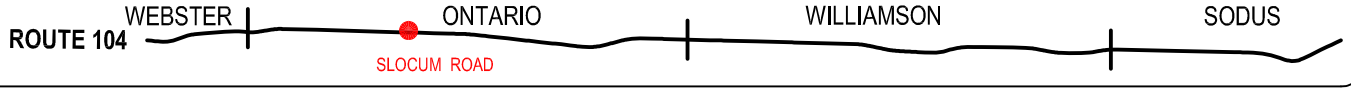
WAYNE COUNTY

[N 43°13'38", W 77°19'26"] [127m]

MUNICIPALITY	WAYNE COUNTY, TOWN OF ONTARIO
OWNERSHIP	LOCAL ROAD
CHARACTER NORTH	UNDEVELOPED, BUSINESS
CHARACTER SOUTH	RESIDENTIAL
104 CROSSING TYPE	AT GRADE
POINTS OF INTEREST	NO POINTS OF INTEREST NORTH OR SOUTH
TRAFFIC SIGNAL	4 AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.3 MILES
COMMENTS	

0 150 300

GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-07**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

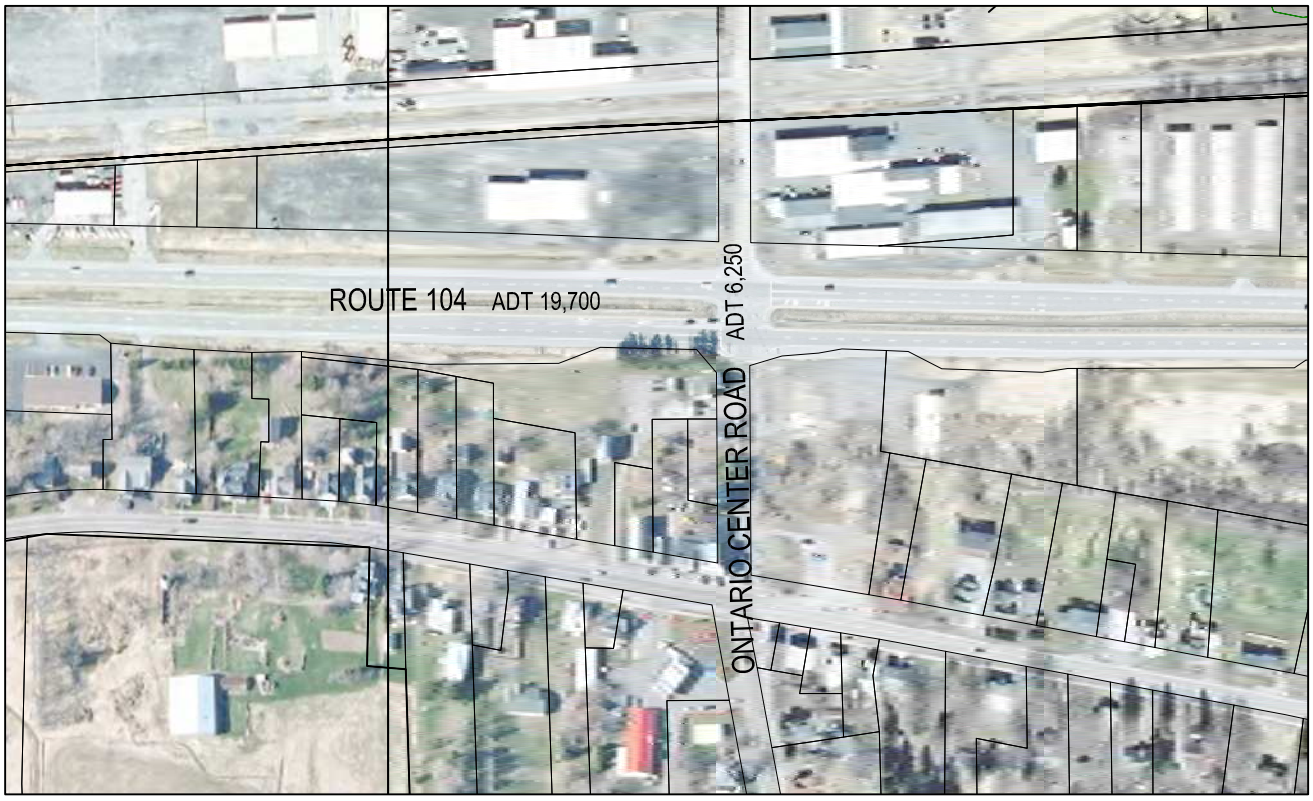
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

ONTARIO CENTER ROAD

WAYNE COUNTY

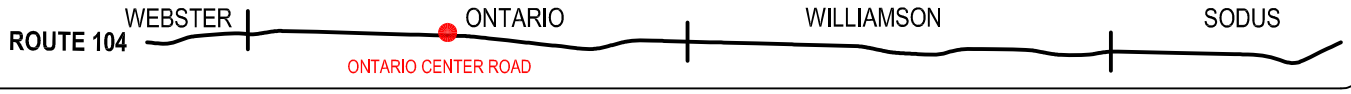
[N 43°13'40", W 77°18'22"] [133m]



MUNICIPALITY	WAYNE COUNTY, TOWN OF ONTARIO
OWNERSHIP	STATE ROAD 350
CHARACTER NORTH	UNDEVELOPED, BUSINESS
CHARACTER SOUTH	BUSINESS, RESIDENTIAL
104 CROSSING TYPE	AT GRADE
POINTS OF INTEREST	WAYNE CENTRAL SCHOOLS .3 MILES SOUTH
TRAFFIC SIGNAL	4 AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.10 MILES
COMMENTS	

0 150 300

GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-08**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

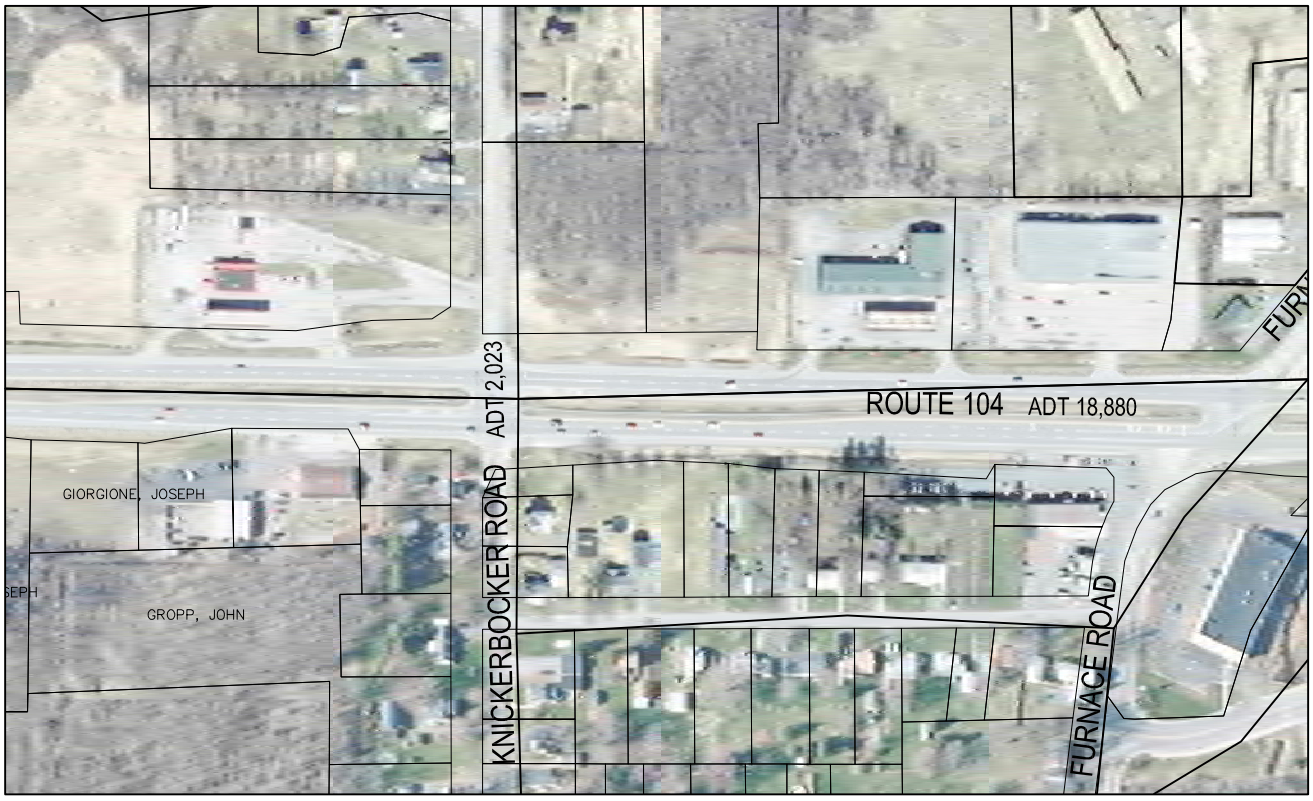
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

KNICKERBOCKER ROAD

WAYNE COUNTY

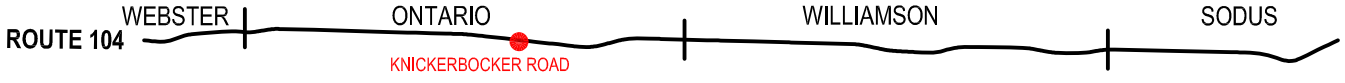
[N 43°38'6", W 77°17'10"] [127m]



MUNICIPALITY	WAYNE COUNTY, TOWN OF ONTARIO
OWNERSHIP	COUNTY ROAD 108
CHARACTER NORTH	BUSINESS
CHARACTER SOUTH	RESIDENTIAL
104 CROSSING TYPE	AT GRADE
POINTS OF INTEREST	CASEY PARK .50 MILES NORTH
TRAFFIC SIGNAL	4 AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.10 MILES
COMMENTS	

0 150 300

GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-09**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

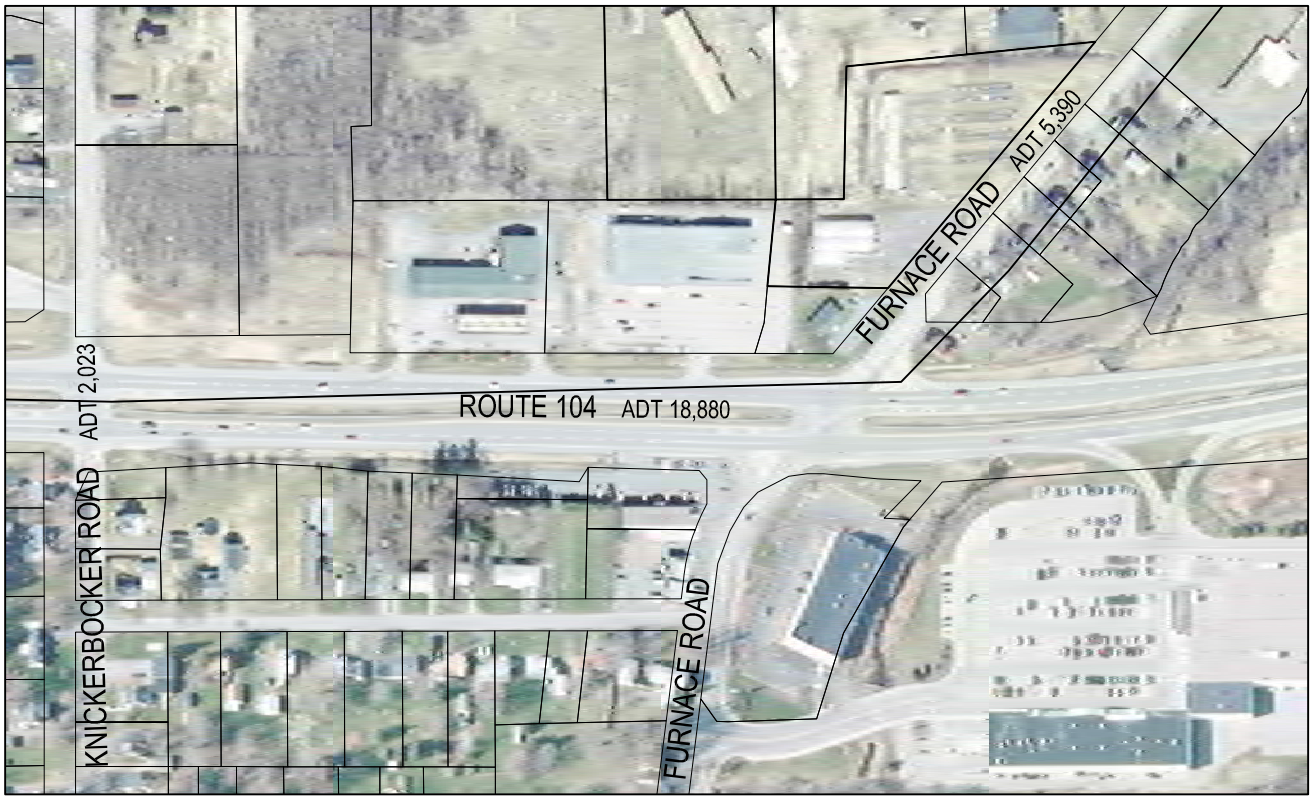
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

FURNACE ROAD

WAYNE COUNTY

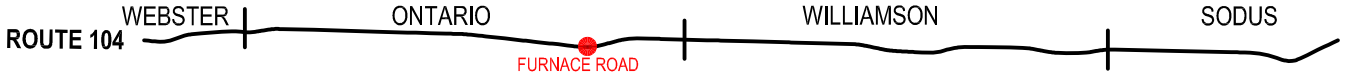
[N 43°13'38.5", W 77°16'55"] [125m]



MUNICIPALITY	WAYNE COUNTY, TOWN OF ONTARIO
OWNERSHIP	COUNTY ROAD 110
CHARACTER NORTH	BUSINESS
CHARACTER SOUTH	BUSINESS
104 CROSSING TYPE	AT GRADE
POINTS OF INTEREST	ONTARIO GOLF COURSE IS .91 MILES SOUTH
TRAFFIC SIGNAL	4 AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.50 MILES SOUTH
COMMENTS	ANGLED INTERSECTION

0 150 300

GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-10**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

BALDWIN DRIVE

WAYNE COUNTY

[N 43°13'46", W 77°16'15"] [124m]

0 150 300
GRAPHIC SCALE (IN FEET)

MUNICIPALITY	WAYNE COUNTY, TOWN OF ONTARIO
OWNERSHIP	LOCAL ROAD
CHARACTER NORTH	UNDEVELOPED
CHARACTER SOUTH	RESIDENTIAL
104 CROSSING TYPE	AT GRADE, ACCESS TO NEIGHBORHOOD FOR EASTBOUND TRAFFIC ONLY
POINTS OF INTEREST	ACCESS TO RESIDENTIAL NEIGHBORHOOD, THROUGH TRAFFIC TO OLD RIDGE
TRAFFIC SIGNAL	NONE
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.70 MILES SOUTH
COMMENTS	

PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-11**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

CORTLAND DRIVE

WAYNE COUNTY

[N 43°13'48", W 77°15'59"] [124m]

MUNICIPALITY	WAYNE COUNTY, TOWN OF ONTARIO
OWNERSHIP	LOCAL ROAD
CHARACTER NORTH	UNDEVELOPED
CHARACTER SOUTH	RESIDENTIAL
104 CROSSING TYPE	AT GRADE, ACCESS TO NEIGHBORHOOD FOR EAST & WEST BOUND
POINTS OF INTEREST	ACCESS TO RESIDENTIAL NEIGHBORHOOD, THROUGH TRAFFIC TO OLD RIDGE
TRAFFIC SIGNAL	2 AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.70 MILES SOUTH
COMMENTS	

0 150 300

GRAPHIC SCALE (IN FEET)

PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-12**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

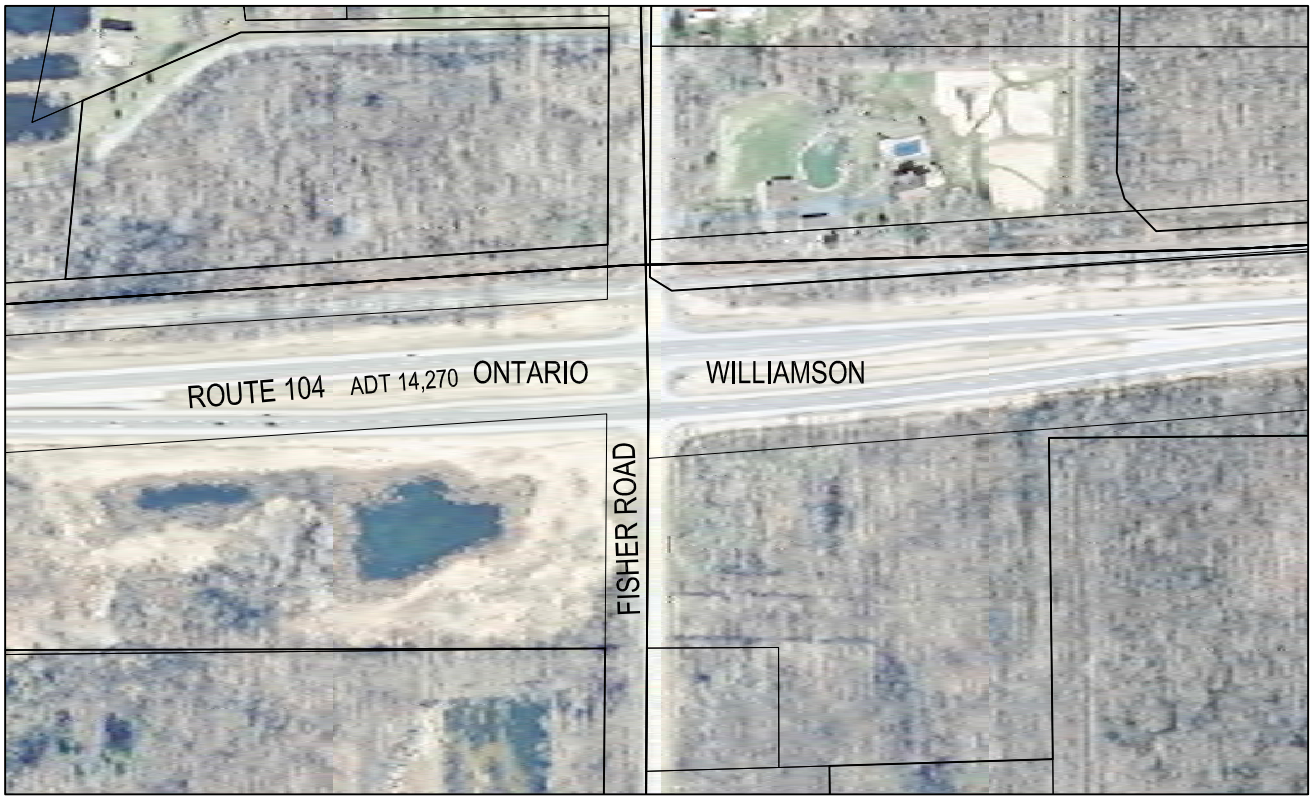
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

FISHER ROAD

WAYNE COUNTY

[N 43°13'51", W 77°15'07"] [124m]



MUNICIPALITY	WAYNE COUNTY, TOWN OF ONTARIO
OWNERSHIP	LOCAL ROAD
CHARACTER NORTH	MOSTLY UNDEVELOPED
CHARACTER SOUTH	UNDEVELOPED
104 CROSSING TYPE	AT GRADE, ACCESS TO NEIGHBORHOOD FOR EAST & WEST BOUND
POINTS OF INTEREST	

0 150 300

GRAPHIC SCALE (IN FEET)

TRAFFIC SIGNAL	4 AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.60 MILES SOUTH
COMMENTS	ROUTE 104 HAS A BOULEVARD INTERSECTION

PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-13**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

SPENCER SPEEDWAY

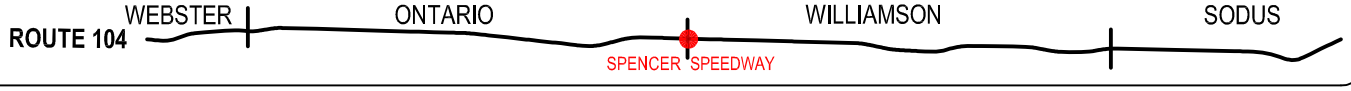
WAYNE COUNTY

[N 43°13'53", W 77°14'25"] [127m]

0 150 300

GRAPHIC SCALE (IN FEET)

MUNICIPALITY	WAYNE COUNTY, TOWN OF WILLIAMSON
OWNERSHIP	PRIVATE DRIVE TO RACE TRACK
CHARACTER NORTH	UNDEVELOPED
CHARACTER SOUTH	UNDEVELOPED
104 CROSSING TYPE	AT GRADE, ACCESS FOR EAST & WEST BOUND
POINTS OF INTEREST	SPENCER SPEEDWAY
TRAFFIC SIGNAL	1 YELLOW FLASHING AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.50 MILES SOUTH
COMMENTS	NO THROUGH TRAFFIC DURING NON BUSINESS HOURS, ROUTE 104 HAS A BOULEVARD INTERSECTION



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-14**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

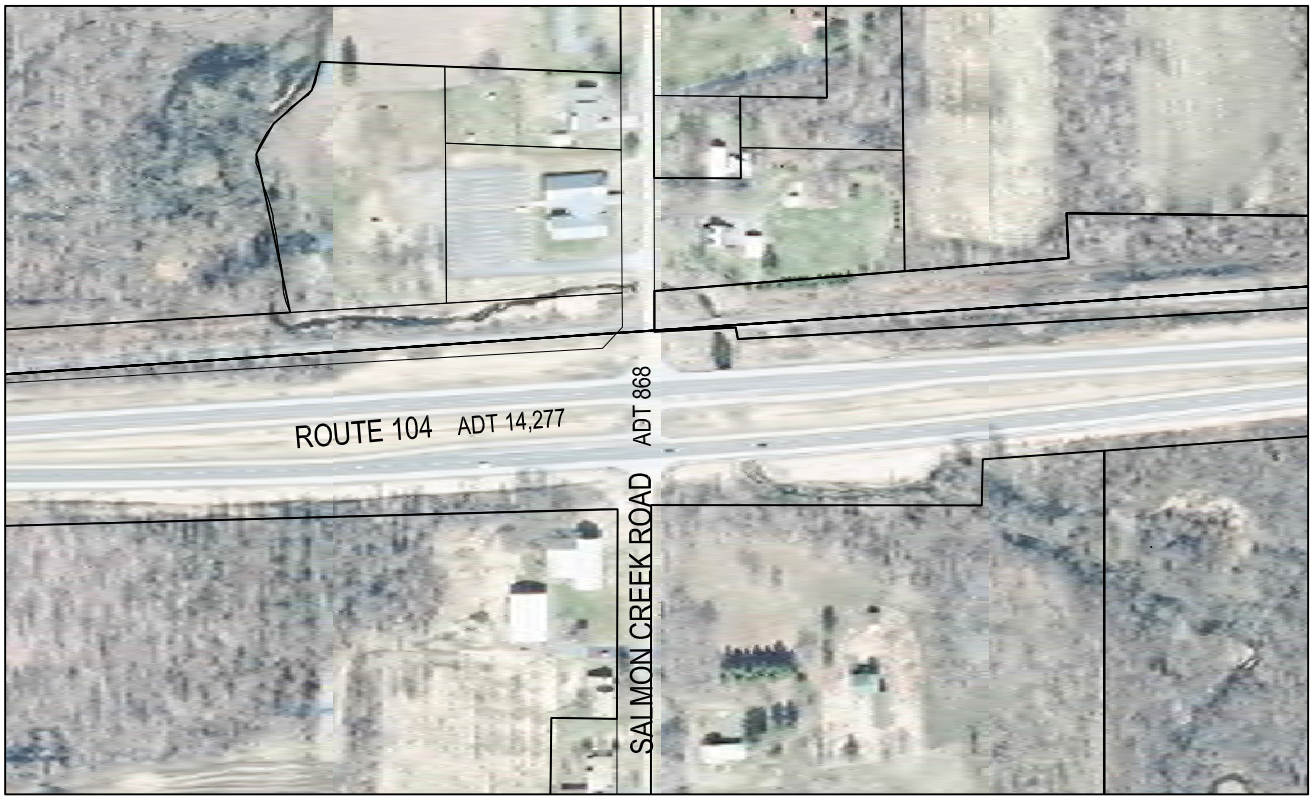
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

SALMON CREEK ROAD

WAYNE COUNTY

[N 43°13'57", W 77°13'05"] [125m]



0 150 300

GRAPHIC SCALE (IN FEET)

MUNICIPALITY	TOWN OF WILLIAMSON
OWNERSHIP	LOCAL ROAD
CHARACTER NORTH	AGRICULTURAL, RESIDENTIAL
CHARACTER SOUTH	UNDEVELOPED, AGRICULTURAL
104 CROSSING TYPE	AT GRADE, ACCESS TO NEIGHBORHOOD FOR EAST & WEST BOUND
POINTS OF INTEREST	
	HAMLET OF PULTNEYVILLE IS APPROXIMATELY 4 MILES NORTH EAST
TRAFFIC SIGNAL	4 AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.50 MILES SOUTH
COMMENTS	ROUTE 104 HAS A BOULEVARD INTERSECTION

PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**	edr JOB NUMBER: **10034**
DRAWING TITLE: **INTERSECTION ANALYSIS**	DRAWING NUMBER: **E-15**
DRAWN BY: **DGP/MVV** / CHECKED BY: **TMR**	SCALE: **1" = 300'** / DATE: **4/07/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

TUCKAHOE ROAD

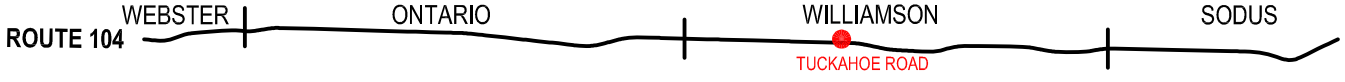
WAYNE COUNTY

[N 43°13'59", W 77°12'05"] [125m]

MUNICIPALITY	WAYNE COUNTY, TOWN OF WILLIAMSON
OWNERSHIP	COUNTY ROAD 116
CHARACTER NORTH	AGRICULTURAL, RESIDENTIAL
CHARACTER SOUTH	UNDEVELOPED, AGRICULTURAL
104 CROSSING TYPE	AT GRADE
POINTS OF INTEREST	
TRAFFIC SIGNAL	NONE
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.50 MILES SOUTH
COMMENTS	

0 150 300

GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-16**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

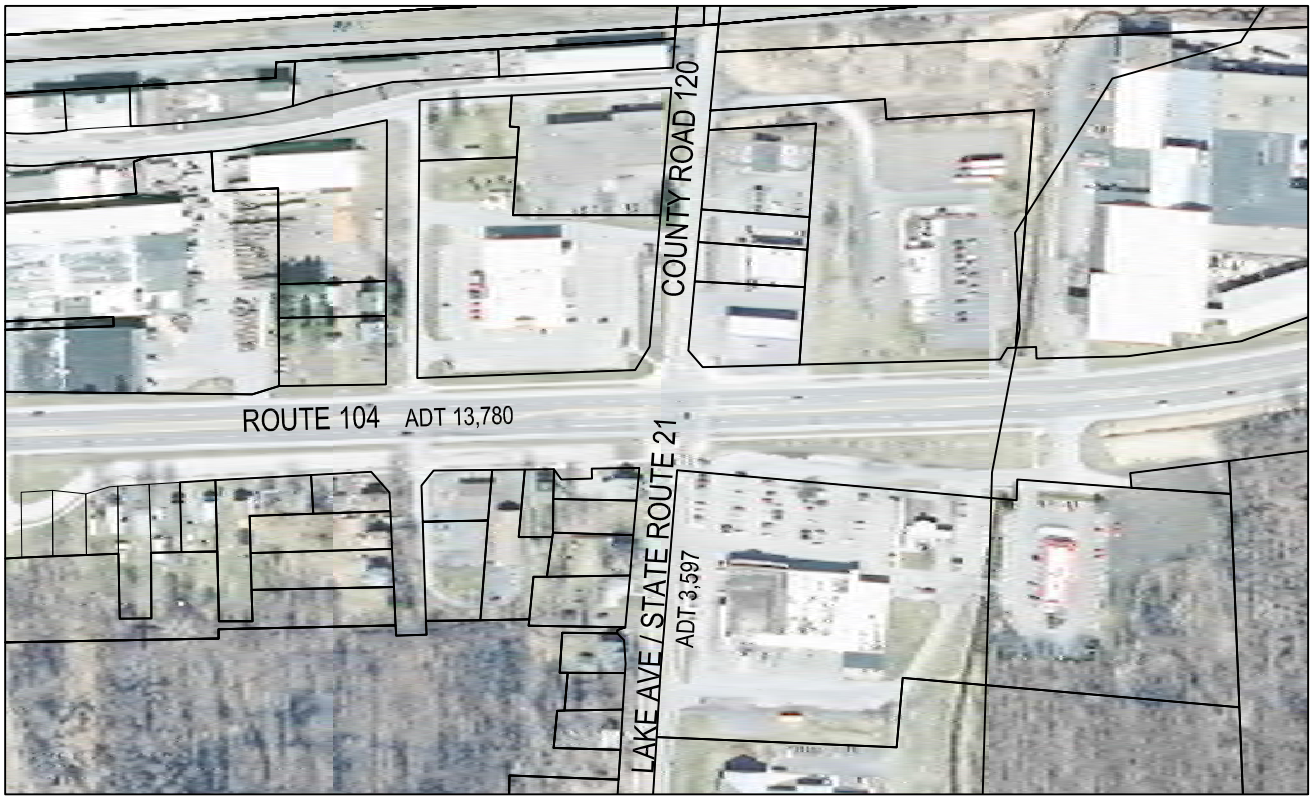
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

LAKE AVENUE / STATE ROUTE 21 / COUNTY ROAD 120

WAYNE COUNTY

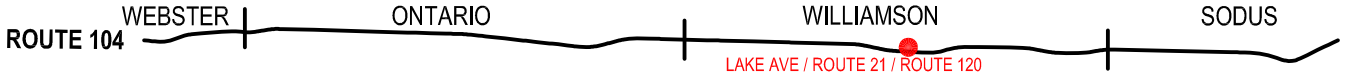
[N 43°13'58", W 77°11'13"] [126m]



MUNICIPALITY	WAYNE COUNTY, TOWN OF WILLIAMSON
OWNERSHIP	TO THE NORTH : COUNTY ROAD 120
	TO THE SOUTH : STATE ROUTE 21
CHARACTER NORTH	BUSINESS
CHARACTER SOUTH	BUSINESS
104 CROSSING TYPE	AT GRADE
POINTS OF INTEREST	HAMLET OF WILLIAMSON .5 MILES SOUTH
	PULTNEYVILLE IS 3.25 MILES NORTH, B.FORMAN COUNTY PARK IS 4.2 MILES NORTHEAST
	WILLIAMSON SENIOR HIGH IS APPROXIMATELY 2 MILES SOUTH
TRAFFIC SIGNAL	4 AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.50 MILES SOUTH
COMMENTS	

0 150 300

GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-17**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

POUND ROAD

WAYNE COUNTY

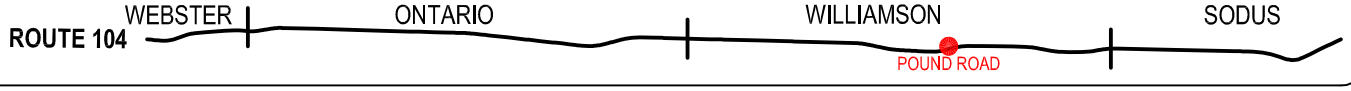
[N 43°14'05", W 77°10'18"] [134m]

MUNICIPALITY	WAYNE COUNTY, TOWN OF WILLIAMSON
OWNERSHIP	LOCAL ROAD
CHARACTER NORTH	MOTT'S AMERICA - INDUSTRIAL
CHARACTER SOUTH	RESIDENTIAL
104 CROSSING TYPE	AT GRADE
POINTS OF INTEREST	WILLIAMSON BOCES .5 MILES SOUTH, MOTT'S AMERICA TO THE NORTHWEST

0 150 300

GRAPHIC SCALE (IN FEET)

TRAFFIC SIGNAL	4 AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.10 MILES SOUTH
COMMENTS	



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-18**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

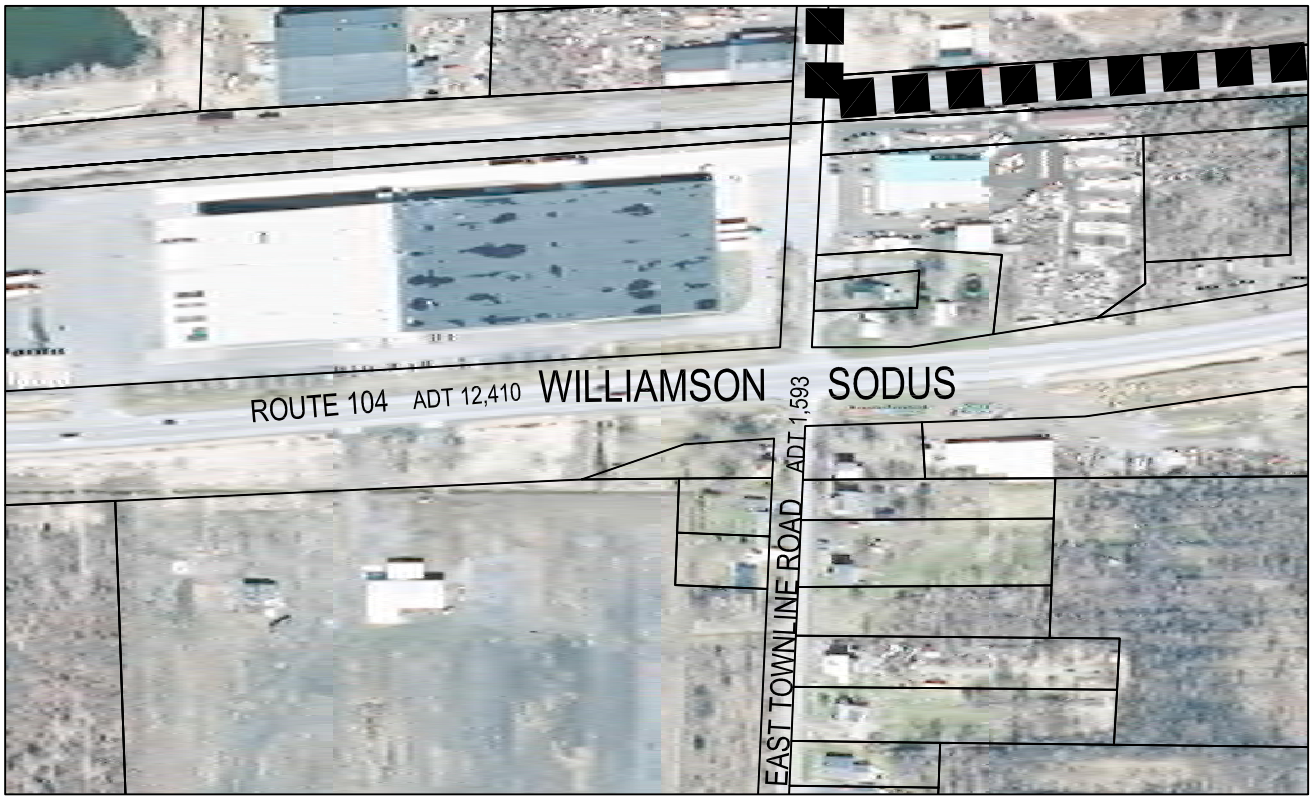
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

EAST TOWNLINE ROAD

WAYNE COUNTY

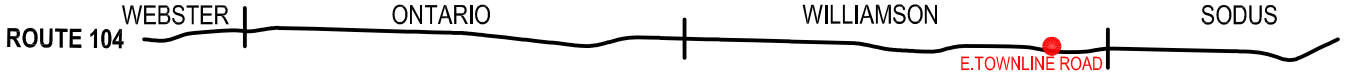
[N 43°14'08", W 77°08'40"] [128m]



MUNICIPALITY	WAYNE COUNTY, TOWN OF WILLIAMSON
OWNERSHIP	COUNTY ROAD 118
CHARACTER NORTH	INDUSTRIAL
CHARACTER SOUTH	BUSINESS
104 CROSSING TYPE	AT GRADE
POINTS OF INTEREST	

0 150 300
GRAPHIC SCALE (IN FEET)

TRAFFIC SIGNAL	4 AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.30 MILES SOUTH
COMMENTS	



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-19**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

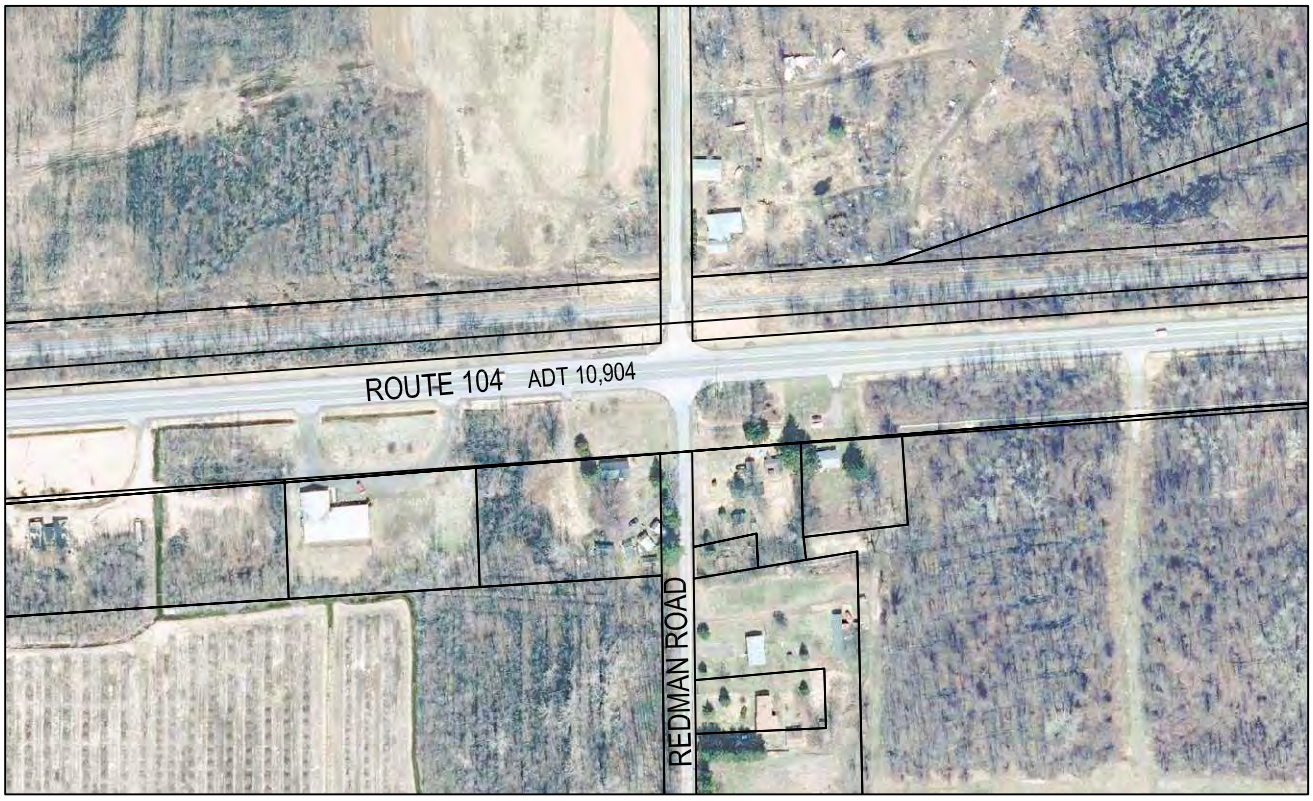
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

REDMAN ROAD

WAYNE COUNTY

[N 43°14'15", W 77°07'14"] [128m]

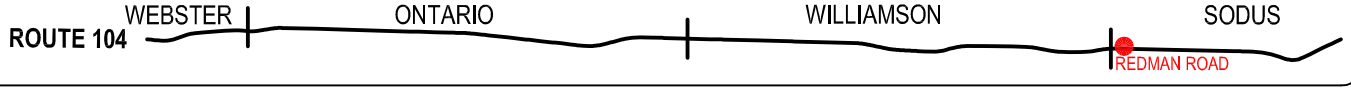


0 150 300

GRAPHIC SCALE (IN FEET)

MUNICIPALITY	WAYNE COUNTY, TOWN OF SODUS
OWNERSHIP	LOCAL ROAD
CHARACTER NORTH	AGRICULTURAL
CHARACTER SOUTH	RESIDENTIAL
104 CROSSING TYPE	AT GRADE
POINTS OF INTEREST	WILLIAMSON / SODUS AIRPORT .30 MILES EAST ALONG ROUTE 104

TRAFFIC SIGNAL	4 AT ROUTE 104 INTERSECTION
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.40 MILES SOUTH
COMMENTS	



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-20**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

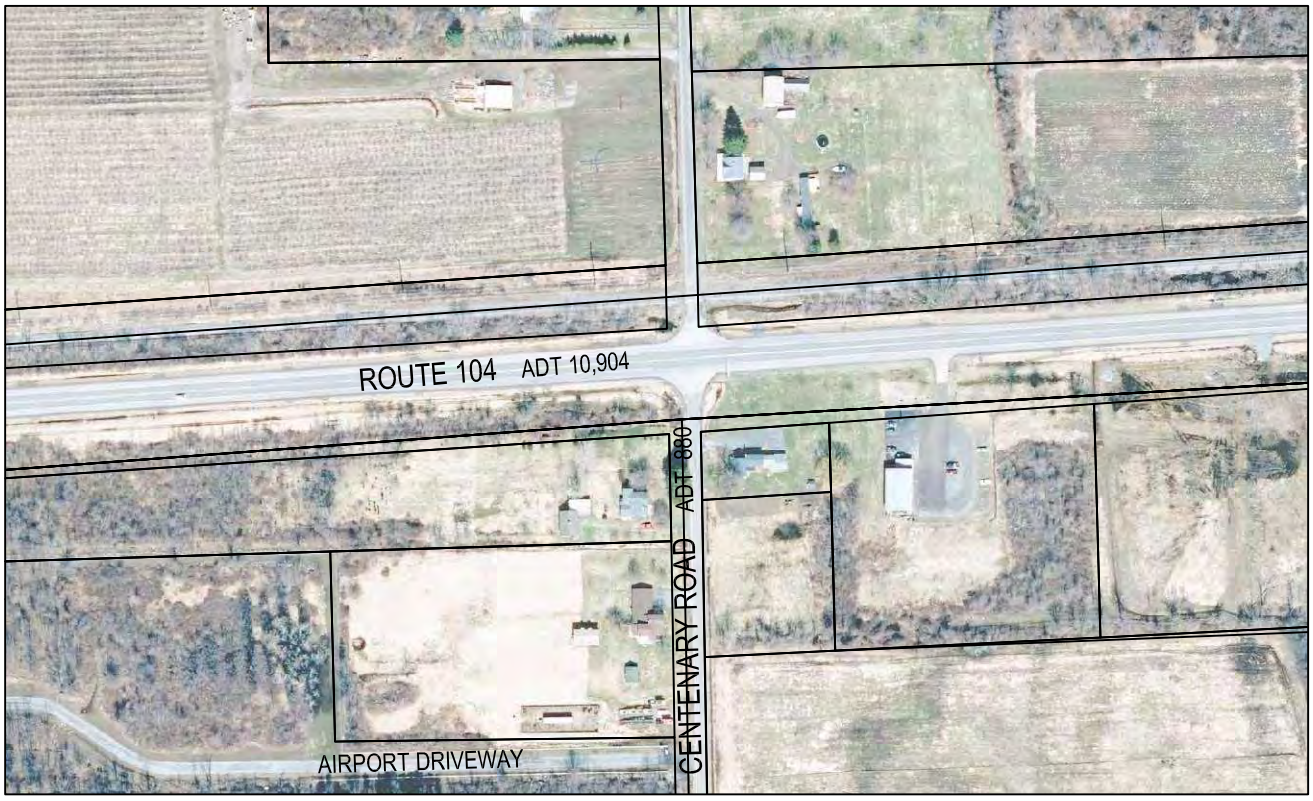
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

CENTENARY ROAD

WAYNE COUNTY

[N 43°14'18", W 77°06'40"] [123m]

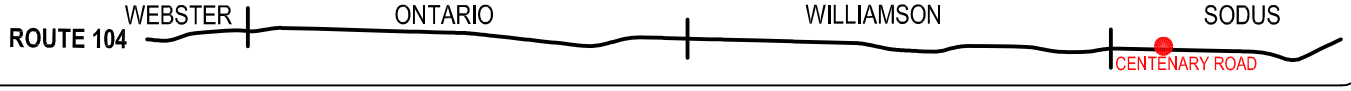


0 150 300

GRAPHIC SCALE (IN FEET)

MUNICIPALITY	WAYNE COUNTY, TOWN OF SODUS
OWNERSHIP	LOCAL ROAD
CHARACTER NORTH	AGRICULTURAL
CHARACTER SOUTH	AGRICULTURAL
104 CROSSING TYPE	AT GRADE
POINTS OF INTEREST	WILLIAMSON / SODUS AIRPORT .30 MILES WEST ALONG ROUTE 104

TRAFFIC SIGNAL	NONE
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.50 MILES SOUTH
COMMENTS	



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-21**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

PRATT / BEAR SWAMP ROAD

WAYNE COUNTY

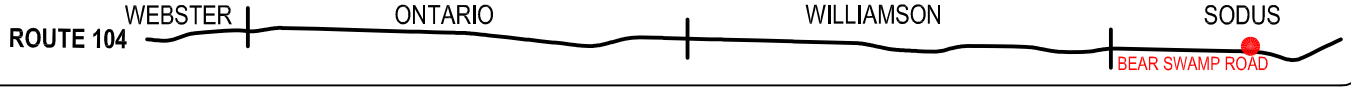
[N 43°14'21", W 77°05'36"] [126m]

0 150 300

GRAPHIC SCALE (IN FEET)

MUNICIPALITY	WAYNE COUNTY, TOWN OF SODUS
OWNERSHIP	LOCAL ROAD
CHARACTER NORTH	AGRICULTURAL
CHARACTER SOUTH	AGRICULTURAL
104 CROSSING TYPE	AT GRADE
POINTS OF INTEREST	WILLIAMSON / SODUS AIRPORT .30 MILES WEST ALONG ROUTE 104

TRAFFIC SIGNAL	NONE
DISTANCE TO LAKE ONTARIO	3.5 MILES
DISTANCE TO OLD RIDGE ROAD	.50 MILES SOUTH
COMMENTS	



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-22**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

ROUTE 88

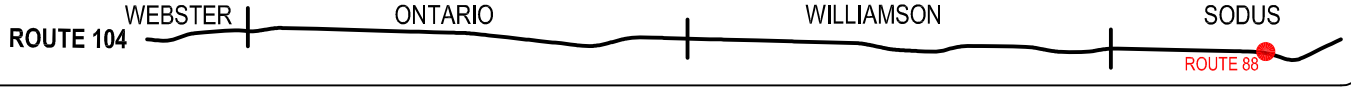
WAYNE COUNTY

[N 43°14'22", W 77°04'46"] [132m]

0 150 300

GRAPHIC SCALE (IN FEET)

MUNICIPALITY	WAYNE COUNTY, TOWN OF SODUS
OWNERSHIP	STATE ROAD
CHARACTER NORTH	RURAL OPEN SPACE
CHARACTER SOUTH	RURAL COMMERCIAL SPACE
104 CROSSING TYPE	AT GRADE
POINTS OF INTEREST	VILLAGE OF SODUS
	VILLAGE OF SODUS POINT 5 MI. NORTHEAST
TRAFFIC SIGNAL	NONE
DISTANCE TO LAKE ONTARIO	2.9 MILES
DISTANCE TO OLD RIDGE ROAD	.10 MILES SOUTH
COMMENTS	ANGLED INTERSECTION: EASTBOUND TRAFFIC ON ROUTE 104 IS DIVERTED
	TO A SEPARATE LANE TO MERGE SOUTH ONTO ROUTE 88



PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**		edr JOB NUMBER: **10034**	
DRAWING TITLE: **INTERSECTION ANALYSIS**		DRAWING NUMBER: **E-22**	
DRAWN BY: **DGP/MVV**	CHECKED BY: **TMR**	SCALE: **1" = 300'**	DATE: **4/07/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\working-intersections.dwg

www.edrcompanies.com

TRAIL DESIGN AND ACCESSIBILITY

Trail Design and Accessibility

Summary of federal laws regulating accessibility:

The 1990 law regulating standards of accessible design for built facilities is the Americans with Disabilities Act (ADA). The Architectural Barriers Act (ABA) of 1968 governs accessibility for federally financed facilities. The Americans with Disabilities Act applies to State and Local government facilities, places of public accommodation, and commercial facilities.

Definitions:

Trail: "A route that is designed, designated, or constructed for recreational pedestrian use or provided as a pedestrian alternative to vehicular routes within a transportation system". (ADA Accessibility Guidelines)

Shared-Use Path: "A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. Users generally include bicyclists, skaters, and pedestrians. Shared use paths provide non-motorized transportation connections between neighborhoods and communities. They may be along old railroad corridors or rivers, or pass through parks. They generally have relatively few driveways or street crossings." (AASHTO Guide for the Development of Bicycle Facilities)

Single-User Path: "Only trails with features and strict enforcement practices that effectively exclude other users are single-user paths. For this reason, the design needs of all potential user groups should be considered when planning a trail." (FHWA Trail Design for Access)

Summary of Federal Regulatory Guidelines:

Access Board Proposed Guidelines for ADA and Proposed Rule for ABA
The Architectural and Transportation Barriers Compliance Board (Access Board) is responsible for developing accessibility guidelines to ensure that new construction and alterations of facilities subject to the ADA and ABA are readily accessible to and usable by individuals with disabilities. The Access Board developed accessibility guidelines for buildings and facilities subject to the ADA and the ABA and revised them in 2004. The revised guidelines include scoping and technical provisions for several types of recreation facilities.

The Access Board convened a Recreation Access Advisory Committee in 1993. Public comments on its 1994 report revealed a lack of consensus (which is required for rule-making) on major issues regarding outdoor developed areas. The Access Board established a regulatory negotiation committee in 1997 that proposed accessibility guidelines for outdoor developed areas in its 1999 report, available at the Board's Web site (*http://www.access-board.gov/outdoor/outdoor-rec-rpt.htm*). This report contains guidelines for both ADA- and ABA-regulated construction, but the proposed rule applies only to those outdoor areas designed, constructed or altered by Federal Agencies subject to the ABA (such as the Forest Service). The Access Board will issue a second proposed rule that applies to areas subject to the ADA, pending an assessment of the costs and benefits to State and Local Governments arising from their compliance with the proposed rules relating to the ADA.

ADA Accessibility Guidelines
The Access Board Regulatory Negotiation Committee's 1999 report proposed ADA accessibility guidelines for trails, beach access routes, picnic and camping facilities. These will eventually become a rule that will be made part of the

ADA Accessibility Guidelines (ADAAG). The proposed guidelines apply to trails subject to the ADA that are designed and constructed for pedestrian use. They do not apply to those primarily designed and constructed for recreational use by equestrians, mountain bicyclists, or motorized vehicle users, even if pedestrians may occasionally use the same trails. A multi-use trail specifically designed and designated for hiking and (non-mountain) bicycling would be considered a pedestrian trail. The guidelines require all newly constructed and altered portions of existing trails that are connected to accessible trails or designated trailheads to comply. Existing trails and routine trail maintenance are not affected by the requirement. Also exempt are conditional departures from the ADA guidelines permitted for any portion of the trail that would:

1. cause substantial harm to cultural, historic, religious, or significant natural features or characteristics
2. substantially alter the nature of the setting or the purpose
3. require construction methods or materials that are prohibited by Federal, State, or Local regulations or statutes
4. not be feasible due to terrain (excessive slope or cross slope) or the prevailing construction practices.

AASHTO Guidelines for the Construction of Bicycle Facilities

The primary guidelines for bicycle trail accessibility are the 1999 American Association of State Highway and Transportation Officials (AASHTO) guidelines (called the Green Book). These guidelines apply to facilities built with federal transportation funds and require greater accessibility than the ADA guidelines.

Comparison of Trail Design Guidelines:

In trail design guidelines published by various organizations, considerations of the needs of bicyclists, pedestrians, people with disabilities, and other user groups differ greatly, primarily due to the mission and constituency that each agency or organization serves. The following chart summarizes differences between guidelines.

Design Criteria	Access Board Accessibility Guidelines for Outdoor Developed Areas	ADA Guidelines	AASHTO Guide for the Development of Bicycle Facilities
Surface	Firm and stable	Firm and Stable	Bikes, wheelchairs: equal firmness. Skaters: paved surface. Most are paved paths, some are crushed aggregate paths.
Width (min.)	36 in. (3 ft.). Exception: 32 in.	36 in. Exception: 32 in.	10 ft.; 2-ft. safety buffer each side; 8 ft. in low-use areas
Openings/Gaps	Max. ½ in. Elongated openings: perpendicular or diagonal to traffic flow. Exception 1: parallel if less than ¼ in. wide. Exc. 2: ¾ in. wide	Max. ½ in. Exception: ¾ in. wide bridge abutments, boardwalks	Minimized to prevent catching bicycle wheels. Grates: flush, openings perpendicular to traffic flow. Clearly mark unavoidable openings.

Design Criteria	Access Board Accessibility Guidelines for Outdoor Developed Areas	ADA Guidelines	AASHTO Guide for the Development of Bicycle Facilities
Protruding Objects	Provide warning if vertical clearance less than 80 in.	Not addressed.	Should not exist within clear tread width. Vertical clearance min. 10 ft.
Tread Obstacles (changes in level, roots, rocks, ruts)	Max. 2 in. Exception: up to 3 in.	Max. 2 in. high. Exc.: 3" high where running & cross slopes 5% or less, 1 in. high where slopes greater than 5%.	Should have none.
Passing Space	Min. 60 in. within 1,000-ft. intervals. More frequent intervals for some trail sections.	Not addressed.	Min. clear width of 10 ft. Exception: 8 ft.
Cross Slope	Max. 1:20 (5%) any length. 1: 12 (8.33%) for up to 200 ft. 1:10 (10%) for up to 30 ft. 1:8 (12.5%) for up to 10 ft.	Rec. 0-2% any dist. 3-5% any dist. 10-12% for up to 5 ft. 6-8% for up to 10 ft. No more than 5% where running slope exceeds 5%. Level area 5 ft long at end of each run section.	Limit slope for accessibility. Paved: min. 2% cross slope. Unpaved: attention to drainage to avoid erosion. Curved paths may need superelevation beyond 2%.
Running Slope	Max. 1:20 (5%) any length. 1: 12 (8.33%) up to 200 ft. for up to 30% of entire trail 1:10 (10%) for up to 30 ft. 1:8 (12.5%) for up to 10 ft.	0-5% any dist. 6-8% for up to 50 ft. 9-10% for up to 30 ft. 11-14% for up to 5 ft. No more than 5% where cross slope exceeds 5%. Level landings 5 ft long at end of each run section.	Rec. no greater than 5%. Unpaved: no steeper than 3%. Where terrain dictates, 5% any length, 5-6%: 400 ft; 8% (1:12.5), for up to 300 ft; 9% (1:11.1), for up to 200 ft; 10% (1:10), for up to 100 ft; 11+% (1:9.1), for up to 50 ft.
Resting Intervals	Size: 60 in. length, at least as wide as the widest trail segment adjacent to the rest area. Less than 1:20 (5%) slope in all directions. Required where running slopes exceed 1:20 (5%), at intervals no greater than lengths permitted under running slope.	Level landings 5 ft long at end of each run section of running slope. Level area 5 ft long at end of each run section of cross slope.	No recommendations.
Edge Protection	Where provided, 3 inch minimum height. Handrails are not required.	Not addressed.	Not addressed.
Trail Signs	Designation with symbol of accessibility and info on total length of accessible segment.	Not addressed.	For guidance refer to MUTCD manual.

Trail Design Guidelines for Access published by the Federal Highway Administration:

Average Grade: The average of many contiguous running grades. Running grade is usually measured over the maximum distance afforded by sight lines when grades are continuous. More detailed grade information is obtained from measurement distances of 300 ft. or less. Maximum grade: A limited section of trail that exceeds the typical running grade. This can differ significantly from running grades. Rate of Change of Grade: The change in grade over a given distance. This is determined by measuring the grade and the distance over which it occurs for each segment of the overall distance (2 ft. intervals recommended). Rate of change of grade should not exceed 13 %.

Rest Areas: Level portions of a trail wide enough to provide wheelchair users and others a place to rest and gain relief from prevailing grade and cross-slope demands. Rest areas are most needed for users to pause from exertions on steep or very exposed terrain. They are most effective when placed at intermediate points, scenic lookouts, or near trail amenities such as benches, trash receptacles, bathrooms, and bike rests. Those located off the trail allow stopped users to move out of the way of trail traffic. Rest Area Interval: The distance between rest areas. Most guidelines agree that these should occur at intervals of 400 ft. on easier trails, 900 ft. on moderate trails, and 1200 ft. on difficult trails.

Cross-slope: The slope measured at specific points, perpendicular to the direction of travel. Average cross-slope is the average of those measured at regular intervals along the trail. Running Cross-slope is the average cross-slope of a contiguous section of trail. This is measured by averaging periodic measurements taken over a section of trail. Maximum cross-slope: a limited section of trail that exceeds the typical running cross-slope of the trail. Rate of Change of Cross-Slope: the change in cross-slope over a given distance (2-ft. intervals recommended).

Design Width and Minimum Clearance Width:
Design width is the width specification the trail was designed to meet. It is also called tread width. Minimum clearance width is the narrowest point on a trail, where width is substantially less than the full trail width. This usually results from trees or other obstacles near the trail, or from a reduction in the design width.

Passing Space: A section of path wide enough to allow two wheelchair users to pass one another or travel abreast. Passing spaces are recommended at regular intervals when the trail is narrow for long distances. Passing space interval is the distance between passing spaces. Most guidelines agree with the ADA requirement for accessible routes of at least 60 in. by 60 in. whenever an accessible route provides less than 60 in. of clear space. The ADA guidelines also allow a T-intersection of two paths as an acceptable passing space.

Changes in level: Vertical height transitions between adjacent surfaces or along the surface of a path. Ruts, tree roots, and rocks protruding from the surface are common examples. These can cause difficulty for users with mobility impairments or those using wheeled devices. Unpaved trails almost always have small changes in level.

Vertical Clearance: The minimum unobstructed vertical passage space required along a trail. Specifications for this clearance vary depending on designated trail users, with equestrians requiring the greatest clearance (10 ft) and hikers requiring the least (6.5 ft. or 80 in.). The height of an average blanket of snow should be considered for trails designed for winter use.

Surface: Choice of surface can be affected by variables such as designated trail use types, expected volume of traffic, local conditions, soil conditions, and cost. The surface material on a trail greatly affects which types of user groups will be able to negotiate it. Soft surfaces such as sand and gravel are more difficult for all users to negotiate, and can be hazardous for those using wheeled devices not designed for outdoor terrain. Soft surfaces may be

preferred by equestrians, joggers, off-road wheelchair users and mountain bicyclists. Recreational trail surfaces are most commonly composed of naturally occurring soil. Concrete or wood chips may be substituted depending on user types, anticipated volume of traffic, climate, and conditions of the surrounding environment. High-use trails in fragile environments are commonly surfaced with pavement, crushed rock, or stabilized soil mixtures to minimize the impact of human traffic on the trail.

Trail information: Formats include signs, maps, computer programs, posters at trail information stations, audio recordings, and published guides. Typical information includes length, elevation change, usage rules, destination, and descriptive information about points of interest. Providing a further level of detail helps users assess whether a trail meets their personal level of safety, comfort, and access. This includes objective, detailed information about potential obstacles, surface type, grade, cross-slope, and trail features. Accurate, detailed trail information enables trail users to choose routes appropriate to their skill levels and desired experience. Criteria include personal interest, destination, environment, and desired difficulty.

Signage text and symbol size recommendations: The ADA guidelines recommend a width-to-height ratio between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10. Symbols for permanent locations should be raised 0.8 mm (0.03 in.) from the surrounding surface and be in upper case, sans serif or simple serif type. Type should be accompanied by Grade 2 Braille. Background sign color should contrast with lettering color. Locations should not obstruct minimum or vertical clearance width.

Difficulty Ratings: Ratings can be misleading because they can be subjectively determined, relative to trails in the same park or area, rather than relative to objective trail information. The result is that users cannot be sure whether a rating agrees with their own sense of the degree of trail difficulty. Also missing from ratings is the differentiation between sections of trail, which might vary in difficulty along a single trail and affect user access to the entire trail.

Maintenance: Needed to keep trails at or near constructed or intended conditions, and can enhance safety, protect resources, and provide continued public access. Select activities include:

- Checking structural integrity of trail features such as bridges, steps, and railings
- Keeping surface clear of obstacles or hazards
- Clearing and maintaining drainage features to minimize erosion on or near trails
- Cutting vegetation to define the trail clearance width and vertical clearance

Trail Elements: Design of elements should be appropriate to conditions of the trail. For example, a user walking on a paved path would expect an accessible bridge, not a fallen log, when crossing a stream. When an element along an accessible trail is not consistent with the trail's overall design, a user might be forced to turn back without reaching the desired destination.

Built facilities along trails: It is critical that these be accessible to all users, to address the fact that people with disabilities use all types of trails. For example, a person who is mobility-impaired might ride a horse or use a motorized all-terrain vehicle.

Drainage Control Measures and Access: Trails designed with less extreme slopes, or drainage through swales and drainage channels are encouraged. Excessive water on a trail can limit use by accelerating erosion, creating conditions harmful to the trail and hazardous to users. Some cross-slope is needed to allow water to drain off the path. Excessive cross-slopes are difficult to negotiate for people with disabilities. Drainage bars consisting of wood, rock, or rubber structures are often placed across the trail on steep slopes to encourage water to flow off the trail. These pose difficulties for people using wheeled devices. Thin rubber drainage bars that flex are easier to wheel over

than other bars. Shared use paths with many wheeled device users should never have drainage bars, because this often results in people traveling off-trail around the bars, rendering the bars ineffective. Swales and drainage channels can provide the same degree of water runoff while affording better access than drainage bars. Building trails with less extreme slopes is the easiest way to avoid the need for drainage bars and prevent erosion. In areas of consistent water flow, culverts, short sections of boardwalk, or bridging can be provided. Swamps and poorly drained areas can be closed at peak times such as spring thaw. Logs or rocks arranged on or in the travel path may improve drainage and mitigate trail erosion.

Minimizing User Conflicts on Trails:
Promoting responsible behavior on trails can minimize conflict. Trail etiquette standards can be publicized on trail signs and in educational materials. Users might be less likely to be offended at the actions of other users when they gain understanding of how each group is supposed to act on the trail. Users might be less likely to violate established codes of behavior if they believe codes will be enforced by trail personnel. Minimizing contact between conflicting types of trail users can be the best method to avoid conflict. This can be achieved by providing several entrances to a trail or providing trails with varying levels of difficulty. A good understanding of the needs, behavior, motivations, desired experiences, and points of view of different user groups is essential to make wise trail-use decisions.

Sources:

1) Barbara McMillen, et. al. Designing Sidewalks and Trails for Access, Part I of II: Review of Existing Guidelines and Practices. Chapter 5: Trail Design For Access, July 1999.

2) Americans with Disabilities Act (ADA) Accessibility Guidelines and Trails FAQ publication, Tennessee Dept. of Environment and Conservation, Recreation Educational Services Division, Greenways and Trails Program, April 2007.

3) Architectural Barriers Act (ABA) Accessibility Guidelines for Outdoor Developed Areas Proposed Rule. Architectural and Transportation Barriers Compliance Board, 36 CFR Part 1195, published in the Federal Register, June 2007.

4) Guide for the Development of Bicycle Facilities, American Association of State Highway and Transportation Officials (AASHTO), 1999.

COMPLETE STREETS

Complete Streets

In addition to understanding the opportunities and constraints specific to the study area, we can look to the complete streets[1] concept for solutions. According to the National Complete Streets Coalition (NCSC), complete streets are roadways designed and operated to enable safe, attractive, and comfortable access and travel for all users[2]. Pedestrians, bicyclists, motorists and public transport users of all ages and abilities are able to safely and comfortably move along and across a complete street[3]. Complete streets also create a sense of place, improve social interaction, and generally increase land values of adjacent property.

Complete streets look different in different places. They must fit with their context and to the transportation modes expected[4]. Although no singular formula exists for a complete street, an effective one includes at least some of the following features[5]:

- sidewalks
- bike lanes
- wide shoulders
- plenty of crosswalks
- refuge medians
- bus pullouts
- special bus lanes
- raised crosswalks
- audible pedestrian signals
- sidewalk bump-outs (bulb-outs)

These features make a street safer and more pleasant for pedestrians and vehicles. A Federal Highway Administration safety review found that designing a street for pedestrian travel by installing raised medians and redesigning intersections and sidewalks reduced pedestrian risk by 28%[6]. The practice of complete streets is not only about allocation of street space, but also about selecting a design speed that is appropriate to the street typology and location, and that allows for safe movements by all road users[7].

Complete streets have a number of different benefits, primarily related to[8]:

- gas prices
- climate change
- economic revitalization
- safety
- children
- people with disabilities
- older people
- health
- transit
- transportation costs

Gas Prices

Walking, biking and using public transit saves money and reduces the United States' dependence on oil. Walking and bicycling require no gasoline usage and transit's fuel usage is more efficient than automobiles. Almost fifty percent of all trips in metropolitan areas are three miles or less and 28 percent are one mile or less, which are distances that many people can cover by foot or bicycle if streets are safe.[9] If each American substituted driving with

[1] http://www.completestreets.org
[2] National Complete Streets Coalition website, http://www.completestreets.org, December 2008.
[3] Ibid.
[4] John Laplante and Barbara McCann. "Complete streets: We can get there from here," ITE Journal, May 2008.
[5] National Complete Streets Coalition brochure. March 2009.
[6] Ibid.
[7] John Laplante and Barbara McCann. "Complete streets: We can get there from here," ITE Journal, May 2008.
[8] National Complete Streets Coalition website, http://www.completestreets.org, December 2008.
[9] 2001 National Personal Transportation Survey.

walking or bicycling for the distance recommended for daily exercise, oil consumption in the U.S. could be reduced by 35 to 38 percent.[10]

Climate Change

Currently, the transportation sector is the fastest growing carbon dioxide source in the U.S. with emission rates rising 2 percent every year. By 2030, carbon emissions from transportation are projected to be 41 percent above today's level if driving is not curbed.[11] Complete streets encourage Americans to drive less and use streets for walking, bicycling, and using public transit. In part due to streets that are unsafe for walking, bicycling or taking transit, automobiles currently account for 65 percent of trips less than one mile. Developing complete streets would help convert these short automobile trips to multi-modal travel. Other studies have found that using non-motorized transport could eliminate five to ten percent of urban automobile trips.[12]

Economic Revitalization

Business owners and residents can benefit economically from infrastructure for non-motorized transportation and lowering automobile speeds by changing road conditions. Creating complete streets in retail and commercial areas accommodates customers and employees that lack transportation or do not feel safe walking, bicycling or using public transit in an automobile-centric environment. When San Francisco's Mission District reduced traffic lanes to slow down cars and accommodate other users, merchants reported a 40 percent increase in sales, a 60 percent increase in local resident shoppers, and a significant increase in pedestrian and bicycling activity.[13] In addition, complete streets contribute to an increase in property values, including residential properties, due to a willingness to pay more to live and work in walkable communities.

Safety

Streets lacking safe places to walk, cross, catch a bus, or operate a bicycle are a safety hazard. Almost 5,000 pedestrians and bicyclists die and more than 70,000 are injured each year on U.S. roads.[14] Pedestrian crashes are more than twice as likely to occur in places without sidewalks.[15] Designing streets for pedestrians with sidewalks, raised medians, better bus stop placement, traffic calming measures, and accommodations for disabled travelers contribute to improved pedestrian safety.[16] Some design features, such as medians, improve safety for all users. Medians enable pedestrians to cross busy roads in two stages and reduce bicyclist injuries from left-turning motorists. Speed reductions created through enlarging sidewalks, installing medians, and adding bicycle lanes, help to lower fatality rates. Eighty percent of pedestrians struck by an automobile going 40 mph will die, however the fatality rates decrease with speed. Forty percent will die when hit by a vehicle traveling 30 mph and only 5 percent will die when hit at 20 mph[17]. Also, bicyclists are safer riding with traffic in bicycle lanes than on sidewalks due to unexpected conflicts at driveways and intersections.

---

[10] Higgins, Pat. Exercise Based Transportation Reduces Oil Dependence, Carbon Emissions and Obesity Environmental Conservation 2005

[11] Ewing, Reid. Growing Cooler: The Evidence on Urban Development and Climate Change. Urban Land Institute/Smart Growth America, 2007.

[12] Litman, Todd. TDM Encyclopedia (ADONIS, 1999; Mackett, 2000; Socialdata Australia, 2000; Cairns et al, 2004).

[13] Drennen, Emily. *Economic Effects of Traffic Calming on Urban Small Businesses*. 2003. http://www.emilydrennen.org/TrafficCalming_full.pdf.

[14] Michelle Ernst, *Mean Streets 2004: How Far Have We Come?*, Surface Transportation Policy Project (2004).

[15] B.J. Campbell and others, *A Review of Pedestrian Safety Research in the United States and Abroad*, Federal Highway Administration Publication # FHWA-RD-03-042 (January 2004).

[16] Ibid.

[17] W.A. Leaf and D.F. Preusser, "Literature Review on Vehicle Travel Speeds and Pedestrian Injuries Among Selected Racial/Ethnic Groups," US Department of Transportation, National Highway Traffic Safety Administration (1999).

Children

A lack of complete streets inhibits children from walking or bicycling to school and playing in their neighborhoods. Pedestrian injury is a leading cause of unintentional, injury-related death among children, ages 5 to 14.[18] Currently, only 17 percent of children walk or ride their bicycles to school compared to 71 percent of their parents when they were children.[19] Sidewalks, footpaths, safe street crossings, and reduced vehicle speeds in school zones contribute to an increase in children walking and bicycling to school.[20] In addition, complete street policies can augment Safe Routes to School (SRTS) programs, to help communities implement complete street design elements into their roadway improvements.

People with Disabilities

Incomplete streets often create unsafe conditions, inhibit use or are a source of frustration for people with disabilities. For example, unpaved surfaces and disconnected, narrow, or deteriorated sidewalks provide unstable or poor conditions for wheelchair travel. High-speed traffic through wide intersections limits mobility for older persons. WALK signals that are solely visual provide no cues to visually impaired pedestrians. Bus stops without adequately paved surfaces and seating are often inaccessible and uncomfortable. Complete street programs provide communities with transportation investments that accommodate all users. For example, complete street designs incorporate inclusive details, such as curb ramps and retimed signals to account for slower movement at intersections, smooth sidewalks free of obstacles, with usable benches along pedestrian routes and ample space to approach, wait, and board safely at transit stops.

Older People

By 2025, the U.S. Census Bureau projects that the portion of Americans over 65 will increase from 12 percent to nearly 20 percent, totaling 62 million Americans. Many older adults prefer not to drive for safety reasons; however, many roads do not provide safe alternatives to driving. In 2005, older Americans made up 20 percent of all pedestrian fatalities. A national poll found that 47 percent of Americans over 50 could not safely cross main roads near their homes, 40 percent did not have adequate neighborhood sidewalks, and 48 percent had no comfortable place to wait for the bus.[21] Also, incomplete streets contribute to older Americans' isolation at home due to a lack of transportation options. Over 50 percent of older adults who reported unsafe walking, bicycling, and transit facilities near their home said they would walk, bicycle, or take transit more often if their streets were improved. Examples of complete street designs include retiming signals to account for slower walking speed, constructing median refuges or sidewalk bulb-outs to shorten crossing distances, and installing curb ramps, sidewalk seating and bus shelters with seating. Also, improved lighting, signage, and pavement markings are among the measures that can benefit drivers of any age, but particularly older drivers.

Health

Obesity is a major American health issue. A recent study found that 32 percent of American adults are obese[22], and the number of overweight or obese American children almost tripled from 1980 to 2004.[23] According to health

---

[18] *Surface Transportation Policy Project* (2004) *Mean Streets*.
[19] Appleyard, B. (2005), *Livable Streets for Schoolchildren.* NCBW Forum.
[20] Ewing, R. Will Schroeer, William Greene. *School location and student travel: Analysis of factors affecting TRB,* National Research Council, Washington, D.C., 2004, pp. 55-63.
[21] AARP, *Fighting Gas Prices, Nearly A Third of American sage 50+ Hang Up Their Keys To Walk But Find Streets Inhospitable, Public Transportation Inaccessible*. http://www.aarp.org/research/press-center/presscurrentnews/aarp_poll_fighting_gas_prices_nearly_a_third_of_am.html
[22] U.S. CDC. (2006) *Physical Activity and Good Nutrition: Essential Elements to Prevent Chronic Disease and Obesity.*
[23] U.S. CDC. (2004) *Physical Activity and the Health of Young People.*

experts, inactivity is a major contributor to obesity and other diseases, such as diabetes, heart disease, and stroke. Fifty-five percent of American adults fall short of recommended activity guidelines, and approximately 25 percent report being completely inactive.[24] Complete streets encourage active travel by providing a network of safe sidewalks and bikeways. A study found that 43 percent of people with safe places to walk within 10 minutes of home met recommended activity levels and among those without safe places to walk just 27 percent met the recommendation.[25]

Transit

Incomplete streets are barriers to transit riders. Poor street design hinders many pedestrians, seniors, and people with disabilities from getting to transit stops in a safe and convenient manner. Communities providing complete streets understand that buses and trains carry more people at a lower cost than automobiles, and help reduce congestion and air pollution. Complete streets accommodate buses moving through traffic and provide accessible bus stops and sidewalks. For example, since 2000 Los Angeles uses a priority signal system that allows buses to shorten red lights and extend green lights. As a result, ridership has increased over 30 percent and travel time has decreased by 25 percent.[26] Also, improving access to transit aids in reducing usage of more costly transportation alternatives, such as paratransit or private transportation services. The Maryland Transit Administration calculated that a daily paratransit commuter costs about $38,500 a year for one person while basic improvements to a transit stop cost approximately $7,000, and extensive improvements (lighted shelter, bench, new sidewalk) cost around $58,000.

Transportation Costs

Transportation costs are the second largest expense for American households. On average, automobile purchases, operation, and maintenance account for 98 percent of the money spent for transportation by American households. Families living in auto-reliant communities without sidewalks, bicycle lanes, and convenient public transit cannot choose less expensive transportation options. Households in auto-reliant communities spend 20 percent more on transportation than in complete street communities.[27] Complete streets encourage families to choose bicycling, walking, or taking public transit over driving. Households residing near public transit drive an average of 16 fewer miles per day compared to households without public transportation options. When residents can reduce their transportation costs, they often invest more in the local economy, which in turn creates new jobs and more tax revenue.[28] In addition, property values increase in pedestrian-friendly communities and communities with convenient transit stops. For example, in Chicago, houses within a half-mile of a suburban rail station sell on average for $36,000 more than homes located farther away.[29]

---

[24] U.S. Department of Health and Human Services (2000) *Healthy people 2010*. 2nd edition. Washington, DC: U.S. Government Printing Office.

[25] Powell, K.E., Martin, L., & Chowdhury, P.P. (2003). Places to walk: convenience and regular physical activity. *American Journal of Public Health, 93*, 1519-1521.

[26] Los Angeles County Metropolitan Transportation Authority. *Metro Rapid Demonstration Program, Final Report*. March 2002.

[27] McCann, Barbara. *Driven to Spend: Sprawl and Household Transportation Expenses.* STPP, March 2000. <http://www.transact.org/report.asp?id=36>

[28] Bekka, Khalid. *Economic Benefits of Public Transit*. Wisconsin Department of Transportation, November 2003. <http://on.dot.wi.gov/wisdotresearch/database/briefs/03-07transitbenefits-b.pdf>

[29] *What Happens to a Capital Investment in Public Transportation?* American Public Transportation Association. <http://publictransportation.org/reports/asp/pub_business.asp>

APPENDIX H
Route 104 Corridor Trail Feasibility Study

SCHEMATIC COST ESTIMATES

Prepared for GTC and the Towns of Ontario, Sodus, Webster, and Williamson, NY

Route 104 Corridor Trail Preliminary Cost Estimate | **Alternative 1**
edr Job No. 10034 | **Railroad Trail**
Prepared for: Genesee Transportation Council
NOTE: Conceptual estimate for budgeting purposes only

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	**SITE PREPARATION**				
1.1	Mobilization/Demobilization	LS	1	$10,000	$10,000
1.2	Clearing, grubbing, and earthwork	LS	1	$25,000	$25,000
1.3	Erosion and sediment controls	LS	1	$25,000	$25,000
2	**STRUCTURAL**				
2.1	10' wide boardwalk, with curb rails and helical pier foundation system	SF	84,760	$27.50	$2,330,900
2.2	Creek crossings	Each	14	$21,500	$301,000
3	**PAVING**				
3.1	10' wide stone dust multi-use trail	SF	644,280	$3	$1,932,840
3.2	Trail drainage improvements	LS	1	$50,000	$50,000
3.3	Crosswalk striping	LF	19,245	$15	$288,675
3.4	Crosswalk striping	Each	18	$50	$900
3.5	Concrete sidewalk expansion (Webster)	SF	4,200	$7	$29,400
4	**SIGNAGE**				
4.1	Mile post signage	Each	34	$1,000	$34,000
4.2	Trailhead kiosks & signage	Each	6	$10,500	$63,000
4.3	Traffic Signal - Pedestrian Improvements	LS	1	$3,500	$3,500
5	**SITE FURNITURE**				
5.1	Limestone slab seats	Each	51	$500	$25,500
5.2	Bicycle racks	Each	6	$1,000	$6,000
5.3	Trail gates, 2 per road crossing	Each	36	$1,000	$36,000
5.4	Fencing	LF	1000	$40	$40,000
6	**PLANTINGS**				
6.1	Native trees (3" cal.)	Each	100	$600	$60,000
6.2	Native shrubs	Each	500	$80	$40,000
6.3	Seeding, mulching, and site restoration	Acre	20	$1,500	$30,000
				SUBTOTAL	**$5,331,715**
7	**CONTINGENCY (20%)**				$1,066,343
				SUBTOTAL	**$6,398,058**
8	**DESIGN AND PERMITTING (15%)**				$959,709
				TOTAL	**$7,357,767**
9	**ADD ALTERNATE - PAVING**				
	10' wide asphalt multi-use trail ($3.30/SF)	SF	644,280	$0.30	$193,284
10	**ADD ALTERNATE - TRAIL GATEWAYS**	Each	36	$5,000	$180,000
				CONTINGENCY 20%	$38,657
				DESIGN AND PERMITTING 15%	$34,791
				TOTAL	**$7,804,499**

Route 104 Corridor Trail Preliminary Cost Estimate
edr Job No. 10034
Prepared for: Genesee Transportation Council
NOTE: Conceptual estimate for budgeting purposes only

Alternative 1
Railroad Trail
Webster, NY

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	**SITE PREPARATION**				
1.1	Mobilization/Demobilization	LS	1	$1,000	$1,000
1.2	Clearing, grubbing, and earthwork	LS	1	$2,500	$2,500
1.3	Erosion and sediment controls	LS	1	$2,500	$2,500
2	**STRUCTURAL**				
2.1	10' wide boardwalk, with curb rails and helical pier foundation system	SF	2,680	$27.50	$73,700
2.2	Creek crossings	Each	1	$21,500	$21,500
3	**PAVING**				
3.1	10' wide stone dust multi-use trail	SF	62,710	$3	$188,130
3.2	Trail drainage improvements	LS	1	$5,000	$5,000
3.3	Crosswalk striping	Each	3	$50	$150
3.4	Crosswalk striping	SF	4,200	$7	$29,400
4	**SIGNAGE**				
4.1	Mile post signage	Each	2	$1,000	$2,000
4.2	Trailhead kiosks & signage	Each	1	$10,500	$10,500
4.3	Traffic Signal - Pedestrian Improvements	LS	1	$3,500	$3,500
5	**SITE FURNITURE**				
5.1	Limestone slab seats	Each	6	$500	$3,000
5.2	Bicycle racks	Each	1	$1,000	$1,000
5.4	Trail gates, 2 per road crossing	Each	5	$1,000	$5,000
5.3	Fencing	LF	100	$40	$4,000
6	**PLANTINGS**				
6.1	Native trees (3" cal.)	Each	10	$600	$6,000
6.2	Native shrubs	Each	50	$80	$4,000
6.3	Seeding, mulching, and site restoration	Acre	2	$1,500	$3,000
				SUBTOTAL	**$365,880**
7	**CONTINGENCY (20%)**				$73,176
				SUBTOTAL	**$439,056**
8	**DESIGN AND PERMITTING (15%)**				$65,858
				TOTAL	**$504,914**
9	**ADD ALTERNATE - PAVING**				
	10' wide asphalt multi-use trail ($3.30/SF)	SF	62,710	$0.30	$18,813
10	**ADD ALTERNATE - TRAIL GATEWAYS**	Each	5	$5,000	$25,000
				CONTINGENCY 20%	$3,763
				DESIGN AND PERMITTING 15%	$3,386
				TOTAL	**$555,876**

Route 104 Corridor Trail Preliminary Cost Estimate
edr Job No. 10034
Prepared for: Genesee Transportation Council
NOTE: Conceptual estimate for budgeting purposes only

Alternative 1
Railroad Trail
Ontario, NY

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	**SITE PREPARATION**				
1.1	Mobilization/Demobilization	LS	1	$4,000	$4,000
1.2	Clearing, grubbing, and earthwork	LS	1	$10,000	$10,000
1.3	Erosion and sediment controls	LS	1	$10,000	$10,000
2	**STRUCTURAL**				
2.1	10' wide boardwalk, with curb rails and helical pier foundation system	SF	26,730	$27.50	$735,075
2.2	Creek crossings	Each	6	$21,500	$129,000
3	**PAVING**				
3.1	10' wide stone dust multi-use trail	SF	159,410	$3	$478,230
3.2	Trail drainage improvements	LS	1	$20,000	$20,000
3.3	Crosswalk striping	LF	19,245	$15	$288,675
3.4	Crosswalk striping	Each	7	$50	$350
4	**SIGNAGE**				
4.1	Mile post signage	Each	16	$1,000	$16,000
4.2	Trailhead kiosks & signage	Each	2	$10,500	$21,000
5	**SITE FURNITURE**				
5.1	Limestone slab seats	Each	21	$500	$10,500
5.2	Bicycle racks	Each	2	$1,000	$2,000
5.4	Trail gates, 2 per road crossing	Each	14	$1,000	$14,000
5.3	Fencing	LF	400	$40	$16,000
6	**PLANTINGS**				
6.1	Native trees (3" cal.)	Each	40	$600	$24,000
6.2	Native shrubs	Each	200	$80	$16,000
6.3	Seeding, mulching, and site restoration	Acre	8	$1,500	$12,000
				SUBTOTAL	**$1,806,830**
7	**CONTINGENCY (20%)**				$361,366
				SUBTOTAL	**$2,168,196**
8	**DESIGN AND PERMITTING (15%)**				$325,229
				TOTAL	**$2,493,425**
9	**ADD ALTERNATE - PAVING**				
	10' wide asphalt multi-use trail ($3.30/SF)	SF	159,410	$0.30	$47,823
10	**ADD ALTERNATE - TRAIL GATEWAYS**	Each	14	$5,000	$70,000
				CONTINGENCY 20%	$9,565
				DESIGN AND PERMITTING 15%	$8,608
				TOTAL	**$2,629,421**

Route 104 Corridor Trail Preliminary Cost Estimate
edr Job No. 10034
Prepared for: Genesee Transportation Council
NOTE: Conceptual estimate for budgeting purposes only

Alternative 1
Railroad Trail
Williamson, NY

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	**SITE PREPARATION**				
1.1	Mobilization/Demobilization	LS	1	$3,500	$3,500
1.2	Clearing, grubbing, and earthwork	LS	1	$8,750	$8,750
1.3	Erosion and sediment controls	LS	1	$8,750	$8,750
2	**STRUCTURAL**				
2.1	10' wide boardwalk, with curb rails and helical pier foundation system	SF	32,520	$27.50	$894,300
2.2	Creek crossings	Each	4	$21,500	$86,000
3	**PAVING**				
3.1	10' wide stone dust multi-use trail	SF	240,560	$3.00	$721,680
3.2	Trail drainage improvements	LS	1	$17,500	$17,500
3.3	Crosswalk striping	Each	5	$50	$250
4	**SIGNAGE**				
4.1	Mile post signage	Each	12	$1,000	$12,000
4.2	Trailhead kiosks & signage	Each	2	$10,500	$21,000
5	**SITE FURNITURE**				
5.1	Limestone slab seats	Each	21	$500	$10,500
5.2	Bicycle racks	Each	2	$1,000	$2,000
5.4	Trail gates, 2 per road crossing	Each	10	$1,000	$10,000
5.3	Fencing	LF	350	$40	$14,000
6	**PLANTINGS**				
6.1	Native trees (3" cal.)	Each	35	$600	$21,000
6.2	Native shrubs	Each	175	$80	$14,000
6.3	Seeding, mulching, and site restoration	Acre	7	$1,500	$10,500
				SUBTOTAL	**$1,855,730**
7	**CONTINGENCY (20%)**				$371,146
				SUBTOTAL	**$2,226,876**
8	**DESIGN AND PERMITTING (15%)**				$334,031
				TOTAL	**$2,560,907**
9	**ADD ALTERNATE - PAVING**				
	10' wide asphalt multi-use trail ($3.30/SF)	SF	240,560	$0.30	$72,168
10	**ADD ALTERNATE - TRAIL GATEWAYS**	Each	10	$5,000	$50,000
				CONTINGENCY 20%	$14,434
				DESIGN AND PERMITTING 15%	$12,990
				TOTAL	**$2,710,499**

Route 104 Corridor Trail Preliminary Cost Estimate
edr Job No. 10034
Prepared for: Genesee Transportation Council
NOTE: Conceptual estimate for budgeting purposes only

Alternative 1
Railroad Trail
Sodus, NY

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	**SITE PREPARATION**				
1.1	Mobilization/Demobilization	LS	1	$1,500	$1,500
1.2	Clearing, grubbing, and earthwork	LS	1	$3,750	$3,750
1.3	Erosion and sediment controls	LS	1	$3,750	$3,750
2	**STRUCTURAL**				
2.1	10' wide boardwalk, with curb rails and helical pier foundation system	SF	22,830	$27.50	$627,825
3	**PAVING**				
3.1	10' wide stone dust multi-use trail	SF	181,600	$3	$544,800
3.2	Trail drainage improvements	LS	1	$7,500	$7,500
3.3	Crosswalk striping	Each	3	$50	$150
4	**SIGNAGE**				
4.1	Mile post signage	Each	6	$1,000	$6,000
4.2	Trailhead kiosks & signage	Each	1	$10,500	$10,500
5	**SITE FURNITURE**				
5.1	Limestone slab seats	Each	9	$500	$4,500
5.2	Bicycle racks	Each	1	$1,000	$1,000
5.4	Trail gates, 2 per road crossing	Each	7	$1,000	$7,000
5.3	Fencing	LF	150	$40	$6,000
6	**PLANTINGS**				
6.1	Native trees (3" cal.)	Each	15	$600	$9,000
6.2	Native shrubs	Each	75	$80	$6,000
6.3	Seeding, mulching, and site restoration	Acre	3	$1,500	$4,500
				SUBTOTAL	**$1,243,775**
7	**CONTINGENCY (20%)**				$248,755
				SUBTOTAL	**$1,492,530**
8	**DESIGN AND PERMITTING (15%)**				$223,880
				TOTAL	**$1,716,410**
9	**ADD ALTERNATE - PAVING**				
	10' wide asphalt multi-use trail ($3.30/SF)	SF	181,600	$0.30	$54,480
10	**ADD ALTERNATE - TRAIL GATEWAYS**	Each	7	$5,000	$35,000
				CONTINGENCY 20%	$10,896
				DESIGN AND PERMITTING 15%	$9,806
				TOTAL	**$1,826,592**

Route 104 Corridor Trail Preliminary Cost Estimate
edr Job No. 10034
Prepared for: Genesee Transportation Council
NOTE: Conceptual estimate for budgeting purposes only

Alternative 2
Active Transportation Package

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	**SITE PREPARATION**				
1.1	Mobilization/Demobilization	LS	1	$10,000	$10,000
1.2	Erosion and sediment controls	LS	1	$10,000	$10,000
2	**PAVING**				
2.1	Pavement striping and markings on Ridge Road shared roadway bicycle route	LF	185,120	$1.40	$259,168
2.2	Pavement striping on Lake Ave & Furnace Rd connections btw Ridge Road and Route 104	LF	10,800	$2.40	$25,920
2.3	Concrete walk pavement - new sidewalks on Furnace Road btw Ridge Rd and Route 104	SF	22,200	$7.00	$155,400
2.4	Concrete walk pavement - expanded sidewalks on Lake Avenue btw Ridge Road and Route 104	SF	14,750	$7.00	$103,250
2.5	Concrete walk pavement on select Route 104 pedestrian areas	SF	37,500	$8.00	$300,000
2.6	Pedestrian crosswalk improvements at intersections	Each	16	$2,500.00	$40,000
3	**SIGNAGE**				
3.1	Informational and directional signage	LS	1	$15,000	$15,000
3.2	Bicycle warning and Share the Road signage - one signage assembly every 1/4 mile	Each	136	$250	$34,000
4	**SITE FURNITURE**				
4.1	Benches	Each	20	$1,000	$20,000
4.2	Bicycle racks	Each	20	$1,000	$20,000
4.3	Bicycle shelters	Each	6	$50,000	$300,000
5	**PLANTINGS**				
5.1	Native street trees (3" cal.)	Each	175	$600	$105,000
5.2	Seeding, mulching, and site restoration	Acre	0.6	$1,500	$900
				SUBTOTAL	**$1,398,638**
7	**CONTINGENCY (20%)**				$279,728
				SUBTOTAL	**$1,678,366**
8	**DESIGN AND PERMITTING (15%)**				$251,755
				TOTAL	**$1,930,120**

Route 104 Corridor Trail Preliminary Cost Estimate
edr Job No. 10034
Prepared for: Genesee Transportation Council
NOTE: Conceptual estimate for budgeting purposes only

Alternative 2
Active Transportation Package
Webster, NY

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	**SITE PREPARATION**				
1.1	Mobilization/Demobilization	LS	1	$1,000	$1,000
1.2	Erosion and sediment controls	LS	1	$1,000	$1,000
2	**PAVING**				
2.1	Pavement striping and markings on Ridge Road shared roadway bicycle route	LF	13,520	$1.40	$18,928
2.2	Concrete walk pavement on select Route 104 pedestrian areas	SF	3,750	$8.00	$30,000
2.3	Pedestrian crosswalk improvements at intersections	Each	4	$2,500.00	$10,000
3	**SIGNAGE**				
3.1	Informational and directional signage	LS	1	$1,500	$1,500
3.2	Bicycle warning and Share the Road signage - one signage assembly every 1/4 mile	Each	14	$250	$3,500
4	**SITE FURNITURE**				
4.1	Benches	Each	2	$1,000	$2,000
4.2	Bicycle racks	Each	2	$1,000	$2,000
4.3	Bicycle shelters	Each	1	$50,000	$50,000
5	**PLANTINGS**				
5.1	Native street trees (3" cal.)	Each	18	$600	$10,800
5.2	Seeding, mulching, and site restoration	Acre	0.1	$1,500	$150
				SUBTOTAL	**$130,878**
7	**CONTINGENCY (20%)**				$26,176
				SUBTOTAL	**$157,054**
8	**DESIGN AND PERMITTING (15%)**				$23,558
				TOTAL	**$180,612**

Route 104 Corridor Trail Preliminary Cost Estimate
edr Job No. 10034
Prepared for: Genesee Transportation Council
NOTE: Conceptual estimate for budgeting purposes only

Alternative 2
Active Transportation Package
Ontario, NY

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	**SITE PREPARATION**				
1.1	Mobilization/Demobilization	LS	1	$3,500	$3,500
1.2	Erosion and sediment controls	LS	1	$3,500	$3,500
2	**PAVING**				
2.1	Pavement striping and markings on Ridge Road shared roadway bicycle route	LF	67,452	$1.40	$94,433
2.2	Pavement striping on Furnace Rd connection between Ridge Road and Route 104	LF	4,520	$2.40	$10,848
2.3	Concrete walk pavement - new sidewalks on Furnace Road btw Ridge Rd and Route 104	SF	22,200	$7.00	$155,400
2.4	Concrete walk pavement on select Route 104 pedestrian areas	SF	13,125	$8.00	$105,000
2.5	Pedestrian crosswalk improvements at intersections	Each	7	$2,500.00	$17,500
3	**SIGNAGE**				
3.1	Informational and directional signage	LS	1	$5,250	$5,250
3.2	Bicycle warning and Share the Road signage - one signage assembly every 1/4 mile	Each	47	$250	$11,750
4	**SITE FURNITURE**				
4.1	Benches	Each	7	$1,000	$7,000
4.2	Bicycle racks	Each	7	$1,000	$7,000
4.3	Bicycle shelters	Each	2	$50,000	$100,000
5	**PLANTINGS**				
5.1	Native street trees (3" cal.)	Each	62	$600	$37,200
5.2	Seeding, mulching, and site restoration	Acre	0.2	$1,500	$300
				SUBTOTAL	**$558,681**
7	**CONTINGENCY (20%)**				$111,736
				SUBTOTAL	**$670,417**
8	**DESIGN AND PERMITTING (15%)**				$100,563
				TOTAL	**$770,980**

Route 104 Corridor Trail Preliminary Cost Estimate
edr Job No. 10034
Prepared for: Genesee Transportation Council
NOTE: Conceptual estimate for budgeting purposes only

Alternative 2
Active Transportation Package
Williamson, NY

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	**SITE PREPARATION**				
1.1	Mobilization/Demobilization	LS	1	$3,500	$3,500
1.2	Erosion and sediment controls	LS	1	$3,500	$3,500
2	**PAVING**				
2.1	Pavement striping and markings on Ridge Road shared roadway bicycle route	LF	63,234	$1.40	$88,528
2.2	Pavement striping on Lake Ave connection between Ridge Road and Route 104	LF	6,280	$2.40	$15,072
2.3	Concrete walk pavement - expanded sidewalks on Lake Avenue btw Ridge Road and Route 104	SF	14,750	$7.00	$103,250
2.4	Concrete walk pavement on select Route 104 pedestrian areas	SF	13,125	$8.00	$105,000
2.5	Pedestrian crosswalk improvements at intersections	Each	4	$2,500.00	$10,000
3	**SIGNAGE**				
3.1	Informational and directional signage	LS	1	$5,250	$5,250
3.2	Bicycle warning and Share the Road signage - one signage assembly every 1/4 mile	Each	43	$250	$10,750
4	**SITE FURNITURE**				
4.1	Benches	Each	7	$1,000	$7,000
4.2	Bicycle racks	Each	7	$1,000	$7,000
4.3	Bicycle shelters	Each	2	$50,000	$100,000
5	**PLANTINGS**				
5.1	Native street trees (3" cal.)	Each	62	$600	$37,200
5.2	Seeding, mulching, and site restoration	Acre	0.2	$1,500	$300
				SUBTOTAL	**$496,350**
7	**CONTINGENCY (20%)**				$99,270
				SUBTOTAL	**$595,620**
8	**DESIGN AND PERMITTING (15%)**				$89,343
				TOTAL	**$684,962**

Route 104 Corridor Trail Preliminary Cost Estimate
edr Job No. 10034
Prepared for: Genesee Transportation Council
NOTE: Conceptual estimate for budgeting purposes only

Alternative 2
Active Transportation Package
Sodus, NY

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	**SITE PREPARATION**				
1.1	Mobilization/Demobilization	LS	1	$2,000	$2,000
1.2	Erosion and sediment controls	LS	1	$2,000	$2,000
2	**PAVING**				
2.1	Pavement striping and markings on Ridge Road shared roadway bicycle route	LF	41,454	$1.40	$58,036
2.2	Concrete walk pavement on select Route 104 pedestrian areas	SF	7,500	$8.00	$60,000
2.3	Pedestrian crosswalk improvements at intersections	Each	4	$2,500.00	$10,000
3	**SIGNAGE**				
3.1	Informational and directional signage	LS	1	$3,000	$3,000
3.2	Bicycle warning and Share the Road signage - one signage assembly every 1/4 mile	Each	22	$250	$5,500
4	**SITE FURNITURE**				
4.1	Benches	Each	4	$1,000	$4,000
4.2	Bicycle racks	Each	4	$1,000	$4,000
4.3	Bicycle shelters	Each	1	$50,000	$50,000
5	**PLANTINGS**				
5.1	Native street trees (3" cal.)	Each	33	$600	$19,800
5.2	Seeding, mulching, and site restoration	Acre	0.1	$1,500	$150
				SUBTOTAL	**$218,486**
7	**CONTINGENCY (20%)**				$43,697
				SUBTOTAL	**$262,183**
8	**DESIGN AND PERMITTING (15%)**				$39,327
				TOTAL	**$301,510**

RELATIONSHIP TO OTHER PLANS AND STUDIES

APPENDIX I
Route 104 Corridor Trail Feasibility Study

The Route 104 Corridor Trail Feasibility Study builds on the following previously completed planning initiatives in Monroe and Wayne Counties:

- Comprehensive Plan for the Town of Williamson, NY, 2010
- Town of Webster, NY Comprehensive Plan Update, 2008
- Town of Williamson, NY: Routes 21 and 104 Gateway Study, 2008
- Design Guidelines for the Historic Business Center in the Hamlet of Williamson, NY, 2007
- Town of Ontario, NY Comprehensive Plan, 2006
- A Community Based Vision Plan for the Hamlet of Williamson, NY, 2005
- Regional Trails Final Report and Action Plan: Phase Two – Non-TMA Region, 2004
- Wayne County Comprehensive Plan Public Opinion Survey, 2004
- Wayne County Recreationways Master Plan, 2001
- Town of Williamson Parks and Recreation Master Plan, 1999

Each of these plans and studies is summarized in the following paragraphs, and any relevance to the proposed Route 104 Corridor Trail study is described.

Comprehensive Plan for the Town of Williamson, NY, 2010
Prepared by Bergmann Associates, the Williamson Comprehensive Plan Update presents a vision for the Town that reflects the priorities and objectives of the community. The Plan outlines a series of recommended actions for preserving, protecting, and enhancing the qualities and characteristics of Williamson that have been determined to be most important to Town residents and stakeholders. The plan focuses on revitalizing Main Street, protecting significant agricultural lands, identifying appropriate locations for future growth and development, retaining the rural character and natural resources in the Town, and enhancing other community resources, including social institutions, historic structures and sites, and parks and recreation facilities. The Plan provides the Town with a framework for decision-making, investment, and prioritizing activities in Williamson over the course of the next decade.

The following plan objectives support developing a multi-use trail along Route 104:

- Objective 2.C. Promote walkability throughout the Town by incorporating linkages and connections into new development projects.
- Objective 4: Provide adequate recreation facilities, including parks, trails, linkages, and access to natural resources, for the use and enjoyment of residents and visitors to the Town of Williamson.
- Objective 4.B. Continue to work with Trail Works, Inc. to identify and implement additional multi-use trail systems both within the Town and connections to adjacent towns.

Town of Webster, NY Comprehensive Plan Update, 2008
The Town of Webster Comprehensive Plan Update was prepared by a committee consisting of citizens and Town officials. The plan includes an inventory of existing conditions, a future land use plan, and policy recommendations for the Route 104/404 Corridor; Waterfront/Sandbar; Environmental Resources, Open Space, and Recreation; and Pedestrian Access and Safety. An Implementation Strategy summarizes the recommendations, identifies the entity or entities responsible for carrying out the recommended actions, the proposed time frame for completing the actions, potential costs and sources of funds.

The following goals and objectives of the plan support developing a multi-use trail along Route 104:

- (CORR) Goal G: Maximize the utility of the Rt. 104/Expressway corridor as a transportation and aesthetic resource for the community.
- (ENV) Goal Q: Improve Existing Parks, including Facility Improvements and Trail Connections
- (ENV) Objective Q.1. Review proposed vacant lands and trails on Open Space Inventory map to determine opportunities for park expansions, improved access and existing or new trail linkages
- (ENV) Goal R: Prepare a Trail and Alternative Transportation System Plan (TATS Plan)

Town of Williamson, NY: Routes 21 and 104 Gateway Study, 2008
Prepared by a consultant team that included Clark Patterson Lee, Fisher Associates and the Steinmetz Planning Group, the Route 21 & 104 Gateway Study was completed in 2008. The purpose of the plan was to identify improvements for the area surrounding the intersection of Routes 21 and 104 in Williamson, NY. The Plan identifies five key goals, including creating a visually attractive hamlet / town center gateway on Route 104; attracting motorists on 104 to the Hamlet of Williamson; enhancing the business climate within the Hamlet; reducing traffic speeds and enhancing safety; and improving pedestrian connections. The final corridor recommendations included planting a row of trees along Route 104 in conformance with required clear zones; introducing a flush, colored median on Route 104; street lighting; and a signage program including two large gateway signs. The plan identifies improvements separated into four stages to help break out costs and impacts on people using the roadway. The plan also identifies funding opportunities the Town could pursue to help pay for improvements and includes design guidelines for future development along the Route 104 commercial corridor.

Most of the goals of the study do not conflict with a Route 104 Corridor trail, but the execution of the study's site-specific recommendations (e.g. planting trees) will need to be considered when the trail alignment is laid out in this area. The goals of the study include:

- Create a visually attractive hamlet/town center gateway on Route 104;
- Attract Route 104 motorists to the hamlet's commercial area (on Ridge Road);
- Enhance the business climate in the hamlet center;
- Reduce traffic speed and improve safety at the Route 21/104 intersection; and
- Improve pedestrian linkages at the Route 21/104 intersection and between Route 104 and the hamlet center.

Design Guidelines for the Historic Business Center in the Hamlet of Williamson, NY, 2007
Prepared by the Rochester Regional Community Design Center, the Design Guidelines were developed as part of the Implementation Phase associated with the Community Design Charrette. The guidelines were based on input and ideas generated through the design charrette process. The design guidelines were developed to apply to buildings, streets, sidewalks, and public spaces within the Hamlet of Williamson Historic Business Center. The design guidelines were broken into four sections to assist users. The sections included: General Guidelines for Existing Buildings; General Guidelines for New Buildings; General Guidelines for Specific Building Components; and Guidelines for Specific Main Street Type Buildings. Sub-categories covered within the sections include building detailing, building configuration, appropriate design techniques, details and material, colors, awnings and canopies, and signage. Building specific recommendations were developed for 24 buildings on Main Street and include an illustrated design scheme to visually portray recommended façade improvements. The Design Guidelines do not specifically relate to the Route 104 Corridor Trail.

Town of Ontario, NY Comprehensive Plan, 2006
Prepared by Stuart I. Brown Associates and MRB Group, the Town of Ontario Comprehensive Plan was completed in 2006. The purpose of the plan is to guide local officials and community members in making decisions that will affect the future of the Town. The plan includes a land use overview, a future land use map and conservation overlay, and topical sections that address the major issues identified by the community: natural resources and open space; farmland and agriculture; housing and residential neighborhoods; economic development; parks and recreation; transportation and infrastructure; and community services and facilities. In each section, the Plan presents: goals; background information; issues and opportunities; tools and techniques; and recommended actions. An implementation strategy summarizes the recommended actions by topic, with a proposed time frame, responsible agency, cost estimate, and potential funding sources. A summary of the recommended actions by time frame provides a year-by-year guide to implementing the Plan.

The plan has the following recommended actions that support developing a multi-use trail along Route 104:

- PR-2 (TI-10): Work with local bicycling clubs and other organizations to create dedicated bicycle routes along Lake Road and in other suitable locations.
- PR-3 (TI-11): Develop trails for bicycling, hiking and other uses including equestrian use that connect with neighboring systems.

A Community Based Vision Plan for the Hamlet of Williamson, NY, 2005
In 2005 a two-day charrette was held at Williamson's United Methodist Church. The event, known as the Williamson Community Design Charrette, was intended to create a plan for the hamlet of Williamson that would maintain or increase its vitality and to take a proactive approach to addressing sprawl within the Town. Approximately 100 residents and design professionals took part in the charrette event, which concentrated on five focus areas, including Main Street; Route 21; Route 104; Architectural and Agricultural Preservation; and the hamlet of Williamson in its entirety. A variety of design ideas were generated during the charrette, including the addition of street trees and façade improvements on Main Street; the creation of a village green at the Town Complex; a gateway feature at the intersection of Route 104 and Lake Avenue; landscape buffers; and the re-routing of truck traffic. A variety of other recommendations and implementation actions are also identified in the final Vision Plan.

The Vision Plan suggests locations for commercial development that will fit within existing buildings and create a shopping area that is walkable, pedestrian friendly and inviting. Suggested development takes into account building scale, location, and interstitial spaces, which can be developed as appropriate parking, landscaped green space, and pedestrian walkways. These recommendations do not specifically conflict with a Route 104 Corridor Trail, as the need for a pedestrian-friendly environment has been highlighted. The site-specific recommendations, however conceptual they might be, will need to be considered when the trail alignment is laid out in this area.

Regional Trails Final Report and Action Plan: Phase Two – Non-TMA Region, 2004
The GTC, with assistance from various consultants, drafted the Regional Trails Initiative Final Report & Action Plan – Phase 2 in March of 2004. The plan outlined the various existing recreational and multi-use trails located throughout the GTC's nine county area, as well as planned and suggested trails. Currently, the Route 104 Corridor State snowmobile trail (SS Trail #4), which runs from the Ontario- Williamson town line to the Wayne-Cayuga county line, is the only major trail system that is listed within the corridor study area.

The report identifies the proposed Route 104 Corridor Trail (Ontario-Sodus) as Trail #114, a "planned near term" trail. In addition, there are two planned/suggested trails identified by the GTC report that would connect to the proposed Route 104 Corridor Trail. Trail #116 (Route 104 Corridor Trail – Sodus to Wolcott) and Trail #155 (Pultneyville to Marion Trail). Trail #116 was classified as "planned near-term" project which indicates the proposal has been identified in other local planning documents and is recommended for near-term implementation, while Trail #155 was suggested as a long-term project and has not been identified in any other plans or documents. The Route 104 Corridor Trail would be a multi-use trail parallel to the existing snowmobile trail (SS Trail #4 described above) and the Pultneyville to Marion trail would run from the hamlet of Pultneyville (in the Town of Williamson) to the northern terminus of the planned Newark to Marion trail. At the time of this report, the Pultneyville to Marion trail was also being studied through GTC's 2010-2011 Priority Trails Advancement Program.

Wayne County Comprehensive Plan Public Opinion Survey, 2004
The survey was conducted in May-June 2004 by planning consultant George Homsy of Canandaigua under contract with Wayne County. The project was done in collaboration with and was supervised by the County Planning Department. A total of 614 people returned the survey, which had been mailed to a random sample of 1,500 Wayne County households with at least one registered voter listed at the address. In addition, a subgroup of the sample households received follow-up post cards to encourage participation. These efforts pushed the response rate to 40.9 percent, making it a statistically reliable survey sample. The results of the survey reveal the public's strong support in five general areas:

- Preservation of the county's rural characteristics
- A desire for walkable communities
- Economic development as a priority
- Protection of the natural environment
- Consolidation of some local governments

The results of this survey generally support the development of a multi-use trail in the Route 104 Corridor, as indicated by the interest in walkable communities.

Wayne County Recreationways Master Plan, 2001
Wayne County hired Trowbridge & Wolf Landscape Architects to prepare the Recreationways Master Plan in 1999. The draft plan was completed and submitted to the County in 2000. A revised final draft was prepared by the Wayne County Planning Department in 2001, with mapping created more recently in 2008. The plan was designed to document existing and proposed recreationways in Wayne County; link proposed recreationway corridors to significant tourist, cultural, recreational, and commercial destinations; link proposed trails to statewide and regional trails; develop policy recommendations and design standards that integrate the needs of diverse users; and facilitate workshops to gather input of trail user groups.

The Route 104 Corridor was listed as one of the three natural east-west corridors for recreationway development, and notes that these corridors are linked to larger regional and statewide recreationway systems. This plan identifies the two parallel east-west corridors that comprise the Route 104 corridor: the NYSDOT Route 104 roadway right-of-way, and the Rochester Gas & Electric (RG&E) owned utility corridor which consists of an active railroad, operated by Ontario Midland Railroad and electrical transmission lines. The plan notes, "Both RG&E and NYSDOT are amenable to trail development and are willing to work with Wayne County and local trail organizations toward the development of trails and trail license agreements".

The Recreationways Master Plan remarks that "motorized recreational vehicles do currently ride the entire length of this corridor within Wayne County" and that between Ontario and Sodus, the "NYSDOT and RG&E corridors are used heavily by ATVs, dirt bikes and snowmobiles (which) ride along the south side of Route 104". The plan notes that if this corridor were "developed, it would become the main east-west spine for off-road motorized vehicles and could be incorporated into the State Snowmobile Route". However, in the Implementation section, the plan goes on to state, "Wayne County should negotiate with RG&E and Ontario Midland Railroad for the development of a non-motorized trail within the RG&E corridor. Without the liability of motorized vehicles, Ontario Midland might prove more agreeable to trail development". The plan discusses using this corridor for motorized off-road vehicles, then recommends a non-motorized trail, and ultimately suggests developing two separate treadways, one for motorized trail users and one for non-motorized trail users to provide the optimal multi-use trail situation. Not all motorized off-road vehicles are currently envisioned in the proposed Route 104 Corridor Trail.

Town of Williamson Parks and Recreation Master Plan, 1999
In 1999, the Town of Williamson developed a Parks and Recreation Master Plan. The impetus of the Plan was the Town's 1998 purchase of a large parcel of land in the center of the Town for the development of a town park. The purpose of the Master Plan was to define the most appropriate direction for the Town to take in providing additional recreation opportunities to its residents. The Plan inventories existing park and recreation facilities and assesses the needs of the Town with respect to recreation facilities and programming. Long-term goals and objectives, as well as strategies for achieving the goals, are identified in the Plan. The plan identifies specific recreation, park, and open space amenities recommended for the new town park based on findings. There was a significant amount of community involvement throughout the planning process.

A survey was administered during the planning process, and the results showed good support for walking/hiking and bicycling, and surprisingly little support for winter sports such as cross country skiing and snowmobiling. The townwide public opinion survey indicated a substantial interest in the creation of a hiking and biking trail network in the town. The plan noted that the potential exists for the long-term establishment of a town-wide and intertown trails network. The plan supports the development of trails in the Town of Williamson, but does not specifically identify the Route 104 Corridor as a potential location.

ECOLOGICAL CHARACTER

On November 2, 2010, an **edr** ecologist visited the study area to specifically identify the dominant ecological communities, wildlife habitat and streams present within the study area.

The study area is set amongst a significant regional transportation corridor. General community cover types include deciduous forest, riparian forest, successional forest, scrub shrub, old-field, agricultural land and developed/disturbed land. Each of the different ecological community types identified during the site visit is described below.

Inventory of Existing Cover Types

Northern Deciduous Forest. The deciduous forest community observed within the study area is located primarily on smaller lots that have been spared development and are frequently adjacent to successional forests and old-field. A well-structured forest canopy exists with some of the typical canopy species such as sugar maple, red oak, black cherry and hickory present. The understory is comprised of maple and oak saplings, ironwood, honeysuckle and buckthorn. Due to the timing of the site visit during the fall season, an herbaceous layer was not observed. Grape, Virginia creeper, and poison ivy define the vine layer. In addition to mature forest, there are large areas of early successional forest. These areas seem to be most likely either former farm land that has been left to regenerate or abandoned commercial properties. In most instances, pioneer species such as red maple and cottonwood were present along with shrub species such as gray dogwood, honeysuckle and buckthorn dominating. Herbaceous species found in these areas include typical old-field grasses such as orchard grass, timothy, and perennial rye and broad-leaved herbaceous species such as red and white clover, milkweed, thistles, burdock, asters, Canada goldenrod, and Queen Anne's lace

Riparian/Forested Wetland. Riparian forest and forested wetlands within the study area are the dominant forest and wetland type. These forested wetlands were observed in association with many of the perennial streams that flow south to north across the study area. The forested wetlands are located on large parcels located in the broad lowlands along the study area and in most cases are designated as New York State Department of Environmental Conservation (NYSDEC) State protected wetlands. Green ash, red maple, sycamore, American elm, black willow and cottonwood dominate the overstory. Species dominating the shrub layer are silky dogwood, speckled alder, spicebush, honeysuckle and buckthorn. Cattail, common reed, jewelweed, joe pye weed, interrupted fern, sensitive fern, asters, goldenrods, soft rush, may apple, skunk cabbage and swallowwort were noted in the herbaceous layer in various locations.

Mixed Conifer and Northern Hardwood Forest. In several areas of the study area, a mixed coniferous and deciduous forest community was noted. One significant area where mixed stands are located is north and east of the Spencer Speedway. A mix of hemlock, white pine, red pine, Norway spruce, red maple, green ash, basswood, American beech, black cherry, red oak and hickory dominate the overstory. The understory is comprised of black cherry saplings, musclewood, honeysuckle and privet. The herbaceous layer is limited due to the dense mixed canopy.

Successional Old-Field. Successional old-field is defined by Reschke (1990) as "a meadow dominated by forbs and grasses that occurs on sites that have been cleared and plowed (for farming or development), and then abandoned." This ecological community is scattered throughout the study area, primarily in the form of abandoned agricultural fields. Species found in these areas include typical old-field grasses such as orchard grass, timothy, and perennial rye. Broad-leaved herbaceous species found in old fields include red and white clover, milkweed, thistles, burdock, asters, Canada goldenrod, and Queen Anne's lace. Shrubs (including honeysuckle, raspberry, gray dogwood, and brambles) and saplings from adjacent forestland, are also typically components of this community, but represent less than 50% of total vegetative cover.

Emergent Wetland. Emergent wetlands within the study area are not as prevalent as forested wetlands; however, one notable area was observed on the south side of Route 104, west of Fisher Road. This area is possibly a wetland mitigation site associated with compensatory wetland mitigation requirements. Cattail, common reed, jewelweed, sensitive fern, asters, goldenrods, sedges and soft rush dominate these emergent wetland areas. However, in many areas, cattail and common reed are overcrowding other species and prohibiting diversity. Silky dogwood and alder species are also found in and around some of the transition areas between other adjacent wetland communities.

Successional Shrubland. Successional shrubland is frequently associated with old fields and young forest on the periphery of agricultural areas. Shrubland areas are commonly found in poorly drained areas or fallow fields that have gone out of agricultural production. Areas of young trees and shrubs are also intermixed with some forested areas. Herbaceous species similar to those found in successional old fields occur in this community. However, shrub species such as gray dogwood, hawthorn, honeysuckle, raspberry, multiflora rose, and wild grape dominate this community.

Scrub shrub wetlands were also noted within the study area. The main concentration of scrub shrub wetlands is associated with other adjacent forested and emergent wetland community types. The largest concentration of scrub shrub wetland is associated with the previously mentioned emergent wetland complex south of Route 104 west of Fisher Road. Gray dogwood, silky dogwood, speckled alder, spice bush, honeysuckle and buckthorn dominate the shrub layer. Cattail, common reed, jewelweed, joe pye weed, sensitive fern, asters, goldenrods, sedges and soft rush dominate the herbaceous layer.

Agricultural Land. Agricultural land constitutes one of the largest community types within the study area. Corn seems to be the primary row crop, while other crops include soybeans, alfalfa, oats and wheat. Although pastureland is not as prevalent in the study area, it is used for the grazing of livestock and is typically characterized by mixed grasses and broad-leafed herbaceous species, including clovers, plantains, and dandelion. Hayfields are typically rotated into (and out of) row crop production (typically corn and soybeans), and less often into pastureland. Consequently, the percentage of each agricultural type is continuously changing. Vegetable farms and fruit tree orchards are an additional agricultural land use that is common in the region. One significant orchard and organic farm were noted on the south side of Route 104 and just east of Spencer Speedway.

Disturbed/Developed Land. The Project site also includes Disturbed/Developed land. This community is a combination of several "cultural communities" defined by Reschke (1990), and is characterized by the presence of buildings, paved areas, and lawns. It includes residential yards, farmyards, storage yards, and roads, along with the native and introduced plant species that inhabit such areas (e.g., bluegrass, goldenrod, chicory, ragweed, and Queen Anne's lace). Areas of developed land are associated with a range of various structures such as industrial facilities, commercial businesses and plazas to single family residences. Due to the proximity of Route 104 and the associated development, this is the largest community in the study area.

Rare Threatened and Endangered Species. A letter dated February 9, 2011 was sent by **edr** to the New York Natural Heritage Program. A response dated February 23, 2011, identified one State-protected fish species (historical record), in the study area. The Natural Heritage Report on Rare Species and Ecological Communities identified the Blackchin Shiner *(Notropis heterodon),* as having been seen in Salmon Creek in the Town of Williamson. This species has been ranked by the New York Natural Heritage Program as S1, meaning typically 5 or fewer occurrences. In addition, the New York Natural Heritage Program identifies this species as "critically impaired".

The Federally Listed Endangered and Threatened Species and Candidates Species list identifies the following plant and wildlife species on a countywide level for Wayne County: bald eagle (*Haliaeetus leucocephalus*), bog turtle (*Clemmys muhlenbergii*), Eastern prairie fringed orchid (historic) (*Platanthera leucophea*), and Indiana bat (*Myotis sodalis*). No federally listed plant or wildlife species are identified for the part of the study area located in Monroe County. Although more rigorous study is required to definitively conclude the presence or absence of these rare, threatened and endangered species, there were no observations of these species made during the site visit.

Invasive species. Invasive plant species are problematic in certain areas of the study area. Several invasive species such as common reed, honeysuckle, buckthorn, multiflora rose and privet are beginning to concentrate heavily in several upland and wetland areas in the study area. Common reed was the most prevalent invasive species observed in roadside ditches and in several of the wetlands and streams.

Habitat Assessment. As previously described, the study area is dominated by a variety of ecological community types. Wildlife observations throughout the study area during the site visit included Canada goose, mallard, great blue heron, whitetail deer including numerous tracks and trails, mink, American crow, red tailed hawk, various songbirds, and green frogs. The value of these communities to various wildlife species is summarized below.

Mature Forest Habitat. Observations made during the field survey indicate that forest within the study area provides habitat for wildlife species that require forest interior conditions, such as wood thrush, warblers, eastern-wood pewee, red tail hawk, common crow, red-eyed vireo, black-capped chickadee, tufted titmouse, white breasted nuthatch, and several woodpecker species such as the hairy, red breasted, flicker, and pileated woodpecker. Common mammals that utilize forested habitat include the gray squirrel, red squirrel, eastern chipmunk and whitetail deer (observed numerous individuals and tracks). Mature forest is an important resource that provides excellent habitat and cover for many species of migrating songbirds.

Successional Forest Habitat. Successional communities provide nesting and cover for a variety of wildlife species. Various songbirds, such as blue jay, robin, dark eyed junco, gray catbird, American goldfinch, house finch, cedar waxwing, indigo bunting, northern cardinal, sparrows, and yellow warblers require low brushy vegetation for nesting and escape cover. Common mammals typically found in these types of brushy successional habitat include whitetail deer, grey squirrel, eastern cottontail, red fox and woodchuck. Eastern coyote is most likely an occasional visitor within the study area. In addition, some of the shrub species found in these areas produce berries, which provide a good wildlife food source.

Wetland Habitat. In combination with the emergent wetlands and the larger riparian forests, a significant wetland/aquatic habitat exists within the study area. These areas provide a source of food, water, and/or cover for various waterfowl and many of the upland species mentioned previously. These water bodies also support small fishes, amphibians, and a diversity of insects and aquatic invertebrates. They are preferred foraging areas for aerial insectivores, including songbirds and bats. In addition, these areas provide habitat for various wetland/aquatic wildlife species, including Canada goose, great blue heron, belted kingfisher, mallard, wood duck, and reptiles such as painted turtle, green frog, spring peepers, bullfrog, and American toad. During the site visit, a blue heron was observed flying from one wetland area to another across Route 104. Several whitetail deer were observed in and around the edge of these wetlands, along with tracks and trails, which are evidence that well-used migratory corridors link the different ecological communities within the study area. Although not sited during this site visit, beaver are common throughout the region in wetlands similar to those present in the study area and should be expected to reside within the study area.

Successional Old-Field Habitat. A meadow community provides good nesting and foraging habitat for songbirds such as the field sparrow, black-capped chickadee, and eastern bluebird. The larger meadow/grassland parcels can potentially be visited by bird species such as bobolink, red-winged blackbird, horned lark, eastern meadowlark, northern harrier, and savannah sparrow. Animals that don't necessarily live there year-round often visit meadow communities either at certain times of the day, or in certain seasons when food in other habitats is scarce. Meadow communities experience prolonged sun exposure during much of the day, resulting in the loss of snow cover before other communities. Grasses may begin to initiate growth here long before other fresh food sources become available in other communities. Therefore, browsing species, such as the white-tailed deer are frequent visitors in such areas, as are other mammals such as red fox and Eastern coyote out hunting for a meal of field mice or moles.

POTENTIAL AREAS OF CONFLICT BETWEEN USERS

POTENTIAL AREAS OF CONFLICT BETWEEN USERS
(Derived from "Conflicts on Multiple Use Trails" by FHWA and the National Recreational Trails Advisory Committee)

Multi-use trails, when they are well designed, carefully maintained, and effectively managed, are a significant community resource. However, trails can have a number of conflicts and challenges, which can be addressed by physical design and management responses. Potential conflicts along the Route 104 Corridor Trail include conflicts between different types of trail users, conflicts between motorists and trail users at road crossings, and conflicts between trail users and property owners. The following sections discuss ways to manage conflict.

1. Managing Conflict on Multi-Use Trails
The challenges faced by multiple use trail managers can be broadly summarized as maintaining user safety, protecting natural resources, and providing high quality user experiences. These challenges are interrelated and cannot be effectively addressed in isolation. To address these challenges, managers can employ a wide array of physical and management options such as trail design, information and education, user involvement, and regulations and enforcement.

The existing literature and practice were synthesized into the following 12 principles for minimizing conflict on multi-use trails. Adherence to these principles should help improve sharing and cooperation on multi-use trails.

Recognize Conflict as Goal Interference. Trail conflict is typically related to human behavior rather than inherent incompatibility among different trail uses.

Provide Adequate Trail Opportunities. Offer adequate trail mileage and provide opportunities for a variety of trail experiences. This will help reduce congestion and allow users to choose the conditions that are best suited to the experiences they desire.

Minimize Number of Contacts in Problem Areas. Each contact among trail users (as well as contact with the evidence of others) has the potential to result in conflict. So, as a general rule, reduce the number of user contacts whenever possible. This is especially true in congested areas and at trailheads. Disperse use and provide separate trails where necessary after careful consideration of the additional environmental impact and lost opportunities for positive interactions this may cause.

Involve Users as Early as Possible. Identify the present and likely future users of each trail and involve them in the process of avoiding and resolving conflicts as early as possible, preferably before conflicts occur. For proposed trails, possible conflicts and their solutions should be addressed during the planning and design stage with the involvement of prospective users. Likewise, existing and developing conflicts on present trails need to be faced quickly and addressed with the participation of those affected.

Understand User Needs. Determine the motivations, desired experiences, norms, setting preferences, and other needs of the present and likely future users of each trail. This "customer" information is critical for anticipating and managing conflicts.

Identify the Actual Sources of Conflict. Help users to identify the specific tangible causes of any conflicts they are experiencing. In other words, get beyond emotions and stereotypes as quickly as possible, and get to the roots of any problems that exist.

Work with Affected Users. Work with all parties involved to reach mutually agreeable solutions to these specific issues. Users who are not involved as part of the solution are more likely to be part of the problem, both now and in the future.

Promote Trail Etiquette. Minimize the possibility that any particular trail contact will result in conflict by actively and aggressively promoting responsible trail behavior. Use existing educational materials or modify them to better meet local needs. Target these educational efforts, get the information into users' hands as early as possible, and present it in interesting and understandable ways.

Encourage Positive Interaction Among Different Users. Trail users are usually not as different from one another as they believe. Providing positive interactions both on and off the trail will help break down barriers and stereotypes, and build understanding, good will, and cooperation. This can be accomplished through a variety of strategies such as sponsoring "user swaps," joint trail-building or maintenance projects, filming trail-sharing videos, and forming Trail Advisory Councils.

Favor "Light-Handed Management". Use the most light-handed approaches that will achieve area objectives. This is essential in order to provide the freedom of choice and natural environments that are so important to trail-based recreation. Intrusive design and coercive management are not compatible with high-quality trail experiences.

Plan and Act Locally. Whenever possible, address issues regarding multi-use trails at the local level. This allows greater sensitivity to local needs and provides better flexibility for addressing difficult issues on a case-by- case basis. Local action also facilitates involvement of the people who will be most affected by the decisions and most able to assist in their successful implementation.

Monitor Progress. Monitor the ongoing effectiveness of the decisions made and programs implemented. Conscious, deliberate monitoring is the only way to determine if conflicts are indeed being reduced and what changes in programs might be needed. This is only possible within the context of clearly understood and agreed upon objectives for each trail area.

Trail managers recognize trail conflicts as a potentially serious threat. Many are optimistic, however, and feel that when trail conflict situations are tackled head on and openly they can become an opportunity to build and strengthen trail constituencies and enhance outdoor recreation opportunities for all users.

2. Challenges Faced by Multiple-Use Trail Managers

The manager of any trail faces many challenges, usually within the context of too few staff and too little money. The underlying challenges faced by trail managers, however, remain the same regardless of the type of trail and whether it serves a single group or many different ones. As described previously, trail managers attempt to: maintain user safety, protect natural resources, and provide high-quality user experiences. These issues can become more complex and more difficult to manage as the number and diversity of trail uses increase, but the challenges and the tools available to address them remain basically the same.

Maintaining User Safety. Unsafe situations or conditions caused by other trail users can keep visitors from achieving their desired trail experience. This goal interference due to safety concerns is a common source of conflicts on trails. There are a number of threats to user safety that can occur on trails. Some of these include:

- Collisions and near misses among users and/or their vehicles
- Reckless and irresponsible behavior
- Poor user preparation or judgment
- Unsafe conditions related to trail use (i.e. deep ruts, tracks on snow trail)
- Unsafe conditions not related to trail use (i.e. obstacles, terrain, weather, river crossings)
- Poor trail design, construction, maintenance or management
- Other hazards (i.e. bears, lightning, cliffs, crime)

To help maintain user safety on trails, planners and managers can attempt to control or influence many factors, including the following:

- User speed (often has more to do with speed differential than speed itself)
- Mass of user and vehicle (if any)
- Sight distances
- Trail width
- Trail surface
- Congestion (i.e. number of users per mile)
- Users overtaking one another silently or without warning
- Trail difficulty (i.e. obstacles, terrain, condition)
- User skill level and experience
- User expectations and preparedness (i.e. walkers who understand they may see bicycles on a particular trail can better prepare themselves for possible encounters)
- Emergency procedures
- On-site management presence

Protecting Natural Resources. Resource impacts such as soil erosion, damaged vegetation, polluted water supplies, litter, vandalism, and many other indications of the presence of others can lead to feelings of crowding and conflict. These feelings can occur even when there is no actual contact among different trail users. A hiker's enjoyment might be reduced by seeing all-terrain vehicle (ATV) tracks near a wilderness boundary, for example, or an equestrian user might be upset to see many cars with bike racks at the trailhead before beginning a ride.

Minimizing environmental impacts is a high priority for resource and recreation managers. Natural resources include soils, wildlife, vegetation, water, and air quality. Historic, cultural, and archaeological resources are also vulnerable to impacts caused by trail use. A considerable amount of trail manager time and resources is spent attempting to minimize impacts affecting each of these resources. All trail use, regardless of travel mode, impacts natural resources. Research indicates that the following factors influence the amount of resource damage caused by trail use:

- Soil characteristics: type, texture, organic content, consistency, depth, moisture (i.e. muddy versus dry), temperature levels (i.e. frozen terrain versus thawed)
- Topography and slope of trail surface
- Position in land form (i.e. northern versus southern exposure)
- Elevation
- Type of ecosystem
- Type of vegetation and terrain beside trail (influencing widening)

- Quality of trail design and construction (especially regarding drainage)
- Level of maintenance (i.e. effectiveness of drainage)
- Use: type, frequency, season, concentration/dispersal
- Type of vehicle
- Difficulty of terrain
- Up or down hill traffic direction
- Style of use or technique (i.e. skidding tires versus controlled riding)

Providing High-Quality User Experiences. Researchers believe that people who participate in outdoor recreation activities do so because they hope to gain certain rewards or outcomes. These outcomes consist of a wide variety of experiences such as solitude, challenge, being with friends and family, testing skills, experiencing nature, and others. The trail experience that is desired varies a great deal across activities, among people participating in the same activity, and even within the same individual on different outings. In fact, recreational enthusiasts are often seeking to satisfy multiple desires in a single outing. Recreational behavior is understood to be goal-directed and undertaken to satisfy desires for particular experiences. The quality of these experiences is often measured in terms of user satisfaction.

In a perfect world, land managers could provide nearby, high-quality opportunities for every type of experience trail users might possibly seek. This is rarely possible, of course. Limited budgets, limited amounts of land, and the sheer number of users with different preferences make it impossible to perfectly satisfy all people all the time. Flexibility, compromise, and common courtesy on the part of all users are necessary to maximize the opportunities for high-quality experiences for everyone.

3. Physical Responses

Proper trail design, layout, and maintenance (or redesign and reconstruction when necessary) are essential for user safety and resource protection, and are important contributors to user satisfaction as well. Proper design addresses more than aesthetics and minimized resource impacts. Design can be used to encourage trail users to behave in appropriate ways. Influencing proper behavior through the subtleties of design is preferable and often more effective than attempting to do so, after the fact, through educational programs or regulations. For example, it is easier and more effective to prevent shortcutting of switchbacks by designing climbing turns in rugged, well-screened areas than by posting educational signs at poorly designed switchbacks.

Different users often have different needs and desires regarding physical trail attributes such as surface, slope, length, sight distances, and amenities. Various standards and recommendations are available for different user groups. These needs and preferences are far from universal even within one user group, however. Walkers, joggers, runners, hikers, people walking dogs, and people pushing strollers are all pedestrians, for example, but they do not have the same needs and desires in terms of physical trail attributes or trail settings. The best physical responses will always be dictated by specific local conditions. Managers and planners should identify the present and likely future trail users and determine the needs and desires of those users. Users of different ages, motivations, activity preferences, etc., will have different physical trail needs and preferences. Ryan (1993), for example, suggests hosting a community design workshop for proposed rail-trails to identify these needs and preferences.

Providing separate trails for different users groups has many drawbacks. They point out that it can be expensive, cause resentment, be difficult to enforce, and limit opportunities for communication and cooperation among users. When separate trails are necessary, they suggest encouraging rather than requiring single use and explaining the reasons for this strategy at trailheads. This approach combines physical design with information and education

efforts. Advocates of multi-use trails see providing separate trails as a last resort. They feel positive interaction among users on the trail is best way to foster communication, understanding, and a strong, cooperative trail community.

Physical design solutions include:

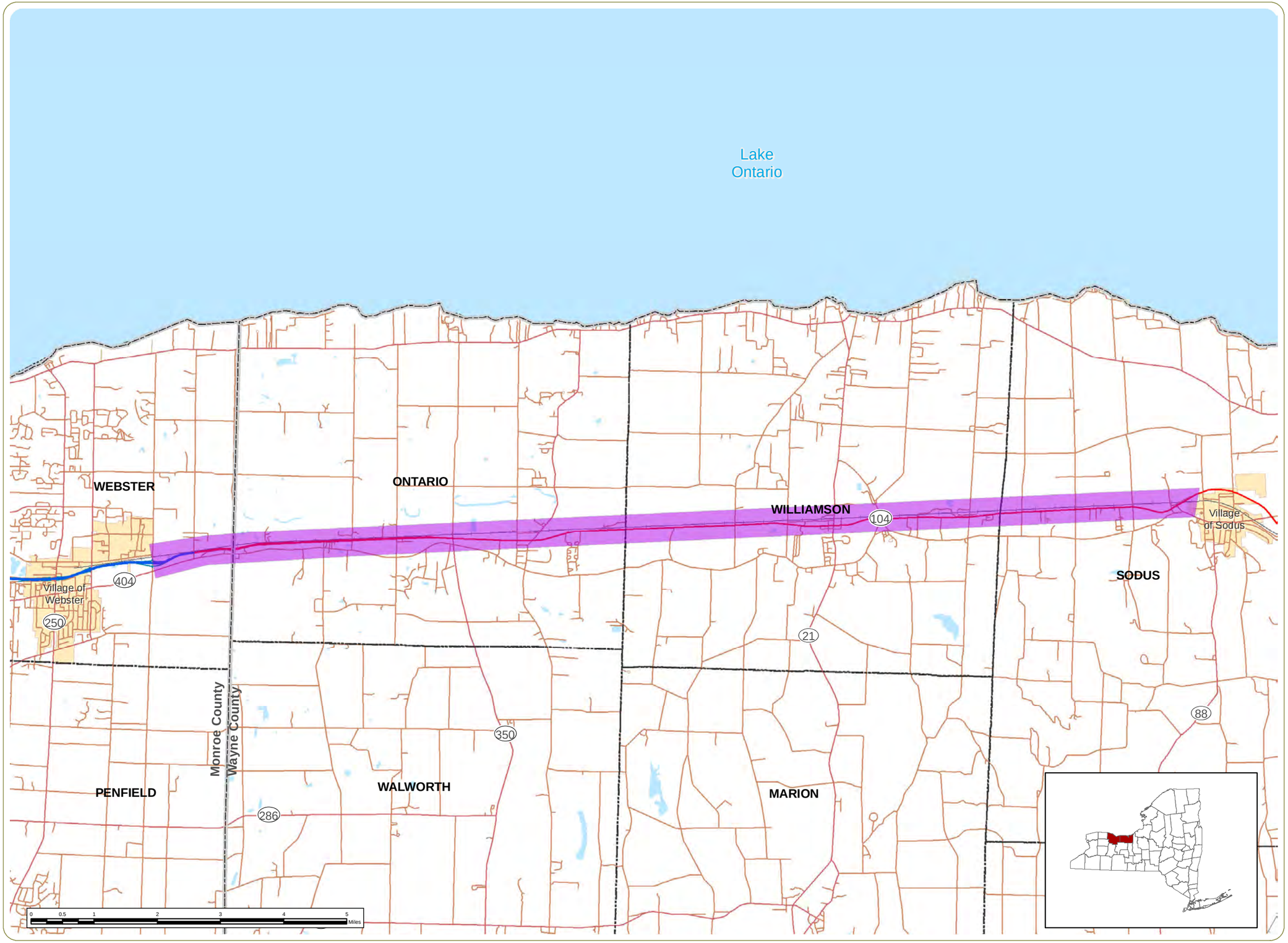
- Paint the centerline on heavily used multi-purpose trails and greenways. This can help communicate that users should expect traffic in both directions and encourage users to travel on the right and pass on the left.
- Screen trails for sight, sound, and smells (i.e. exhaust fumes from motorized vehicles). Include physical and visual buffers in the design by using natural features such as topography, vegetation, or the sound of water to insulate users from one another when possible. Add buffers as needed on existing trails.
- Provide separate trailheads for different users.
- Separate uses at trailheads and for the first (most crowded) stretches of the trail. These separate segregated trails could then converge, perhaps a mile from the trailhead, after users are more spread out. On the other hand, Attila Bality of the National Park Service advocates forcing all trail users to share the same trail for some distance (i.e. one mile) before having single use or restricted-use trails diverge from the main trail if necessary. He believes that users will only learn to understand one another and share trails if encouraged to do so. Some may not share unless forced to do so.
- Consider adequate sight distances in the design process.
- Build trails wide enough to accommodate the expected use. Many sources and recommended standards are available for various user groups.
- Build trails wide enough for safe passing, and/or provide pullout areas.
- Design and construct trails to minimize erosion.

Route 104 Corridor Trail

Towns of Ontario, Sodus, Webster and Williamson - Monroe and Wayne Counties, New York

Figure 1: Project Location

April 2011



Approximate Project Area

Notes:
Map Scale: 1:94,000

Base Map:
ESRI StreetMap North America, 2008.

N W E S

edr COMPANIES

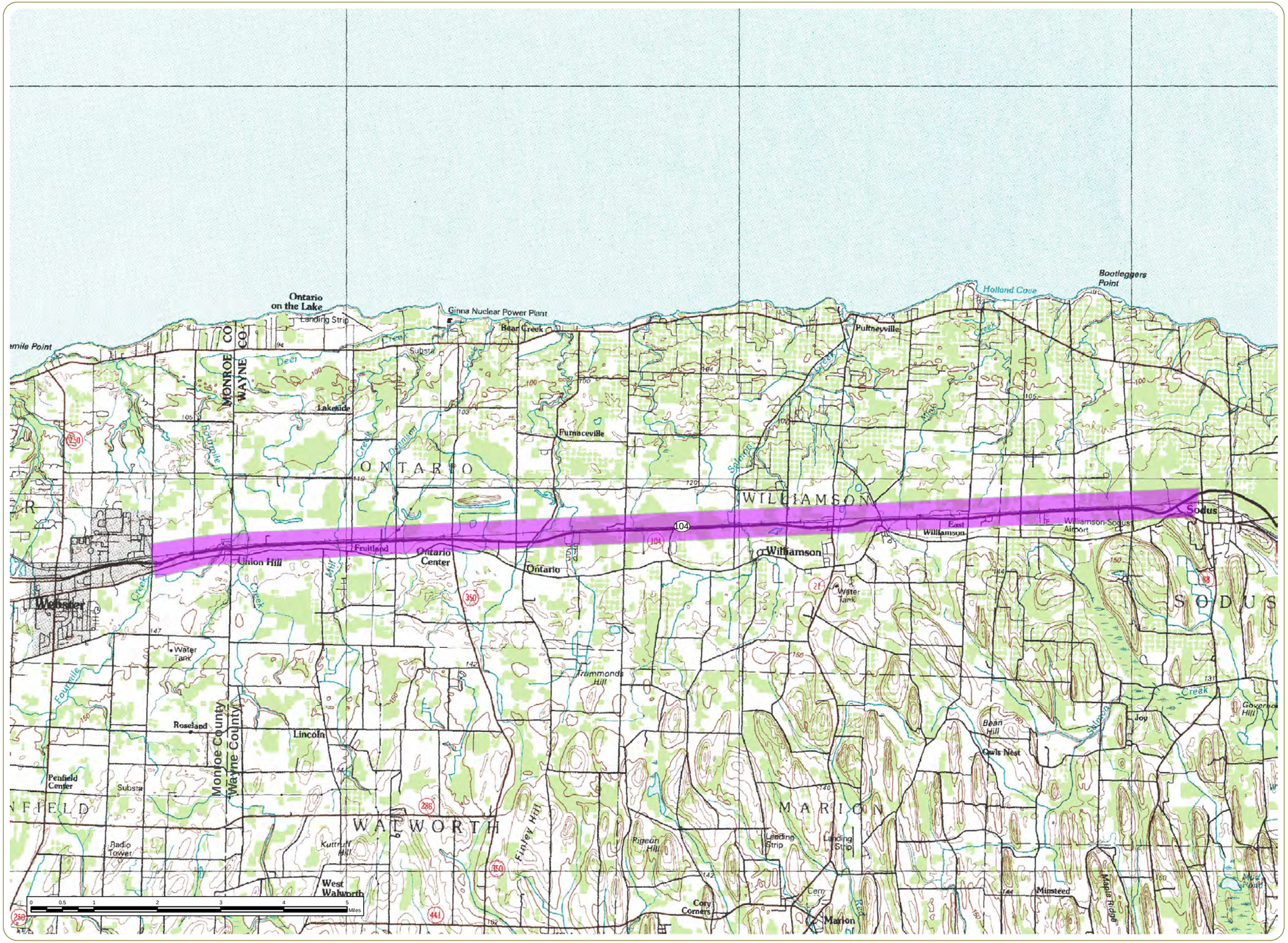
www.edrcompanies.com

Route 104 Corridor Trail

Towns of Ontario, Sodus, Webster and Williamson - Monroe and Wayne Counties, New York

Figure 2: Topography

April 2011



Approximate Project Area

Notes:
Map Scale: 1:94,000

Base Map:
1:100,000 USGS Rochester Quadrangle.

N W E S

edr COMPANIES

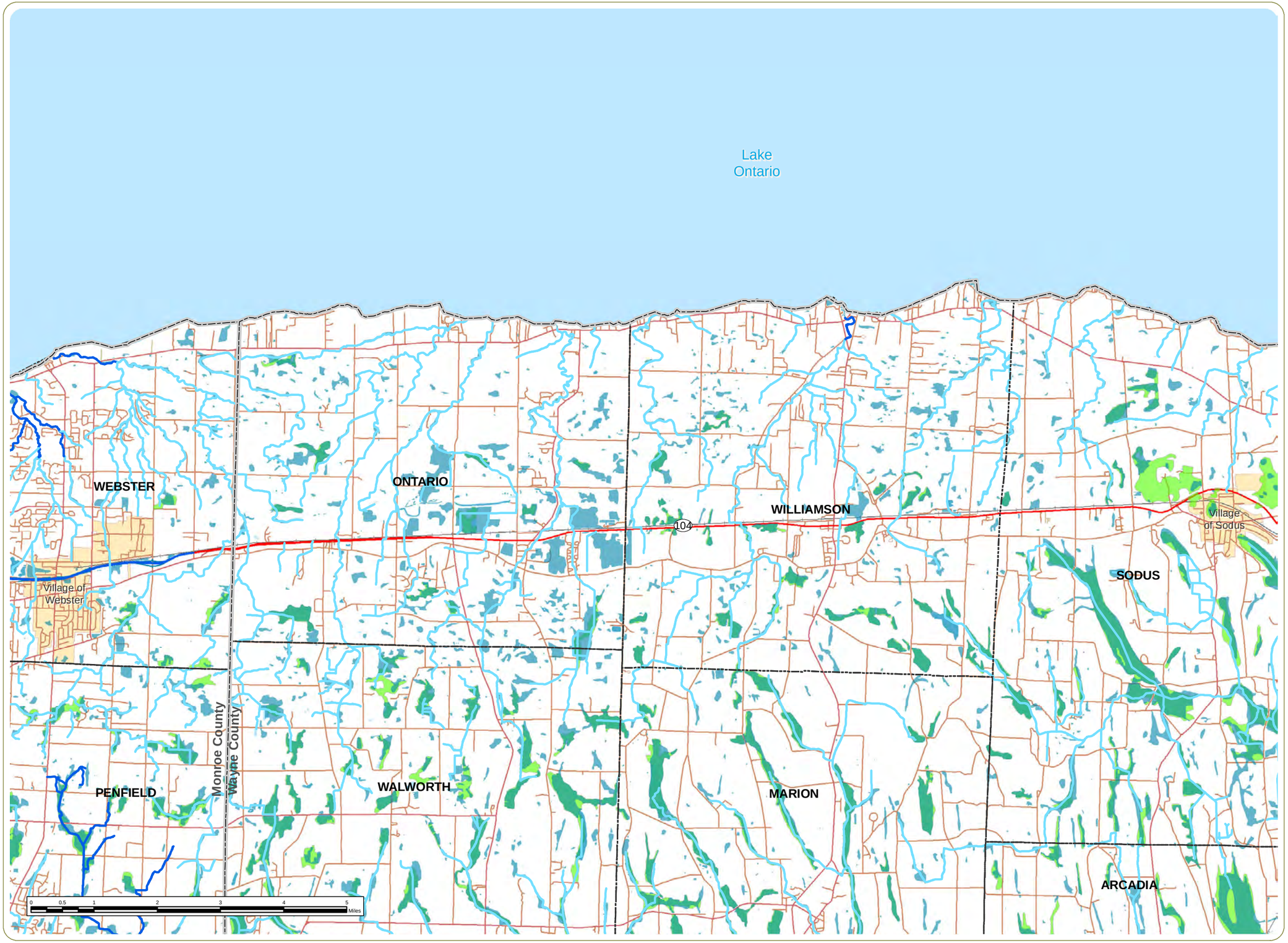
www.edrcompanies.com

Route 104 Corridor Trail

Towns of Ontario, Sodus, Webster and Williamson - Monroe and Wayne Counties, New York

Figure 3: Water Resources

April 2011



Wetlands
- NWI Wetland
- NYS DEC Wetland

Streams
- Unprotected Stream
- NYS Protected Stream

Notes:
Map Scale: 1:94,000

Base Map:
ESRI StreetMap North America, 2008

N W E S

edr COMPANIES

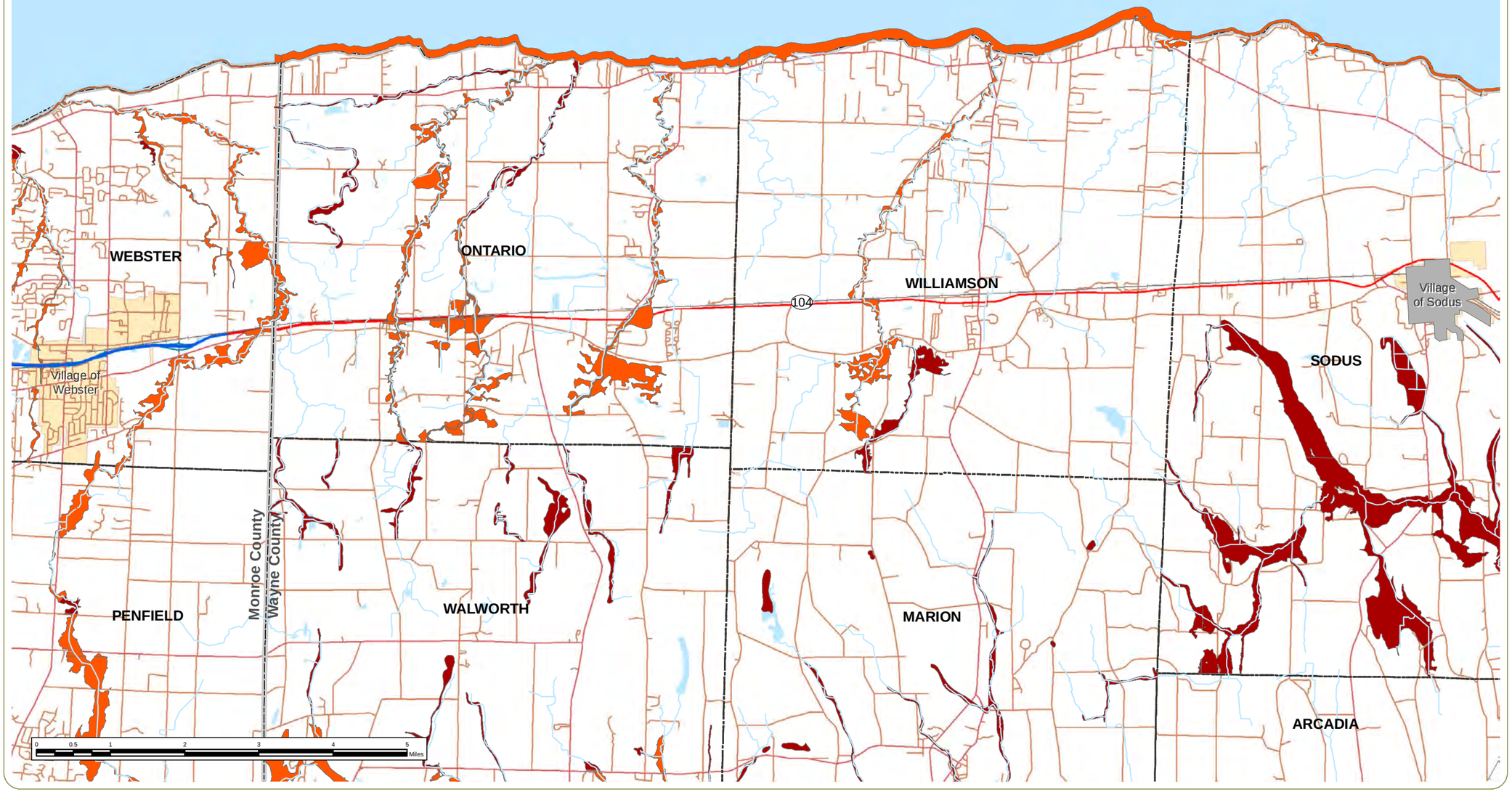
www.edrcompanies.com

Zone A: Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage.

Zone AE: The base floodplain where base flood elevations are provided. (AE Zones are now used on new format FIRMs instead of A1-A30 Zones.)

Zone ANI: Areas not included. These areas may be located in counties or communities that are not mapped on any published FIRM.

Data obtained from FEMA Flood Zone Designations webpage: http://msc.fema.gov



Route 104 Corridor Trail

Towns of Ontario, Sodus, Webster and Williamson - Monroe and Wayne Counties, New York

Figure 4: Flood Zones

April 2011

FEMA Flood Zone

- A
- AE
- ANI

Notes:
New FEMA-designated A zones can be considered a reasonable approximation of "100-year floodplains."

Map Scale: 1:94,000

Base Map:
ESRI StreetMap North America, 2008

N
W
E
S

edr COMPANIES

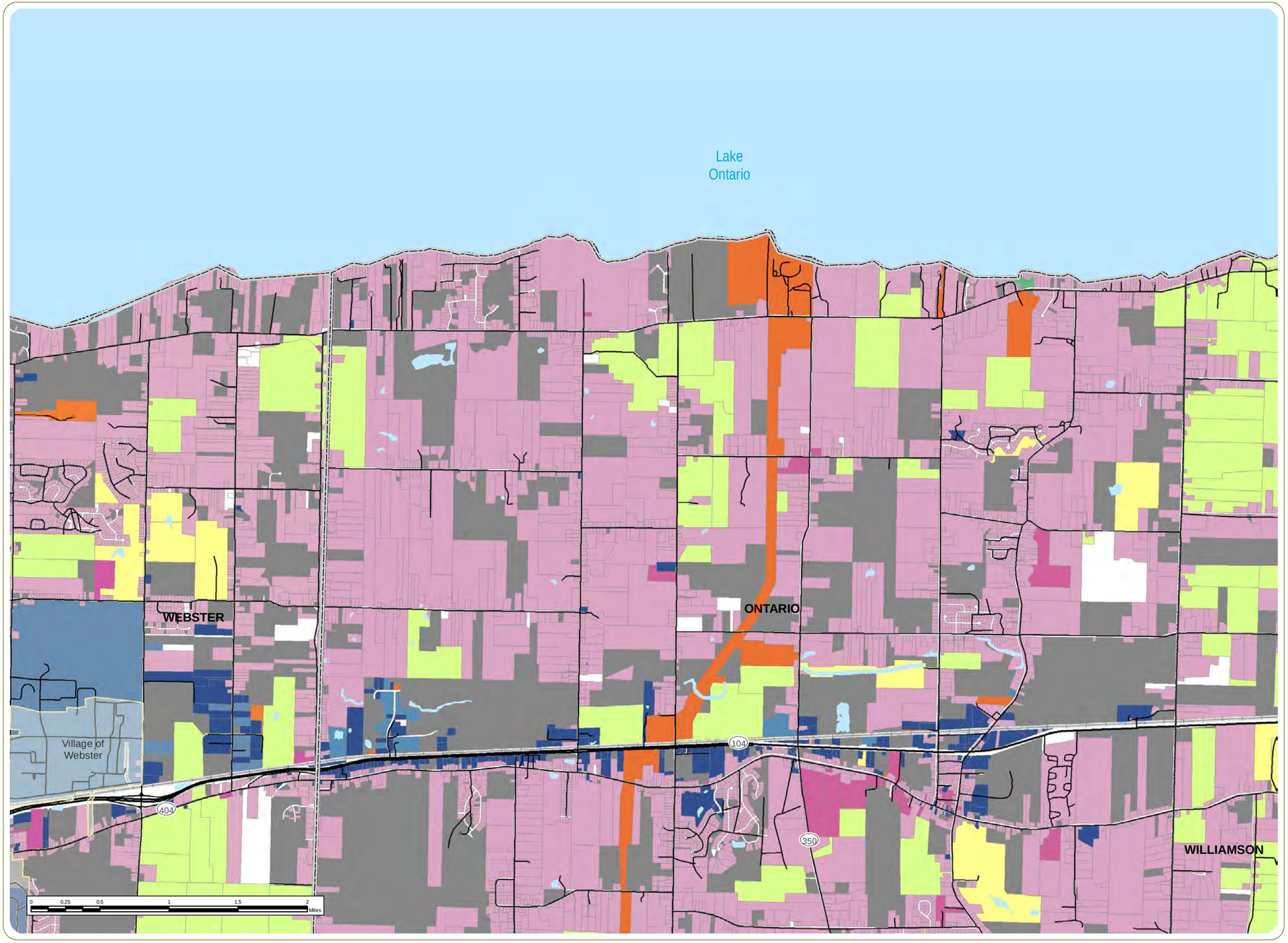
www.edrcompanies.com

Route 104 Corridor Trail

Towns of Ontario, Sodus, Webster and Williamson - Monroe and Wayne Counties, New York

Figure 5: Land Use

April 2011



General Land Use Class

- Agricultural
- Commercial
- Community Services
- Industrial
- No Data
- Public Services
- Recreation and Entertainment
- Residential
- Vacant Land
- Wild, Conservation Land & Public Parks

Sheet 1 of 2

Notes:
Map Scale: 1:43,000

Base Map:
ESRI StreetMap North America, 2008

N
W
E
S

edr COMPANIES

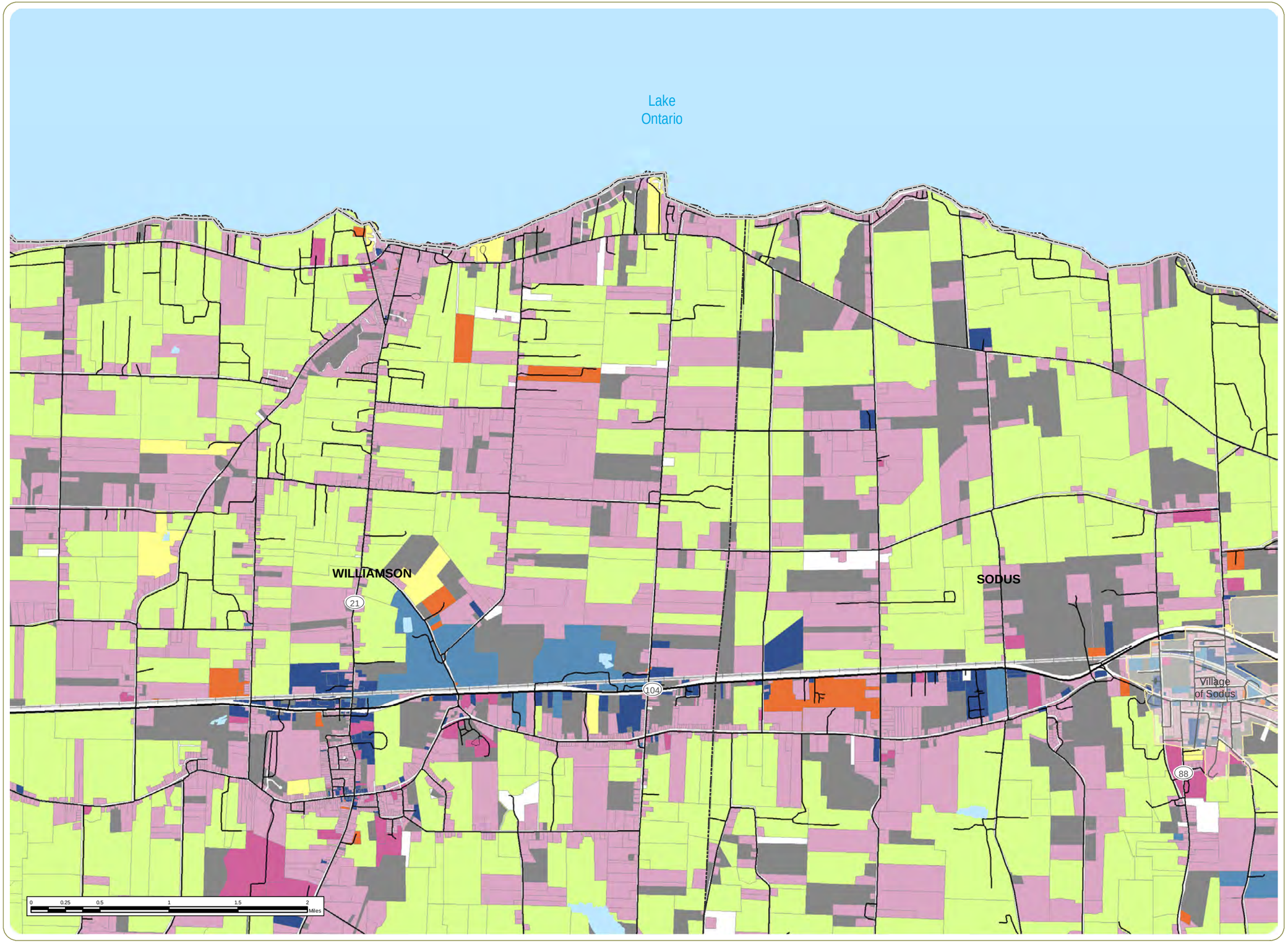
www.edrcompanies.com

Route 104 Corridor Trail

Towns of Ontario, Sodus, Webster and Williamson - Monroe and Wayne Counties, New York

Figure 5: Land Use

April 2011



General Land Use Class

- Agricultural
- Commercial
- Community Services
- Industrial
- No Data
- Public Services
- Recreation and Entertainment
- Residential
- Vacant Land
- Wild, Conservation Land & Public Parks

Sheet 2 of 2

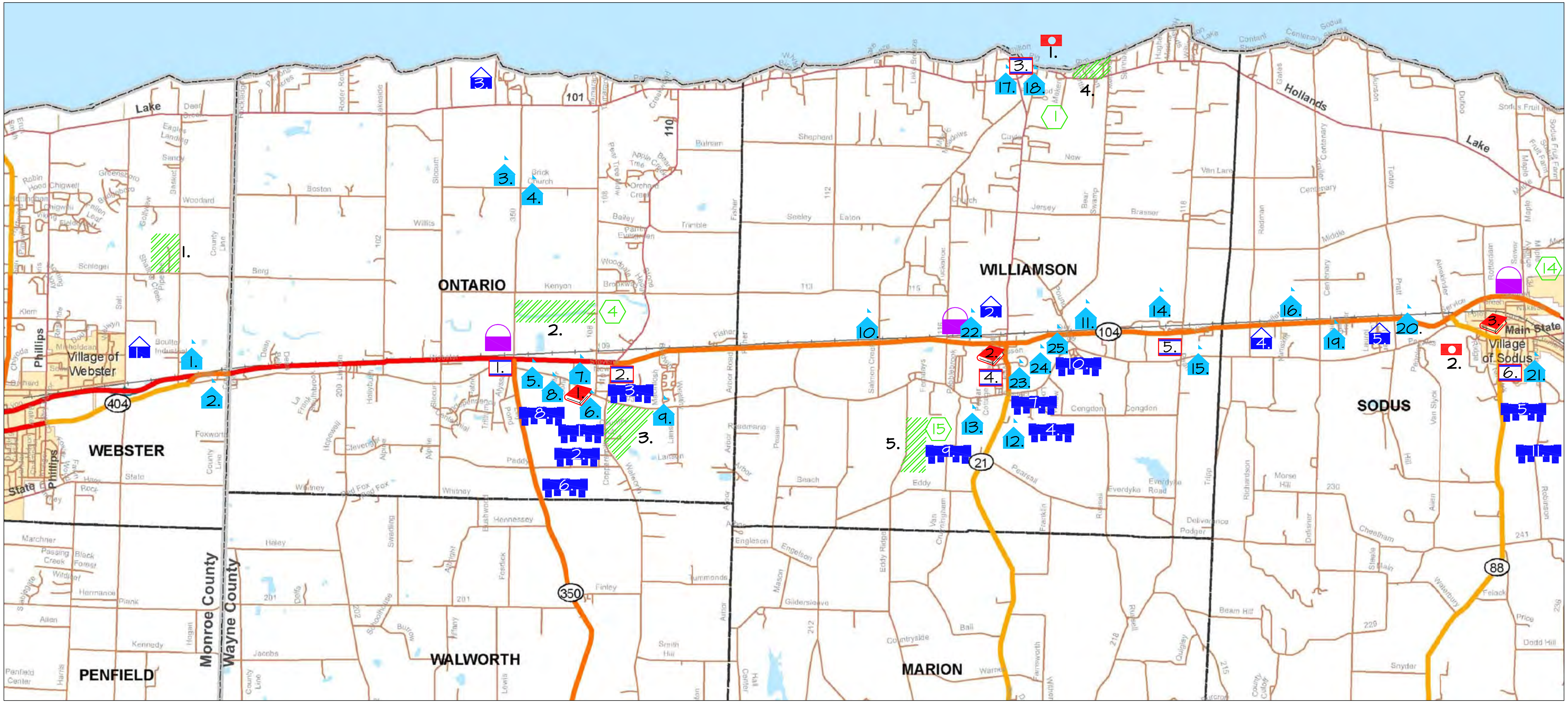
Notes:
Map Scale: 1:43,000

Base Map:
ESRI StreetMap North America, 2008

N
W
E
S

edr COMPANIES

www.edrcompanies.com



PUBLIC PARK

1. IRVING R. KENT PARK
2. CASEY PARK
3. ONTARIO GOLF COURSE
4. B.FORMAN COUNTY PARK
5. WILLIAMSON TOWN PARK

WEGMANS PASSPORT DESTINATION

1. BICENTENNIAL TRAIL
4. CASEY PARK
14. SODUS WALLINGTON TRAIL
15. WILLIAMSON TOWN LOOP TRAIL

PLACE OF WORSHIP

1. CALVARY CHAPEL OF WEBSTER
2. UNION HILL METHODIST
3. CENTENARY CHURCH
4. NORTH ONTARIO METHODIST
5. FIRST PRESBYTERIAN OF ONT. CENTER
6. ROCHESTER CHURCH OF SCIENTOLOGY
7. FIRST BAPTIST
8. CHURCH OF SCIENTOLOGY
9. LIVING WORK ASSEMBLY OF GOD
10. BIBLE BAPTIST
11. REDEEM BETHEL CHURCH
12. UNITED METHODIST
13. WILLIAMSON REFORMED
14. EAST WILLIAMSON FREE METHODIST CHURCH
15. CHRISTIAN COMMUNITY CHURCH
16. UPPER ROOM CHURCH
17. PULTNEYVILLE REFORMED CHURCH
18. PULTNEYVILLE UNITED METHODIST CHURCH
19. HARVEST FELLOWSHIP
20. BIBLE BAPTIST
21. CHURCH OF EPIPHANY
22. WILLIAMSON REFORMED CHURCH
23. WILLIAMSON PRESBYTERIAN
24. THE UNITED METHODIST
25. FIRST BAPTIST CHURCH

PUBLIC SCHOOLS

1. ONTARIO PRIMARY
2. ONTARIO ELEMENTARY
3. HOP SKIP JUMP PRE-SCHOOL
4. WILLIAMSON ELEMENTARY
5. SODUS PRIMARY
6. WAYNE MIDDLE SCHOOL
7. WILLIAMSON CENTRAL
8. WAYNE HIGH SCHOOL
9. WILLIAMSON HIGH SCHOOL
10. W-FL BOCES
11. SODUS CENTRAL JUNIOR & SENIOR HIGH SCHOOL

MAJOR PLACE OF EMPLOYMENT

1. XEROX
2. MOTT'S NORTH AMERICA
3. GINNA NUCLEAR POWER PLANT
4. WILLIAMSON & SODUS AIRPORT
5. HELUVA GOOD CHEESE

SIGNIFICANT TRAVEL DESTINATION

1. HISTORIC PULTNEYVILLE
2. 5 MILES TO SODUS POINT

PUBLIC LIBRARY

1. ONTARIO PUBLIC LIBRARY
2. WILLIAMSON FREE LIBRARY
3. SODUS FREE LIBRARY

0 0.5 1.0 2.0

GRAPHIC SCALE (IN MILES)

UNITED STATES POST OFFICE

1. ONTARIO CENTER
2. ONTARIO
3. PULTNEYVILLE
4. WILLIAMSON
5. EAST WILLIAMSON
6. SODUS

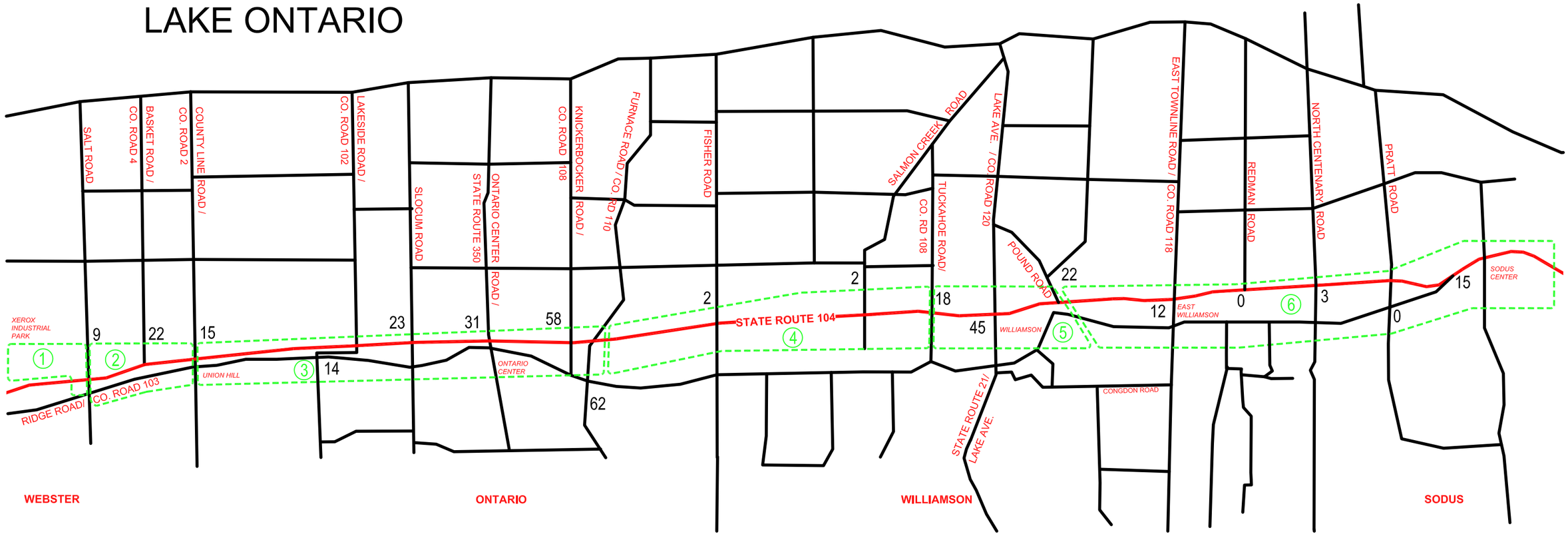
COMMERCIAL AREA

PROJECT TITLE: ROUTE 104 CORRIDOR TRAIL	edr JOB NUMBER: 10034	DRAWN BY: MVV	CHECKED BY: DGP
DRAWING TITLE: DESTINATIONS MAP	SCALE: 3/4" = 1MI	DRAWING NUMBER: FIGURE 6	DATE: 5/3/2011

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\POI-MAP.dwg

www.edrcompanies.com

LAKE ONTARIO



Key:

- (#) Character Zone
- ----- Character Zone Boundary
- # Walk Score Assessment
  - Lowest Score - 0
  - Highest Score - 62
  - Average - 20

Walk Score Scale

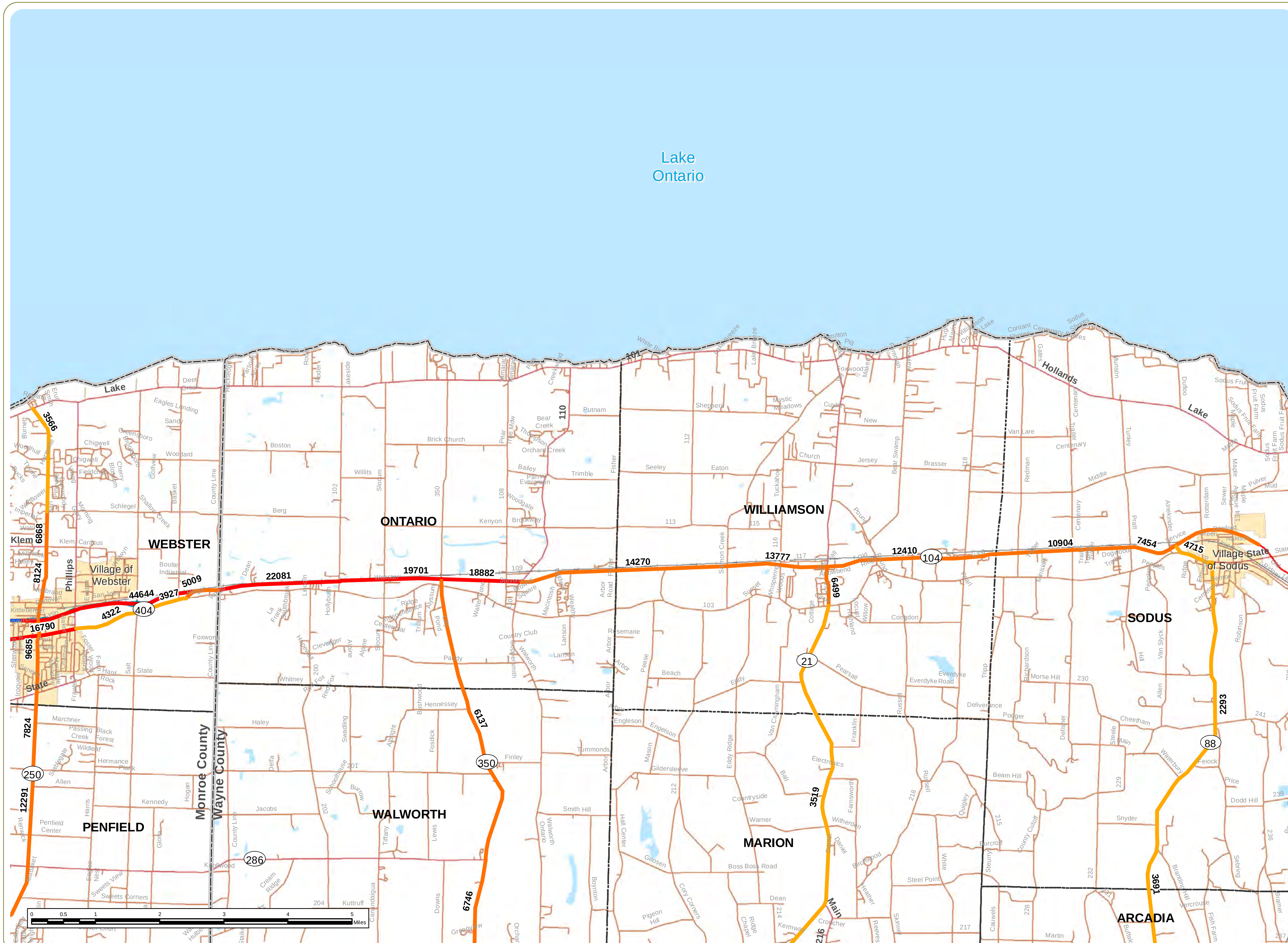
Walk Score	Description	Explanation
90–100	Walkers' Paradise	Daily errands do not require a car.
70–89	Very Walkable	Most errands can be accomplished on foot.
50–69	Somewhat Walkable	Some amenities within walking distance.
25–49	Car-Dependent	A few amenities within walking distance.
0–24	Car-Dependent (Driving Only)	Almost all errands require a car.

Source: http://www.walkscore.com

PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**	edr JOB NUMBER: **10034**	DRAWN BY: **MVV/NMB**	CHECKED BY: **DGP**
DRAWING TITLE: **WALK SCORE ASSESSMENT MAP**	SCALE: **NOT TO SCALE**	DRAWING NUMBER: **FIGURE 7**	DATE: **05/20/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\FIGURE-7 AND 10.dwg

www.edrcompanies.com



Route 104 Corridor Trail

Towns of Ontario, Sodus, Webster and Williamson - Monroe and Wayne Counties, New York

Figure 8: Existing Traffic Volumes

April 2011

2010 Traffic Counts

- 0 - 2000
- 2001 - 5000
- 5001 - 15,000
- 15,000 - 50,000
- 50,001 - 300,000

Notes:
Map Scale: 1:94,000

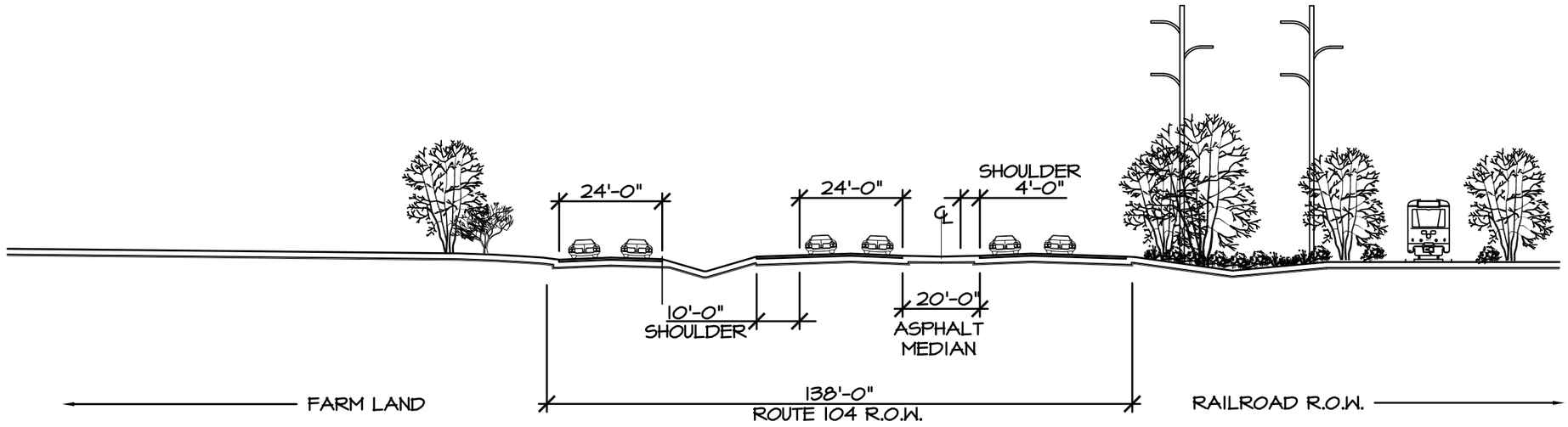
Traffic Count Data obtained from NYS DOT, August 2010.

Base Map: ESRI StreetMap North America, 2008.

N W E S

edr COMPANIES

www.edrcompanies.com

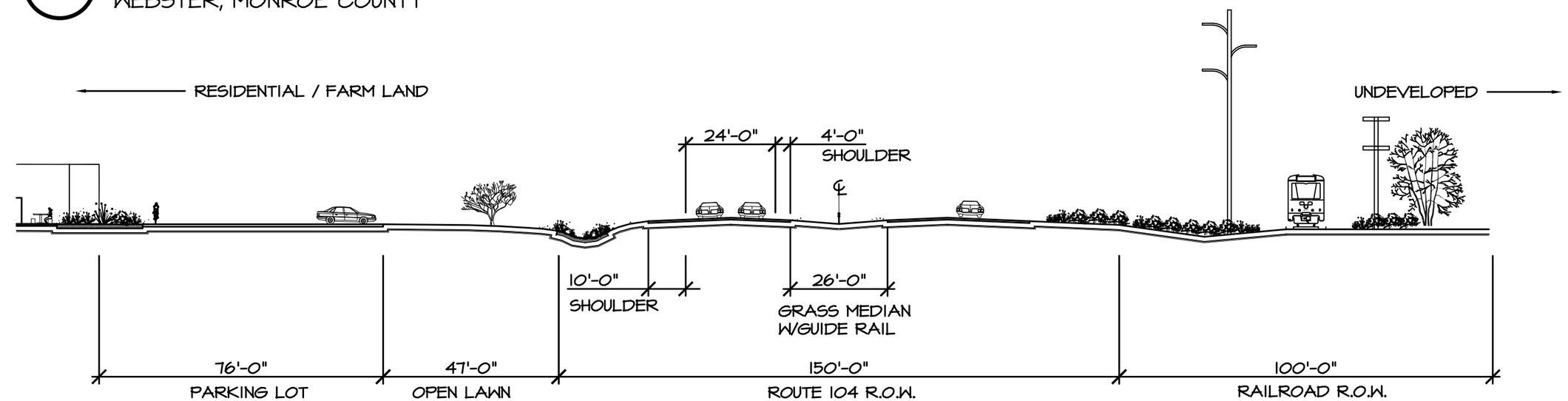


1

SECTION BETWEEN BASKET & COUNTY LINE RD

WEBSTER, MONROE COUNTY

0 15 30
GRAPHIC SCALE (IN FEET)



2

SECTION AT FASTENAL

ONTARIO, WAYNE COUNTY

0 15 30
GRAPHIC SCALE (IN FEET)

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\X-SECTIONS.dwg

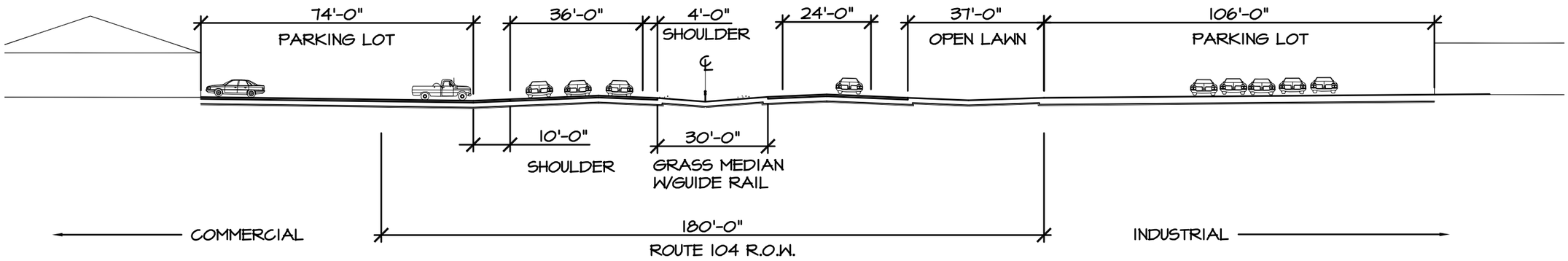
PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**

DRAWING TITLE: **EXISTING CONDITIONS CROSS SECTIONS, SHT 1 OF 2**

edr JOB NO: **10034** | SCALE: **1"=30'** | DRAWN BY: **DGP/MVV** | DRAWING NO: **FIGURE 9** | CHECKED BY: **TMR** | DATE: **05/20/2011**

edr

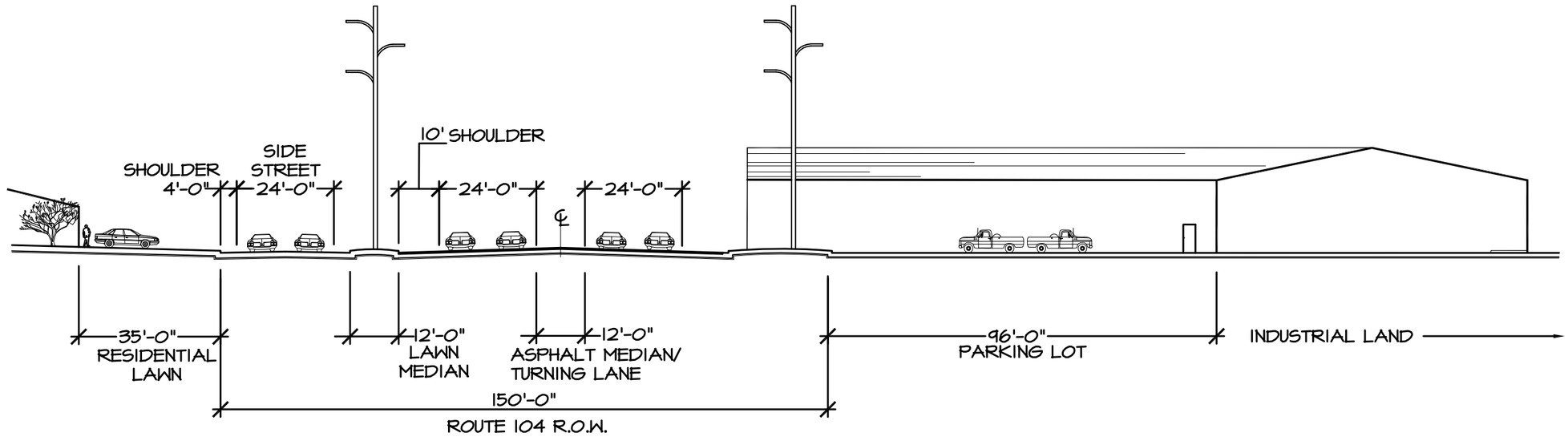
www.edrcompanies.com



3 SECTION AT KONSTANTINOU'S RESTAURANT

ONTARIO, WAYNE COUNTY

0 15 30
GRAPHIC SCALE (IN FEET)



4 SECTION BETWEEN TUCKAHOE RD & LAKE AVE

WILLIAMSON, WAYNE COUNTY

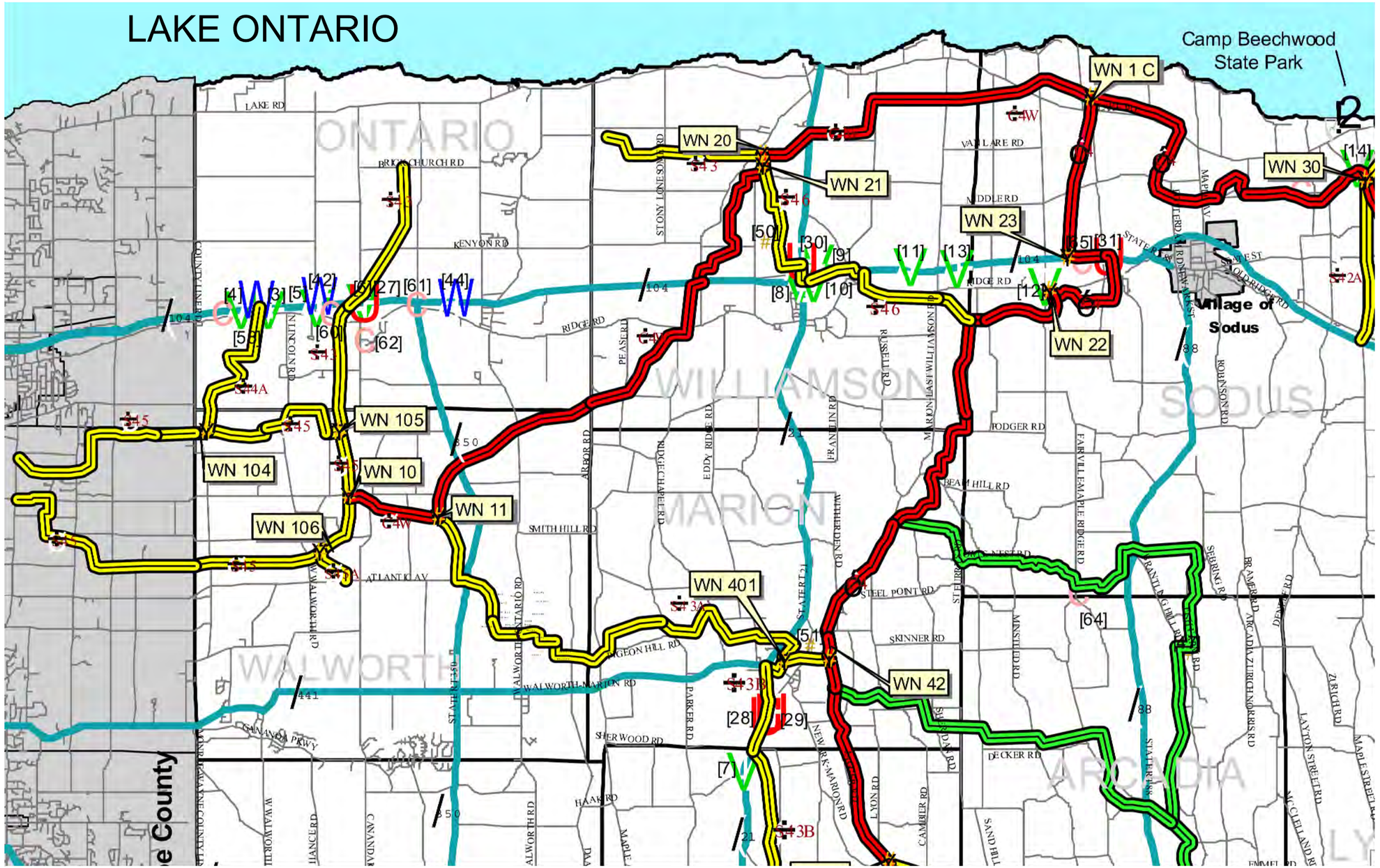
0 15 30
GRAPHIC SCALE (IN FEET)

CHECKED BY: TMR
DATE: 05/20/2011
DRAWN BY: DGP/MVV
DRAWING NO: FIGURE 9
edr JOB NO: 10034
SCALE: 1"=30'
PROJECT TITLE: ROUTE 104 CORRIDOR TRAIL
DRAWING TITLE: EXISTING CONDITIONS CROSS SECTIONS, SHT 2 OF 2

www.edrcompanies.com

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\X-SECTIONS.dwg

LAKE ONTARIO



NYS Snowmobile Trails
- Corridor
- Secondary
- Local Trails
- Trail junctions

- W Accommodations
- Bar & Tavern
- V Food
- U Gas
- Medical
- Miscellaneous
- ü Parking
- S Parts & Service
- ® Restrooms
- State lands

Source: htttp://www.scribd.com

PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**	edr JOB NUMBER: **10034**	DRAWN BY: **NMB**	CHECKED BY: **EMS**
DRAWING TITLE: **EXISTING SNOWMOBILE TRAILS**	SCALE: **NOT TO SCALE**	DRAWING NUMBER: **FIGURE 10**	DATE: **05/23/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\FIGURE-7 AND 10.dwg

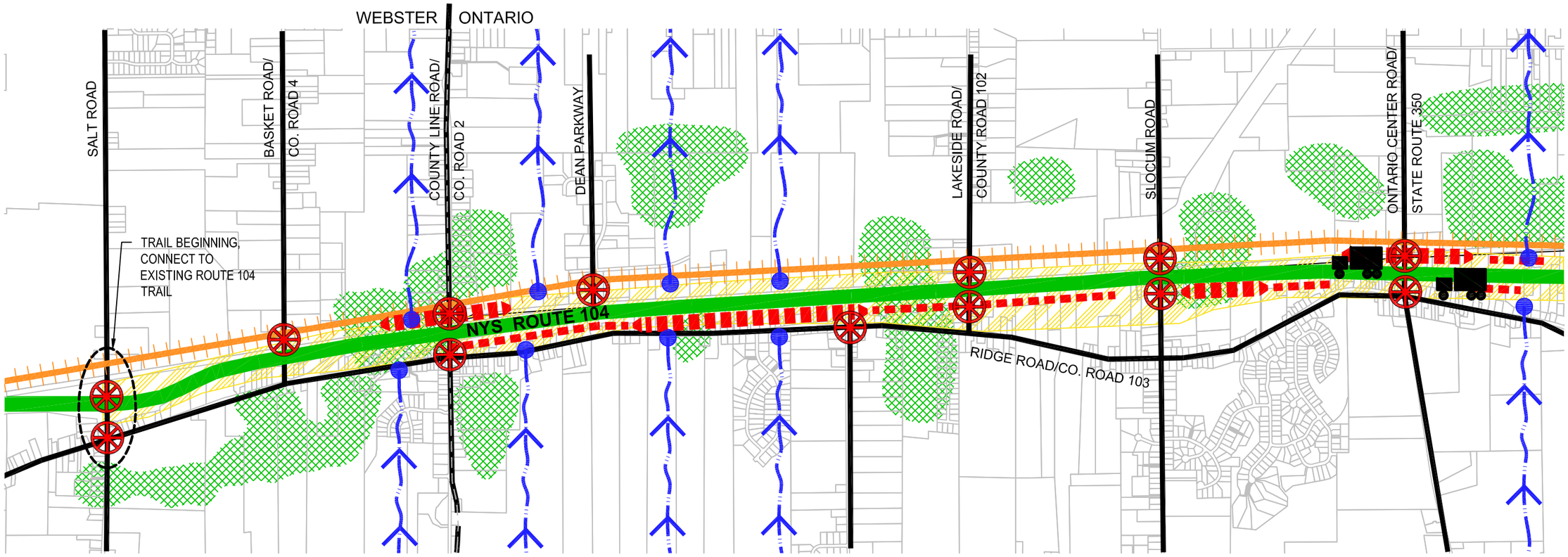
www.edrcompanies.com

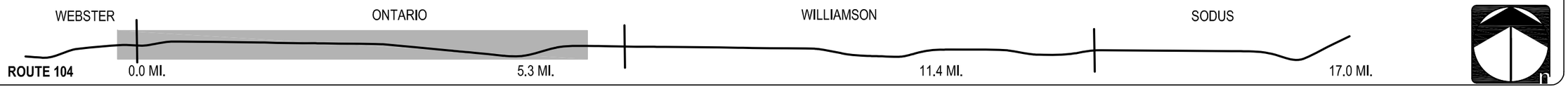
CONSTRAINTS MAP

Sheet 1 of 3

KEY:

- DRIVEWAY & PROPERTY CONFLICTS (MINOR) (MAJOR)
- RAILROAD
- ROUTE 104 R.O.W.
- ROUTE 104
- TOWNLINE
- STREAM CROSSING
- WETLAND AREA
- ROAD CROSSING
- TRUCK TRAFFIC





J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\2011-05-24_Conflicts.dwg

CHECKED BY: TMR
DATE: 05/25/2011
DRAWN BY: EMS/NMB
DRAWING NO: FIGURE 11
edr JOB NO: 10034
SCALE: NOT TO SCALE
PROJECT TITLE: ROUTE 104 CORRIDOR TRAIL
DRAWING TITLE: CONSTRAINTS MAP - SHEET 1 OF 3

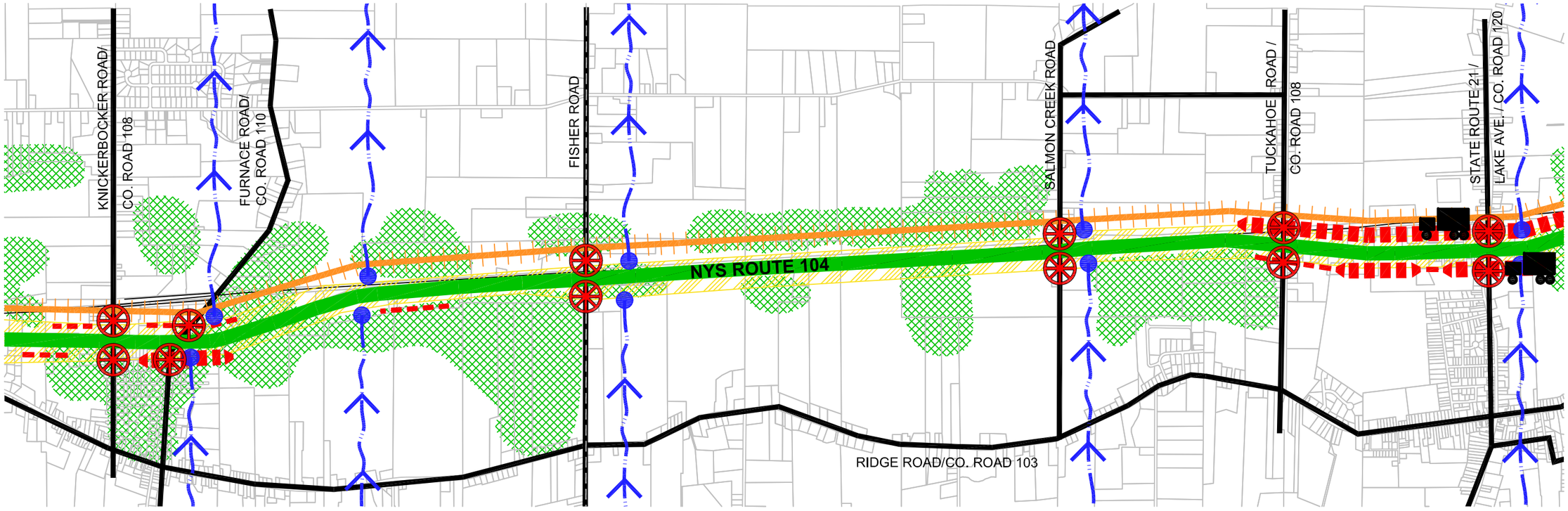
edr
www.edrcompanies.com

CONSTRAINTS MAP

Sheet 2 of 3

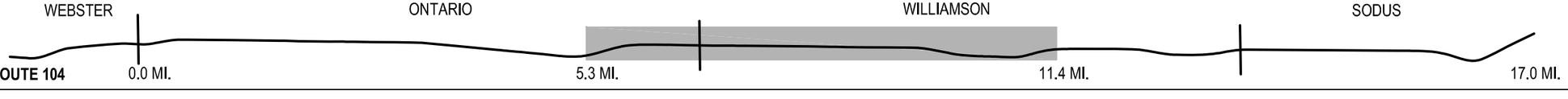
KEY:

- DRIVEWAY & PROPERTY CONFLICTS (MINOR) / (MAJOR)
- RAILROAD
- ROUTE 104 R.O.W.
- ROUTE 104
- TOWNLINE
- STREAM CROSSING
- WETLAND AREA
- ROAD CROSSING
- TRUCK TRAFFIC



MILES

0 ¼ ½ 1



J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\2011-05-24_Conflicts.dwg

edr JOB NO: 10034 | CHECKED BY: TMR

SCALE: NOT TO SCALE | DRAWN BY: EMS/NMB | DRAWING NO: FIGURE 11 | DATE: 05/25/2011

PROJECT TITLE: ROUTE 104 CORRIDOR TRAIL

DRAWING TITLE: CONSTRAINTS MAP - SHEET 2 OF 3

www.edrcompanies.com

CONSTRAINTS MAP

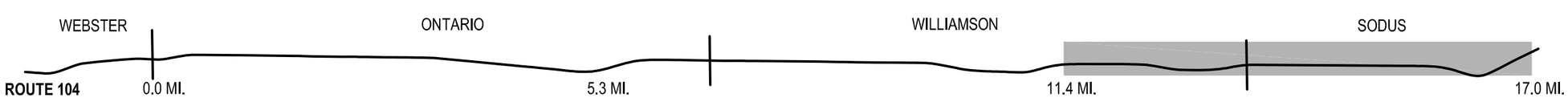
Sheet 3 of 3

KEY:

- DRIVEWAY & PROPERTY CONFLICTS (MINOR) (MAJOR)
- STREAM CROSSING
- RAILROAD
- WETLAND AREA
- ROUTE 104 R.O.W.
- ROAD CROSSING
- ROUTE 104
- TRUCK TRAFFIC
- TOWNLINE

MILES

0 ¼ ½ 1



J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\2011-05-24_Conflicts.dwg

CHECKED BY: TMR
DATE: 05/25/2011
DRAWN BY: EMS/NMB
DRAWING NO: FIGURE 11
edr JOB NO: 10034
SCALE: NOT TO SCALE

PROJECT TITLE: ROUTE 104 CORRIDOR TRAIL

DRAWING TITLE: CONSTRAINTS MAP - SHEET 3 OF 3

edr

www.edrcompanies.com

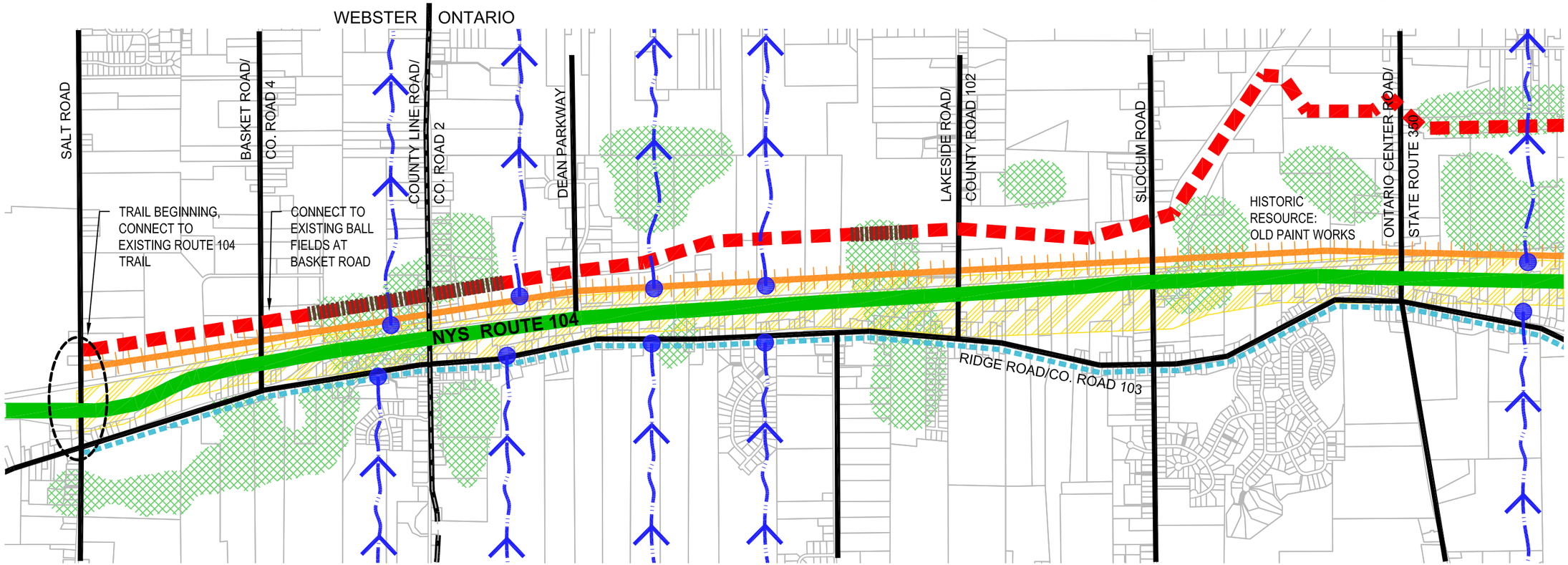
ALTERNATIVES

Sheet 1 of 3

KEY:

- ROUTE 104 R.O.W.
- ROUTE 104
- RAILROAD
- STREAM CROSSING
- PROPOSED BOARDWALK
- WETLAND AREA
- ALTERNATIVE 1
- ALTERNATIVE 2
- TOWNLINE

NOTE: WETLAND LOCATIONS ARE APPROXIMATE BASED ON ON-SITE VISUAL ASSESSMENT, AERIAL MAPPING, AND STATE AND FEDERAL WETLAND MAPPING. JURISDICTIONAL STATUS IS DEPENDENT ON A SITE-SPECIFIC WETLAND DELINEATION.



ALTERNATIVE 1: RAILROAD TRAIL:

MULTI-USE TRAIL IN THE EXPANDED RIGHT-OF-WAY OF ONTARIO-MIDLAND RR.

- TRAIL WOULD BE LOCATED ON THE NORTH SIDE OF THE RAILROAD
- DRAINAGE SWALE WOULD BE LOCATED BETWEEN TRACKS AND TRAIL
- PUBLIC BENEFIT TO PLANNED RIGHT-OF-WAY EXPANSION BY RG&E
- MAXIMIZES NATURAL RESOURCES, VIEWS, AND RURAL SCENIC VALUE
- BOARDWALKS WOULD BE UTILIZED TO TRAVERSE WETLAND AREAS
- 2 NORTH-SOUTH CONNECTIONS TO ROUTE 104 DESTINATIONS ARE SUGGESTED

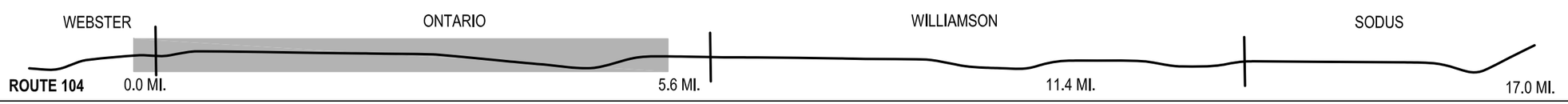
ALTERNATIVE 2: ACTIVE TRANSPORTATION PACKAGE:

THIS PROPOSAL INCLUDES MULTIPLE FEATURES:

1. RIDGE ROAD BIKE ROUTE - SIMILAR TO A BIKE BOULEVARD. BIKE ROUTE WOULD HAVE "SHARE THE ROAD" SIGNAGE, IMPROVEMENTS TO THE ROAD EDGE/ SHOULDER, AND ON-STREET BICYCLE AND PEDESTRIAN IMPROVEMENTS.
2. IMPROVED PEDESTRIAN FACILITIES IN SELECT AREAS ALONG ROUTE 104 (NOT CONTINUOUS), AND CONNECTIONS FROM BIKE ROUTE TO THESE PEDESTRIAN AREAS.
3. RURAL APPLICATION OF COMPLETE STREETS PRINCIPLES.

MILES

0 ¼ ½ 1



CHECKED BY: TMR
DATE: 05/24/2011
DRAWN BY: EMS/NMB
DRAWING NO: FIGURE 12
edr JOB NO: 10034
SCALE: NOT TO SCALE
PROJECT TITLE: ROUTE 104 CORRIDOR TRAIL
DRAWING TITLE: ALTERNATIVES - SHEET 1 OF 3

www.edrcompanies.com

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\2011-05-24_Alternatives.dwg

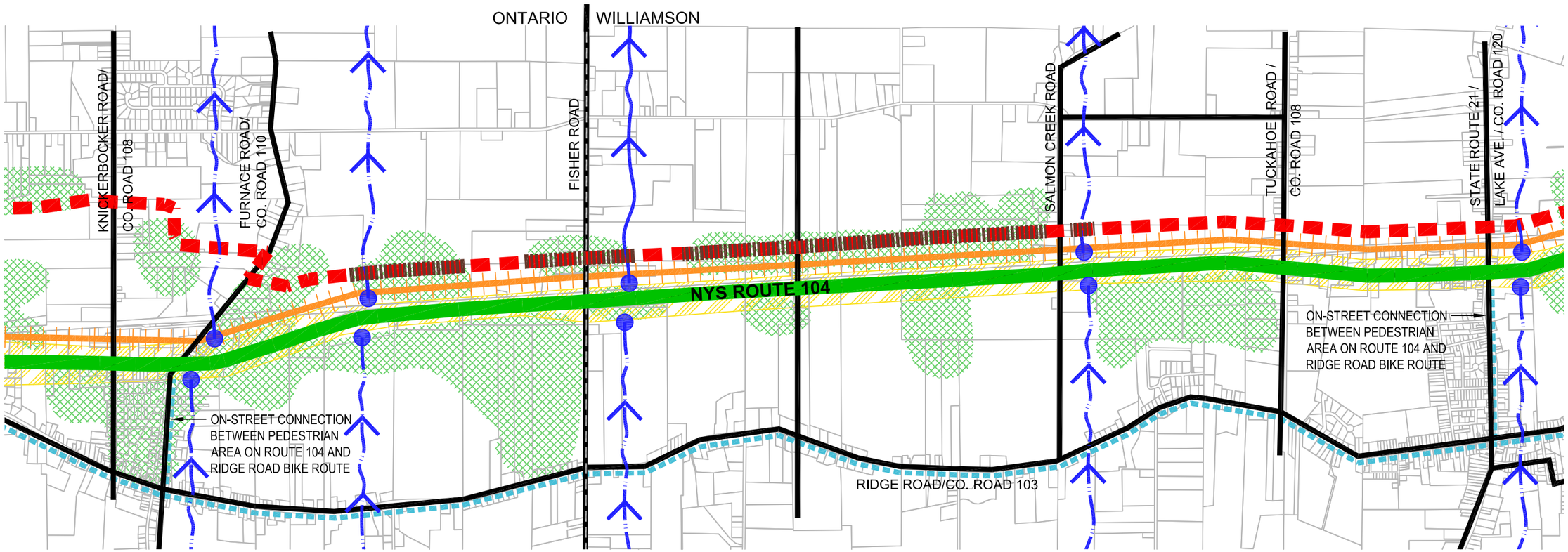
ALTERNATIVES

Sheet 2 of 3

KEY:

- ROUTE 104 R.O.W.
- ROUTE 104
- RAILROAD
- STREAM CROSSING
- PROPOSED BOARDWALK
- WETLAND AREA
- ALTERNATIVE 1
- ALTERNATIVE 2
- TOWNLINE

NOTE: WETLAND LOCATIONS ARE APPROXIMATE BASED ON ON-SITE VISUAL ASSESSMENT, AERIAL MAPPING, AND STATE AND FEDERAL WETLAND MAPPING. JURISDICTIONAL STATUS IS DEPENDENT ON A SITE-SPECIFIC WETLAND DELINEATION.



ALTERNATIVE 1: RAILROAD TRAIL:

MULTI-USE TRAIL IN THE EXPANDED RIGHT-OF-WAY OF ONTARIO-MIDLAND RR.

- TRAIL WOULD BE LOCATED ON THE NORTH SIDE OF THE RAILROAD
- DRAINAGE SWALE WOULD BE LOCATED BETWEEN TRACKS AND TRAIL
- PUBLIC BENEFIT TO PLANNED RIGHT-OF-WAY EXPANSION BY RG&E
- MAXIMIZES NATURAL RESOURCES, VIEWS, AND RURAL SCENIC VALUE
- BOARDWALKS WOULD BE UTILIZED TO TRAVERSE WETLAND AREAS
- 2 NORTH-SOUTH CONNECTIONS TO ROUTE 104 DESTINATIONS ARE SUGGESTED

ALTERNATIVE 2: ACTIVE TRANSPORTATION PACKAGE:

THIS PROPOSAL INCLUDES MULTIPLE FEATURES:

1. RIDGE ROAD BIKE ROUTE - SIMILAR TO A BIKE BOULEVARD. BIKE ROUTE WOULD HAVE "SHARE THE ROAD" SIGNAGE, IMPROVEMENTS TO THE ROAD EDGE/ SHOULDER, AND ON-STREET BICYCLE AND PEDESTRIAN IMPROVEMENTS.
2. IMPROVED PEDESTRIAN FACILITIES IN SELECT AREAS ALONG ROUTE 104 (NOT CONTINUOUS), AND CONNECTIONS FROM BIKE ROUTE TO THESE PEDESTRIAN AREAS.
3. RURAL APPLICATION OF COMPLETE STREETS PRINCIPLES.

MILES

0 ¼ ½ 1

CHECKED BY: TMR
DATE: 05/24/2011
DRAWN BY: EMS/NMB
DRAWING NO: FIGURE 12
edr JOB NO: 10034
SCALE: NOT TO SCALE

PROJECT TITLE: ROUTE 104 CORRIDOR TRAIL

DRAWING TITLE: ALTERNATIVES - SHEET 2 OF 3

www.edrcompanies.com

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\2011-05-24_Alternatives.dwg

ALTERNATIVES

Sheet 3 of 3

KEY:

- ROUTE 104 R.O.W.
- ROUTE 104
- RAILROAD
- STREAM CROSSING
- PROPOSED BOARDWALK
- WETLAND AREA
- ALTERNATIVE 1
- ALTERNATIVE 2
- TOWNLINE

NOTE: WETLAND LOCATIONS ARE APPROXIMATE BASED ON ON-SITE VISUAL ASSESSMENT, AERIAL MAPPING, AND STATE AND FEDERAL WETLAND MAPPING. JURISDICTIONAL STATUS IS DEPENDENT ON A SITE-SPECIFIC WETLAND DELINEATION.

ALTERNATIVE 1: RAILROAD TRAIL:

MULTI-USE TRAIL IN THE EXPANDED RIGHT-OF-WAY OF ONTARIO-MIDLAND RR.

- TRAIL WOULD BE LOCATED ON THE NORTH SIDE OF THE RAILROAD
- DRAINAGE SWALE WOULD BE LOCATED BETWEEN TRACKS AND TRAIL
- PUBLIC BENEFIT TO PLANNED RIGHT-OF-WAY EXPANSION BY RG&E
- MAXIMIZES NATURAL RESOURCES, VIEWS, AND RURAL SCENIC VALUE
- BOARDWALKS WOULD BE UTILIZED TO TRAVERSE WETLAND AREAS
- 2 NORTH-SOUTH CONNECTIONS TO ROUTE 104 DESTINATIONS ARE SUGGESTED

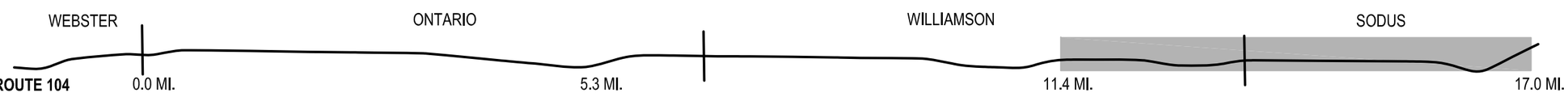
ALTERNATIVE 2: ACTIVE TRANSPORTATION PACKAGE:

THIS PROPOSAL INCLUDES MULTIPLE FEATURES:

1. RIDGE ROAD BIKE ROUTE - SIMILAR TO A BIKE BOULEVARD. BIKE ROUTE WOULD HAVE "SHARE THE ROAD" SIGNAGE, IMPROVEMENTS TO THE ROAD EDGE/ SHOULDER, AND ON-STREET BICYCLE AND PEDESTRIAN IMPROVEMENTS.
2. IMPROVED PEDESTRIAN FACILITIES IN SELECT AREAS ALONG ROUTE 104 (NOT CONTINUOUS), AND CONNECTIONS FROM BIKE ROUTE TO THESE PEDESTRIAN AREAS.
3. RURAL APPLICATION OF COMPLETE STREETS PRINCIPLES.

MILES

0 ¼ ½ 1



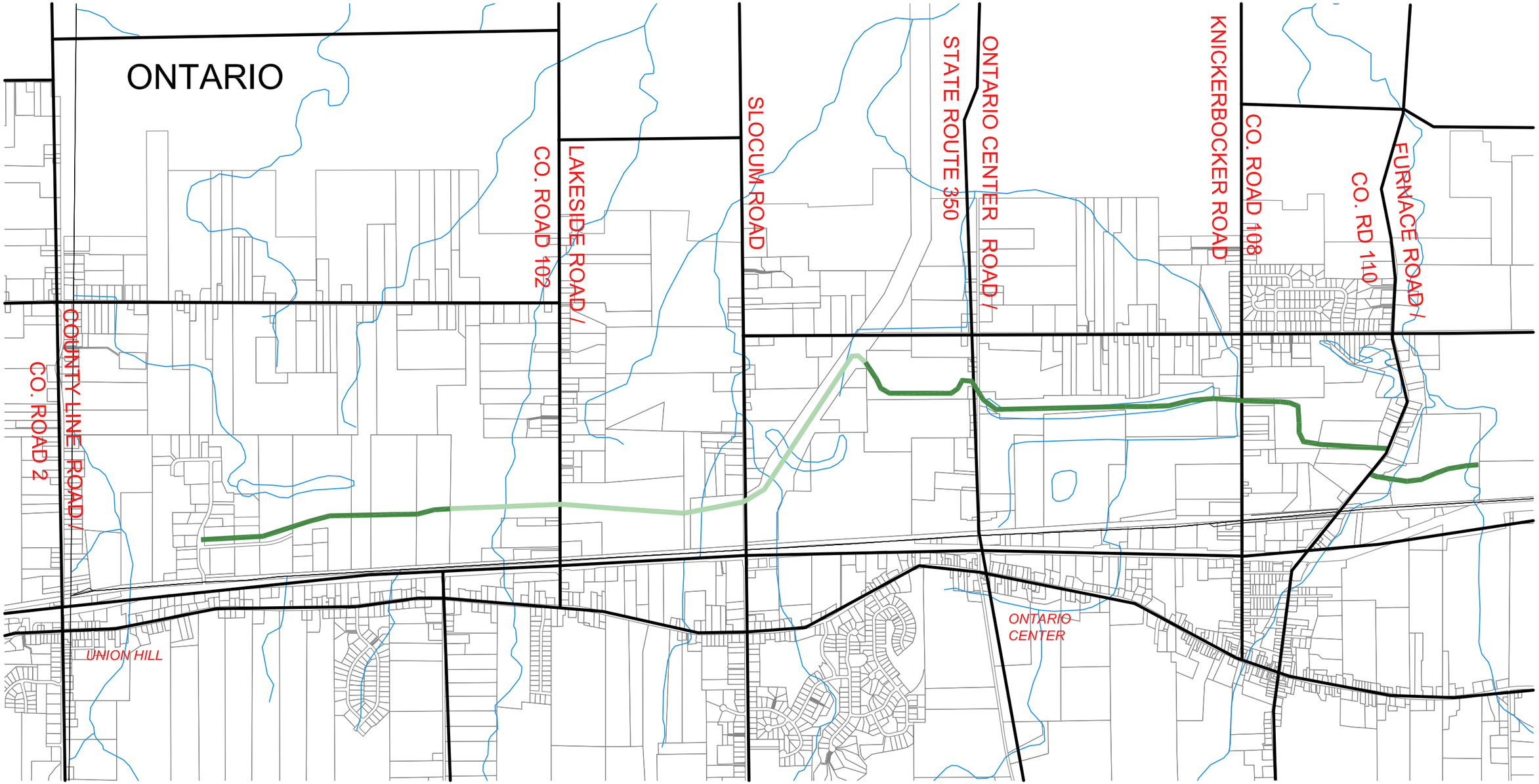
CHECKED BY: TMR
DATE: 05/24/2011
DRAWN BY: EMS/NMB
DRAWING NO: FIGURE 12
edr JOB NO: 10034
SCALE: NOT TO SCALE

PROJECT TITLE: ROUTE 104 CORRIDOR TRAIL

DRAWING TITLE: ALTERNATIVES - SHEET 3 OF 3

www.edrcompanies.com

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\2011-05-24_Alternatives.dwg



KEY

TRAIL BUILT OR IN DEVELOPMENT

ACCESS NEGOTIATIONS UNDERWAY

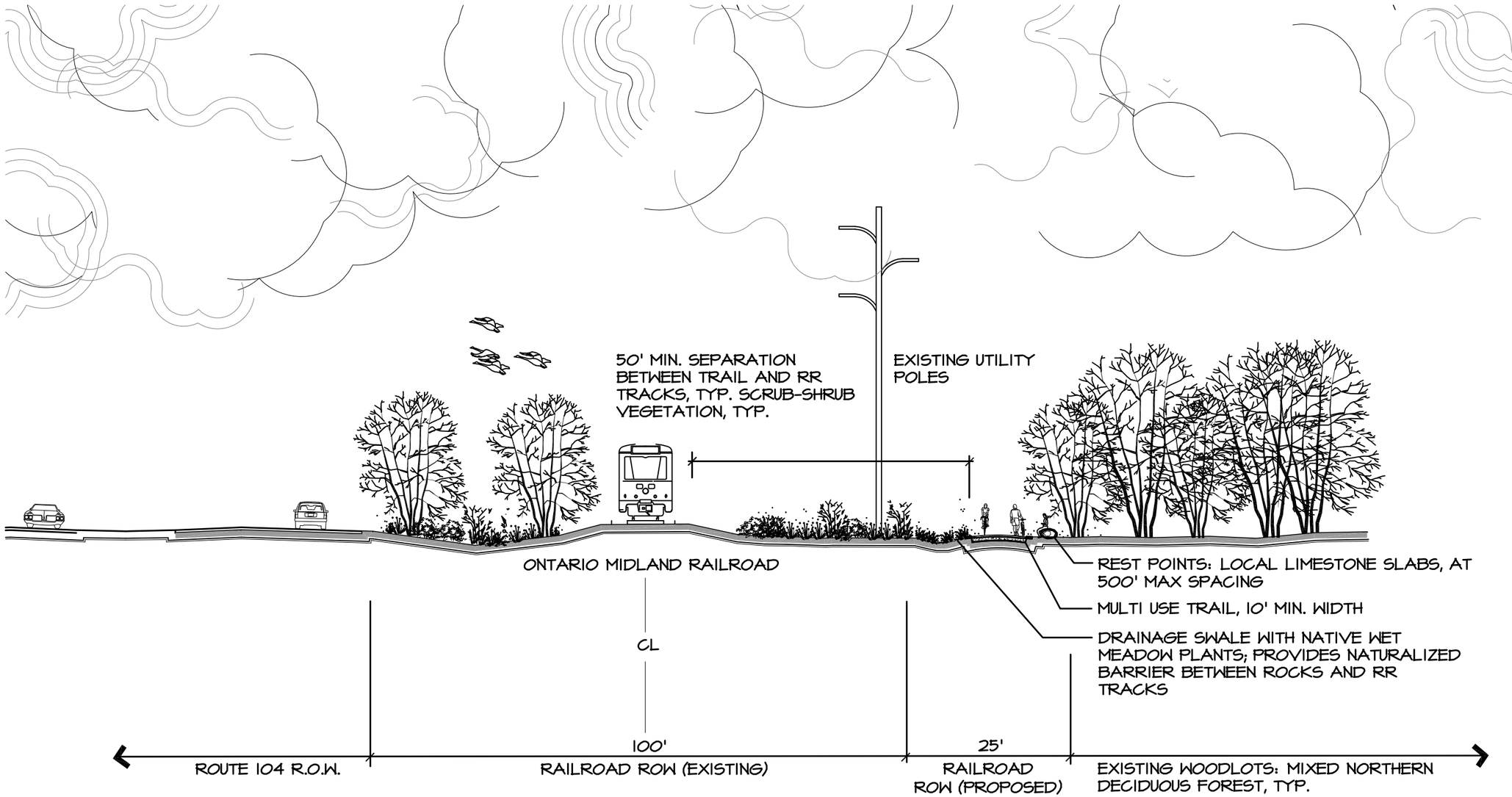
0 1000 2000
GRAPHIC SCALE (IN FEET)

NOTE: TRAIL DEVELOPMENT INFORMATION OBTAINED FROM THE TOWN OF ONTARIO IN APRIL 2011.

PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**	edr JOB NUMBER: **10034**	DRAWN BY: **EMS**	CHECKED BY: **TMR**
DRAWING TITLE: **ONTARIO TRAIL DEVELOPMENT**	SCALE: **1" = 2000'**	DRAWING NUMBER: **FIGURE 13**	DATE: **5/4/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\2011-05-04_Ontario_Trail.dwg

www.edrcompanies.com



1 RAILROAD TRAIL
TYPICAL CHARACTER

0 10 20
GRAPHIC SCALE (IN FEET)

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\X-SECTIONS.dwg

edr JOB NO: 10034 | DRAWN BY: TMR/NMB | CHECKED BY: TMR
SCALE: 1"=20' | DRAWING NO: FIGURE 14 | DATE: 05/19/2011

PROJECT TITLE: ROUTE 104 CORRIDOR TRAIL
DRAWING TITLE: RAILROAD TRAIL CROSS SECTION

www.edrcompanies.com

ACTIVE TRANSPORTATION ENHANCEMENTS

1. EXISTING SIDEWALK
   5' wide concrete pavement
2. EXPANDED SHARED-USE PATH
   add 5' of new pavement width to create ADA shared-use path.
   Suitable for less advanced cyclists and pedestrians of all mobility levels
3. CENTER STRIPE
   expanded pavement width and center stripe visually
   distinguish shared-use path from conventional sidewalk
4. RESTING & SEATING
   enhances shared-use path for pedestrians with less mobility
5. SHARE-THE-ROAD SIGNAGE
6. ADDITIONAL STREET TREES
7. EXISTING STRIPED SHOULDER
   suitable for 'A' level (advanced) cyclists
8. PAVEMENT MARKINGS

PEDESTRIANS

'B' BASIC CYCLISTS

'C' CHILDREN CYCLISTS

'A' ADVANCED CYCLISTS

PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**	edr JOB NUMBER: **10034**	DRAWN BY: **NMB**	CHECKED BY: **TMR**
DRAWING TITLE: **PROPOSED ACTIVE TRANSPORTATION ENHANCEMENTS**	SCALE: **NOT TO SCALE**	DRAWING NUMBER: **FIGURE 15**	DATE: **6/28/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\FIGURE-15.dwg

www.edrcompanies.com

ROUTE 104 CORRIDOR TRAIL

FEASIBILITY ASSESSMENT MATRIX

Alternatives	Environmental Impacts (1)	Community Connectivity (2)	Compatible with Other Plans (3)	Public Support (4)	People to Benefit From Trail (5)	Ownership and Access	Safety	Construction Costs	Sustainability
Railroad R.O.W. Trail (22 stars)	☆☆	☆☆	☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆	☆☆
Active Transportation Package (21 stars)	☆☆☆	☆☆☆	☆☆	☆☆	☆☆	☆☆	☆☆	☆☆☆	☆☆
Route 104 R.O.W. Trail - South (16 stars)	☆☆	☆☆	☆☆☆	☆	☆☆	☆	☆	☆☆	☆☆
Route 104 R.O.W. Trail - North (15 stars)	☆☆	☆☆	☆☆☆	☆	☆☆	☆	☆	☆☆	☆☆
No-Build Alternative (15 stars)	☆☆☆	☆	☆	☆	☆	☆☆☆	☆	☆☆☆	☆

☆
☆☆
☆☆☆ **Best**

NYSDOT Transportation Enhancement Program
Trail Project Rating Criteria:

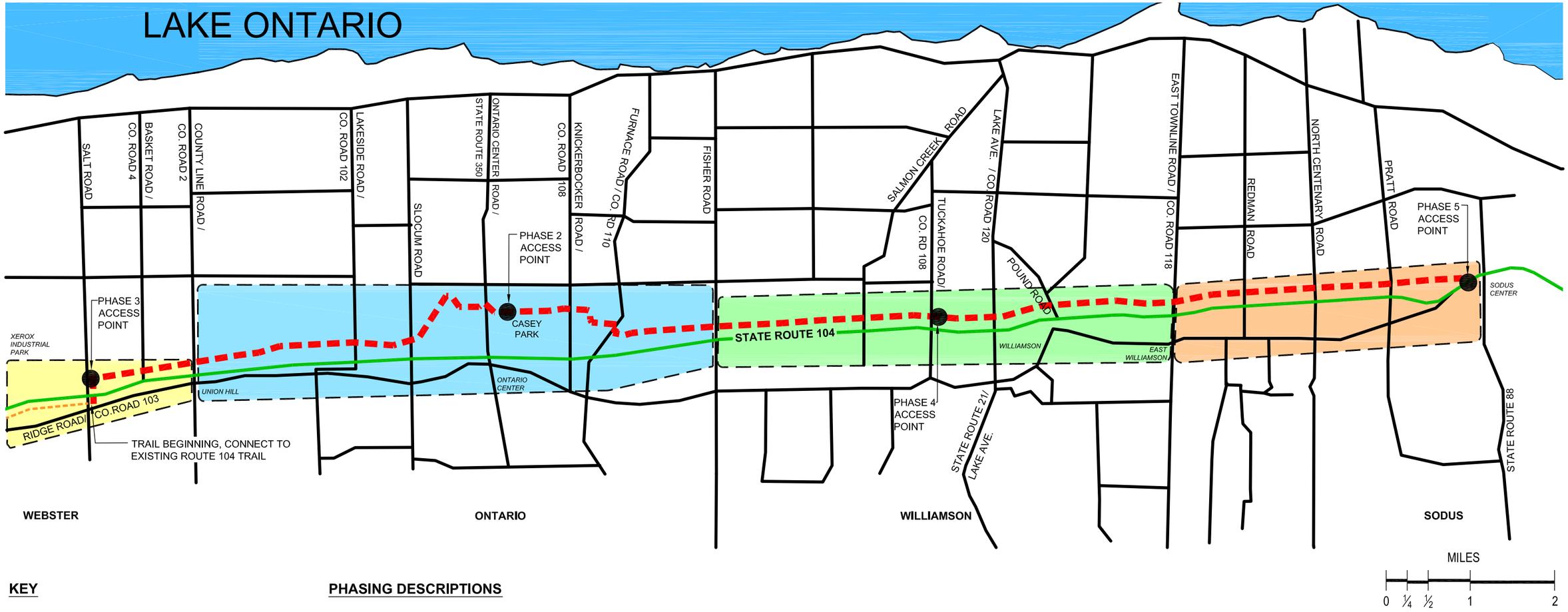
1. Trail's environmental impacts – preserve or positively influence natural resources, historic resources, scenic quality, air or water quality.
2. Increased or improved access to activity centers/destinations.
3. Relationship to local, regional or statewide plans.
4. Public support for the proposed trail.
5. How many people will benefit from the proposed trail?

Sustainability Criteria:

Reduces impacts to environmental resources
Reduces energy consumption
Reduces consumption of material resources
Supports healthy communities
Supports sustainability during implementation

Figure 16

edr COMPANIES



KEY

- Phase Boundary
- (#) Phases
- Recommended Trail Alignment
- Existing Trail
- NYS Route 104
- Trail Access Point. Access points are included for each phase of the project. These areas act as main access points onto the trail and would include parking and trail head signage.

PHASING DESCRIPTIONS

PHASE 1: Pre-Construction Groundwork

- Formalize access agreements
- Identify trail management entity
- Establish trail management structure including operation, maintenance and liability
- Secure funding for construction
- Implement phasing according to funding stream, including any required environmental review and permitting

PHASE 2: Town of Ontario, 6.8 Miles
The second phase of trail development will be the construction of the trail in the Town of Ontario. The Town has already developed a plan for approximately 5.5 miles of trail, of which 3.6 miles are built or in development, and 1.9 miles are in the negotiation process. The other portions of trail in Ontario will be located in the Ontario Midland Railroad R.O.W for a total of 6.8 miles.

PHASE 3: Town of Webster, 1.4 Miles
The third phase of trail development will be the section located in the Town of Webster. Once the Ontario segment is complete, this portion is the next logical piece. This 1.4-mile section of trail will connect the existing 6.1-mile Route 104 Trail in Webster to the 6.8-mile section in Ontario.

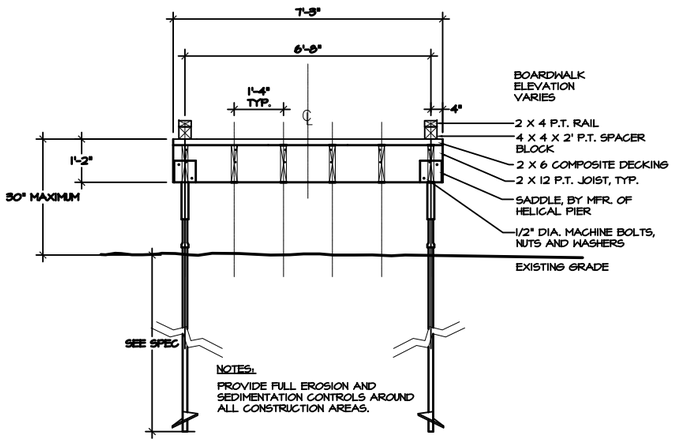
PHASE 4: Town of Williamson, 5.5 Miles
The fourth phase of trail development will be the section located in the Town of Williamson. This 5.5-mile segment would extend the trail from Webster through Ontario and Williamson. This section of trail will be primarily located in the Ontario Midland Railroad R.O.W., except between Tuckahoe Road and Lake Avenue, where the trail will follow an alternate route.

PHASE 5: Town of Sodus, 3.3 Miles
The final phase of trail development would extend the trail into the Town of Sodus. This 3.3-mile section would connect Webster and Sodus. The trail would terminate near the intersection of Route 104 and Route 88 but would provide for future connection to the Sodus to Wolcott section of the Route 104 Trail.

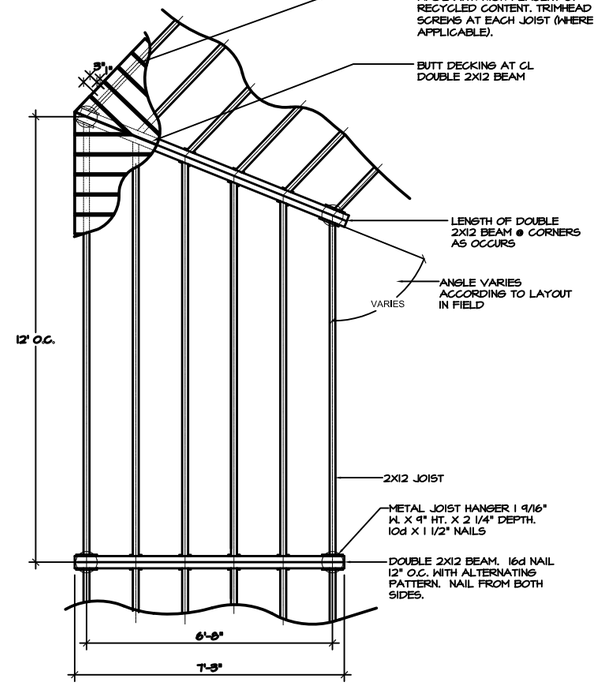
PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**	edr JOB NUMBER: **10034**	DRAWN BY: **NMB**	CHECKED BY: **EMS/TMR**
DRAWING TITLE: **RECOMMENDED TRAIL ALIGNMENT AND PHASING PLAN**	SCALE: **NOT TO SCALE**	DRAWING NUMBER: **FIGURE 17**	DATE: **06/07/2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\FIGURE-17.dwg

www.edrcompanies.com



1 BOARDWALK ELEVATION
NOT TO SCALE



2 BOARDWALK FRAMING PLAN
NOT TO SCALE

BENEFITS OF HELICAL PIER BOARDWALK SYSTEMS:

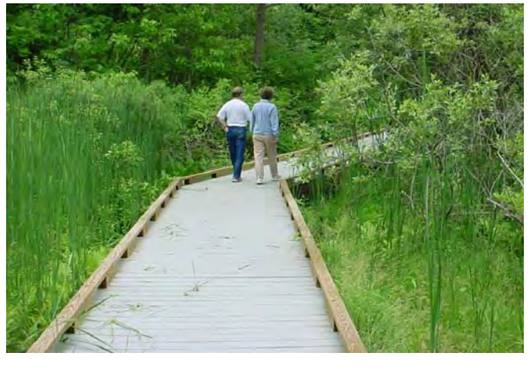
- Impacts are minimal and permitting is streamlined.
- No placement of fill is required for foundation systems.
- Surface and sub-surface hydrology is unimpeded by the boardwalk structure.
- Construction impacts are minimized; "leap-frog" construction is possible by continuously staging equipment on built boardwalk sections.
- Boardwalk is above grade, and will not create a physical obstacle for movement of small animals underneath the boardwalk platform.
- Post-construction monitoring of completed boardwalks indicates that vegetation continues to prosper beneath the completed boardwalk; shade tolerant species will dominate.
- The boardwalk creates a micro-climate that can add diversity to the overall site conditions: The shaded area beneath the boardwalk will retain soil moisture and a lower air temperature during the summer months. Depending on exposure, the ground beneath the boardwalk may be slower to thaw in spring.
- Boardwalks are durable, low-maintenance, and can incorporate recycled materials.

POTENTIAL BOARDWALK APPLICATIONS:

- Federal Wetlands
- State Wetlands
- Poorly Drained Areas
- Stream Crossings

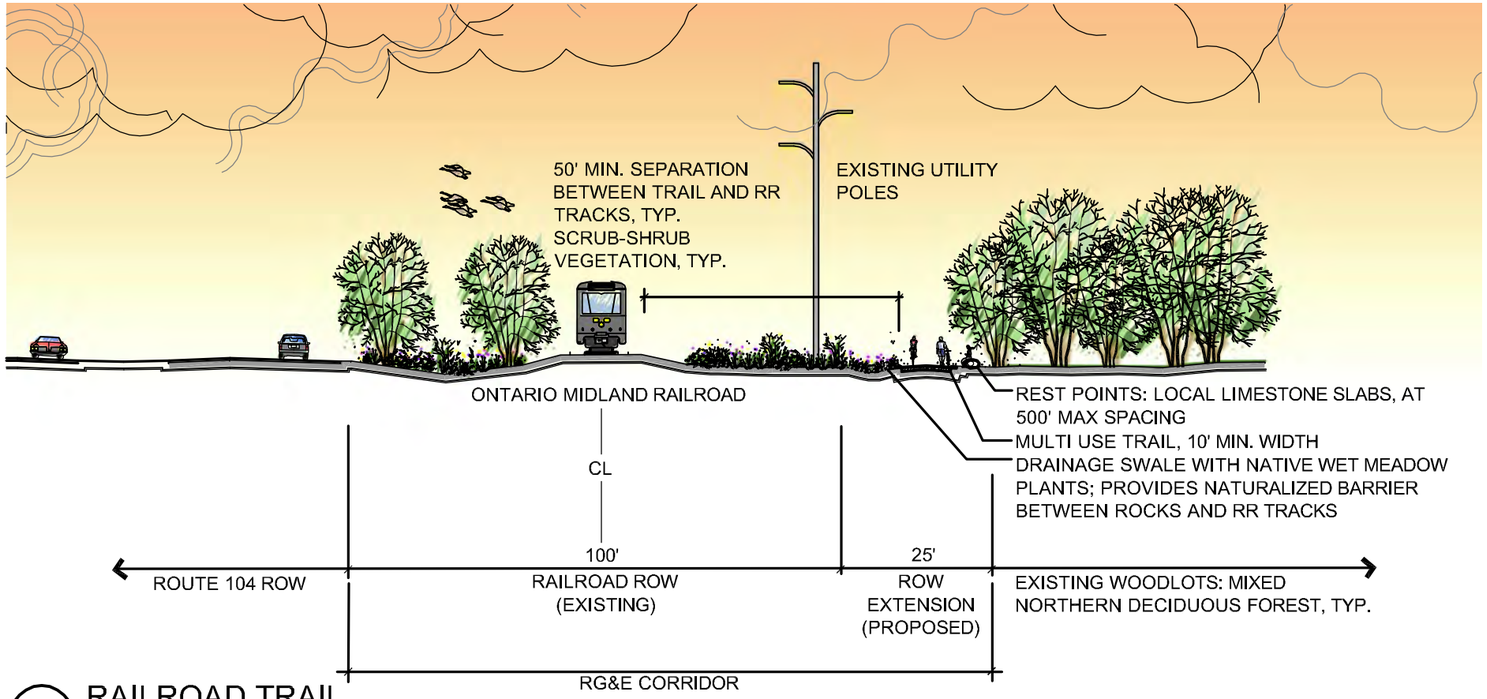
ESTIMATED BOARDWALKS:

- Webster = 268 LF
- Ontario = 2,673 LF
- Williamson = 3,252 LF
- Sodus = 2,283 LF
- **Total = 8,476 LF**

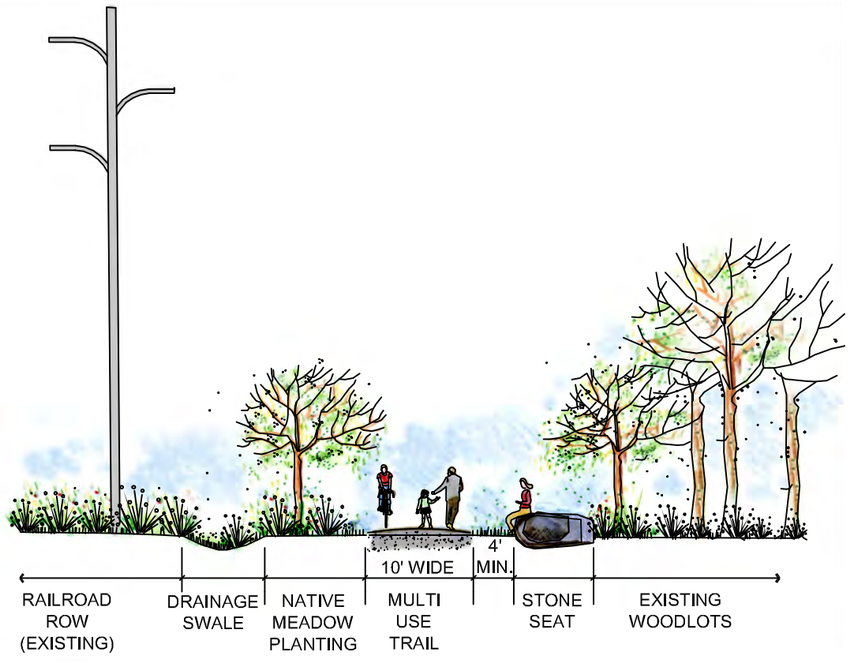


J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\2011-05-05_BRD-WALK-TRAIL.dwg

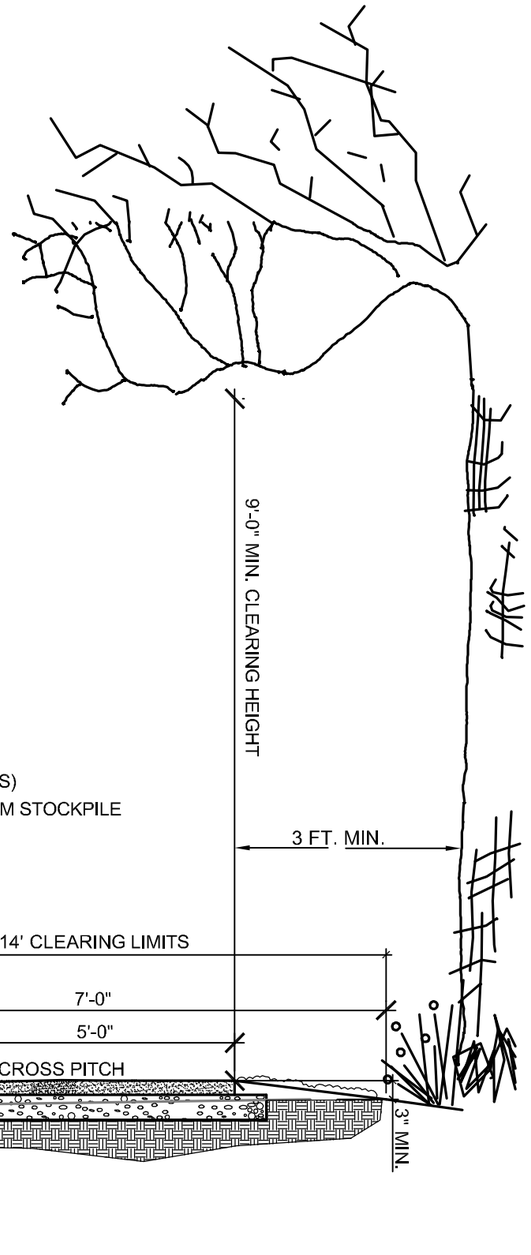
CHECKED BY: TMR
DATE: 5/26/2011
DRAWN BY: NMB
DRAWING NO: FIGURE 18
edr JOB NO: 10034
SCALE: NOT TO SCALE
PROJECT TITLE: ROUTE 104 CORRIDOR TRAIL
DRAWING TITLE: BOARDWALK AND TRAIL DETAILS
www.edrcompanies.com



1 RAILROAD TRAIL
TYPICAL CHARACTER
N.T.S.



2 RAILROAD TRAIL
TYPICAL CHARACTER
N.T.S.



3 MULTI USE TRAIL
SCALE: ½" = 1'-0"

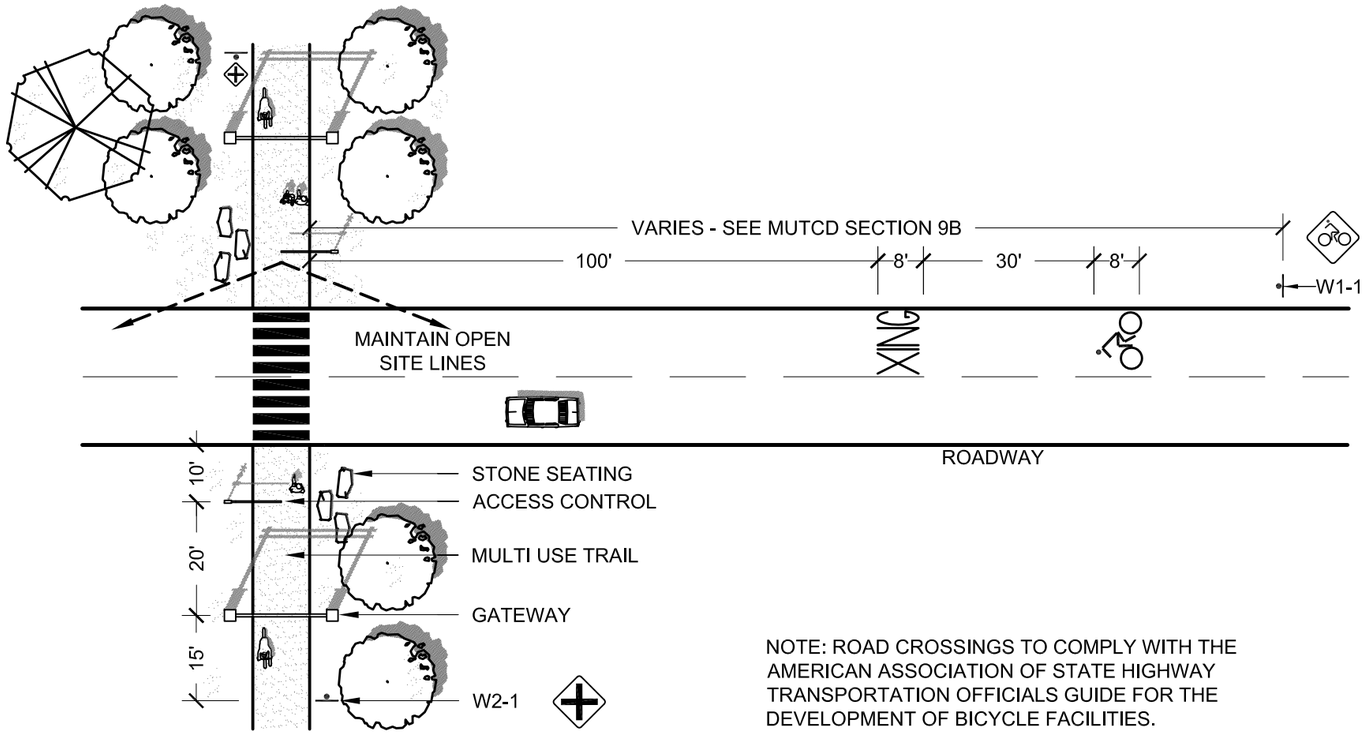
J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\2011-05-26-Preliminary Concepts.dwg

CHECKED BY: TMR
DATE: 06/07/2011
DRAWN BY: NMB
DRAWING NO: FIGURE 19
edr JOB NO: 10034
SCALE: AS SHOWN

PROJECT TITLE: ROUTE 104 CORRIDOR TRAIL
DRAWING TITLE: CONCEPTUAL DESIGN RECOMMENDATIONS

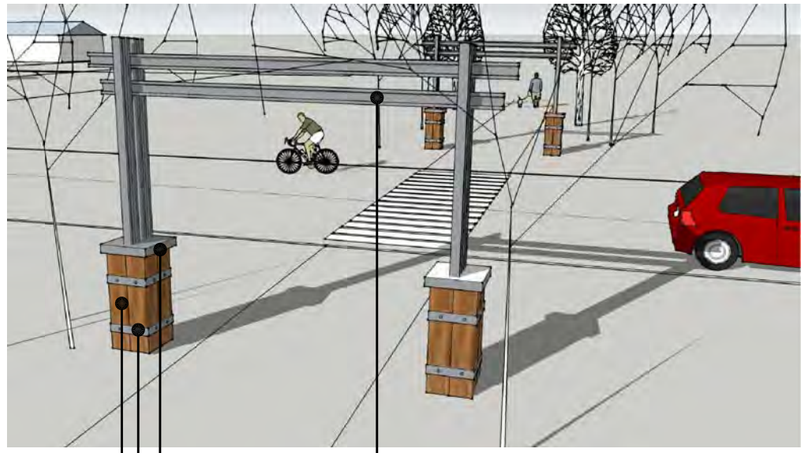
edr
www.edrcompanies.com

TYPICAL ROAD CROSSING



NOTE: ROAD CROSSINGS TO COMPLY WITH THE AMERICAN ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIALS GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES.

TRAIL GATEWAYS AND SIGNAGE



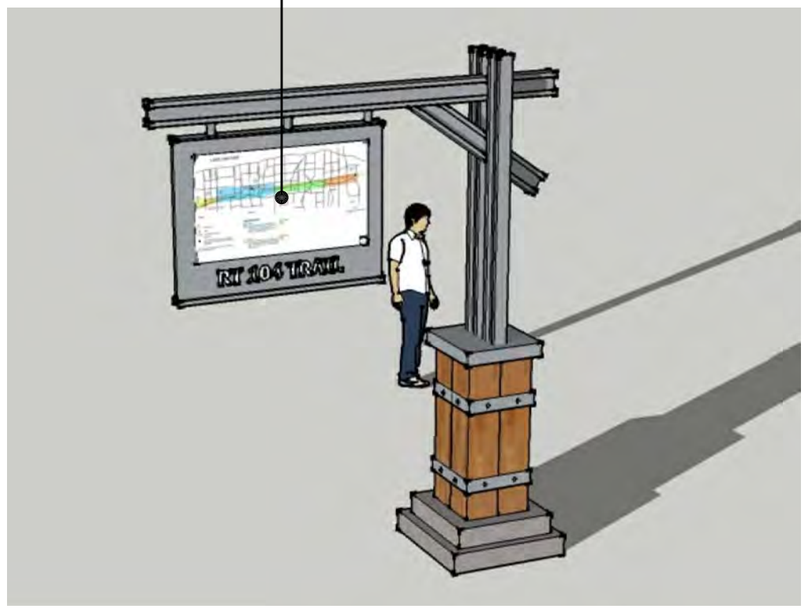
TRAIL/GATEWAY - MATERIALS SALVAGED FROM ONTARIO MIDLAND RAILROAD

PIER CAPS: LOCAL STONE, RECYCLED STEEL OR SALVAGED RAILROAD TIE PLATES

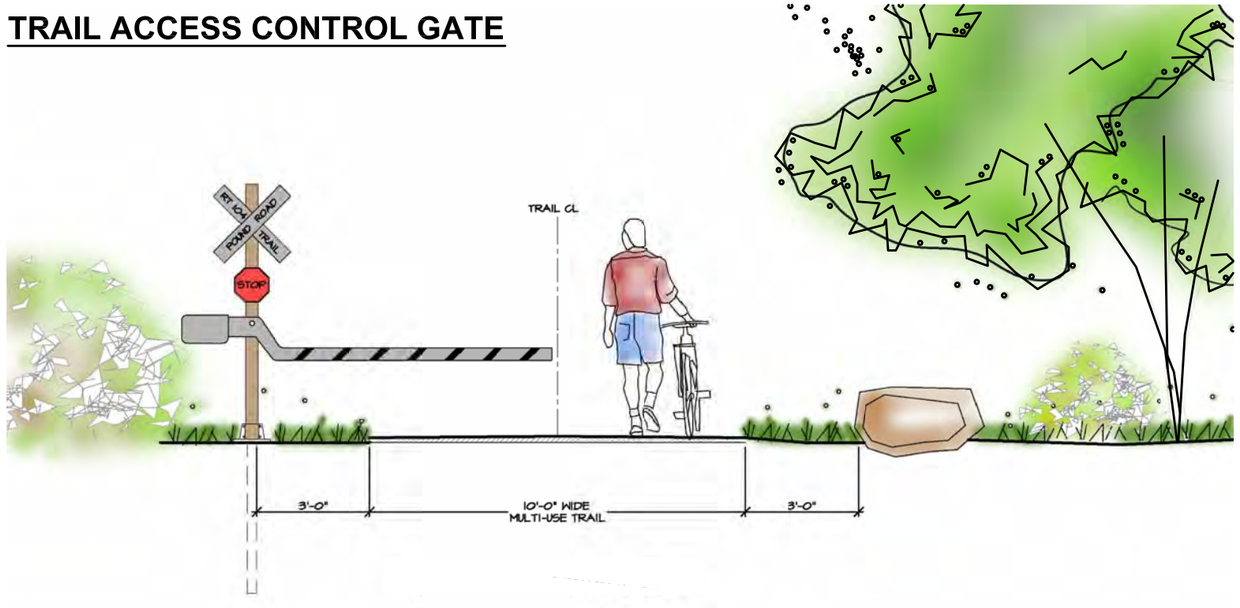
METAL STRAPPING

PIERS CONSTRUCTED FROM RECYCLED RAILROAD TIES

TRAIL SIGNAGE



TRAIL ACCESS CONTROL GATE



J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\2011-05-26-Intersection.dwg

CHECKED BY: TMR
DATE: 05/26/2011
DRAWN BY: NMB
DRAWING NO: FIGURE 20
edr JOB NO: 10034
SCALE: NOT TO SCALE

PROJECT TITLE: ROUTE 104 CORRIDOR TRAIL
DRAWING TITLE: CONCEPTUAL DESIGN RECOMMENDATIONS

edr
www.edrcompanies.com

PROPOSED ALTERNATIVE 1 RAILROAD TRAIL

1. ONTARIO MIDLAND RAILROAD
   25 mph speed limit, 1-2 runs per day, typ.
2. BUFFER STRIP
   maintain old field conditions to provide clear sight lines.
3. MULTI-USE TRAIL
   10' min. width, meets ADA and AASHTO design standards.
4. REST POINTS
   placed at 500' max. spacing, typ. includes local limestone slab seats and trail mile marker posts.
5. EXISTING WOODLOTS
   successional mixed northern deciduous forest, typ.

EXISTING CONDITIONS
RT 104 RAILROAD CORRIDOR

PROJECT TITLE: **ROUTE 104 CORRIDOR TRAIL**	edr JOB NUMBER: **10034**	DRAWN BY: **NMB**	CHECKED BY: **TMR**
DRAWING TITLE: **PROPOSED ALTERNATIVE 1 RAILROAD TRAIL**	SCALE: **NOT TO SCALE**	DRAWING NUMBER: **FIGURE 21**	DATE: **07-14-2011**

J:\10034 GTC Rt 104 Corridor Trail\Cad\Working Drawings\FIGURE-15.dwg

www.edrcompanies.com