I-481 Industrial Corridor Transportation Study

Final Report

December 2004

SMTC

in conjunction with

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NOTE: This document was prepared with financial assistance from the Federal Highway Administration and the Federal Transit Administration of the U.S. Department of Transportation through the New York State Department of Transportation. The Syracuse Metropolitan Transportation Council is solely responsible for its contents.

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ES EXECUTIVE SUMMARY

This study examines transportation related concerns regarding potential cumulative effects of office and industrial development in the I-481 Industrial Corridor, and identifies what actions can be taken to make the most efficient use of the existing transportation system's finite capacity, in order to enhance the area's economic competitiveness, in both the short and long term.

The Study Area for the I-481 Industrial Corridor Study is depicted in Figure ES-1. This area was the primary focus of the study and it is generally bounded by I-481 to the north, Fremont Road to the east, DeWitt Rail Yard to the south, and an irregular western boundary reaching as far west as Totman Road. Portions of the towns of Cicero, DeWitt, and Manlius are included within the boundary.

Public involvement was essential to the success of the study; therefore, communication between the Project Team and the public was ongoing in the form of a Public Involvement Plan (PIP). The PIP consisted of three major parts: establishing a Study Advisory Committee (SAC) to provide overall policy and technical guidance to the study; coordination with stakeholders in the corridor; and informing and soliciting comments/suggestions from the general public through a series of three public information meetings held on June 27, 2002, July 15, 2003, and April 21, 2004.

ES.1 Existing Conditions

To gain a complete understanding of the corridor, existing conditions data was collected. This information was derived primarily through the use of secondary data. This was supplemented with information obtained through searches of the Syracuse Metropolitan Transportation Council (SMTC) databases, and contacts with Onondaga County, the Towns of DeWitt, Manlius, and Cicero, as well as other project stakeholders involved in the study. Existing conditions data was collected, examined, and compiled into the following categories:

Land Use Characteristics

- Existing Land Use Patterns – development types, transportation-related land uses, vacant land, and wetlands;
- Development Regulations, Plans, and Policies – zoning, comprehensive plans, and empire zones; and
- Planned Development.

Transportation Network

- Roadways – functional classifications, traffic volumes, roadway conditions, truck origins and destinations, and planned improvements;
- Public Transit – bus routes, schedules, and stops;
- Bicycle/Pedestrian Facilities – bike amenities, sidewalks, and crosswalks;

- DeWitt Rail Yard; and
- Syracuse Hancock International Airport.

ES.2 20-Year Build-out Analysis

In order to determine the transportation implications of anticipated future development in the I-481 Industrial Corridor, a 20-year build-out analysis was conducted. This included two components. First, projections of anticipated development in the study area were conducted, based upon the amount of vacant, unconstrained land, current development regulations, and typical absorption rates (i.e., the rate at which properties are able to be leased, sold, or developed in a given area) for new development. These projections yielded a maximum build-out in excess of 90 million square feet of industrial and high-tech development and a probable build-out of approximately 1.8 million square feet by 2020.

The above referenced projections were used to assess future travel demand patterns and traffic implications using the SMTC's regional travel forecasting computer model and intersection simulation software. From this analysis, it was determined that the intersections of Route 298/Collamer Road with Northern Boulevard and Fly Road will fail between the years of 2005 and 2010. It was also determined that the addition of left turn lanes on Collamer Road at Fly Road and a second northbound left turn lane on Route 298 at Northern Boulevard would allow these intersections to function at acceptable levels through the design year 2020.

ES.3 Multimodal Assessment

Based on existing conditions, the 20-year build-out analysis, projected traffic volumes and intersection operations for the year 2020, and public/stakeholder comments, an assessment was conducted associated with the quality/relationship among and between the various modes of transportation within the I-481 Industrial Corridor. This included assessments of vehicular/truck access, commercial/general aviation airports (i.e., Hancock International Airport), freight/rail (i.e., DeWitt Rail Yards), transit, and pedestrian and bicycle facilities. Interrelationships were reviewed and gaps in the network were identified.

Major conflicts were identified in the following areas:

- Passenger Vehicles and Commercial Trucks – localized conflicts around heavily trafficked residential areas (e.g., Kirkville and Fremont Road);
- Passenger Vehicles and Public Transit – easy vehicular access and parking discourage transit use;
- Passenger Vehicles and Pedestrian/Bicycle – higher average speeds, traffic movements, and lack of defined pedestrian/bicycle zones impede safe access;
- Commercial Trucks and School Buses – conflicts at the Fremont Road/N. Central Avenue Intersection, given proximity of DeWitt Rail Yard and regional school bus garage;
- Commercial Trucks and Freight Rail – internal truck and rail access issues at the DeWitt Rail Yard and access between the rail yard and the Interstate system is constrained;

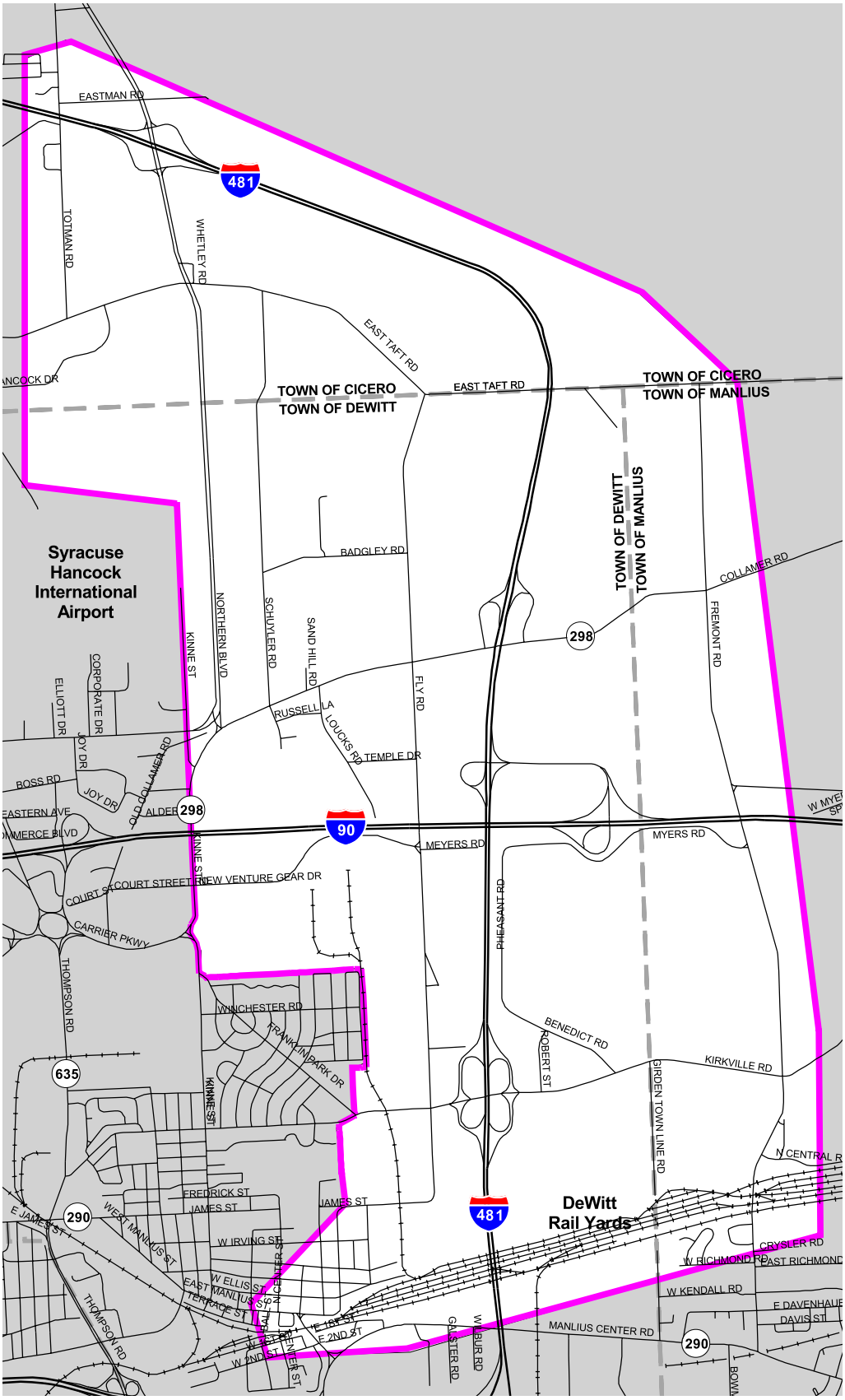

Figure ES-1
Study Area

LEGEND

Study Area

Map Created: 06/10/02

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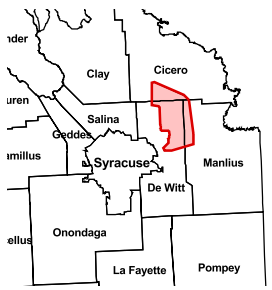
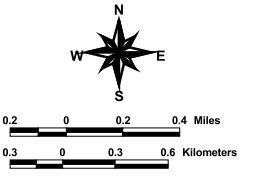


Locator Map



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- Commercial Trucks and Pedestrian/Bicycle - higher average speeds, traffic movements, and lack of defined pedestrian/bicycle zones impede safe access; and
- Pedestrian/Bicycle and School Bus – lack of safe pedestrian access from school bus stops and ultimate destinations.

ES.4 Land Use and Transportation Issues

Through the course of gathering existing conditions data, comments received at public meetings, the conducted build-out analysis and associated traffic forecasting efforts, and the multimodal assessment, a number of land use and transportation issues within the I-481 Industrial Corridor were identified. These issues are presented in detail along with possible opportunities and constraints in Chapter 5 of the I-481 Industrial Corridor Transportation Study Final Report and are generally described as follows:

- Land Use and Access Management Issues – large amounts of vacant land with high build-out potential, periodic flooding, limited availability of public utilities, lack of density controls, erroneous public perception of zoning, and the continuous erosion of community character;
- Vehicular Travel Issues – disregard for traffic laws/regulations, inappropriate pavement markings, impairment of residential driveway access, high truck volumes in areas with stop sign controlled intersections, general traffic safety issues at key intersections, and potential traffic flow issues at specific intersections as the corridor reaches probable build-out;
- Pedestrian and Bicycle Travel Issues – lack of sidewalks and Americans with Disabilities Act (ADA) compliant curb ramps, absence of crosswalks, disregard by motorists for pedestrian/bicycle right-of-way and safety, and lack of designated bicycle routes or lanes;
- Transit Issues – lack of transit service to the majority of the study area; and
- DeWitt Rail Yard Issues – interior access issues, contribution to high truck traffic on local roads, lack of appropriate Interstate access, access point conflicts with school bus traffic, public perceptions of truck volumes generated by the rail yard, and community quality-of-life affects of the yard's operations.

ES.5 Preliminary Alternative Solutions

From an examination of baseline information, public comments, and identified issues, preliminary alternatives were developed. Each alternative was evaluated against performance criteria that included ability to: improve the safety and security of the transportation system for vehicular and non-vehicular users; facilitate integration and connectivity among various modes of transportation; improve the experience, access, and mobility of pedestrians and transit users; enhance and preserve community character; maintain adequate traffic mobility for vehicular users; be reasonably implemented, considering policy and regulatory jurisdictions and realistic funding mechanisms; and be reasonably maintained or enforced following implementation. Preliminary alternatives that met these criteria were carried forward for further refinement, development, and analysis in the recommendations phase of the study. In many cases, given the presence of closely related issues, the evaluation indicated that as-

pects of individual alternatives should be merged into more comprehensive proposals for key areas along the corridor.

A comprehensive listing of preliminary alternatives along with performance criteria evaluation are included in Chapter 6 of the I-481 Industrial Corridor Transportation Study Final Report. The listing of preliminary alternatives was not intended to represent an exhaustive compilation of fully developed designs or approaches for improvements within the I-481 Industrial Corridor; in contrast, it was intended to serve as a starting point for discussion regarding overall reasonableness of design concepts and possible courses of action for improvements.

ES.6 Recommendations

Preliminary alternatives were presented to and reviewed by the SAC, stakeholders, and the general public. Once comments were received from these groups, recommendations were developed. Recommendations were grouped by geographic impact, level of detail, and capital cost necessary to implement as follows:

- **Corridor-wide Recommendations –** included procedural and analysis recommendations (i.e., travel speed monitoring/enforcement and conducting of a transit feasibility study); land use and access management recommendations (i.e., public education on zoning classifications, capitalization on natural constraints to direct development, efficient utilization of the existing transportation network, increased coordination between local municipalities and county and state departments of transportation, refinement of existing municipal development regulations, and adoption of performance standards); and capital improvement recommendations (i.e., regulatory signage, street re-striping program, targeted pedestrian connection improvements, and crosswalk/pedestrian signal installation).
- **Site Specific Recommendations –** DeWitt Rail Yard future access improvements and key intersection improvements.

A complete listing of recommendations for the corridor, along with graphic depictions, is included in Chapter 7 of the I-481 Industrial Corridor Transportation Study Final Report.

ES.7 Preliminary Implementation Plan

A preliminary plan of implementation for recommended improvements was developed. Programmed short-term actions include additional planning, community education, and enforcement activities along the corridor, as well as lower cost capital projects to enhance mobility, safety, and access. Also during this period, further review and assessment of funding availability would be conducted for larger-scale improvements.

Medium-term actions, if determined to be financially feasible, focus on improvements in targeted areas within the corridor that exhibit the greatest need for pedestrian and vehicular safety and access enhancement. These include intersection improvements and targeted sidewalk improvements in residential/educational areas. In addition, a transit feasibility

study and an alternatives analysis/preliminary engineering process for examination of alternate access to DeWitt Rail Yard would be undertaken in this period.

Long-term actions are limited to the ultimate final design and construction activities associated with new access to DeWitt Rail Yard.

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1 INTRODUCTION

1.1 Statement of Purpose

This study examines transportation related concerns regarding potential cumulative effects of office and industrial development in the I-481 Industrial Corridor, and identifies what actions can be taken to make the most efficient use of the existing transportation system's finite capacity, in order to enhance the area's economic competitiveness, in both the short and long term.

1.2 Report Format

The information presented in this final report is derived from three technical memoranda prepared during the course of the study, and further refined based upon the comments of the general public, major stakeholders, and agencies having jurisdiction in the I-481 Industrial Corridor.

This final report is comprised of eight chapters. This introduction presents background information on the study; presents the study area boundaries and major goals/objectives; and describes the public involvement measures that were employed to provide meaningful opportunities for participation. Chapter 2 presents information on the corridor's existing conditions with respect to land use characteristics, development regulations, and the transportation network. Review of the 20-year build-out analysis is included in Chapter 3. Chapter 4 presents the interrelationships between various modes as determined during the multimodal assessment. A summary of transportation and land use issues identified during the study process are presented in Chapter 5. Chapter 6 presents a range of potential alternative solutions that were considered and evaluated. Final study recommendations compose Chapter 7. Finally, Chapter 8 presents a preliminary implementation plan for the recommendations outlined in Chapter 7.

1.3 Study Background

1.3.1 Setting

The I-481 Industrial Corridor is located along the border of the towns of DeWitt, Manlius, and Cicero, New York, northeast of Syracuse, New York. The corridor is currently home to a number of manufacturing establishments and office parks. In addition to existing properties, several industrial/office parks are under development or planned for development in the near future. Also, a number of large, vacant, industrial or high-tech zoned parcels exist within the corridor that may be attractive for additional industrial/office complexes. The corridor's proximity to the interstate system and other transportation facilities has made it attractive for new development. Interstate 90 runs east/west through the corridor, while I-481 splits it from north to south. The DeWitt Rail Yard, a CSX intermodal facility, is located in the southern portion of the corridor. Also, Hancock International Airport, the region's primary passenger and cargo air facility is located immediately west of the corridor.

While the majority of the corridor functions satisfactorily under present conditions, it is possible that the roadway network serving it could see a dramatic increase of traffic in the future. The capacity of this network is a key contributor to the area's economic competitiveness since potential tenants expect industrial/office park sites to have adequate infrastructure to handle the needs of all employers, both present and future.

1.3.2 Previous Reports and Studies

As a first step in familiarization of the project, a number of related, previously published reports, plans, and studies were examined. Content was reviewed to minimize redundant data collection, to provide insight into the workings of the corridor and its surrounding area, and gain understanding as to previous recommendation rationale. The following reports, plans, and studies were reviewed:

- Long-Range Transportation Plan, 2001 Update, SMTC;
- Taft Road/Northern Boulevard Study Final Report, May 2001, SMTC;
- 1997 Conrail/CSX Intermodal Terminal Access, SMTC;
- Eastern Onondaga County Area Existing Conditions Report, January 1997, SMTC;
- Job Access and Reverse Commute Plan Final Report, 2000-2001, SMTC;
- Regional Mobility Action Plan (ReMAP) Final Report, August 1999, Central New York Regional Transportation Authority;
- Master Plan Syracuse Hancock International Airport, February 1993, City of Syracuse Department of Aviation;
- Bridge & Pavement Condition Management System Final Report, April 2001, SMTC;
- Congestion Management System (CMS) Final Report, 2000-2001, SMTC;
- East Syracuse Circulation Study, March 2000, SMTC;
- 1996 Central New York Rail Corridor Inventory, SMTC; and
- Eastern Onondaga County Traffic Needs Study, September 1993, SMTC.

1.4 Study Area

Two zones of influence were established for the project. The Primary Zone of Influence (to be hereafter referred to as "Study Area") for the I-481 Industrial Corridor Study is depicted in Figure 1.4-1. This was the primary focus of the study and it is generally bounded by I-481 to the north, Fremont Road to the east, DeWitt Rail Yard to the south, and an irregular western boundary reaching as far west as Totman Road. Portions of the towns of Cicero, DeWitt, and Manlius are included within the boundary. Specifically, the boundary was delineated so as to include the following:

- Current industrial and commercial land uses such as New Venture Gear, United Parcel Service, and truck facilities along Schuyler Road;

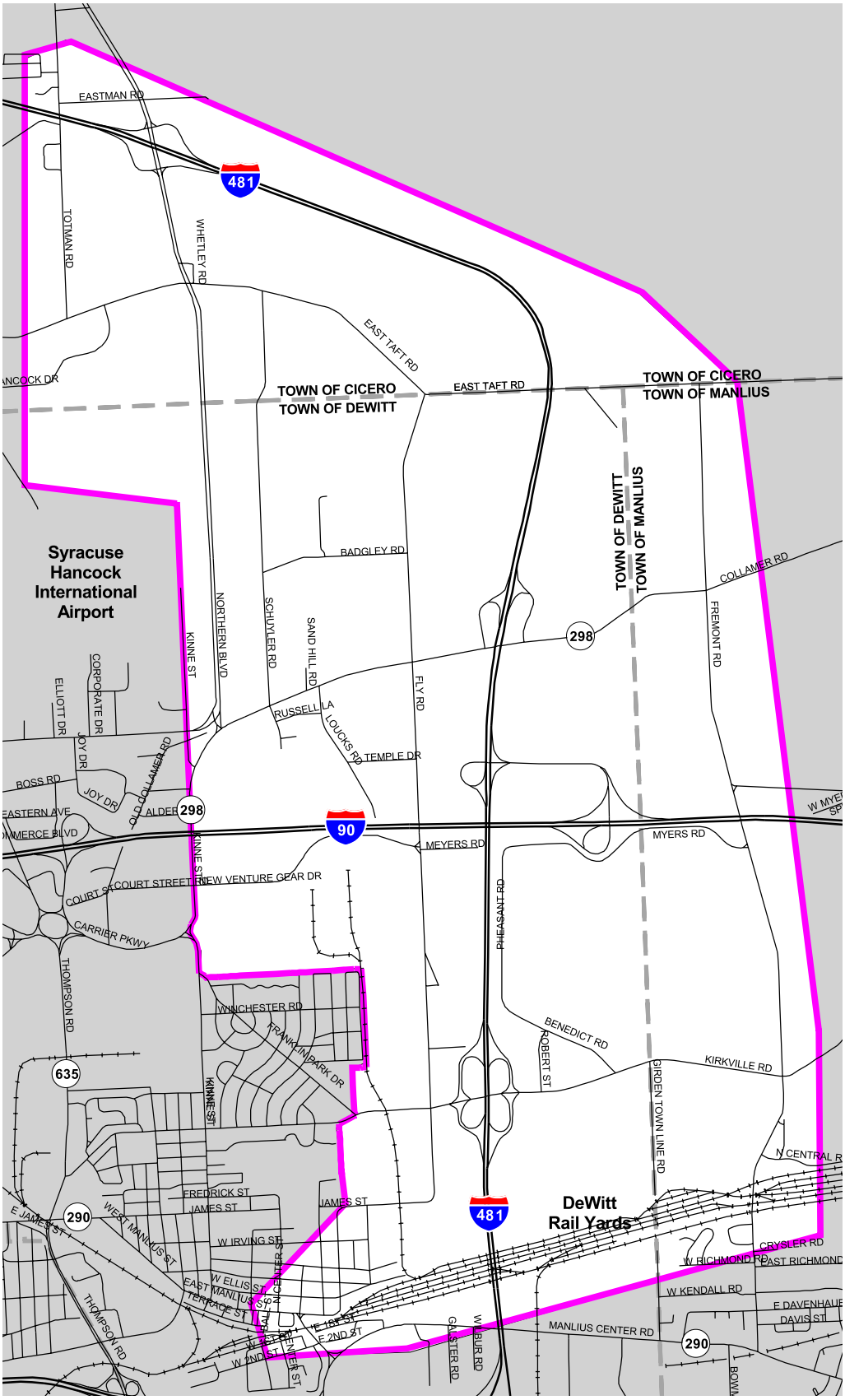

Figure 1.4-1
Study Area

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Study Area

Map Created: 06/10/02

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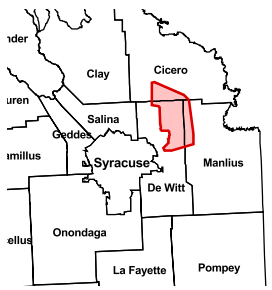
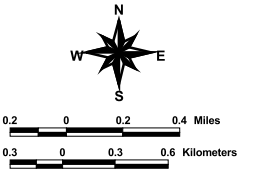


Locator Map



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- Developing or proposed industrial/office parks including Hancock Airpark, Woodbine, and DeWitt Landing;
- Large, industrial- and/or high-tech-zoned, vacant parcels to the east and west of I-481;
- Northern Boulevard south of I-481;
- Key intersections such as Fremont Road/North Central Avenue, Fremont Road/Kirkville Road, Northern Boulevard/Collamer Road, Kirkville Road/Fly Road, etc.; and
- CSX Intermodal Terminal located at the DeWitt Rail Yard.

A Secondary Zone of Influence was also delineated consisting of the entire MPO region. Effects of development in the Study Area on this secondary zone were analyzed in general terms with significant impacts thoroughly examined.

1.5 Goals and Objectives

GOAL 1
Examine the present condition of, and relationships between, all modes of the transportation system, current development, and land use plans.

Objectives:

- Examine the current transportation system as follows:
  - Highway/Road System
    - Functional Classification
    - Level of Service and Capacity (including vehicular mix)
    - Safety
    - Localized conflicts
  - Rail System
    - Existing active service into the area
    - Existing rail infrastructure available
  - Transit System
    - Existing transit routes
    - Existing transit stops
  - Other
- Examine the existing land use and reasonably anticipated development and potential development (build-out) in the study area and surrounding zone of influence.
  - Town of DeWitt
  - Town of Manlius
  - Town of Cicero
  - Other Influences

- Identify and examine the relationships between the transportation system and land use concerns listed above.

GOAL 2
Identify the steps that can be taken to preserve and improve the efficiency of the transportation system and thereby improve the area's economic position within the 5-10 year time frame development scenario(s).

Objectives:
- Identify potential problems arising within the transportation network and the source of those problems.
- Develop possible problem solutions in the following categories:
  - Identify land use related solutions.
  - Identify appropriate methods and techniques for improved access management.
  - Identify capital (public or private) related solutions.
- Identify preferred solutions.

GOAL 3
Identify the steps that can be taken to preserve and improve the efficiency of the transportation system and thereby improve the area's economic position within the 10-20 year time frame development scenario(s).

Objectives:
- Identify potential problems arising within the transportation network and the source of those problems.
- Develop possible problem solutions in the following categories:
  - Identify land use related solutions.
  - Identify appropriate methods and techniques for improved access management.
  - Identify capital (public or private) related solutions.
- Identify preferred solutions.

GOAL 4
Develop an implementation strategy for improvements within the study area.

Objectives:
- Short Term
  - Amend applicable land use and transportation plans as necessary to incorporate study recommendations.
  - Identify appropriate funding strategies as well as interested parties for support of capital improvements.

- Long Term
  - Amend applicable land use and transportation plans as necessary to incorporate study recommendations.
  - Identify appropriate funding strategies as well as interested parties for support of capital improvements.
- Encourage appropriate entities to utilize this report as input into future environmental reviews.

GOAL 5
Facilitate and engage an effective public outreach program.

Objectives:
- Collaborate local, county, and state agencies through the forming of a Study Advisory Committee (SAC), which will act as the major ongoing link to the public.
- Provide key stakeholders throughout the I-481 Industrial Corridor with project updates and methods for expressing comment through a series of direct mailings.
- Invite the public to communicate their needs, wants, desires and concerns by holding public meetings.
- Accurately communicate to the public what is needed, desired and/or required from them with regard to involvement.
- Maintain continuous communication with the public, in the form of media announcements, comment cards, fact sheets, etc., throughout the life of the Study.

1.6 Public Involvement Plan

Public involvement was essential to the success of this study; therefore, communication between the Project Team and the public was ongoing in the form of a Public Involvement Plan (PIP). The PIP consisted of three major parts: establishing a Study Advisory Committee (SAC) to provide overall policy and technical guidance to the study; coordination with stakeholders in the corridor; and informing and soliciting comments/suggestions from the general public. All public involvement materials for the project are located in Appendix A.

1.6.1 Study Advisory Committee

The SAC was formulated to oversee and guide the study assessment process. The members of the SAC were selected given their particular expertise and involvement in the provision of the various modes of transportation services and/or the guidance and regulation of development activities in the corridor. The following organizations made up the SAC:

- Central New York Regional Planning & Development Board;
- Central New York Regional Transportation Authority (CNYRTA);
- City of Syracuse Department of Aviation (Hancock International Airport);
- New York State Department of Transportation (NYSDOT);

- Onondaga County Department of Transportation (OCDOT);
- Onondaga County Industrial Development Association (OCIDA);
- Syracuse Metropolitan Transportation Council (SMTC);
- Syracuse Onondaga County Planning Agency (SOCPA);
- Town of Cicero;
- Town of DeWitt; and
- Town of Manlius.

Five separate SAC meetings were held. The purpose of these meetings was to identify the major objectives of the study, identify data needs, receive comments on specific issues that would require focus in the study, review work products, and to discuss potential improvement measures.

In addition to the formal SAC meetings, several members of the committee submitted letters, emails, and telephone calls that outlined concerns and possible issues associated with the I-481 Industrial Corridor Transportation Study.

1.6.2 Project Stakeholders

In addition to the SAC, a list of stakeholders (i.e., a broader group of individuals with significant relations and interest in the study area) was maintained by the SMTC. These stakeholders were sent pertinent study information, kept apprised of significant study developments, notified of public meetings, and encouraged to provide feedback and comment regarding the I-481 Industrial Corridor Transportation Study.

1.6.3 Opportunities for Public Comment

In order to solicit comments on the scope of the study and to ensure public acceptance of study findings and recommendations, three public meetings were conducted. The first of these was held on June 27, 2002 and provided the opportunity to formally present the study to the public. Topics such as the study purpose, goals/objectives, and study area boundaries were discussed. In addition, this meeting served to inform the public of existing conditions and data analysis performed to date. At the meeting, the public was invited to comment on the information presented, and given the opportunity to fill out a comment sheet specifically designed to measure residents' and users' perceptions and concerns with regard to transportation in the I-481 Industrial Corridor.

The second public meeting took place on July 15, 2003 following the formation of a preliminary draft set of alternative solutions. The third and final public meeting, held on April 21, 2004, served to present a recap of the previously presented alternative solutions, but mainly centered on presenting specific recommendations, proposed improvements, and an implementation plan for those improvements. This final meeting provided the public with the opportunity to submit comments prior to the issuance of the final report.

All public meetings were conducted in an open house format to maximize involvement and comment by those who might have been intimidated by a formal public hearing. Citizen input obtained from each public meeting was considered throughout the remaining stages of the study, and was factored into subsequent technical memoranda, conclusions, and/or recommendations.

Along with these meetings, other public information materials were prepared in the form of flyers, fact sheets, and press releases to ensure that the general public was informed of various phases of the study.

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2 EXISTING CONDITIONS

This chapter presents information on the existing land use characteristics in the corridor, pertinent development regulations, and currently planned development in the corridor. In addition, it presents the existing components of transportation systems, including roadway characteristics, public transit, pedestrian/bicycle networks, the intermodal rail yard located along the southern boundary of the Study Area, and airport facilities.

Information included in this chapter is intended to summarize the basic characteristics of development and transportation facilities in the corridor that established the context that allowed the following to occur:

- Setting the basis and goals for soliciting comment through the public involvement process;
- Modeling future development build out scenarios;
- Conducting a multi-modal assessment;
- Identifying major issues and problems that need to be addressed in the corridor; and
- Formulating recommendations for corridor improvements/programs.

The information included in this chapter was derived primarily through the use of secondary data. This was supplemented with information obtained through searches of the Syracuse Metropolitan Transportation Council (SMTC) databases, and contacts with Onondaga County, the Towns of DeWitt, Manlius, and Cicero, as well as other project stakeholders involved in the study.

2.1 Land Use Characteristics and Regulations

2.1.1 Existing Land Use Patterns

Figure 2.1-1 depicts existing land use patterns within the Study Area, derived from the SMTC's Geographic Information System (GIS) database of land parcels in the region. This database classified each property by one of 10 tax assessment land use categories. These categories were examined and expanded to a total of 15 categories to provide a complete depiction of actual land use in the corridor. Overall, land use patterns vary significantly across the Study Area, and include development types such as:

- A limited amount of urbanized mixed-use development;
- Suburban- and rural-scale residential development;
- Large suburban office park and commercial developments;
- Basic manufacturing establishments;
- Major transportation facilities; and
- Very large, contiguous tracts of vacant land.

In general, land use patterns decrease in density of use from west to east across the Study Area, with the majority of existing development occurring west of I-481. East of the highway, existing development exhibits a marked decrease in both occurrence and density. Descriptions and characteristics of the various categories of land use exhibited in the Study Area are presented in the following sections.

2.1.1.1 Mixed Use Development

The southwest corner of the study area is characterized by mixed commercial/residential uses growing out of the urban development patterns of the Village of East Syracuse. These include smaller retail and commercial uses along roads such as East Manlius Street, adjoined by small-lot residential development to its north.

2.1.1.2 Residential Development

Some suburban-style residential subdivisions and larger rural residential tracts are dispersed throughout the Study Area. Limited concentrations of residential development occur along Fly Road in the vicinity of Collamer Road; along East Taft Road immediately east and west of Fly Road; along Kirkville Road and adjoining streets between I-481 and Fremont Road; and along Freemont Road between East Taft and Kirkville Roads. However, in general, residential development in the Study Area is scattered and in certain locations, situated among newer commercial and office park developments. These relationships tend to reflect a transitioning in the Study Area from a more rural setting to one moving toward a more suburban pattern of development.

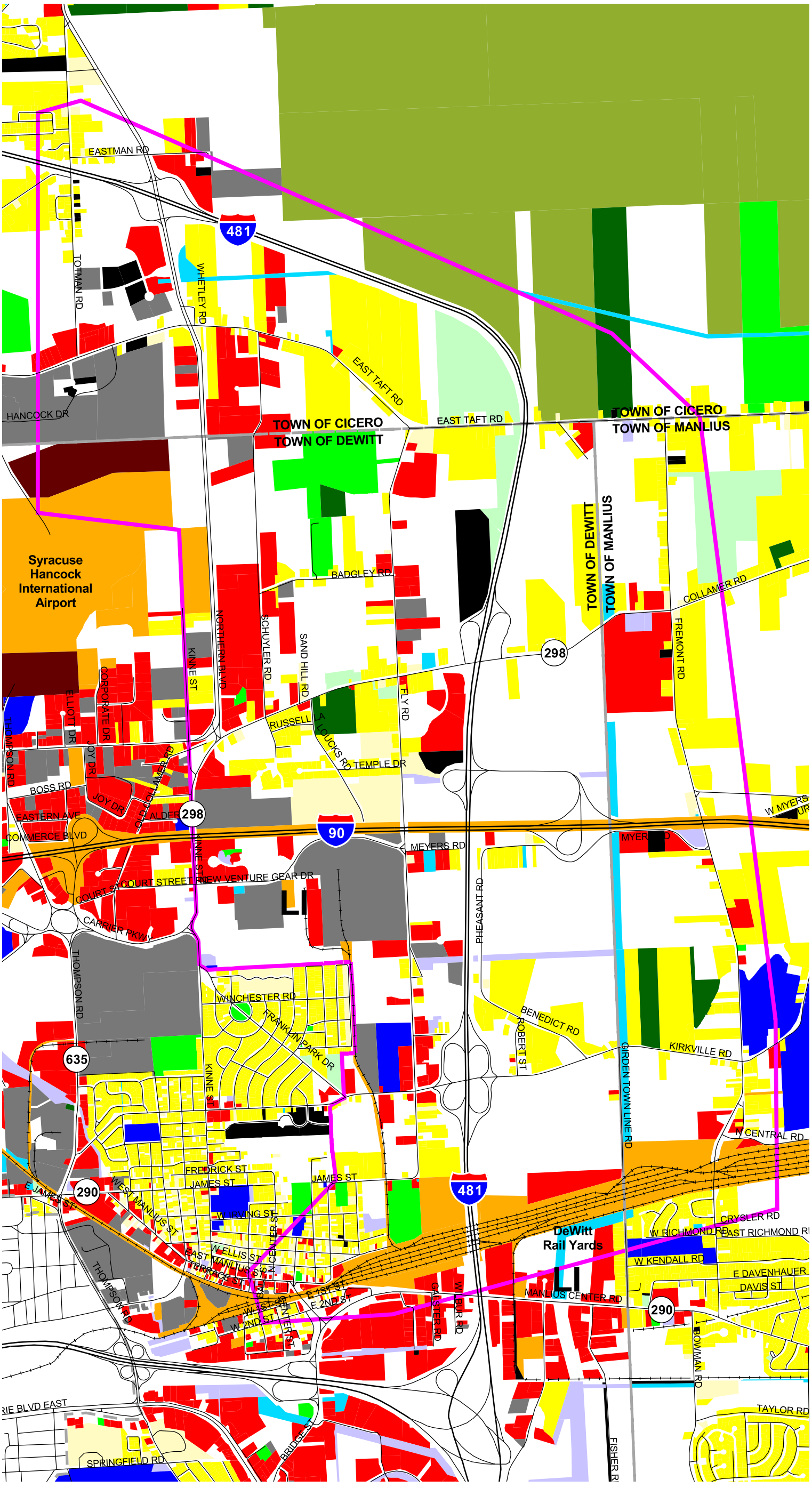
2.1.1.3 Commercial/Office Development

Commercial and office development in the Study Area is exhibited in two primary types: larger distribution and warehousing facilities clustered along the Northern Boulevard and Kinne Road corridor and relatively newer business/office parks. Establishments such as United Parcel Service's regional operations center characterize the former type of land use, being located along Northern Boulevard along with other similar establishments that take advantage of easy access to the Interstate System and airport facilities. Concentrations of smaller distribution and trucking establishments also occur along Schulyer Road. Business and office park development has begun to emerge in three general locations:

- Along the Study Area's western limits, extending out of similar development in the vicinity of Carrier Circle;
- Along Fly Road through the center of the Study Area; and
- In the northwest portion of the Study Area along East Taft Road and Northern Boulevard.

It should be noted that many of the existing business/office park developments are not completely built out. In such cases, park infrastructure (i.e., internal roads, parking, drainage, etc.) is typically fully completed with vacant "build-to-suit" development parcels.

Figure 2.1-1
*Existing Land Use**



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- Agricultural
- Residential - Single
- Residential - Multi
- Commercial
- Educational
- Public Service
- Religious/Cemetery
- Recreational
- Wildlife Refuge
- Industrial
- Transportation
- Utilities/Services
- Military
- Vacant
- Vacant / Unknown Ownership
- Study Area

** Tax assessment land use categories have been expanded to provide a more complete depiction of actual land use.*

Source: SMTC, 2002
Map Created: 06/10/02

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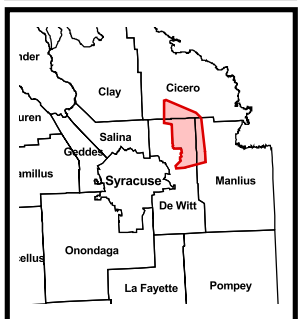
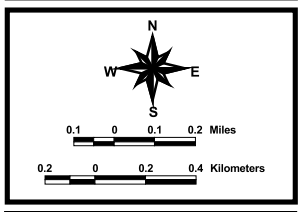


Locator Map



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2.1.1.4 Industrial Development

Traditional industrial development (i.e., manufacturing) is limited to two large uses in the center of the Study Area, with limited smaller establishments in various locations west of I-481. The most significant of these establishments is New Venture Gear's manufacturing complex, located south of I-90, fronting on New Venture Gear Drive and Fly Road. To the west of this complex is Telergy, a high-technology complex.

2.1.1.5 Transportation-Related Land Uses

In addition to highway/road infrastructure-related land uses (i.e., rights-of-way, interchanges, bridges etc.), two major transportation facilities occur within the Study Area. The first of these is the DeWitt Rail Yard, which predominates the southernmost portion of the Study Area. The yard serves as an intermodal truck-to-rail facility operated by CSX Railroad (see Section 2.2.4). This use tends to be a major dividing element in the Study Area with regard to development patterns, with all north-south roads terminating at the yard, except for I-481 and selected local roads that span it.

The second main transportation land use is Hancock International Airport, which falls in the northwest portion of the Study Area, in the vicinity of Northern Boulevard (see Section 2.2.5). While access to the airport is not available from roads in the Study Area, its major land use influence is that runway approach zones overlay some of these land areas.

2.1.1.6 Vacant Land

In the context of the Study's overall objectives discussed in Chapter 1, the predominance of vacant land in the Study Area available for new development could have a significant influence on future transportation needs. Of the total land area within the Study Area, the large majority (over 2,600 acres) is comprised of vacant undeveloped areas within non-residential zoning districts. Figure 2.1-2 depicts these land areas in two classifications:

- Vacant land within light and heavy industrial areas, accounting for approximately 2,300 acres; and
- Vacant land within high-tech areas (i.e., zoning districts devoted to research/development, precision manufacturing, and office park development), accounting for approximately 300 acres.

West of I-481, vacant land is concentrated in the northwest corner of the Study Area, along the entire length of Fly Road. Areas east of I-481 exhibit the greatest contiguous amount of large-parcel vacant land, primarily along the Dewitt/Manlius town boundary.

2.1.1.7 Wetlands

While the Study Area contains extensive land areas that could support new office park and industrial development, a great deal of this land exhibits environmental constraints that could prevent or limit the ability to realize new private development on these properties. The most significant of these constraints is the extent of freshwater wetlands that exist.

Both the federal and state governments heavily regulate development within and near freshwater wetlands. Federal jurisdictional wetlands are administered as "Waters of the U.S." by the U.S. Army Corps of Engineers (USACE), under Section 404 of the federal Clean Water Act. To facilitate these permitting activities, wetland areas are mapped through analysis of aerial photography and field survey under the U.S. Fish and Wildlife Service's National Wetland Inventory (NWI).

The State of New York regulates activities in or near wetlands under the New York State Freshwater Wetlands Act (Article 24 of the Environmental Conservation Law), administered by the New York State Department of Environmental Conservation (NYSDEC). State regulations focus on protection of larger wetland complexes, measuring at least 12.4 acres (10 hectares) in area. NYSDEC-mapped wetlands are often made up of groupings of wetlands areas in the NWI. NYSDEC also regulates activities in adjacent areas that are outside wetlands, extending 100 feet from the wetland boundary, measured horizontally.

Whether under the state or federal regulations, development of wetland areas is highly discouraged, if not prohibited in practical terms. While the USACE allows for filling of 1 acre or less of a wetland under its Nationwide Permit Program, filling or development of a state wetland must include documentation that such use is unavoidable, and include mitigation such as a 2:1 or higher replacement ratio based upon the wetland class and functions.

For purposes of assessing the extent that wetlands occur on vacant land in the Study Area, GIS coverages of state-regulated wetland complexes were mapped in relation to vacant industrial/high-tech lands (see Figure 2.1-3). State-regulated wetlands are assigned a ranking based upon their relative value as follows:

- Class I, the highest ranking, indicating wetlands that have at least one highly beneficial characteristic such as being a classic kettlehole bog, heavily forested, a habitat for threatened/endangered species, a unique flood control ability, or adjacent to a public water supply;
- Class II, indicating wetlands that have characteristics such as being emergent marshes, habitat for vulnerable species in the state, or adjacent permanent open water;
- Class III, indicating wetlands that have characteristics such as being deciduous or scrub-shrub, adjacent to fertile upland soils, visible from scenic byways/recreational thoroughfares, or accessible as public open space;
- Class IV, indicating wetlands that do not meet any of the criteria in the higher classes; and
- Upland Inclusion, indicating an included area within a wetland that does not qualify as a wetland because its prevailing conditions are not sufficiently wet to induce development of vegetation, soils, and/or hydrologic characteristics associated with wetlands.

A total of approximately 1,800 acres of freshwater wetlands occur in the Study Area, including some very large contiguous complexes that coincide with vacant land in high-tech/industrial districts. For example, large Class I wetlands occur both north and south of

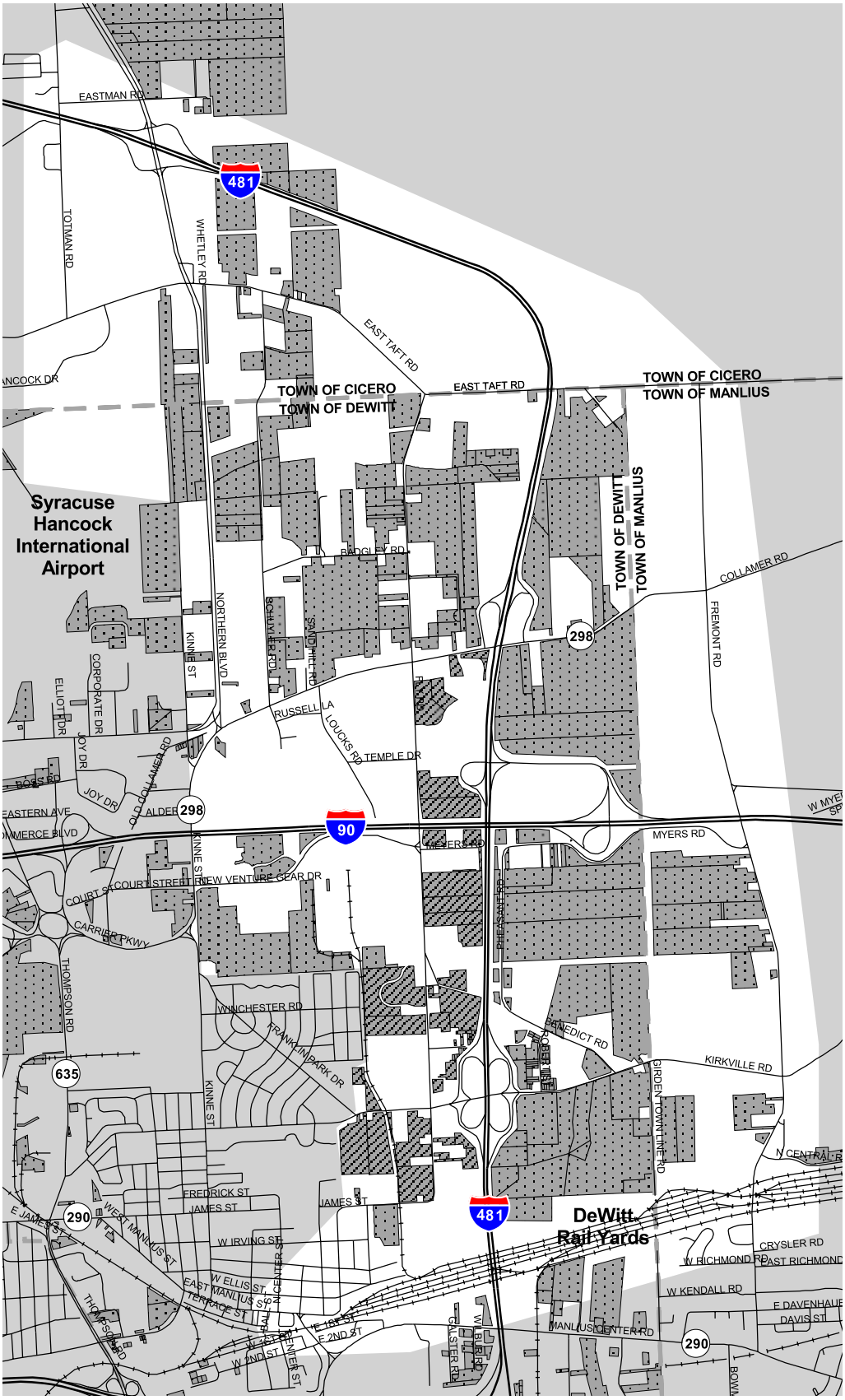

Figure 2.1-2
Vacant Land Zoned Industrial and High-tech

LEGEND

- Vacant - Industrial
- Vacant - High-tech
- Study Area

Source: PB, 2002
Map Created: 06/10/02

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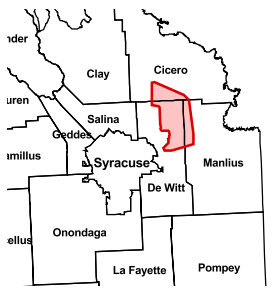

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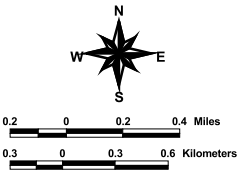

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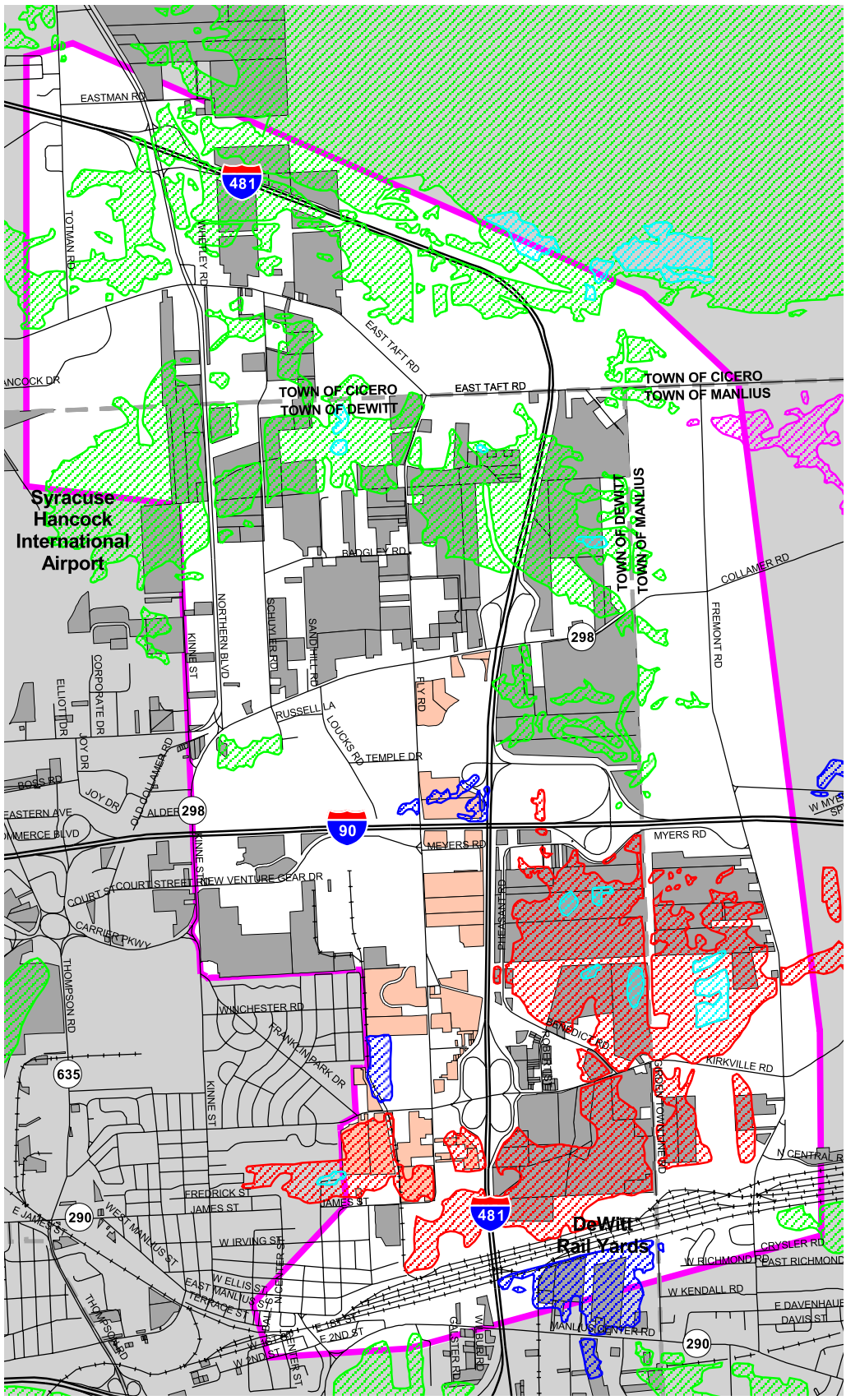

Figure 2.1-3

NYSDEC Wetlands in Relation to Vacant Land

LEGEND

Wetlands

- Class I
- Class II
- Class III
- Class IV
- Upland Inclusion

Vacant Land

- Industrial
- High-tech

- Study Area

Source: NYSDEC, 2002
Map Created: 06/10/02

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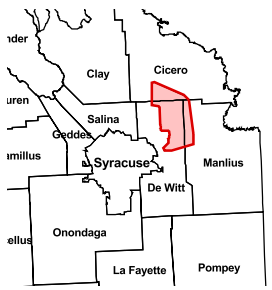

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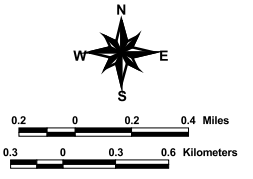

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Kirkville Road in the southeast portion of the Study Area. North of I-90, a series of Class II wetland complexes occur, often coinciding with portions of vacant parcels in the Study Area.

2.1.2 Development Regulations, Plans, and Policies

2.1.2.1 Zoning Regulations

Zoning regulations govern what land uses are permitted by municipal law to be developed on a particular parcel of land. They also govern various physical development characteristics such as bulk requirements (e.g., minimum lot size, building coverage, building height, minimum setbacks/yards) and often density of development (e.g., dwelling units per acre, floor area ratio). Whereas policy documents such as comprehensive plans establish a local community's overall goals, objectives, and intents for future development and community character, zoning regulations are one of the primary measures used to implement such land use policies.

Figure 2.1-4 depicts a generalized existing zoning map for the Study Area, derived from the development regulations of the towns of Dewitt, Manlius, and Cicero. Zoning district categories were aggregated based upon their primary land use classifications (e.g., agricultural, single/multi-family residential, commercial, light/heavy industrial, high-tech, etc.). Overall, the district regulations under these aggregated zoning areas are similar in terms of uses permitted and development requirements.

The most predominant zoning categories within the Study Area are high-tech and light industrial districts. With the exception of a band of land designated along the east edge of the Study Area for natural resource extraction (e.g., quarrying, top soil removal) and isolated areas of single and multi-family residential districts, these categories form an almost uninterrupted corridor to the Cicero Town line. This band narrows through Cicero and adjoins a relatively large general commercial district, which has a similar list of permitted office and light assembly uses, along with retail development.

Permitted uses within high-tech districts include office/professional/business establishments, research/testing establishments, electronic/technical/optical equipment manufacturing, light assembly, and pharmaceutical/food packing. Light Industrial districts permit similar uses, along with warehousing and distribution establishments, trucking terminals, and certain automobile sales/repair establishments.

Ranges of required bulk regulations for high-tech and industrial districts in each of the municipal zoning ordinances include:

- Minimum lot size: ranging from 0 square feet (i.e., no minimum size) to 20,000 square feet;
- Maximum building coverage: ranging from 25% to 50% of lot area; and
- Maximum building height: ranging from a 1:1 sky exposure plane ratio (i.e., no more than 1 foot of building height for each foot of setback from a lot line) to a maximum of 40 feet.

Each of the three municipalities' ordinances includes industrial performance standards to prevent nuisances or health threats to adjoining properties, particularly adjacent residential uses. These include standards to prevent such occurrences as excessive noise, vibration, smoke, odors, dust, glare, etc.

Overall, zoning regulations in the study area employ standard systems of moderate segregation of land uses across major categories. For example, with the exception of Cicero's zoning requirements under their planned unit development regulations, none of the ordinances encourage mixed-use development. All of the ordinances prohibit residential uses in non-residential districts, except under a special permit process. In addition, existing regulations do not include density controls for non-residential developments and do not include any measures that restrict/encourage preservation of environmentally constrained land, with the exception of floodplain controls.

2.1.2.2 Comprehensive Plans

Comprehensive plans are broad municipal policy documents that include future land use plans establishing the basis for development regulations, as well as other municipal policy directions such as expenditures on public infrastructure. The following sections discuss the existing policies and/or ongoing status of comprehensive plan programs and policies in the three municipalities in the Study Area.

Town of Dewitt

The Town of Dewitt completed a comprehensive update of its original 1961 General Plan in 2002. Several of the Town's policy goals and action items suggest a move to provide a greater emphasis on community character, quality-of-life issues, preservation of natural resources, and preserving/upgrading already-developed areas to maintain stability of the Town and to prevent any significant population declines. Examples of these include:

- Infrastructure programs that encourage infill of already developed areas, including the coordination of public water/sewer service areas with zoning regulations;
- Upgraded standards for new non-residential development, in terms of density, architectural character, landscaping, and coordination with existing utility/road capacity;
- Programs/policies to encourage the protection of natural land features, through incorporation into new developments and/or through dedication, purchase, or conservation easements; and
- Transportation policies that encourage coordination with regional transportation agencies and provision of access for multiple modes (vehicular, pedestrian, bicycle, transit).

The plan establishes a series of 2020 Land Use Character Areas along with policies for existing and future development in these areas. Land Use Character Areas within the Study Area include a similar pattern of industrial/office park development as under current zoning, although it is somewhat reduced in scale to create conservation areas with limited development, and new public parks and recreation. The plan also suggests the establishment of

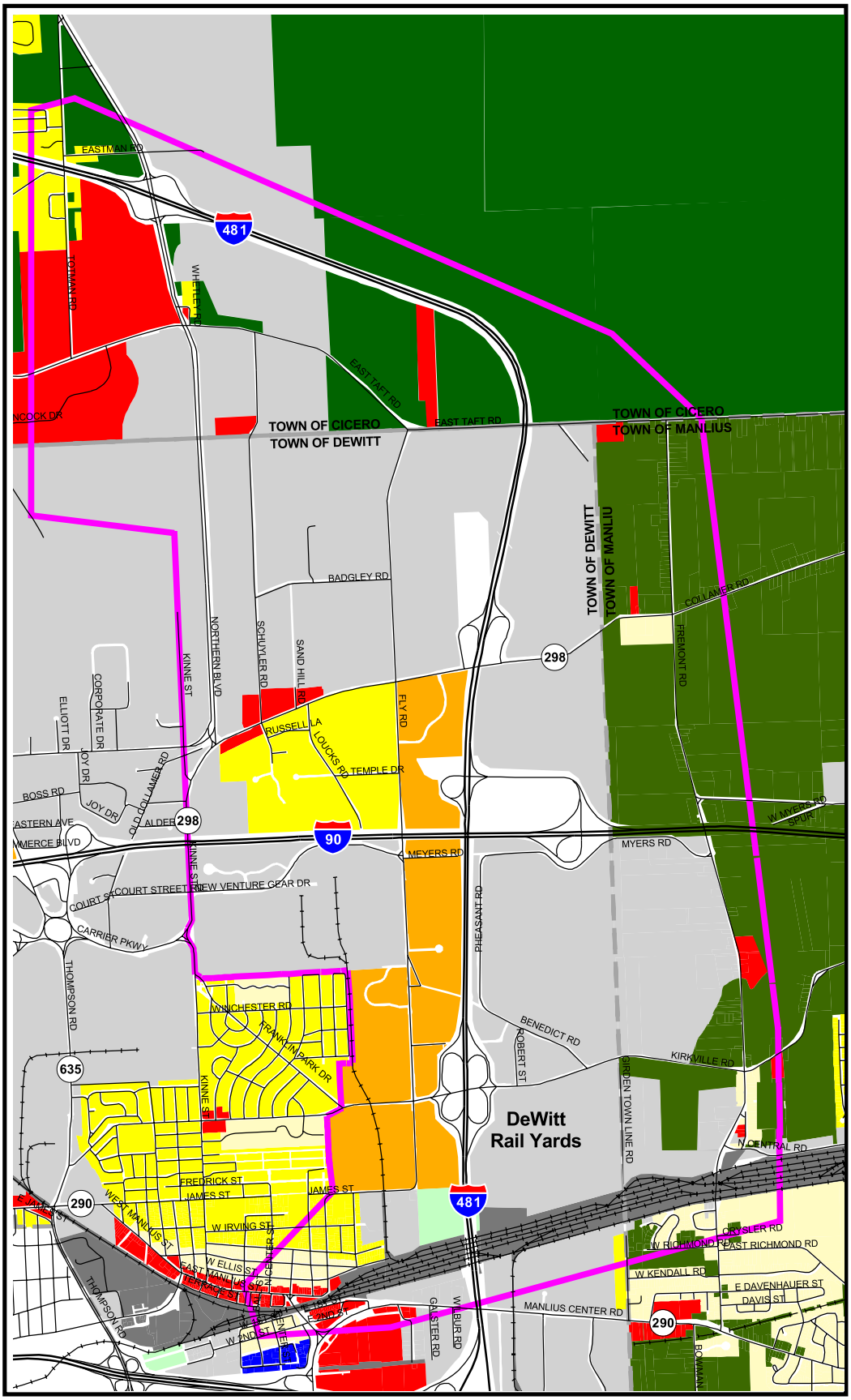

Figure 2.1-4
*Existing Zoning**

LEGEND

- Agricultural
- Residential - Single
- Residential - Multi
- Commercial
- Service
- Light Industrial
- Heavy Industrial
- High Tech
- Land Conservation
- Natural Resource Removal
- Study Area

** Zoning is a generalized compilation based on zoning ordinances of the Towns of Cicero, DeWitt, and Manlius.*

Source: PB, 2002
Map Created: 06/10/02

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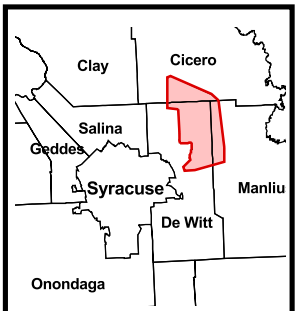

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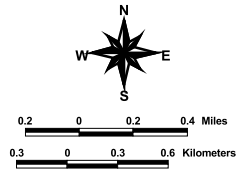

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upgraded standards for the development of industrial and office park uses to ensure compatibility with surrounding uses.

Town of Manlius

The Town of Manlius last updated its Land Use Plan in 1996. The plan set forth future land use policies for a 20-year period. With regard to lands within the Study Area, the plan also recognizes the predominance of environmental constraints including wetlands, floodplains, and steeply sloped areas. Future land uses in this portion of the Town are intended to be limited to agriculture, low-density residential development, limited nodes of neighborhood commercial uses, and potential conservation areas.

Town of Cicero

The Town of Cicero is in the process of updating its comprehensive plan. It was not available for review at the writing of this report.

2.1.2.3 Onondaga County Settlement Plan

In 1999, the Syracuse-Onondaga County Planning Agency initiated the *Onondaga County Settlement Plan*; a document intended to encourage/enable the County's 35 municipalities to focus on development patterns that enhance the quality of life through a renewed emphasis on preservation and development of neighborhoods. Completed in 2001, the plan is not a typical policy document insofar as it did not propose a parcel-specific regional land use plan that was adopted by law to serve as a basis for municipal ordinances and infrastructure expenditures. Rather, recognizing that site-specific land use administration is best completed at the local municipal level, the plan establishes a broad set of regional development goals/policies and incorporates these principles into a model development code that local municipalities can adapt to their unique local conditions/needs. In addition, the plan includes a set of pilot projects of various types to demonstrate the application of the model code.

The plan's overall policies are based upon the principles of *new urbanism*, which focus upon compact, mixed-use patterns of traditional neighborhoods as the primary unit of urban development. The plan contrasts this development pattern with post-World War II suburban sprawl, which it characterizes as having a pattern of strict separation of land uses and dependence upon the automobile. The plan states that this development model is responsible for placelessness in new suburbs, decreased environmental quality, excess taxation for infrastructure, and deterioration of inner-city areas.

The plan recommends a regional urban structure and municipal framework that is centered upon the already-established system in the County, with Syracuse as the urban center followed by smaller, compact villages and hamlets. This system is intended to serve as the basis for future development decisions --- focusing on policies and regulations that place priority on these centers first, encouraging development to occur where there are existing systems of infrastructure. The plan recommends policies that prohibit or significantly limit development of rural or suburban areas in a piecemeal fashion, except as creating new compact, mixed-use developments using a similar model.

The recommended urban structure coincides with recommendations on preserving open space resources in the County. The system distinguishes between *Preserve* areas, which are already protected from future development, and *Reserve* areas, which exhibit some unique environmental resource (e.g. soils, slopes, floodplains, etc.) but are only not developed because a market does yet exist for such areas. The plan suggests that municipalities use planning tools to gradually acquire or protect such areas from future development. Such techniques include outright purchase by land trusts or the municipalities themselves, or through measures such as purchase or transfer of development rights.

Finally, the plan's approach to transportation policies suggests that both the County itself and its municipalities recognize the inextricable links between transportation improvements and suburban growth, and to implement transportation policies that encourage the urban structure and open space recommendations of the plan. Rather than to further policies such as isolated road widening projects to accommodate a greater amount of (and often induce) automobile traffic at high speeds, the plan suggests both regional and local policies to encourage a system that focuses on:

- Traffic calming measures within traditional neighborhoods (e.g., narrow streets, two-way access, streetscaping, etc.);
- Development patterns that encourage enhanced transit service;
- Priority on pedestrian/bicycle access and experience;
- Highways that serve to connect the urban center, villages, and hamlets, but that are free from roadside development; and
- Provisions for through-movements by trucks that do not pass through traditional neighborhoods.

2.1.2.4 Empire Zones

The State of New York's Empire Zone Program is intended to encourage economic development and job creation in specific geographic areas. Administered by the Empire State Development Corporation, the program involves a package of economic incentives for business to locate or expand within an Empire Zone. Examples of these incentives include:

- Tax reduction credits for business corporate and personal taxes for a 15-year period;
- Tax credits for local property taxes paid for a 15-year period;
- A 10-year exemption from state/local sales taxes for goods and services associated with building/establishing and operating a business in a zone;
- A five-year wage tax exemption for hiring full-time employees for newly created jobs; and
- Utility rate reductions.

Five individual Empire Zones are located within the Study Area (see Figure 2.1-5). In the northwest portion of the Study Area, a zone has been established at the site of Hancock Airpark. Three zones exist in the southwest portion of the Study Area, associated with the Edgewater Development, Anaren Microwave, and New Venture Gear. Finally, a zone has

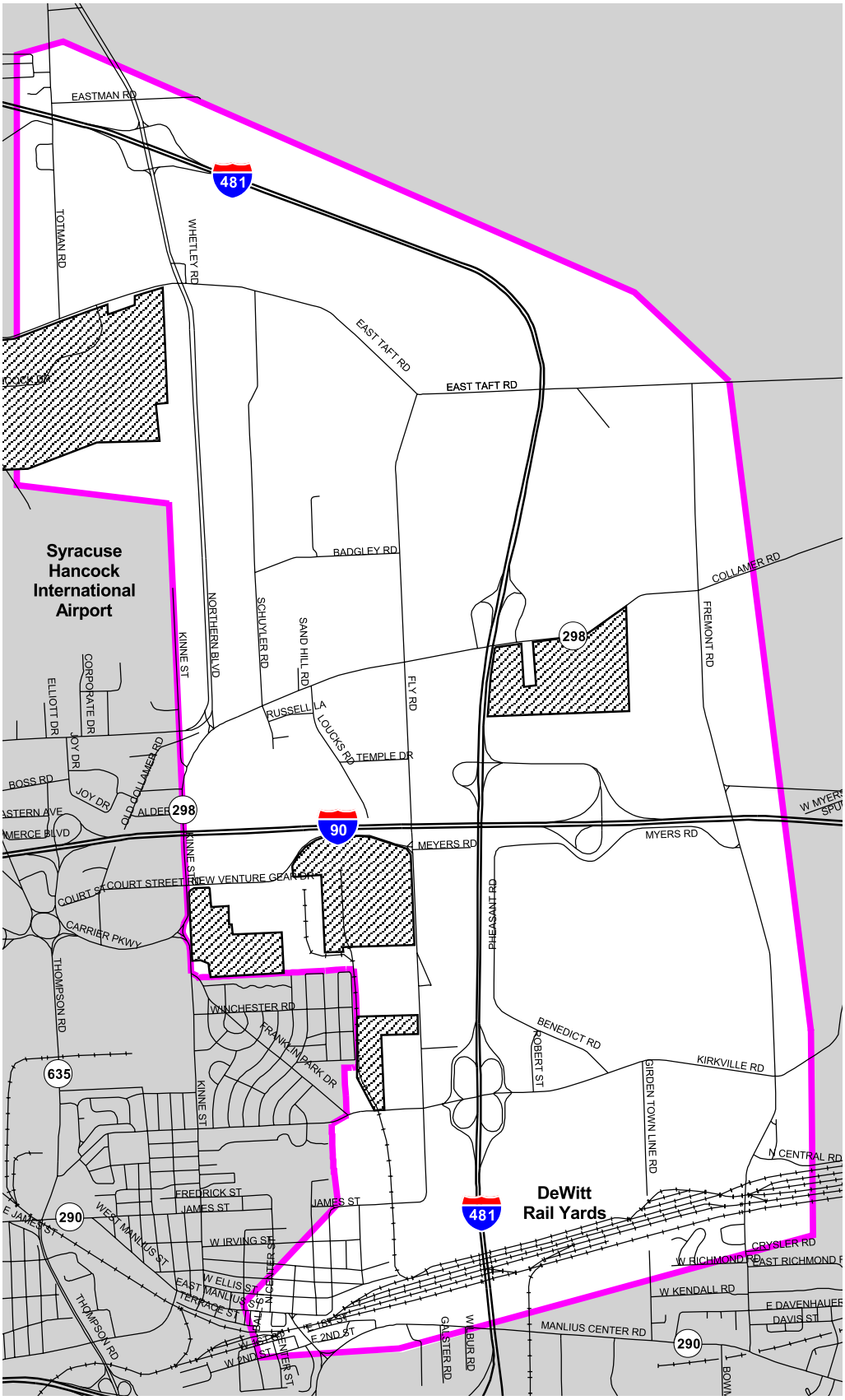

Figure 2.1-5
New York State Empire Zones

LEGEND

- New York State Empire Zones
- Study Area

Source: ESD, 2002
Map Created: 06/10/02

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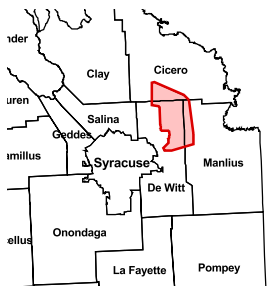
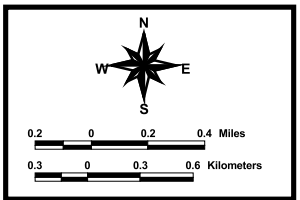


Locator Map



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been established roughly in the center of the Study Area, associated with a portion of the Collamer Business Park.

2.1.3 Planned Development

As discussed in Section 2.1.1, the primary emerging development type within the Study Area is that of industrial and office parks, often characterized by campus-style development consisting exclusively of office buildings/light manufacturing buildings and on-site parking. Depending upon the target market, these developments sometimes also contain extensive landscape designs and open space components/systems. These systems are typically self-contained to serve as amenity for tenants. Figure 2.1-6 depicts both completed industrial/business park developments and those in the process of being developed in the Study Area. It also presents proposed developments. The following sections discuss three of the larger emerging developments in the Study Area.

2.1.3.1 Hancock Airpark

Consisting of approximately 130 acres of developed land in the northwest portion of the Study Area, Hancock Airpark is made up of lands that formerly were part of the Hancock Air Force Base, which was declared surplus and disposed by the federal government for re-use/redevelopment. Reuse of the base for new uses involves selective demolition and improvements to support new office and warehouse development. Redevelopment plans for the site include devoting 50 acres for development of office uses and 70 acres for warehouse development. The balance of the property is precluded from development given its proximity to clear zones associated with Hancock International Airport. It is anticipated that roughly 750 jobs will be supported on-site as a result of the redevelopment.

2.1.3.2 Woodbine Development

Located on several large land parcels north of Collamer Road between Fly and Schuyler Roads, the Woodbine Development is a current proposal for an industrial/warehouse park. The site has total area of 94 acres, of which 45 acres will be developed. While the site is somewhat constrained by about 5 acres of federal jurisdictional wetlands, the project environmental impact statement (EIS) indicates these will largely be avoided. Less than one acre of wetlands will be impacted by the project and these will be mitigated through wetland creation on an adjacent site. The current proposal includes a phased development plan for 23 buildings that could result in roughly 700,000 square feet of new warehouse, light industrial, and professional office space.

2.1.3.3 Collamer Business Park

Located on roughly 200 acres along Collamer Road east of I-481, the Collamer Business Park is currently proposed to result in roughly 800,000 square feet of new research, office, and manufacturing space. The initial phase of the project will include roughly 120,000-square-foot complex for the Sensis Corporation on 44 acres. It is projected that on-site employment could reach 450 jobs as a result this phase. A subsequent phase over the next 10 years would include the development of roughly 680,000 square feet of new manufacturing

and office space across the balance of the site. While there are roughly 50 acres of federal/state-regulated wetlands on the site, the project EIS indicates that these will be avoided or mitigated on or near the project site.

2.2 Transportation Network

A variety of facilities to support various transportation modes exist within the Study Area. Included among these are the roadway network, public transit, bicycle/pedestrian facilities, the DeWitt Rail Yard, and Hancock International Airport. This section presents descriptions of the various transportation networks in the district.

2.2.1 Roadways

2.2.1.1 Functional Classification

The existing network of roads within the Study Area is predominately rural in nature. Interstate 481 serves as an informal dividing line through the corridor. To the west of I-481 and toward the City of Syracuse, roadway features begin to evolve into more of a suburban or urban character, so much so that Northern Boulevard, which runs north and south near the western border of the Study Area, is a four-lane divided arterial with a posted speed limit of 55 miles-per-hour (mph). While on the east side of I-481, the roads are rural in character, composed of a single travel lane in each direction, lacking curbs and gutters, and having a posted speed limit of 35-45 mph. Figure 2.2-1 shows the functional classification of the roads within the Study Area.

Roads in the Study Area east of I-481 are typically rural in nature, composed of a single travel lane in each direction, lacking curbs and gutters, and having a posted speed limit of 35-45 mph.

Principal arterials within the Study Area primarily serve as throughways, connecting major activity centers within to major activity centers outside the Study Area. Minor arterials serve as the major connectors within the Study Area.

Principal arterials in the Study Area include the following:

- Taft Road (west of I-481)
- Interstate 481
- Interstate 90

Minor arterial roads in the Study Area include the following:

- Northern Boulevard
- Collamer Road (west of I-481)
- Kinne Street

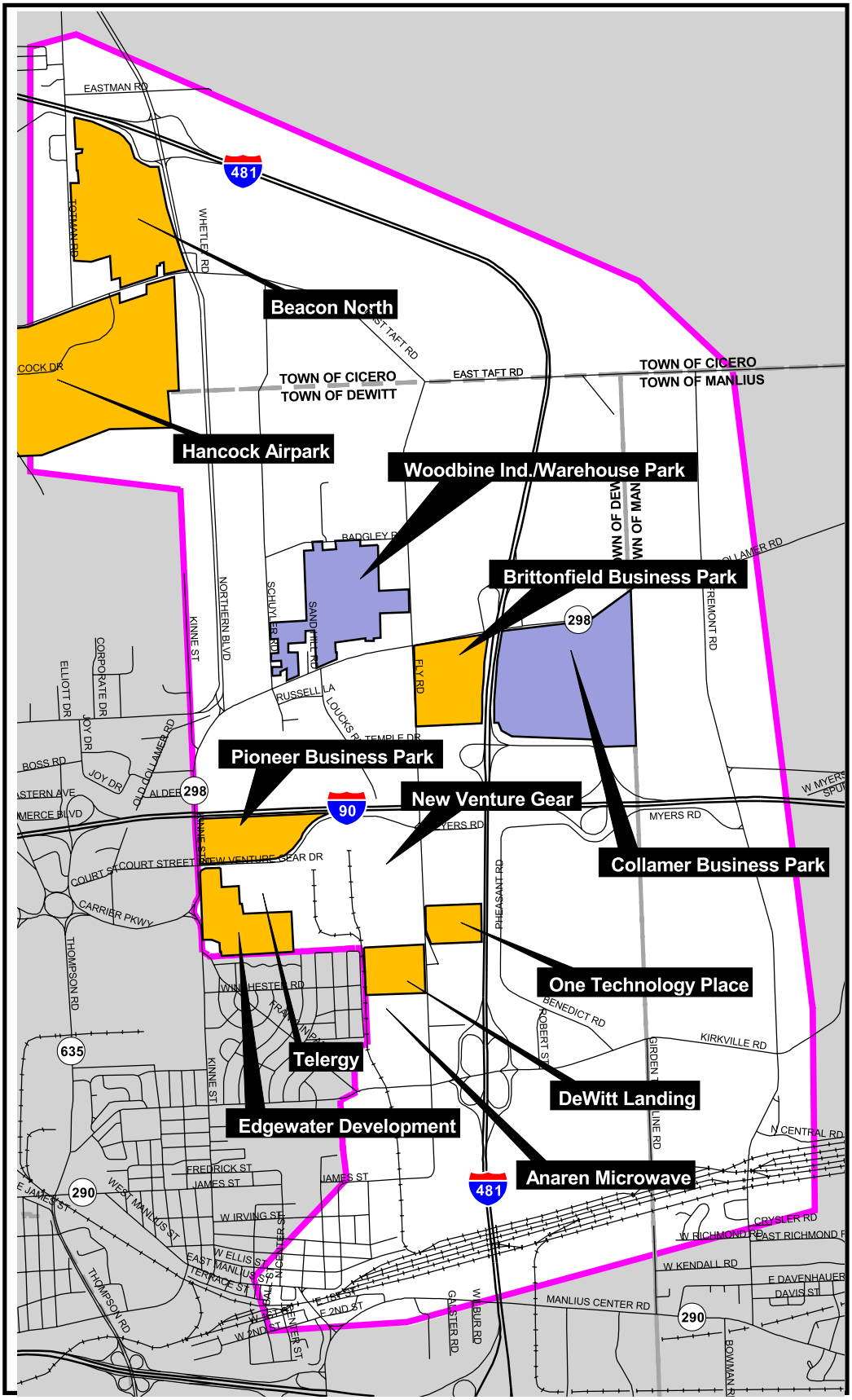

Figure 2.1-6
Industrial/Office Parks

LEGEND

- Existing/Under Dev.
- Proposed
- Study Area

Source: SMTC, 2002; Town of DeWitt, 2002; PB, 2002
Map Created: 06/10/02

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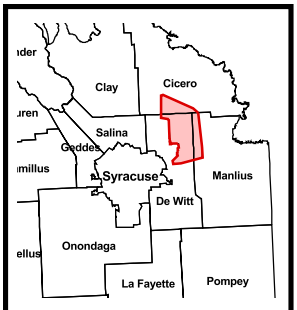

Locator Map

N W E S

0.2 0 0.2 0.4 Miles

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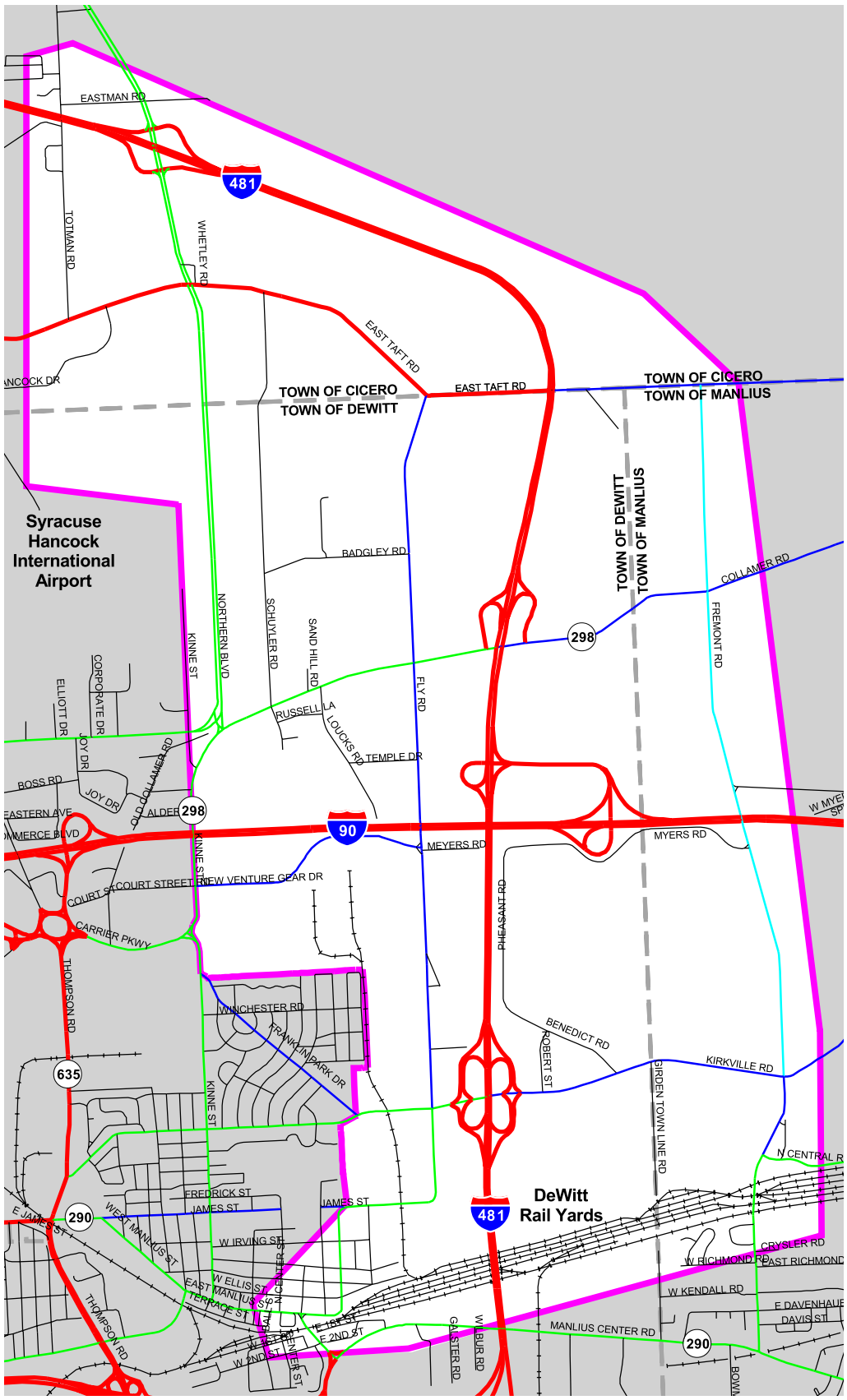

Figure 2.2-1 *Functional Classification of Roadways*

LEGEND

- Principal Arterial
- Minor Arterial
- Collector
- Minor Collector
- Local
- Study Area

Source: SMTC, 2002
Map Created: 06/10/02

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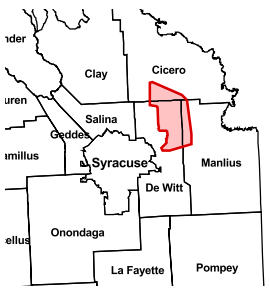

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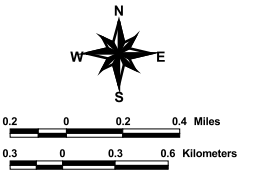

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- Kirkville Road (west of I-481)
- James Street
- Central Road
- Fremont Road (south of Central Road)

Collector streets in the Study Area include the following:

- Fly Road
- Taft Road (east of I-481)
- Collamer Road (east of I-481)
- New Venture Gear Drive
- Kirkville Road (east of I-481)

2.2.1.2 Traffic Volumes

Available NYSDOT data on Annual Average Daily Traffic (AADT) is presented in Figure 2.2-2. As might be expected, Interstate 481 experiences the highest volumes in the corridor with a range of roughly 20,000 to 40,000 vehicles per day combined in the southbound and northbound directions. The highest volumes along I-481 were recorded near the southern border of the Study Area. Secondarily, Northern Boulevard and Kinne Street, which are part of a primary commuter route, exhibit in excess of 8,000-9,000 AADT in each direction.

To further define existing traffic conditions in the Study Area, a detailed study of the traffic and intersection operations in the local roadway network was conducted (intersection geometrics and traffic counts are located in Appendix B and Appendix C respectively). The analysis identified the existing levels of service at 12 key intersections within the study area for the AM and PM peak periods using recently obtained traffic volumes, signal timing and operation information, and roadway geometry. The existing intersections included a mix of signalized and stop controlled traffic control. Based upon observation of traffic characteristics in the corridor, the AM peak is defined as 7:00 AM to 9:00 AM, while the PM peak is 4:00 PM to 6:00 PM.

Results of the analysis indicated acceptable operations and levels of service at all study area intersections during both the AM and PM Peak periods. A summary of the intersection levels of service is shown in Table 2.2-1 and depicted graphically in Figure 2.2-3. Overall, intersection levels of service range between A and C in both peak periods. A breakdown by approach also indicates levels of service between A and C at all intersections except for the following, which operate at an acceptable level of service D:

- Westbound approach of Taft Road at Northern Boulevard – AM peak;
- Westbound approach of Collamer Road at Northern Boulevard – PM peak; and
- Southbound approach of Kinne Street at New Venture Gear Drive – PM peak.

Table 2.2-1
Existing Intersection Levels of Service (LOS)

Intersection	2002 Existing Conditions Overall		2002 Existing Conditions Movement Summary							
			AM Peak				PM Peak			
	AM Peak	PM Peak	EB	WB	NB	SB	EB	WB	NB	SB
Taft Road & Northern Boulevard	C	B	A	D	B	C	C	C	A	A
Taft Road & Schuyler Road[1]	A	A	free	free	B	-	free	free	B	-
Taft Road & Fly Road[1]	A	A	free	free	C	-	free	free	C	-
Collamer Road & Northern Boulevard	B	C	B	C	-	A	C	D	-	C
Collamer Road & Schuyler Road[1]	A	B	free	free	C	C	free	free	C	C
Collamer Road & Fly Road	B	B	A	B	C	C	C	B	B	B
Route 298 & Kinne Street	B	A	-	C	A	A	-	B	A	A
Kinne Street & New Venture Gear Drive	B	C	B	C	A	B	A	B	C	D
New Venture Gear Drive & Fly Road	A	A	A	B	A	A	A	B	A	A
Kirkville Road & Fly Road	C	C	B	C	B	B	B	B	C	C
Kirkville Road & Fremont Road	C	C	B	C	C	C	C	B	C	C
Fremont Road & North Central Avenue	B	B	-	C	A	A	-	C	A	A

free = no traffic control for movement thereby allowing traffic to flow freely.

[1]Stop Controlled Intersection

LOS Analysis Conducted with SYNCHRO Version 5

LOS	Average Delay
A	0.0 - 10.0 sec./veh.
B	10.1 - 20.0 sec./veh.
C	20.1 - 35.0 sec./veh.
D	35.1 - 55.0 sec./veh.
E	55.1 - 80.0 sec./veh.
F	> 80.0 sec./veh.

The analysis identified that the double left turn lane recently constructed from Fly Road to Kirkville Road adequately services the heavy left turning movement through this intersection. The heavy through traffic movements that occur along Northern Boulevard were found to be acceptably accommodated through the Taft Road intersection in both peak periods. The right turning traffic from North Central Avenue to Fremont Road was also found to be adequately handled in both the AM and PM peak periods. The heavy turning traffic between Kirkville Road and Fremont Road was found to operate with acceptable average delay in both peak periods, as was the heavy turning traffic between Kirkville Road and Fly Road

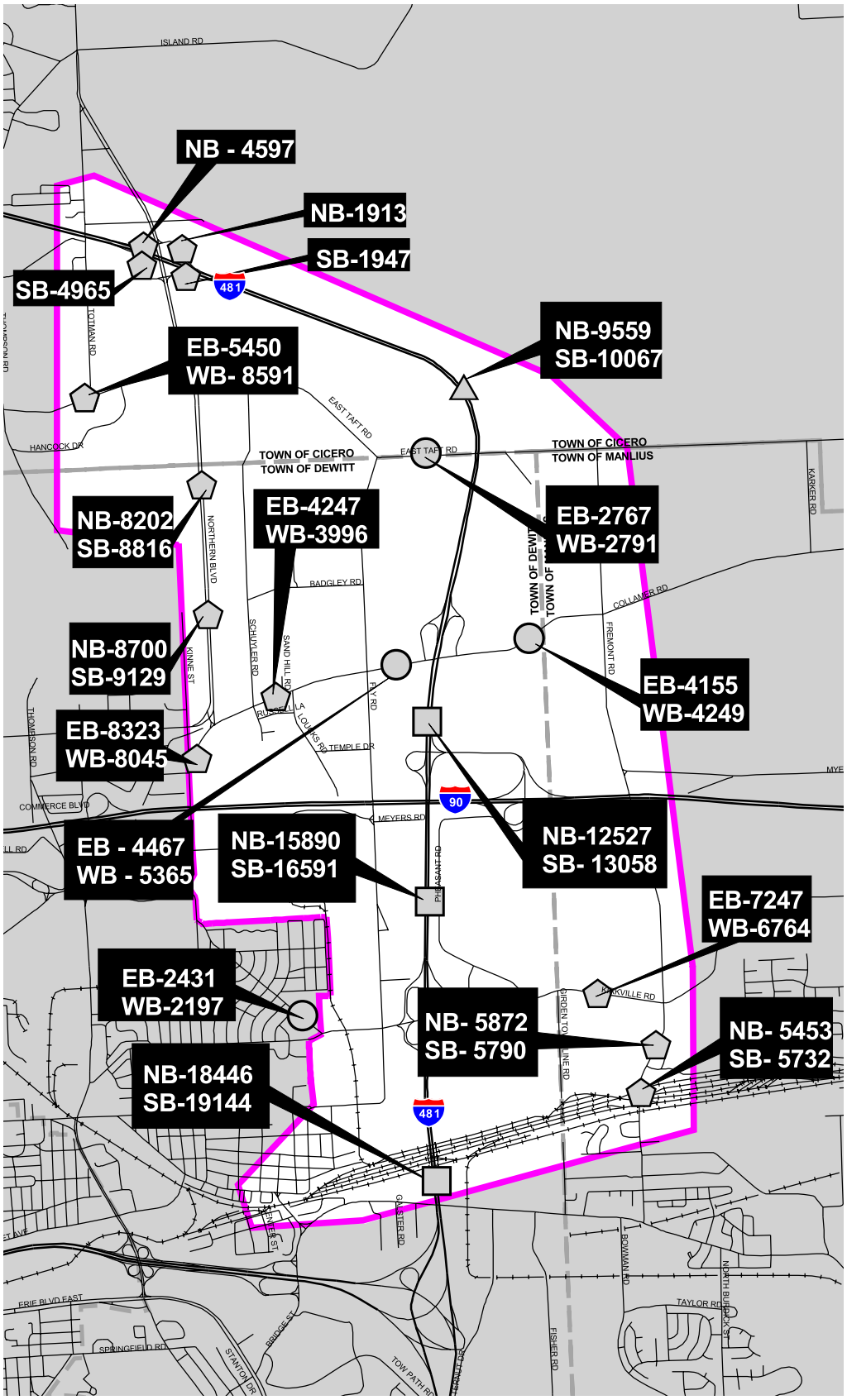

Figure 2.2-2
Average Daily Traffic Counts

LEGEND

- 2000
- 1999
- 1998
- 1997
- Study Area

Source: SMTC, 2002
Map Created: 06/10/02

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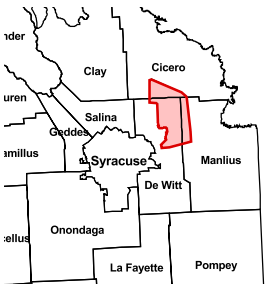
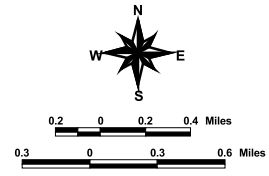


Locator Map



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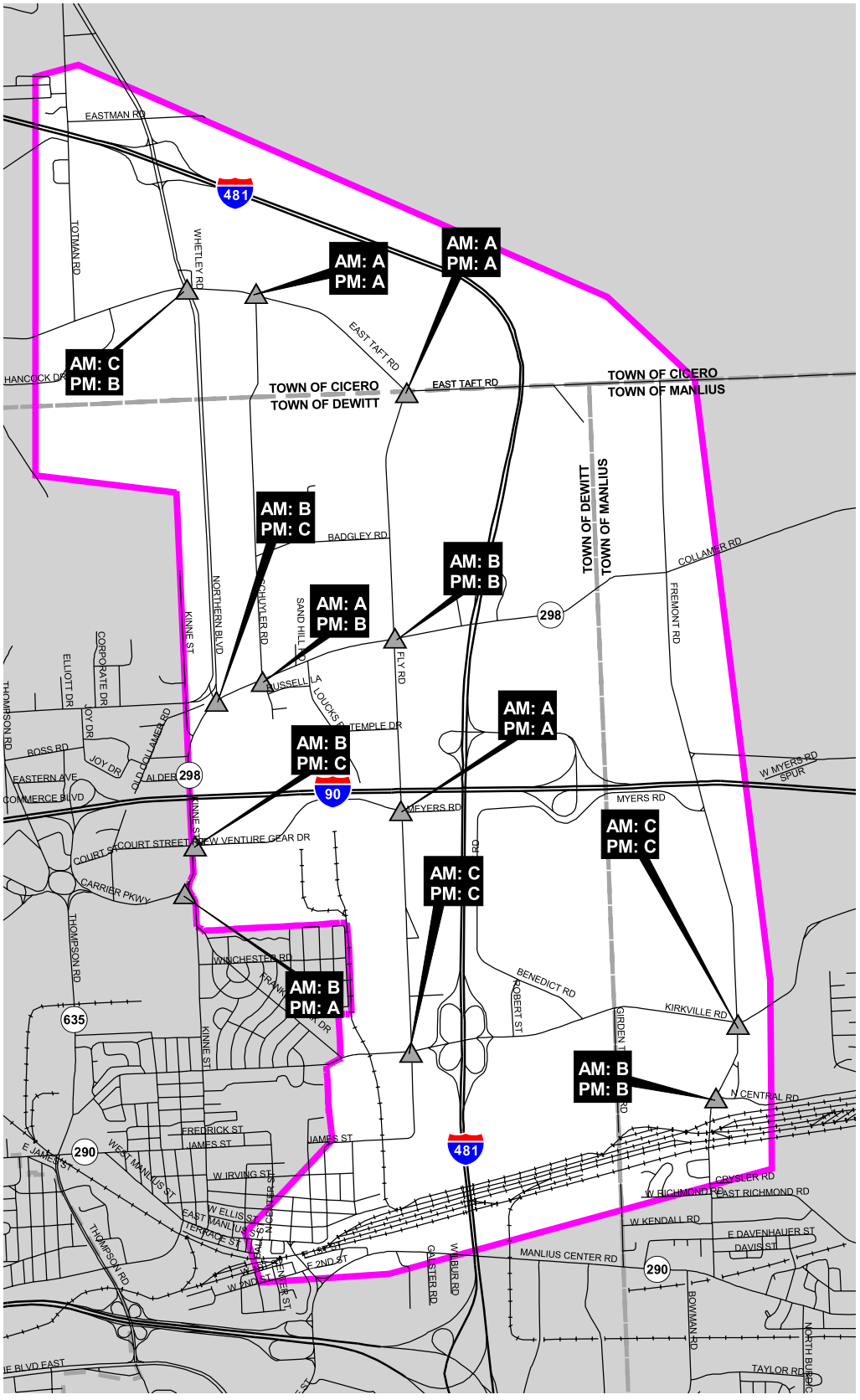

Figure 2.2-3
Existing Intersection Level of Service

LEGEND

- Intersection Count Location
- AM: A / PM: A — Peak LOS
- Study Area

LOS	Average Delay
A	0.0 - 10.0 sec./veh.
B	10.1 - 20.0 sec./veh.
C	20.1 - 35.0 sec./veh.
D	35.1 - 55.0 sec./veh.
E	55.1 - 80.0 sec./veh.
F	> 80.0 sec./veh.

Source: OCDOT, 1998; PB, 2002.
Map Created: 06/10/02

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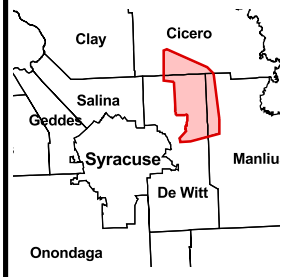

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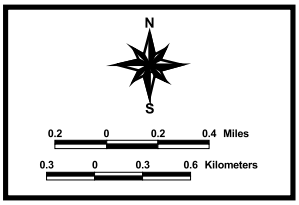

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during the AM and PM peak periods. All unsignalized intersections were found to have acceptable operating conditions and minimal average delays to vehicles on the stop controlled approaches during both peak periods.

2.2.1.3 Roadway Conditions

Based on information obtained from the SMTC's *Bridge and Pavement Condition Management System Final Report* of April 2001, the majority of state and county roads within the corridor are considered to be in good or excellent condition (See Table 2.2-2 for clarification of the NYSDOT Pavement Rating System), with the exception of the following:

- Fly Road between Meyers Road and Technology Place is considered to be in fair condition;
- Fly Road between Collamer Road and Badgley Road is considered to be in poor condition;
- Taft Road from the western edge of the Study Area to Northern Boulevard is considered to be in fair condition; and
- Northern Boulevard just north of the Northern Boulevard/Taft Road intersection is considered to be in poor condition.

Table 2.2-2
NYSDOT Pavement Rating System*

RATING	CONDITION DESCRIPTION
Under Construction / No Data	Not rated due to on-going work, or no data was available.
Poor	Distress is frequent and may be severe. These sections are flagged by NYSDOT for further investigation and possible action.
Fair	Distress is clearly visible.
Good	Distress symptoms are beginning to show.
Excellent	No pavement distress.

*See NYSDOT Highway Sufficiency Rating Manual for Region 3 for more information.

Local roads within the corridor were not rated in the *Bridge and Pavement Condition Management System Final Report*. However, an informal assessment of local road pavement conditions was made through visual observation and all roads were deemed either good or excellent except for the following:

- Schuyler Road – fair;
- Robert Street – fair;
- Benedict Road – fair;

- Pheasant Road – fair; and
- Girden Road – poor.

NYSDOT ratings for both state and local bridges within the Study Area were also obtained from the *Bridge and Pavement Condition Management System Final Report*. NYSDOT utilizes a scale of 1 to 7 that is based on a weighted formula that assesses various structural components of each bridge. The higher a bridge scores on the scale, the less deficient the structure. Any bridge scoring less than a 5 is deemed deficient. Deficient structures may be considered for rehabilitation or replacement. Bridges receiving the "priority deficient" classification are those scoring less than 3.0, or scoring between 3.0 and 4.0 with an AADT of over 4,000. Priority deficient structures are first in line for funding with deficient following. It is important to note that a deficient or priority deficient rating is not synonymous with an unsafe condition.

NYSDOT's ratings for bridges within the Study Area, as assessed in 2000, are graphically depicted in Figure 2.2-4. Only one priority deficient bridge exists in the corridor – Fly Road crossing Interstate 90. The following deficient bridges are also within the Study Area:

- Kinne Street crossing I-90;
- I-481 crossing the DeWitt Rail Yard;
- Fremont Road crossing I-90;
- Fremont Road crossing Butternut Creek; and
- Fremont Road crossing DeWitt Rail Yard.

2.2.1.4 Typical Truck Origins and Destinations

Given the presence of several distribution, industrial, and related land uses, truck traffic is prevalent throughout the Study Area. Primary origins and destinations of truck traffic within the corridor include the following:

- Parcel delivery services, manufacturers, and freight transport companies along Northern Boulevard (i.e., United Parcel Service, Keebler, Yellow Trucking);
- Freight transport companies along Schuyler Road (i.e., J.B. Hunt, Estes, Consolidated Freightways);
- Interstate 481; and
- CSX Intermodal Terminal at the DeWitt Rail Yard.

Identification of vehicle mix was conducted as part of the intersection traffic counts that were performed for the study and presented in Section 2.2.1.2 of this report. Table 2.2-3 presents data for truck traffic at each key intersection.

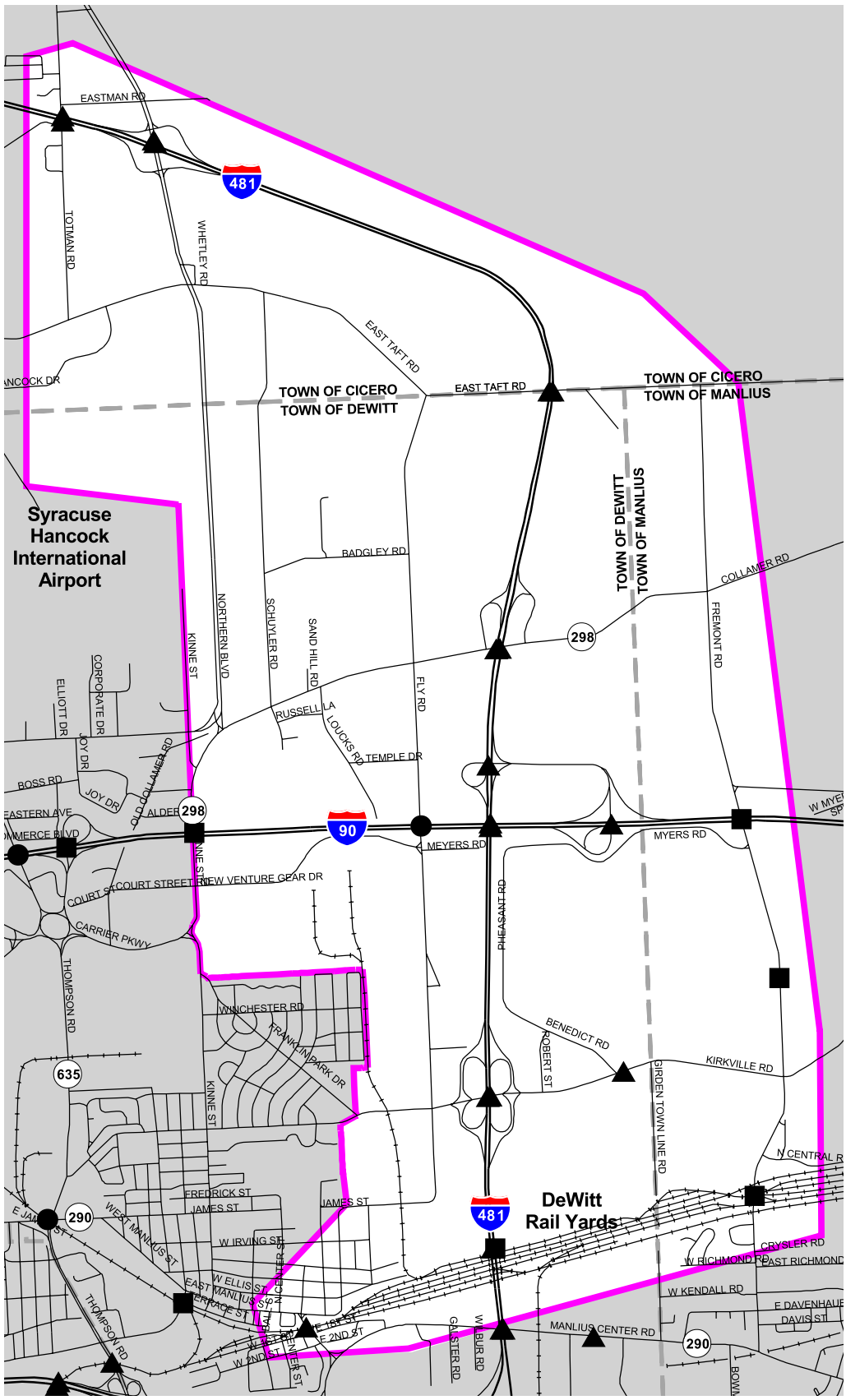

Figure 2.2-4
NYSDOT Bridge Conditions

LEGEND

- Priority Deficient
- Deficient
- Non-deficient
- Study Area

Source: NYSDOT, 2001
Map Created: 06/10/02

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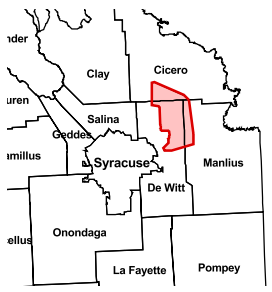

Locator Map

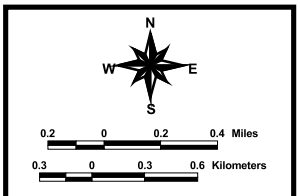

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Table 2.2-3
Peak Period Truck Volume at Key Intersections

Intersection	Truck Volume as a Percentage of Total Volume							
	AM Peak				PM Peak			
	EB	WB	NB	SB	EB	WB	NB	SB
Taft Road & Schuyler Road	6.2%	4.7%	35.6%	-	5.8%	3.9%	7.4%	-
Taft Road & Fly Road	7.5%	4.0%	11.5%	-	2.7%	6.4%	1.4%	-
Collamer Road & Northern Boulevard	6.5%	6.2%	-	6.6%	0.9%	15.2%	-	5.5%
Collamer Road & Schuyler Road	20.0%	7.1%	3.5%	36.1%	5.2%	19.5%	0.1%	26.9%
Collamer Road & Fly Road	26.7%	6.6%	10.9%	10.5%	5.6%	24.9%	2.1%	6.3%
Route 298 & Kinne Street	-	2.1%	8.0%	8.1%	-	1.1%	3.7%	3.9%
Kinne Street & New Venture Gear Drive	6.8%	8.7%	7.0%	7.0%	2.0%	4.2%	3.4%	3.8%
New Venture Gear Drive & Fly Road	10.9%	16.1%	4.7%	4.7%	2.8%	1.1%	5.3%	3.3%
Kirkville Road & Fremont Road	1.7%	0.6%	2.0%	2.7%	3.3%	2.7%	4.2%	2.6%
Fremont Road & North Central Avenue	-	3.7%	3.5%	1.4%	-	8.3%	1.3%	3.2%

Note: Truck volume was not available for Taft/Northern or Kirkville/Fly Intersections.

2.2.2 Public Transit

Public transit in the Study Area is administered by the Central New York Regional Transportation Authority's (CNYRTA) Centro public transportation service. The main daily routes within the corridor are Routes 22, 23, 58, 152, and 723. Three of the five routes are designed to serve Study Area residential commutation patterns into the urban core of the City of Syracuse. A fourth, Route 723, is a suburban community circulator timed to make connections with buses bound for Syracuse at Shoppingtown Mall. Only Route 22 is specifically designed to serve employment locations in the Study Area, including those along New Venture Gear Drive and Fly Road south of I-90. Figure 2.2-5 depicts existing bus route locations.

In addition to regular route transit service, in 2001 CNYRTA implemented a Mobility Management Center (MMC). The mission of the MMC is to provide brokered transportation services to areas with insufficient demand to justify the public expense associated with regular line haul transit service (i.e., either due to excessive temporal or geographic dispersal of demand). Transportation services are currently provided by the MMC to low income residents of Onondaga County for the purpose of employment and job training. The MMC accepts referrals from human service agencies, assesses individual needs, and identifies the most efficient way to provide transportation service. For those who cannot use the bus because of work schedules or work site locations, the MMC schedules and dispatches a con-

tract service (i.e., taxi or livery) to transport the employee. Most trips are "reverse-commute" in nature, with the customer living in the urban area and traveling to suburban and exurban employment sites. The MMC has developed into a valuable resource for the community in addressing the transportation needs of the local workforce. On average, the MMC provides service to 45 employment sites each month. Fully a third of the clients currently certified for MMC services are being transported to job locations within the Study Area. Funding for MMC operations is provided by the Federal Transit Administration's Job Access and Reverse Commute program and State of New York Welfare to Work Transportation grants.

2.2.3 Bicycle/Pedestrian Facilities

2.2.3.1 Bicycle Facilities

Traditional bicycle facilities (i.e., bicycle lanes, bike racks, etc.) do not exist in the Study Area. However, the rural nature of the majority of the corridor is conducive to bicycle travel with roadways widths that can accommodate both vehicular and bicycle traffic. The Study Area does not contain any segments of existing or planned major regional bike routes nor links to such routes. Bicycle counts were recorded for both AM and PM Peak periods at major intersections in the corridor and only one (1) bicycle was observed in total.

2.2.3.2 Pedestrian Facilities

Traditional pedestrian facilities (i.e., sidewalks, crosswalks, etc.) are minimal within the Study Area. Sidewalks in the study area are limited to a three-foot wide concrete sidewalk along portions of the western side of Kinne Street on the western border of the corridor, and a periodic 24-inch wide asphalt sidewalk along the eastern side of Fremont Road on the eastern Study Area border. Both of these sidewalks are in varying degrees of disrepair with heaving and cracking present.

A 3-foot sidewalk along the western side of Kinne Street is one of the few pedestrian facilities in the Study Area.

Based on counts taken at each major intersection in the corridor, pedestrian travel does occur on a regular basis throughout the Study Area. As can be seen in Table 2.2-4, a total of 23 pedestrians were observed during the AM Peak period, while 20 were present during the PM Peak period. As stated above, sidewalks are not present on most roadways within the corridor; however, most roadway shoulders are 4-8 feet in width. Although sidewalks would be a more preferred and safer method, larger shoulder widths on rural roads are a common method for addressing pedestrian travelers.

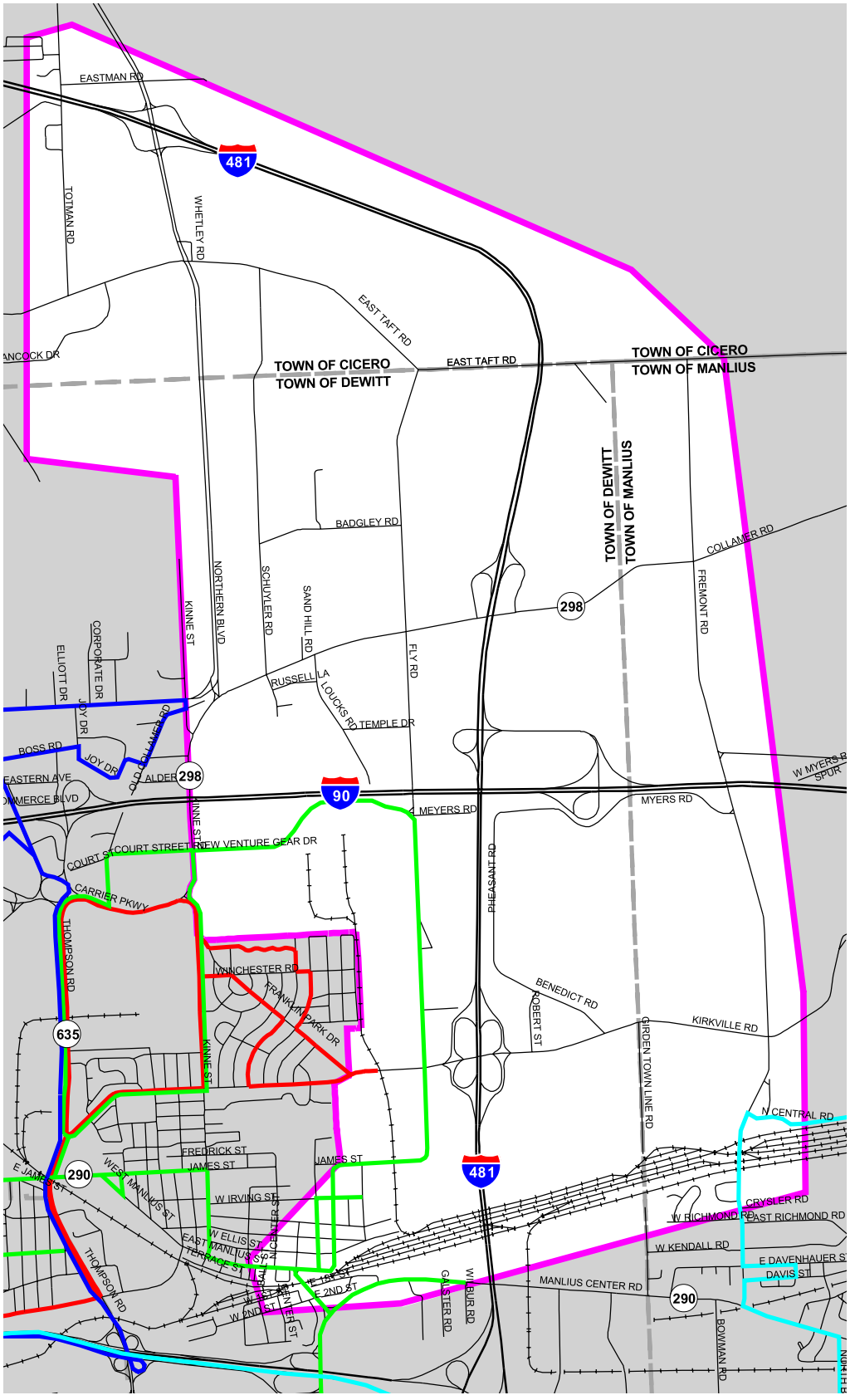

Figure 2.2-5
Centro Bus Routes

LEGEND

- Route 58
- Route 22/23
- Route 152
- Route 723
- Study Area

Source: SMTC, 2002
Map Created: 06/10/02

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Locator Map

N
W E
S

0.2 0 0.2 0.4 Miles

0.3 0 0.3 0.6 Kilometers

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Table 2.2-4
Pedestrian Counts at Major Intersections

INTERSECTION	PEDESTRIAN COUNT	
	AM Peak	PM Peak
Taft Road & Northern Boulevard	NA	NA
Taft Road & Schuyler Road	1	0
Taft Road & Fly Road	1	0
Collamer Road & Northern Boulevard	5	2
Collamer Road & Schuyler Road	0	0
Collamer Road & Fly Road	0	0
Route 298 & Kinne Street	0	13
Kinne Street & New Venture Gear Drive	4	0
New Venture Gear Drive & Fly Road	1	2
Kirkville Road & Fly Road	NA	NA
Kirkville Road & Fremont Road	6	0
Fremont Road & North Central Avenue	5	3
TOTAL	**23**	**20**

NA = Pedestrian count not available for intersection

In addition to the pedestrian facilities discussed above, a single crosswalk exists within the Study Area. A striped crosswalk with pedestrian signal and button are located at the Kirkville/Fremont Roads Intersection. The crosswalk crosses Kirkville Road on the east side of Fremont Road. Its primary intended purpose is to service students as they travel to and from East Syracuse-Minoa Central High School, which is located approximately 1,500 feet north of the intersection.

2.2.4 DeWitt Rail Yard

2.2.4.1 Background

The DeWitt Rail Yard is located along the southern boundary of the I-481 Industrial Corridor and has historically been a key component of the Study Area's transportation network. Originally, in the late 1800s, the Village of East Syracuse based much of its economy on the rail yard. In the 1970s and 80s it was utilized as a major classification yard for Conrail, but this operation was closed down in 1991 and the yard became primarily a freight car storage facility.

DeWitt Rail Yard is located along the southern border of the Study Area and is home to CSX's Intermodal Terminal.

New life was given to the DeWitt Rail Yard in 1993 when Conrail invested $5 million to modernize the yard for use as its new intermodal facility. Since that time, Conrail and CSX merged to form CSX Transportation. CSX has continued to operate the intermodal terminal and currently sixteen trains exchange traffic through the terminal each day. The facility performs approximately 1,500 lifts, transfer of truck trailers/containers to trains, per week, of which, 70% are generated by local clients including Snyder, J.B. Hunt, and United Parcel Service. These carriers bring consumer goods to the terminal for transfer to train for delivery both regionally and nationally. The terminal processes 200 trucks per day on average.

Although a majority of the intermodal activity is from local markets, the terminal also plays a major role within the entire CSX Intermodal network. Trains originating in Chicago and St. Louis come to the terminal where their units are dispersed between trains bound for New England and Northern New Jersey. Operations for westbound movements occur similarly.

2.2.4.2 Previous Studies

The SMTC has undertaken two recent efforts in regard to the DeWitt Rail Yard. The first, *Conrail/CSX Intermodal Terminal Access Report*, was published in 1997, while the latest effort was undertaken in 2001 in conjunction with CSX, the Town of Manlius, and the Central New York Regional Planning Board. A two-page summary was produced from this most recent undertaking. Both efforts identified two major access issues with the present operations of the terminal, one internal, and the other external.

Current CSX operations utilize the “north runner” as the loading/unloading track where trains rest while transfers occur. As a train pulls up to continue to receive trailers or containers it eventually blocks the only access road incoming trucks have to the trailer/container storage area. If this internal access barrier could be removed, then delivery of trailers/containers would be expedited.

The external access issue is a bit more complex. The current operations and internal roadway structure of the transfer facility are designed to receive and discharge vehicles via N. Central and Fremont Roads. All truck traffic approaches the terminal via Fremont Road, either from the north or south, and must use North Central Avenue to gain access to the terminal. Trucks travel to/from Northern Boulevard, Schuyler Road, and I-481 via the local road system. As additional industrial and office development has occurred in the corridor, local roads have seen increased automobile traffic. To further exacerbate the situation, approximately one-quarter mile east of the CSX Intermodal Terminal entry on North Central Avenue, the East Syracuse-Minoa School

Truck traffic approaching the entry to CSX’s Intermodal Terminal must utilize Central Road, which is also the main access road to the East Syracuse-Minoa School District’s transportation facility, which houses all district run school buses.

District operates a transportation facility that houses all district-run school buses. Because of its relative location to the schools within the district, the majority of buses departing or arriving at the district transportation facility must also pass through the Fremont/N. Central Intersection.

These access issues led to the 1997 access report conducted by the SMTC and the later combined effort with CSX, the Town of Manlius, and the Central New York Regional Planning Board. The improvement plan outlined in the most recent document is as follows (see Figure 2.2-6):

- Improve Girden Road for designation as truck route to intermodal terminal;
- Enhance intersection of Girden and Kirkville Roads;
- Relocate CSX gate building west of Girden Road;
- Establish grade crossings on CSX's property to create safe traffic flow from Girden Road to relocated gate building;
- Develop "south runner" track (an existing track in CSX's yard) as an additional intermodal loading/unloading track; and
- Create additional truck parking in areas north and south of the "south runner."

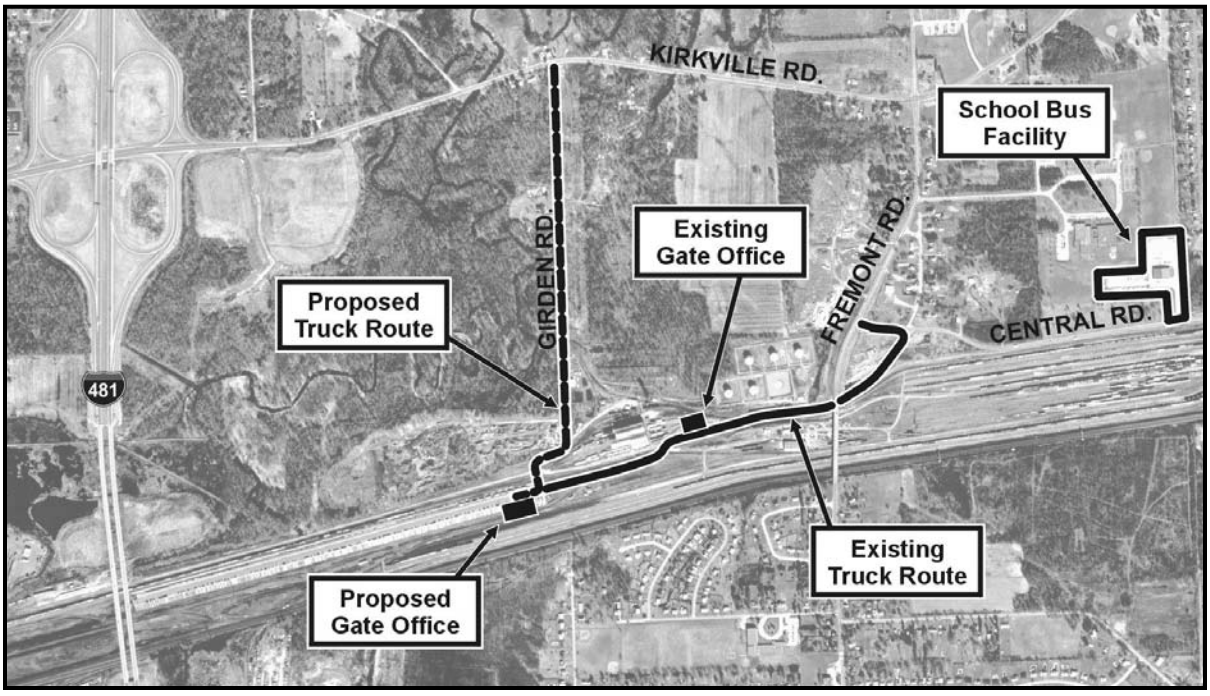

Figure 2.2-6
Improvement plan outlined in summary document from SMTC, CSX, Town of Manlius, and Central New York Regional Planning Board joint planning process.

The portion of the improvements outlined above that would occur on CSX property was estimated at $5 million. The cost of the improvements to Girden Road and the Girden/Kirkville intersection has not been determined.

Project team members met with the district superintendent for CSX on May 16, 2002 to discuss the above access issues, terminal operations, and future plans for the terminal as they relate to the I-481 Industrial Corridor Transportation Study. Based on this meeting, CSX indicated that its current facility is adequate and that the roadway network currently meets their needs and desires. However, CSX is open to further discussion of alternative improvement scenarios, and associated funding sources that would enhance transportation in and around the intermodal facility.

2.2.4.3 Traffic Counts

Traffic counts were taken at the driveway of the rail yard to determine an accurate volume of truck traffic coming into and exiting the facility on a daily basis. NYSDOT personnel collect the counts via an automatic traffic recorder (ATR) (i.e., tube counts) with vehicle classification capabilities for a three-day period (i.e., September 23-26, 2002). The counts are presented in Table 2.2-5. It was determined that the driveway has an ADT of 533 with heavy vehicles (i.e., trucks) comprising 44.31% of this total (i.e., 236 trucks trips per day).

2.2.5 Syracuse Hancock International Airport

Providing both passenger and cargo services, Syracuse Hancock International Airport is an important element in the transportation network of the I-481 Industrial Corridor. The airport has two runways, Runway 10-28, which is 9,003 feet in length and 150 feet in width, and Runway 15-33, which is 7,500 feet in length and 150 in width. The airport is situated on 2,000 acres, directly west of the Study Area. Even though the airport property abuts the western side of Northern Boulevard, access is unavailable from Northern Boulevard. However, access to the airport terminal and its associated cargo facilities is relatively direct from any point in the Study Area. The airport's main entry road, Colonel Eileen Collins Boulevard, is accessed primarily via Exit 27 of Interstate 81, which readily connects to the Study Area via I-481 and I-90. A secondary travel approach from the Study Area is to travel west on Taft Road, then southbound on South Bay Road to Colonel Eileen Collins Boulevard and the airport entry.

Syracuse Hancock International Airport's air cargo facility is located on 22 acres southwest of the passenger terminal.

Over 650,000 passengers were serviced by Syracuse Hancock International Airport in 2001. In addition, the airport provided service for the transport of 7,000 tons of freight through its 22.5-acre air cargo operations facility. The air cargo processing area is located southwest of the terminal building and is easily accessed from Colonel Eileen Collins Boulevard. Direct

aircraft access is readily achieved from the aircraft parking apron adjacent to the 100,000 square-foot cargo building. Office space, parking, and loading docks are available for utilization by freight and mail carriers. Air cargo companies presently operating from the Syracuse Hancock International Airport include Airborne Express, Federal Express, United Parcel Service, and the United States Postal Service.

Table 2.2-5
Traffic Counts at CSX Driveway*

Time Period	Southbound (Entering)	Northbound (Exiting)	Total
24:00 - 01:00	2	3	5
01:00 - 02:00	1	2	3
02:00 - 03:00	1	4	5
03:00 - 04:00	3	1	4
04:00 - 05:00	4	2	6
05:00 - 06:00	5	5	10
06:00 - 07:00	25	11	36
07:00 - 08:00	20	11	31
08:00 - 09:00	15	12	27
09:00 - 10:00	15	10	25
10:00 - 11:00	14	17	31
11:00 - 12:00	16	13	29
12:00 - 13:00	23	19	**42**
13:00 - 14:00	20	23	**43**
14:00 - 15:00	23	22	**45**
15:00 - 16:00	24	24	**48**
16:00 - 17:00	16	18	34
17:00 - 18:00	12	18	30
18:00 - 19:00	13	11	24
19:00 - 20:00	14	12	26
20:00 - 21:00	4	5	9
21:00 - 22:00	3	3	6
22:00 - 23:00	3	5	8
23:00 - 24:00	3	3	6
Average Daily Traffic (ADT)	**279**	**254**	**533**
Average Annual Daily Traffic (AADT) (Seasonally Factored)	**256**	**233**	**N/A**
Percent Heavy Vehicles (of ADT)	**47.50%**	**40.80%**	**44.31%**

*Source: NYSDOT, 2002

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3 20-YEAR BUILD-OUT ANALYSIS

In order to determine the transportation implications of anticipated future development in the I-481 Corridor, a 20-year build-out analysis was conducted. This included two components. First, projections of anticipated development in the study area was conducted, based upon the amount of vacant, unconstrained land, current development regulations, and typical absorption rates (i.e., the rate at which properties are able to be leased, sold, or developed in a given area) for new development. These projections were then used to assess future travel demand patterns and traffic implications using the SMTC's regional travel forecasting computer model and intersection simulation software.

3.1 Build-out Scenarios

This section summarizes the assumptions and background data utilized to project anticipated land use characteristics (i.e., future households and employment) in the I-481 Industrial Corridor to support travel demand modeling efforts to assess future "No-Build" conditions in years 2005, 2010, 2015, and 2020. This included estimates of future households (i.e., by type of housing unit) and employment (i.e., in terms of projected retail, commercial, industrial, hotel/motel, and institutional employees). These projections were broken out by Traffic Assessment Zones (TAZs) (i.e., geographic units within the SMTC regional travel forecasting model) that are anticipated to exhibit growth over the 20-year horizon.

3.1.1 Maximum Build-out

Initially, a full build-out analysis of vacant, developable land within the study area was conducted. As a constraint, NYSDEC mapped wetlands were overlaid onto vacant parcels within the study area. Where such overlaps occurred, it was assumed that, for the most part, these areas could not be developed (See Figure 3.1-1). It should be noted that mapped floodplains in the study area closely correspond to mapped wetlands. From a total of over 2,600 acres of vacant land, this overlay yielded approximately 1,490 acres of vacant land in industrial and high tech zoning districts that is not constrained by wetlands.

Wetlands throughout the study area serve as a constraint on development potential.

Next, utilizing existing development regulations, (e.g., maximum setbacks, coverages, building heights, etc.) as outlined in Section 2.1.2 of this report, estimates where made on a lot-by-lot basis of what could be developed. Even with the removal of vacant land constrained by wetlands, the large size of the parcels in the study area resulted in an estimate of **over 80,000,000 square-feet of potential development in industrial districts and over 13,000,000 square-feet in high-tech districts.** Much of this development would be multi-storied, given that few of the municipal regulations include height/density maximums. Obvi-

ously, the regional market could not likely absorb this magnitude of development (i.e., in excess of 90 million square-feet), even in a 20-year period. However, the analysis did serve to illustrate the magnitude of available industrial and high-tech zoned land in the study area, and that currently, other than the market itself, there are no constraints on the study area reaching capacity in the 20-year period.

3.1.2 Probable Build-out

A probable build-out analysis was conducted as well. This analysis was intended to demonstrate the amount of development that could reasonably be anticipated in a 20-year period based on historical development rates and available projected development (i.e., taken from projected demographic patterns by TAZ within the SMTC's regional travel forecasting model) with respect to the study area.

It was assumed that extensive residential development would not occur in the study area in excess of moderate estimates already included in the regional transportation model. This assumption was made because vacant land in the study area zoned for residential development is minimal; thus, it would be expected that new construction would be limited to the infilling of existing subdivisions.

Further, after reviewing locations of vacant land in the study area, it was assumed that it was unlikely that retail or hotel/motel development would be substantially higher than what is already assumed by the regional transportation model. Few areas containing vacant land in the study area have the locational characteristics that would support either extensive amounts of retail or lodging facilities. Regarding the latter, the proximity of the Carrier Circle area, with its proven hotel/motel market, would further limit the potential for new hotel/motel development in the study area. Similarly, review of existing comprehensive plans points to no indication of major new institutional uses in the corridor in the future. Therefore, it was assumed that the majority of growth in the study area would be in the form of new industrial and commercial (i.e., office) development, mostly in the form of campus type development consistent to what has been occurring over the last ten years.

It is unlikely that hotel and motel construction in the study area will exceed the projections of the regional transportation model.

To estimate industrial and commercial employment in 2005, employment was estimated for only recently approved or planned larger developments in the study area (e.g., Woodbine, Collamer Business Park, Hancock Air Park, etc.), given necessary lead times for new development. A total of 4,214 and 6,530 jobs were estimated for industrial and commercial categories respectively. This is a 41% and 15% increase over the baseline year of 2000 (Complete details of all employment and household estimates are included in Appendix D).

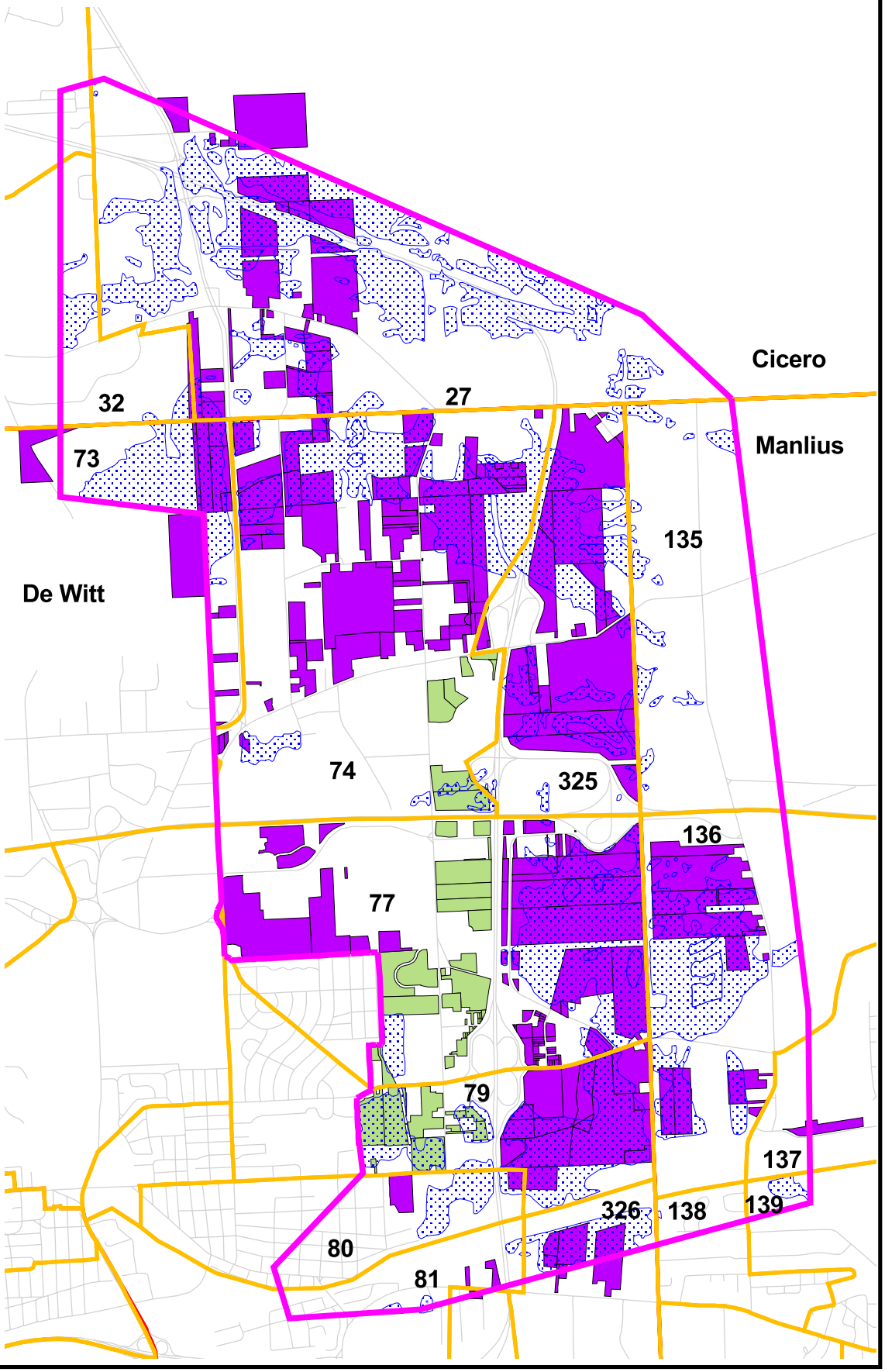


Figure 3.1-1

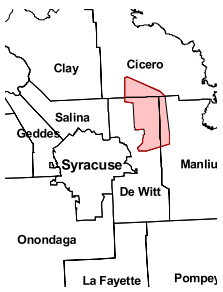
Constrained Hi - Tech & Industrial Parcels

LEGEND

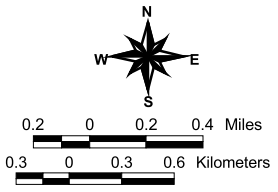
- Towns
- 1990 TAZ Boundary
- Wetlands
- Vacant Industrial Parcels
- Vacant Hi-Tech Parcels
- Study Area

Source: SOCPA, SMTC, 2002
Map Created: 05/01/03

This map is for presentation purposes only. SMTC does not guarantee the accuracy or completeness of this map.



Locator Map



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To estimate a reasonable build-out for industrial and commercial development in the 2006-2020 period, building permit information was examined to determine past trends in new development in the study area. Because the vast majority of vacant land in the study area is within the Town of DeWitt, particular focus was given to building permits issued there between 1999 and 2001. For non-residential development, data on the value of development was converted to building area based upon a ratio of $80.00 per square foot. This was intended to serve as a mid-point between lower-cost industrial space and higher-cost office parks and corporate centers. This estimate yielded an average of about 161,000 square feet of new commercial/industrial space being absorbed annually in the Town. Based upon discussions with representatives from the Town of Dewitt, it was assumed that the majority (i.e., 75%) would be captured on parcels within the study area. **This would equate to approximately 121,000 square feet of new development occurring annually in the 2005-2010, 2010-2015, and 2015-2020 periods**.

Additional assumptions and methods were as follows:

- It was assumed that new development would consist primarily of office facilities (i.e., 60%) followed by industrial/warehouse facilities (i.e., 40%);
- To estimate industrial and commercial employment, square feet of new development was converted to projected employment at a rate of 1,000 square feet per employee and 400 square feet per employee respectively;
- Projected employment was distributed to TAZs within the study area based upon respective amounts of vacant developable land. Larger distributions were given to TAZs in proximity to interchanges on I-481. These distributions are presented in Table 3.1-1; and
- The projected employment by TAZ was added to land use estimates, as included in the regional model, for 2005, 2010, 2015, and 2020, rather than serving as replacement figures. This is intended to augment the modest growth rates shown by the existing regional model estimates (i.e., 7-8% in 2005 and 2-3% in out years); this was assumed to represent other "background" growth in the study area, such as infill and demolition/replacement.

Table 3.1-1
Projected Employment Distribution by
Traffic Assessment Zone (TAZ)

TAZ	Municipality	Percent Capture of Projected Employment
27	Cicero	10.0%
73	DeWitt	5.0%
74	DeWitt	20.0%
77	DeWitt	30.0%
79	DeWitt	15.0%
136	Manlius	10.0%
325	DeWitt	10.0%
Total		**100.0%**

3.1.3 Traffic Volume Projections

Future year average daily traffic (ADT) volume projections were determined through the use of employment and household estimates derived from the probable build-out analysis as inputs to the SMTC's regional travel forecasting model. Future year projections, and the subsequent detailed traffic analysis, were conducted for the year 2020 condition. Intermediate year forecasts between existing conditions to the future design year of 2020 were also conducted. These forecasts were done in five (5) year increments for the years 2005, 2010 and 2015.

Forecasted traffic volumes between design years 2005 and 2010 indicate that the Collamer Road/Northern Boulevard Intersection will require improvements to maintain an acceptable level of service.

Existing ADT volumes range from 17,829 on Northern Boulevard north of Route 298 to 2,600 on Fremont Road north of Kirkville Road. Additional ADT volumes include 17,427 along Kirkville Road west of Fremont Road, 6,327 along New Venture Gear Drive between Route 298 and Fly Road, 6,327 along Taft Road east of Northern Boulevard, and 7,791 along Fly Road south of the New York State Thruway (i.e., Interstate 90).

Forecast year 2020 ADT volumes ranged from 25,403 along Northern Boulevard north of Route 298 to 3,196 along Fremont Road north of Kirkville Road. ADT increases along Fly Road, Kirkville Road, Route 298, and Taft Road generally indicated a 20% to 45% increase in daily traffic volumes over the existing to year 2020 period.

A summary of the existing conditions and incremental year forecast ADT volumes are located in Appendix E.

3.1.4 Intersection Operations

Based on traffic volume projections outlined above, a detailed analysis of the future year 2020 traffic and intersection operations in the local roadway network was conducted. The analysis identified the LOS at 12 key intersections within the study area for the AM and PM peak hour periods using the projected traffic volumes and existing roadway geometry. The existing intersections included a mix of signalized and stop-controlled traffic control.

Results of the analysis indicated acceptable operations and levels of service at ten (10) of the twelve (12) intersections during both the AM and PM peak hour periods in the year 2020. A summary of the intersection levels of service is presented in Table 3.1-2 and Figure 3.1-2. Overall, intersection LOS ranged between A and D in both peak periods. The exceptions to these findings were the Route 298/Collamer Road and Northern Boulevard intersection and the Collamer Road and Fly Road intersection. Both of these intersections, which

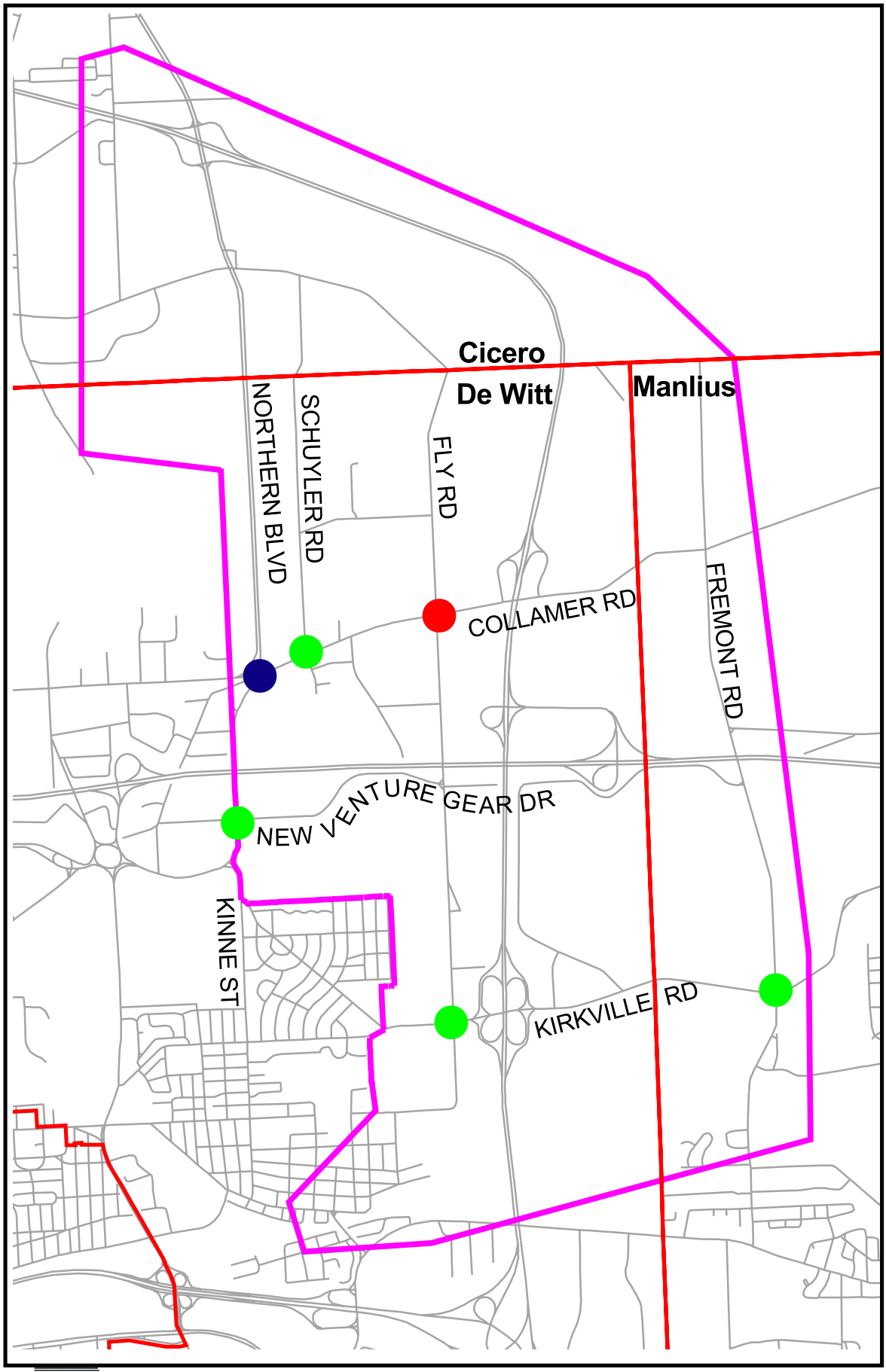


Figure 3.1-2

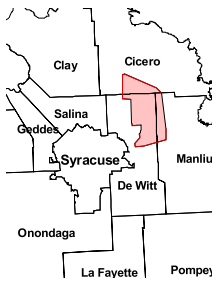
Future
2020 Intersections
LOS D, E, & F

LEGEND

- LOS D
- LOS E
- LOS F
- Study Area
- Towns

Source: SMTC, 2002
Map Created: 05/01/03

This map is for presentation purposes only. SMTC does not guarantee the accuracy or completeness of this map.



Locator Map

0.2 0 0.2 0.4 Miles

0.3 0 0.3 0.6 Kilometers

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are currently signalized, are forecast to operate in unacceptable ranges by the design year 2020, based on current operations and geometry. All analyzed unsignalized intersections within the study area were found to have acceptable overall operating conditions during both peak hour periods.

Table 3.1-2
Future Intersection Levels of Service (LOS)

Intersection	2002 Existing Conditions Overall		2020 Future Conditions Overall		2020 Future Conditions Movement Summary							
					AM Peak				PM Peak			
	AM Peak	PM Peak	AM Peak	PM Peak	EB	WB	NB	SB	EB	WB	NB	SB
Taft Road & Northern Boulevard	C	B	C	B	A	D	B	C	C	C	B	B
Taft Road & Schuyler Road[1]	A	A	A	A	free	free	C	-	free	free	C	-
Taft Road & Fly Road[1]	A	A	B	B	free	free	C	-	free	free	F	-
Collamer Road & Northern Boulevard	B	C	C (C^2)	E (D^2)	D	A	-	C	free	E	-	F
Collamer Road & Schuyler Road[1]	A	B	C	D	free	free	C	E	free	free	D	D
Collamer Road & Fly Road	B	B	F (C^3)	E (D^3)	A	F	F	F	D	B	F	E
Route 298 & Kinne Street	B	A	C	B	-	D	A	D	-	C	A	C
Kinne Street & New Venture Gear Drive	B	C	B	D	B	C	A	C	B	E	D	D
New Venture Gear Drive & Fly Road	A	A	B	A	A	C	B	A	A	B	B	B
Kirkville Road & Fly Road	C	C	C	D	B	D	C	C	D	C	D	D
Kirkville Road & Fremont Road	C	C	D	D	B	D	D	C	E	B	C	D
Fremont Road & North Central Avenue	B	B	B	B	-	D	A	A	-	E	A	B

free = no traffic control for movement thereby allowing traffic to flow freely.

[1] Stop Controlled Intersection

[2] With NB Route 298 double left turn lane required between years 2005 and 2010

[3] With Collamer left turn lanes required between years 2005 and 2010

LOS Analysis Conducted with SYNCHRO Version 5

LOS	Average Delay
A	0.0 - 10.0 sec./veh.
B	10.1 - 20.0 sec./veh.
C	20.1 - 35.0 sec./veh.
D	35.1 - 55.0 sec./veh.
E	55.1 - 80.0 sec./veh.
F	> 80.0 sec./veh.

Additional analysis was conducted for the Route 298/Collamer Road intersections with Northern Boulevard and Fly Road, which are forecast to operate at unacceptable levels of service in the year 2020. Utilizing the intermediate forecast year traffic volume projections, it was identified that these intersections would reach unacceptable operating conditions during

the time period between the years 2005 and 2010. Analysis of the Collamer Road and Fly Road intersection identified that acceptable operating conditions could be achieved through the 2020 analysis year with the addition of left turn lanes on Collamer Road. Analysis of the Route 298/Collamer Road and Northern Boulevard intersection identified that the addition of a second northbound left turn lane on Route 298 would adequately accommodate the heavy PM peak turning volume from Route 298 to Northern Boulevard and result in acceptable intersection operating conditions through the year 2020.

4 MULTIMODAL ASSESSMENT

Based on existing conditions, the 20-year build-out assessment, projected traffic volumes and intersection operations for the year 2020, and public/stakeholder comments, an assessment was conducted associated with the quality/relationship among and between the various modes of transportation within the I-481 Industrial Corridor. This included assessments of vehicular/truck access, commercial/general aviation airports (i.e., Hancock International Airport), freight/rail (i.e., DeWitt Rail Yards), transit, and pedestrian and bicycle facilities. Interrelationships were reviewed and gaps in the network were identified. These are summarized in Table 4.0-1 located at the end of this section.

The following sections summarize the key findings of the multimodal assessment.

4.1 Vehicular Access

4.1.1 Automobile Access

Given the suburbanizing development patterns in the study area, automobile travel is the primary transportation mode within and through the corridor. As indicated by the level of service analyses conducted for both present conditions and future design years, automobile access and mobility is and will be adequately accommodated by the study area's roadway network. Minor improvements, in the form of dedicated turn lanes, will be necessary to Collamer Road's intersections with Northern Boulevard and Fly Road to meet the level of service needs of the design years. Other than this, no additional improvements, beyond normal maintenance, will be necessitated to provide adequate capacity for automobile volumes associated with the probable build-out of the corridor through design year 2020.

Automobile travel is the primary transportation mode in and through the I-481 Industrial Corridor.

While the lack of significant capacity issues suggest few future problems with accommodating traffic, the very lack of any major problems presents the possibility of future *induced traffic* issues, or the greater tendency for selection of study area roads for travel routes over others, as well as increased average speeds of traffic. This contributes to modal conflicts, particularly between automobile and pedestrian travel within the corridor. This can be characterized by: excessive vehicle speeds; disregard of traffic laws (i.e., "rolling" right-on-red, not yielding to pedestrians having the right-of-way, pedestrians crossing against a signal, etc.); and moreover, a general lack of defined pedestrian facilities (i.e., sidewalks, crosswalks, pedestrian signals, etc.) in the study area.

4.1.2 Truck Access

Given the presence of distribution, industrial, intermodal, and related land uses, truck traffic is prevalent throughout the study area. Similar to the automobile mode of travel, truck access and mobility is and will be adequately accommodated by the study area's roadway network. Minor improvements, in the form of dedicated turn lanes, will be necessary to Collamer Road's intersections with Northern Boulevard and Fly Road to meet the level of service needs of the design years. Other than this, no additional improvements, beyond normal maintenance, will be necessitated to provide adequate capacity for truck volumes associated with the probable build-out of the corridor through design year 2020.

Modal conflicts exist between truck travel and automobile and school bus modes.

Modal conflicts with respect to truck travel occur within the study area in the form of conflicts with pedestrian, automobile, and school bus modes of travel. These are as follows:

- Similar to that with passenger vehicles, pedestrian conflicts can be attributed to three primary factors: excessive truck speeds; disregard of traffic laws (i.e., "rolling" right-on-red, not yielding to pedestrians having the right-of-way, pedestrians crossing against a signal, etc.); and lack of pedestrian facilities (i.e., sidewalks, crosswalks, pedestrian signals, etc.).

- Conflicts with automobiles are primarily confined to residential areas where trucks are heavily represented (e.g., in and around the intersection of Kirkville and Fremont Roads). In these locations, automobiles requiring access to the roadway from a residential driveway are essentially "blocked in" by the queuing of trucks along the roadway.

- Conflicts between school bus and truck modes are most apparent at the intersection of Fremont Road and North Central Avenue. This conflict is created because the Fremont Road/North Central Avenue Intersection provides the only access point for two major truck and school bus origin/destinations. The East Syracuse Minoa Central Schools Transportation Center is located approximately one-half mile east of the Fremont Road/North Central Avenue Intersection. District school buses are garaged and serviced at this facility and access surrounding schools via the Fremont Road/North Central Avenue Intersection exclusively. In addition, the DeWitt Rail Yard, home to the CSX Intermodal Terminal, is located just south of the Fremont Road/North Central Avenue Intersection and can only be accessed via North Central Avenue. Therefore, trucks traveling from within or through the study area, either via local roads or the Interstate System (i.e., I-90 and I-481), must utilized the Fremont Road/North Central Avenue Intersection

to access the CSX Terminal. Presently, no optional routes exist for accessing these two facilities.

4.1.3 School Bus Access

School bus access within the study area has one specific major conflict; which occurs at the Fremont Road/North Central Avenue Intersection. This conflict is detailed in Section 4.1.2, Truck Access. In more general terms, school bus access conflicts with other vehicular modes in terms of pedestrian access by school children between bus staging areas and ultimate destinations.

4.2 Commercial/General Aviation Airports Access

Based on analysis of existing conditions and future probable build-out of the corridor, access to and from Syracuse Hancock International Airport is adequate. There are no apparent conflicts between air travel and other modes within the corridor.

4.3 Freight/Rail Access

The DeWitt Rail Yard, located along the southern boundary of the study area, provides freight/rail access to the corridor (i.e., Primary Zone of Influence) and the entire MPO region (i.e., Secondary Zone of Influence). The CSX Intermodal Terminal is located within the rail yard and performs approximately 1,500 lifts, transfer of truck trailers/containers to trains, per week. The terminal processes 200 trucks per day on average. CSX believes that its current facility is adequate and that the roadway network meets their needs for the foreseeable future.

Trains waiting to switch intermodal cars to appropriate tracks for unloading often block truck access to the trailer/container storage area.

Within the terminal a conflict does exist between freight/rail and truck modes of travel. The north runner of the rail yard is utilized as a primary access into the yard. Trains must pull up the north runner and be split/switched to tracks 10, 9 or 8 for loading/unloading on the loading pad. Trains waiting to switch intermodal cars onto the appropriate tracks for unloading block the only access ramp incoming trucks have to the trailer/container storage area. This barrier impairs trailer/container delivery operations at the terminal.

4.4 Transit Access

Existing transit service is limited within the study area. Five routes physically intersect the corridor, but only one of these routes services non-residential uses in the Study Area (i.e., Route 22). Based on the probable build-out scenario, between the baseline year 2000 and the design year 2020, over 5,500 additional industrial and commercial jobs could potentially

be created/attracted to the corridor. With an increase in industrial employment, the need for safe, efficient, and affordable transit service throughout the corridor will increase accordingly. Current transit routes would not fully address this need.

Moreover though, the nature and character of new development occurring in the study area does not lend itself to the provision of new transit service that would serve as a legitimate alternative to single-occupancy passenger vehicles. Large, sprawling, single-use office complexes with large parking facilities tend to be significantly back from street faces, increasing pedestrian distances between transit stops and destinations, or requiring transit vehicles to enter private properties, increasing travel times.

Finally, the fact that the Study Area comprises a large geographic area with widely dispersed employers, all of which may have numerous, overlapping shift change times, will pose a significant impediment to the provision of quality transit service. With the exception of one route (i.e., Route 723) all CNYRTA bus routes in Onondaga County are constructed to converge in downtown Syracuse at "Common Center," located at the intersection of Fayette and Salina Streets, to facilitate passenger transfers between bus lines. During weekday, midday, and evening periods, and on weekends, longer bus routes that serve the suburbs are scheduled to meet at Common Center to facilitate passenger transfers every seventy minutes. Since five minutes are required to allow passengers to transfer, the longer routes have only 65 minutes to make a round trip, or 32 minutes for each one-way trip. Obviously, given traffic and the stop-and-go nature of transit service (i.e., to allow passengers to board and alight), one can understand the constraints facing CNYRTA.

4.5 Pedestrian Access

Accommodations for the pedestrian mode of travel are virtually nonexistent in the study area. Sidewalks in the study area are limited to a three-foot wide concrete sidewalk along portions of the western side of Kinne Street, and a sporadic 24-inch wide asphalt sidewalk along the eastern side of Fremont Road. These sidewalks are in varying degrees of disrepair and do not meet any Americans with Disabilities Act (ADA) standards for public rights-of-way.

Based on existing pedestrian counts, pedestrian travel does currently occur on a regular basis in the corridor. As for an increase in pedestrian travel toward the design years, residential land uses typically are the most significant contributors to pedestrian travel, and residential development projections are minimal. However, the continued existence of several primary educational facilities and the possibility for expanded transit service in the corridor indicate that pedestrian facilities should be enhanced. In addition, the lack of a defined pedestrian zone on study area roads impedes safety and access for school bus patrons and the potential for enhanced transit service.

With respect to modal conflicts, pedestrian travel directly conflicts with automobile and truck travel within the corridor. This can be attributed to three primary factors: excessive vehicle/truck speeds; disregard of traffic laws (i.e., “rolling” right-on-red, not yielding to pedestrians having the right-of-way, pedestrians crossing against a signal, etc.); and lack of pedestrian facilities (i.e., sidewalks, crosswalks, pedestrian signals, etc.).

4.6 Bicycle Access

The rural nature of the majority of the corridor is conducive to bicycle travel with roadway widths that can accommodate both vehicular and bicycle travel. Based on intersection counts collected, bicycle travel rarely occurs in the corridor (i.e., one bicycle was observed in the entire corridor during AM and PM Peak periods). However, public comments have indicated that children living in and around the study area do ride bicycles along residential streets (e.g., Fremont Road, Kirkville Road, Kinne Street, etc.) and between home and school.

Bicycle mobility is impaired by conflicts with automobile and truck modes of travel. These conflicts can be attributed to three primary factors: excessive automobile/truck speeds; disregard of traffic laws (i.e., “rolling” right-on-red, not yielding to bicyclists having the right-of-way, bicyclists riding against traffic, etc.); and lack of bicycle facilities (i.e., bike lanes).

Table 4.0-1
I-481 Industrial Corridor
Summary of Relationships Among Transportation Modes

Mode	Passenger Vehicle	Commercial Truck	School Bus	Public Transit	Commercial & General Aviation	Freight Rail	Pedestrian/ Bicycle
Passenger Vehicle	--	Localized conflicts around heavily trafficked residential areas (e.g., Kirkville and Freemont Road)	No major conflicts.	Easy vehicular access and parking discourage transit use.	No major conflicts.	No major conflicts.	Higher average speeds, traffic movements, and lack of defined pedestrian/bicycle zone impede safe access.
Commercial Truck	Localized conflicts around heavily trafficked residential areas (e.g., Kirkville and Freemont Road)	--	Conflicts at the Freemont Road/N. Central Ave. intersection, given proximity of Dewitt Yard and Regional school bus garage.	No major conflicts.	No major conflicts.	Internal truck and rail access issues at the Dewitt Yard and access between the rail yard and the interstate system is constrained.	Higher average speeds, traffic movements, and lack of defined pedestrian/bicycle zone impede safe access.
School Bus	No major conflicts.	Conflicts at the Freemont Road/N. Central Ave. intersection, given proximity of Dewitt Yard and Regional school bus garage.	--	No major conflicts.	No major conflicts.	No major conflicts.	Lack of safe pedestrian access from school bus stops and ultimate destinations.

Table 4.0-1
I-481 Industrial Corridor
Summary of Relationships Among Transportation Modes

Mode	Passenger Vehicle	Commercial Truck	School Bus	Public Transit	Commercial & General Aviation	Freight Rail	Pedestrian/ Bicycle
Public Transit	Easy vehicular access and parking discourage transit use.	No major conflicts.	No major conflicts.	--	No major conflicts.	No major conflicts.	
Commercial & General Aviation	No major conflicts.	No major conflicts.	No major conflicts.	No major conflicts.	--	No major conflicts.	No major conflicts.
Freight Rail	No major conflicts.	Internal truck and rail access issues at the Dewitt Yard and access between the rail yard and the interstate system is constrained.	No major conflicts.	No major conflicts.	No major conflicts.	--	No major conflicts.
Pedestrian/ Bicycle	Higher average speeds, traffic movements, and lack of defined pedestrian/bicycle zone impede safe access.	Higher average speeds, traffic movements, and lack of defined pedestrian/bicycle zone impede safe access.	Lack of safe pedestrian access from school bus stops and ultimate destinations.	No major conflicts.	No major conflicts.	No major conflicts.	--

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5 LAND USE AND TRANSPORTATION ISSUES

Through the course of gathering existing conditions data that was presented in Chapter 2, comments received at public meetings, the conducted build-out analysis and associated traffic forecasting efforts, and the multimodal assessment, a number of land use and transportation issues within the I-481 Industrial Corridor were identified. These issues are presented below along with possible opportunities and constraints. In addition, the implications of the issues on both the Primary Zone of Influence (i.e., the study area) and the Secondary Zone of Influence (i.e., the entire MPO region) have been outlined.

5.1 Land Use Issues

The following land use issues were identified in the I-481 Industrial Corridor:

- Large amount of vacant land zoned industrial and high-tech exists with a maximum build-out potential of over 90,000,000 square feet;
- Based on the potential build-out scenario, the portion of the Town of DeWitt located inside the study area could absorb approximately 121,000 square feet of new industrial and high-tech development annually between the baseline year 2000 and the design year 2020;
- Floodplains and wetlands contribute to periodic flooding;
- Limited availability of public utilities constrains development potential;
- Lack of density controls in the local municipalities' zoning ordinances could allow a maximum build-out of over 90,000,000 square feet of industrial and high-tech development;
- Public perception of existing zoning conflicts with actual zoning (i.e., public does not realize or accept how much land is zoned industrial); and
- As development continues, community character is eroding.

Opportunities

Refinement of local development regulations through the addition of items such as density controls, impact fees, and limits on impervious surfaces ratios would decrease the likelihood of extreme build-out scenarios, redistribute the burden of infrastructure (i.e., utilities and roadways) financing from local municipalities to developers, and reduce flooding potential. Education of the public as to actual zoning classifications and the development implications of such will either bring acceptance or instill resolve toward rezoning efforts that would better "fit" the resident's desires for their community. Also, requiring developers to provide a specific level of public amenities (e.g., public open space, sidewalks, trails, landscaping, site design that facilitates transit access, etc.) as part of the site plan approval process could offer the potential of enhanced community character.

Constraints

Although strengthening local development controls would protect the study area from maximum build-out, such an action would have overarching implications reaching beyond the I-481 Industrial Corridor to the municipality as a whole. In addition, placing additional per-

formance burdens upon developers such as impact fees, impervious surface ratios, and site plan approval requirements may actually drive development away from the corridor to other more "favorable" sites in the region.

Impact of Issues on Primary Area of Influence

All land use issues identified have bearing on the Primary Area of Influence (i.e., the study area). Issues involving potential and maximum build-out, availability of utility services, floodplains and wetlands, and community character directly affect the viability and livability of the corridor.

Impact of Issues on Secondary Area of Influence

The potential and maximum build-out of the study area coupled with the issue of density controls and performance requirements may have an impact on the Secondary Area of Influence (i.e., the entire MPO region). Depending upon the attractiveness of available industrial and high-tech land in the study area, other sites in the MPO region may be deemed as more or less favorable.

5.2 Vehicular Travel Issues

The following vehicular travel issues were identified in the I-481 Industrial Corridor:

- Disregard of traffic laws/regulations by automobile and truck modes of travel (e.g., excessive travel speeds, stop sign roll-through, "rolling" right-on-red, etc.);
- Inappropriate pavement markings along sections of key roadways that allow for unsafe travel patterns (e.g., single dashed centerline permitting passing against opposing traffic in high volume areas);
- Impairment of residential driveway access along busier roadways by excessive travel speeds and vehicular queuing at intersections (e.g., Kirkville Road, Fremont Road, etc.);

High volumes of truck traffic in areas with stop sign controlled intersections, such as Schuyler Road, is one of the vehicular travel issues that was identified in the corridor.

- High volumes of truck traffic in areas that have stop sign controlled intersections, narrow lanes, and little or no shoulder width (e.g., vicinity of Schuyler Road);
- General traffic safety issues at key intersections (e.g., left-turn merge lane at Fremont Road/Kirkville Road Intersection is too short and has little or no warning of terminus location); and
- Potential traffic flow issues at specific intersections as corridor reaches probable build-out (i.e., Collamer Road at Northern Boulevard and Fly Road).

Opportunities

Increased safety of all modes would greatly benefit the corridor. Keeping vehicle travel speeds within a reasonable range of the posted speed limit increases vehicular, pedestrian, and bicycle safety. Increased safety leads to a more livable pedestrian/bicycle environment and enhances mobility for those who would otherwise have no means of travel within the corridor (i.e., those who do not have access to an automobile). Similarly, means of increasing awareness of other traffic laws and regulations (e.g., signage that indicates a full and complete stop is required at all stop signs and red lights), pavement markings that correlate to roadway character and travel speeds, proper lengths of merge lanes, and accessible travel to and from one's residence would all provide for a safer and more livable environment for all modes of travel.

Improvements to accommodate increased traffic and large amounts of truck traffic would improve traffic flow and safety throughout the corridor. On roads that experience high volumes of truck traffic, widening shoulders, signalizing intersections, and adding turn lanes would improve automobile accessibility to and from cross streets while increasing overall safety. At intersections where projected future traffic volumes will cause an intersection to fail, the addition of dedicated turn lanes will make these intersections more efficient.

Constraints

In many cases, excessive speeds and disregard for other traffic laws are a direct result of a lack of effective enforcement. The obvious short-term answer to this is to increase police presence in and around problem intersections or roadways. However, if a police presence is required along every street where traffic laws are disregarded, then police manpower would be stretched beyond a reasonable limit and higher crimes would go unchecked. In addition, an increased police presence in the corridor might seem to imply safety, but to some it could be perceived that the corridor has a high crime rate and therefore requires a large police presence.

To implement roadway improvements, such as lengthening of merge lanes, widening of shoulders, adding dedicated turn lanes, and providing acceleration/deceleration lanes in front of residential uses, additional right-of-way is required. Because in most instances this right-of-way is not already in the possession of the governing agency, such right-of-way would have to be acquired from parcels adjacent to the roadways/intersections to be improved (i.e., private property owners would have to sell such land to the governing agency or said agency would have to use condemnation to acquire the property). This would, in many cases, encroach on residential front yards or entirely eliminate homes depending on their proximity to the existing roadway.

Impact of Issues on Primary Area of Influence

All vehicular travel issues identified have bearing on the Primary Area of Influence (i.e., the study area). Issues involving vehicular access, mobility, and safety, whether they specifically address automobile, truck, or school bus modes of travel, directly affect the viability and livability of the corridor.

Impact of Issues on Secondary Area of Influence
Vehicular travel issues identified do not have any measurable impact on the Secondary Area of Influence (i.e., the entire MPO region).

5.3 Pedestrian and Bicycle Travel Issues

The following pedestrian and bicycle travel issues were identified in the I-481 Industrial Corridor:

- Lack of sidewalks and associated ADA curb ramps;
- Absence of crosswalks at signalized intersections;
- Vehicular disregard for pedestrian and bicycle right-of-way and safety; and
- Lack of designated bicycle lanes and/or routes.

Opportunities
Accommodations for pedestrian and bicycle modes of travel improve the link to transit service, lend to a more user-friendly scale, and create safer pedestrian/bicycle environments. Additionally, such amenities would provide individuals with limited mobility with additional transportation options. Key areas of focus should be roadways with adjacent residential and academic uses (e.g., Fremont Road, Kirkville Road, Kinne Street, etc.) and connections between transit service and employment locations.

Constraints
Similar to roadway improvements, to implement pedestrian and bicycle accommodations (i.e., sidewalks and bike lanes) additional right-of-way may be required. In most cases this right-of-way is not already in the possession of the governing agency, and such right-of-way would have to be acquired from parcels adjacent to the roadways/intersections to be improved (i.e., private property owners would have to sell such land to the governing agency or said agency would have to use condemnation to acquire the property). Although not as invasive as right-of-way acquisition for roadway improvements, this would still encroach on what is now private property.

Impact of Issues on Primary Area of Influence
All pedestrian and bicycle travel issues identified have bearing on the Primary Area of Influence (i.e., the study area). Issues involving pedestrian and bicycle mobility and safety directly affect the viability and livability of the corridor.

Impact of Issues on Secondary Area of Influence
Pedestrian and bicycle travel issues identified do not have any measurable impact on the Secondary Area of Influence (i.e., the entire MPO region).

5.4 Transit Issues

With respect to the I-481 Industrial Corridor, the lack of transit service to the majority of the corridor proved to be the only significant transit issue.

Opportunities
Safe, efficient, and affordable transit service throughout the entire I-481 Industrial Corridor would provide an additional mode of travel for individuals with limited mobility and financial means. Such service would allow employers in the corridor to draw from a larger and more diverse pool of potential employees.

Constraints
Expanded transit service in the corridor would be the responsibility of the CNYRTA's Centro public transportation service. To lengthen existing routes and/or add additional routes would require a commitment of additional equipment, manpower, and funding or a reallocation of existing equipment, manpower, and funding. Beyond this, additional studies would be required to determine appropriate routes and stops and would need to be updated and expanded as new development occurs in the corridor. In addition, to provide efficient new service, the characteristics of new development occurring in the study area would need to be refined to accommodate transit.

Impact of Issues on Primary Area of Influence
The transit issue identified (i.e., lack of transit service throughout much of the study area) has bearing on the Primary Area of Influence (i.e., the study area). Issues involving the availability of multiple modes of transportation, particularly modes for those who do not own or have access to an automobile, directly affect the viability and livability of the corridor.

Impact of Issues on Secondary Area of Influence
Lack of transit service to the majority of the corridor may impact the Secondary Area of Influence (i.e., the entire MPO region). As industrial and high-tech development occurs in the study area, many of the jobs created could be filled by qualified candidates who live outside the study area – throughout the remainder of the MPO region. Many such candidates will not have access to an automobile and will require a safe, efficient, and affordable transit system to transport them to work. If such a system does not exist, then development could be discouraged, affordable staffing could be challenging, and ultimately, jobs that would benefit the study area and the region could be lost.

5.5 DeWitt Rail Yard Issues

The following issues pertaining directly to the DeWitt Rail Yard were identified in the I-481 Industrial Corridor:

- Trains waiting to switch intermodal cars onto the appropriate tracks for unloading block the only access ramp incoming trucks have to the trailer/container storage area;
- Trucks traveling between the rail yard and local roads and Interstates lend to high truck volumes on Kirkville Road, Fremont Road, and North Central Avenue;
- Trucks must utilize local roads as rail yard lacks direct access to the Interstate System;
- Rail yard access point (i.e., North Central Avenue) is also East Syracuse Minoa Central Schools Transportation Center access point, resulting in conflicts between trucks and school buses; and

- Public perception of truck volumes is higher than actual volumes, contributable in part to rail yard access routes.

The East Syracuse Minoa Central Schools Transportation Center is located in close proximity to the DeWitt Rail Yard, resulting in truck and school bus conflicts.

Opportunities

Provision of direct Interstate access for trucks entering and exiting the intermodal terminal would remove truck traffic from local roads and reduce conflicts with residential uses and school bus traffic. Reconfiguration of the interior traffic patterns of the terminal and the addition of a south runner would accommodate a new access road and allow for unimpeded truck access to the trailer/container storage area at all times regardless of train location. A new access pattern would also provide for the removal of trucks from local roads and dissipate both the public perception and the reality of truck volumes.

Constraints

Although reconfiguration of the intermodal terminal would benefit its operations, CSX Transportation does not express a need for such reconfiguration and is content with the existing configuration. This would imply that in order for such improvements to occur, CSX Transportation would have to be persuaded to participate financially and/or an extensive amount of public funding would have to be utilized. In addition, providing a new access to the terminal has historically been considered via Girden Road, which does not have public support with residents who would be directly impacted by such an alternative.

Impact of Issues on Primary Area of Influence

All issues pertaining to the DeWitt Rail Yard have bearing on the Primary Area of Influence (i.e., the study area). Issues involving real and perceived truck volumes and operations of the CSX Intermodal Terminal directly affect the viability and livability of the corridor.

Impact of Issues on Secondary Area of Influence

Operational issues at the CSX Intermodal Terminal directly impact the Secondary Area of Influence (i.e., the entire MPO region). The presence of, services provided by, and reliable operation of the intermodal terminal affects the marketability of the entire MPO region to businesses that require truck-to-rail and rail-to-truck transfer functions. The implications of the facility are even broader still; trucks bring consumer goods to the terminal for transfer to train delivery both regionally and nationally. In addition, trains originating in Chicago and St. Louis come to the terminal where their units are dispersed between trains bound for New England and Northern New Jersey and vice versa.

5.6 Other Issues

Additional areas of concern were brought to the attention of the Project Team during public meetings that were held as part of the public involvement program, including the following: air and noise pollution associated with truck traffic, the Dewitt Rail Yard, and Syracuse Hancock International Airport; potential for hazardous materials contamination on some sites in the study area; and the need for an emergency evacuation plan for area schools. Although these are valid issues, they fall outside the scope of the I-481 Industrial Corridor Transportation Study. These items will not be specifically addressed as part of this study; however, they have merit and should be considered under future, more applicable efforts.

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6 PRELIMINARY ALTERNATIVE SOLUTIONS

This section presents preliminary mobility, access, and development alternatives for implementation regarding transportation in the I-481 Industrial Corridor, and evaluates these alternatives based upon a series of performance criteria.

6.1 Performance Criteria

Each of the alternatives were evaluated against the following performance criteria:

- Ability to improve the safety and security of the transportation system for vehicular and non-vehicular users;
- Ability to facilitate integration and connectivity among various modes of transportation (i.e., automobile, bus, pedestrian, bicycle);
- Specific ability to improve the experience, access, and mobility of pedestrians and transit users in the corridor;
- Ability to enhance and preserve community character;
- Ability to maintain adequate traffic mobility for vehicular users in the corridor;
- Ability to be reasonably implemented, considering policy and regulatory jurisdictions and realistic funding mechanisms; and
- Ability to be reasonably maintained or enforced following implementation.

In many cases, given the presence of closely related issues, the evaluation may indicate that aspects of individual alternatives can be merged into more comprehensive proposals for key areas along the corridor.

6.2 Preliminary Alternatives

This section identifies a range of potential alternatives that were developed for addressing various items identified in Chapters 3, 4, and 5. Where applicable and appropriate, these alternatives are grouped/classified according to the associated level of effort and/or capital investment necessary for implementation, as follows:

- ***Low***, meaning items primarily associated with management, enforcement, or procedures;
- ***Medium***, indicating a middle range of effort, such as larger measures of management or enforcement and/or lower cost capital investments; and
- ***High***, indicating a major change of policy, regulations, and/or high level of capital investment.

The preliminary alternatives listed are not intended to represent an exhaustive compilation of fully developed designs or approaches for improvements within the I-481 Industrial Corridor. It is intended to serve as a starting point of discussion regarding the overall reasonableness of design concepts and possible courses of action for improvements.

Table 6.2-1, located at the end of this section, summarizes all alternatives with respect to the performance criteria.

6.2.1 Land Use and Access Management

Land use and access management issues identified in Chapter 5 included large amounts of vacant land with high build-out potential, periodic flooding, limited availability of public utilities, lack of density controls, erroneous public perception of zoning, and the continuous erosion of community character.

Alternatives

Low

- Educate public as to actual zoning classifications and the development implications of such through informational fliers, presentations at neighborhood meetings, and public open-house style meetings.
- Increase the coordination between local municipalities and New York State Department of Transportation (NYSDOT) and Onondaga County Department of Transportation (OCDOT) during the site plan approval process in order to reconcile proposed land uses to the environment and the transportation network.

Medium

- Make the most efficient use of the existing transportation network's finite capacity by developing a plan that outlines roadways where existing capacity should be preserved, corridors where limited improvements should be made to maintain mobility, and locations where potential future connections should be created.

High

- Refine municipal development regulations to include density controls and impervious surface ratios to reduce maximum build-out and flooding potentials.
- Adopt municipal regulations that require developers to provide a specific level of public amenities. Such standards/guidelines could include:
  - Identifying logical corridors for sidewalk system extensions and requiring (as part of site plan approval) sidewalk improvements along property frontages as new developments come on line.
  - Identifying elements such as stream corridors and other less developable lands suited for trail segments and provide incentives for improvements and/or dedication to the municipality for public use as part of site plan approval.
  - Develop performance standards that could be used to focus municipal site plan review targeted at improving multimodal access and compatible transitions amongst adjoining land uses. Such standards could involve provisions for public open space, internal sidewalks, trails, landscaping, buffer yards between adjacent uses and roadways, and/or site design that facilitates transit access.

- Institute impact fees for development, thereby redistributing the cost burden of infrastructure improvements (i.e., utilities and roadways) to developers rather than local municipalities.

Evaluation of Alternatives

All alternatives meet the evaluation criteria with the exception of the institution of impact fees. Impact fees, more so than other performance standards (e.g., requiring public amenities, design standards, etc.), are difficult to implement in the regional context (i.e., few municipalities in upstate New York use such controls) and are generally a discouragement to developers (i.e., often result in developers to opt for more "favorable" sites in other locations).

It is important to note that while alternatives such as density controls, impervious surface ratios, and site plan approval requirements would meet the evaluation criteria, it is recognized that they address issues that have implications reaching beyond the I-481 Industrial Corridor. Any recommendations derived from these alternatives would need to be in the context of municipal-wide programs.

6.2.2 Vehicular Travel

Vehicular travel issues identified in Chapter 5 were disregard for traffic laws/regulations, inappropriate pavement markings, impairment of residential driveway access, high truck volumes in areas with stop sign controlled intersections, general traffic safety issues at key intersections, and potential traffic flow issues at specific intersections as the corridor reaches probable build-out.

Alternatives

Low

- Install additional speed limit signs throughout the corridor.
- Periodic use of radar monitoring devices at key points throughout the corridor. The intent of such devices is to inform the driver of their current travel speed thereby encouraging compliance with the speed limit. This technique is typically used within regularly traveled commuter corridors such as the I-481 Industrial Corridor and around sensitive uses such as schools and residential areas.
- Install signage that indicates a full and complete stop is required at all stop signs and red lights.
- Re-stripe roadways with double yellow striping between opposing travel lanes in areas with high traffic volumes, significant pedestrian volumes, or minimum sight distances.

Radar monitoring devices alert drivers to their current speed and encourage compliance with posted speed limits.

Medium

- Increase police enforcement efforts in targeted portions of the corridor. The primary intent would be to discourage speeding by developing a reputation for a larger police presence. Efforts should be well publicized in local media for the greatest impact on commuters regularly traveling through the corridor.
- Widen existing and/or add shoulders to roads experiencing high volumes of truck traffic.

High

- Lengthen merge lanes to allow an appropriate distance for traffic entering the roadway to safely merge with traffic already on the roadway.
- Adjust geometrics at selected intersections to add new or additional dedicated left-turn lanes to intersections with projected future level-of-service problems prior to their anticipated failure date. Such improvements would increase the efficiency of the intersection and improve traffic flow. Potential locations for such treatment would include:
  - Rte 298/Collamer Road at Northern Boulevard;
  - Collamer Road at Fly Road; and
  - Selected movements at Kinne Street/New Venture Gear Drive, Kirkville Road/Fly Road, Kirkville Road/Fremont Road, Collamer Road/Schuyler Road, and Taft Road/Fly Road intersections.
- Install acceleration/deceleration lanes in front of residential uses to provide adequate access to/from residential driveways and properties.

Evaluation of Alternatives

It was determined that all alternatives would meet the evaluation criteria with the exception of acceleration/deceleration lanes along residential frontages. Such an installation, while providing easier access to/from residential driveways, would detract from the character of the community, increase impervious surfaces in an environment prone to flooding, and be difficult to implement based on the need for large amounts of property acquisition.

Travel speed enforcement techniques could focus more on monitoring in the short term, followed by a manned presence, in consideration of manpower requirements. Improvements such as double yellow striping and signage indicating a full and complete stop is required at all red lights and stop signs would improve vehicular, pedestrian, and bicycle safety throughout the corridor.

Higher cost improvements including wider shoulders merge lanes, and dedicated left-turn lanes would increase safety and traffic flow efficiency.

6.2.3 Pedestrian and Bicycle Travel

Issues identified in Chapter 5 regarding pedestrian and bicycle travel included the lack of sidewalks and ADA compliant curb ramps, absence of crosswalks, disregard by motorists of pedestrian/bicycle right-of-way and safety, and lack of designated bicycle routes or lanes.

Alternatives

Low

- Install crosswalks at all signalized intersections.
- Install "Share the Road" traffic signs throughout the corridor.

Medium

- Establish logical pedestrian connections between residential and educational uses through the installation of either sidewalks along appropriate roads (e.g., Kirkville Road, Fremont Road, etc.) or, where suitable, through independent trail systems along various types of linear features (e.g., streams, wetland corridors, etc.).
- Install ADA curb ramps at all surface transitions.
- Install enhanced crosswalks (i.e., bold striping) with limited intelligent transportation system (ITS) elements (e.g., pedestrian countdown signals and infrared detectors) at all signalized intersections.

High

- Install and/or replace sidewalks throughout the entire corridor.
- Install complete ITS crosswalk package (e.g., pedestrian countdown signals, microwave detection devices, and in-pavement lighting) at all signalized intersections.

Evaluation of Alternatives

It was determined that each of the alternatives would meet the evaluation criteria with the exception of installing sidewalks throughout the entire corridor and implementation of a complete ITS crosswalk package.

Although sidewalks throughout the entire corridor would be a significant pedestrian improvement, such an undertaking would be capital intensive and not an efficient use of funding. Pedestrian travel is not extensive in the corridor, and should be addressed, but perhaps on a more progressive basis. The large majority of pedestrians traveling within the corridor utilize pathways along predominately residential roads (e.g., Kirkville Road, Fremont Road, Kinne Street, etc.), and sidewalk improvements should be prioritized and targeted at these areas.

Installation of a complete ITS crosswalk package at every intersection throughout the corridor is not warranted. As with sidewalks, ITS should be implemented efficiently in areas that will most benefit from it. Partial ITS installation in the form of infrared detectors and pedestrian countdown signals would meet the needs of pedestrians traveling the corridor and would likely be economically feasible.

In all cases, a pedestrian warrant analysis should be performed to determine need for and exact location of pedestrian amenities (e.g., sidewalks, crosswalks, etc.).

6.2.4 Transit

The lack of transit service to the majority of the study area proved to be the only significant transit issue identified in Chapter 5.

Medium

- Conduct a feasibility study to determine what, if any, portions of the corridor would benefit from transit service, and if such service would be viable both in terms of ridership and revenue.

High

- Connect existing transit routes in the southwest corner of the corridor to business and residential uses throughout the corridor via a dedicated shuttle or circulator route service (i.e., public/private cost sharing options should be explored to fund such a service).
- Extend present transit routes and/or add additional routes to service business and residential uses throughout the corridor, if proven to be operationally and financially feasible.

Evaluation of Alternatives

The only alternative to meet the evaluation criteria is the pursuing of a feasibility study to determine transit needs and benefits. Although the establishment of transit in the corridor, in the form of extended routes or connecting shuttles, would improve mobility in and through the corridor, without further study, to recommend such would be inappropriate.

6.2.5 DeWitt Rail Yard

Issues identified with regard to the DeWitt Rail Yard were complex, including interior access issues, contribution to high truck traffic on local roads, lack of appropriate Interstate access, access point conflicts with school bus traffic, public perceptions of truck volumes generated by the rail yard, and community quality-of-life affects of the yards' operations.

Medium

- Program and advance an SMTC-sponsored preliminary engineering process specifically examining the rail yard to determine its economic impact, future growth potential, present and future access issues, and impact on the surrounding community. Such an effort would be a prerequisite to securing potential state and/or federal funding for access improvements. Given that the facility involves regional intermodal transportation access, it would likely meet state/national transportation objectives.

High

- Provide new access to more directly link the rail yard to I-481. Such access would remove rail yard traffic from local roadways and eliminate conflicts with school buses at North Central Avenue.
- Relocate rail yard gate office, add a south runner, and reconfigure interior traffic patterns to allow for unimpeded truck access to the trailer/container storage area at all times regardless of train location.

Evaluation of Alternatives

All alternatives meet the evaluation criteria and should be carried forward for further analysis. Although the two high alternatives would involve a large capital investment, they may also provide large community character, safety, and mobility benefits to the corridor. However, the medium alternative, a dedicated study of the rail yard, would be a logical first step prior to implementing such capital improvements.

Table 6.2-1
Summary of Alternatives vs. Performance Criteria

Alternatives	Performance Criteria						
	Improve safety and security of transportation system	Facilitate integration and connectivity of all modes	Improve experience, access, and mobility of pedestrians and transit users	Enhance and preserve community character	Maintain adequate traffic mobility	Reasonable implementation	Reasonable maintenance or enforcement
Land Use and Access Management							
Educate public on zoning classifications	N/A	N/A	N/A	N/A	N/A	YES	N/A
Increase coordination between municipalities and NYSDOT and OCDOT	YES	YES	YES	YES	YES	YES	YES
Develop plan to direct the efficient use of the existing transportation network	YES	YES	YES	YES	YES	YES	YES
Density and impervious surface controls	YES	N/A	N/A	YES	N/A	YES	YES
Require public amenities from developers	YES	YES	YES	YES	YES	YES	YES
Institute impact fees	YES	YES	YES	YES	YES	NO	NO
Vehicular Travel							
Additional speed limit signs	YES	N/A	YES	NO	N/A	YES	YES

Table 6.2-1
Summary of Alternatives vs. Performance Criteria

Alternatives	Performance Criteria						
	Improve safety and security of transportation system	Facilitate integration and connectivity of all modes	Improve experience, access, and mobility of pedestrians and transit users	Enhance and preserve community character	Maintain adequate traffic mobility	Reasonable implementation	Reasonable maintenance or enforcement
Radar monitoring devices	YES	N/A	YES	NO	N/A	YES	YES
Signage for full and complete stop	YES	N/A	YES	NO	N/A	YES	YES
Re-stripe with double yellow striping	YES	N/A	N/A	N/A	N/A	YES	YES
Increased police enforcement	YES	N/A	YES	NO	N/A	YES	YES
Widen and/or add shoulders	YES	N/A	YES	NO	YES	YES	YES
Lengthen merge lanes	YES	N/A	N/A	NO	YES	YES	YES
Add dedicated left-turn lanes	YES	N/A	N/A	N/A	YES	YES	YES
Install acceleration / deceleration lanes	YES	N/A	N/A	NO	YES	NO	YES
Pedestrian and Bicycle Travel							
Crosswalks at all signalized intersections	YES	YES	YES	YES	YES	YES	YES
Install “Share the Road” traffic signs	YES	YES	YES	NO	N/A	YES	YES

Table 6.2-1
Summary of Alternatives vs. Performance Criteria

Alternatives	Performance Criteria						
	Improve safety and security of transportation system	Facilitate integration and connectivity of all modes	Improve experience, access, and mobility of pedestrians and transit users	Enhance and preserve community character	Maintain adequate traffic mobility	Reasonable implementation	Reasonable maintenance or enforcement
Pedestrian connections	YES	YES	YES	YES	YES	YES	YES
Install ADA curb ramps	YES	YES	YES	YES	N/A	YES	YES
Enhanced crosswalks and limited ITS	YES	YES	YES	YES	YES	YES	YES
Install sidewalks throughout corridor	YES	YES	YES	YES	YES	NO	NO
Comprehensive ITS crosswalk package	YES	YES	YES	YES	YES	NO	NO
Transit							
Conduct feasibility study for transit	N/A	YES	YES	N/A	N/A	YES	N/A
Connect to transit via trolley or shuttle	N/A	YES	YES	N/A	N/A	NO	NO
Extend or add routes to service corridor	N/A	YES	YES	N/A	N/A	NO	NO
DeWitt Rail Yard							
Conduct study of rail yard	N/A	YES	N/A	N/A	N/A	YES	N/A

Table 6.2-1
Summary of Alternatives vs. Performance Criteria

Alternatives	Performance Criteria						
	Improve safety and security of transportation system	Facilitate integration and connectivity of all modes	Improve experience, access, and mobility of pedestrians and transit users	Enhance and preserve community character	Maintain adequate traffic mobility	Reasonable implementation	Reasonable maintenance or enforcement
Construct new access road	YES	YES	N/A	YES	YES	NO	YES
Reconfigure interior traffic patterns	N/A	YES	N/A	N/A	N/A	NO	YES

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7 RECOMMENDATIONS

7.1 Corridor-Wide Recommendations

A series of corridor-wide actions are recommended for implementation that would address land uses and transportation issues throughout the I-481 Industrial Corridor. These include procedural and analysis efforts, land use and access management measures, and lower cost capital improvements.

Such actions should be considered in two contexts – as potential individual, discreet programs that could be implemented in various areas throughout the study area; but moreover, as a series of objectives and elements that could be strategically incorporated into ongoing public improvement programs and/or regulatory processes.

7.1.1 Procedural and Analysis Recommendations

7.1.1.1 Travel Speed Monitoring/Enforcement

It is recommended that the DeWitt, Manlius, and Cicero Police Departments examine the potential to undertake a coordinated enhanced program of monitoring and enforcement to dissuade the tendency for traffic speeds in excess of posted speed limits within the corridor. The objective of such a program would be to facilitate a safer environment for both vehicles and pedestrians, particularly during morning and evening peak traffic periods.

Traditionally, when speeding is a problem, the approach has been to deploy a radar-equipped traffic officer to problem locations to monitor the speeds and issue citations. The presence of the patrol car causes drivers to slow down for the time period that police are present. If an officer is regularly assigned to that location to maintain a visible presence, drivers who regularly traverse that route will at least be mindful of their speed when passing that location.

An alternate approach is recommended throughout the I-481 Industrial Corridor. This involves "self policing" traffic speeds, which relies upon the fact that most drivers will reduce excessive speed if they are reminded that they are speeding. This approach is becoming more popular as police departments struggle to do more with limited resources.

The first step in such a program would be to increase the number and visibility of speed limit signs throughout the corridor. Additional driver awareness of travel speed would be gained through the use of an automatic, radar-driven sign that displays speeds to individual drivers as they approach the sign. Such signs can be mounted on the deck lid of a patrol vehicle, can be built into a trailer, or permanently installed on the side of the road. They are typically used where there is greater risk from someone exceeding the speed limit, such as near school crossing zones or in areas where there is a transition from highway speeds to local speeds. In addition to displaying current speeds to drivers, this type of

device can also maintain a record of those speeds and the number of vehicles that pass the device. To address the portion of drivers whose driving behavior would not be affected by such an approach, it is also recommended that periodic conventional police monitoring and enforcement be undertaken.

To ensure public awareness and effectiveness, especially by daily commuters, any enhanced enforcement program along the corridor should be supplemented with a series of media releases announcing the objectives of the program. Such an approach often focuses on local radio coverage as part of morning/evening traffic reports.

7.1.1.2 Transit Feasibility Study

It is recommended that the SMTC, in conjunction with the CNYRTA undertake a feasibility study for extended transit service throughout the I-481 Industrial Corridor. The objective of such a study would be to determine what, if any, portions of the corridor would benefit from transit service, and if such service would be viable both in terms of ridership and revenue. Items that should be addressed in such a study could include, but not be limited to the following:

- **Evaluation of existing transit routes within the corridor.** Those routes that presently service any portion of the corridor would be assessed to determine if they should or can be extended, re-routed, abbreviated, or discontinued.

- **Evaluation of existing transit routes adjacent to the corridor.** Transit routes that presently service areas surrounding the corridor would be assessed to determine if ridership and revenue viability exists for extending those routes into the corridor.

- **Feasibility of establishing new routes/service in the corridor.** An examination of population and employment in the corridor would determine if logical new routes for transit service exist or if opportunities for linkages occur, such as:
  - Smaller circulator bus service connecting to areas along fixed routes
  - Coordinated program for major employers/land developments/office parks to provide incentives for transit use
  - Examination of special service targeted at reverse commuting to provide inner city and first-ring suburbs with improved job access.

7.1.2 Land Use & Access Management Recommendations

Considering the relationship of future land use characteristics to the continued efficiency of the transportation network in the I-481 Industrial Corridor is of primary importance to encouraging a sustainable setting for reasonable growth. Seeking alternatives to the pattern of car-dependent development, the identification of a rational connection between land use and transportation is being recognized more and more as critical to reducing the need for costly future road construction and expansion projects. Other benefits include preserving natural resources, fostering more livable and socially interactive neighborhoods, and, through reductions in car travel, assisting in the promotion of the attainment of air quality

standards for metropolitan areas. Key to achieving such goals in the I-481 Industrial Corridor is the implementation of land use and access management measures.

The following recommendations involve public education of development controls and possible amendment or creation of regulations targeted at encouraging future infrastructure and building development that is sensitive to existing residential land uses, projected industrial build-out, natural constraints to development (e.g., wetlands, floodplains, etc.), and capacity characteristics of the existing transportation network.

With regard to the amendment or creation of regulations, it should be noted that such changes could impact a larger area than just the corridor proper, and therefore, most likely would be implemented in the context of more comprehensive actions regarding development control for individual municipalities in their entirety. In all cases, it is the intent of the recommendations to be in concert with and strengthen existing local municipality comprehensive plans and zoning regulations.

7.1.2.1 Public Education on Zoning Classifications

It is recommended that local municipalities (i.e., the Towns of DeWitt, Manlius, and Cicero, and the Villages of East Syracuse and Minoa) undertake a coordinated program to educate the public as to zoning classifications, existing zoning as mapped within the corridor, anticipated zoning changes, and associated development implications. This could be accomplished through a combination of informational mailers, newspaper articles/advertisements, presentations at neighborhood and civic meetings, and public open-house style meetings focused on the topic.

7.1.2.2 Capitalize on Natural Constraints to Direct Development

It is recommended that local municipalities capitalize on existing natural constraints to direct development and preserve natural resources. Wetlands and floodplains are the predominate environmental constraint in the corridor. A total of approximately 1,800 acres of freshwater wetlands occur in the study area, including some very large contiguous complexes that coincide with vacant land in high-tech/industrial zoned districts (see Figure 7.1-1). Mapped floodplains in the study area closely correspond to mapped wetlands.

The build-out scenarios included in Chapter 3 acknowledged the abundance of wetlands and floodplains within the corridor and discounted build-out projections based on these environmental constraints (i.e., of the 2,600 acres of vacant land in the study area, approximately 1,500 acres of vacant land in industrial and high-tech zoning districts was considered to be developable). Even with these natural constraints to development, maximum build-out in the 20-year period was in excess of 90 million square feet and probable build-out indicated that the portion of the Town of DeWitt within the study area could absorb roughly 121,000 square feet of new industrial and high-tech development annually between the baseline year of 2000 and the design year of 2020. Therefore it is paramount that municipalities discourage the development of these natural areas or the potential for build-out would increase exponentially.

Through environmental review and site plan approval processes, municipalities should discourage development in areas that are predominately covered by wetlands and/or floodplains. By allowing the natural environment to dictate appropriate areas for development, natural resources will be conserved, permeable surfaces will be reduced and therefore flooding potential, community character will be preserved, and development will be appropriately located.

Conversely, such constrained areas could present excellent opportunities for future development of off-road trail networks and other open space facilities to enhance non-vehicular access. Creative approaches are available for many local review/approval processes to encourage use of such lands for trail facilities. These include programs for the establishment of conservation easements for habitat enhancement and trail development as well as land dedication programs – either to municipalities or not-for-profit land conservation entities (see also Section 7.1.3.3).

7.1.2.3 Efficient Utilization of the Existing Transportation Network

It is recommended that local municipalities work in concert with one another and the NYSDOT and OCDOT to ensure that the most efficient use be made of the existing transportation network's finite capacity. Based on the projected development scenarios outlined in the build-out analysis included in Chapter 3, there is potential for capacity issues along segments of roadways within the study area if build-out is allowed to mass rather than disperse throughout the corridor.

It is important to note that although it may be possible to expand any and all transportation connections within the corridor to keep up with the demands of development, it is certainly not appropriate to do so. As part of the environmental and site plan approval processes, municipalities should consider the character of the roadway(s) that development will front on, the overall surrounding context (i.e., land use), and budgetary constraints. If a development will increase traffic significantly, it should be determined whether or not the existing capacity of the transportation network can handle such increases, and if not, how will the necessary improvements to surrounding roadways affect the character of such roads, what will be the impact on the surrounding context, and how will improvements be funded.

A prime example of the effects of incompatible land uses influencing the improvement of the transportation network and thereby significantly changing the character of the surrounding environment can be seen at the intersection of Kirkville and Fremont Roads. This intersection has been improved and expanded to accommodate increased traffic volumes generated by the close proximity of the East Syracuse Minoa Central Schools Transportation Center and the DeWitt Rail Yard. These land uses and their respective bus and truck traffic are incompatible with one another and the surrounding environment, which is largely residential. By allowing incompatible land uses to dictate transportation facilities, the Kirkville/Fremont Intersection is no longer suitable for its location in a primarily residential environment. Without a proper plan for capacity improvements, other intersections within the corridor (e.g., Fly/Collamer, Kirkville/Fly, etc.) have the potential to resemble the Kirkville/Fremont Intersection in the future.

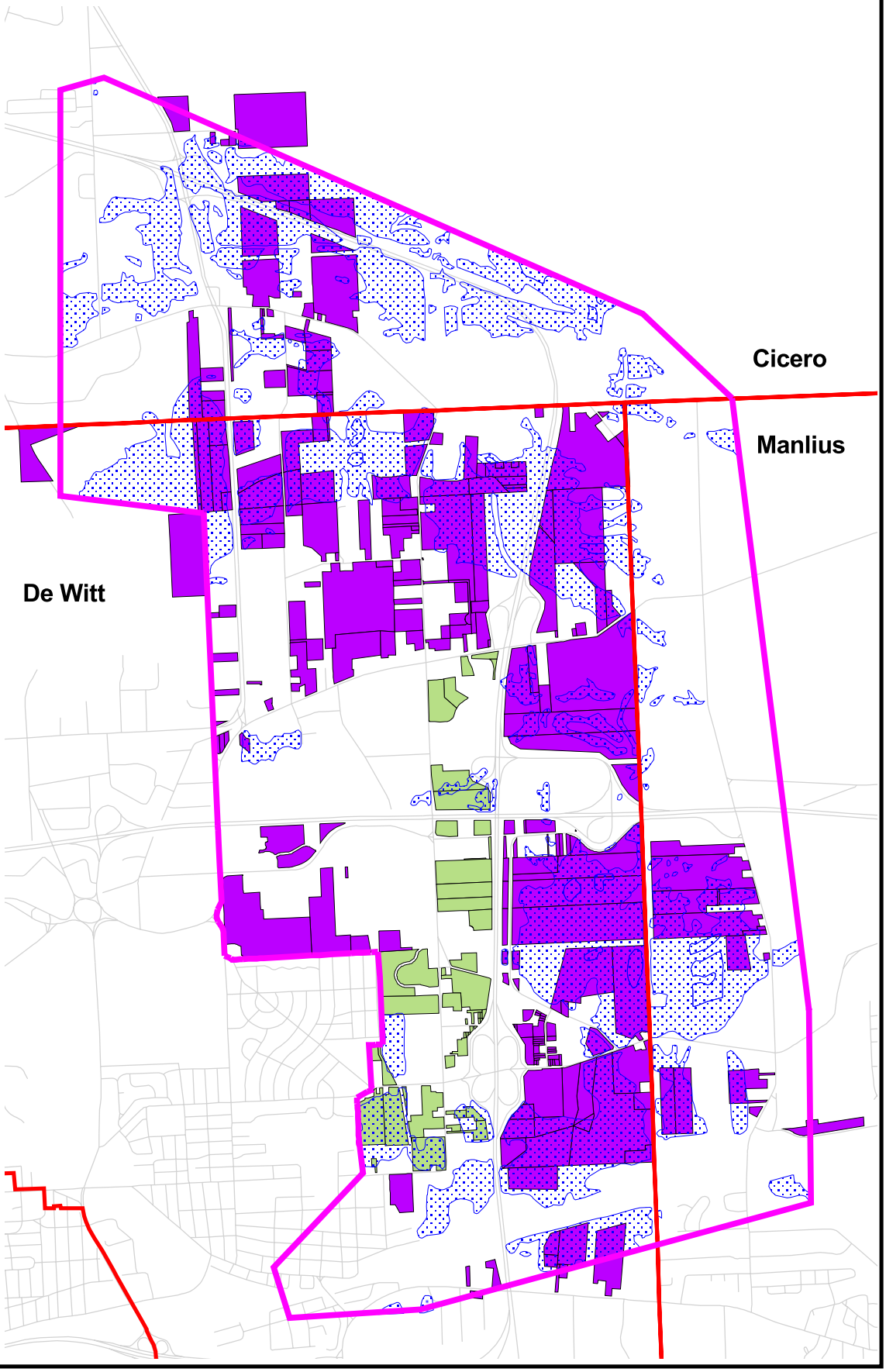

Figure 7.1-1

Vacant Hi - Tech & Industrial Parcels

LEGEND

- Wetlands
- Towns
- Vacant Industrial Parcels
- Vacant Hi-Tech Parcels
- Study Area

Source: SMTC, 2002
Map Created: 3/22/04

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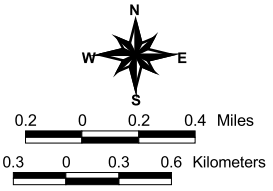
Locator Map



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A recommended plan outlining roadways where existing capacity should be preserved, corridors where limited improvements should be made to maintain mobility, and locations where potential future connections should be created is depicted in Figure 7.1-2.

The following summarizes the plan:

Existing Major Highways

- Interstate 481
- Northern Boulevard

Limited Improvement to Maintain Mobility

- Collamer Road (Route 298)
- Kirkville Road

Preserve Existing Capacity

- Taft Road
- Fly Road
- Fremont Road

Potential Future Connections

- Access between DeWitt Rail Yard and I-481
- New Collector between Northern Boulevard and Fly Road to serve Woodbine Industrial Park

7.1.2.4 Increased Coordination Between Local Municipalities and NYSDOT and OCDOT

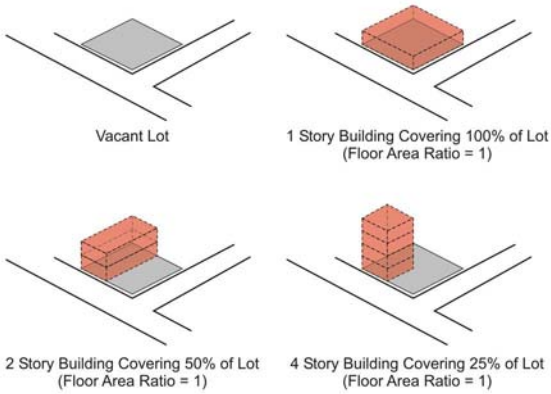
Increased communication and coordination between local municipalities and NYSDOT and OCDOT during the development process, specifically the site plan approval process is recommended. Such communication and coordination will improve the understanding and implementation of access management measures (e.g., curb cut frequency and placement, inter-parcel connectivity, etc.). In addition, increased coordination will ensure that proposed land uses are reconciled to the transportation network and environmental concerns are appropriately addressed with respect to the New York State Environmental Quality Review (SEQR) Act.

7.1.2.5 Refinement of Existing Municipal Development Regulations

The following recommendations are made with regard to refinement of existing municipal development regulations:

- **Density Controls.** As discussed in Chapter 3, the absence of zoning controls on the density of new development would permit development in the study area in excess of 11 million SF of new space. Whereas the market would likely not absorb such a level of development, there still exists considerable uncertainty associated with matching growth

to infrastructure planning efforts, absent any controls that would reasonably regulate future development. Therefore, municipalities should adopt the use of density controls in existing zoning regulations to add more certainty to the maximum expected build-out potential of the corridor. Floor area ratios (FAR) standards (i.e., ratio of maximum development SF permitted by the lot area) are most typically used in such controls. While actual FAR standards would be the subject of municipal decision-making, standards for the development contexts exhibited in the corridor would typically range from 0.30 to 1. Other more innovative controls could involve the use of "net" FAR standards, which would subtract non-buildable areas (e.g., wetlands, floodplains, etc.) from the lot area in the FAR calculation, unless these lands are placed in a conservation easement or dedicated for municipal purposes such as public trail access.



Floor Area Ratios

- **Coverage Ratios.** Impervious surface ratios should be included in development regulations to address flooding potentials within the corridor.

- **Official Mapping.** Official mapping is permitted by state law for municipalities to adopt a map of all existing and proposed roads, trails, easements, and other right-of-way to be used for public purposes and the characteristics of such facilities. Official mapping affords a level of preservation of such routes (i.e., 10 years) prior to requiring land acquisition. As components of their official map, municipalities should adopt dedicated setbacks along roadway frontages and establish clearance zones at intersections so new development does not impede on areas that may be needed for future infrastructure expansion that would serve the demand created by these developments.

- **Traffic Management.** Requirements for traffic signals serving new developments should be instituted. These could include basic standards to determine when a signal is warranted and therefore permitted (e.g., minimum traffic volumes, safety issues, etc.), minimum siting requirements with regard to distances between traffic signals (e.g., traffic signals may not be located within 1,500 feet of the next signal), and mandatory four-way intersection alignments. Such requirements currently exist within the Federal Highway Administration's Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) and NYSDOT and OCDOT standards. Any traffic management standards developed for the corridor should meet MUTCD, NYSDOT, and OCDOT standards as a minimum.

- **Driveway/Curb Cut Standards.** Driveway access standards should be adopted for private developments. Such standards increase mobility and safety and could include corner clearance minimums (e.g., driveways onto a roadway must be a minimum of 200 feet from an intersecting roadway), minimum spacing distances between driveways, and

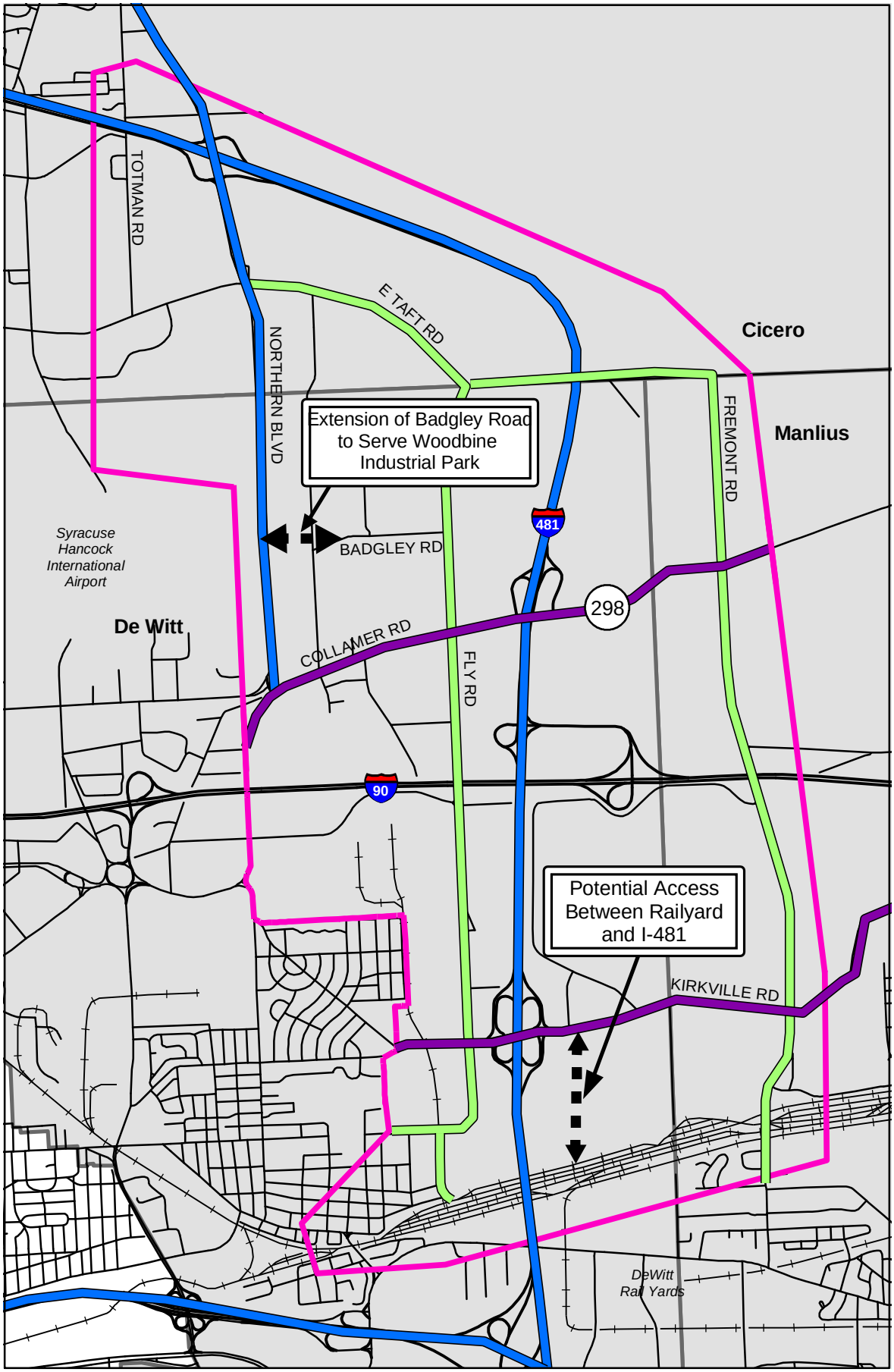


Figure 7.1-2

Efficient Utilization of Exisiting Transportation Network

LEGEND

- Preserve Existing Capacity
- Major Highway
- Limited Improvement to Maintain Mobility
- Potential Future Connections
- Study Area

Map Created: 4/22/04
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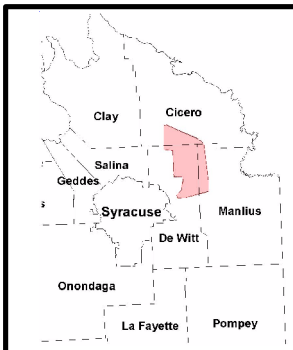
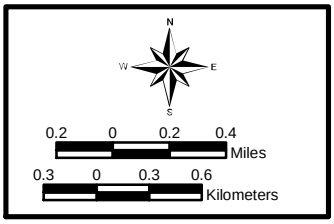


Locator Map



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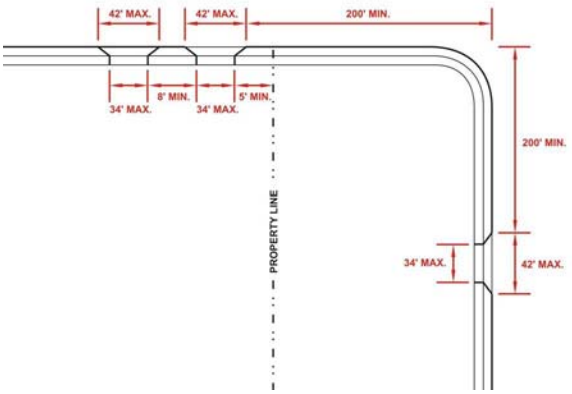
driveway locational requirements (e.g., properties with frontage on two or more roads are required to take driveway access from the lower class road only, driveway location should not create offset intersections, etc.). Such requirements are currently addressed within NYSDOT and OCDOT standards and any driveway/curb cut standards developed for the corridor should meet NYSDOT and OCDOT standards as a minimum.



Driveway/Curb Cut Standards

7.1.2.6 Adoption of Performance Standards

It is recommended that development performance standards be instituted to assist in focusing municipal site plan review processes for new development in the study area. Such standards would promote multimodal access, compatible transitions between adjoining land uses, and general enhancement of quality-of-life characteristics of well-designed, attractive communities (See Figure 7.1-3). The following are recommended to be included as part of the local municipality site plan approval ordinances and review criteria/procedures:

- Frontage improvement standards for new developments should be adopted (e.g., curb and gutter, sidewalks, landscaping, etc.). Standards should allow for discretion based on the size and type of development under consideration.

- Buffer yards or transitions should be mandatory between typically incompatible land uses (e.g. residential and industrial). Standards should specify minimum distances of separation; type, size, and quantity of vegetative (e.g., trees, shrubs, etc.), built elements (e.g., walls, fences, etc.), and/or transitional land uses (offices, accessory uses) that satisfy the buffer requirement. Density of buffer elements should increase as the distance between incompatible land uses increases.

- Municipalities should employ minimum requirements for dedicated open space within the interior of development parcels (i.e., based on zoning classification) to promote preservation of community character, conservation of water resources, creation of future trail networks, reduction of impervious surfaces, protection of wildlife habitats, and other local municipality goals and priorities.

- Inter-parcel connectivity should be encouraged so as to limit the number of access and conflict points along roadways. This can be accomplished through standards that require interior circulation road networks, shared access roads, and shared curb cuts.

- Site design that facilitates transit access to and within developments should be stressed for the accommodation of transit-dependent residents/employees and promotion of transit ridership among non-dependent populations. This could include, but not be limited to design standards for roadway widths and turning radii, provision for bus turnouts/pull-offs, bus shelters, and other transit amenities.

- Parking lot design and placement that enhances a development's visual presence along state and local roads and allows for interconnectivity with parking of adjacent properties. Specifically, parking should be located along the side, rear, or interior of a development parcel, have an appropriate balance of impervious (i.e., pavement) and pervious surfaces (i.e., landscaping), and when practical, connect to parking facilities or access roads of abutting development parcels.

7.1.3 Capital Improvement Recommendations

7.1.3.1 Regulatory Signage

To address vehicular, pedestrian, and bicycle safety at intersections and along roadways, it is recommended that a regulatory signage installation program be instituted throughout the corridor. Signage that indicates a full and complete stop is required at all stop signs and red lights should be installed with priority being given to known "roll-through" problem intersections (e.g., Kirkville/Fremont, Schuyler/Collamer, North Central/Fremont). Installation of "Share the Road" signage along roads that front or connect residential and educational properties (e.g., Kirkville Road, Fremont Road, and Kinne Street) is also recommended. In addition, the installation of speed limit signs included in Section 7.1.1.1 could be incorporated into this regulatory signage program. In all cases, signage installations should be in accordance with the standards of the MUTCD.

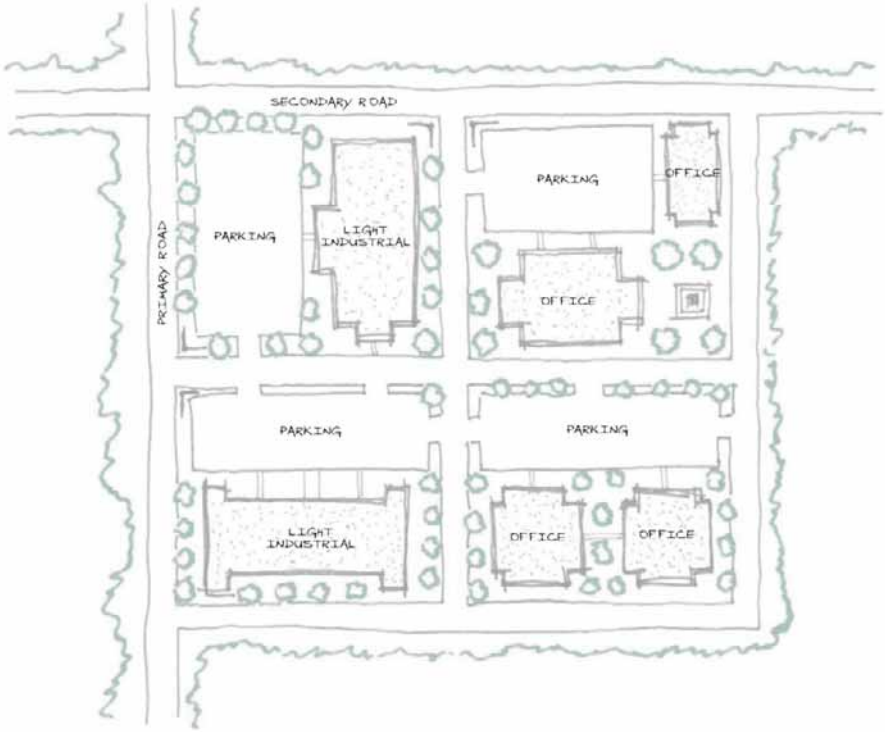
7.1.3.2 Street Re-striping Program

It is recommended that responsible agencies undertake a coordinated street re-striping program to improve vehicular and pedestrian safety (i.e., depending upon the road in question, ownership and maintenance may be the responsibility of NYSDOT, Onondaga County, the Town of DeWitt, the Town of Manlius, or the Town of Cicero). Such a program would evaluate two-lane roadways (i.e., one travel lane in each direction) that are perceived to have high traffic volumes, significant pedestrian volumes, and/or minimum sight distances and restripe those roadways with double yellow striping between opposing travel lanes. The intention of such striping would be to prevent head-on collisions and vehicular/pedestrian accidents by not allowing drivers to utilize the opposing travel lane as a passing lane. In addition, repainting of deteriorated striping of any kind would benefit traffic safety in the corridor. All street striping should be implemented in accordance with MUTCD standards.

7.1.3.3 Targeted Pedestrian Connection Improvements

It is recommended that logical pedestrian connections between residential and educational uses be established. This could be accomplished either through the installation of sidewalks along appropriate roads (e.g., Kirkville Road, Fremont Road, etc.) or creation of more direct connections via a trail-like system along non-vehicular routes.

It is suggested that any new pedestrian connections should meet or exceed the *ADA Draft Guidelines on Accessible Public Rights-of-way*. These guidelines are in the final phase of adoption and will be adopted in the near future. Although the guidelines have not yet been officially adopted, it is highly appropriate to use them in their draft form for design direction.



Site Plan for Traditional Industrial/Office Park Development
not to scale

Site Plan for Mixed Use Development with Multimodal Access Amenities
not to scale

Figure 7.1-3
Development Site Plans

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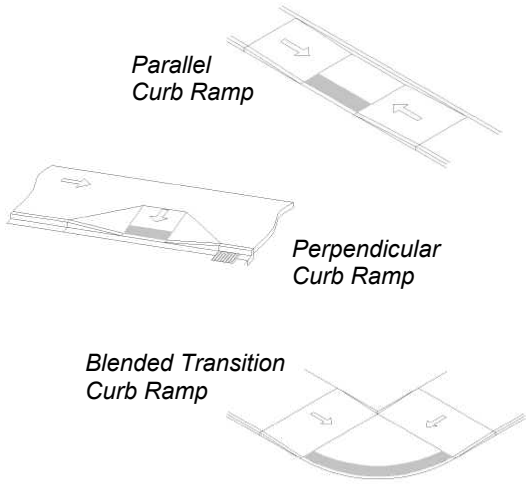
Specifically, the guidelines specify a pedestrian access route must have a minimum clear width of 48 inches. Power poles and other street fixtures may not encroach on this minimum width. Additional specifications are provided in regard to maximum grade, cross slopes, changes in level, and detectable warnings.

In addition to installation of new pedestrian pathways, in areas where pedestrian travel warrants such actions, it is also recommended that ADA compliant curb ramps be installed at intersections parallel to crosswalks. Based on the guidelines, these ramps may be perpendicular ramps, parallel ramps, or blended transitions. At signalized intersections, where pedestrians may cross in both directions, ramps should be located within the width of each crosswalk. In most cases this would require two separate ramps at a corner instead of a single, diagonal-opening ramp at the corner. The guidelines suggest dual ramp installations for several reasons:



> Single ramps can misdirect blind pedestrians who use the slope of curb ramps as cues. They can increase crossing times for persons who use wheeled mobility aids and can place users into oncoming traffic at small radius corners where it is difficult to provide landing space at the bottom that is wholly within marked crossings. Also, drivers may not be as alert to persons crossing at the apex of the corner.
>
> *ADA Draft Guidelines on Accessible Public Rights-of-way* (p. 7)

7.1.3.4 Crosswalk/Pedestrian Signal Installation at Signalized Intersections

Installation of crosswalks at all signalized intersections where warranted by pedestrian travel is recommended. Crosswalks should be composed of an enhanced striping pattern so as to provide greater visibility. In addition, pedestrian countdown signals and signage indicating signal operation and crossing safety should be installed. Crosswalks should be in compliance with the *ADA Draft Guidelines on Accessible Public Rights-of-way* with regard to width (i.e., minimum 96 inches), cross slope, and running slope. Additional ADA requirements pertaining to pedestrian signal phasing timing, audible signals, locator tones for push buttons, placement, and mounting locations should be further investigated prior to installation.

Pedestrian countdown signal

It should also be noted that traffic signal phasing timing may need to be adjusted to accommodate adequate pedestrian crossing time and such changes may affect the level of service

of intersections. As such, pedestrian signals should not only be warranted, but vehicular traffic implications should be evaluated prior to any pedestrian crosswalk and/or signal installation.

7.2 Site Specific Recommendations

This section outlines a series of recommendations specifically targeted at key areas within the I-481 Industrial Corridor. Each involves future capital improvements aimed at facilitating improved mobility and safety for all modes.

7.2.1 DeWitt Rail Yard Future Access Improvements

A proposal for improvements to Girden Road and its intersection with Kirkville Road is currently under consideration that would allow truck traffic to more directly access the DeWitt Rail Yard. This proposal involves private funding and is pending town board approval. Acknowledging that improvement to Girden Road is an acceptable measure to address truck traffic in the medium-term, it is recommended that a long-term plan for alternative access to DeWitt Rail Yard be advanced through an SMTC-sponsored alternatives analysis/preliminary engineering program. Such a program should specifically examine potential alignments for better intermodal connectivity between the rail yard, local road system and the interstate system, and to the greatest extent practicable, avoidance/separation of truck accessways from existing residential communities in the vicinity of the yard. Such a process would include, but not be limited to the following:

- Determination of the rail yard's impact on the local, regional, and state economy;
- Investigation into the potential for future growth of the rail yard and the impacts (i.e., both positive and negative) associated with such growth;
- Assessment of present and future access issues; and
- Evaluation of the rail yard's impact on the surrounding community.

Such a study as that outlined above would be a prerequisite to securing potential state and/or federal funding for access improvements. Given that the facility involves regional intermodal transportation access, it would likely meet state/national transportation objectives.

Based on conclusions derived from the engineering efforts outlined above, it is recommended that a program of capital improvements be implemented at DeWitt Rail Yard in the long-term. Such improvements would likely include a new access road to more directly link the rail yard to I-481, relocation of the rail yard gate office, addition of a south runner, and reconfiguration of interior traffic patterns (See Figure 7.2-1). The cost of all improvements listed, with the exception of the new access road, has been previously estimated on the order of $5 million.

Table 7.2-1 presents a general order-of-magnitude cost estimate of roughly $7 million for construction of non-site-specific, access road on new right-of-way between the rail yard and I-481.

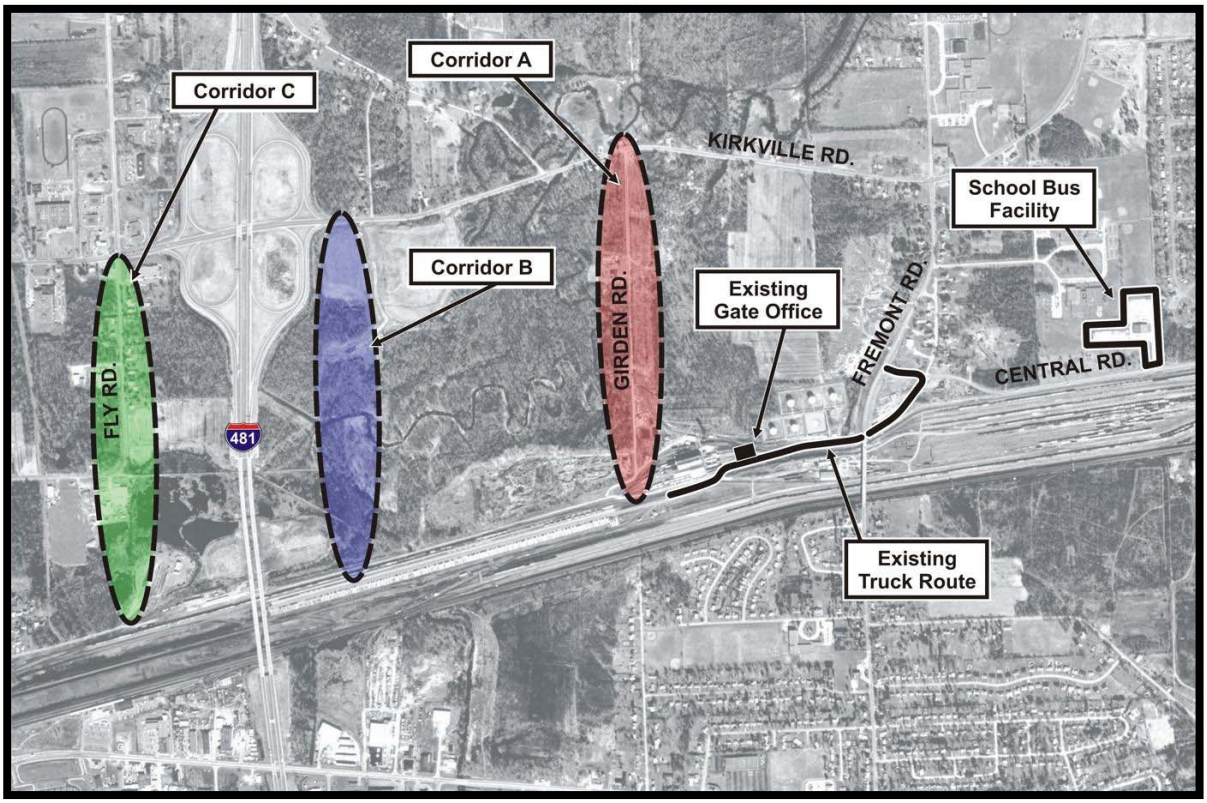


Figure 7.2-1
Alternative Alignment Corridors for New Access Road at DeWitt Rail Yard

Table 7.2-1
DeWitt Rail Yard Access Road
Estimated Costs[1]

Item	Estimate
Mobilization and Site Preparation	250,000
New Road Construction	1,000,000
New Bridge Over Creek	1,000,000
Right-of-Way Acquisition	750,000
Wetland Mitigation	1,500,000
Subtotal	4,500,000
30% Design Contingency	1,350,000
Total Construction Costs (2003 Dollars)	$5,850,000
20% Soft Costs (Engineering & Construction Administration, Legal, etc.)	$1,170,000
Total Project Costs	**$7,020,000**

[1] Itemized order-of-magnitude cost estimate in Appendix F.

7.2.2 Intersection Improvements

Chapter 3 outlined several key intersections that, based on projected future traffic volumes, will experience unacceptable levels of service between design years 2005 and 2010. It is recommended that these intersections be improved to appropriately remedy such traffic flow issues. Figure 7.2-2 depicts the location of these intersections within the corridor.

Of particular note are the intersections of Collamer Road/Route 298 with Northern Boulevard, Schuyler Road, and Fly Road. These three intersections are positioned consecutively along Collamer Road/Route 298 and could create a significant level of service issue should two or more of them fail at or near the same time. Improvement of these three intersections should be considered a priority.

The intersections in question should be examined by NYSDOT, OCDOT, and/or the local municipality (i.e., involved parties will vary based upon ownership and maintenance authority) to determine the most appropriate improvement scenario for each. In all cases, improvements should be made in concert with NYSDOT and MUTCD standards and procedures. Improvements could include but not be limited to the following:

- Construction of curbs, gutters, and ADA compliant sidewalks in the immediate vicinity of the intersections and connecting adjacent residential and educational land uses (if any);
- Installation of ADA compliant curb ramps at all surface transitions;
- Implementation of enhanced crosswalks utilizing a pronounced striping pattern with actuated, countdown, pedestrian crossing signals (where warranted); and
- Addition of dedicated left-turn lanes where deemed necessary based on the level of service analysis performed as part of the 20-year build-out analysis included in Chapter 3.

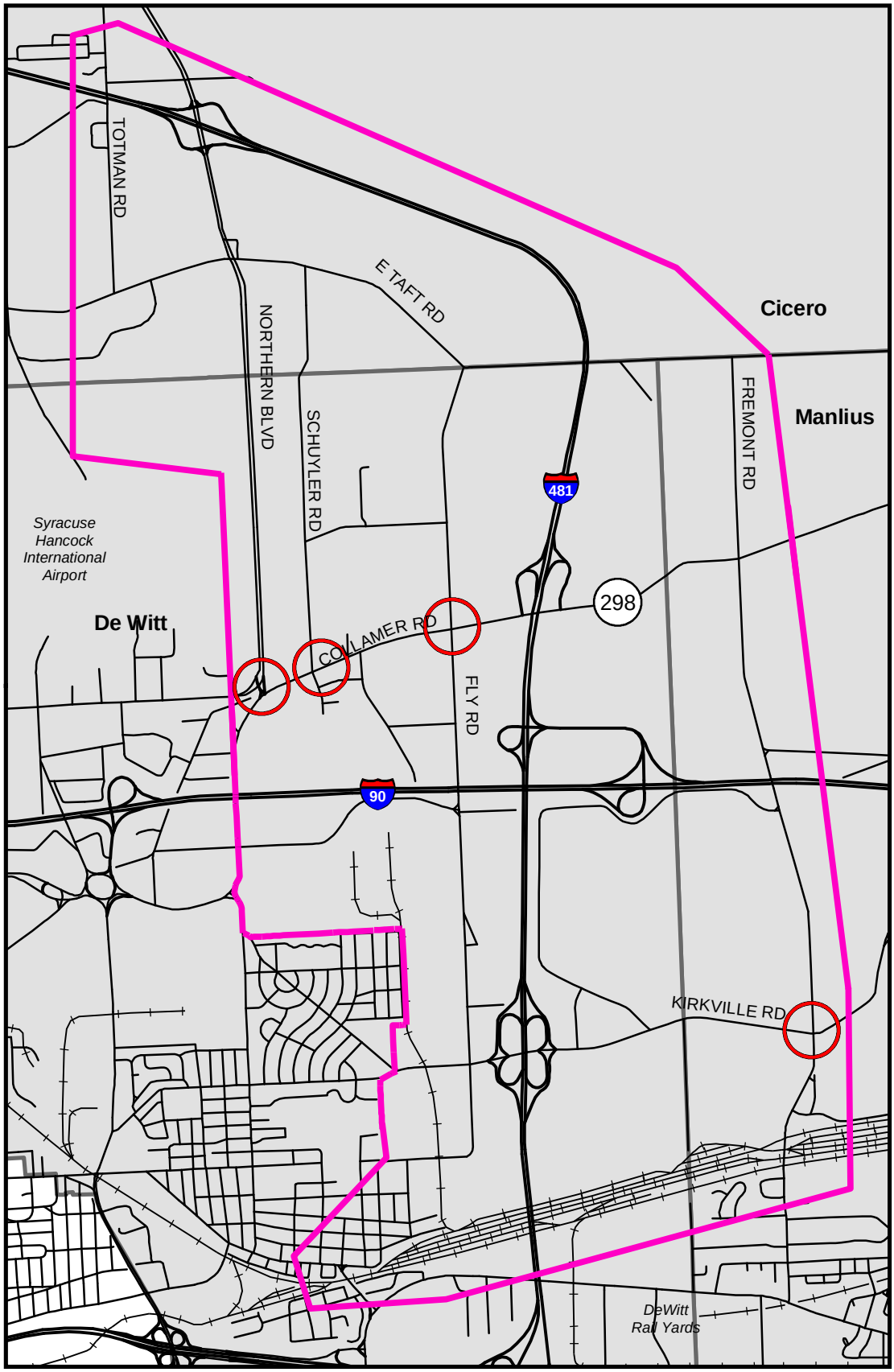


Figure 7.2-2

Intersections Requiring Improvements by Design Year 2010

LEGEND

Intersection Requiring Improvement

Study Area

Map Created: 10/28/03
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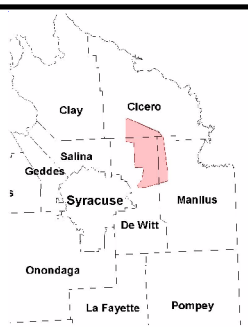
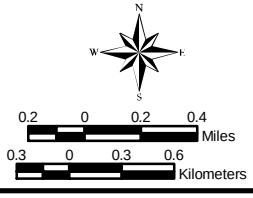


Locator Map



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8 PRELIMINARY IMPLEMENTATION PLAN

Table 8.0-1 presents a preliminary plan of implementation for recommended improvements discussed in Chapter 7 (a listing of potential funding sources is located in Appendix G). Programmed short-term actions would include additional planning, community education, and enforcement activities along the corridor, as well as lower cost capital projects to enhance mobility, safety, and access. Also during this period, further review and assessment of funding availability would be conducted for larger-scale improvements.

Medium-term actions, if determined to be financially feasible, would focus on improvements in targeted areas within the corridor that exhibit the greatest need for pedestrian and vehicular safety and access enhancement. These would include intersection improvements and targeted sidewalk improvements in residential/educational areas. In addition, a transit feasibility study and an alternatives analysis/preliminary engineering process for examination of alternate access to DeWitt Rail Yard would be undertaken in this period.

Long-term actions are limited to the ultimate final design and construction activities associated with new access to DeWitt Rail Yard.

Where applicable, an estimated range of order-of-magnitude costs is presented for each action in the implementation plan. For planning efforts, the costs were derived examining prior, similarly scoped studies. For capital projects, costs were estimated using unit pricing values from NYSDOT reference documents and other nationally published cost-estimating sources.

Table 8.0-1
Preliminary Implementation Plan

Action	Estimated Order-of-Magnitude Costs	Potential Responsible Agencies
Short-Term (0 to 5 years)		
Speed Monitoring/Enforcement	$5,000 - $8,000 (equipment only – personnel requirements TBD)	Towns of DeWitt, Manlius, and Cicero
Corridor-wide Regulatory Signage Program	$10,000 - $25,000	NYSDOT, OCDOT, Towns of DeWitt, Manlius, and Cicero
Corridor-wide Re-striping Program	$25,000 - $50,000	NYSDOT, OCDOT, Towns of DeWitt, Manlius, and Cicero
Targeted Sidewalk Improvements	$25,000 - $50,000	Towns of DeWitt, Manlius, and Cicero
Crosswalks/Pedestrian Signals at Signalized Intersections (where warranted)	$75,000 - $100,000	NYSDOT, OCDOT, Towns of DeWitt, Manlius, and Cicero
Community Zoning Education Program	TBD	Towns of DeWitt, Manlius, and Cicero
Land Use & Access Management • Capitalize on Natural Constraints • Efficient Utilization of Transportation Network • Increased Coordination between Local Municipalities and NYSDOT and OCDOT • Refinement of Existing Municipal Development Regulations • Adoption of Performance Standards	TBD	Towns of DeWitt, Manlius, and Cicero
Medium-Term (5 to 10 years)		
Corridor Transit Feasibility Study	$75,000 - $100,000	SMTC, CNYRTA
DeWitt Rail Yard Access Study	$500,000 - $750,000	SMTC
Intersection Improvements	$200,000 – $500,000 (each)	NYSDOT, OCDOT, Towns of DeWitt and Manlius

Table 8.0-1
Preliminary Implementation Plan

Action	Estimated Order-of-Magnitude Costs	Potential Responsible Agencies
Girden Road Rail Yard Access Improvements	$1 Million - $3 Million	NYSDOT, OCDOT, Towns of DeWitt and Manlius, CSX
Long-Term (10 - 20 years)		
DeWitt Rail Yard Capital Improvements[1]	$7 Million	NYSDOT, Towns of DeWitt and Manlius, Federal Highway Administration, CSX

[1] Itemized order-of-magnitude cost estimate in Appendix F

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