Chapter 3 – Roadway Recommendations

Introduction

Chapter 1 explained the role of the Advisory Committee to help identify transportation issues in Clemmons and guide the development of the plan. The following transportation recommendations were developed based on public input, analysis of existing transportation conditions, future land use recommendations, and engineering principles.

The Advisory Committee and general public expressed a desire for a more defined "sense of place," increased mobility, and better bicycle and pedestrian connectivity during this planning process. Together, these broad principles guided the development of the following transportation recommendations, which recognize the future urban form and establish a street hierarchy that incorporates bicycle and pedestrian needs. By taking advantage of the relationship between land use and transportation, Clemmons will benefit from a comprehensive and sustainable transportation system.

The chapter begins by presenting the committed roadway projects and discussing future corridor deficiencies. The transportation recommendations for the community strategic corridors identified by the Advisory Committee are presented first, followed by recommendations for other corridors. General congestion management policies and strategies are presented to be used in conjunction with the roadway recommendations. The roadway recommendations are followed by the collector street element, which identifies specific connections and general policy recommendations to improve connectivity and ease traffic congestion on the Village's thoroughfares. Typical cross-sections for major and minor thoroughfares, major and minor collectors, rural roadways, and local streets illustrate multi-modal elements that should be considered for Village streets. The chapter concludes with transit and freight recommendations. Recommendations to expand the bicycle and pedestrian network can be found in **Chapter 4**.

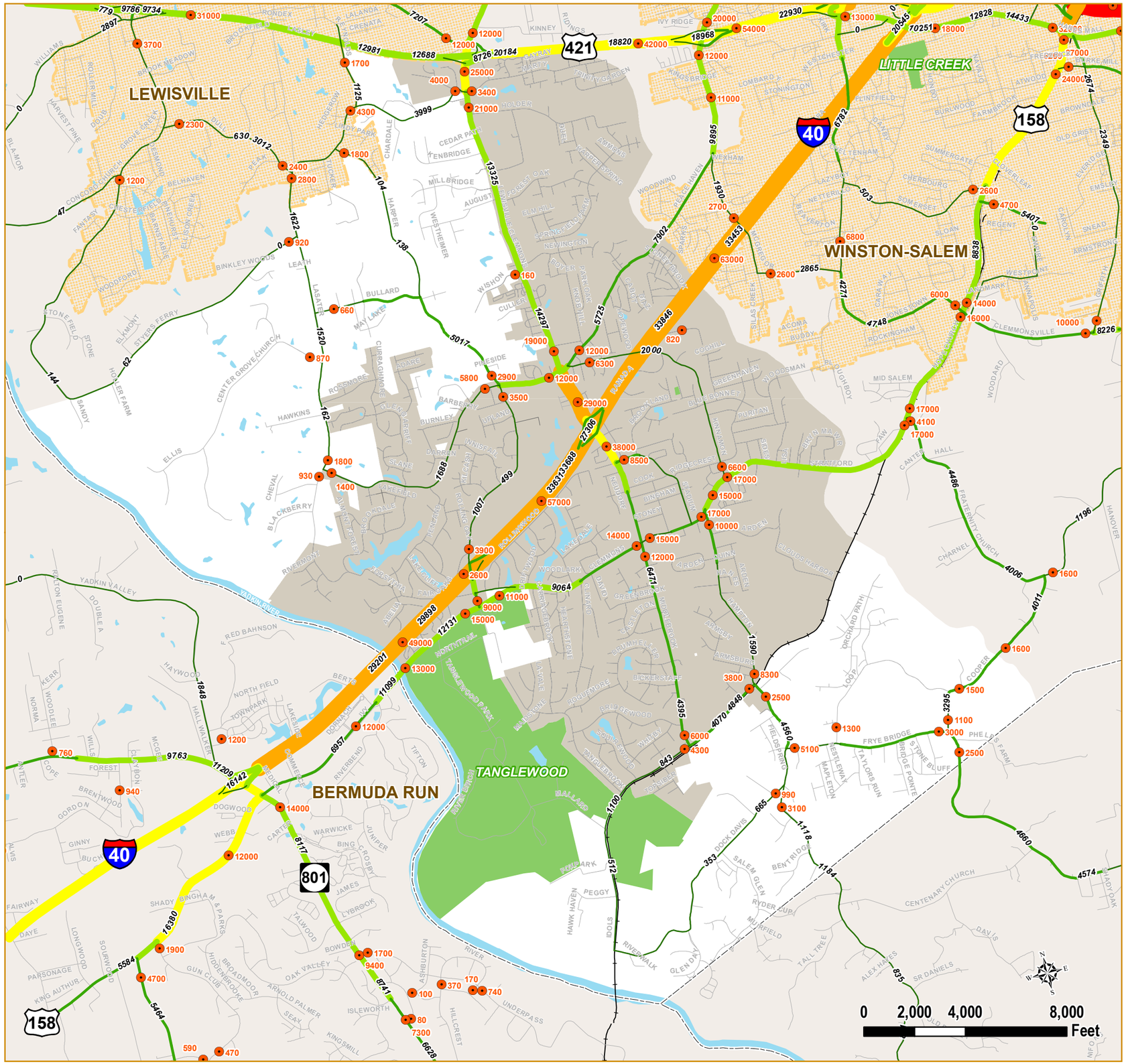
Future Corridor Deficiencies

According to the *Highway Capacity Manual*, level-of-service (LOS) is a measure used to describe the operation conditions that drivers experience in a traffic stream. Level-of-service is designated by letter, similar to grades in school, with A representing the best conditions and F the worst. LOS A is generally free-flow with few delays, while LOS F constitutes highly congested, stop-and-go conditions. LOS D or better is generally considered acceptable. At LOS D, the roadway is busy, but traffic is still flowing at a reasonable speed.

Future traffic conditions for the Clemmons study area were modeled using the Triad Regional Travel Demand Model, a macroscopic representation of how traffic will operate in 2035 based on projected land use, growth patterns, and transportation improvements. Local planning agencies help develop socio-economic data based on census data and land use plans, and that information is coded into the model and assigned to transportation analysis zones (TAZs). These zones are bound by the freeways, arterials, and major collectors that make up the thoroughfare system. After current conditions and existing data is used to validate and calibrate the model, the future data is loaded into the model and run to simulate horizon year conditions. These regional models identify corridors and subareas that may experience congested conditions in the future. Planners and engineers can then look to either refine land use planning or prioritize transportation projects to lessen or rectify those problem areas.

Figure 3.1 represents traffic as modeled for 2002, compared to 2005 NCDOT AADT volumes. **Figure 3.2** represents the projected traffic for the future (2030), incorporating the “build” or recommended roadway network with new location projects and facility widenings.

Based on the LOS projections shown in **Figure 3.2**, it was evident that the reported volumes are lower than would be expected for 2035. Therefore, it is important to focus on the corridors approaching lower LOS values (D, E, and F) as these corridors are indicators of where congestion may occur. Corridor operations are greatly affected by intersection signalization. This factor is considered in assigning LOS values but cannot fully account for local conditions. The forecast models show that congestion is expected on I-40, even at six lanes, as commuter traffic becomes heavier from the Davie County line eastward. US 158 Clemmons Road is also operating at capacity if left at two lanes crossing the Yadkin River, an issue that will begin to be remedied with the construction of the new four-lane bridge. The proposed Peace Haven Road/Styers Ferry Road Connector helps relieve congestion on Peace Haven Road, but there are still select sections on the east-west facility that will be congested. The I-40/Harper Road interchange lets some traffic bypass the southern segment of Lewisville-Clemmons Road, but current conditions suggest the latter interchange area will remain congested. The model also shows the effect of growth in western Davidson County and limited rail crossings, with traffic funneling to Hampton and Fraternity Church Roads.



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Legend

- 2005 AADT Count
- **2002 Model AADT Volumes**
  - < 4,000
  - 4,000 - 8,000
  - 8,001 - 16,000
  - 16,001 - 24,000
  - 24,001 - 36,000
  - 36,001 - 48,000
  - < 48,000
- ##### 2005 AADT Volume
- ##### 2002 Model Volume
- Study Area
- Clemmons
- Neighboring Community
- County Boundary
- Body of Water
- Park
- Railroad

Note: Model volumes for I-40 represent volume in one direction; sum adjacent values for full model volumes

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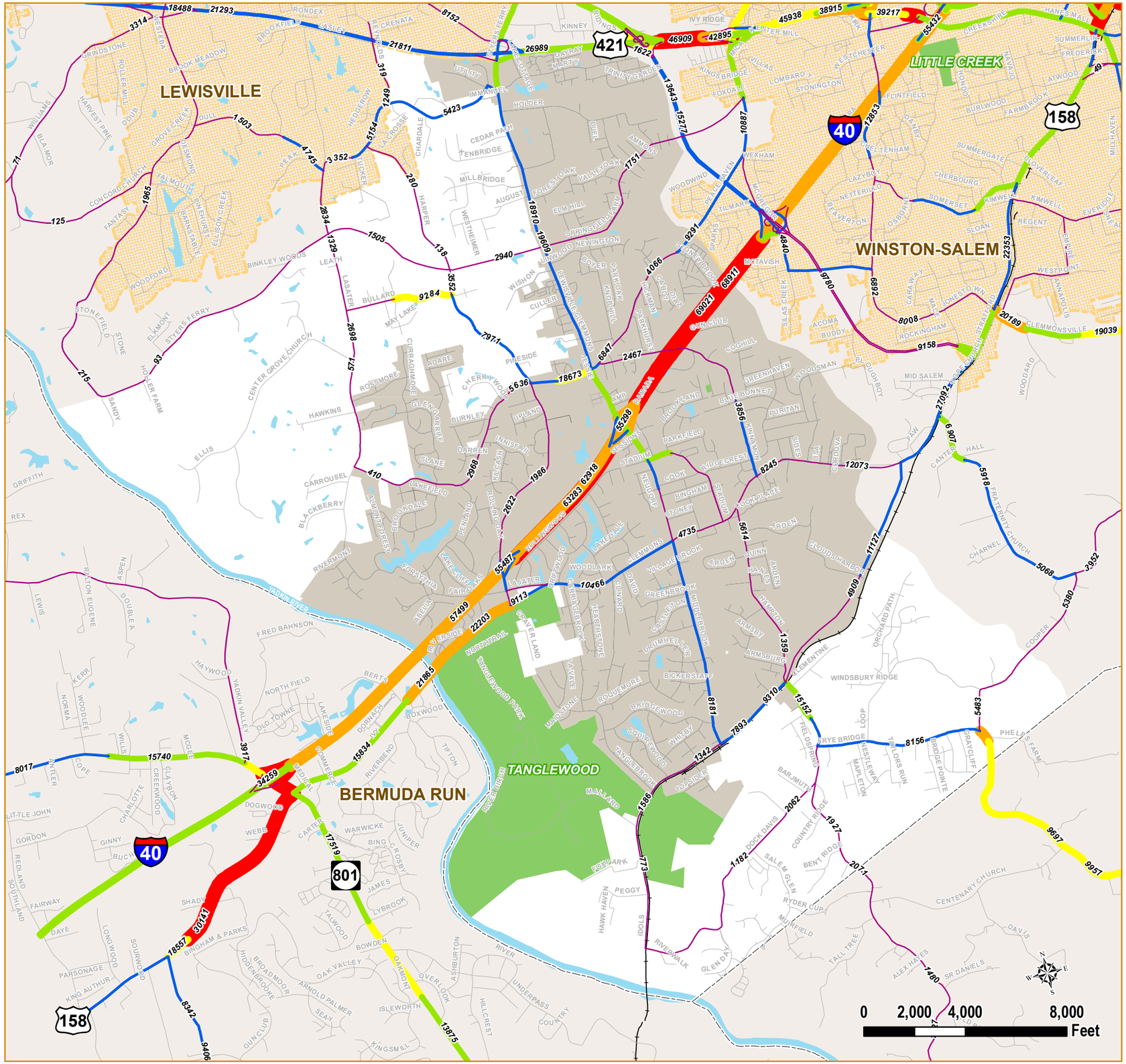
2002 Triad Model / 2005 AADT Comparison

Figure 3.1



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Legend

2035 Peak V/C

- LOS A
- LOS B
- LOS C
- LOS D
- LOS E
- LOS F
- ##### 2035 Model Volume

- Study Area
- Clemmons
- Neighboring Community
- County Boundary
- Body of Water
- Park
- Railroad

Note: Model volumes for I-40 represent volume in one direction; sum adjacent values for full model volumes

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2035 Triad Model Corridor Level-of-Service

Figure 3.2

Recommendations outlined in this document beyond those programmed in the Triad model are not reflected in **Figure 3.2**. With the major freeways still expected to operate at unacceptable LOS, simply providing capacity improvements between the Village and Winston-Salem will not solve Clemmons's congestion problems. A holistic approach considering all modes of transportation and all classifications of roadway facilities was performed to accommodate the anticipated growth and development within the Village of Clemmons, and to provide alternative modes to the personal vehicle.

Planned Roadway Projects

A number of projects are already slated for construction with funding support from NCDOT or the Village (**Figure 3.3**). NCDOT oversees the State's Transportation Improvement Program (TIP), a seven-year spending budget that allocates funding for transportation projects throughout the state. **Table 3.1** lists the projects that are funded in the seven-year TIP and projects being planned or funded locally during that same period.

Freeways – As indicated in **Table 3.1**, several improvements to the area's freeway network exist in various stages of planning, design, and implementation. These improvements include pavement rehabilitation and widening of I-40, modification to the I-40/Harper Road interchange (Exit 182), and construction of the Western Section of the Northern Beltway.

Thoroughfares – A new location roadway is proposed to connect Idols Road with US 158/Stratford Road to the northeast. This segment, classified as a future minor thoroughfare, would parallel the existing railroad alignment and would require a crossing of Muddy Creek.

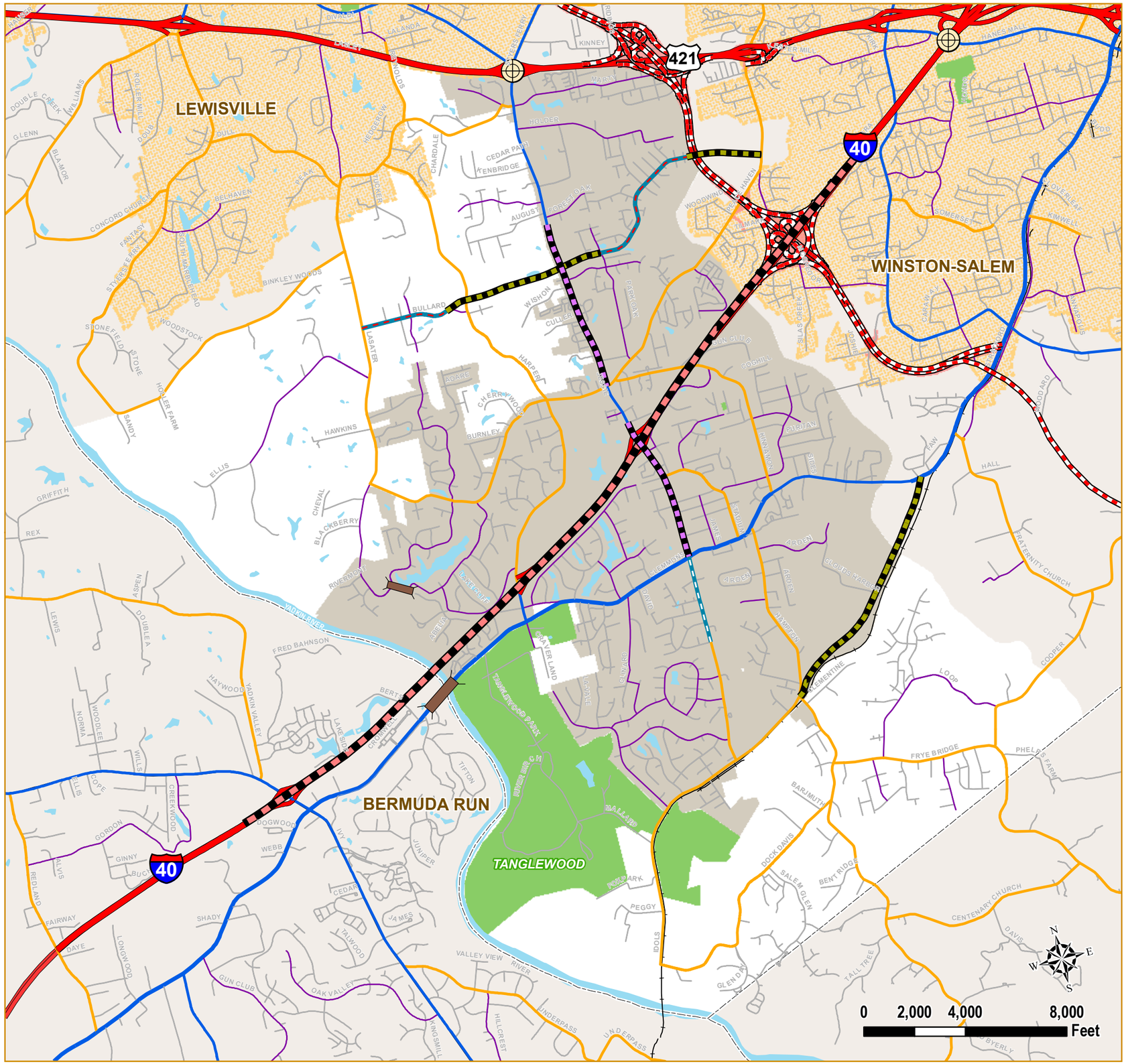
Recommended Roadway Projects

System Recommendations

The recommended roadway improvements for the Clemmons study area shown in **Figure 3.4** represents the results of an integrated planning process that considers the 2002 Thoroughfare Plan, existing and planned land uses and development, environmental constraints, projected future travel demand, and public input. The plan shows new roadway facilities, existing roadway widenings, roadway realignments, intersection improvements, and corridor enhancements. Each segment was identified by NCDOT classifications and determined to be existing (no capacity improvements needed), needs improvement (capacity improvements recommended), or recommended (new location). The following recommendations are anticipated to address the future capacity and system deficiencies in 2030 and should be implemented incrementally as growth occurs. Based on these recommendations, the Village Transportation Plan Map (**Figure 3.5**) was updated to reflect the planned functional classifications for Clemmons's highways and streets per NCDOT standards.

Table 3.1 Planned Roadway Projects

Project	Description	Expected Schedule	Status
NCDOT Projects			
Lewisville-Clemmons Road – Improvements and Bridge Replacement	Widen to multiple lanes from Peace Haven Road to north of US 421; replace Bridge Number 213 over US 421.	Section A: Construction – FY2008	Under Construction
Lewisville-Clemmons Road – Section Conversion	Convert to Four Lane Section with Median from I-40 to US 158.	Feasibility Study in Progress	To completed in Fall 2008
US 158 – Yadkin River Bridge Replacement	Replace Bridge Number 35 with four-lane facility	Construction – FY2008	Under construction
Various Locations - Intersection Improvements	Throughout Winston-Salem, Davidson, Davie, Forsyth, and Stokes.	FY 2008 – FY 2015	
Idols Road – New Two-Lane Shoulder Section	Add two-lane shoulder segment from Hampton Road to US 158 (S. Stratford Road).	Post-year (FY2016+)	Unfunded
Winston-Salem Northern Beltway – New Route Construction	The Western Section will stretch from I-40 to US 52 as a four-lane expressway. In Clemmons, this will include the section from south of I-40 to North of US 421 and two interchanges at US 421 and Peace Haven Road.	Post-year (FY2016+)	Unfunded
Winston-Salem Northern Beltway – New Route Construction	This section will stretch from US 158 to I-40 as a four-lane expressway.	Post-year (FY2016+)	Unfunded
I-40 – Rehabilitation and Lane Construction	I-40 west of NC 801 (Exit 180) to west of Jonestown Road (SR 1122) pavement Rehabilitation and construction of fifth and sixth lanes	Planning/Design in Progress	NCDOT
Lasater Rd – Blanket Creek Bridge Replacement	Replace Bridge Number 95 across Blanket Creek at Lasater Lake dam	ROW – FY2013 Construction – FY2014	Funded
Local Projects			
Middlebrook Drive – Sidewalk Construction	Construct a sidewalk from Clemmons Road to Amberly Lane.	FY 2008	
Peace Haven Road/Styers Ferry Road Connector	Construct minor thoroughfare connecting Lasater Road to Peace Haven Road on existing and new alignment with sidewalks and bike lanes	Future	Unfunded
Tanglewood Park Improvements	Park officials have requested funding for a variety of projects, including $1.6 million for walking/equestrian trails	Future	



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Legend

Planned Roadway Projects
- Interstate Improvements
- Proposed Northern Beltway
- Widening: 4-lane w/ Median
- Proposed Minor Thoroughfare
- Bridge Replacement
- Intersection Improvements

Planned Bike/Ped Projects
- Sidewalk, One Side
- Sidewalk & Striped Bike Lane

Roadway Classification
- Freeway/Expressway
- Major Thoroughfare
- Minor Thoroughfare
- Collector Street
- Local Street

Other Elements
- Study Area
- Clemmons
- Neighboring Community
- County Boundary
- Body of Water
- Park
- Railroad

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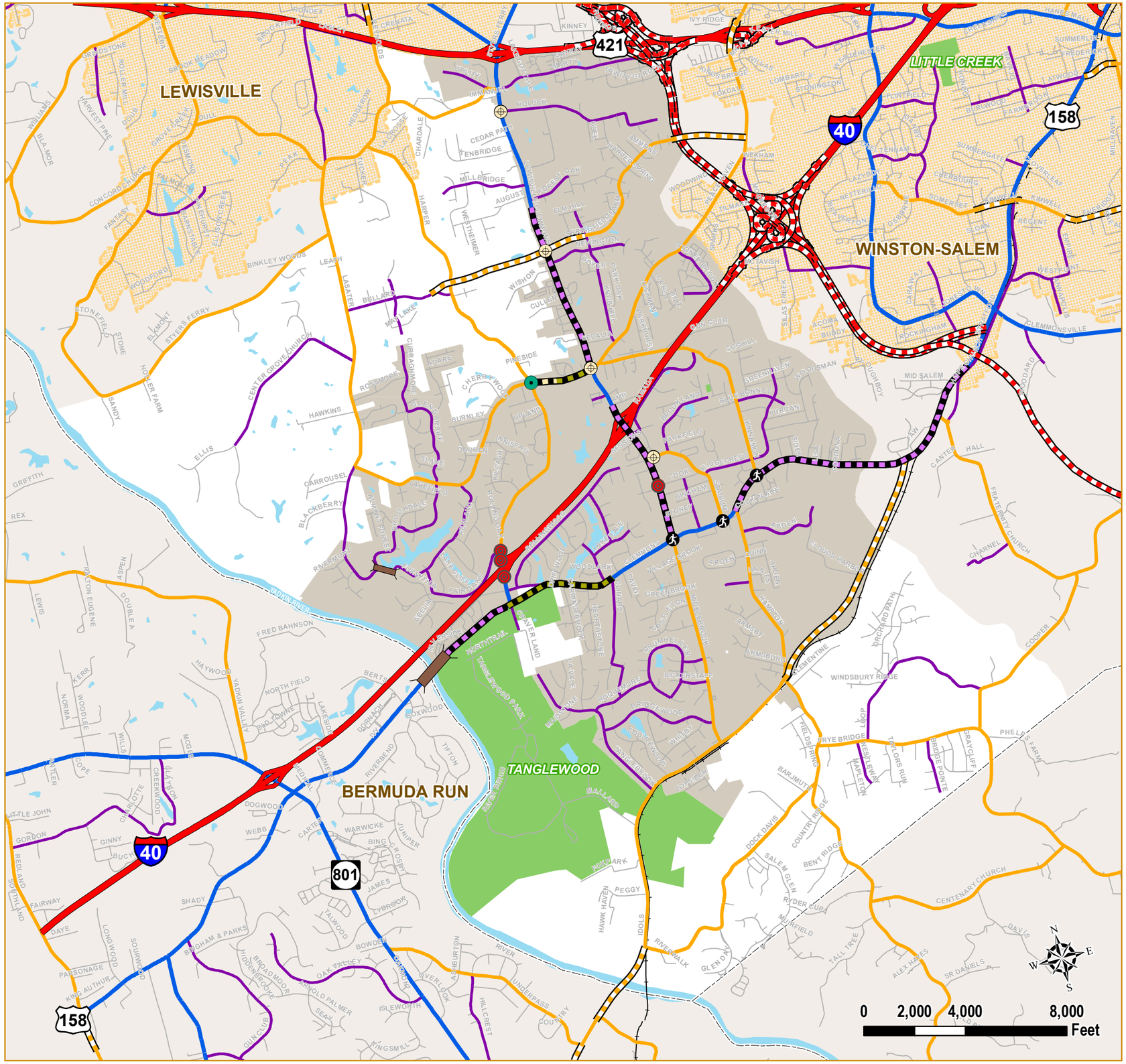
Planned Projects

Figure 3.3



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Legend

Roadway Projects
- Widen to 2-lane w/ Median
- Widen to 3-lane
- Widen to 4-lane with Median
- Access Management/Medians

Proposed Roadways
- Proposed Major Thoroughfare
- Proposed Minor Thoroughfare
- Proposed Northern Beltway

Intersection Improvements
- Future Signal
- Roundabout
- Ped Improvements
- Intersection Improvements
- Bridge Replacement

Roadway Classification
- Freeway/Expressway
- Major Thoroughfare
- Minor Thoroughfare
- Collector Street
- Local Street

Other Elements
- Study Area
- Clemmons
- Neighboring Community
- County Boundary
- Body of Water
- Park
- Railroad

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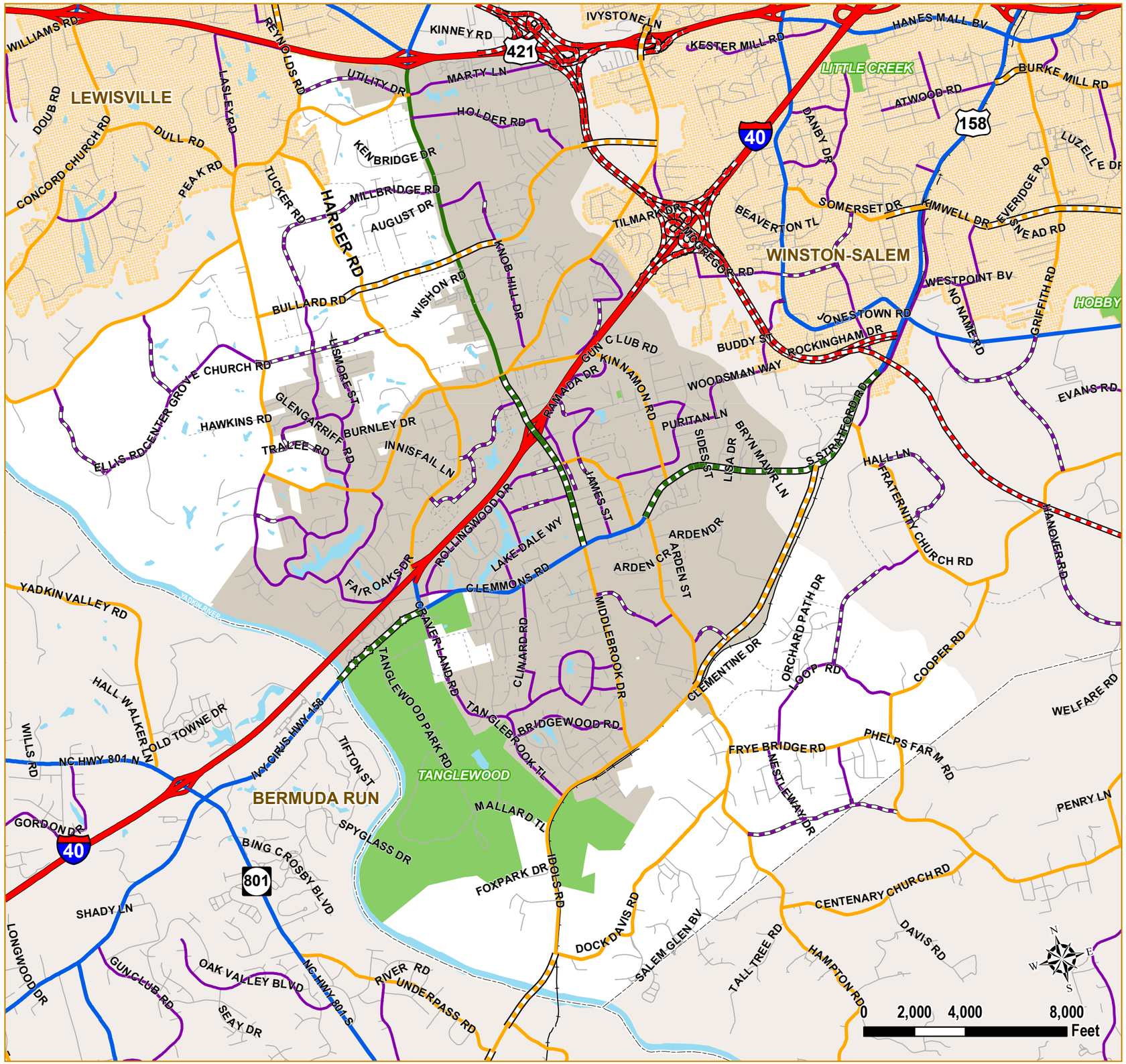
Recommended Roadway Improvements

Figure 3.4



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Legend

Roadway Classification

- Freeway/Expressway
- Boulevard
- Major Thoroughfare
- Minor Thoroughfare
- Collector Street
- Local Street
- Proposed Freeway/Expressway
- Proposed Boulevard
- Proposed Major Thoroughfare
- Proposed Minor Thoroughfare
- Proposed Collector
- Proposed Local Street

Other Elements

- Study Area
- Clemmons
- Neighboring Community
- County Boundary
- Body of Water
- Park
- Railroad

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Village of Clemmons Transportation Plan Highway Map

Figure 3.5

Community Strategic Corridor Recommendations

In addition to the committed projects shown in the table, the following corridor descriptions identify potential recommendations for those roadways identified as community strategic corridors. These corridors were considered closely by the public, Citizens' Advisory Committee, and staff and the recommendations represent potential solutions that ease congestion, increase safety, and reflect the vision and goals identified by the community. These recommendations are shown collectively on the highway map in **Figure 3.4**. More detailed information for each of the community strategic corridors can be found in **Figures 3.6 – 3.13**.

Proposed improvements to the collector street network are discussed in detail in a subsequent section of this chapter.

Harper Road from US 158/Clemmons Road to Peace Haven Road is identified as a major thoroughfare (Clemmons Road to I-40) and a minor thoroughfare (I-40 to Peace Haven Road). Roadway recommendations for Harper Road include:

- Installation of a roundabout at the Peace Haven Road/Harper Road intersection.
- Monitoring traffic conditions should be at the I-40 ramps and installing coordinated traffic signals for the ramps and Fair Oaks Road.
- Considering access points for new developments on the east side of Harper Road.
- Bicycle and pedestrian recommendations including: construction of a multi-use path from Peace Haven Road south to Fair Oaks Road, connecting to the Yadkin River Trail, and the construction of sidewalks south of Fair Oaks Road to US 158/Clemmons Road.

Kinnamon Road is identified as a minor thoroughfare providing an alternative connection from US 158/Clemmons Road and Lewisville-Clemmons Road. Roadway recommendations for Kinnamon Road include:

- Pedestrian improvements including: crossing condition improvements at Clemmons Road, including high visibility crosswalks and countdown timers. Sidewalk connectivity should be improved at the roundabout located on the northern portion of Kinnamon Road near Peacehaven Road.

Lewisville-Clemmons Road (North) from Southwest School Road to I-40 is identified as a major thoroughfare in need of improvement. Improvements currently under construction include widening the segment from Forest Oaks Drive to Peace Haven Road (TIP U-3119) to four lanes with a median. Other recommended improvements include:

- Widening the Holder Road approach to provide a left-turn lane and right-turn pockets and decreasing access conflicts within proximity to the interchange with I-40.

- As development/redevelopment occurs, establish an access street and install a median from Amp Drive to the I-40 interchange.
- Pedestrian recommendations include: extending sidewalks from Fair Oaks Drive to the I-40 interchange.

Lewisville-Clemmons Road (South) from I-40 to US 158/Clemmons Road is identified as a major thoroughfare and provides access to the Village core from points north and vehicles exiting I-40. Clemmons residents often express their opinion that it is the Village's most congested roadway. Recommendations for this segment are two-fold. Interim recommendations include:

- Installation of a comprehensive network of medians, directional cross-overs, backdoor access, cross-connectivity to reduce conflict points and congestion on Lewisville-Clemmons Road.
- Consolidation of curb cuts.

The short-term improvements all take place within the current roadway cross-section. Interim improvements will benefit bicyclists with their improved network of side street facilities. Long-term recommendations include:

- Retrofitting the entire corridor with a four-lane section with landscaped medians and wide outside lanes.
- Long-term pedestrian recommendations including: improving and/or constructing sidewalks to create a continuous network along the entire segment.

The NCDOT Program Development Branch recently released a draft feasibility study that evaluates different scenarios for improving the corridor. Refinements to this study are currently underway. In addition to improving the street a number of side street connections and intersection improvements are suggested in an effort to improve corridor circulation and mobility. The enhanced connectivity is expected to reduce the reliance on Lewisville-Clemmons Road. Additional improvements are described for the following locations:

- Clemmons Road (US 158) west
- Stoney Drive
- Old Glory Road
- Cook Street realignment
- Stadium Drive
- Sessions Court
- Brookland Drive

A supplemental study is being performed by NCDOT Division 9 and is expected to be submitted to the Village for consideration in Fall 2008. A

detailed feasibility study that addresses a short-list of alternatives will likely follow in 2009.

The Village will continue to work with NCDOT to develop a comprehensive and coordinated plan based on their findings and the long-term vision for the corridor. The efforts will include an in-depth look at improvements on side streets and potential new connections shown in the VTP.

Peace Haven Road (West) from the western Village boundary to Lewisville-Clemmons Road is identified as a minor thoroughfare. Recommendations for this segment include:

- If future traffic congestion warrants, the roadway should be widened to 3 lanes west of the YMCA and 2-lane median-divided with turn lanes east of the YMCA.
- Installation of a roundabout at the intersection of Peace Haven Road and Harper Road.
- Bicycle and pedestrian recommendations including: constructing a multi-use path from Harper Road to the YMCA and sidewalks from YMCA to Lewisville-Clemmons Road.

Peace Haven Road (East) from Lewisville-Clemmons Road to the eastern Village boundary is identified as minor thoroughfare. Roadway recommendations for this segment include:

- Potential installation of left-turn pockets at side street intersections if operation degrades or traffic safety warrants.
- Mitigation of the sight distance problem at Knob Hill Road intersection through coordination between Village of Clemmons and property owner concerning structure obstructing sight lines.
- Pedestrian recommendations including the construction of sidewalks on both sides of the entire segment.

US 158/Clemmons Road (West) from the Yadkin River to Lewisville-Clemmons Road is identified as a major thoroughfare in need of improvement. The bridge over the Yadkin River is currently under construction to be replaced and widened (TIP B-3835). Recommended improvements for this segment include:

- Widening the roadway section between the bridge and Lasater Road from 3-lane to 4-lane divided with median.
- Widening the roadway section between Lasater Road and Clinard Road from 2-lane to 2-lane divided with median and turn pockets. Previous plans recommended a three-lane section for this area. However, to better maintain the character of a corridor passing through the heart of Clemmons, this plan recommends a two-lane section with left turning pockets at critical crossing points. This cross-

section will perform in a very similar fashion to a 3-lane cross-section, while maintaining an appropriate scale for the area.

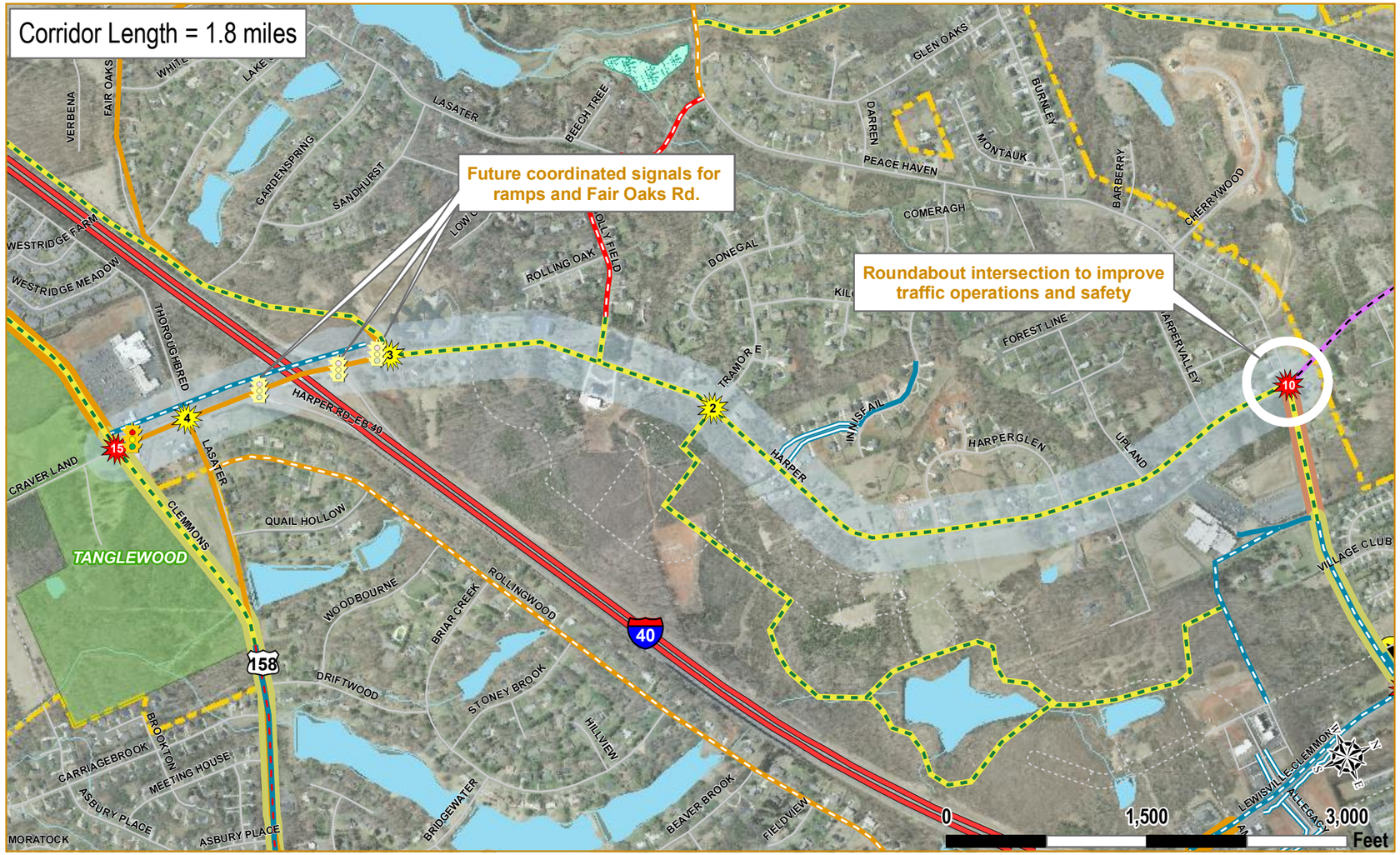
- Bicycle and pedestrian recommendations including: a multi-use path within Tanglewood Park from the Yadkin River Bridge to Lasater Road and striped bike lanes from Lasater Road to Lewisville-Clemmons Road. Sidewalks also should be constructed from Lasater Road to Lewisville-Clemmons Road.

US 158/Clemmons Road (East) from Lewisville-Clemmons Road to the eastern Village boundary is identified as a major thoroughfare that provides a gateway into the Village from points east. It is expected that widening in downtown Clemmons could be avoided by constructing the Idols Road Extension and the Idols/Underpass Connector and bridge. A direct connection of Hampton Road to Stadium Drive was considered, but numerous significant physical constraints (church, cemetery, local businesses, several homes) make such a connection unlikely. Recommendations for this section include:

- Widening the roadway section between Hampton Road and the Winston-Salem city limits from 2-lane to 4-lane divided with median.
- Installation of a “gateway” roundabout or intersection improvements at Hampton Road.
- Bicycle and pedestrian upgrades for the corridor include: recommended striped bike lanes along the entire section and an extension of the sidewalk east from Kinnamon Road. Pedestrian crossing conditions should be improved at the Lewisville-Clemmons Road and Kinnamon Road intersections.

Other Street Recommendations

Western Idols Road extension to NC 801 and Yadkin River Bridge: With no river crossings between US 158 and US 64, this connection would provide traffic a route to points west such as Advance without having to take circuitous paths through downtown Clemmons, Bermuda Run, and western Davidson County.



CLEMMONS Village Transportation Plan

Staging the Future for Mobility and Livability

Legend

- High Crash Intersection (# of crashes - 2004-7)
- Crash Intersection (# of crashes - 2004-7)
- Historic Place
- Historical District
- Park
- Body of Water
- Wetland
- Study Area
- Clemmons
- Neighboring Communities
- County Boundary
- Strategic Corridor Buffer

Roadways

- Interstate
- US Highway
- State Highway
- Existing Street
- Proposed Street
- Railroad
- Existing Signal
- Potential Signal

Roadway Projects

- NCDOT TIP
- Widen to 4-lane with Median
- Widen to 3-lane
- Widen to 2-lane with Median

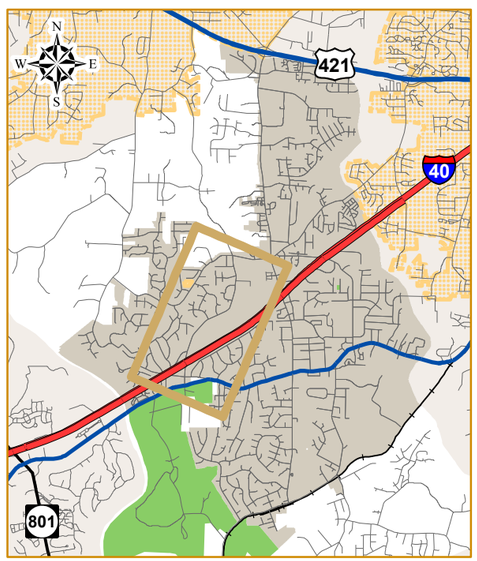
Bicycle & Pedestrian Facilities

Existing Facility

- Sidewalk, One Side
- Sidewalk, Both Sides
- Multi-Use Path
- Signed Bike Route

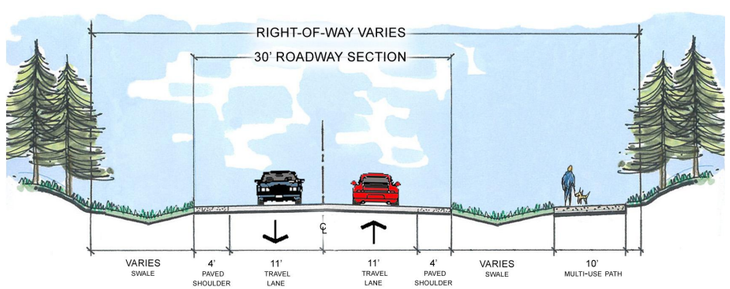
Recommended Facilities

- Striped Bike Lane
- Wide Outside Lane or Shoulder
- Signed Bike Route
- Priority Sidewalk
- Multi-Use Path
- Sidewalk & Striped Bike Lane



Proposed Cross-Section

Peace Haven Road to Interstate 40



Community Vision

- 2-lane minor thoroughfare (north of I-40) and 4-lane major thoroughfare (south of I-40) with new traffic signals at I-40
- New roundabout at Peace Haven Road intersection
- Multi-use path from Peace Haven south to Fair Oaks (connecting to Yadkin River Trail)
- Sidewalks south of Fair Oaks to US 158

For more detailed information, please see:

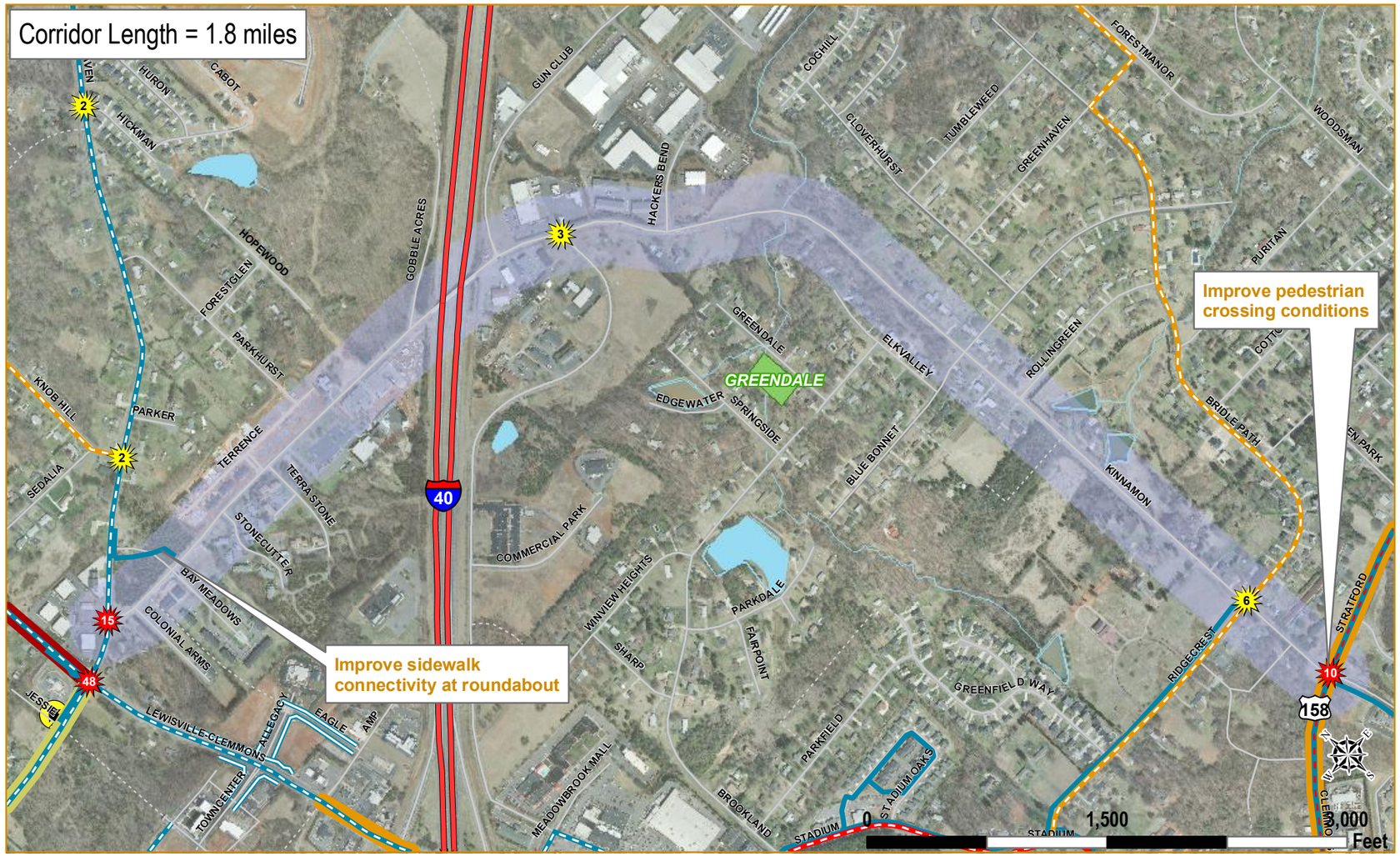
- Figure 2.12 - Harper Road
- Figure 3.3 - Planned Projects
- Figure 3.4 - Recommended Roadway Improvements
- Figure 3.14 - Recommended Collector Streets
- Figure 4.1 - Recommended Bicycle and Pedestrian Facilities

Figure 3.6

Recommendations

Community Strategic Corridors

Harper Road



CLEMMONS Village Transportation Plan

Staging the Future for Mobility and Livability

Legend

- High Crash Intersection
- Crash Intersection
- Historic Place
- Historical District
- Park
- Body of Water
- Wetland
- Study Area
- Clemmons
- Neighboring Communities
- County Boundary
- Strategic Corridor Buffer

Roadways

- Interstate
- US Highway
- State Highway
- Existing Street
- Proposed Street
- Railroad

Roadway Projects

- NCDOT TIP
- Widen to 4-lane with Median
- Widen to 3-lane
- Widen to 2-lane with Median

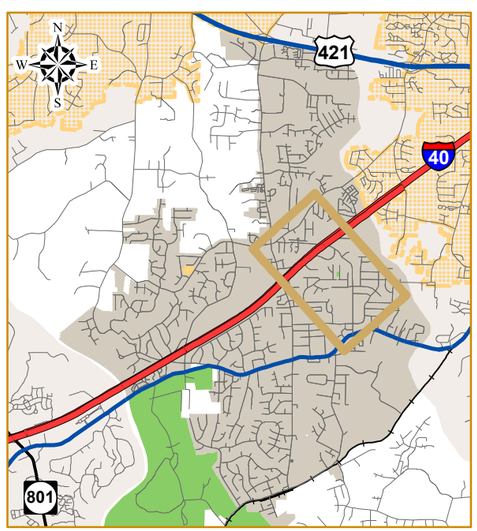
Bicycle & Pedestrian Facilities

Existing Facility

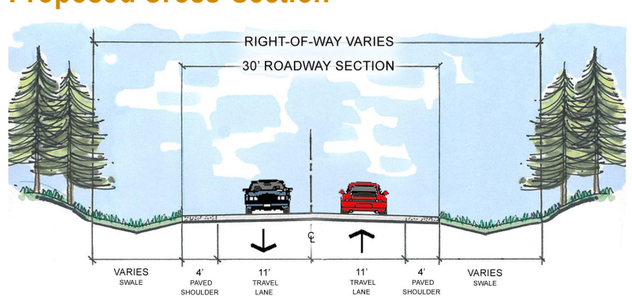
- Sidewalk, One Side
- Sidewalk, Both Sides
- Multi-Use Path
- Signed Bike Route

Recommended Facilities

- Striped Bike Lane
- Wide Outside Lane or Shoulder
- Signed Bike Route
- Priority Sidewalk
- Multi-Use Path
- Sidewalk & Striped Bike Lane



Proposed Cross-Section



Community Vision

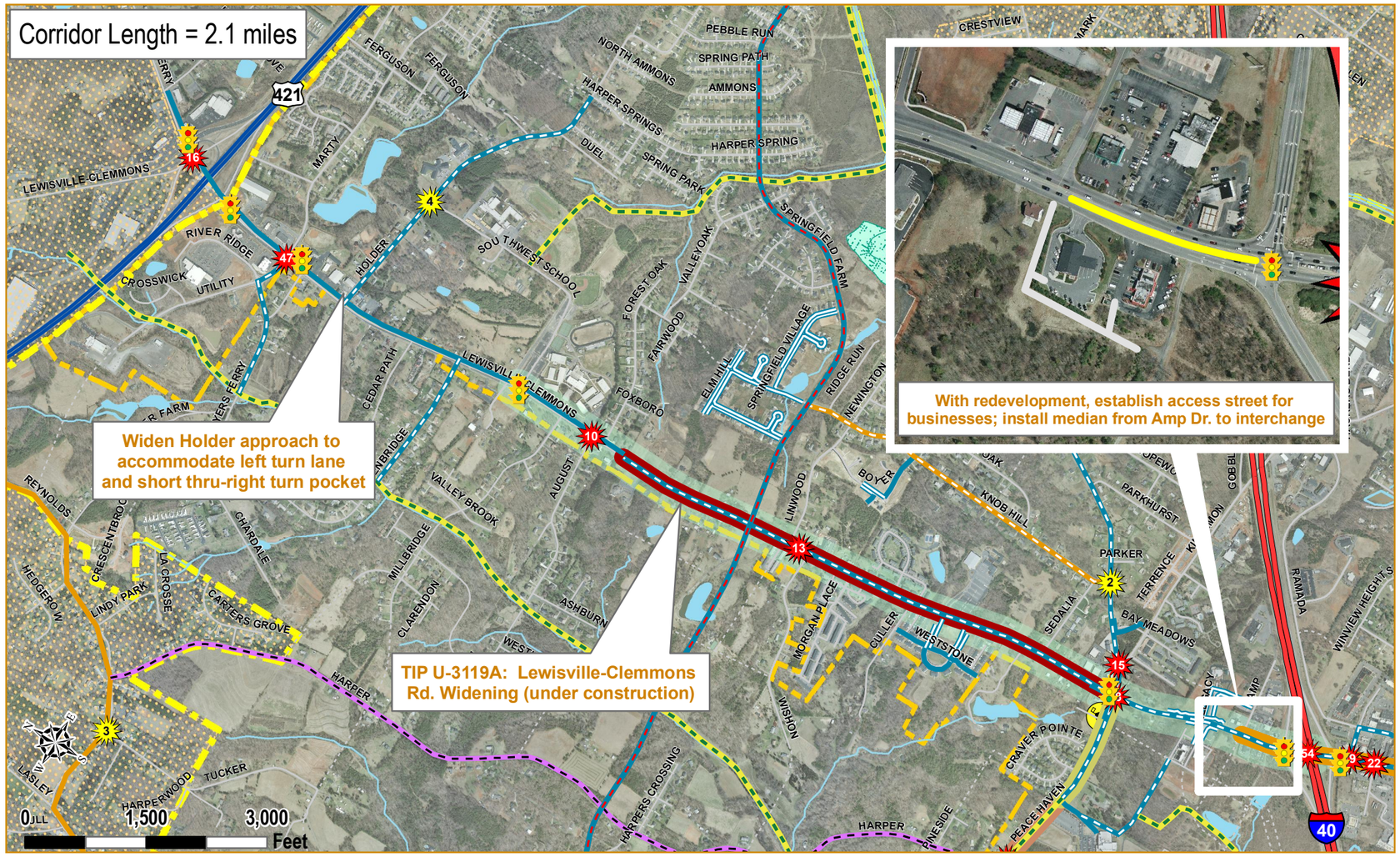
- 2-lane minor thoroughfare
- Improved pedestrian crossing conditions and better connectivity at roundabout

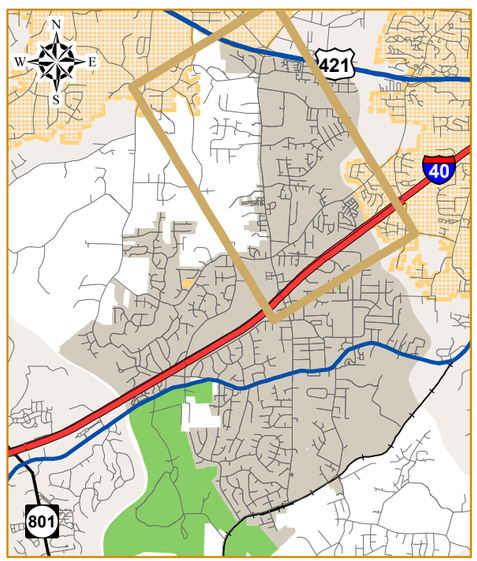
For more detailed information, please see:

- Figure 2.13 - Kinnamon Road
- Figure 3.3 - Planned Projects
- Figure 3.4 - Recommended Roadway Improvements
- Figure 3.14 - Recommended Collector Streets
- Figure 4.1 - Recommended Bicycle and Pedestrian Facilities

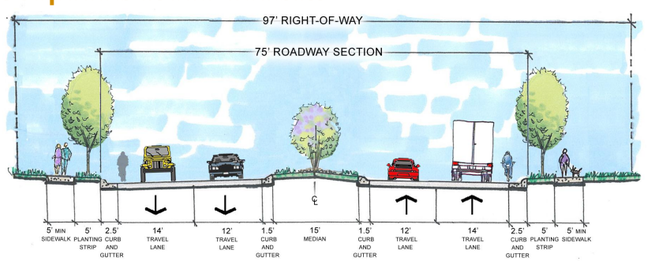
Figure 3.7

Recommendations
Community Strategic Corridors
Kinnamon Road





Proposed Cross-Section



NOTE: NCDOT Feasibility Study (FS-0309B) is currently being conducted for Lewisville-Clemmons Road between Clemmons Road (US 158) and Peace Haven Road. Final recommendations for this corridor will be determined in collaboration with this study.

Community Vision

- 4-lane divided boulevard with reduced access conflicts near interchange
- Widen Holder Road approach accomodates left-turn lane and right-turn pockets
- Sidewalks from Forest Oaks Drive to I-40

For more detailed information, please see:

- Figure 2.14 - Lewisville-Clemmons Road North
- Figure 3.3 - Planned Projects
- Figure 3.4 - Recommended Roadway Improvements
- Figure 3.14 - Recommended Collector Streets
- Figure 4.1 - Recommended Bicycle and Pedestrian Facilities

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Village Transportation Plan
Staging the Future for Mobility and Livability

Legend

- High Crash Intersection (# of crashes - 2004-7)
- Crash Intersection (# of crashes - 2004-7)
- Historic Place
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- Park
- Body of Water
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- Study Area
- Clemmons
- Neighboring Communities
- County Boundary
- Strategic Corridor Buffer

Roadways

- Interstate
- US Highway
- State Highway
- Existing Street
- Proposed Street
- Railroad
- Existing Signal

Roadway Projects

- NCDOT TIP
- Widen to 4-lane with Median
- Widen to 3-lane
- Widen to 2-lane with Median

Bicycle & Pedestrian Facilities

Existing Facility

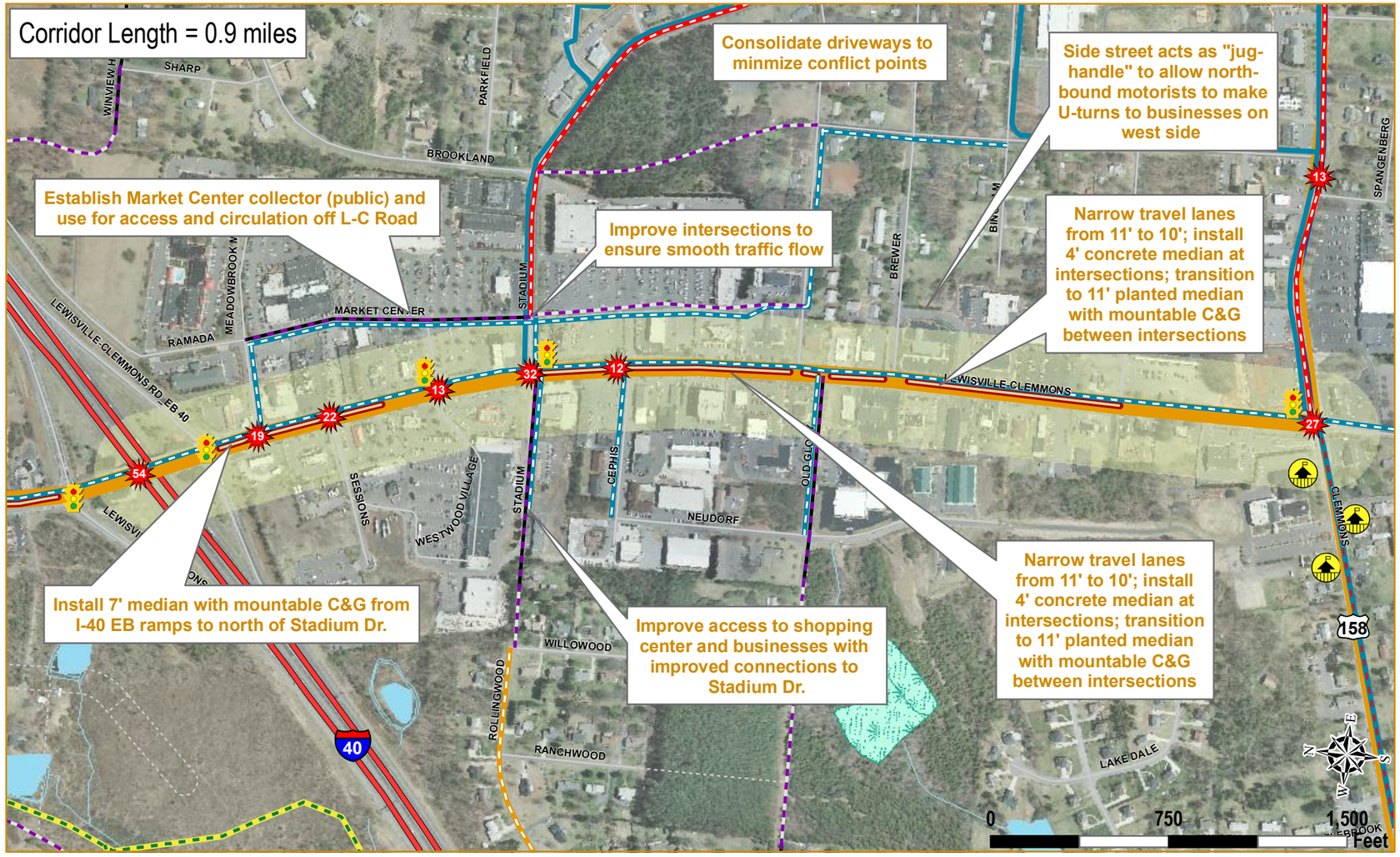
- Sidewalk, One Side
- Sidewalk, Both Sides
- Multi-Use Path
- Signed Bike Route

Recommended Facilities

- Striped Bike Lane
- Wide Outside Lane or Shoulder
- Signed Bike Route
- Priority Sidewalk
- Multi-Use Path
- Sidewalk & Striped Bike Lane

Figure 3.8

Recommendations
Community Strategic Corridors
Lewisville-Clemmons Road North



CLEMMONS Village Transportation Plan

Staging the Future for Mobility and Livability

Legend

- High Crash Intersection (# of crashes - 2004-7)
- Crash Intersection (# of crashes - 2004-7)
- Historic Place
- Historical District
- Park
- Body of Water
- Wetland
- Study Area
- Clemmons
- Neighboring Community
- County Boundary
- Strategic Corridor Buffer

Roadways

- Interstate
- US Highway
- State Highway
- Existing Street
- Proposed Street
- Railroad
- Existing Signal

Roadway Projects

- NCDOT TIP
- Widen to 4-lane with Median
- Widen to 3-lane
- Widen to 2-lane with Median
- Access Management Medians
- New Collector Street
- Upgrade to Collector Street

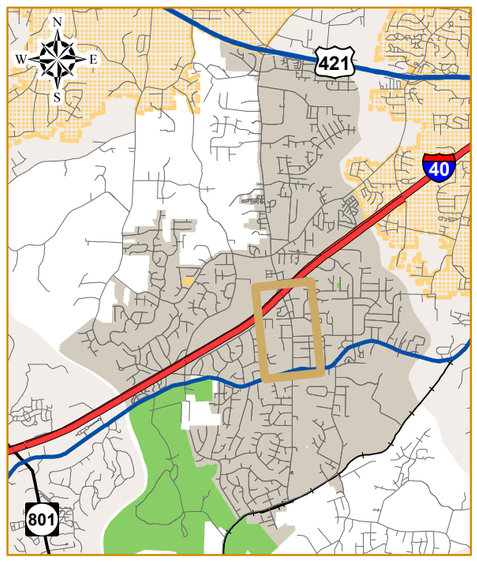
Bicycle & Pedestrian Facilities

Existing Facility

- Sidewalk, One Side
- Sidewalk, Both Sides
- Multi-Use Path
- Signed Bike Route

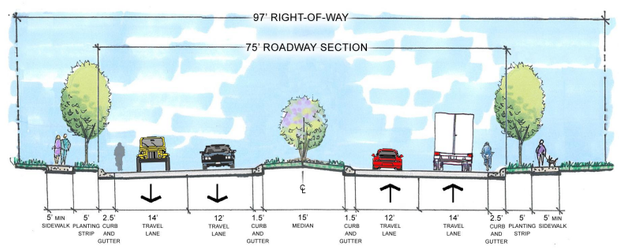
Recommended Facilities

- Striped Bike Lane
- Wide Outside Lane or Shoulder
- Signed Bike Route
- Priority Sidewalk
- Multi-Use Path
- Sidewalk & Striped Bike Lane



Proposed Cross-Sections

Long-Term Improvements



NOTE: NCDOT Feasibility Study (FS-0309B) is currently being conducted for Lewisville-Clemmons Road between Clemmons Road (US 158) and Peace Haven Road. Final recommendations for this corridor will be determined in collaboration with this study.

Community Vision

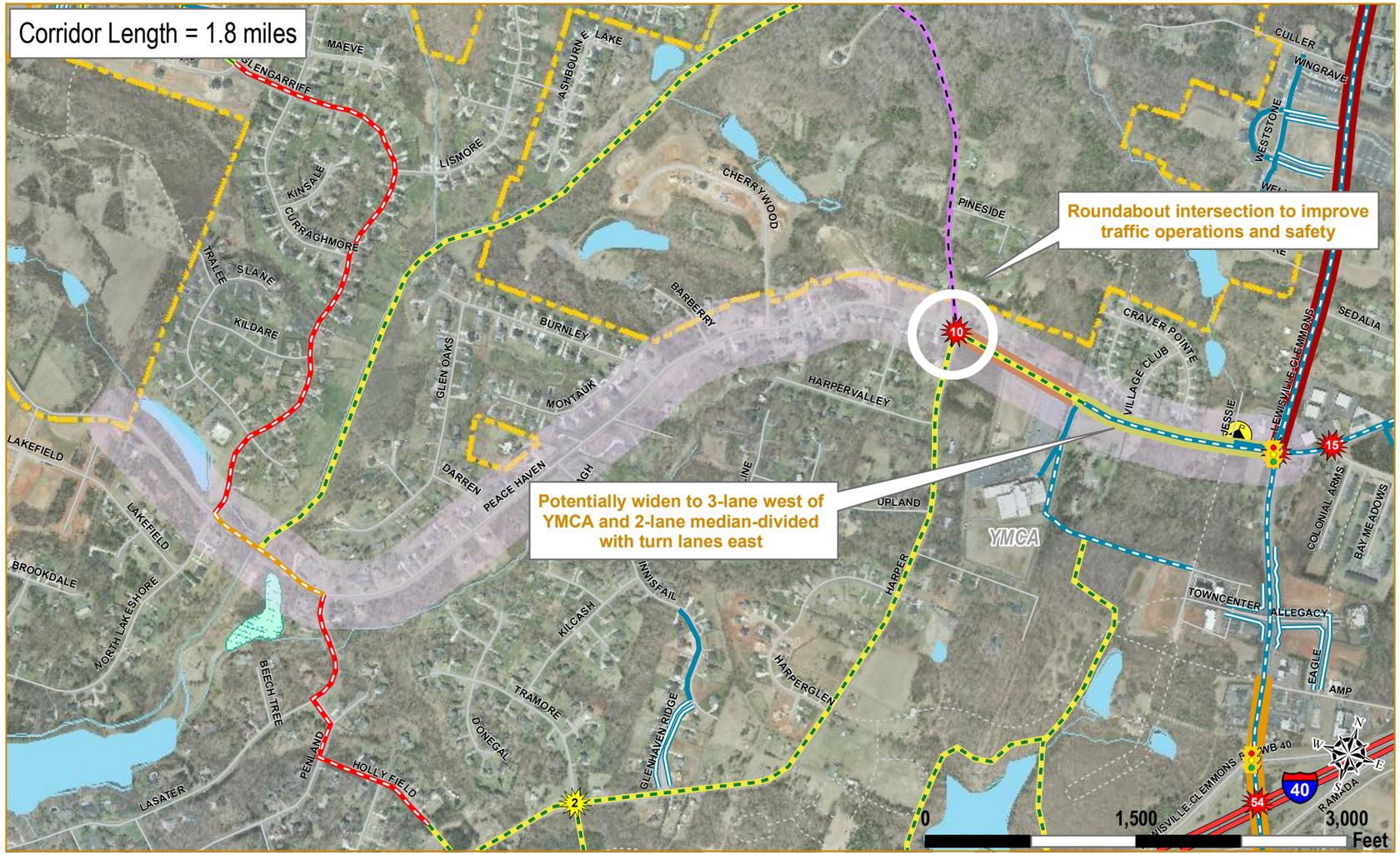
- 4-lane divided major thoroughfare with coordinated access management and connectivity improvements
- Bicycle traffic directed to side streets
- Sidewalks along entire corridor and into connecting neighborhoods and commercial areas

For more detailed information, please see:

- Figure 2.15 - Lewisville-Clemmons Road South
- Figure 3.3 - Planned Projects
- Figure 3.4 - Recommended Roadway Improvements
- Figure 3.14 - Recommended Collector Streets
- Figure 4.1 - Recommended Bicycle and Pedestrian Facilities

Figure 3.9

Recommendations
Community Strategic Corridors
Lewisville-Clemmons Road South



CLEMMONS Village Transportation Plan

Staging the Future for Mobility and Livability

Legend

- High Crash Intersection (# of crashes - 2004-7)
- Crash Intersection (# of crashes - 2004-7)
- Historic Place
- Historical District
- Park
- Body of Water
- Wetland
- Study Area
- Clemmons
- Neighboring Communities
- County Boundary
- Strategic Corridor Buffer

Roadways

- Interstate
- US Highway
- State Highway
- Existing Street
- Proposed Street
- Railroad
- Existing Signal

Roadway Projects

- NCDOT TIP
- Widen to 4-lane with Median
- Widen to 3-lane
- Widen to 2-lane with Median

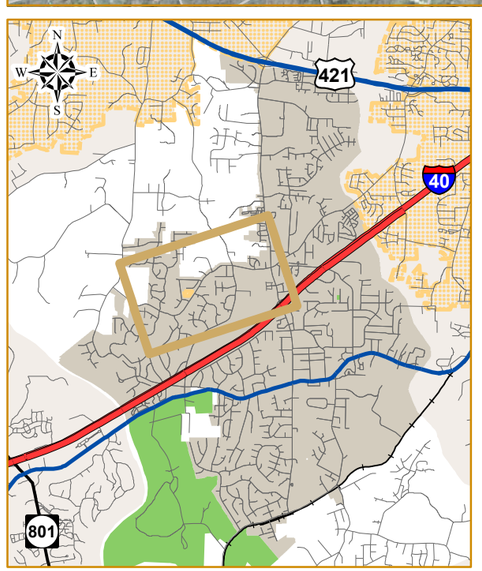
Bicycle & Pedestrian Facilities

Existing Facility

- Sidewalk, One Side
- Sidewalk, Both Sides
- Multi-Use Path
- Signed Bike Route

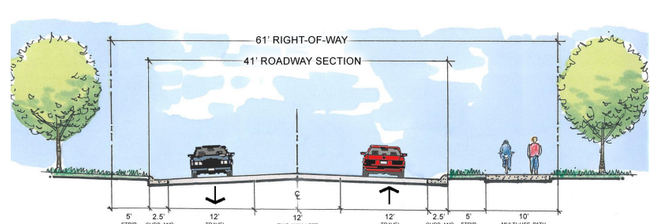
Recommended Facilities

- Striped Bike Lane
- Wide Outside Lane or Shoulder
- Signed Bike Route
- Priority Sidewalk
- Multi-Use Path
- Sidewalk & Striped Bike Lane

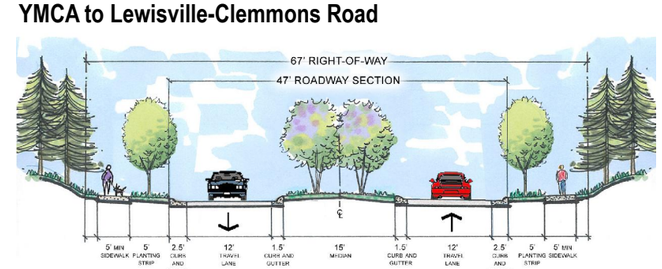


Proposed Cross-Section

Harper Road to the YMCA



YMCA to Lewisville-Clemmons Road



Community Vision

- 3-lane (west of the YMCA) and 2-lane divided (east of the YMCA) minor thoroughfare with new roundabout at Harper Road intersection
- Multi-use path from Harper Road to the YMCA
- Sidewalks from YMCA to Lewisville-Clemmons Road

For more detailed information, please see:

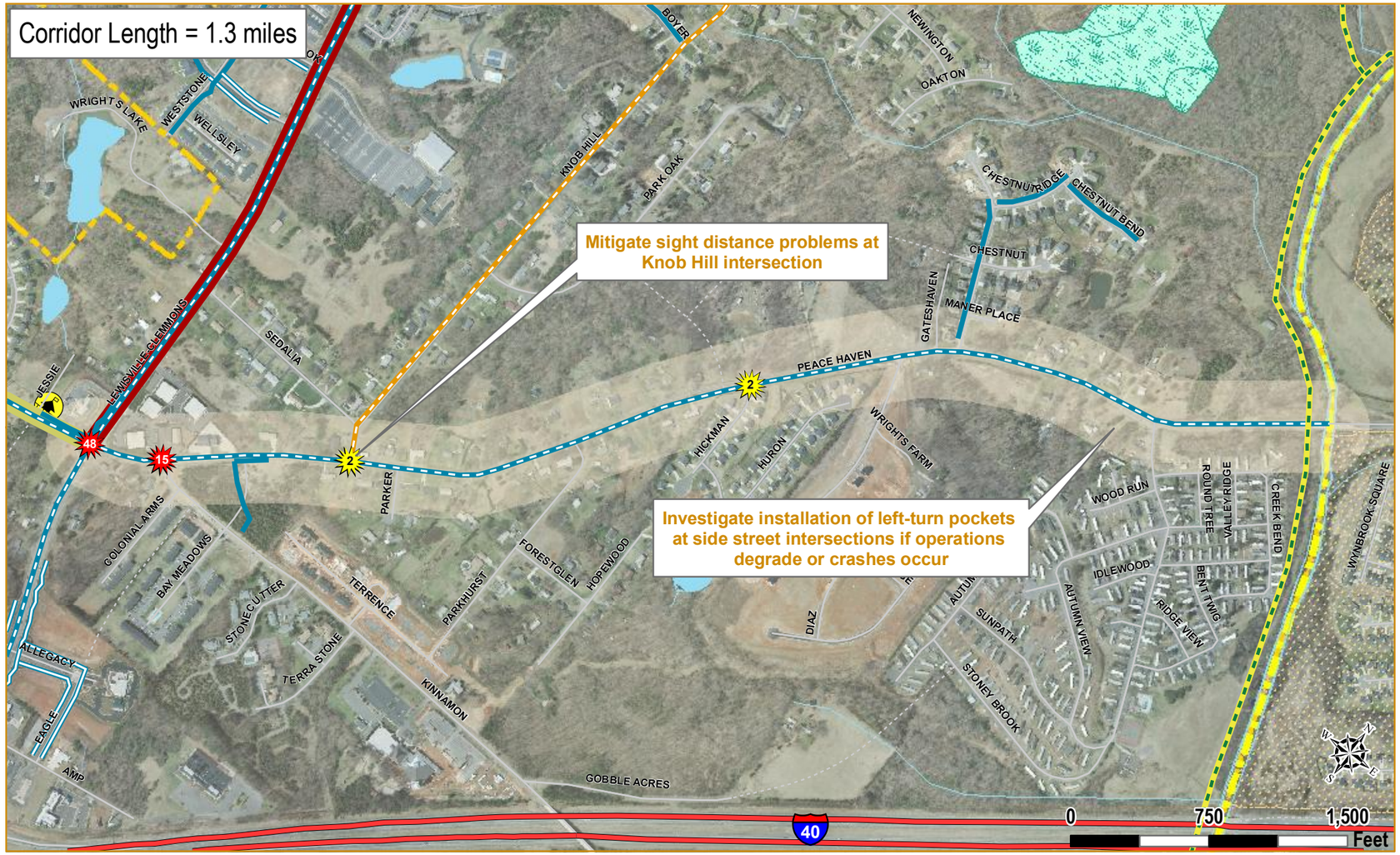
- Figure 2.16 - Peace Haven Road West
- Figure 3.3 - Planned Projects
- Figure 3.4 - Recommended Roadway Improvements
- Figure 3.14 - Recommended Collector Streets
- Figure 4.1 - Recommended Bicycle and Pedestrian Facilities

Figure 3.10

Recommendations

Community Strategic Corridors

Peace Haven Road West



CLEMMONS Village Transportation Plan

Staging the Future for Mobility and Livability

Legend

- High Crash Intersection (# of crashes - 2004-7)
- Crash Intersection (# of crashes - 2004-7)
- Historic Place
- Historical District
- Park
- Body of Water
- Wetland
- Study Area
- Clemmons
- Neighboring Community
- County Boundary
- Strategic Corridor Buffer

Roadways

- Interstate
- US Highway
- State Highway
- Existing Street
- Proposed Street
- Railroad
- Existing Signal

Roadway Projects

- NCDOT TIP
- Widen to 4-lane with Median
- Widen to 3-lane
- Widen to 2-lane with Median

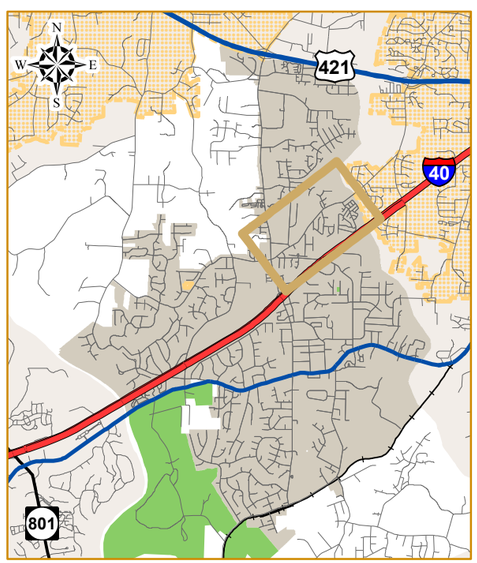
Bicycle & Pedestrian Facilities

Existing Facility

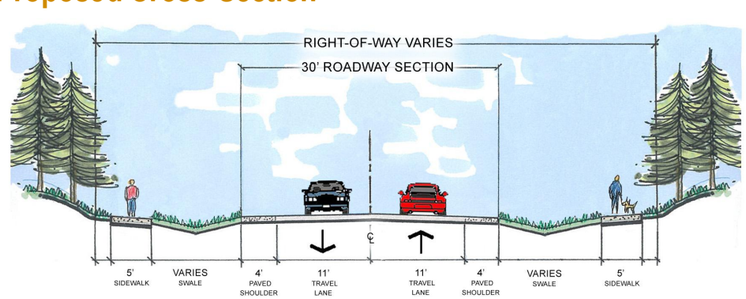
- Sidewalk, One Side
- Sidewalk, Both Sides
- Multi-Use Path
- Signed Bike Route

Recommended Facilities

- Striped Bike Lane
- Wide Outside Lane or Shoulder
- Signed Bike Route
- Priority Sidewalk
- Multi-Use Path
- Sidewalk & Striped Bike Lane



Proposed Cross-Section



Community Vision

- 2-lane minor thoroughfare with potential left-turn pockets at side streets and potential sight distance improvements at Knob Hill Drive
- Sidewalks on both sides along the entire corridor

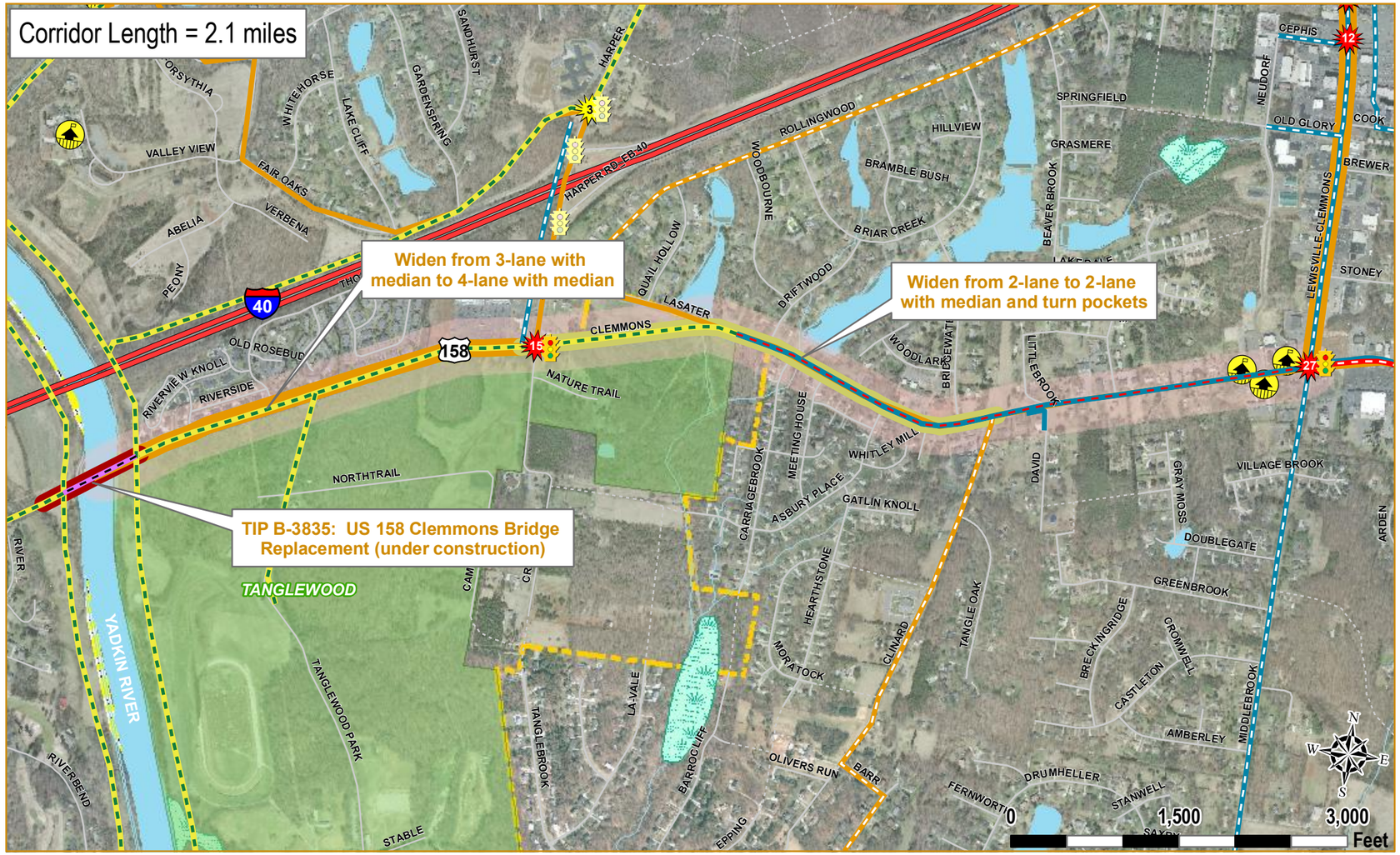
For more detailed information, please see:

- Figure 2.17 - Peace Haven Road East
- Figure 3.3 - Planned Projects
- Figure 3.4 - Recommended Roadway Improvements
- Figure 3.14 - Recommended Collector Streets
- Figure 4.1 - Recommended Bicycle and Pedestrian Facilities

Figure 3.11

Recommendations
Community Strategic Corridors

Peace Haven Road East



CLEMMONS Village Transportation Plan

Staging the Future for Mobility and Livability

Legend

- High Crash Intersection (# of crashes - 2004-7)
- Crash Intersection (# of crashes - 2004-7)
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- Historical District
- Park
- Body of Water
- Wetland
- Study Area
- Clemmons
- Neighboring Community
- County Boundary
- Strategic Corridor Buffer

Roadways

- Interstate
- US Highway
- State Highway
- Existing Street
- Proposed Street
- Railroad
- Existing Signal
- Potential Signal

Roadway Projects

- NCDOT TIP
- Widen to 4-lane with Median
- Widen to 2-lane with Median

Bicycle & Pedestrian Facilities

Existing Facility

- Sidewalk, One Side
- Sidewalk, Both Sides
- Multi-Use Path
- Signed Bike Route

Recommended Facilities

- Striped Bike Lane
- Wide Outside Lane or Shoulder
- Signed Bike Route
- Priority Sidewalk
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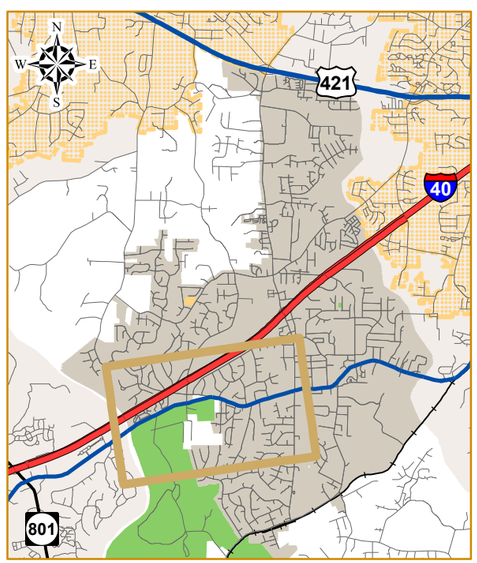
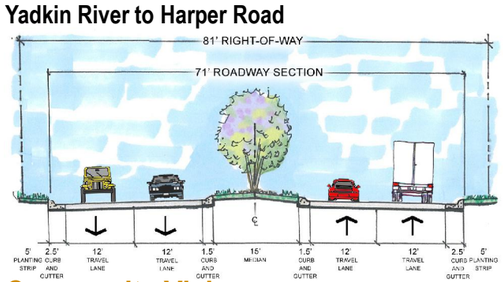
- Sidewalk & Striped Bike Lane

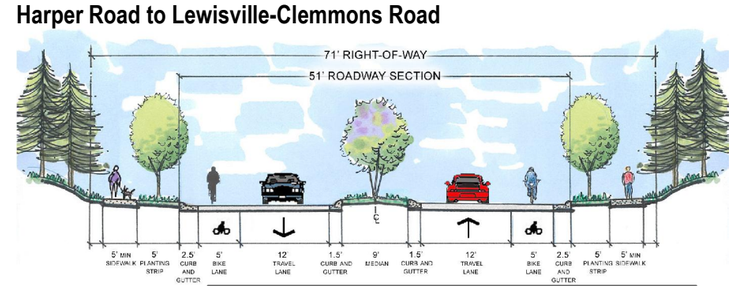


Proposed Cross-Sections

Yadkin River to Harper Road



Harper Road to Lewisville-Clemmons Road



Community Vision

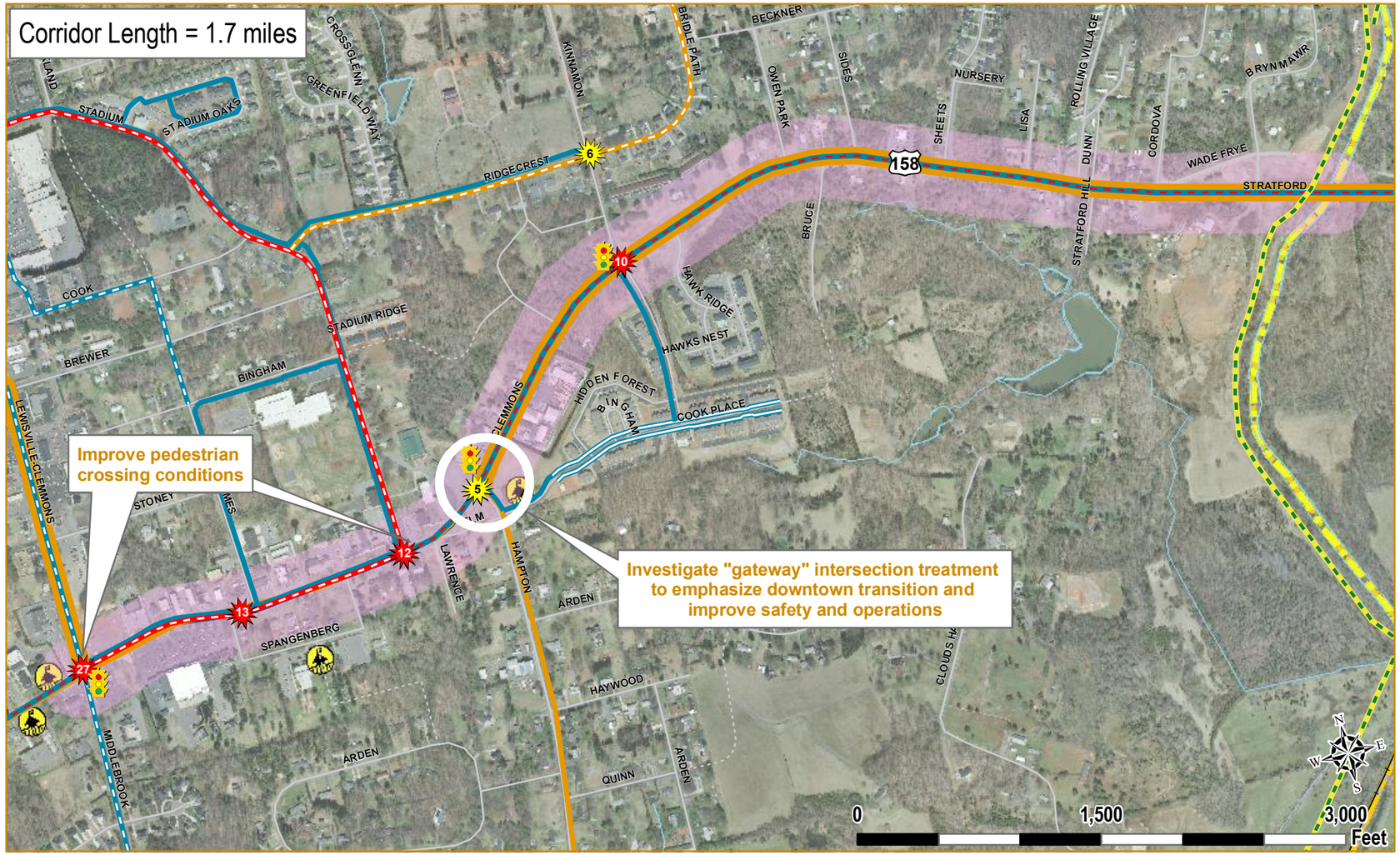
- 4-lane divided or 2-lane divided major thoroughfare with new Yadkin River bridge
- Multi-use path from Yadkin River to Lasater Road
- Striped bike lanes and sidewalks from Lasater Road to Lewisville-Clemmons Road

For more detailed information, please see:

- Figure 2.18 - US 158/Clemmons Road West
- Figure 3.3 - Planned Projects
- Figure 3.4 - Recommended Roadway Improvements
- Figure 3.14 - Recommended Collector Streets
- Figure 4.1 - Recommended Bicycle and Pedestrian Facilities

Figure 3.12

Recommendations
Community Strategic Corridors
US 158/Clemmons Road West



CLEMMONS Village Transportation Plan

Staging the Future for Mobility and Livability

Legend

- High Crash Intersection (# of crashes - 2004-7)
- Crash Intersection (# of crashes - 2004-7)
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- Clemmons
- Neighboring Community
- County Boundary
- Strategic Corridor Buffer

Roadways

- Interstate
- US Highway
- State Highway
- Existing Street
- Proposed Street
- Railroad
- Existing Signal

Roadway Projects

- NCDOT TIP
- Widen to 4-lane with Median
- Widen to 3-lane
- Widen to 2-lane with Median

Bicycle & Pedestrian Facilities

Existing Facility

- Sidewalk, One Side
- Sidewalk, Both Sides
- Multi-Use Path
- Signed Bike Route

Recommended Facilities

- Striped Bike Lane
- Wide Outside Lane or Shoulder
- Signed Bike Route
- Priority Sidewalk
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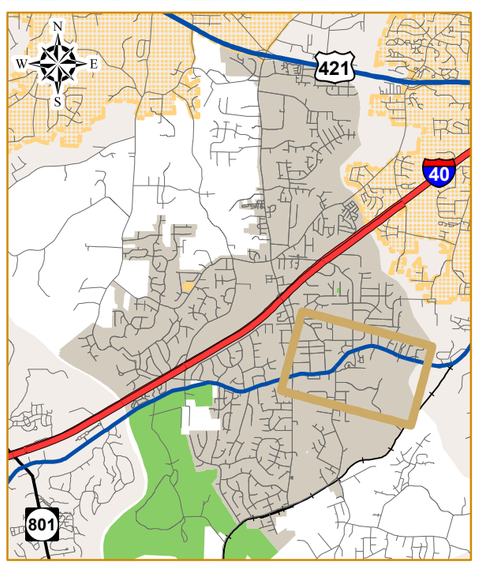
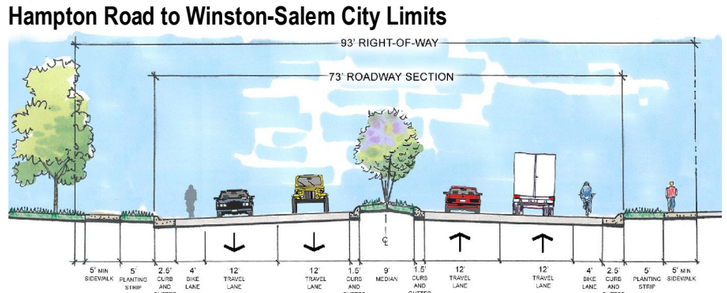
- Sidewalk & Striped Bike Lane



Proposed Cross-Sections

Hampton Road to Winston-Salem City Limits



Community Vision

- 3-lane and 4-lane boulevard with potential gateway features at Hampton Road
- Striped bike lanes along the entire corridor
- Sidewalks extended east from Kinnamon Road to Muddy Creek
- Improved pedestrian crossings at Lewisville-Clemmons Road and Kinnamon Road intersections

For more detailed information, please see:

- Figure 2.19 - US 158/Clemmons Road East
- Figure 3.3 - Planned Projects
- Figure 3.4 - Recommended Roadway Improvements
- Figure 3.14 - Recommended Collector Streets
- Figure 4.1 - Recommended Bicycle and Pedestrian Facilities

Figure 3.13

Recommendations

Community Strategic Corridors

US 158/Clemmons Road East

General Congestion Management Strategies

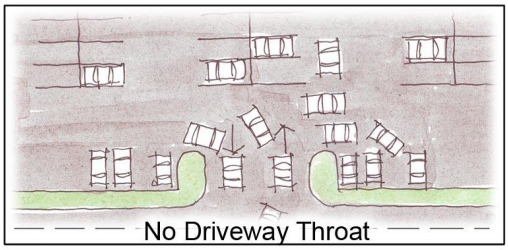
Aside from the inconvenience of added travel delay, traffic congestion can have many negative impacts on a community. As levels of service worsen, congestion causes traffic to divert onto nearby neighborhood roads, which are not designed to handle large volumes of traffic. Excessive speeds and high traffic volumes on local streets may impede travel safety and "cut-through" traffic. Roadways that operate near capacity generally lead to a hazardous environment for drivers, bicyclists, and pedestrians.

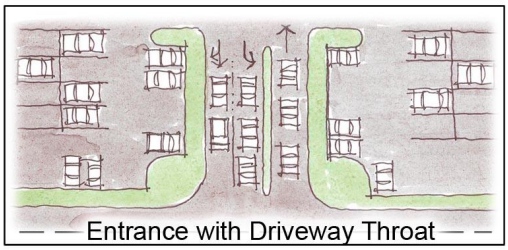
Congestion also can hinder economic growth. The proximity of an area to a safe and efficient roadway network is crucial for local companies considering an expansion of their business and the attraction of new industries to the region. Congestion slows the movement of goods and services, which hinders economic development and productivity.

Additionally, congestion is often associated with the deteriorating vitality of an area. Many people who move into the suburbs do so in order to escape the congestion of an urban region. As the congestion moves into the suburbs, it brings with it a declining quality of life. The excessive pollution created by stop-and-go traffic is detrimental to air quality and increases noise levels.

Congestion has a negative impact on highway safety, noise, and air quality. Lewisville-Clemmons Road south of I-40 is an example of what happens in the absence of coordinated access management. However, numerous cost effective strategies (e.g., congestion management, access management, intelligent transportation systems (ITS), and signal systems) are available to assist communities in reducing congestion and its effects. Depending on the causes of congestion, various strategies are available to mitigate it and its effects.

Municipalities have the option of using NCDOT's *Policy on Street and Driveway Access to North Carolina Highways* for guidance and reference. However, it is recommended that the Village of Clemmons develop a specific access management policy to appropriately accommodate the vision and goals of the community.


No Driveway Throat


Entrance with Driveway Throat

Traffic Signal Coordination – Coordination involves synchronizing traffic signals on a corridor to minimize through traffic delay. Signal coordination can be accomplished either using time-based signal plans or by interconnecting the signals in a system. Coordination can improve both the operations and safety of a corridor. *(Approximate cost: $4,000,000-$4,700,000 per 100 signals in system)*

On-Site Traffic Signal Circulation – One way to reduce traffic congestion is to promote on-site traffic circulation. Pushing back the throat of an entrance, as shown in the figures to the right, helps to avoid spillback onto the arterial. This measure improves both the

safety and efficiency of the roadway. Another aspect of on-site traffic circulation involves limiting access points into a development by considering developments with multiple lots and land uses as one property for the purposes of access regulation.

Only the minimum number of connections necessary to provide reasonable access should be permitted. For those situations where outparcels are under separate ownership, easements for shared access can be used to reduce the number of necessary connections. Reducing the number of access points also decreases the number of conflict points, making the arterial safer and more efficient. *(Approximate cost: $150,000 per application)*

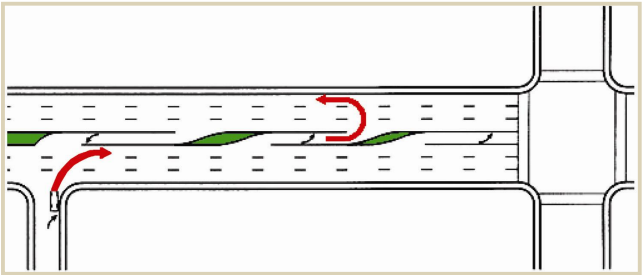
Non-Traversable Median Treatment – One of the recurring suggestions for improving Village roads expressed by the public was the need for medians. A non-traversable median treatment is a raised or depressed barrier that physically separates opposing traffic flows. Advantages include increased safety due to separation of opposing flows, pedestrian refuge, and restricting left turns to designated locations. Where sufficient storage bays are provided, the removal of left-turning vehicles from through lanes can increase safety and reduce delay to through vehicles. Disadvantages include slowed response time for emergency vehicles, increased travel distance for left turns, and public opposition due to the possibility of detrimental effects on the business community.

A non-traversable median

Non-traversable median treatments should be considered for multi-lane urban arterials with average daily traffic (ADT) volumes greater than 20,000 and all multi-lane roadways with high pedestrian volumes, high collision rates, or where aesthetics are a priority. Consideration should be given to providing sufficient space for u-turning vehicles at median openings when non-traversable median treatments are used. Divided roadway facilities are generally safer than undivided facilities or roadways with a two way left-turn lane (TWLTL). *(Approximate cost: $600,000 per mile)*

Median U-Turn Treatment – Median u-turn treatments involve the prohibition of minor street direct left turns at signalized intersections in favor of right turns followed by median u-turns, as shown in the figure to the left. Advantages of this treatment include reduced delay, improved progression, and fewer stops for through traffic as well as fewer and more separated conflict points for vehicles and pedestrians along the arterial. Disadvantages include increased delay, travel distances, and stops for left-turning traffic as well as the potential for driver confusion. These treatments can increase the safety and efficiency of arterials with high through volumes. However, they should only be used where sufficient space is available for u-turning maneuvers at median openings.

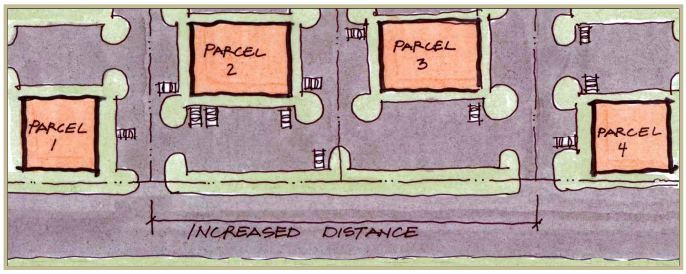
Median U-turn treatment



Installing median u-turn treatments at multiple locations along a corridor can help to alleviate driver confusion. Much consideration should be given to locations of median openings in order to provide adequate weaving space

without creating excessive travel distances for left-turning vehicles. *(Approximate cost: $50,000 per median opening)*

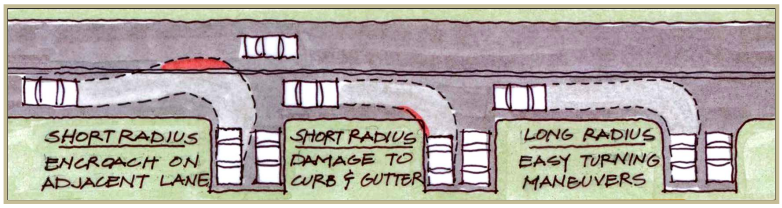
Advanced Left-Turn Treatment – Traditional exclusive left-turn lanes at signalized intersections are usually aligned to the left of one another, so the vision of a left-turning vehicle is obstructed by vehicles in the opposing left-turn lane. Advanced left-turn treatment, also known as positive offset left-turn treatment, involves shifting exclusive left-turn lanes toward the center of the intersection and past the opposing left-turn lane to provide better sight lines. Where permissive left-turn phasing is used, this treatment can improve the efficiency of an intersection by reducing the crossing time for left-turning vehicles and allowing them to see and take advantage of all adequate gaps in the opposing traffic stream. The disadvantage of this treatment is that, where existing median widths are not sufficient, the roadway may need to be widened and additional right-of-way may need to be acquired. *(Approximate cost: $250,000 per mile)*



Consolidated and Relocated Driveways – Consolidating adjacent driveways using shared access easements can increase safety and efficiency of corridors by reducing the number of access points and thus conflict points. Additionally, trips between adjacent land uses are then possible without using the arterial.

Driveways that are located too close to an intersection can cause operational, safety, and capacity problems resulting from traffic backing up across the driveway entrance or into the intersection from the driveway. Additionally, the distance between the driveway and the intersection may not provide a sufficient weaving distance. Relocating driveways that are too close to intersections can improve safety and efficiency of the intersection by separating conflict points and lengthening weaving distances.

Improved Intersection Turning Radii at Intersection/Driveways – Driveways with no or short turning radii force vehicles to encroach on adjacent lanes when entering or exiting the driveway. Intersections with short radii also force vehicles onto the roadside, causing potential damage to curb and gutter and sidewalks. Long turning radii allow drivers to make turning maneuvers more easily, which enhances the operations and safety of the roadway.



Signalize Retail Driveway Leg at Existing Signalized T-Intersection – For high volume retail driveways, a signal head may improve operations and safety of the minor street turning maneuvers. There may be some increase in delay to major street through traffic as well as an increase in rear-end collisions. However, it is likely that a signal would greatly reduce minor street delay as well as angle collisions. *(Approximate Cost: $10,000)*

Left Turn Storage Bays at Major Driveways – Left turn storage bays can be used at high volume retail driveways in order to remove left-turning vehicles from the through lanes. Adequate storage bays enhance the safety of a corridor and decrease delay to through vehicles. Additional right-of-way and roadway widening may be needed in order to provide storage bays.

Exclusive Left-Turn Lane on Minor Approach – At signalized intersections where left turns from a minor approach are significant, an exclusive left-turn lane can promote optimal signal phasing.

Emergency Vehicle Preemption – Emergency vehicle preemption involves changing the indication at traffic signals to favor the direction of detected emergency vehicles. Preemption improves emergency vehicle response time and the safety of the responders by stopping conflicting movements. *(Approximate Cost: $10,000 per application*)

Gateway Treatments – While not typically considered a congestion management strategy, gateway treatments bring numerous benefits to a corridor. In addition to bringing enhanced aesthetic value and imbuing the corridor with a sense of place, the ability of the driver to identify that they are in a community and not just a busy corridor can result in slower speeds and increased watchfulness for pedestrian and bicycle traffic. Gateway features can include defining elements of the community, such as the Clemmons stagecoach, on signage, landscaping, or other elements. Recommended intersections for the implementation of gateway features include Hampton Road at US 158/Clemmons Road, and entrances into the Clemmons community from I-40.

Collector Street Recommendations

Expanding Clemmons's transportation system with an increased number of collector streets will enhance travel between local streets and arterials. As discussed in **Chapter 2**, the primary purpose of the collector street system is to collect traffic from neighborhoods and distribute it to the system of major and minor thoroughfares throughout an area. In general, collector streets have two lanes and often have exclusive left-turn lanes at intersections with major and minor thoroughfares and less frequently at intersections with other collectors. Collector streets rarely are constructed and funded by the state. Responsibility for collector streets usually falls to the local government and developers for funding, design, and construction. A properly implemented system improves accessibility to higher intensity residential areas and activity centers, while minimizing impacts to sensitive natural areas. As a result, local and through traffic will benefit from the reduced reliance on the Village's network of thoroughfares.

Natural Environment

Located to the east of the Yadkin River, Clemmons faces challenges related to the natural environment. The local geography has created a network of creeks, wetlands, and floodplains that affect land use and transportation decisions in Clemmons. These features affect how the community develops, where streets can be constructed and maintained, and where connections between streets can be made. Other features of the natural environment that can be found around Clemmons include historic properties, endangered and threatened species, and superfund sites.

Fragmented Street Network

Connected Street Network

Assessment of Collector Street Spacing Needs

It is important to determine an appropriate set of collector street spacing guidelines for this plan. It has been theorized that 1,500 to 3,000 feet is an appropriate spacing for collector streets in a suburban setting; unincorporated and incorporated areas tend to have different development potential. This difference is mostly due to environmental constraints and the availability of municipal water and sewer service.

Different spacing standards are necessary for different development types and intensities. Understanding this principle, Kimley-Horn developed a theoretical model largely influenced by land use intensity ranges that shows the desired collector street spacing for different intensities.

Table 3.2 Collector Street Spacing Standards

Land Use/Type of Collector Street	Intensity	Access Function	Approximate Street Spacing
Very Low Intensity Residential	Less than 2 dwelling units per acre	High	3,000 to 6,000 ft
Low Intensity Residential	**2 to 4 dwelling units per acre**	**High**	**1,500 to 3,000 ft**
Medium and High Intensity Residential	More than 4 dwelling units per acre	High	750 to 1,500 ft
Activity Center	Mixed-use residential/commercial	Medium	750 to 1,500 ft

Collector Street Spacing

Low Intensity Land Use Street Spacing 3,000' to 6,000'

Medium Intensity Land Use Street Spacing 1,500' to 3,000'

High Intensity Land Use Street Spacing 750' to 1,500'

Recommendations — For local and collector streets, recommendations include:

- **Local Streets** — One connection along a collector should be in place every 750 to 1,500 feet. There are cases that will necessitate a variation in this guideline. Approval for these cases will be the responsibility of the Village Engineer and State Division Engineer who will consider traffic impacts, land access, property rights, and environmental conditions.
- **Collector Streets** — One public street intersection along a collector or an arterial should be in place every 1,200 to 2,000 feet in a suburban context and every 500 to 1,000 feet in the context of heavily developed areas or the central business district. As determined by the Village Engineer, variations in spacing requirements will depend on traffic impacts, land access, property rights, and environmental conditions.

Identifying Future Collector Street Connectors

The following guidelines were used to develop the Clemmons collector street network:

- Avoid steep slopes and otherwise unsuitable topography
- Minimize impact to the built environment
- Avoid FEMA designated floodplains
- Minimize the number of wetland (National Wetland Inventory) impacts
- Minimize the amount of each wetland impact (e.g., don't cross a wide wetland when a narrower one can be crossed)
- Minimize the frequency of stream crossings
- Minimize the number of high-quality (larger) stream crossings
- Minimize the length of stream crossings
- Minimize school impacts

- Minimize the number and size of each impact to other environmental features, such as historic features and districts, threatened and endangered species, hazardous waste sites, and superfund sites
- Avoid impacts to parks and designated open spaces
- Minimize the number of new facilities in critical watershed areas
- Be responsive to existing and planned development patterns
- To extent possible utilize existing stub streets
- Develop feasible connections (A to B)
- Consider Land Use Plan goals for area development
- Consider land use potential and plan collectors according to established spacing guidelines

Design Guidelines

Designing a street with appropriate horizontal and vertical alignment is important. The following horizontal and vertical design features — based on standards published in *A Policy on Geometric Design of Highways and Streets, 2001*, by American Association of State Highway and Transportation Officials (AASHTO) — are recommended for the design of future collector streets. Design speed should be 35 miles per hour, and the maximum recommended grade is 8%. The maximum degree of horizontal curvature is 10 degrees (R_{min} = 573 feet).

Future Collector Street Network

A future collector street network (**Figure 3.14**) was developed using the guidelines discussed above. Key goals of this network included improving accessibility to higher intensity residential areas and activity centers and avoiding or minimizing impacts to sensitive areas for the preservation of the natural environment. Although environmental and built constraints (such as creeks, wetlands, and I-40) limited the number of collector streets that could be identified, the general policy recommendations will provide local staff with the ability to encourage connectivity as future development occurs. Ultimately, the future collector street network will provide a greater level of connectivity and mobility to the residents of Clemmons by reducing the travel time between local streets and arterial streets.

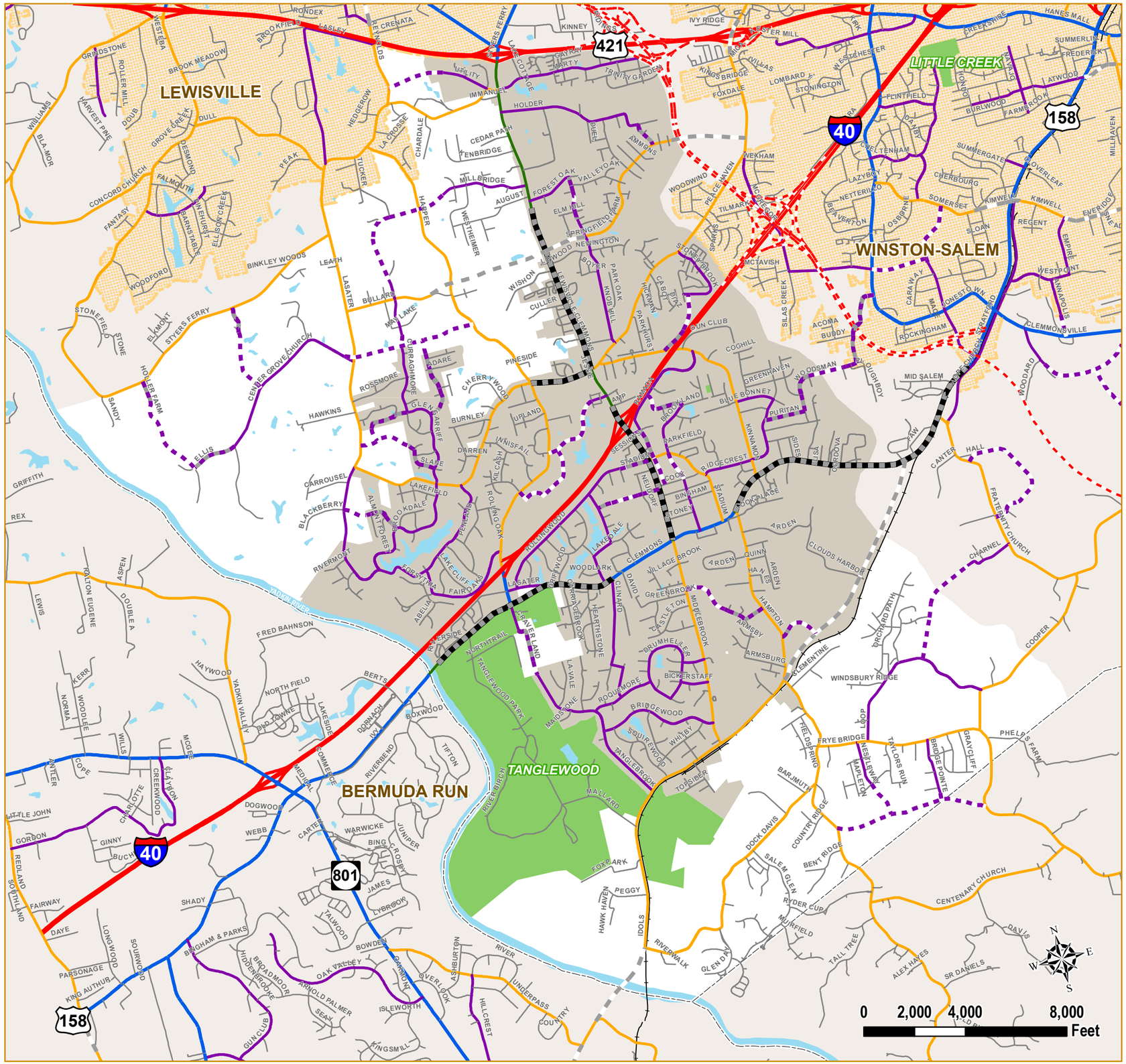
The process used to determine proposed collector street locations can be best described using two examples. The collector street connection between Stadium Drive and Hampton Road was considered. However, this route faced major impediments such as a cemetery that would be located in the proposed relocation path. In addition, the relocation of Stadium Drive would pose a problem for the traffic circulation of Clemmons Elementary School. Therefore, this route was not recommended for a proposed collector street connection.

Second, a route for a proposed collector street was considered to extend the existing Center Grove Church Road. This proposed roadway would connect Lasater Road to Harper Road, providing another critical east-west connection in a growing area of the community. There are no major social or environmental features impeding the path of this roadway. Therefore, this route was recommended for a proposed collector street connection.

General Policy Recommendations

The following general policy recommendations are offered for consideration in an effort to increase the number of collector streets to better facilitate travel between local streets and arterials:

- Use the future collector street network as a tool to review proposed development projects and plans as they locate and design future collector streets
- Amend the collector street network to include new streets as they are identified during the development review process
- Work with the development and real estate community to increase public awareness of future collector street connections through enhanced signage
- Provide temporary turnaround accommodations for collector street stub-outs to allow access by maintenance and emergency vehicles; right-of-way needed for these turnarounds would revert back to property owners once the connection is made
- Require that new developments reserve right-of-way for, and in some cases construct, future collector streets
- Consider adopting policies and dedicating funding to help construct traffic calming measures on existing collector streets that become connected to new collector streets
- Require all new development to provide connections or stub-out streets in each of the four cardinal directions (where applicable)
- Investigate implementation of a connectivity index or adoption of specific guidance in local ordinances in order to facilitate the use of the planning recommendations above. This step will help depoliticize the process of establishing connections in a development while also providing developers with clear guidance on how to proceed.



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Legend

Recommended Collector Streets
- New Collector Street
- Upgrade to Collector Street

Recommended Roadway Projects
- Proposed Widening
- Proposed New Location
- Proposed Expressway/Freeway

Existing Throughfare Plan
- Freeway/Expressway
- Boulevard
- Major Thoroughfare
- Minor Thoroughfare
- Collector Street
- Local Street

- Study Area
- Clemmons
- Neighboring Community
- County Boundary
- Body of Water
- Park
- Railroad

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Recommended Collector Streets

Figure 3.14

Example Cross Sections

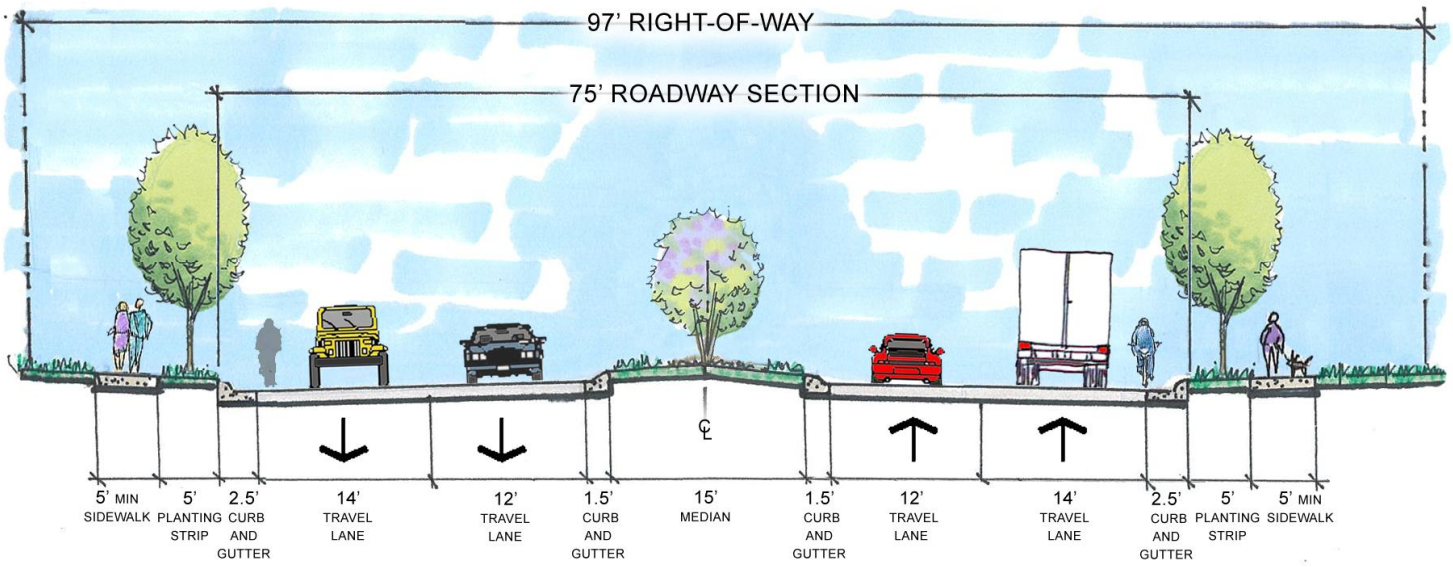
The following pages illustrate typical cross sections for streets in the Village. The cross sections reflect the concept of community-oriented streets that provide safe and convenient travel for all modes. To create a transportation network that respects the needs of bicyclists, pedestrians, and motorists, certain elements may require designs different from the current norm. The right-of-way width of the recommended cross sections range from 50 feet for a local street with no on-street parking to 97 feet for a 4-lane divided major thoroughfare. Within the right-of-way, the sidewalks and planting strip areas are wider than those typically found in the Village today. Likewise, some travel lane widths are narrower than the standard 12 feet now provided by NCDOT.

The construction of complete streets will require close coordination with local, state, and federal authorities. In most instances, the preferred bicycle and pedestrian facility will need to be determined on a case-by-case basis. Likewise, the choice of curb and gutter or swale will need to be determined based on the specific intended context of the road.

The cross sections that follow represent only a selection of the roadway designs envisioned as part of the Clemmons Village Transportation Plan.

Figure 3.15 Major Thoroughfare Cross-Sections

4-Lane Divided with Wide Outside Lanes (Boulevard)



5-Lane with Wide Outside Lanes

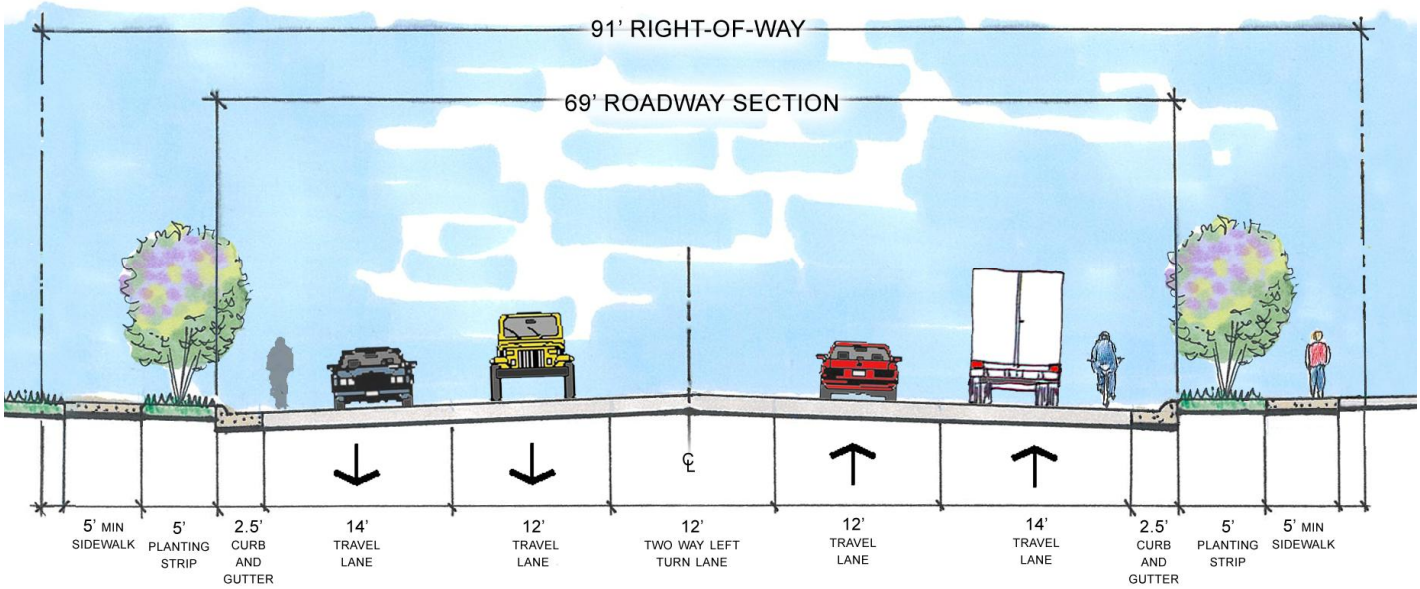
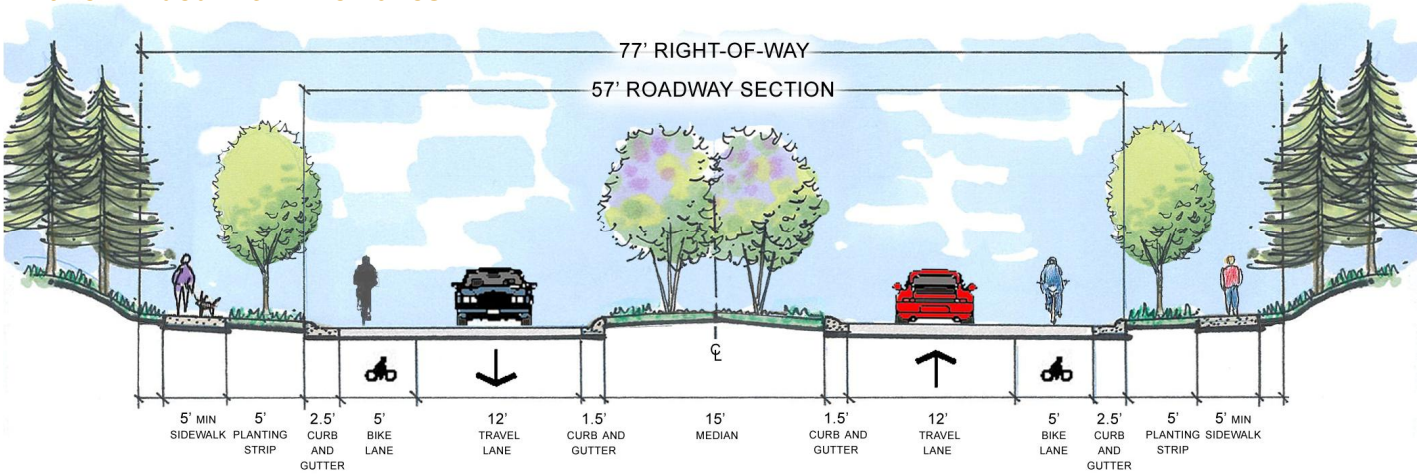
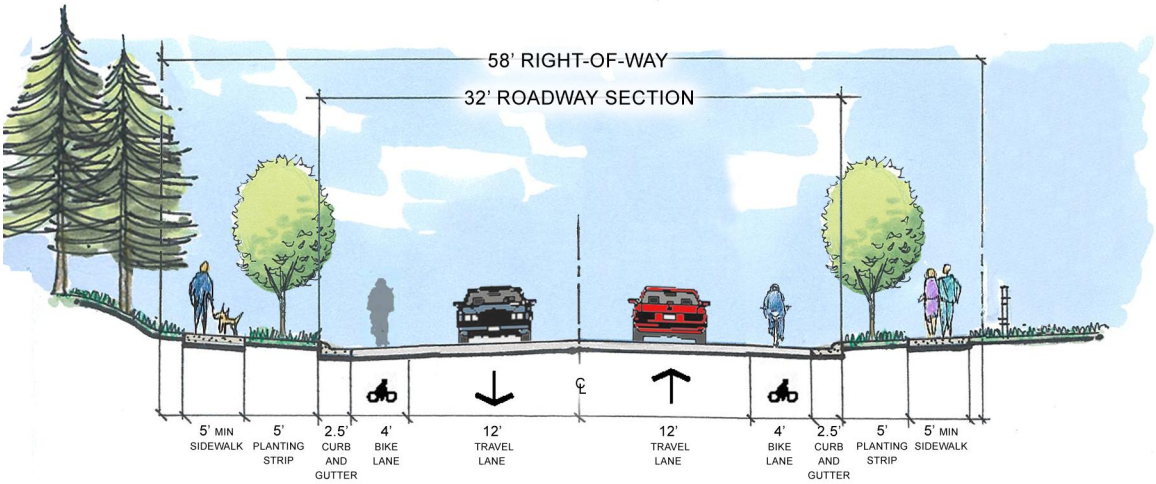


Figure 3.16 Minor Thoroughfare & Collector Cross-Sections

2-Lane Divided with Bike Lanes



2-Lane with Bike Lanes



3-Lane with Wide Outside Lanes

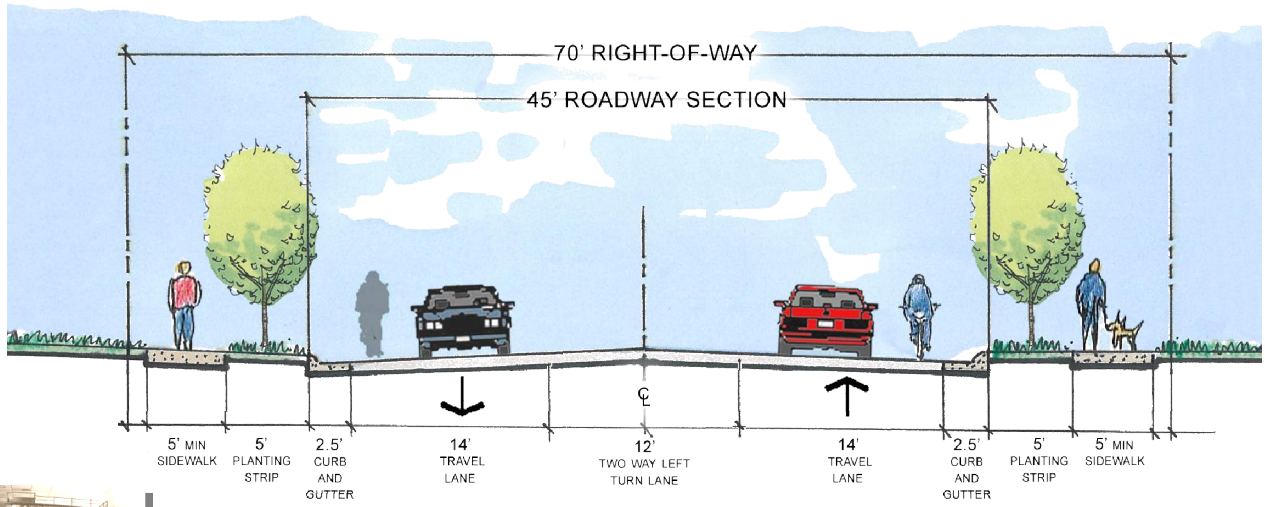


Figure 3.17 Rural Thoroughfare Cross-Section

2-Lane with Paved Shoulders

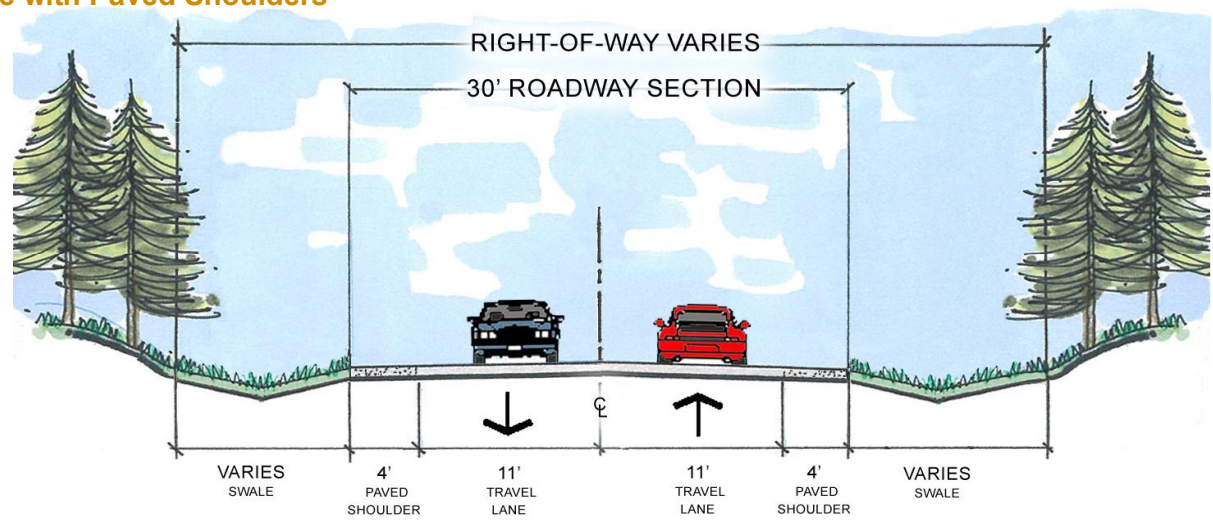
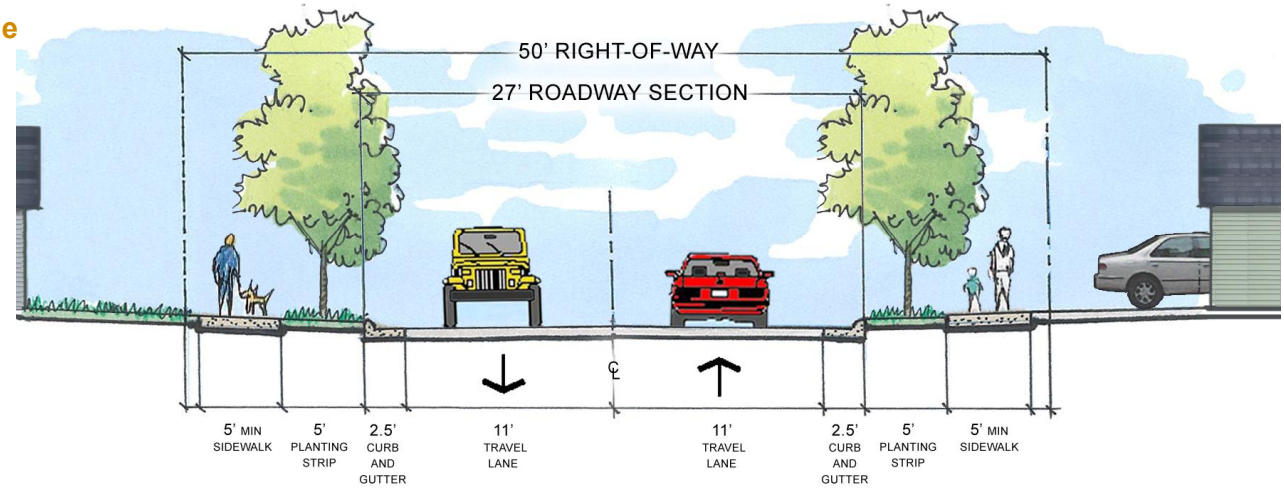
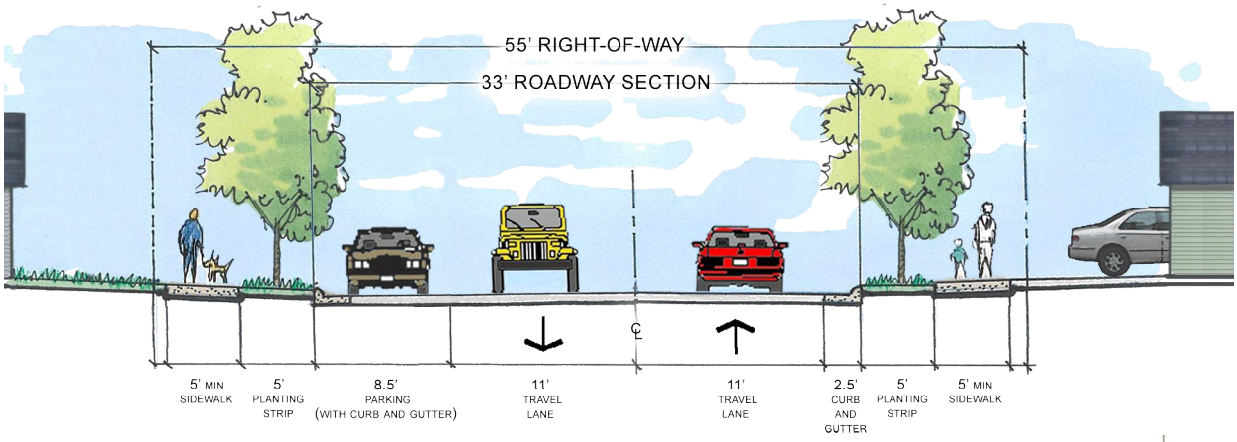


Figure 3.18 Local Street Cross-Sections

2-Lane



2-Lane with Parking



Transit Recommendations

As the Town's population continues to increase, it is important to look beyond the passenger vehicle when planning future transportation services. While the private vehicle will remain the predominant means of transportation for the majority of citizens, the need for quality alternative modes of transportation will increase with community growth. The recommendations presented in this section aim to provide improved alternatives for both commuters traveling to and from the Village and travelers whose origin and destination is within Village limits.

Chapter 2 of this document inventoried the existing transit facilities within the study area and summarized issues important to the community. The existing transit services include taxi and rideshare through the Winston-Salem Transit Authority (WSTA). The following recommendations include short- and long-term recommendations that build on the existing services to provide a greater level of mobility for transit riders.

Park-and-Ride

Park-and-ride facilities are dedicated locations at which commuters park their personal vehicles and transfer to a transit vehicle (bus or rail), carpool, or vanpool. Park-and-ride services were considered in relation to potential carpool and vanpool, express transit service through Piedmont Authority for Regional Transportation (PART), and commuter rail service. Potential interim and long-term park-and-ride locations that would be appropriate for further study include:

- Near the US 421 interchange at Lewisville-Clemmons Road: A park-and-ride lot could be serviced by the US 421 Mountaineer Express that runs between Boone and Greensboro.
- Near the I-40/Harper Road interchange in the vicinity of US 158 Clemmons Roads: The location could initially serve as parking for vanpools and carpools but in the long-term serve as a stop for a regional express bus or local circulator system.

PART Triad Express Bus

If vanpools increase and service requests increase along the I-40 corridor west of the metropolitan area, the Village can work with PART to establish an express bus route to Winston-Salem and Greensboro in conjunction with adjacent communities such as Mocksville and Statesville.

Telecommuting

Telecommuting is a work arrangement between an employee and an employer in which the daily commute is replaced by use of telecommunication links. In short, it is the process of working from home in lieu of commuting to and from the office on a daily basis. This arrangement requires some flexibility between the

employee and the employer, and the management style has to be tempered to be based on results instead of close scrutiny of the employee. If this arrangement can be successfully incorporated into several employer work programs, congestion levels along major corridors could be positively affected.

Commuter Rail

Commuter rail is a passenger rail service that operates on existing freight railroad tracks, connecting city centers to the community's outer fringes, typically 3 to 5 miles apart. While commuter rail may appear to primarily benefit the passenger traveling from a suburban area to the urban core, it is also used by reverse commuters traveling from the city to the suburbs for employment, recreational, and commercial purposes. Commuter rail systems often are integrated with buses to encourage transfers to other areas throughout the region.

Currently, PART is conducting an Alternative Analysis study of potential passenger rail and/or bus rapid transit service throughout the region. The analysis is following guidelines established by the Federal Transit Administration, which requires consideration of a minimum of three alternatives – No-Build, Transportation System Management, and Build. If the Build alternative is selected, the region can compete for funding through the federal New Starts program.

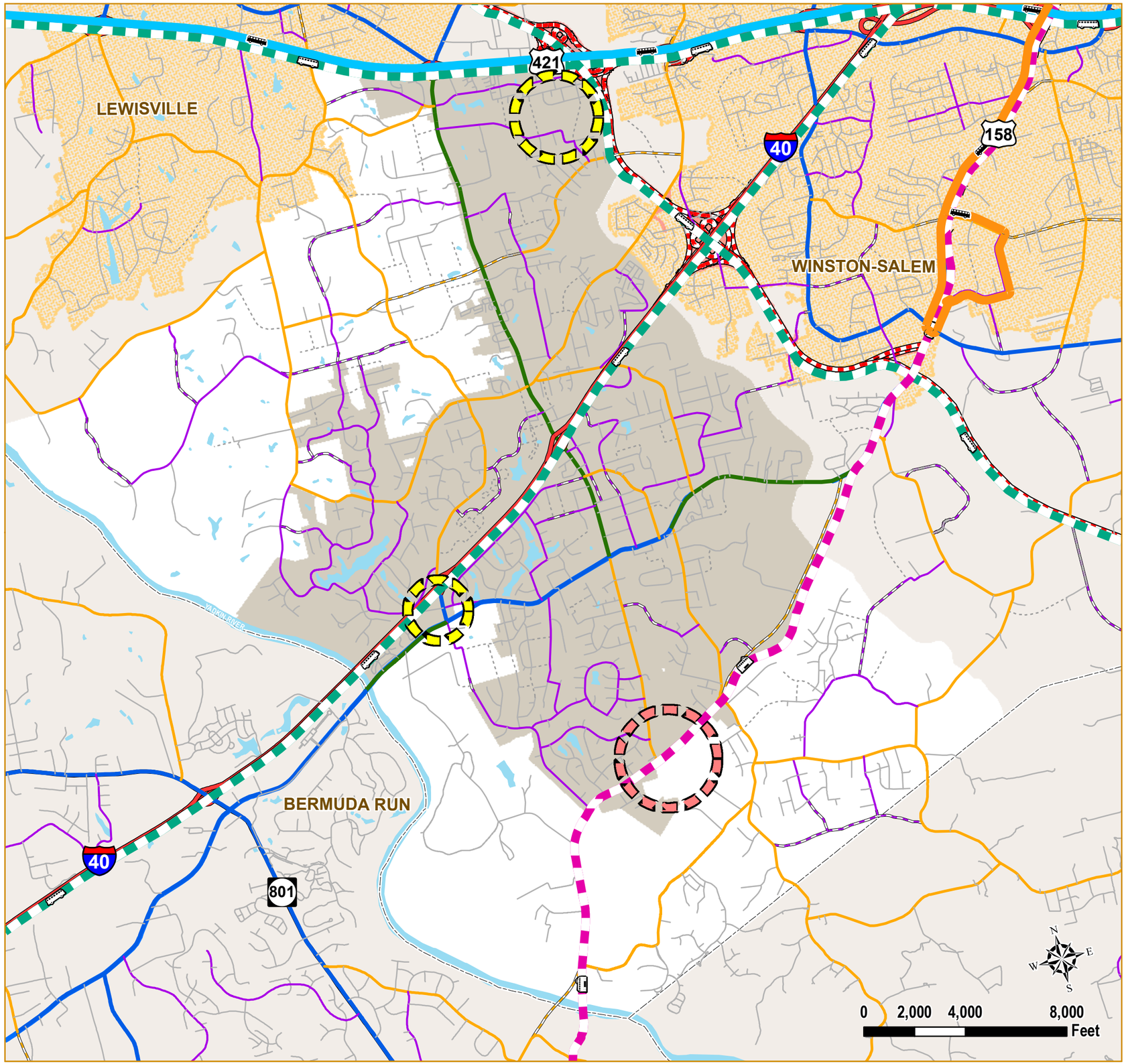
This current plan is for commuter rail to reach Clemmons via the rail line adjacent to Idols Road. However, this segment would be the last phase of the regional system. Because of the preliminary nature of mass transit planning in the region, specific locations for stations in Clemmons have not been determined. The park-and-ride locations in the Village can serve as a springboard for future transit service.

Figure 3.15 outlines the aforementioned transit recommendations for the Village of Clemmons.

Freight Recommendations

The Village is served by only one rail line therefore the majority of freight traffic for the Village will be in the form of commercial trucks. With numerous businesses and industrial areas in Clemmons, truck freight traffic will always be present on the strategic corridors of the Village. Yet, the roadway improvements outlined in the chapter do present truck routing alternatives that will help minimize the number of and effect of commercial trucks in downtown Clemmons.

Primarily, the Idols Road extension to US 158 east of the Village will provide a less-congested route to and from the industries along Idols and Hampton Roads. The route will be more convenient in the future when the Northern Beltway project connects I-40 to US 158 via two major interchanges. A connection of Idols Road across the Yadkin River to NC 801 will provide a western alternative to get to I-40 without travelling through the Village.



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Legend

Existing Transit Routes
- WSTA Bus
- PART Express Bus

Future Transit
- Express Bus/BRT
- Light Rail/BRT
- Potential Light Rail Station Site
- Potential Park & Ride Site

Boundaries
- Study Area
- Clemmons
- Neighboring Community
- County Boundary

Existing Roadways
- Freeway/Expressway
- Boulevard
- Other Major Thoroughfare
- Minor Thoroughfare
- Collector Street
- Local Street

Proposed Streets
- Proposed Freeway/Expressway
- Proposed Major Thoroughfare
- Proposed Minor Thoroughfare
- Proposed Collector Street
- Proposed Local Street

Environmental Features
- Body of Water
- Park

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Transit Recommendations

Figure 3.19