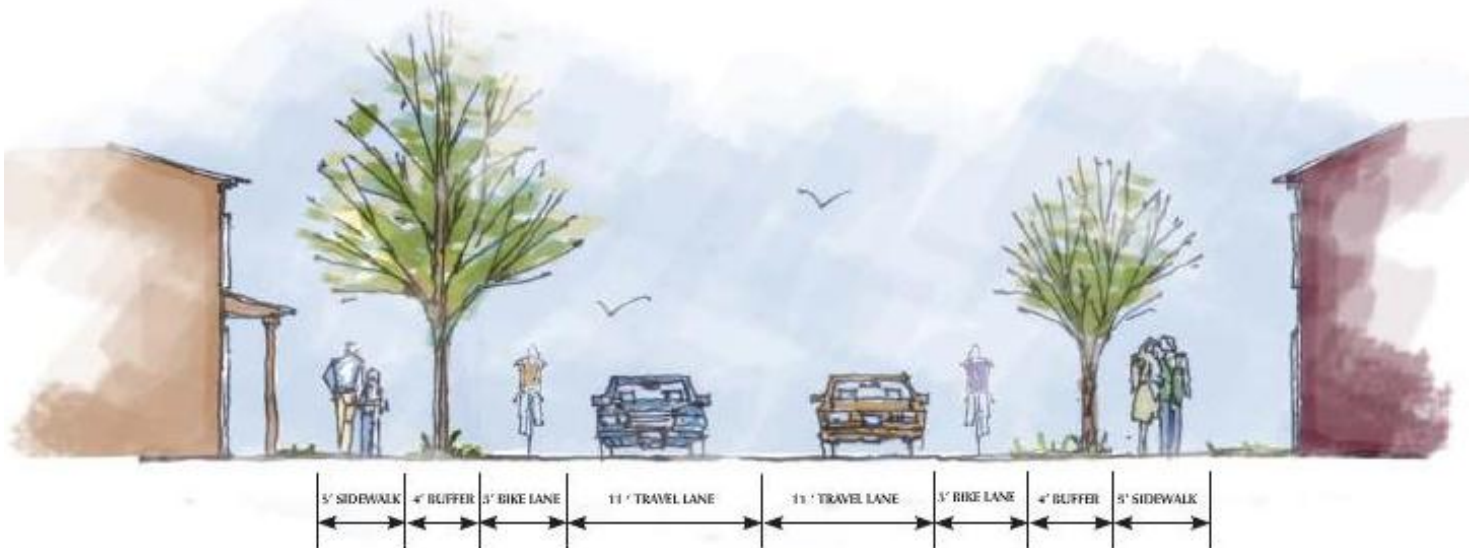


ROUTE 96

CORRIDOR MANAGEMENT STUDY



TECHNICAL REPORT #3
Final · December 2008

Route 96 Corridor Management Study

TECHNICAL REPORT #3

Prepared By:

Bergmann Associates
and
SRF Associates

in conjunction with
The Route 96 Technical Review Committee

TABLE OF CONTENTS
Route 96 Corridor Management Study
Technical Report #3

1.0	INTRODUCTION	1
1.1	Overview and Purpose	1
1.2	The Study Area.....	2
1.3	The Planning Process.....	2
2.0	ACHIEVING THE CORRIDOR VISION	5
2.1	Cayuga Medical Center Node.....	7
2.2	Jacksonville Hamlet Node	17
2.3	Route 96 Corridor, Outside Nodes.....	24
2.4	City of Ithaca	25
3.0	RECOMMENDATIONS.....	27
3.1	Intersection Improvements.....	27
3.2	Corridor Livability Recommendations	28
3.3	Nodal Design Principles	32
3.4	Outside Node Design Principles	32
3.5	Revisions to Regulatory Language	40
4.0	CONCLUSION.....	46
5.0	APPENDIX	47

1.0 INTRODUCTION

1.1 Overview and Purpose

The purpose of the Route 96 Corridor Management Study is to help the Town of Ulysses, Town of Ithaca, City of Ithaca, Tompkins County, the Ithaca-Tompkins County Transportation Council (ITCTC), and Tompkins Consolidated Area Transit (TCAT) define an appropriate approach to manage anticipated growth along the Route 96 corridor from the southern boundary of the Village of Trumansburg to the intersection of Route 96 and Route 13 in the City of Ithaca. The Study is being guided by a Technical Review Committee consisting of representatives from each of the aforementioned communities and organizations.

The study will serve as a guide to define a preferred development pattern for the corridor that is consistent with the goals and vision for each of the involved communities. It recommends strategies to reduce anticipated traffic-related impacts caused by new development, as well as increased through traffic. The Town of Ulysses, Town of Ithaca and City of Ithaca are either currently or soon to be updating their comprehensive plans and have identified the need to analyze this corridor for housing and business opportunities as well as to mitigate associated increases in traffic.

In Technical Report #2, two development scenarios were considered: a Nodal Development Scenario and a more conventional suburban style of development, referred herein as the Trend Development Scenario. When analyzing both options access management issues, improving transit services, incorporating transportation system improvements, and enhancing the overall aesthetic character of the corridor was considered. Technical Report #2 concluded that a Nodal Development Scenario had fewer negative impacts on quality of life along the corridor.

Technical Report #3 builds on the findings of Technical Report #2 by providing a series of clear recommendations and tools available to assist each of the involved communities in implementing the preferred corridor vision of a nodal development pattern.

The Corridor Management Study is being developed as a series of four written Technical Reports, as summarized below:

- Technical Report #1 focuses on Existing Conditions within the study area and lays the framework for later projections, analysis, and recommendations. Technical Report #1 provides a baseline of information relevant to the corridor from which to learn from, and build on.
- Technical Report #2 is the analysis and considerations component of the overall study and is subdivided into three main components: traffic projections, traffic impact analysis, and opportunities and constraints analysis. Each of these sections helps to identify what opportunities, issues, and obstacles exist with regards to creating a more livable and desirable corridor. Technical Report #2 concluded with recommendations for a preferred development scenario for the corridor.
- Technical Report #3 is the Recommendations document associated with the Study. Technical Report #3 includes a range of recommendations for the corridor including traffic, land use,

quality of life, and other topics deemed important by local residents and Technical Review Committee members.

- Technical Report #4 will present an Implementation framework for intermunicipal cooperation that will serve as a tool achieve and meet the recommendations and goals set forth in Technical Report #3.

1.2 The Study Area

State Route 96 in Tompkins County begins at the Seneca and Tompkins County lines in the northwest corner of the County and travels southeast through the Village of Trumansburg, Hamlet of Jacksonville, Town of Ulysses, Town of Ithaca, and culminates in downtown City of Ithaca at the confluence of State Route 13 and the Cayuga Inlet. The Route 96 Corridor Management Study examines the 10-mile stretch of road, including all lands within a mile the Corridor, from the southern municipal boundary of the Village of Trumansburg traveling southeast to the intersection with State Route 13 at Fulton Street.

The Corridor is rural in nature in the northwestern reach in the Town of Ulysses, reflecting the importance of agriculture, both historically and today. Traveling southeast into the Town of Ithaca, residential and commercial development increases in intensity. Finally, the Corridor culminates in the City of Ithaca, which consists of dense housing and commercial businesses.

The West Hill area is one of the areas where increased housing development has occurred and where additional potential for development exists. Much of this area is served by NYS Route 96 as the primary commuting route. The Route 96 corridor is the location of most of the commercially-zoned property in the Town of Ulysses, and planned development in the corridor is seen as crucial to economic growth in the Towns of Ithaca and Ulysses. It is a concern that increased development will worsen congestion in the City of Ithaca and impact traffic flow and livability along the entire corridor therefore, mitigating the anticipated traffic impacts related to growth is critical.

1.3 The Planning Process

As mentioned, the Route 96 Corridor Management Study is a collaborative planning effort between Tompkins County, the City of Ithaca, the Town of Ithaca, the Town of Ulysses, the Ithaca-Tompkins County Transportation Council, and the Tompkins Consolidated Area Transit. Representatives from each of the organizations comprise the Corridor Management Study Technical Review Committee (TRC).

1.3.1. Work Completed To Date

The following tasks were completed to produce Technical Report #1. Additional information on each of the bulleted efforts may be found within Technical Report #1.

- Project Start-Up Meeting with Consultant Team
- Internal Committee Meetings
- Residential Community Survey
- Data Collection and Review
- Field Review and Analysis
- Windshield Survey

- Technical Review Committee Meetings (3)
- Public Information Meeting
- Focus Group Sessions (2)
- Stakeholder Interviews (2)
- Identification of Measures of Effectiveness
- Traffic Volume Modeling
- Traffic Impact Analysis
- Opportunities and Constraints Analysis
- Identification of a Preferred Development Scenario

1.3.2. Current Planning Efforts

The preparation of Technical Report #3 included the completion of the following tasks:

Nodal Development Recommendations

Building on the design principles and nodal goals discussed as part of Technical Report #2, the consultant team developed a series of node-specific recommendations for Jacksonville and Cayuga Medical Center. The recommendations cover a range of topics including land use, vehicular circulation, pedestrian and bicycle connections, transit, traffic calming techniques, and gateway treatments. Recommendations were also identified for key issues associated with Route 96 in the City of Ithaca.

Land Use and Traffic Recommendations

Utilizing the same recommendation framework as for the nodal areas, the consultant team developed a series of recommendations for Route 96 outside of the nodes.

Specific Intersection Improvements

The Technical Review Committee identified intersections along the corridor they deemed worthy of a more detailed analysis based on existing trouble spots, traffic volumes, and/or potential future development. Project sheets summarizing recommended modifications to each intersection have been included in Technical Report #3.

Design Principles

A series of Design Principles have been included in Technical Report #3 to offer models for consideration for future design updates to municipal zoning regulations and design standards. The design principles serve as guidelines for how future development in the nodes, as well as outside of the nodes, should ideally be addressed. Themes addressed in the design principles include residential development, site and setting, architectural vocabulary, connections and linkages, public areas and landscaping, pedestrian amenities, and streets and vehicular spaces.

Regulatory Recommendations

Regulatory recommendations have been developed by the consultant team to address specific changes each municipality can consider to successfully implement a nodal development pattern.

1.3.3. Next Steps

The next steps in the Route 96 Corridor Management Study planning process will include:

Public Meeting

A Public Meeting will be held October 28, 2008 at the Paleontological Research Institute to present findings from Technical Report #2 and Technical Report #3.

Technical Report #4

The Technical Review Committee will develop an Intermunicipal Planning Strategy that addresses both physical transportation infrastructure improvements and fosters future cross-jurisdictional collaboration for planning and development.

2.0 ACHIEVING THE CORRIDOR VISION

Both a Nodal Development Scenario and Trend Development Scenario (existing development pattern) were analyzed to determine the potential traffic and social impacts associated with each development type. The specific details associated with each scenario and the analysis is included in Technical Report #2 of the Route 96 Corridor Management Study. It was presumed that the same amount of growth and development would occur under either scenario; however, the form and impacts of the development would be different.

Based on the findings of the analysis, the Nodal Development concept has been embraced by each of the municipalities, Tompkins County, and interested agencies as the preferred development scenario to improve traffic conditions along Route 96 and enhance the livability for those living along, and utilizing, the corridor. Nodal development focuses future development in specific areas along the corridor, as opposed to letting growth and development occur in a free form manner, as exists today. In order to achieve the overall economic and development goals of each community, the defined nodes should incorporate a variety of uses, including residential, commercial and retail, office, institutional, and open space.

As shown in the results of the analysis in Technical Report #2, a Nodal Development Scenario can have a significant positive impact on the future of the corridor study area. Along the Route 96 corridor outside the City of Ithaca, nodal development is proposed to occur in three areas: around the Cayuga Medical Center in the Town of Ithaca, the Hamlet of Jacksonville in the Town of Ulysses, and the Village of Trumansburg. Jacksonville and Trumansburg are established population centers and Cayuga Medical Center is a major employment center.

Figure 1 – Location of Proposed Development Nodes



Figures 2 and 4, also presented in a modified version in Technical Report #2, present one example of a conceptual build out for the Cayuga Medical Center Node and the Hamlet of Jacksonville Node. These figures are not intended to show a preferred or recommended future development for these areas, but to identify the various types of development and densities that are realistic and appropriate based on existing conditions and projected population increases. Ultimately, the way that these nodes develop over time will be determined by the Village, Towns, and City, individual landowners, and developers.

For the purpose of organizing recommendations and guidelines within the Corridor Management Study, three context zones have been identified and are based on the geographic parameters established in earlier tasks associated with the planning process. Context zones include the:

- Jacksonville Hamlet Node;
- Cayuga Medical Center Node; and,
- Route 96 Corridor-wide.

In addition, recommendations have been developed for Route 96 in the City of Ithaca, as there are specific opportunities and constraints associated with the corridor within the City limits. Recommendations have also been identified for targeted intersections along the corridor. The intersections, selected by the consultant team and Technical Review Committee, were deemed to warrant an additional level of analysis based on existing conditions or projected future conditions which may require intersection improvements and modifications.

2.1 Cayuga Medical Center Node

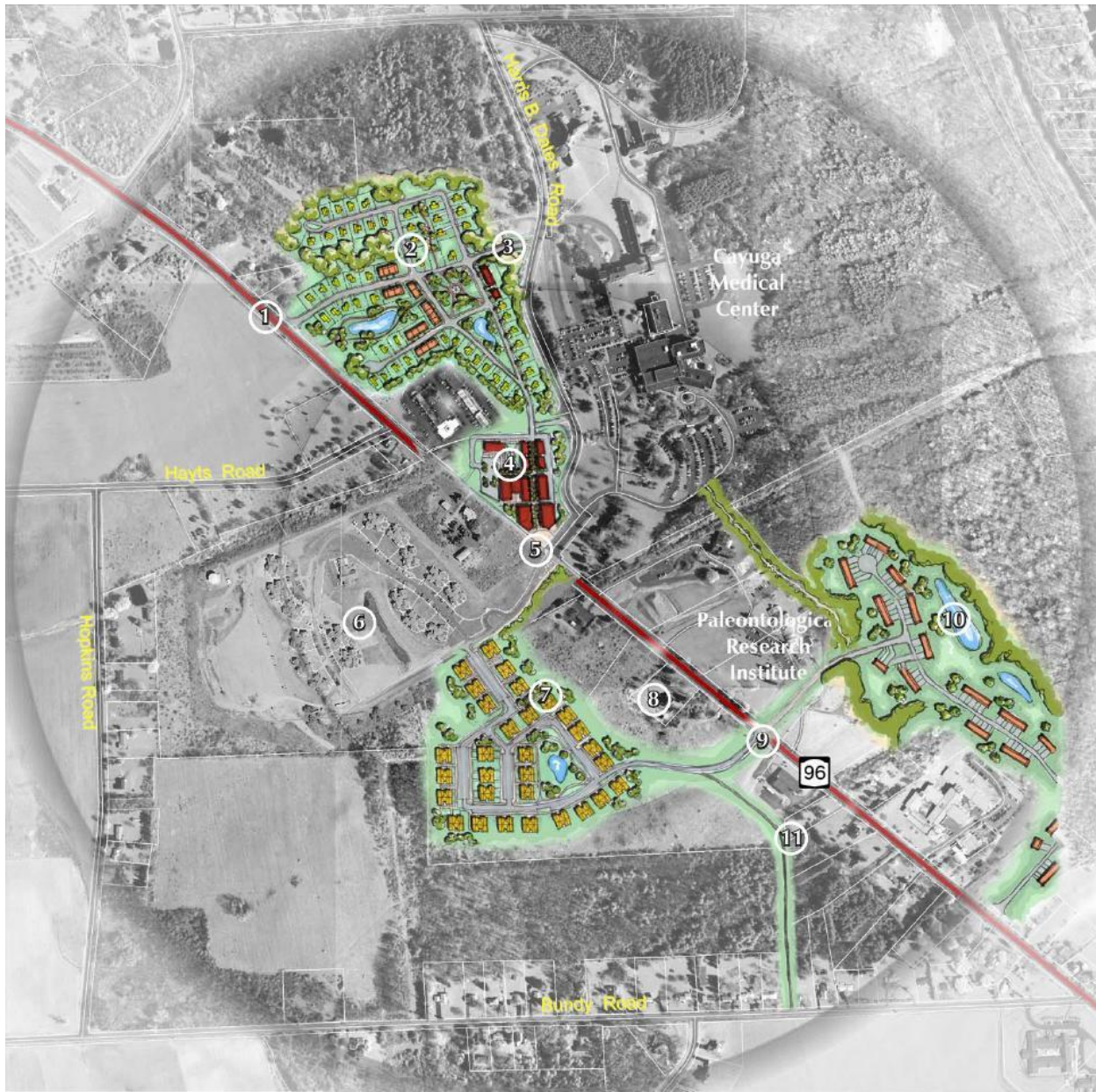
LAND USE

In order to complement the existing development patterns within the Cayuga Medical Center node, a mixed land use development pattern is recommended. The recommended range of uses includes community services, parks and open space, commercial, medical and general office space, institutional, and a variety of residential types including single-family homes, townhomes, and multi-family units.

Figure 2 identifies how this range of uses could potentially be incorporated within the nodal boundaries. This is a conceptual plan that shows one alternative for future development which incorporates recent and proposed developments within the immediate vicinity. Figure 2 portrays an example of how the Cayuga Medical Center area might incorporate projected future growth to achieve a dense, new live-work node. This is not a future build out concept design for this area.

Generally, the conceptual development plan shows the physical integration of land uses and potential inter-nodal linkages and connections, both vehicular and pedestrian. Design principles recommended within Technical Report #3 have been incorporated into the lay-out of this node. Annotated descriptions of key site enhancement areas are included on subsequent pages.

Figure 2 – Conceptual Rendering of Cayuga Medical Center Node



SITE ENHANCEMENT AREAS:

- | | |
|---------------------------------|---------------------------------------|
| 1 – Northern Gateway | 6 – Existing Multi-Family Residential |
| 2 – Mixed-Use Residential | 7 – High-Density Residential |
| 3 – Internal Connector Road | 8 – Future Development Site |
| 4 – Mixed-Use Commercial Center | 9 – Southern Gateway |
| 5 – Transit Stop | 10 – Pending Multi-Family Residential |
| | 11 – Future Trail Connection |

Site Enhancement Area #1 – NORTHERN GATEWAY

The northern gateway into the Cayuga Medical Center node should be located in the vicinity of the new access drive into the new residential development in the northeast extent of the node. Gateway treatments should include signage, landscaping, a change in roadway treatments, and paving treatments, such as colored and textured crosswalks.

Site Enhancement Area #2 – MIXED-USE RESIDENTIAL

The residential development on the northeast side of Route 96 includes single family and multi-family residences, as well as a small cluster of commercial, mixed use buildings. As shown, this portion of the Cayuga Medical Center node includes 54 single-family residences and 20 multi-family residences. Two neighborhood scaled commercial buildings are also incorporated into the development. Access to the development would occur through a series of new roads, with a new access point off of Route 96, a new access drive from Harris B. Dates Drive, and a roadway connection from the commercial center at the intersection of Route 96 and Harris B. Dates Drive. In addition to sidewalks along all roadways within Site Enhancement Area #2, off road pedestrian connections meander through community open spaces and create a pedestrian connection to the Cayuga Medical Center site. A pedestrian link also extends from the neighborhood to the Mixed-Use Commercial Center directly south of the site.

Site Enhancement Area #3 – INTERNAL CONNECTOR ROAD

In an effort to keep traffic moving on-site and off of Route 96, a future connector road is recommended extending from Site Enhancement Area #2 to Harris B. Dates Drive. The road would connect both vehicles and pedestrians to the Medical Center and would serve to direct traffic to the main intersection at Route 96 and Harris B. Dates Drive. The pedestrian connection would provide access to the Cayuga Medical Center site from Route 96, with the anticipation that a connector trail would ultimately be developed that would extend all the way to the Black Diamond Trail.

Site Enhancement Area #4 – MIXED-USE COMMERCIAL CENTER

The Mixed-Use Commercial Center is focused around the high volume intersection of Route 96 and Harris B. Dates Drive. As depicted, the mixed-use district reflects a Main Street character with neighborhood-scale buildings, internal pedestrian connections, a pedestrian plaza, and direct access to transit. It is recommended that this area incorporate a range of uses to service transient users of the hospital, as well as the day-to-day needs of nodal residences. The recommended mix of uses at this location includes retail and services on the main level with offices and residential units on the second and third stories.



In order to maintain a pedestrian-scaled environment, buildings should not exceed three stories in height. Landscaping and the incorporation of pedestrian amenities, such as benches, fountains, and trash receptacles, are recommended. Although parking is provided for vehicles, pedestrian linkages are depicted from the development to the residential neighborhood to the north, Cayuga Medical center to the east, and along Route 96 to developments south of the Medical Center. Square footage of commercial

and office uses, as well as any residential units, would be determined based on final design, layout, and construction of these buildings.

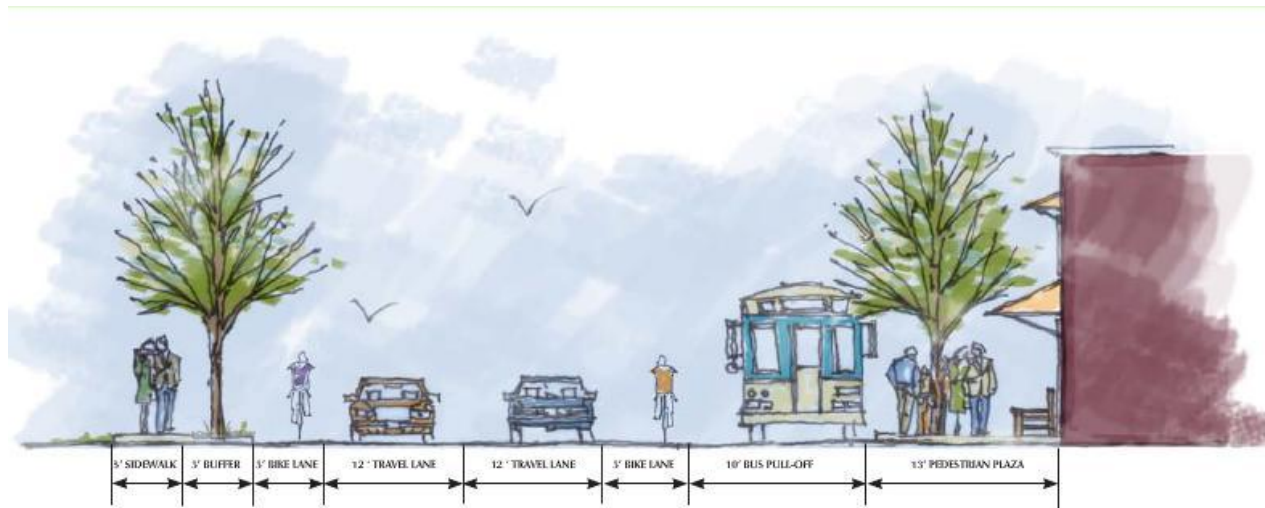
Site Enhancement Area #5 – TRANSIT STOP

A designated, covered bus stop is recommended within the Mixed-Use Commercial Center near the intersection of Harris B. Dates Drive and Route 96. The location would allow bus service to reach a significant concentration of people without having to leave the Route 96 corridor. The transit stop would offer a covered waiting area and surrounding development would provide additional opportunities for transportation users while they wait. The transit center does not need to be a freestanding building but may be incorporated into a commercial or mixed use structure. This approach has been successfully implemented in the City of Ithaca. A bus pull-off area on Route 96 is recommended in order to ensure traffic flow along the corridor is not hindered by a stopped bus.

The new transit stop would complement the existing transit stop located in the Overlook development which could be enhanced as usage increases. Consideration should be given in the design of new development within the node to allow for the accommodation of busses, and integrated bus stops, in the future.

Figure 3 depicts a pull-off lane as well as other roadway, bicycle, and pedestrian facilities recommended for this area of the corridor.

Figure 3 – CROSS SECTION OF ROUTE 96 AT HARRIS B. DATES DRIVE
Looking north on Route 96, from north side of intersection with Harris B. Dates Drive



Site Enhancement Area #6 – EXISTING MULTI-FAMILY RESIDENTIAL AREA

Site Enhancement Area #6 represents existing Overlook Apartment complex that was completed in 2007 which includes 128 housing units. There is a transit stop currently located within the Overlook development that should be maintained and enhanced as the designated service stop for southbound transit service.

Site Enhancement Area #7 – HIGH-DENSITY RESIDENTIAL

In an effort to showcase diversity in residential options within the overall node, Site Enhancement Area #7 includes approximately 232 multi-family housing units (as shown, 29 buildings with 8 units per building). This development should be designed with a continuous sidewalk system linking to the surrounding development areas, including the Overlook, transit stop, internal pedestrian networks, and other surrounding commercial and residential areas. There is the possibility that some amount of small-scale, neighborhood oriented commercial or service development could be incorporated into this area.

Site Enhancement Area #8 – FUTURE DEVELOPMENT SITE

Site Enhancement Area #8 highlights a future development site within the node. Depending on how this node evolves, this may be a prime location for additional residential or commercial uses, or other land use not currently depicted such as an office or light industrial uses.

Site Enhancement Area #9 – SOUTHERN GATEWAY

A new vehicular and pedestrian intersection at Route 96 is proposed immediately to the south of the Paleontological Research Institution (PRI) site. This intersection would serve to connect new residential and mixed use development on either side of Route 96 and would serve as the southern gateway into the Cayuga Medical Center node. Appropriate treatments for this gateway intersection include signage and landscaping. If a significant portion of development is located within this node, a roundabout may be warranted at this intersection in the future to control and slow traffic flow and movement.

Site Enhancement Area #10 – PENDING CLUSTER TOWNHOUSE DEVELOPMENT

Site Enhancement Area #10 indicates a multi-family residential development currently pending approval within the Town of Ithaca. The development, as proposed, would result in the construction of 106 townhome units. The development should be well-connected to surrounding areas by a series of pedestrian links that extend to Route 96, as well as through the PRI site, connecting to an existing pathway from the museum property to the Cayuga Medical Center site.

As identified in Technical Report #2, the high-range projection for this node calls for 319 new dwelling units. The conceptual graphic for the node, when including the existing Overlook and pending development proposal adjacent to PRI, shows a total of 530 units (402 of which are new units).

Site Enhancement Area #11 – FUTURE TRAIL CONNECTION

A multi-use future trail connection is depicted on the concept plan in accordance with the Town of Ithaca Transportation Plan. The trail would connect the nodal development area with Bundy Road, and ultimately to other destinations to the south.

VEHICULAR CIRCULATION

The Cayuga Medical Center Node is intended for mixed use and various forms of residential development as described above. Vehicular circulation both within the node and through the node on Route 96 is crucial to the viability of the node. The speed limit along Route 96 in vicinity of this node is 45

mph. The speed limit changes to/from 30 mph at the City of Ithaca line. The only area that is curbed is in the immediate vicinity of the Harris B Dates-West Hill Drive intersection.

Analysis of the vehicular capacity at the Route 96/Harris B Dates Drive-West Hill Drive intersection indicates that the intersection will operate at average to above average levels of service under the future nodal development conditions. Therefore, no vehicular capacity improvements are required. However, left turn treatments were considered at this intersection. The addition of auxiliary left turn lanes at signalized intersections must consider many contributing factors, such as (and not limited to):

- Intersection function and setting
- Signal phasing
- Intersection volumes
- Traffic queues
- Roadway geometrics
- Vehicle delay
- Intersection sight distance
- Safety issues

Guidelines for the design and operation of left-turn lanes at intersections have been developed by AASHTO and the Institute of Transportation Engineers (ITE). Other references for design, evaluation and criteria establishing the need for left-turn lanes at intersections include the Manual on Uniform Traffic Control Devices, the New York State Highway Design Manual, and NCHRP Synthesis Reports 225 and 279. These guidelines and reference materials were reviewed along with the factors listed above. Based on this evaluation, left turn treatments were deemed unnecessary at this intersection.

The left-turn movement should be treated as a minor intersection maneuver and should be provided as the *minimum* traffic control necessary to accommodate traffic without creating *unnecessarily* long delays and/or safety problems while adequately providing for the remaining major intersection through movements.

The projected northbound and southbound left turning volumes are less than 50 vph during the peak hours. Previous review of accident history at this intersection, over a total period of nearly 5 years, did not result in identification of any accident clusters or inherent safety deficiencies that are correctable via provision of left turn treatment. Based on the existing traffic operations as observed at this intersection, and reviewing the contributing factors (offered above) as they apply to this specific location, auxiliary left turn lanes are not warranted. In addition, the incorporation of context sensitive design considerations support this recommendation.

A new four-way intersection is conceptually proposed to the south of the Cayuga Medical Center in the vicinity of the existing driveways to the Finger Lakes School of Massage and the West Hill Ithaca Fire Department station. The potential for development on both sides of Route 96 in this area may require control of right-of-way at Route 96 in the future. This control may consist of signalization or installation of a modern roundabout. The intersection should be designed with these future improvements in mind as well as consideration for pedestrian and bicycle traffic. Installation of a roundabout would achieve the goals of slowing motor vehicle traffic as it enters the node and provide a gateway treatment to alert motorists that they are entering an activity center.

PEDESTRIAN AND BICYCLE CONNECTIONS AND FACILITIES

There are no sidewalks along Route 96 within the node and vehicular speeds appear to exceed the 45 mph posting during off-peak times. The following pedestrian and bicycle improvements are recommended within this node:

1. Install sidewalks along both sides of Route 96;
2. Install bike lanes along Route 96 within the boundaries of the nodes which connect to existing striped shoulders outside of the nodes;
3. Incorporate multi-use trails throughout the node to internally connect to sidewalks and bike lanes;
4. Incorporate sidewalks into all new developments within the node.

The Town of Ithaca Transportation Plan ranks bike lanes on Route 96 as a medium-level priority. Bicycle use within the node, through the incorporation of on-street bike lanes and internal multi-use trail connections, should be enhanced and promoted.

TRANSIT

The Cayuga Medical Center node is already a well-utilized transit location due to the high number of employees and visitors to the site. A covered bus stop is currently located along the main entry drive to the hospital as one continues straight to the rear parking area. The bus stop is also accessible from PRI as a pedestrian path connects the two sites adjacent to the bus stop location.

It is recommended that the existing bus stop be relocated to the Mixed-Use Commercial Center site at the intersection of Route 96 and Harris B. Dates Drive. There are a number of benefits associated with this relocation:

1. the bus stop is directly accessible from Route 96, no longer requiring TCAT busses to leave the corridor and complete internal trips;
2. internal pedestrian connections should connect homes and business to the transit stop by way of a 5-minute walk, at maximum, as they are within a ¼ mile distance of the stop; and
3. transit users waiting for a bus will benefit from access to goods and services available in the mixed-use development.

The transit center will remain easily accessible to people using the existing bus stop from PRI, as internal pedestrian linkages would ultimately be developed linking all sites and amenities to create the nodal development scenario.

A park-and-ride should also be considered within the Cayuga Medical Center Node given the concentration of employees and existing and potential future residents. A park-and-ride would require further study and coordination with property owners as well as Tompkins Consolidated Area Transit (TCAT).

TRAFFIC CALMING / CONTEXT SENSITIVE DESIGN

According to the Institute of Transportation Engineers (ITE), "Traffic calming is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users (Ewing, 1999)." Traffic calming techniques are typically used to either reduce speeds or reduce traffic volumes.

Reducing speed is a primary goal along Route 96. Traffic calming techniques that physically or psychologically alter the actual or perceived road design can be used to reduce vehicle speeds. Speed limits reductions through changing the posting alone do not typically result in significant reductions in speed since drivers tend to drive at their perceived comfortable level. A driver's perception of what is comfortable is related to road design. Traffic calming techniques are used to slow traffic using either physical changes or visual cues. Physical constraints such as curb bump-outs, medians, chicanes, and/or on-street parking create friction and may reduce speeds because drivers are uncomfortable driving at higher speeds while negotiating these constraints. However, in many cases narrowing of the roadway physically is not feasible or appropriate. Lane narrowing using pavement markings or landscaping can be implemented without physically reducing the pavement width and create the illusion that there is less space for maneuvering.

Traffic-calming measures include street narrowing, reduced speed limits, medians, designated pedestrian crosswalks, pedestrian refuge islands, roundabouts, landscaping, colored sidewalks, bike lane markings, speed-timed traffic signals and improved signage.

Design speeds for conventional suburban neighborhood streets range from a minimum of 25 or 30 mph to 45 mph. Route 96 is not a neighborhood street, it is a moderately trafficked arterial roadway. The creation of nodes along Route 96 results in village-type activity centers within which Route 96 should be treated more like a neighborhood street (similar to Route 96 treatments within the Village of Trumansburg). In a village, speeds are controlled through careful design of streets and the streetscape. On-street parking, narrow street widths, and special design treatments help induce drivers to stay within the speed limits. At slower speeds, the frequency of vehicular accidents declines, and those that do occur are less severe.

In the Cayuga Medical Center Node, the goal is to create more "active" streetscapes, involving more of the factors that slow drivers. These include narrower street widths, eye contact between pedestrians, bicyclists, and drivers; and gateway treatments to alert motorists to a change in context. The overall impact of these elements of design is enhancement of the mutual awareness of drivers and pedestrians.



Example of a colored and textured crosswalk



Example of a landscaped median

The following traffic calming tools are recommended for reducing vehicular speeds within the Cayuga Medical Center Node:

- Install curbing throughout the node with narrowed travel lanes to provide visual cues to motorists to reduce travel speeds;
- Petition NYS DOT to reduce the speed limit from 45 mph to 40 mph throughout the node (from the City line to the south to the new northerly node driveway);
- Install gateway treatments at the north and south ends of the node. Ideally these would be located at the new northerly driveway (north of Hayts Road) and at the new southerly driveway (near the Finger Lakes School of Massage and the West Hill Ithaca Fire Department station). The section below discusses potential gateway treatments.

GATEWAY TREATMENTS

“Community gateways are a measure or set of measures strategically located as motorists enter a community which announces to motorists that they are entering a community and are no longer on an open, high-speed roadway.”¹ A gateway provides a visual cue to highway users that they are entering an activity center. Gateways can be made through elaborate landscape and sign installations or may be as simple as some form of pavement markings.



The following gateway treatments are recommended for consideration at the Cayuga Medical Center node:

- A landscaped sign that announces the entrance to the node.
- A raised, landscaped median at the north end of the node on Route 96.
- A roundabout at the new southerly intersection of the node.



Example: Roundabout Treatments

Roundabouts provide two main safety benefits for pedestrians when compared to traditional intersections. First, the number of vehicle / pedestrian conflict points is significantly decreased due to the one-way circulation pattern at a roundabout. Secondly, pedestrians are only required to cross one direction of traffic at a time at each approach as they traverse the roundabout. Therefore, by decreasing crossing distances and exposure to vehicles, the likelihood of a vehicle/pedestrian conflict diminishes.

¹¹ Evaluation of Gateway and Low-Cost Traffic-Calming Treatments for Major Routes in Small, Rural Communities, Center for Transportation Research and Education (CTRE) at Iowa State University sponsored by FHWA, October 2007.

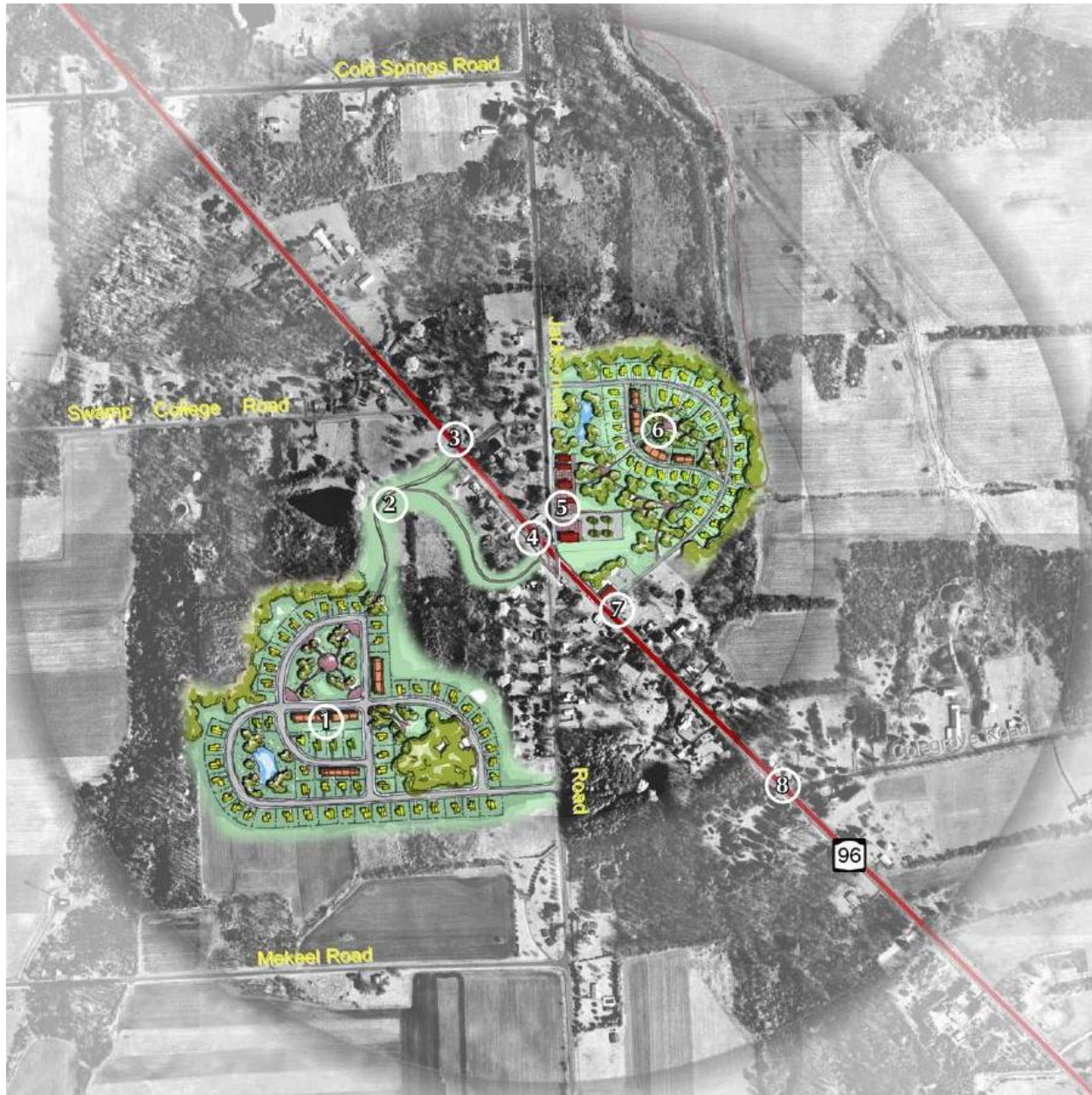
Bicyclists have the option of traveling a roundabout as either a vehicle or a pedestrian. When they choose to travel as pedestrians, walking their bicycles on the sidewalk, they realize the same benefits as pedestrians, as noted above. When traveling as a vehicle, bicyclists realize the same benefits as a motor vehicle at roundabouts, i.e. lower speeds, elimination of head on and left turn type crashes, fewer conflict points, etc. In either instance, bicycle safety is enhanced at roundabouts when compared to a traditional intersection.

2.2 Jacksonville Hamlet Node

LAND USE

A mix of land uses is recommended for the Jacksonville Hamlet Node, including commercial, office, open space, and single- and multi-family residential uses. Figure 4 shows a conceptual plan for how this mix of uses may be incorporated within the node as future development and build-out occurs. The graphic rendering depicts one future development scenario for the node, variations and changes to the development of the Hamlet will likely occur depending on municipal decisions, market forces, and other outside factors.

Figure 4 – Conceptual Rendering of Jacksonville Hamlet



SITE ENHANCEMENT AREAS:

- 1 – Residential Center, West
- 2 – Multi-Use Connector Path
- 3 – Northern Gateway
- 4 – Route 96 and Intersection Enhancements
- 5 – Mixed-Use Center
- 6 – Residential Center, East
- 7 – Transit Stop
- 8 - Southern Gateway

Site Enhancement Area #1 – RESIDENTIAL CENTER, WEST

It is recommended that Site Enhancement Area #1 consist of a variety of residential types including single- and multi-family residences. The concept suggests a neighborhood with a comprehensive pedestrian network that connects a series of public open spaces, including a park area, natural woods, and a picturesque water feature. Pedestrian connectivity extends outside of the development, linking residences to the commercial portion of the Hamlet by way of a pedestrian path through the existing Community Park. As conceptually depicted, there are 52 single-family residences and 14 multi-family townhome residences. The 66 units identified in this development area equate to the total number of new housing units projected for the mid-range Hamlet population growth. When considering phasing of development within the Hamlet, this development area could reasonably be developed first, with additional build-out occurring over an extended period of time.

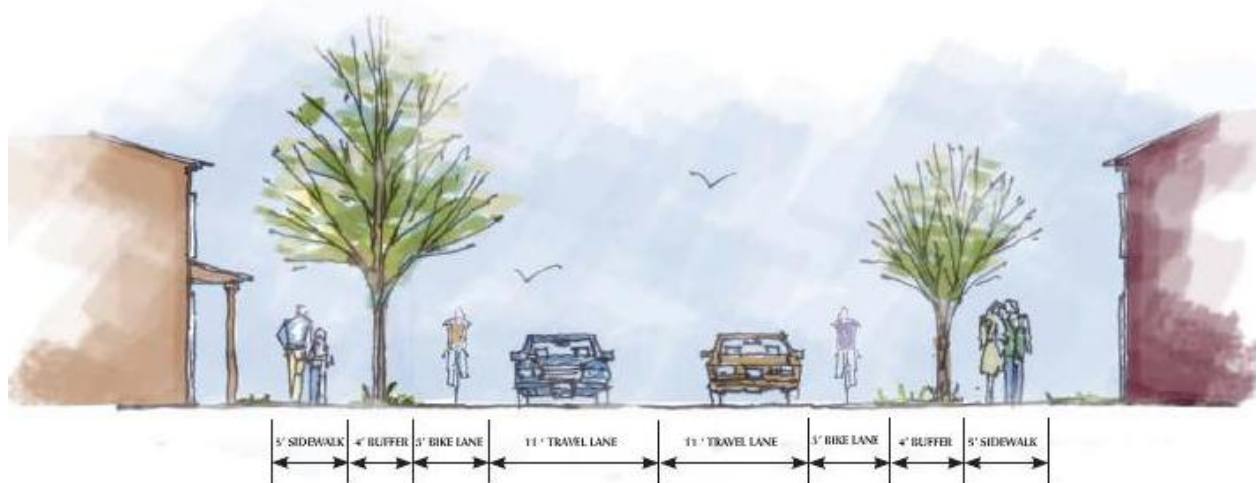
Site Enhancement Area #2 – MULTI-USE CONNECTOR PATH

Enhancement Area #2 depicts the multi-use path which serves to connect residential areas within the Hamlet to a number of key community features, including Jacksonville Community Park, the sidewalk system recommended along Route 96, and future commercial development at the corner of Route 96 and Jacksonville Road. The path is intended to be coordinated with the park to enhance existing amenities and site features associated with Jacksonville Community Park.

Site Enhancement Area #3 – NORTHERN GATEWAY

Site Enhancement Area #3 indicates a likely location for the formal northern gateway into the Hamlet of Jacksonville. Recommended gateway enhancements to signify entry into the node include a freestanding sign and a landscaped median to help provide a visual cue to slow traffic before reaching the activity center of the Hamlet.

Figure 5 – Cross-section of Route 96 in Hamlet of Jacksonville



Site Enhancement Area #4 – ROUTE 96 AND INTERSECTION IMPROVEMENTS

Route 96, as conceptually depicted, should be more pedestrian and bicycle-friendly, particularly within the boundaries of the Hamlet area. In an effort to promote safety and slow vehicular traffic through the node, it is recommended that the roadway be narrowed to include 11' travel lanes with additional existing pavement being re-designed to create a defined bike lane, tree lawn and continuous sidewalk. Intersection improvements at Route 96 and Jacksonville Road should include the incorporation of clearly defined crosswalks, preferably in a different color and material than the roadway itself.

Figure 5 shows a cross-section of Route 96 within the Jacksonville Hamlet node, south of the intersection of Jacksonville Road.

Site Enhancement Area #5 –MIXED-USE CENTER

Commercial and mixed use development within Jacksonville Hamlet should be focused on Jacksonville Road adjacent to the intersection of Route 96. This is a strategic location for commercial-oriented development because it allows easy access and high visibility but keeps traffic flow from stopping or slowing down directly on Route 96. A number of small-scale buildings could be established here consisting of commercial, mixed use, or office space. Recommended building configuration would be to keep active uses, such as retail or restaurants, on the first floor and to allow residential or office uses on the second story.

The scale and architectural design of the commercial buildings should be considerate and consistent with the historic character of the Hamlet. Parking areas for the commercial should be to the rear of buildings to maintain a building presence along the street. Landscaping and pedestrian plazas further help to buffer the parking area and create a pedestrian friendly environment. The commercial area remains accessible for pedestrians through a pathway network that seeks to connect the commercial uses to both residential centers within the node. Square footage of commercial and office uses, as well as any residential units, would be determined based upon market conditions and final design.

Site Enhancement Area #6 – RESIDENTIAL CENTER, EAST

Residential development shown in Site Enhancement Area #6 includes a mix of single-family, multi-family, and apartment style units. Conceptually, this residential area includes approximately 40 single family homes and 20 multi-family units. In order to construct this scenario, accommodations would need to be identified to handle the associated water and sewer requirements. This residential area has been designed to complement this area within the Hamlet. A recreation trail is provided throughout the residential development and connects to the commercial area along Jacksonville Road, ultimately linking to Route 96 and Jacksonville Park. There may also be the potential for a future connection to the Black Diamond Trail from within this enhancement area.

The total number of new housing units identified in this conceptual scenario is approximately 92 single family units and 34 multi-family or townhome units, for a total of 126 housing units (128 units were identified as the high-range build-out projection for this node). Additional multi-family units may be accommodated in the designated commercial/mixed use area.

Site Enhancement Area #7 – TRANSIT STOP

The existing commercial building identified on Route 96 is a recommended location for a covered transit stop. A multi-use building would provide a seating area for those awaiting bus service as well as retail establishments, offering additional amenities and services in immediate proximity to transit users.

The existing bus stop on Route 96 should also be enhanced as a key transit location servicing people traveling south to the Cayuga Medical Center and destinations within the City of Ithaca. The creation of two transit areas could service busses in both the north and southbound direction, limiting the extra time riders must sit on the bus traveling in a wrong direction and ensuring busses do not need to make extra turnarounds. The existing bus stop on the west side of Route 96 should also be enhanced.

Site Enhancement Area #8 – SOUTHERN GATEWAY

Site Enhancement Area #8 indicates the southern gateway into the Hamlet of Jacksonville. Possible recommended gateway treatments for this location include a gateway sign with landscaping and possible a landscape median to slow traffic as they enter the node.

VEHICULAR CIRCULATION

Like the Cayuga Medical Center node, the Jacksonville Node is also intended for mixed use and various types of residential development. Jacksonville is an established hamlet with residential and commercial uses, a post office, and a transit stop along Route 96. The speed limit along Route 96 within this node is 40 mph although motorists typically travel over this speed limit. There is curbing throughout the Hamlet, however the travel lanes are excessively wide (approximately 21-22 feet wide). The main intersection of Route 96 with Jacksonville Road is skewed.

Analysis of the vehicular capacity at the Route 96/Jacksonville Road intersection indicates that the intersection will operate at average to above average levels of service under the future nodal development conditions. Therefore no vehicular capacity improvements are required. However, it is anticipated that traffic signal warrants may be met at Jacksonville Road in the future. Therefore, consideration should be given to installing a traffic signal in conjunction with future development and build-out of the node.

Development within this node is proposed at the northeast corner of the Jacksonville Road intersection as well as to the south and west of the intersection. New roadways providing vehicular access into the nodal development areas are currently shown as “T” intersections and should be stop-controlled at their intersections with Route 96 and with Jacksonville Road.

PEDESTRIAN AND BICYCLE CONNECTIONS AND FACILITIES

Sidewalks are provided along the west side of Route 96, only in the vicinity of Jacksonville Road, and they are narrow and in poor condition. There are no marked crossings and the sidewalks end abruptly to the north and south of Jacksonville Road. On the north side of Jacksonville Road, the sidewalk continues around the corner and down Jacksonville Road to a dead end. The



Existing sidewalk conditions in Jacksonville Hamlet

sidewalk on the south side of Jacksonville Road does not extend to the corner at Jacksonville Road. The following pedestrian and bicycle improvements are recommended within this node:

1. Provide a curbed roadway section throughout the Hamlet of Jacksonville;
2. Revise the geometry of Route 96 within the node such that there are two 11' travel lanes. The remaining pavement width can either be used for an 8 feet wide on-street parking lane or can be eliminated and used to provide a bike lane, sidewalk, and buffer area;
3. Install curb-bump outs to narrow crossing widths and to delineate recessed on-street parking areas;
4. Install sidewalks along both sides of Route 96 throughout the Hamlet;
5. Install crosswalks in the north and south direction along Route 96 for pedestrians crossing Jacksonville Road as well as the new roadways within the node;
6. Provide a 5' designated bike lane along both sides of the road within the nodal boundary areas.

TRANSIT

The existing transit shelter along Route 96 in Jacksonville should be enhanced and a recessed bus pull off should be provided, as space permits.



Existing bus stop in Jacksonville

TRAFFIC CALMING / CONTEXT SENSITIVE DESIGN

The main objective of providing traffic calming in the Hamlet of Jacksonville node is to encourage motorists to travel at the posted speed limit of 40 mph. The wide expanse of pavement currently causes motorists to travel too fast through this area.

The following traffic calming tools are recommended for reducing vehicular speeds within the Hamlet of Jacksonville Node:

- Install curbing throughout the node with narrowed travel lanes to provide visual cues to motorists to reduce travel speeds;
- Delineate travel lanes at approximately 14 feet and either narrow the pavement accordingly or delineate recessed on-street parking areas with the excess pavement width.
- Provide sidewalks along both sides of Route 96 throughout the node.
- Provide curb-bump outs wherever possible to shorten crossing distances for pedestrians.
- Delineated pedestrian crosswalks should be provided on all four legs of the Jacksonville Road intersection.
- Delineate pedestrian crossings at the new roadway intersections with Route 96 within the node. Consideration should be given to providing marked crosswalks on Route 96 at these locations.

These crosswalks would likely require safety enhancements on Route 96 such as curb bump-outs and/or a raised median treatment.

- Install gateway treatments at the north and south ends of the node.

GATEWAY TREATMENTS

The following gateway treatments are recommended for consideration at the Hamlet of Jacksonville node:

- A landscaped sign that announces the entrance to the node,
- A raised, landscaped median at the north and south ends of the node on Route 96.

2.3 Route 96 Corridor, Outside Nodes

LAND USE

Future development along the corridor should be focused within the nodal areas with development outside of the nodes limited to the greatest extent possible. Any new development that occurs along the corridor, outside of a node, should be required to conform to Design Principles such as those identified in Section 3.3. The Design Principles seek to mitigate and minimize the impacts of new development along the corridor, traffic impacts associated with curb cuts, environmental impacts such as the loss of significant viewsheds, and community impacts including a change to the rural character of the corridor.

Future land use recommendations for the portion of the corridor within the Town of Ulysses are identified in the Town's Comprehensive Plan Update, which is scheduled to be completed by the end of 2008. Jacksonville is highlighted on the Future Land Use Plan as a mixed-use hamlet center, consistent with the nodal development pattern represented within this Study. All other portions of the corridor are in the Agricultural Priority Area land use classification. This land use classification implies that these lands are primarily intended for agricultural uses and should be retained in their existing natural or agricultural condition to the greatest extent possible. The plan highlights the need to focus future development in designated areas, such as the Village of Trumansburg or Jacksonville, and limit development in other areas within the Town.

The Town of Ithaca is also updating their Comprehensive Plan, with an expected completion date of 2009. The Route 96 Corridor Management Study should be referenced when developing and considering future land use recommendations within the Town, specific to the corridor. The Town should strive to ensure consistency between the Study recommendations and their Future Land Use Plan.

VEHICULAR CIRCULATION

The nodal development plan restricts the majority of planned development to locate within the two nodes in the Hamlet of Jacksonville and at the Cayuga Medical Center. Development that is proposed outside of the nodes should be evaluated based on the following criteria with respect to vehicular circulation:

- Limit the number of new driveways permitted to access Route 96 directly. Encourage development that has access to a lesser side road to access Route 96 solely from the side road.
- Adopt municipal access management guidelines with a Route 96 Overlay District to strictly control the placement and number of new driveways within the corridor.
- Consider consolidation and/or elimination of existing driveways whenever possible, including all new development and re-development of existing parcels.

PEDESTRIAN AND BICYCLE CONNECTIONS AND FACILITIES

Improved circulation and safe pedestrian and bicycle routes along the corridor should be a priority when implementing the recommendations of this study. While a comprehensive sidewalk network throughout the length of Route 96 is not practical, or financially viable, efforts should be made to ensure that all portions of the corridor outside of the City of Ithaca do have a striped shoulder with a minimum width of

6-8' depending on the speed of traffic in order to allow for the safe movement and circulation of pedestrians and bicyclists.

TRANSIT

Public transportation is currently provided along the corridor by Tompkins Consolidated Area Transit (TCAT). Bus Route 21 includes the entire corridor from Cornell to Trumansburg, while Route 19 circulates from the City of Ithaca to the Cayuga Medical Center. Although there are bus stops along the route, most notably at the Medical Center, in the Hamlet of Jacksonville, and at a Park-and-Ride in the Village of Trumansburg, the majority of the service is flag-and-stop. Under a nodal development scenario which incorporates transit enhancements at population centers, it is unlikely that any additional transit stops would be justified or needed along the corridor, outside of the nodes.

TRAFFIC CALMING / CONTEXT SENSITIVE DESIGN

NY Route 96 is functionally classified as an Urban Minor Arterial highway between the City line and Perry City Road and then changes to a Rural Minor Arterial highway from Perry City Road to the north of Perry City Road. According to Chapter 25 of the New York State Highway Design Manual, the segments of Route 96 that lie outside of the nodes fall within the designation of Category IV Facilities since the design speed in these segments is generally 50 mph or greater. Very few traffic calming treatments are permitted by NYSDOT in Category IV facilities. However, the permitted treatments are listed below:

- Pedestrian refuge, such as midblock islands,
- Bicycle facilities,
- Median treatments,
- Higher visibility crosswalks,
- Walk phase on signals.

2.4 City of Ithaca

A number of recommendations have been developed to address specific traffic and livability concerns in the City within the defined study area, as described below:

The intersection of Route 96 (also known as Cliff Street) and Taughannock Boulevard (or Route 89) is a crossroads of two major commuter routes for traffic entering and exiting the City. There is a heavy left turn movement from Taughannock Blvd to Route 96 which results in traffic using the intersection to compete for adequate green time at the signal. The end result is significant queuing in the eastbound and westbound directions on Route 96 during the AM and PM commuter peaks.

This congestion could be relieved by allowing traffic entering and exiting the City on Route 89 to bypass the intersection. This may be accomplished by constructing a new bridge over the Cayuga Lake inlet connecting Route 89 with Fulton Street at the existing Court Street intersection. This recommendation is consistent with previous studies completed for this area of the City.

The narrow width and steep grades along Cliff Street in the City of Ithaca present challenges for pedestrian and bicycle enhancements. Buffer plantings and fences can aid in creating a separation

between pedestrian/bicycle paths and motor vehicles. An option for alleviating bicycle/pedestrian/vehicular conflicts on Cliff Street would be to create a direct link to the Black Diamond Trail from Route 96 near the City limits. The linkage could be identified through signage and a crosswalk treatment. In addition, the Town of Ithaca has shown a new roadway and/or trail connection between Route 96 and Route 79. This connection should be pursued to further enhance the vehicular and non-motorized transportation system in this area.

In addition, a gateway treatment should be considered to identify the motorist's arrival at the City of Ithaca. A landscaped median treatment may be one possibility in the wider section of Route 96 just north of the City line. Other improvements for the Route 96 study segment within the City may include:

- Install a gateway treatment on Route 96 just north of the City line
- Improve bicycle and pedestrian accommodations through additional buffering wherever possible on Route 96
- Periodically review traffic signal phasing/timing and optimize
- Consider a new bridge connection between Route 89 and Fulton St at Court St to relieve congestion at Route 89/Route 96

3.0 RECOMMENDATIONS

A series of recommendations are presented to assist decision makers in each of the study area municipalities with developing guidelines for future development and identifying potential future projects. The goal of these recommendations is to mitigate traffic through a nodal pattern of development and maintaining the rural character and quality-of-life along the corridor.

Chapter 3.0 includes general recommendations for promoting safety at key intersections, preserving quality-of-life along the corridor, design principles to guide development within each node, and design principles applicable throughout the Route 96 corridor. The recommendations propose suggested regulatory language that can foster a development environment that is consistent with the goals of the Nodal Development Scenario.

The recommendations set forth below build upon the land use strategies, techniques, and principles from Technical Report #2. They offer guidance for future land use regulations within the municipalities.

3.1 Intersection Improvements

Five intersections were selected for a greater level of study and analysis based on their existing and potential future conditions. Project sheets, showing existing conditions as well as recommended conceptual alternatives, have been developed and are included in Appendix 1 of this report. In addition to the graphic depictions of the intersection, each project sheet includes a brief background, intersection concerns, and recommended tools.

Project Sheets have been completed for the following intersections:

- Route 96 & Jacksonville Road: recommendations include improvements for bicycle and pedestrian travel, street amenities, new curbing, recessed/delineated parking, and potential for a new traffic signal or a roundabout.
- Route 96 & Harris B Dates Drive-West Hill Drive: recommendations include improvements for bicycle and pedestrian travel, street amenities, new curbing, and potential to replace the existing traffic signal with a roundabout.
- Route 96 & New Cayuga Medical Center Node intersection: recommendations include improvements for bicycle and pedestrian travel, street amenities, new curbing, and potential for a new traffic signal or a roundabout.
- Route 96 & Taughannock Boulevard: recommendations include improvements for bicycle and pedestrian travel, signal phasing/timing improvements, and the potential for a new bridge connection between Route 89 and Fulton Street.
- Route 96 & Krum's Corners Road: recommendations include replacing existing warning signs with new style, larger signs and removing vegetative obstructions.

3.2 Corridor Livability Recommendations

Findings from the Residential Community Survey, Business Focus Group meetings, April Public Meeting, and Technical Review Committee meetings identified areas of concern for those living and using the corridor, as well as positive aspects of the Route 96 corridor within the study area. Recommendations to improve existing conditions and the quality-of-life of corridor residents and business owners have been identified below in response to those issues and opportunities that were defined through the various public forums utilized during the planning process associated with the development of this Study.

SPEEDING

Traffic speed was identified as the top concern for corridor residents who responded to the community survey. Opportunities to reduce traffic speeds along the corridor are limited due to its classification as a State Route and NYSDOT guidelines. Although actual traffic speeds may not be applicable on Route 96, there are physical and visual cues that could be incorporated along the corridor to help slow the rate and speed of traffic. Potential cues to slow traffic along the corridor include:

- Improved Signage
- Landscaping
- Reductions in roadway width
- Landscaped medians in nodal areas
- On-street parking in nodal areas

TRAFFIC VOLUME

Traffic volume was also identified as a significant issue for those that live and work within the study area. Traffic volumes today are driven by a lack of internal connections, individual driveways, and a lack of land use integration. Recommended methods to reduce traffic volumes along the corridor include:

- Enhance public transportation services to make it a more desirable option by improving access, accommodations, and convenience
- Promote nodal development that allows people to live, work, and shop without having to drive on corridor

RURAL AND SCENIC CHARACTER

The rural and scenic character of the corridor was rated as one of the greatest benefits and positive attributes associated with living on, working on, and traveling along the corridor. Design and zoning requirements could be established and incorporated into municipal regulations to preserve, protect, and enhance the rural and scenic character of the corridor into the future. Recommendations to ensure the character of the corridor is not negatively impacted by future development include:

- Update zoning controls to limit the types of development permitted along the corridor
- Update zoning controls to establish a minimum lot size and maximum building coverage
- Require all future development to identify environmental impacts of development
- Identify scenic views along corridor

CONVENIENCE

The lack of convenient access to goods and services was also identified as a concern by corridor residents. Similar to traffic volume, the lack of integrated land uses and the distance required to travel from one good/service to another is a negative aspect of corridor living. Potential methods to improve convenience for corridor residents include:

- Promote nodal development concept that incorporates a mix of uses within a designate development area, reducing the number of outside trips residents and workers need to make to access everyday goods and services

COMMUTE TIME

Commute time was also identified as an issue by area residents, with specific areas of concern around the City of Ithaca and at the Cayuga Medical Center where there is the greatest potential for delays due to traffic signals. In addition to traffic signals, commute time may be increased in association with increased traffic volumes and an increased number of access points. The following recommendations could be implemented to ensure that commute time is not unnecessarily increased along the corridor:

- Replace existing traffic signals with roundabouts whenever possible
- Install roundabouts in lieu of traffic signals when new signals are warranted
- Limit the number of curb cuts for new developments
- Periodically review traffic signal phasing/timing and optimize whenever possible
- Consider providing a new bridge connection between Route 89 and Fulton Street at Court Street to alleviate congestion at the Route 89/Route 96 intersection. This would reinforce the City street network and redistribute traffic in the most congested part of the City of Ithaca.

Any improvements, particularly in the vicinity of the Cayuga Medical Center, must consider the impact on emergency vehicles. However, it is noted that emergency vehicles have priority at all types of intersections and that other motorists must yield to emergency vehicles whenever necessary. Roundabouts provide a higher degree of safety in terms of less conflicts and less potential for severe crashes as compared to traffic signal controlled intersections. There are fewer collision points and injury producing right-angle accidents are eliminated. This is true for traditional vehicles, as well as emergency vehicles.

ACCESS DENSITY

The number of driveways a user experiences on a daily basis has impacts on their overall travel experience. A higher number of driveways over a short distance impacts traffic generation rates, travel times, vehicular movements, and vehicular / pedestrian conflicts (safety). The design principles for areas outside of the nodes (Section 3.4) identify ways to mitigate the impacts associated with access density. A summary of potential recommendations is included below:

- Promote the consolidation and sharing of driveways
- Promote property access from existing secondary roads off of the corridor when possible

NOISE

The noise generated by corridor traffic was identified as a concern by those residing along the corridor. Recommendations for reducing the impacts of traffic noise include:

- Promote a nodal development scenario that will result in reduced trips and traffic volumes which result in increased noise
- Buffer plantings or barriers along Cliff Street portion of Route 96
- Encourage reverse frontage for all new development and redevelopment of houses on Cliff Street

CONNECTIVITY

Residents indicated that connectivity and the relationship of land uses has the ability to impact the overall quality-of-life experienced by corridor residents. The lack of mobility options and access to alternative modes of transportation was identified as a negative aspect of living along the corridor. Improving conditions associated with alternative modes of transportation, connections, and linkages could be achieved through the implementation of the following:

- Multi-use trails within nodal areas connecting neighborhoods
- Sidewalks and bike lanes incorporated into nodal areas
- Striped shoulders on corridor outside of nodes for use by bicyclists and pedestrians
- Connections to existing and proposed recreation trails, such as the Black Diamond Trail

TRANSIT

Increased transit use would help to mitigate many of the negative aspects identified with living along the corridor and many residents have identified that they would be interested in using transit if it became more accessible to them. Although there are not currently plans to increase transit routes within the study area, expand bus stops, or add a park-and-ride, projected future growth may require that some of these changes occur in the future. Short-term projections would not likely result in significant changes, as current routes are often underutilized and have the ability to capture a larger number of riders. The following considerations should be incorporated into future decision-making with regards to transit:

- Tompkins County and each of the involved municipalities should continue to work and coordinate with TCAT as future development occurs to define whether any changes to the existing public transportation system are warranted.

PEDESTRIAN SAFETY

Pedestrian safety is an obvious concern along the corridor due to the high volume of traffic and rates of speed in which traffic travels. The lack of sidewalks outside of the City of Ithaca limits requires pedestrians to walk within the shoulder of the roadway which, although provides adequate room for walkers, may also be perceived as unsafe because there is no clear barrier between vehicles and pedestrians. Improving pedestrian safety, and the perception of safety, may be possible through the implementation of the following measures:

- Visual cues to slow traffic, improving the perceived and real safety of pedestrians
- Reduced speed limits within the nodes

- Pedestrian crosswalks

ACCIDENT RATES

In an effort to reduce the number of accidents along the corridor, the following recommendations could be implemented by each of the individual municipalities:

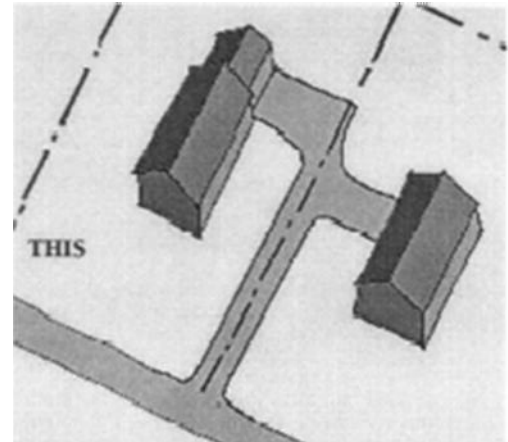
- Adopt access management guidelines including, but not limited to, limiting the number and location of access points, limit left turns, require shared driveway and cross access whenever possible.

3.3 Outside Node Design Principles

Access Density

Access density along the Route 96 corridor impacts traffic speeds, accident probability, and safety for pedestrians and vehicles using and accessing the corridor. Design principles should be incorporated into future zoning updates for the corridor to ensure future driveways and curb cuts are incorporated in a manner that promotes the safety and effective use of Route 96.

- Limit driveways to one per parcel.
- Encourage access to properties from side roads when possible.
- Adopt Access Management Guidelines that clearly define the distance and number of access drives allowed along Route 96 in each municipality.
- Promote the consolidation of driveways.
- Maintain a minimum frontage of 300' along Route 96 if parcels are subdivided.
- Consider eliminating additional driveways when properties with more than one driveway are redeveloped.



The consolidation and sharing of driveways to limit curb cuts is preferred along Route 96

Parking

Parking lots are typically characterized by expanses of asphalt which detract from the aesthetic, natural character of a rural landscape. Design principles which mitigate the impacts of parking areas should be incorporated into future zoning and design standards. Recommended design principles include:

- Restrict parking in the front yard.
- Locate parking areas at the rear of a building when possible and should strive to be invisible from Route 96. When not feasible, limited parking may be allowed in a side yard area.
- Land bank parking areas on a case-by-case basis for new development along the corridor.



Rendering depicts parking at rear of building which is visually screened from surrounding uses and roadways

Architectural Vocabulary

Maintaining the scenic character of the corridor is an important goal and objective for each of the involved communities. Recommended design principles should incorporate and build upon existing conditions and reflect the desired character for the corridor.

- Reflect the style of building typically associated with a rural setting for all new non-residential development. Appropriate styles may include farmhouses, barns, country stores, industrial farm operations, and other farm outbuildings.
- Incorporate design elements that are consistent within a rural setting.
- Limit building heights to 36 feet. Special exemptions may apply to specialty farm structures, such as silos.



Rural architectural styles are appropriate for future commercial development along the corridor.

Pedestrians and Bicyclists

Considering recent trends, walking and bicycling will remain an increasingly important mode of transportation both within nodes and along the Route 96 corridor. Accommodations to provide a safe environment for these alternative modes of transportation should be considered and incorporated as appropriate.

- Incorporate a striped shoulder, at least 6' in width, along the entire length of Route 96 outside of the nodal areas.
- Include bike lanes throughout the corridor as well as within nodes to promote and support increased bicycle usage. Through the Town of Ulysses and Town of Ithaca, wide shoulders exist for use by bicyclists. These should tie into recommended bike lanes within the nodal areas, as well as other existing and future multi-use trail connections.
- Identify possible future connections from Route 96 to the Black Diamond Trail, including near the entrance of the City of Ithaca.



Existing shoulders should be enhanced and maintained for use by bicycles and pedestrians outside of the nodal areas.

3.4 Nodal Design Principles

The following design principles and recommendations have been established and can be applied to the Cayuga Medical Center and Jacksonville Hamlet nodes. The design principles have been established under the following headings:

- General Design Principles;
- Residential Development;
- Site and Setting;
- Architectural Vocabulary;
- Connections and Linkages;
- Public Areas, Open Space, and Landscaping;
- Pedestrian Amenities; and
- Streets and Vehicular Spaces.

General Design Principles

General design principles include those guidelines and recommendations which will help to create a foundation for achieving the nodal development scenario.

- Develop nodes so the central core is within a ¼ mile radius from transit stops and a ½ mile radius from services.
- Focus the most intense concentration of land uses around the central core with reductions in density as distance increases from the center.
- Encourage a mix of land uses throughout the node, as well as within individual buildings, when appropriate.
- Develop commercial and retail areas to be neighborhood oriented and of a neighborhood scale.
- Allow a mix of land uses that include the following: single-family residential, multi-family residential, commercial, retail, office, institutional, parks and open space, and community services.

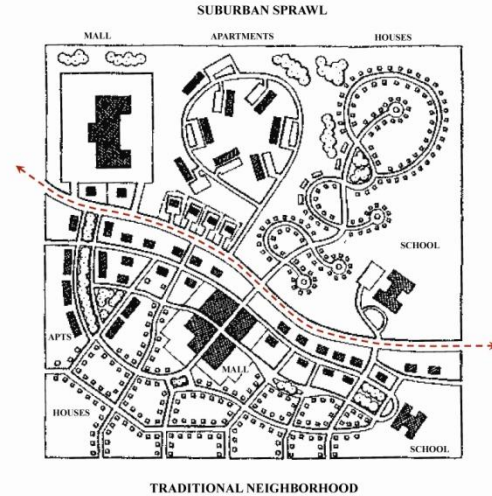


Image depicts the character of a concentrated development pattern versus a suburban pattern

Residential Development

Design principles for residential development will help enhance the character and diversity of residential options within the nodes.

- Incorporate a variety of residential densities and styles within each node, including single-family residential, townhomes or two-family homes, and multi-family units.
- Ensure a range of housing price points to ensure a mix of affordable and higher end residences.



Single family residential in the Village of Hammondsport



Example of Higher Density Single Family Residential

Site and Setting

The placement of buildings on an individual parcel, as well as in context to the corridor and entire node, is important to identify the desired community character for the area.

- Site commercial buildings along main streets which are internal to the nodes to reinforce the nodal street edge.
- Site new development off of Route 96, with only limited access to the development off of the corridor. The majority of roadways should be internal to the development, minimizing access cuts along Route 96.
- Site new construction to reduce physical and visual impacts to existing natural resources and sensitive features, such as streams.



In the Hamlet of Cheshire, NY buildings are located close to the street and reinforce the street edge.

Architectural Vocabulary

The architectural vocabulary established within the nodes should enhance and build upon the existing character, particularly in an established node such as Jacksonville. Architectural design principles could be considered by each municipality when updating zoning ordinances or developing design guidelines.

- Ensure the scale and design of all buildings is consistent with surrounding existing building styles. This is particularly true in the Hamlet of Jacksonville where a concentration of historic buildings representing the original development of the Hamlet still exist.
- Design infill development to be compatible with the average height, massing, and width of surrounding buildings.
- Scale commercial and mixed use buildings in a manner that does not overtake adjacent residential buildings. The scale of commercial and mixed use buildings should be consistent with the overall nodal development pattern.
- Proportion building facades, particularly at street level, using windows and entrances, and should be no less than 60% of the façade.
- Incorporate awnings on commercial and mixed use buildings to enhance the pedestrian scale of these areas and create an outdoor roof.



The existing character and scale of the Hamlet of Jacksonville should be retained in new building design

- Place building entrances along the main roadway on which they are located.
- Ensure building heights do not exceed 2 stories, or 30 feet, in the Jacksonville Hamlet node.
- Ensure buildings do not exceed 3 stories, or 40 feet, in the Cayuga Medical Center node.
- Use appropriate, natural materials such as wood, stone, and brick. Large scale fabricated materials, such as concrete block, concrete masonry units, and EIFS, should be prohibited.

Connections and Linkages

Strong connections and linkages are an integral component to the creation of a successful nodal development scenario. Incorporation of the design principles into future design guidelines will ensure that non-vehicular mobility and options for circulation are incorporated into the nodal development areas.

- Connect all land uses and development areas within the node by a comprehensive sidewalk and trail network.
- Create non-motorized, multi-use connections to connect the nodes with outlying areas, to the extent appropriate.
- Apply the *ADA (Americans with Disabilities Act) Standards for Accessible Design* criteria to all projects when designing and improving roadways and pedestrian facilities.



Sidewalks in residential neighborhoods link to the commercial core of the Village of Shortsville, NY

Public Areas, Open Space, and Landscaping

The nodal development concept focuses on creating public spaces, fostering human interactions, and expanding opportunities for residents and visitors to meet on the street, in a park, or on a trail. Design principles focus on creating opportunities for people to enjoy and share public areas by establishing criteria that make public places accessible, enjoyable, and safe.

- Locate active and passive open space opportunities within 1,000' of every residence.
- Integrate and enhance existing natural features within the node. Protect natural features with appropriate buffering and design controls.
- Incorporate canopy trees into site design, especially in public areas and along sidewalks, in order to



Public open space, as in the Village of Hammondsport, should include amenities, linkages to surrounding development and be located within 1000' of homes

provide shade and comfort to users.

- Provide ample seating opportunities at regular intervals along sidewalks.
- Plant one (1) street tree for every 40 feet of street frontage.
- Incorporate pedestrian-scaled lighting along Route 96, activity areas, and along pedestrian routes. Pedestrian-scaled lighting should be of a design consistent with the overall architectural character of the node and should not exceed 12' in height.
- Maintain lighting within nodes in conformance with the guidelines of the Illuminating Engineering Society of North America.



Street trees, such as those in West Chester, PA, help to soften a commercial oriented mixed use streetscape and provide an added to comfort for pedestrians

Pedestrian Amenities

When focusing development on the framework of creating a livable, walkable environment, it is necessary to ensure that pedestrians are provided amenities that make walking a desirable, efficient, and worthwhile alternative.

- Ensure a transit stop is located within ¼ mile of 80% of all residential units within the node.
- Locate pedestrian amenities, including lighting, benches, bike racks, and trash receptacles throughout the node, with a higher concentration in heavily utilized public areas.
- Incorporate pedestrian scaled maps within the node to highlight pedestrian routes, attractions (such as shopping), and amenities (such as public restrooms) found throughout the node.



Pedestrian scaled signage is appropriate at key pedestrian locations, such as a transit stop

Streets and Vehicular Spaces

Vehicles will continue to be a mode of transportation, even as walkability and mass transit options are promoted and utilized. The design principles associated with streets and vehicular spaces are intended to ensure that the relationship between cars and people are considered in all phases of the planning and design process so they can co-exist in harmony.

- Incorporate traffic calming measures to enhance safety and control traffic speeds, as identified in Section 2.0 of the Study.
- Site parking areas behind buildings to ensure they are not a dominant feature of the streetscape. No

parking lots should have frontage on Route 96. Central courtyard parking in nodal development areas with multiple commercial or mixed use buildings may be appropriate.

- Maintain 20% of all surface parking lots unpaved to allow for greenery and plantings.
- Access from Route 96 should be limited to two new locations within each node. Primary circulation for the nodes should occur within the node, not along Route 96.



On-street parking, as in the Hamlet of Marion, provides a visual cue to slow traffic and may be appropriate in the Hamlet of Jacksonville

3.5 Revisions to Regulatory Language

The recommendations from the Route 96 Corridor Management Study will be implemented through continuing intermunicipal cooperation, and municipal review and consideration of revision to local regulations to foster the type of development identified in the Nodal Development Scenario. The following recommendations are intended to assist each of the involved communities in making changes to local regulations to promote the Nodal Development Scenario.

The Town of Ulysses and Town of Ithaca are currently involved in processes to update their Comprehensive Plans. Once communities have adopted Comprehensive Plans, the next step is often to update their zoning regulations to ensure consistency with the Future Land Use Plan. The timing of this Study will help to ensure that recommendations associated with promoting the Nodal Development Scenario can also be integrated into zoning updates. Efforts should also be made to ensure that the Comprehensive Plans for the Towns are consistent and support the vision of the Corridor Study.

Revisions to any regulatory language must take into consideration two distinct development patterns, that which will happen within the nodes and that which will happen along the corridor outside of the nodes.

3.5.1. Regulations Outside of Nodes

Land uses along the Route 96 corridor, outside of the nodes, retain a rural character. In the Town of Ulysses land uses range from commercial to single-family residential, as well as a significant amount of farmland and natural open space. The Town of Ithaca has a slightly more suburban character with a greater amount of development including single- and multi-family residential, institutional uses, offices, industrial operations, and commercial development. However, open space and scenic views are also predominant characteristics within the Town of Ithaca. The City of Ithaca is much denser with a more urban development pattern including smaller lots and fewer vacant and naturalized parcels directly adjacent to the corridor.

In order to focus future projected development into the nodal areas and allow development that does not negatively impact the character of the corridor outside of the nodes, the introduction of language into existing zoning codes is needed to address the corridor as a whole. These regulatory provisions would seek to limit the density of development on the corridor, outside of nodes, in an effort to protect the existing rural character and focus higher densities of development within the nodal centers. In addition to monitoring densities, regulatory language should also focus on the quality and site design of each individual project, which could be accomplished through the adoption of design standards/guidelines.

One option for each of the communities would be to designate the Route 96 corridor as a specialized zoning overlay district within the Zoning Codes and Zoning Maps for each of the municipalities. Because the adoption of a comprehensive zoning designation that crosses municipal boundaries may be difficult to implement, each of the municipalities may alternatively agree to incorporate regulations that achieve the goals of the Nodal Development Scenario, but do so in a manner that is consistent and complementary within their existing regulatory framework. Regulatory language should address the following:

Intent

The intent for any zoning regulations impacting Route 96 within the study area must be to support the goal for the majority of future development to occur within the nodal areas. While the regulations should allow for a range of land uses outside of the nodes, they will need to also ensure the open space, views, natural areas, and undeveloped parcels are preserved. The location, site placement, building design, and use should be regulated to create a low concentration of new development that simultaneously protects the rural setting and ensures the efficiency of Route 96 as a transportation corridor.

Permitted Uses

The specific permitted uses allowed along the corridor will be determined by each of the individual communities. Recommended permitted uses could include:

- Agricultural operations,
- Other rural enterprises which complement agricultural operations;
- Parks and open space uses,
- Institutional uses,
- Residential uses, and
- Public buildings.

Design Guidelines

In order to promote the low density development desired outside of the nodes, the following dimensional parameters are recommended for municipal consideration when updating zoning language:

Minimum Lot Size Range:	3 – 10 acres
Maximum Lot Coverage Range:	5 - 10 percent
Maximum First Floor Area Range:	20,000 – 35,000 square feet
Front Yard Setback (min) Range:	50 - 75 feet (to create green space strip along corridor)

In addition to the dimensional requirements noted above, the design principles outlined in Section 3.3 of this Plan could be incorporated as they address other important design issues such as parking, access density, and architectural guidelines.

Sustainable Design

Sustainable design is defined as the art of designing the built environment to comply with overarching principles of economic, social, and ecological sustainability. Sustainable design is the key objective and purpose of the Nodal Development Scenario, but the principles of sustainable design should also be applied to development outside of the nodes.

A number of the common principles of sustainable design are highlighted below:

- Low-impact materials, including those that are non-toxic, sustainably produced, or recycled materials.
- Energy efficient products, such as heating and cooling systems.
- Alternative energy sources, such as solar hot water).
- Use of on-site power generation, such as solar technology or wind power.
- Rainwater harvesting and rainwater gardens.
- Land-banking parking lots.
- Permeable materials for traditionally impermeable site areas.
- On-site waste management, such as green roofs that filter and control stormwater runoff.
- Landscaping to shade buildings from direct sun and wind protection.
- On-site composting.
- Local material usage to avoid transportation-related energy use.

Other Considerations

New York State Department of Environmental Conservation requires that municipalities receive a copy of a Storm Water Pollution Prevention Plan (SWPPP) prior to approval of any site development disturbing more than one acre. This requirement, for all development along the corridor, will ensure that the quality and quantity of water is protected.

“Dark Sky” compliant lighting fixtures should be required for all future projects on the corridor.

3.5.2. Regulations for Nodal Areas

The Village of Trumansburg is an established node within immediate proximity to the study area which exemplifies the concentration of development that is desired within the Cayuga Medical Center and Jacksonville Hamlet nodes. The style and exact layout of the proposed nodes will depend on funding, developer interest, and community vision for achieving the overall objectives.

Regulations developed for the nodal areas should focus on reducing transportation impacts, promoting a range of complementary uses, creating a cohesive pedestrian network, and enhancing the aesthetic and physical quality of the nodes. In order to accomplish this, each of the involved communities should consider creating a Mixed Use Zoning District that incorporates design guidelines and principles to achieve the overarching vision. The boundaries of the Zoning District should be carefully considered by each of the municipalities but should include a maximum of ½ mile from the center point of each of the nodes as discussed within this Study.

Regulatory language for a Mixed Use Zoning District could include the following general requirements:

Intent

The intent of a Mixed Use (MU) Zoning District is to support the development of a mix of complementary uses. The MU District is intended to promote and foster a medium to high density node of activity that encompasses a variety of uses, including residential, commercial, office, institutional, and open space. The design and layout of the nodes should create clusters of activity and efficient transportation routes, for a variety of transportation types, which enhance the public realm and safety of users.

Permitted Uses

The specific permitted uses allowed within each node will be determined by individual communities. It is recommended that, at a minimum, the following types of uses be promoted within the nodes:

- Retail,
- Service,
- Office,
- Institutional,
- Single-Family Residential,
- Multi-Family Residential (townhomes, duplexes, condos, apartments),
- Mixed-Use Buildings,
- Open Space and Parks, and
- Public and Semi-Public Uses.

Other uses may be permitted, or approved by Special Use Permit, as deemed appropriate by the municipalities as they undertake zoning updates. Other uses to be considered may include light industrial, medical services, gas stations, or small farm operations.

Design Guidelines

In order to promote the development density desired within the nodes, the following dimensional parameters are recommended for municipal consideration when updating zoning language:

<i>Minimum/Maximum Lot Size:</i>	Determined on case-by-case basis. Goal is to achieve development consistent with the desired scale for the nodal area.
<i>Minimum Lot Coverage:</i>	Determined on a case-by-case basis based on the existing pattern of development. Recommended range between 35% to 55%.
<i>Maximum Lot Coverage:</i>	Maximum lot coverage for commercial uses recommended between 60% and 80%. Maximum lot coverage for residential uses will vary depending on types of units.
<i>Front Yard Setback (min):</i>	Determined on a case-by-case basis based on the existing pattern of development. Goal is to achieve a zero or nominal setback to create strong streetscape presence.
<i>Front Yard Setback (max):</i>	Range of 10- 15 feet.
<i>Rear Yard Setbacks:</i>	Determined on a case-by-case basis based on the existing pattern of development.
<i>Side Yard Setbacks:</i>	Determined on a case-by-case basis based on the existing pattern of development.

In addition to the dimensional requirements noted above, the design principles outlined in Section 3.4 of this Study should be incorporated as they address other important design issues such as parking, building placement, landscaping, and architectural guidelines.

The dimensional requirements lend themselves to creating a human-scaled development pattern and seek to create a substantial architectural presence in mixed-use, commercial, and residential areas. Minimal front setback requirements will result in a strong street edge along both Route 96 and internal roadways, helping to slow traffic and create a pedestrian friendly environment.

Other Considerations

Specific guidelines for large-scale residential developments, greater than 10-units, should also be prepared and include the requirement for the developer to dedicate at least 20% of the total site area to community / public open space.

Each of the municipalities should develop a special set of parking requirements specific to the Mixed Use Zoning District. Since the nodal development pattern is characterized by a mix of uses within close proximity, it is presumed that users will park and visit more than one destination and nodal residents

will visit multiple businesses within the node by foot or bike. Standard parking requirements for “suburban” development patterns are not appropriate in a higher density, mixed-use nodal scenario. A shared parking ordinance is an option that would allow for parking reductions in mixed-use areas based on a series of assumptions about different usage and peak usage hours for different land use types.

Incentives

A series of development incentives may also be considered and utilized by each of the Towns in order to make the type of development sought in the nodes more desirable to prospective developers. Developer incentives may include, but are not limited to:

- Density increases for targeted development types, such as moderate-income or energy efficient housing;
- Reduced parking requirements;
- Reduced building permit fees;
- Tax incentives; or
- Financing incentives.

4.0 CONCLUSION

The Route 96 Corridor Management Study was prepared to help assess and analyze the impacts of a Trend Development Scenario versus a Nodal Development Scenario on the Route 96 corridor from the northern edge of the Town of Ulysses south to the intersection of Route 13 in the City of Ithaca. The Study was approached from both a transportation and overall quality-of-life perspective. The same population projections (mid- and high-range) for the corridor were applied to both scenarios.

The Trend Development Scenario assumed that development would continue to occur along the corridor as has it has occurred in the past, resulting in a majority of development along the road frontage. The Nodal Development Scenario focused 75% of projected future development over the next twenty years within three nodes on the corridor – the established Village of Trumansburg, Jacksonville Hamlet in the Town of Ulysses, and the Cayuga Medical Center in the Town of Ithaca. Although not an identified nodal area on West Hill, the City of Ithaca is expected to absorb other future growth over the next twenty years that is beyond the projections for the West Hill travel shed.

Under the Nodal Development Scenario, the majority of undeveloped land along the corridor is able to be retained, maintaining the rural character and agricultural operations which define this corridor. Residential densities within the nodes were increased to 2 to 5 dwelling units per acre, with the potential for greater densities. The increased residential densities are consistent with the general planning goals for the region of reducing the overall amount of developed land, maintaining existing agricultural operations, preserving viewsheds and open space, and protecting natural resources.

The results of the exercises undertaken as part of the Route 96 Corridor Management Study indicate that a Nodal Development Scenario would have a positive impact on the corridor, from both a traffic and quality-of-life perspective. The Nodal Development Scenario allows for the general character of each community to be preserved. It improves traffic flow and speeds, creates additional opportunities for pedestrians and bicyclists, improves access to goods and services for a greater number of people, and has an overall positive impact of the day-to-day quality-of-life for the area's residents and visitors. The Nodal Development Scenario addresses the key concerns and issues, as well as the primary goals of residents and businesses, as indicated through a residential community survey, focus group sessions, and at public meetings.

The recommendations provided in Technical Report #3 are intended to be a starting block for future efforts to be undertaken by the intermunicipal partners and each municipality to ensure the Nodal Development Scenario becomes a reality over the next 10-20 years and beyond. Design principles and regulatory language included in the Study should serve as a beginning point for revisions to local codes and regulatory documents. The conceptual plans included within the Study present one potential depiction of how the nodes could develop over time to accommodate future projected growth. They also show how the recommended design principles could be integrated into a nodal plan. Each concept seeks to tie together various aspects of the design that are essential for creating a sense of place and community.

Ultimately, the implementation of the Nodal Development Scenario will require close and on-going collaboration with other interested and involved parties, including Tompkins County, TCAT, NYSDOT, and most importantly, with each other.

5.0 APPENDIX

The Appendix includes Project Sheets for each of the study area intersections identified within the Study.