FINAL REPORT

US 1 Corridor Study – Phase II

September 2012

North Carolina Capital Area Metropolitan Planning Organization

NORTH CAROLINA CAPITAL AREA MPO
FRANKLIN COUNTY
TOWN OF FRANKLINTON
TOWN OF YOUNGSVILLE

Submitted by:

PARSONS BRINCKERHOFF

URBAN Collage

alta GREENWAYS

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EXECUTIVE SUMMARY

The North Carolina Capital Area Metropolitan Planning Organization (NC Capital Area MPO) initiated the US 1 Corridor Study Phase II to examine approximately nine miles of US 1 from US 1A (Park Avenue) north to the Vance County line. This Phase II study examines a northern extension of the original US 1 Corridor Study (Phase I) completed in 2006 which ran from Interstate 540 (I-540) in Raleigh to US 1A (Park Avenue) in Youngsville. The study area is shown in Figure ES-1.

The Phase II Corridor Study was initiated in December 2011 by NC Capital Area MPO and Franklin County with the consultant team Parsons Brinckerhoff, Urban Collage, and Alta Planning/Greenways. The study development process included two committees, the Core Technical Team (CTT) and the Study Oversight Team (SOT) with a series of six meetings. The SOT and CTT were formed to provide insight and guidance to the Study Team through the study development process.

This executive summary provides a brief discussion of the findings and recommendations for this project. Chapters 1 through 8 include more detailed information on the project's process, and documents key factors included in developing the recommended alternative.

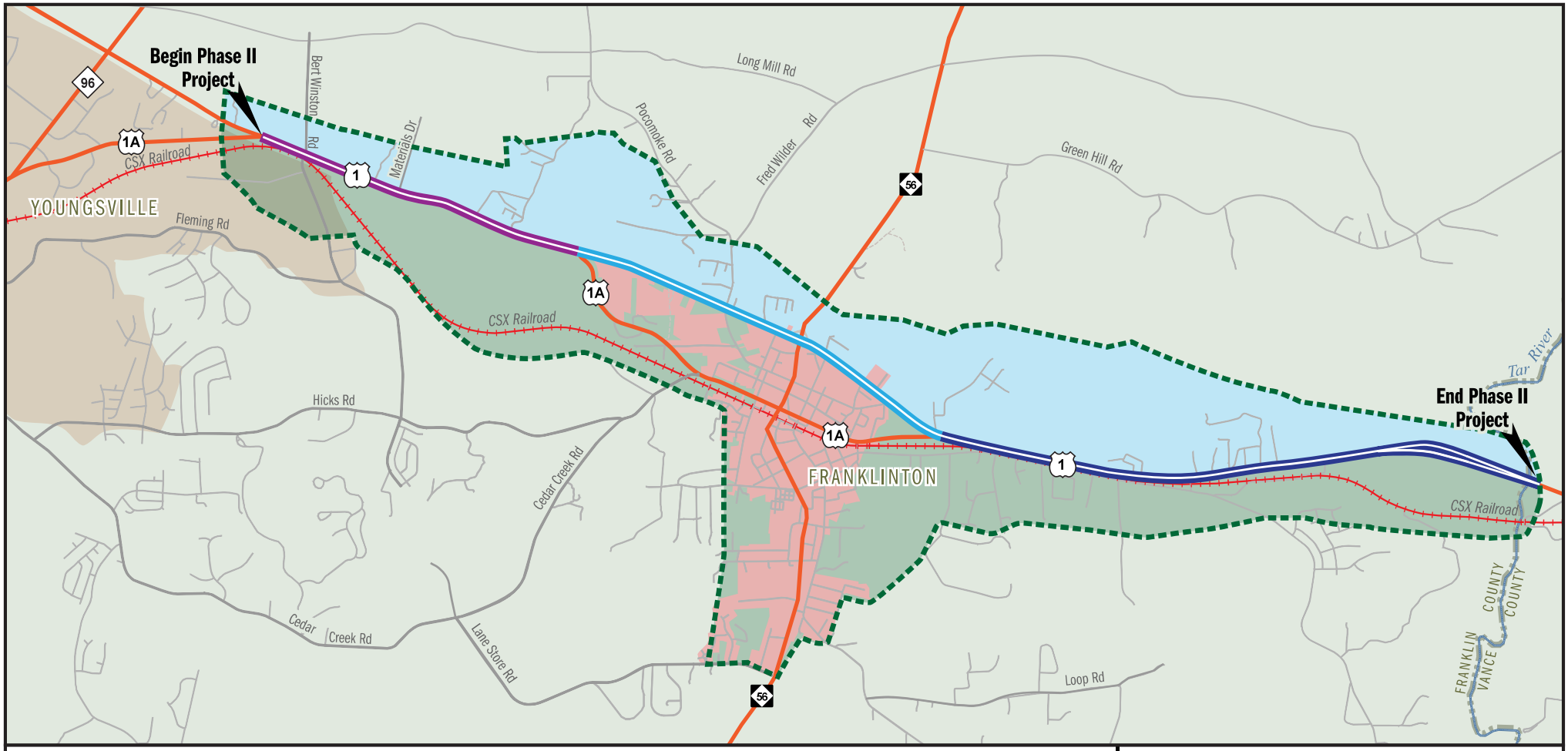
ES.1 INTRODUCTION

The goal of the US 1 Corridor Study Phase II project is to produce a well-coordinated plan for the US 1 corridor. The plan provides current and future improvement and policy recommendations for all modes of travel. A key focus of the effort was identifying an alternative that would meet the mobility needs of US 1, while providing access for existing and future development.

A carefully defined study and public involvement process was necessary to address these critical issues. The SOT and CTT participated in the evaluation of alternatives which also factored in the desires of the local community. It should be noted that the CTT included members of the US 1 Council of Planning that was created as part of the Phase I study.

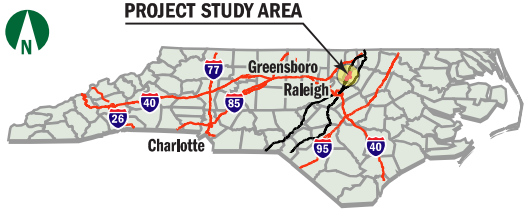
The elements of the study process included the evaluation of existing conditions and development of alternatives to improve safety and mobility while maintaining or enhancing access to adjacent land uses. The study examines interim and ultimate solutions as part of a phased project approach. All modes of travel were evaluated including vehicles, bicycles, pedestrians, transit, and rail.

US1 North Corridor Study Phase II



LEGEND

- Phase II Study Boundary
- South Segment
- Central Segment
- North Segment
- East Section
- West Section
- Franklin Town Limits



US 1 Phase II Study - Franklin County

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Study Area Map

Figure ES-1

ES.2 EXISTING CONDITIONS

The study area of US 1 Corridor Study Phase II is the approximate nine mile section of US 1 from US 1A (Park Avenue) to the Vance County line (See Figure ES-1). In this area, the primary transportation features are: the existing multi-lane US 1 highway; the two-lane US 1A Main Street through downtown Franklinton; the two-lane NC 56 which provides the primary east-west access between Creedmoor, Franklinton, and Louisburg; and the CSX Railroad which roughly parallels US 1 on the east.

ES.2.1 Project Sections

The US 1 corridor was divided into three distinct sections, taking into account the unique land use and traffic characteristics along US 1. These sections are discussed below:

- **South Section –** This section extends from US 1A (Park Avenue) in Youngsville to the US 1A South Main Street) junction south of the Town of Franklinton. This area is predominantly rural, consisting of isolated residences, light industrial facilities, and agricultural lands.
- **Central Section –** This section extends from the US 1A (South Main Street) junction south of the Town of Franklinton to the US 1A (North Main Street) junction north of Franklinton. This is the most developed area within the project limits, consisting of commercial establishments and established residential neighborhoods within the Franklinton town limits.
- **North Section –** This section extends from the US 1A (North Main Street) junction north of Franklinton to the Vance County line. This section is a rural area, which consists of low density residential neighborhoods and agricultural lands. The CSX railroad tracks are located just east of US 1, limiting development potential and the need for access from the east.

ES.2.2 Existing Land Use & Zoning, Environment, & Transportation

Land use and zoning, transportation and environmental data were collected and analyzed for this study. This included reviews of the Franklin County Comprehensive Plan and a series of stakeholder interviews. Key findings included:

- Current land use, existing zoning, regional development trends, and opportunities for future development were analyzed. Analysis of Franklin County's zoning indicates that the County desires: industrial uses along the south section; retail and highway oriented

development in the central section that is compatible with historic downtown Franklinton; and more agricultural and low density residential in the north section.

- Environmental data was inventoried for the study area via internet searches, geographic information system (GIS) review, site reconnaissance, interviews and other means. Analysis of the human environment considered land use, zoning, demographics (population, housing and economy), and cultural resource concerns (churches, schools, and historic resources). Analysis of the natural environment considered wetlands, streams, the Tar River basin and air quality.
- An analysis of existing and future capacity on US 1 confirmed that while US 1 has adequate capacity in 2012, improvements to US 1 will be needed, particularly south of NC 56. A crash analysis verified that the overall crash rate is highest in the south section, and that intersection related crashes are highest in the central section. As part of the study process, multiple transportation issues were also identified regarding the South East High Speed Rail currently planned for completion in 2020.

ES.3 Selection of Conceptual US 1 Alternatives

Utilizing the data inventories, a traffic analysis of 2040 conditions, and input from the CTT and SOT, an evaluation and comparison of four conceptual alternatives for US 1 was conducted:

- No-Build (Rural Highway/High Speed Arterial) Alternative
- Superstreet Alternative
- Freeway Alternative
- Freeway with Local Street Enhancements Alternative

The four conceptual alternatives were evaluated and compared utilizing multiple criteria including:

- US 1 traffic operations and safety;
- Compatibility with US 1 long range plans;
- Provisions for bicycles and pedestrians;
- Balancing access needs and development potential with traffic operations;
- Impacts to the natural and human environments; and
- Preliminary Costs.

Identification of the conceptual alternatives for more detailed analysis was done with the insights of the CTT and SOT.

ES.4 Analysis of the Future Alternative

The Superstreet and Freeway with Local Street Improvements conceptual alternatives were recommended for more detailed analysis.

- **Superstreet Alternative:** The Superstreet Alternative was highly rated. Although it does not meet the ultimate freeway vision, it is substantially less expensive and provides a potential interim solution.
- **Freeway with Local Street Improvements Alternative:** This alternative ranked highest and meets all goals of the forecast study. It involves numerous local street projects beyond improvements to US 1 itself resulting in increased impacts and higher costs. It may be possible, however, to offset some or most of the local street costs by involving private development with the construction or funding of access-related projects.

ES.5 Final Recommendations

The detailed final recommendations are presented in Chapter 5. The following summary of the recommendations is divided into each of the alternatives and modes evaluated.

ES.5.1 Land Use Recommendations

A key element of the study was the evaluation of land use and how to develop an improved US 1 corridor without impeding planned growth. Any future plans need to be consistent with the needs and desires of Franklinton and Franklin County, must consider desires of residents and businesses being served by US 1, and consider regional traffic including both vehicles and freight on US 1.

ES.5.1.1 Superstreet Alternative & Land Use Access

A Superstreet provides an interim solution that can initially serve existing development patterns oriented toward direct access from all adjacent lots to US 1. Over the long term, however, continuing with this development pattern along US 1 would decrease safety and mobility on US 1. The Superstreet could be utilized as an interim method for serving existing development while allowing for a transition period to a more permanent access pattern.

ES.5.1.2 Freeway with Local Streets Alternative & Land Use Access

The Freeway with Local Street Enhancements Alternative was considered because, unlike the Freeway Alternative (with no local streets), it adequately allows for access to the future

development in the study area. Under this alternative, enhanced or new local streets would provide access instead of US 1.

In addition to access, the analysis identified opportunities for enhancing the development plan for the corridor. The three following themes were identified:

- Encouraging industrial development in the southern section of the corridor to take advantage of access to US 1 as well as the CSX rail line for freight access. The proposed Bert Winston Extension interchange included in the CTP presents an opportunity for a more focused development node. Development opportunities for the Bert Winston Extension node are illustrated in Figure ES-2.
- The central section is focused between the proposed NC 56 Bypass and the existing NC 56 interchange. The current expectations for this area are that highway oriented development would occur, expanding on both sides of US 1. From an access standpoint, local streets linking NC 56 and the NC 56 Bypass could create a development node within the Franklinton area. Development opportunities for the NC 56 Bypass/ Franklinton node are illustrated in Figure ES-3.
- The northern section is rural with isolated agricultural land use as well as some isolated residential development. The general desire is that the area remains similar without retail or industrial development. Residential development is planned although it would be lower density subdivisions due to development restrictions in the Tar River basin. In addition, opportunities for open space exist including the Persons-McGhee Farm property along both sides of US 1 in the northern limits of the project.

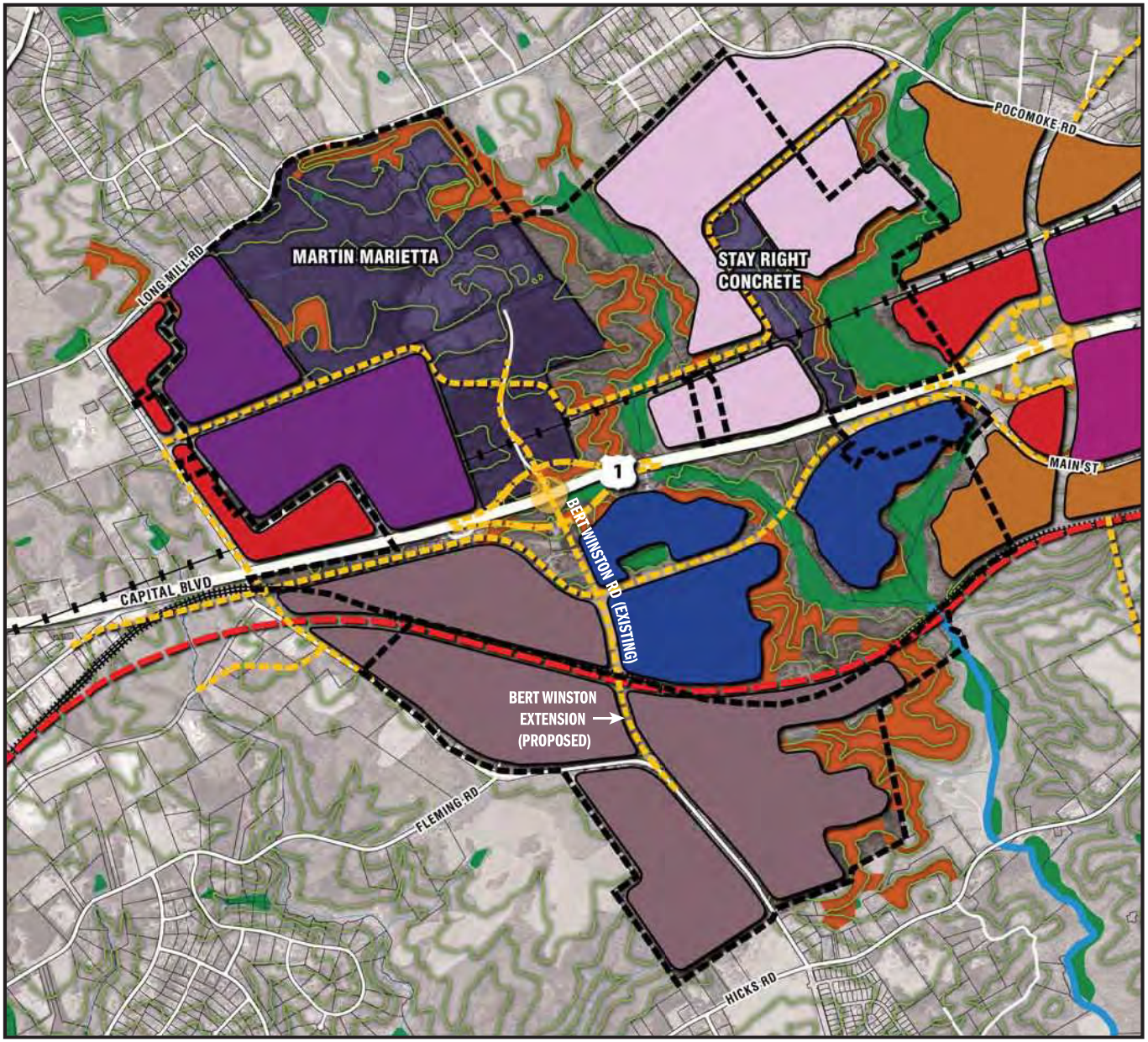
ES.5.2 US 1 Alternative Recommendations

The Superstreet Alternative could be constructed as an interim solution, but it would not meet the ultimate needs of the corridor. In contrast, the Freeway with Local Street Enhancements Alternative meets the ultimate needs for mobility on US 1, but would be difficult to implement as a single project with both freeway and local street construction occurring at the same time. Therefore, the recommended project alternative utilizes the superstreet concept to provide a transition to an ultimate freeway. Similarly, local street projects are envisioned as being incrementally constructed to provide access for new developments on the corridor.

ES.5.2.1 Recommended US 1 Superstreet Alternative - Interim

The interim improvements would incorporate all modes of transportation (roadway, bicyclist, pedestrian, and transit if necessary) and would consider proposed improvements that can easily be redeveloped to accommodate the future build condition.

US1 North Corridor Study Phase II



0 Miles 0.125 0.25 0.375 0.5 0.75

LEGEND

- Node Potential Impact Boundary (Premise: Industrial Zoning District)
- Commercial
- Office / R&D
- Mixed-Use
- Mixed Residential
- Heavy Industrial
- Light Industrial / Warehousing
- Rail-based Industrial
- Proposed Interchange
- Proposed Road / Street
- Possible SEHSR Alignment
- Contour Elevation Lines

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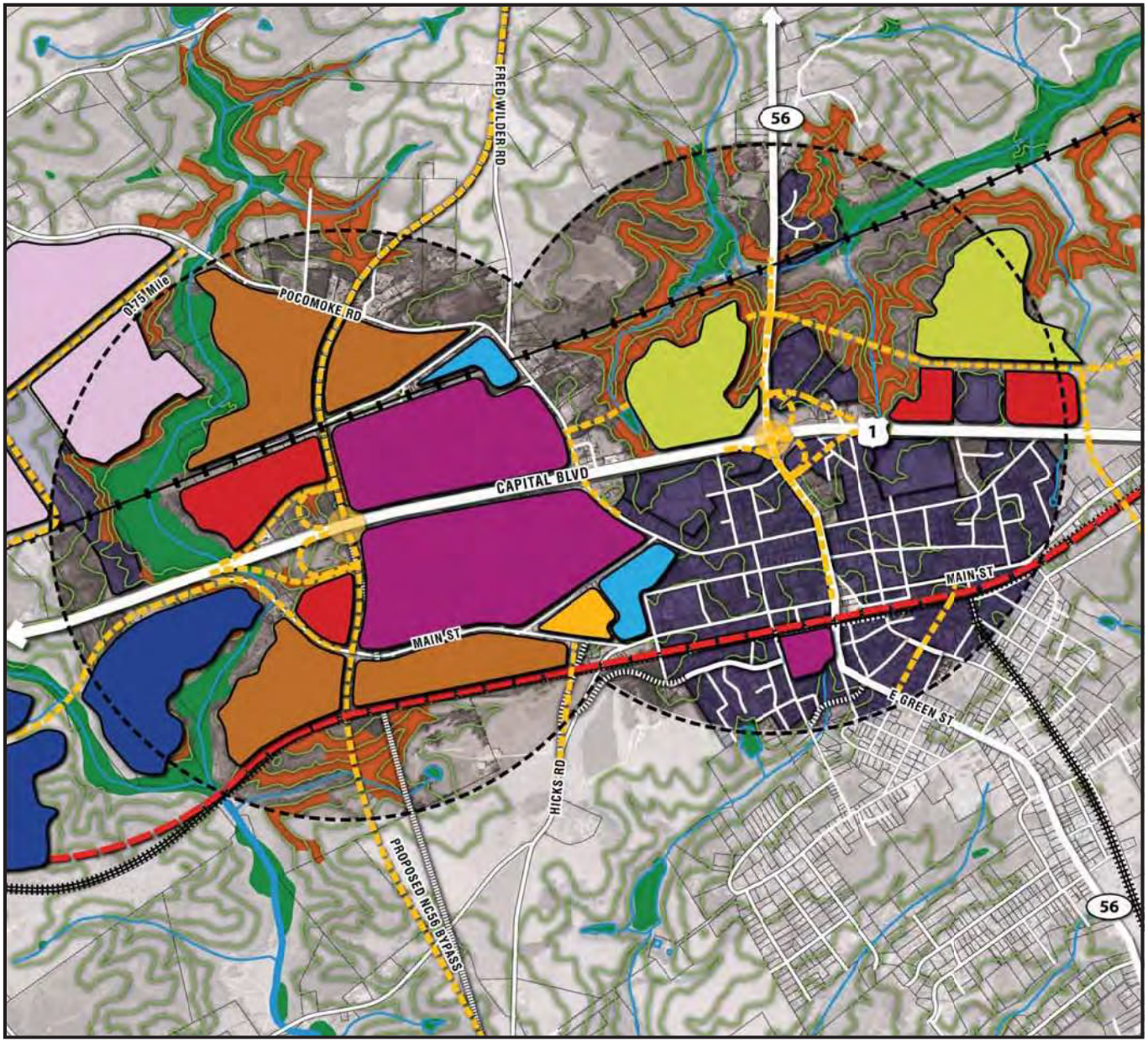
URBAN Collage

Foreseeable Development: Bert Winston Extension Node

Figure ES-2

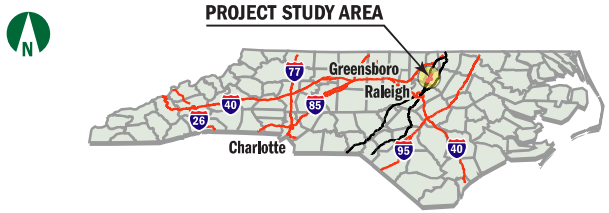
US1 North Corridor Study Phase II



0 Miles 0.125 0.25 0.375 0.5 0.75

LEGEND

- Node Potential Impact Boundary (Premise: Accessibility)
- Commercial
- Office / R&D
- Mixed-Use / TOD
- Institutional / Public Utility
- Cluster Residential
- Low-Density / Traditional Residential
- Mixed Residential
- Light Industrial / Warehousing
- Proposed Interchange
- Proposed Road / Street
- Possible SEHSR Alignment
- Contour Elevation Lines



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Foreseeable Development: NC 56 Bypass/Franklinton South Node

Figure ES-3

An interim Superstreet Plan is shown in Figures ES-4A, ES-4B, and ES-4C for the south, central, and north sections, respectively. It illustrates locations for dual leftovers, single leftovers, and signalized superstreet intersections. The Superstreet Plan figures also include details illustrating the intersection layout and traffic operations at each of these intersection types.

Note that a full superstreet conversion for the entire study area is not proposed as part of a single project. Instead a phasing plan has been identified which incrementally improves US 1 to a superstreet while also encouraging the construction of local street sections. These local streets are independent of the needs of the Superstreet, but are illustrated to demonstrate the incremental construction of the local street network. The proposed phasing plan and related project costs are presented in Section ES.5.4 and Section ES.5.5, respectively.

ES.5.2.2 Recommended US 1 Freeway Alternative - Ultimate

The long term ultimate improvements for the US 1 corridor provide a multi-modal transportation plan that is consistent with regional transportation and land use plans. In order to meet these requirements, the Freeway with Local Street Enhancements was selected as the preferred conceptual alternative.

The Ultimate Freeway with Local Streets plan is shown in Figures ES-5A for the South Section, ES-5B for the Central Section and ES-5C for the North Section. A series of typical sections is shown in Figure ES-6 for the freeway and local streets in the South, Central, and North Sections.

Interchange Locations & Types

A freeway is a roadway with access only provided at interchanges. In developing a freeway alternative for comparison, the initial considerations were the locations for the interchanges access and type of interchanges for each location. Three interchange locations are proposed as part of the Franklin County CTP. In addition, the CTT indicated that an interchange would be required on the northern section of the corridor. After evaluation of trip patterns, it was determined that the preferred location would be in northern Franklin County at a proposed new roadway planned for the Southeast High Speed Rail (SEHSR).

For the locations that interchanges are proposed, multiple interchange types were investigated. Several issues were examined including:

- Interchange Traffic Operations
- Impacts to Local Roads
- Provisions for Bicycles and Pedestrians
- Providing Local Access for Land Use

- Natural Environment Impacts
- Human Environment Impacts
- Conceptual Cost

These comparison measures were utilized in evaluating potential interchange types. The preferred interchange locations and types include:

- **Bert Winston Road Extension/Materials Drive:** Simple Diamond
- **NC 56 Bypass:** Partial Cloverleaf with Loops in the southwest and southeast quadrants
- **NC 56:** Partial Cloverleaf with Loops in the northwest and northeast quadrants (Note: The existing interchange does not meet minimum interchange standards for access to a freeway due to poor traffic operations, safety issues, and geometric design standards.
- **Swan Street/ SEHSR Connector between Montgomery Road and US 1:** Partial Cloverleaf with Loops in the southwest and southeast quadrants

East-West Connectors on Bridges over US 1

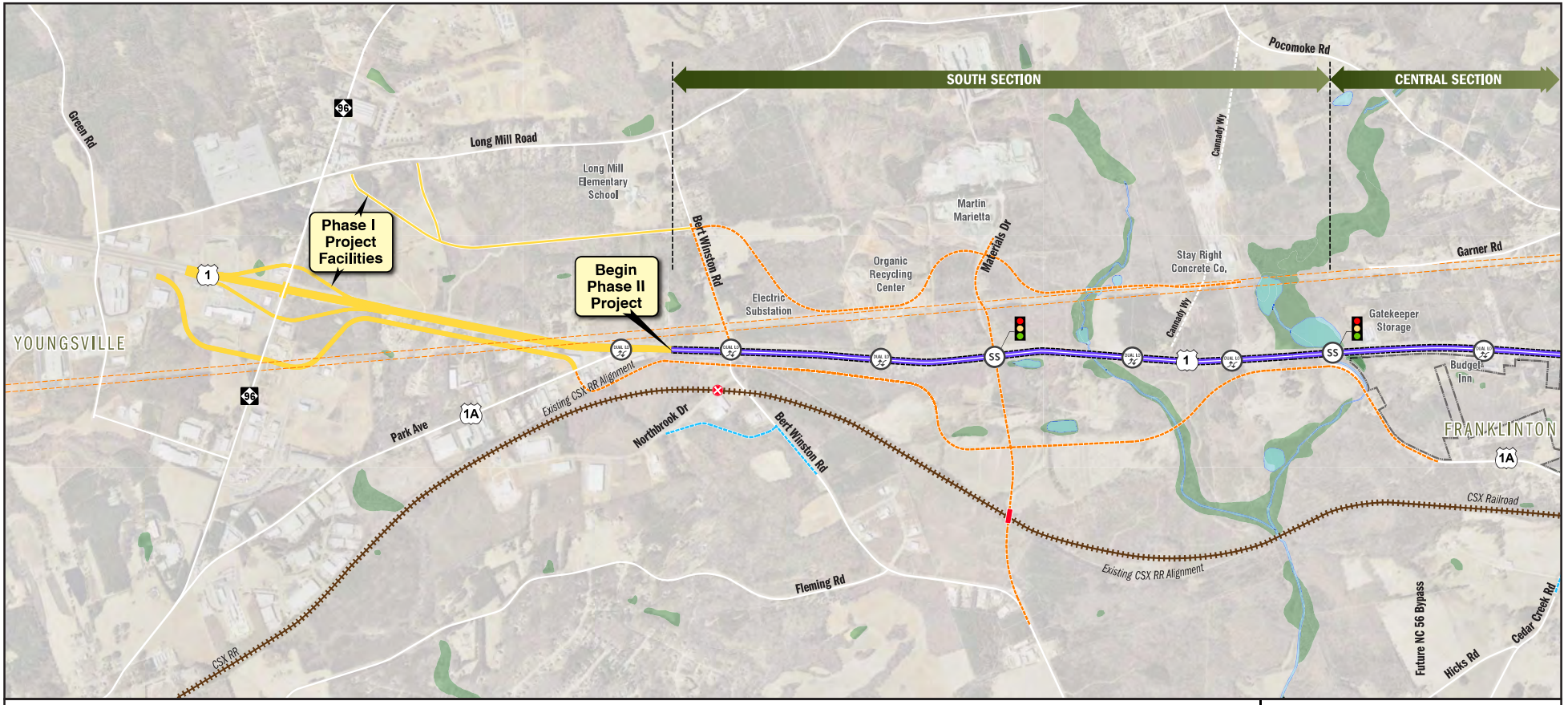
When the ultimate freeway is completed, it will be necessary to provide overpass bridges at three locations (separate from the interchange locations). The overpasses will serve to link the local roadway network on the west and east sides of US 1. The bridges will also provide linkage for bicycle and pedestrian facilities. The recommended bridges over US 1 are:

- **Overpass at the existing Bert Winston Road over US 1:** This improvement will require a bridge over the realigned SEHSR as well as a bridge crossing of both US 1 and the US 1A extension from Park Avenue in Youngsville.
- **Overpass at the existing Cheatham Street/ Pocomoke Road intersection over US 1:** This is a key linkage within the anticipated Franklinton development node which will include commercial, retail, and other highway oriented development.
- **Overpass for a proposed connector from US 1A in northern Franklinton to the proposed Western Service Road:** The alignment for this connector is expected to cross US 1 on a new alignment between Cheatham Street and US 1A Main Street. On the east, this connector ties into a proposed new rail grade separation connecting US 1A and Winston Street and the long term the Proposed East-West connector.

ES.5.2.3 Recommended Local Street Network – Ultimate

Local streets are a key element of the long range plan for the US 1 Corridor in Franklin County. The local streets will serve as the primary access for development, both businesses and

US 1 North Corridor Study Phase II



LEGEND

- Municipal Boundary
- **US 1 Corridor**
- US 1 Section (Superstreet)

Other Roadways and Streets

- Phase I Proposed Ramp Improvement (Phase I)
- Preferred Alternative (Local Street)
- Proposed Local Street (CTP or SEHSR)
- Traffic Signal
- Overpass

- Left Over
- Dual Left Over
- Super Street
- SEHR Pedestrian Crossings
- Close Median Openings

Railroad

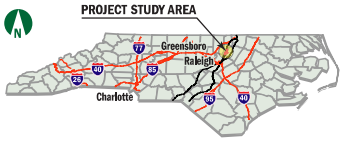
- Future SEHSR / CSX Rail
- Proposed Closing of At-Grade Rail Crossing

Environment

- Surface Waters
- Wetlands

Utilities

- Electric Transmission Line Easement



US 1 Phase II Study - Franklin County

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US 1 Interim Design - Superstreet in South Section

Figure ES-4A

Sheet 1 of 3

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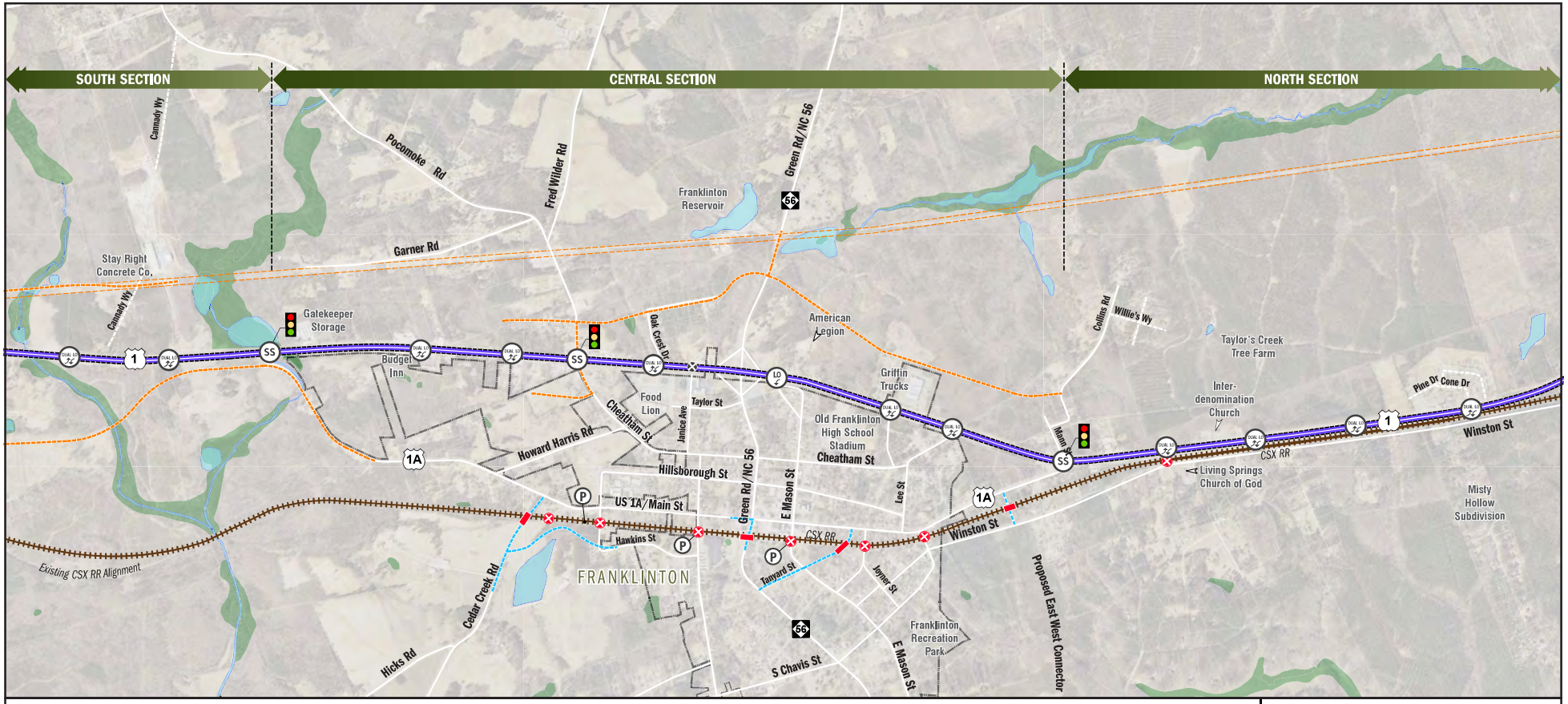
US1 North Corridor Study Phase II



0 400 800 1,600 ft
Scale in feet

US 1 Phase II Study - Franklin County

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US 1 Interim Design - Superstreet in Central Section

Figure ES-4B

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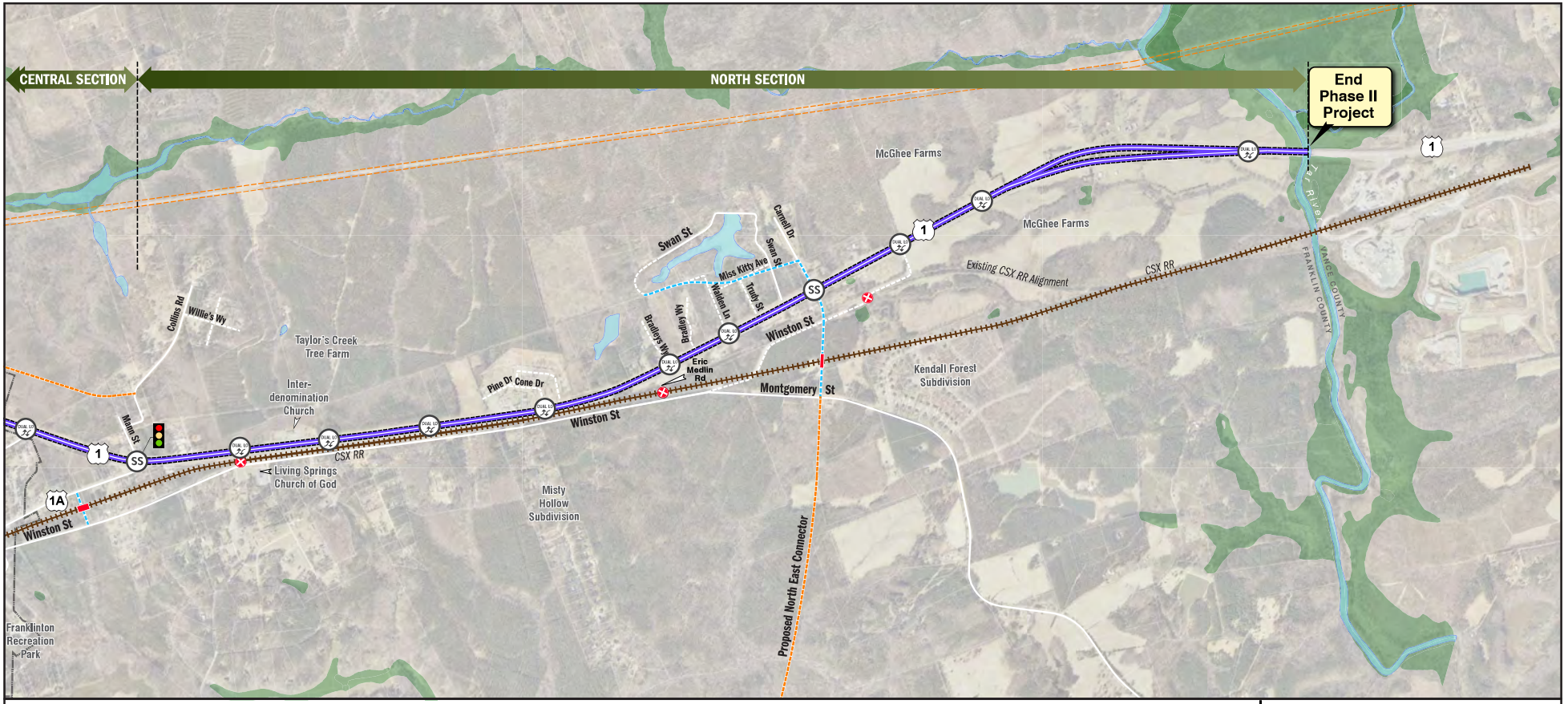
US 1 North Corridor Study Phase II



LEGEND

- Municipal Boundary
- **US 1 Corridor**
- US 1 Section (Superstreet)

Other Roadways and Streets

- Phase I Proposed Ramp Improvement (Phase I)
- Preferred Alternative (Local Street)
- Proposed Local Street (CTP or SEHSR)
- Traffic Signal
- Overpass

- Left Over
- Dual Left Over
- Super Street
- SEHR Pedestrian Crossings
- Close Median Openings

Railroad

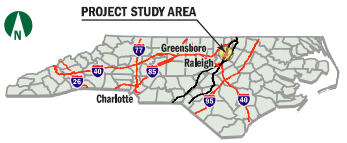
- Future SEHSR / CSX Rail
- Proposed Closing of At-Grade Rail Crossing

Environment

- Surface Waters
- Wetlands

Utilities

- Electric Transmission Line Easement



US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

US 1 Interim Design - Superstreet in North Section

Figure ES-4C

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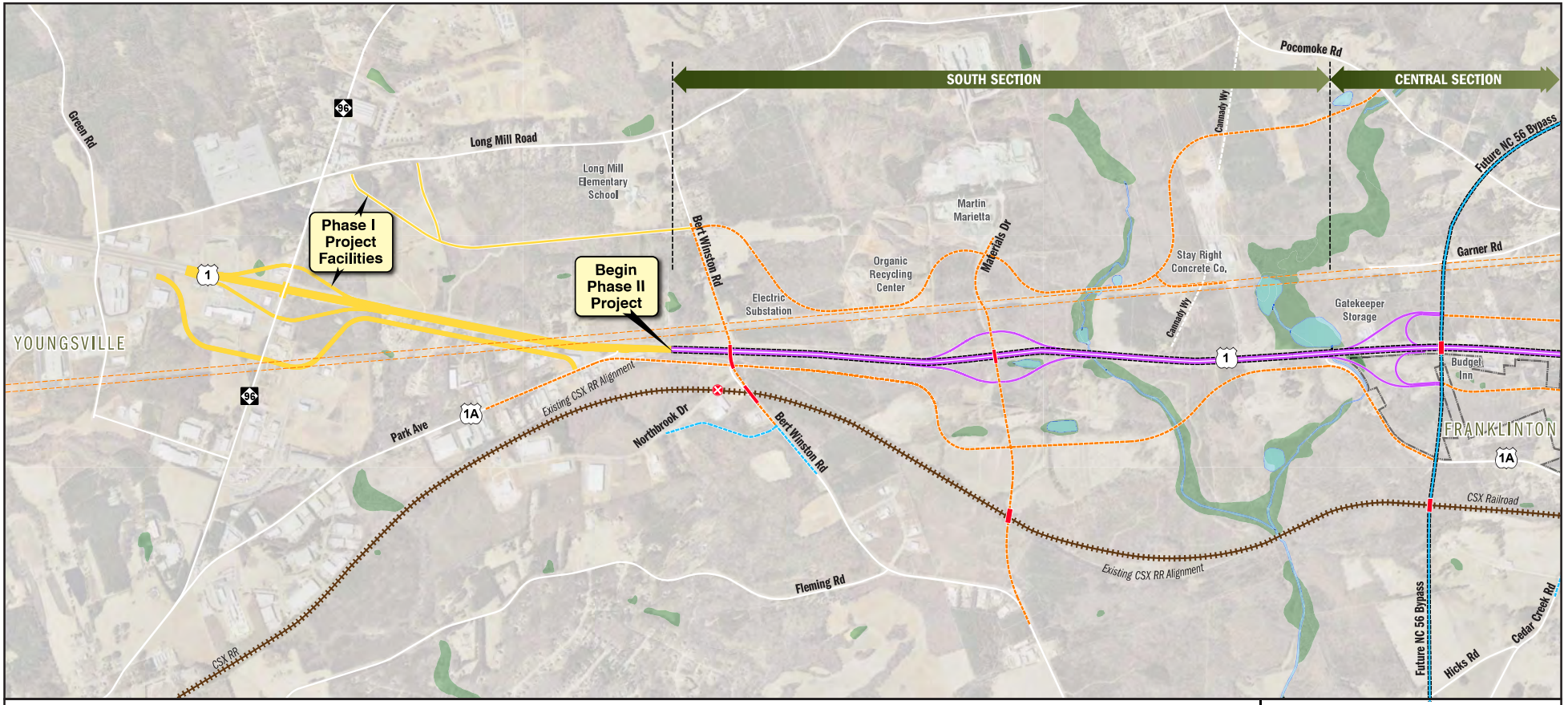
US 1 North Corridor Study Phase II



LEGEND

- US 1 Corridor (Freeway)
- US 1 Interchanges
- Phase I Proposed Improvement
- Municipal Boundary

Other Roadways and Streets

- Proposed Boulevard (CTP)
- Preferred Alternative (Local Street)
- Proposed Local Street (CTP or SEHSR)
- Overpass
- SEHR Pedestrian Crossings

Railroad

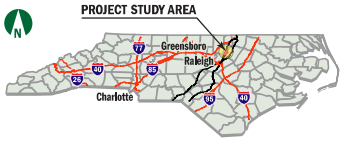
- Future SEHSR / CSX Rail
- Proposed Closing of At-Grade Rail Crossing

Environment

- Surface Waters
- Wetlands

Utilities

- Electric Transmission Line Easement



US 1 Phase II Study - Franklin County

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US 1 Ultimate Design - Freeway in South Section

Figure ES-5A

Sheet 1 of 3

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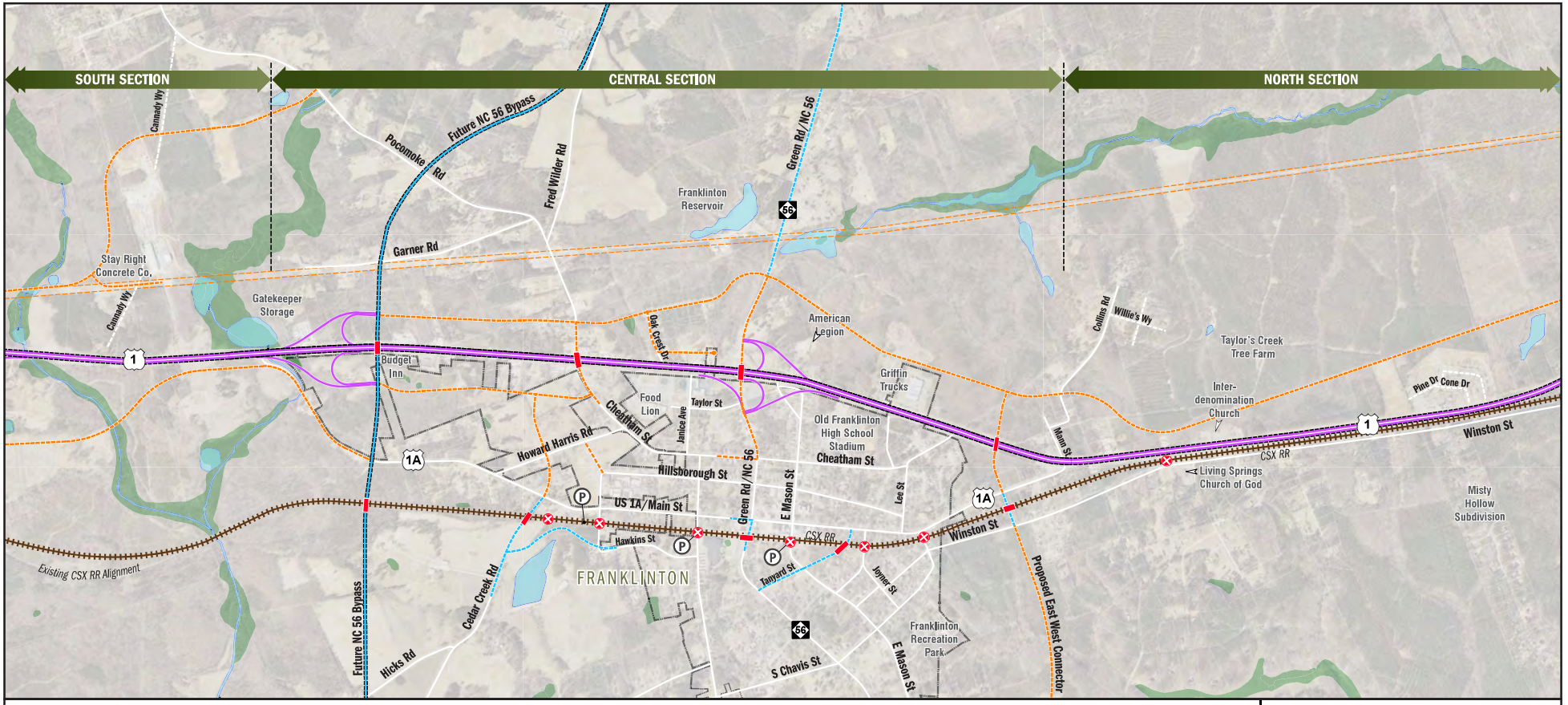
US 1 North Corridor Study Phase II



0 400 800 1,600 ft
Scale in feet

LEGEND

- US 1 Corridor (Freeway)
- US 1 Interchanges
- Phase I Proposed Improvement
- Municipal Boundary

Other Roadways and Streets

- Proposed Boulevard (CTP)
- Preferred Alternative (Local Street)
- Proposed Local Street (CTP or SEHSR)
- Overpass
- SEHR Pedestrian Crossings

Railroad

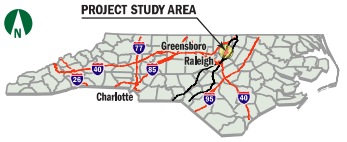
- Future SEHSR / CSX Rail
- Proposed Closing of At-Grade Rail Crossing

Environment

- Surface Waters
- Wetlands

Utilities

- Electric Transmission Line Easement



US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

US 1 Ultimate Design - Freeway in Central Section

Figure ES-5B

Sheet 2 of 3

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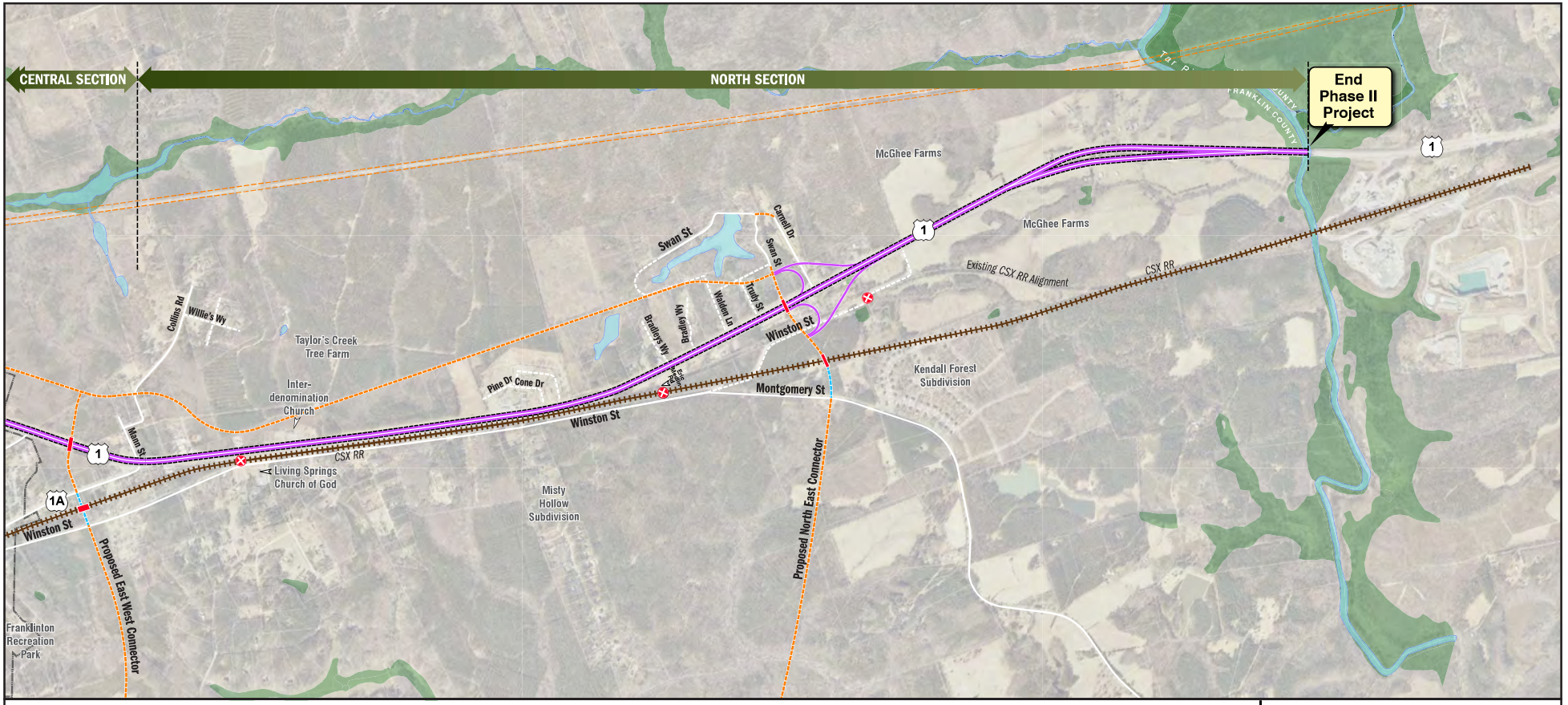
US 1 North Corridor Study Phase II



LEGEND

- US 1 Corridor (Freeway)
- US 1 Interchanges
- Phase I Proposed Improvement
- Municipal Boundary

Other Roadways and Streets

- Proposed Boulevard (CTP)
- Preferred Alternative (Local Street)
- Proposed Local Street (CTP or SEHSR)
- Overpass
- SEHR Pedestrian Crossings

Railroad

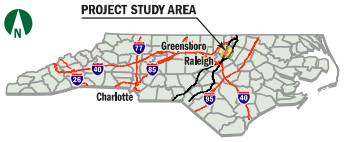
- Future SEHSR / CSX Rail
- Proposed Closing of At-Grade Rail Crossing

Environment

- Surface Waters
- Wetlands

Utilities

- Electric Transmission Line Easement



US 1 Phase II Study - Franklin County

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Ultimate Design - Freeway in North Section

Figure ES-5C

Sheet 3 of 3

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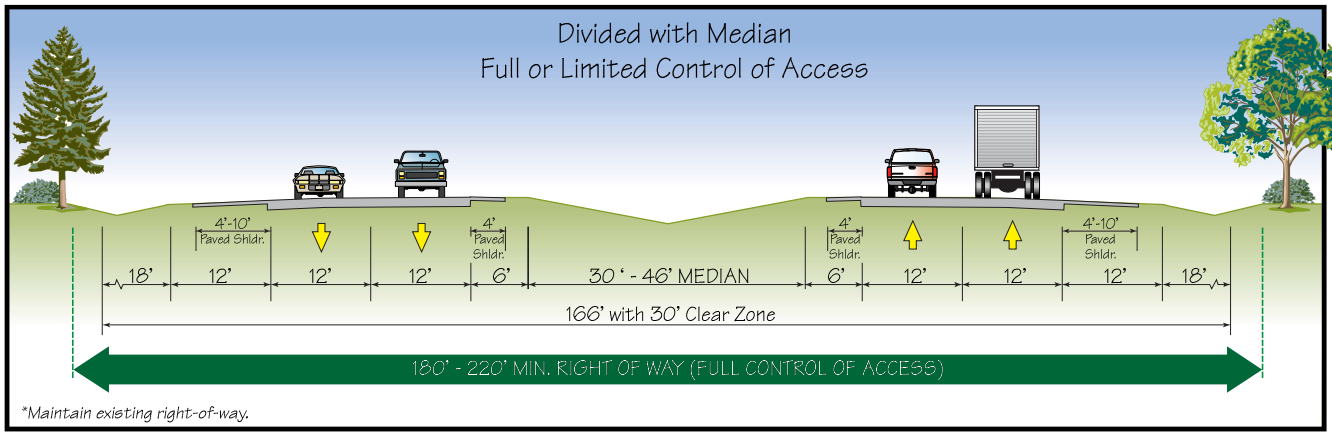
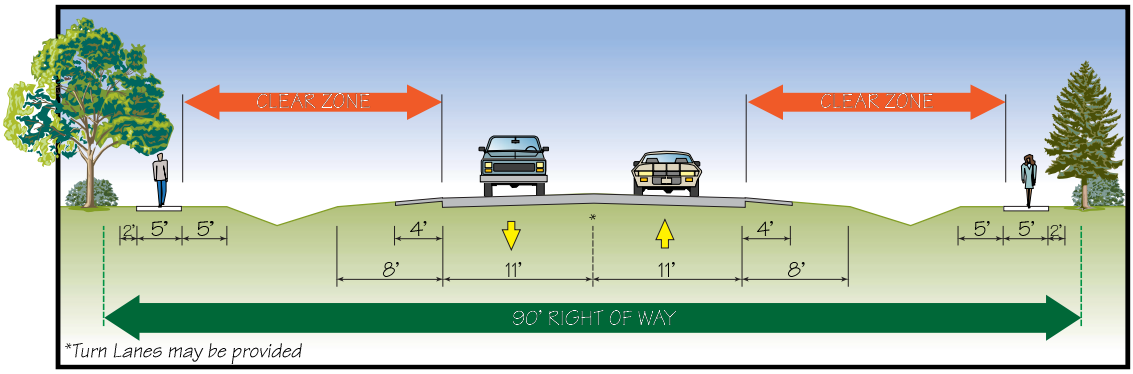
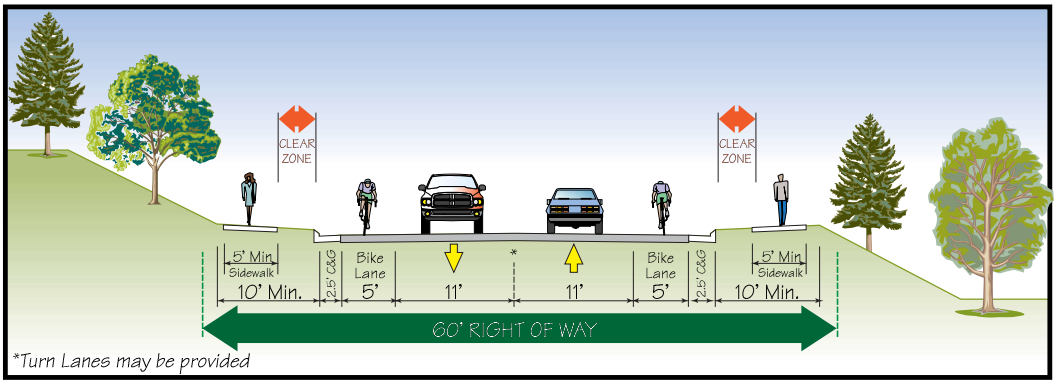
FREEWAY/EXPRESSWAY



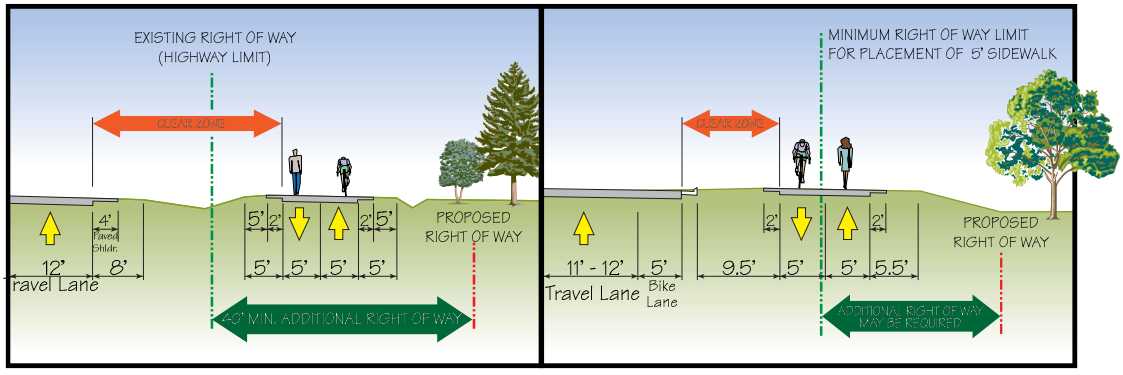
LOCAL STREET WITH SHOULDER



LOCAL STREET WITH CURB AND GUTTER



PEDESTRIAN/BIKE SIDEPATH



US 1 Phase II Study - Franklin County PARSONS BRINCKERHOFF	Typical Sections	Figure ES-6

residential, located both east and west of US 1. The local streets are envisioned as being phased in incrementally as development occurs in the study area. In addition, it is anticipated that substantial sections of the local street network connections could be constructed with funding assistance, dedication of right of way, and/or construction by prospective development.

Another key element to the local streets plan is the proposed implementation of Complete Streets philosophies on all local streets. As a result, all local roads on new alignments would be constructed to provide safe and efficient service for all users of the facility, not just cars and trucks. For this reason, the term local street is also utilized in this document.

Local Streets Parallel to US 1

In order to provide an alternate access to US 1, it is necessary to run local streets on both the west and east sides of US 1. The recommended local streets running parallel to US 1 include:

- Western Service Road South
- Western Backage Road
- Western Service Road Central
- US 1A Extension from Youngsville to Franklinton

Local Streets Proposed by SEHSR

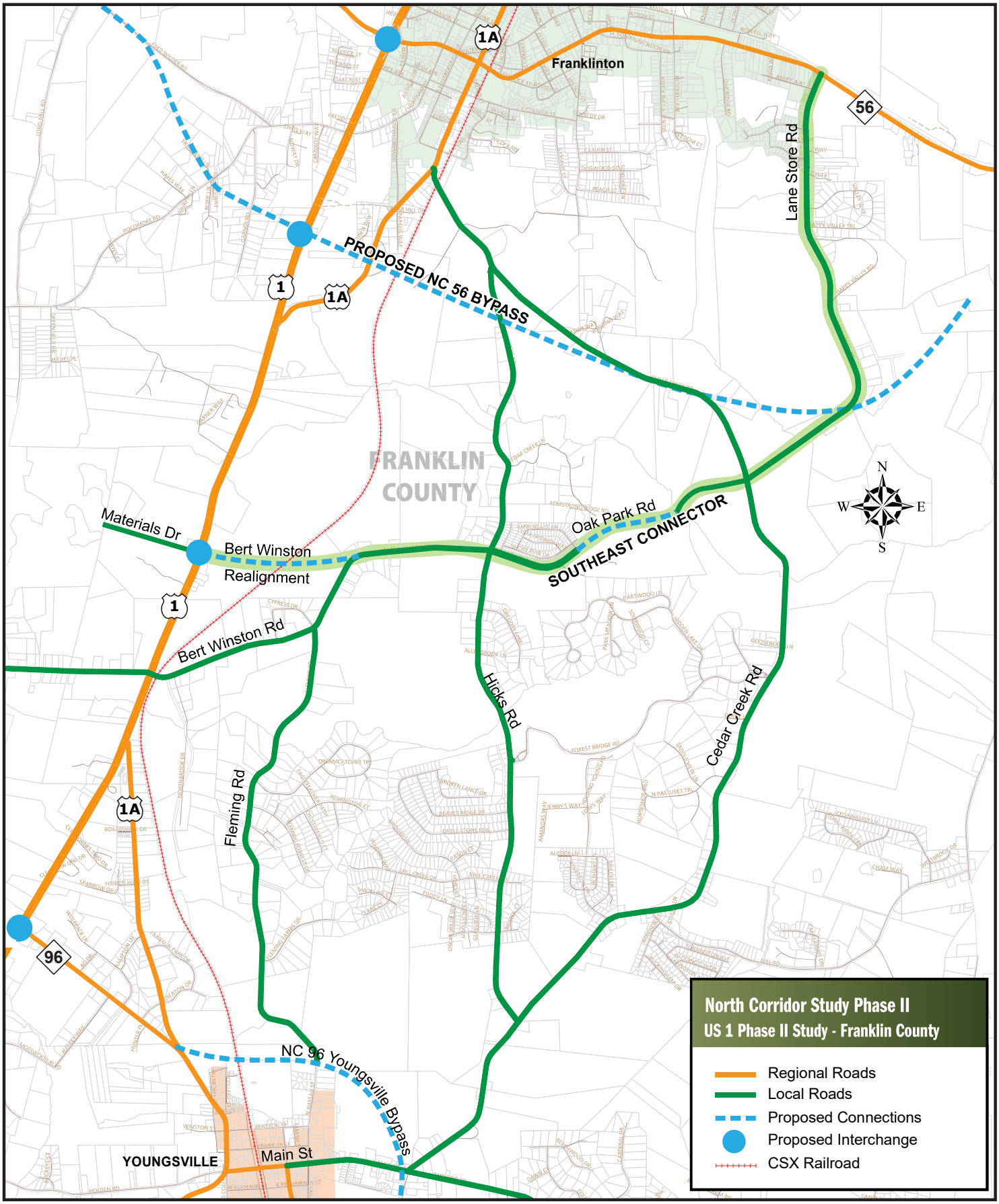
Several local street projects included in the Freeway Plan with Local Street enhancements are proposed as part of the SEHSR project. Although these do provide additional local access and are utilized to improve connectivity, the primary purpose of the SEHSR roadway project is to mitigate impacts to the local street network caused by the closure of nine at-grade crossings located in Franklinton and Franklin County. Of these SEHSR local street projects, the following three projects are critical elements of the Ultimate US 1 Freeway with Local Streets plan:

- Realignment of Bert Winston Road Extension
- NC 56 Green Street improvements at the NC 56/ US 1A intersection.
- Connector from Montgomery Street to US 1A

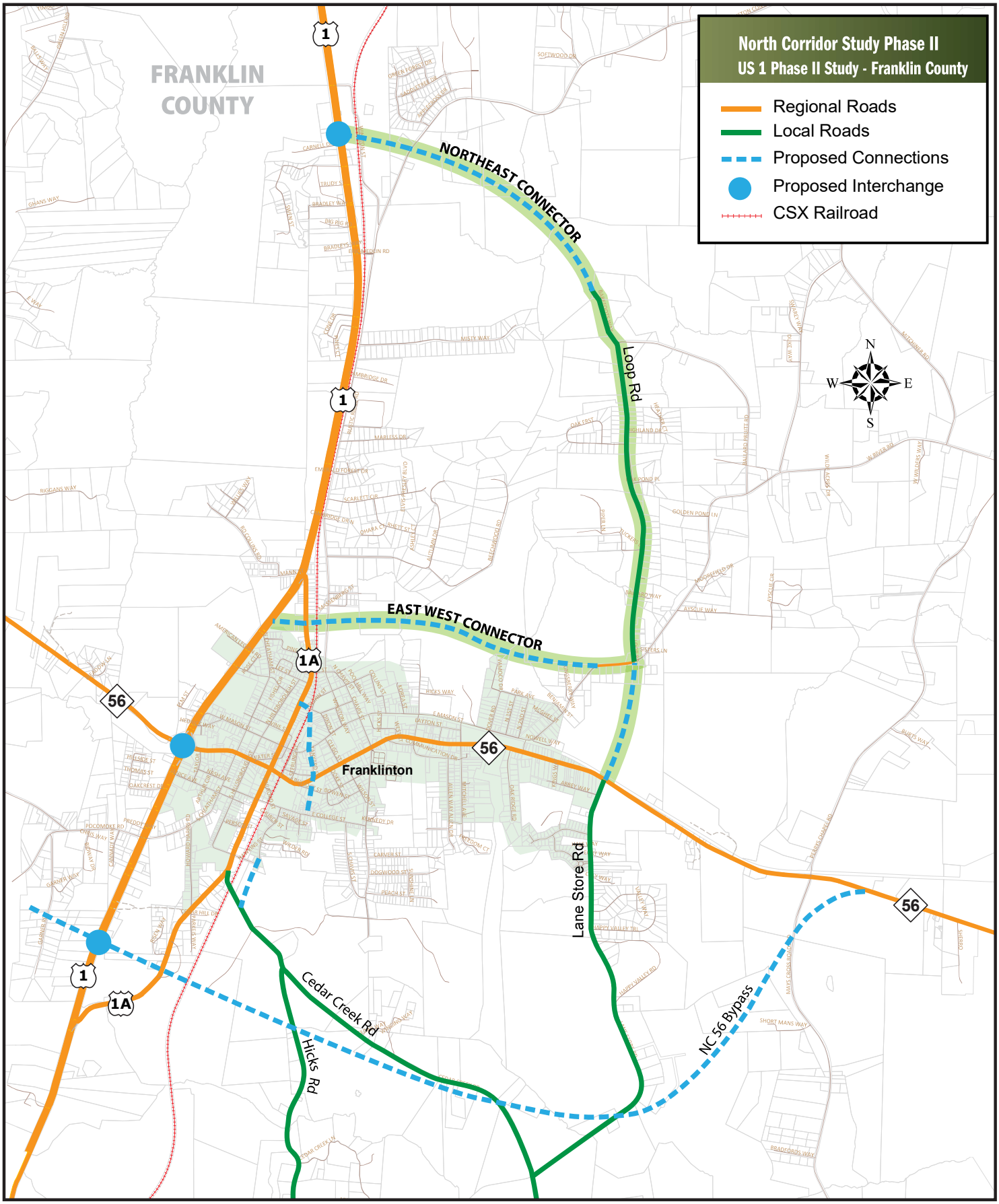
Local Streets Serving Eastern Franklinton

Three local street traffic improvements would improve local connectivity, improve connections to proposed SEHSR and railroad grade separations, and indirectly reduce traffic on NC 56 and US 1. These three projects are identified below and illustrated in Figures ES-7 and ES-8.

- Southeast Connector



US 1 Phase II Study - Franklin County	Southeast Connector	Figure ES-7
PARSONS BRINCKERHOFF		



US 1 Phase II Study - Franklin County

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Northeast and East West Connectors

Figure ES-8

- Northeast Connector
- East-West Connector

ES.5.2.4 NC 56 Bypass

The most significant project planned for the study area is the NC 56 Bypass. Envisioned as an Expressway as part of the 2035 CTP, this project would provide a four-lane divided high speed route crossing US 1 roughly one mile south of the existing NC 56 interchange. The project is projected to carry more than 20,000 vpd east of US 1 and less than 10,000 vpd west of US 1.

The NC 56 Bypass is considered as a separate project from the US 1 Corridor Study. Nevertheless, it has been included in the phasing and funding analysis for this study.

ES.5.3 Bicycle, Pedestrian, Transit, & Rail Plan

These proposed improvements are shown in Figure ES-9A, ES-9B and ES-9C for the South, Central, and North sections, respectively.

ES.5.3.1 Bicycle & Pedestrian

Long-term bicycle and pedestrian recommendations would include greenways, multi-use paths, and side-paths. High priority projects identified for the study area include:

- All local streets will be planned and constructed applying Complete Streets philosophy including accommodations for bicycle and pedestrian modes.
- All bridges crossing US 1 will have bicycle and pedestrian features to facilitate safe movements across US 1 for all users.
- A Multi-use Greenway (north-south) along the SEHSR that may be incorporated into the East Coast Greenway. It is divided into two sections: south and north of Franklinton.
- An east-west greenway utilizing an abandoned CSX railroad from downtown Franklinton heading to Louisburg (north of NC 56). This has been identified as a rails-to-trails project. A side-path is also proposed on Cedar Creek Road from the Bert Winston intersection to the west end of the grade-separated crossing over the SEHSR.

ES.5.3.2 Transit

The goals of providing future transit services in the US 1 Phase II corridor study area for the interim improvements can be summarized as follows:

- Provide transit mobility for US 1 corridor commuters
- Connect the Town of Franklinton with regional destinations to the south

- Identify short-term park & ride locations in the study area to support transit services and transit-oriented developments

The current demographics would not support interim service such as an Express Bus service. It is recommended, however, that consideration be given to providing a temporary Park-and-Ride lot to encourage carpooling or vanpooling. This interim treatment would require setting up a shared use agreement for up to 25 spaces in the Food Lion shopping plaza parking lot. It is also recommended that the Kerr Area Rural Transportation System (KARTS) continue to provide para-transit and on-demand service in Franklin County.

Longer term transit options examined included the Express Bus service, a local circulator, and the provision of a commuter rail station. At this stage the recommendation for each of these possible transit provisions is to study their potential in more detail as both a local area and regional service. All recommendations would be subject to more rigorous demand testing and cost analysis before specific routes or alternatives could be provided.

ES.5.3.3 Southeast High Speed Rail (SEHSR)

The SEHSR project is considered part of the interim scenario since it is anticipated to be complete between 2020 through 2025. The primary purpose of the SEHSR is to mitigate the closure of nine rail crossings in Franklinton and Franklin County. In order to mitigate for the closures, the SEHSR has proposed seven local roadway projects and bridge separated crossings of the railroad tracks as presented in Table ES-1 with coordination issues to be resolved between the SEHSR and US 1 Corridor Study on specific projects.

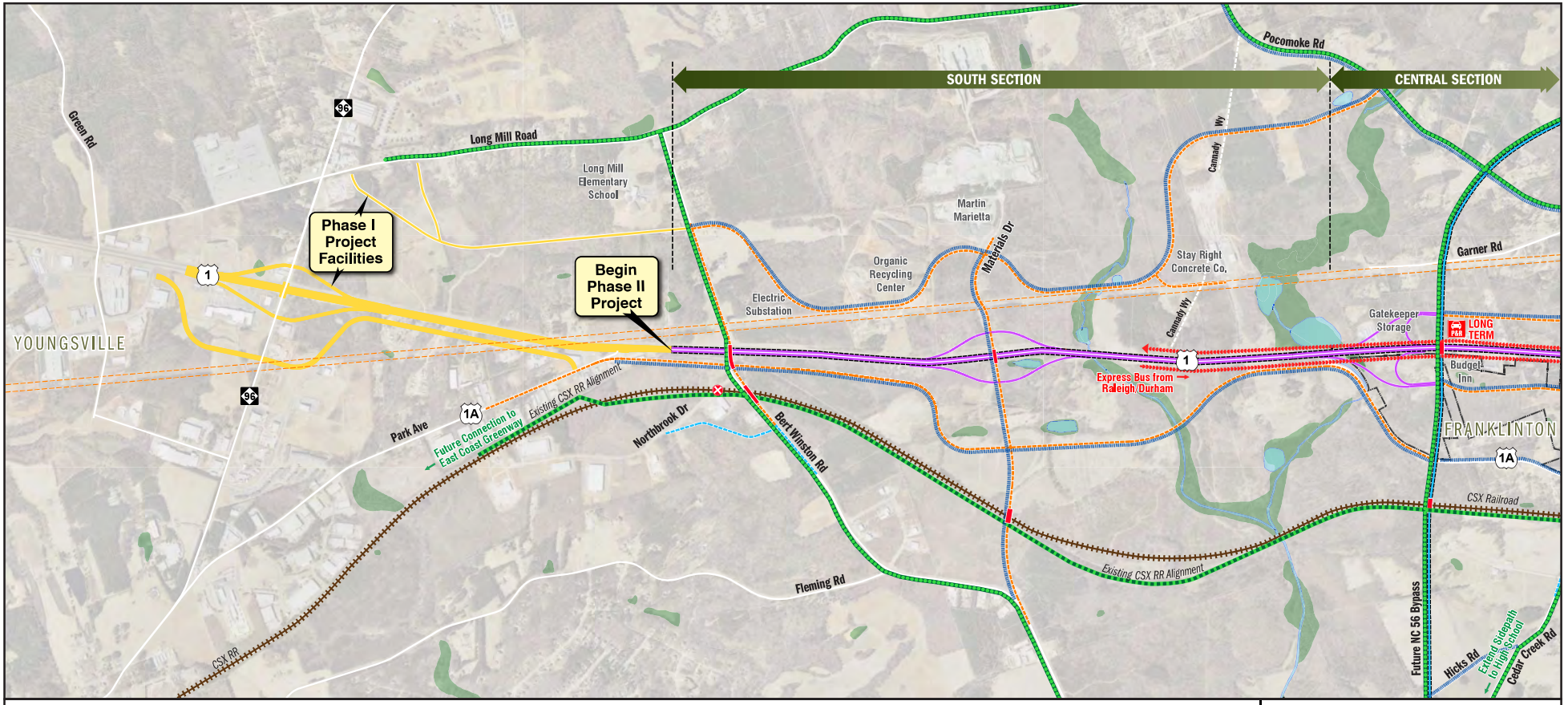
As part of the SEHSR project there would also be the provision of three pedestrian crossings of the railroad in downtown Franklinton. Similar to the local street projects, the primary purpose of the pedestrian improvements is to provide a replacement for current access that is allowed at the location of at-grade crossings.

ES.5.4 Phasing Plan for Implementation

A detailed phasing plan was developed for implementation of the proposed US 1 improvements and associated projects on the local street network. This plan was developed examining a series of congestion thresholds in order to keep all network facilities operating at LOS D or better.

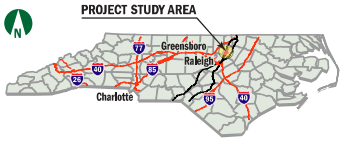
Phasing was examined for the US 1 Corridor Study looking from 2015 to beyond 2050. In this 35-year period, five phases separated by 10 years each were identified for the study. This includes projects required by 2020, 2030, 2040, 2050, and beyond 2050. The original scope of this study had identified 2040 as the horizon year, but given the lower volumes of traffic than other

US 1 North Corridor Study Phase II



LEGEND

- Municipal Boundary
- **US 1 Corridor**
  - US 1 Corridor
  - US 1 and Interchanges (Freeway)
  - Phase I Proposed Ramp Improvement (Phase I)
- **Other Roadways and Streets**
  - Proposed Boulevard (CTP)
  - Preferred Alternative (Local Street)
  - Proposed Local Street (CTP or SEHSR)
  - SEHR Pedestrian Crossings
  - Recommended Greenway
  - Recommended Sidepath
  - Recommended Sidewalk
  - Existing Sidewalk
  - Overpass
- **Railroad**
  - Future SEHSR / CSX Rail
  - Proposed Closing of At-Grade Rail Crossing
- **On-Road Bike Recommendations**
  - Signed Bike Route
  - Bike Lane / Paved Shoulder
  - Sharrow
- **Transit**
  - Express Bus from Raleigh/Durham
  - Potential Park & Ride
- **Environment**
  - Surface Waters
  - Wetlands
- **Utilities**
  - Electric Transmission Line Easement



US 1 Phase II Study - Franklin County

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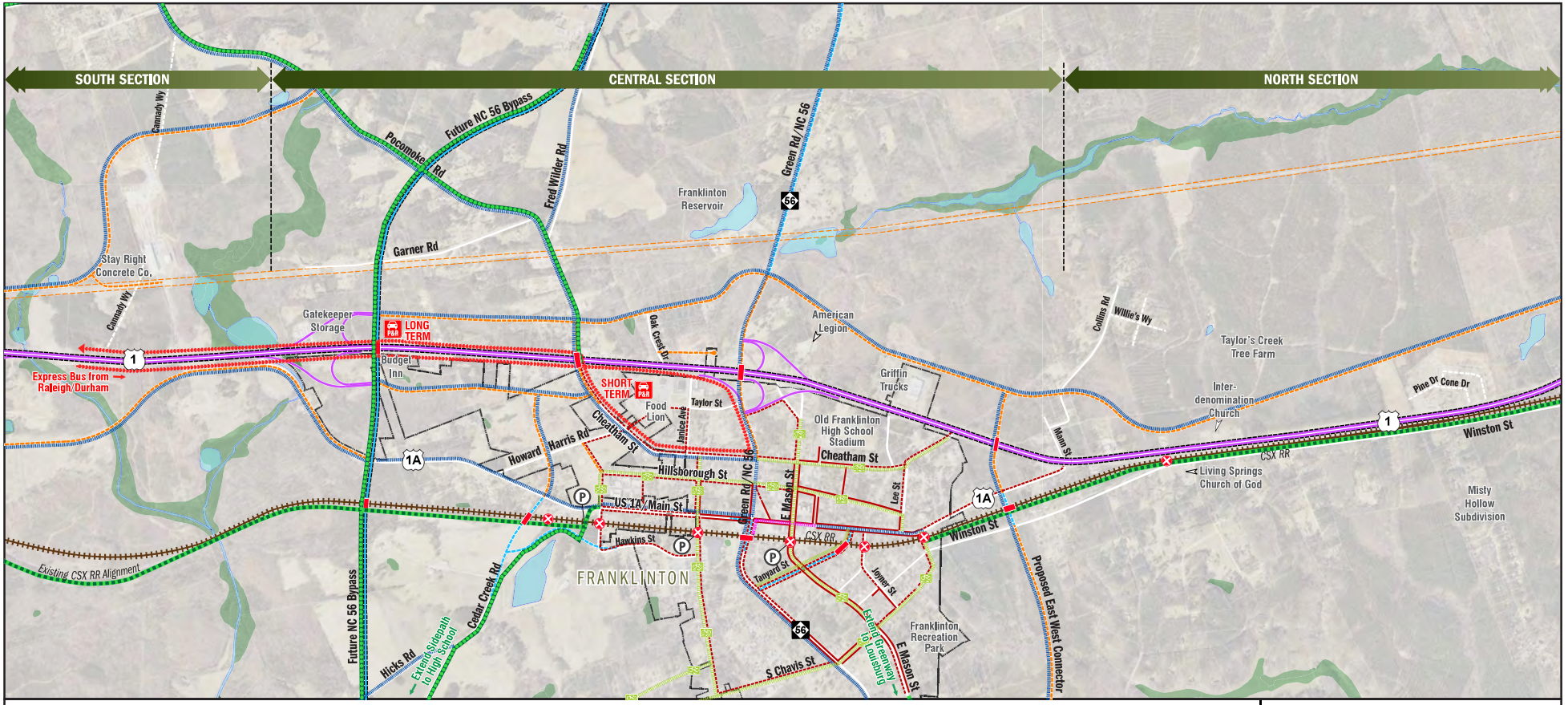
US 1 Bicycle / Pedestrian / Transit Plan in South Section

Figure ES-9A

Sheet 1 of 3

Back of Figure ES-9A (11x17 figure)

US 1 North Corridor Study Phase II



US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

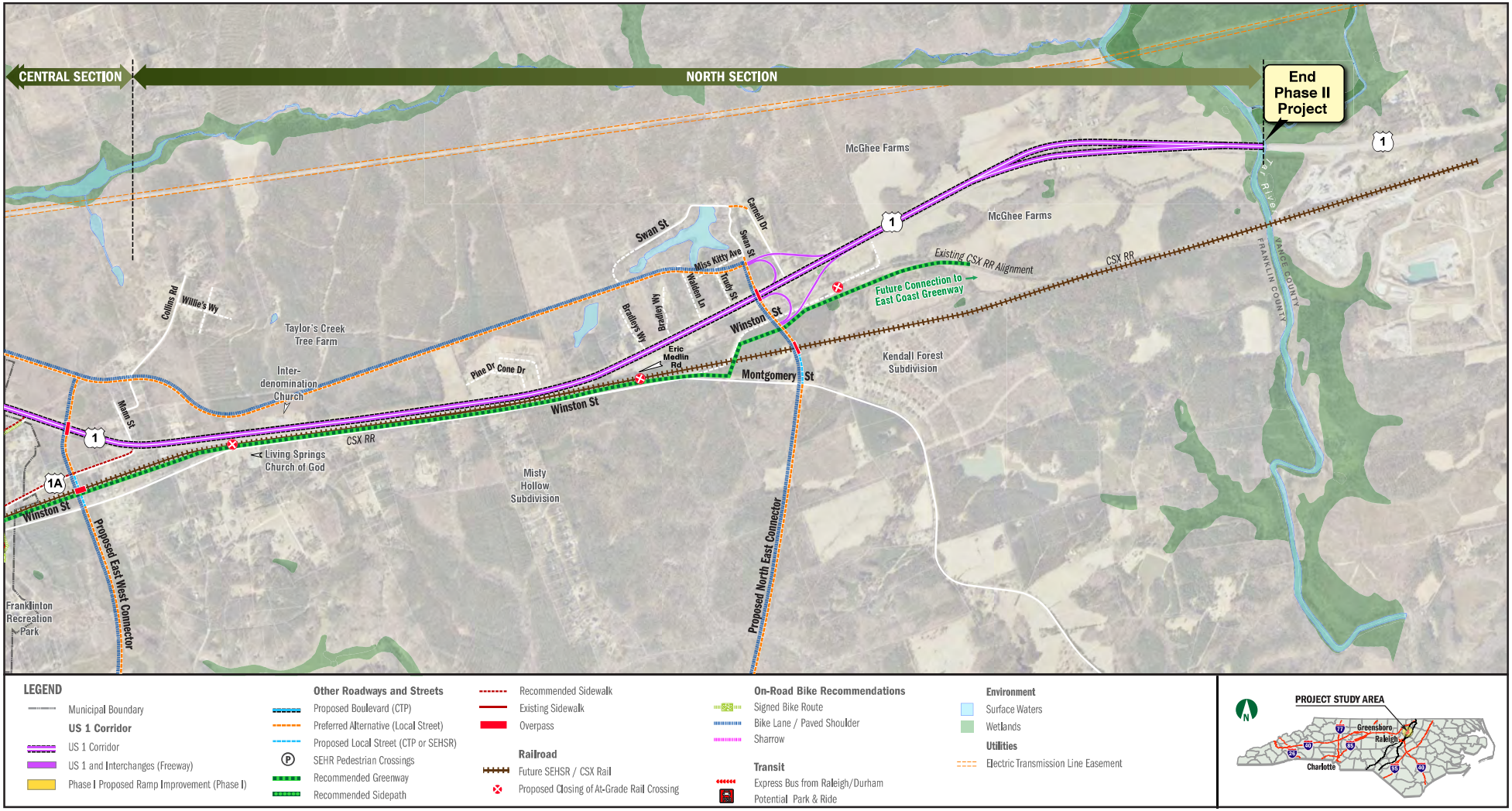
US 1 Bicycle / Pedestrian / Transit Plan in Central Section

Figure ES-9B

Sheet 2 of 3

Back of Figure ES-9B (11x17 figure)

US 1 North Corridor Study Phase II



LEGEND

- Municipal Boundary
- **US 1 Corridor**
- US 1 Corridor
- US 1 and Interchanges (Freeway)
- Phase I Proposed Ramp Improvement (Phase I)

Other Roadways and Streets

- Proposed Boulevard (CTP)
- Preferred Alternative (Local Street)
- Proposed Local Street (CTP or SEHSR)
- SEHR Pedestrian Crossings
- Recommended Greenway
- Recommended Sidepath
- Recommended Sidewalk
- Existing Sidewalk
- Overpass

Railroad

- Future SEHSR / CSX Rail
- Proposed Closing of At-Grade Rail Crossing

On-Road Bike Recommendations

- Signed Bike Route
- Bike Lane / Paved Shoulder
- Sharrow

Transit

- Express Bus from Raleigh/Durham
- Potential Park & Ride

Environment

- Surface Waters
- Wetlands

Utilities

- Electric Transmission Line Easement

US 1 Phase II Study - Franklin County

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US 1 Bicycle / Pedestrian / Transit Plan in North Section

Figure ES-9C

Sheet 3 of 3

Back of Figure ES-9C (11x17 figure)

Table ES-1. Southeast High Speed Rail Roadway Projects

SEHSR Project	Includes	Issues with US 1 Study
Existing Bert Winston and Northbrook Road realignment	• Railroad bridge • Closure of at-grade RR crossing • New alignment for Northbrook Rd • Revised alignment for Bert Winston • Improved intersection at US 1	Bert Winston RR overpass cannot be designed to allow both at-grade & grade separated crossing of US 1. Therefore, proposing that SEHSR build Bert Winston Rd Extension instead. Provide superstreet intersection improvements on US 1.
Cedar Creek Road realignment and railroad bridge	• Railroad bridge • Closure of at-grade RR crossing • Revised alignment for Cedar Creek • Improved intersection at US 1A	Construct Cedar Creek horizontal alignment to avoid cemetery on west side of US 1A to allow future extension.
Hawkins Road extension	• Local roadway	None.
NC 56 Green Road Improvement	• Local roadway railroad underpass • Intersection improvements	Intersection improvement required at US 1A at NC 56 traffic signal.
Tanyard Street improvements	• Local roadway	Town strongly desires extension of Tanyard Road to US 1A north of Mason Street with new RR overpass.
Local connector from US 1A to Winston St	• Connection from US 1A to Winston St • Railroad underpass	Allow for 3-lane connector to provide turn lanes at both US 1A and Winston Street. Future East-West Connector will use this section. In addition, need pedestrian and bicycle provisions to connect East Coast Greenway under railroad.
Montgomery Road connector to US 1 and railroad bridge	• Local roadway • RR bridge • New intersection at US 1 (superstreet type)	Construct RR bridge to allow initial at-grade and ultimate grade separation at US 1. Provide superstreet intersection improvements at US 1.

sections of US 1 to the south, it was necessary to take a longer term view. In addition, the phasing includes an incremental provision of a superstreet which offset the need for freeway type improvements by approximately 10 years.

The key findings were:

- Superstreet improvements are proposed as early as 2020 in some locations. It is proposed that anyone affecting an intersection (developer or SEHSR) should improve the given intersection with a superstreet treatment and adjacent U-turns.
- The need for the NC 56 Bypass is likely sooner than the US 1 Freeway.
- A freeway section is proposed to be in place by 2040 on US 1 south of NC 56.

- On US 1 north of NC 56, an upgrade to a freeway section is likely needed by 2050, but could potentially be phased later. The key driver for the US 1 freeway need may be system continuity, compliance with existing plans, and safety instead of capacity.

The details of the phasing plan are presented in Section 5.3 and Appendix C.

ES.5.5 Funding & Cost Estimates

Cost estimates were prepared for each phase of roadway projects assuming each project identified was completed within each phase. In some cases it can be expected that projects may be delayed, particularly projects that will be incrementally constructed as part of development plans. Nevertheless, the following tables give a breakdown of costs for different types of facilities as well as potential funding sources. The cost estimates shown include construction costs, engineering and planning costs, and a planning-level estimate of right-of-way costs.

ES.5.5.1 Cost Estimates by Type of Facility

The overall total cost of the projects was identified as approximately $354.2 Million. If the NC 56 Bypass project is excluded (including the US 1/ NC 56 Bypass interchange), the overall cost of the identified projects is $273.9 Million. Table ES-2 provides a summary of cost estimates by phase and type of roadway facility.

ES.5.5.2 Cost Estimates by Potential Funding Sources

In order to quantify estimated costs required as part of the long term CTP development process, a breakdown of the potential funding mechanisms has been identified in Table ES-3. Note that the Public Funding has been split into four project types recognizing that different revenue sources may be required for each project type. Potential funding sources are the SEHSR project, developer participation, and more traditional public funding. Note that these allocations are based on multiple assumptions and assume relative success in getting developer contributions to the US 1 infrastructure.

ES.6 PUBLIC INVOLVEMENT

Engaging members of the public is essential to any effective and inclusive planning process and public involvement has been an integral part of this study. First, steering teams consisting of members of local and regional organizations were formed to guide the study process. These teams regularly met with and worked closely with the Study Team. Two public workshops were held to further involve the general public. Finally, project information and feedback opportunities were provided using a website and social media outlets. Each of these public involvement efforts are described below and additional materials may be found in Appendix D.

Table ES-2. Cost Estimates Broken Down by Phase and Type of Facility
(shown in millions of dollars)

Type of Facility	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	TOTAL	Percent
Local Streets/Roads	$34.9M	$27.0 M	$18.6 M	$18.3 M	$21.8 M	$120.6 M	34.0%
US-1 Superstreet	$7.6 M	$6.0 M	$3.6 M	$0	$0	$17.2 M	4.9%
US-1 Freeway Conversion	$0	$0	$22.6 M	$53.6 M	$23.6 M	$99.8 M	28.2%
Regional Roads - NC 56 Bypass	$0	$0	$40.2 M	$32.9 M	$0	$73.1 M	20.6%
Regional Roads - Local	$4.2 M	$13.8 M	$0	$0	$7.7 M	$25.7 M	7.3%
Bicycle/Pedestrians	$0 M	$5.6 M	$4.0 M	$4.4 M	$3.8 M	$17.8 M	5.0%
TOTAL	**$46.7 M**	**$52.4 M**	**$89.0 M**	**$109.2 M**	**$56.9 M**	**$354.2 M**	**100.0%**
Percent of Total Costs by Phase	13.2%	14.8%	25.1%	30.8%	16.1%	100.0%	
CUMULATIVE TOTAL	**$46.7 M**	**$99.1 M**	**$188.1 M**	**$297.3 M**	**$354.2 M**		

Note: All costs are based on year 2012 cost estimates.

ES.7 IMPLEMENTATION TOOLKIT

The final chapter presents a project implementation "tool kit" that consists of policies, regulations, and strategy options that have been successfully used by other local governments to implement similar projects to the US 1 Corridor Study. Also included are example cases to demonstrate their manner of implementation. These tools have been provided to assist NC Capital Area MPO, Franklin County and the Town of Franklinton in their development of harmonized land use and transportation policies that will facilitate the ultimate vision for the US 1 corridor in the Phase II study area.

Table ES-3. Cost Estimates Broken Down by Phase and Potential Funding Sources
(shown in Millions of Dollars)

Potential Funding Sources	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	TOTAL	Percent
SEHSR	$40.3	$0.0	$0.0	$0.0	$4.8	$45.1	12.7%
Development	$0.0	$33.9	$18.6	$7.2	$20.9	$80.6	22.8%
US-1 Superstreet	$2.2	$6.0	$3.6	$0.0	$0.0	$11.8	3.3%
US-1 Freeway Conversion	$0.0	$0.0	$0.0	$64.7	$23.6	$88.3	24.9%
Regional Roads - Local	$4.2	$6.9	$0.0	$0.0	$3.8	$14.9	4.2%
Regional Roads - NC 56 Bypass	$0.0	$0.0	$62.8	$32.9	$0.0	$95.7	27.0%
Bicycle & Pedestrian	$0.0	$5.6	$4.0	$4.4	$3.8	$17.8	5.0%
TOTAL	**$46.7**	**$52.4**	**$89.0**	**$109.2**	**$56.9**	**$354.2**	**100.0%**
Percent of Total Costs by Phase	13.2%	14.8%	25.1%	30.8%	16.1%	100.0%	

Note: All costs are based on year 2012 cost estimates.

ES.7.1 Memorandum of Understanding

A key element of the implementation plan is the memorandum of understanding between agencies and municipalities along the US 1 corridor. First implemented in 2007 for the US 1 Phase I Corridor Study, the MOU established a common direction and vision, contained commitments, and identified the roles and responsibilities of the signatory agencies. For the Phase II project, the MOU has been updated to add the Town of Franklinton to the agreement.

The 2007 MOU also established the US 1 Council of Planning (COP), which is the advisory group with an oversight role on land use and transportation decisions along the US 1 corridor. In providing recommendations and guidance regarding a proposed development, the US 1 COP bylaws clearly indicate that the role of the COP is strictly advisory. Approval of development and the setting of conditions on a developer remains the responsibility of the approving agencies.

ES.7.2 Regulatory & Technical Information

The Phase II study recommends several congestion management strategies and project development concepts. A toolkit is provided with examples of regulatory methods that can be applied to manage development and encourage private funding. In addition to the regulatory guidance provided, introductory summaries are provided for multiple technical items.

CHAPTER 1

1.0 INTRODUCTION

The North Carolina Capital Area Metropolitan Planning Organization (CAMPO) and Franklin County initiated a corridor study for 9 miles of US 1 from US 1A (Park Avenue) within the town of Youngsville to the Vance County line, in Franklin County. The study, named the US 1 Corridor Study Phase II, is a continuation of the original US 1 Corridor Study Phase I, which ran from Interstate 540 (I-540) in Raleigh to US 1A (Park Avenue) in Youngsville. The Corridor Study Phase I was completed by NC Capital Area MPO in 2006.

The findings of the US 1 Corridor Study Phase II will be adopted into the Capital Area MPO *2040 Comprehensive Transportation Plan* (CTP) and incorporated in the Capital Area MPO *2040 Metropolitan Transportation Plan* (MTP) as appropriate.

1.1 Study Goals and Objectives

The goal of the US 1 Corridor Study Phase II is to produce a well-coordinated plan for the US 1 corridor through Franklin County and the Town of Franklinton, starting from US 1 (Park Avenue) in Youngsville and ending at the Vance County.

The plan will provide improvement and policy recommendations to maintain mobility, safety and performance standards for all modes of travel for now and in the future when the corridor is anticipated to become a freeway.

1.2 Study Process

The rural and transitional nature of the US 1 corridor in Franklin County is a key factor in this study. The alternatives development process factors in the land use compatibility and integration of context sensitive transportation solutions. A carefully defined study and public involvement process was necessary to address these critical issues. The study process included two committees, the Core Technical Team (CTT) and the Study Oversight Team (SOT). These two teams participated in the evaluation of alternatives which factored in the desires of the local community. Elements of the study process are presented in brief below and in detail in this following section. The elements of the study process included:

- Evaluating the existing conditions including the transportation network, planned transportation improvements, socio-economic and environmental issues, land uses, and constraints.

- Identifying transportation alternatives, key roadway improvements and preferred alternatives.
- Developing interim solutions through careful phasing and implementation of access management, local connector roads, and planned transportation improvements (including the proposed SEHSR alignment, railroad crossings and closures, proposed bypasses and other roadway improvements, bicycle and pedestrian improvements, and transit plans).
- Developing long-term solutions for future interchanges and freeway upgrades.
- Providing a multi-modal plan encouraging the development of safe and enhanced bicycle and pedestrian facilities as part of a local street system.
- Identifying long term opportunities for transit applications in the study area.
- Developing a local street plan that could be incrementally developed to provide alternate access for businesses and minimize or prevent future access points and traffic signals on US 1.
- Coordinating a multifaceted public involvement process throughout the project to allow for open forum on short-term and long-term plans with stakeholders, technical and oversight committees, and the general public.
- Developing an implementable plan that can guide government agencies and private developers on the future development of the US 1 corridor.

1.3 Project Overview

US 1 is a major north-south highway that generally parallels I-95 and serves the east coast of the United States, connecting major cities between Key West, Florida and Fort Kent, Maine. Regionally, US 1 provides connectivity between three state capitols: Columbia, South Carolina; Raleigh, North Carolina; and Richmond, Virginia. US 1 in Franklin County is a Principal Arterial Highway and a regional link for commuters who work in Wake County (Raleigh) and is a direct connection between I-85 and Raleigh.

The focus area of US 1 Corridor Study Phase II is the section of US 1 through Franklin County, specifically from US 1A (Park Avenue) in Youngsville, through the town of Franklinton, and

north to the Vance County line (See Figure 1-1). In this area, the study corridor consists of: the existing multi-lane US 1 highway; NC 56 which provides the primary east-west access between Creedmoor, Franklinton, and Louisburg; the CSX Railroad which roughly parallels US 1 on the east throughout the project study limits; multiple intersections; and existing parallel local roadway networks.

The US 1 Phase II Corridor through Franklin County carries over 18,000 vehicles per day in 2012 and serves rural and transitional land uses with partial access control. The corridor was divided into three distinct sections to take into account the unique land use and traffic characteristics along the corridor:

- **South Section:** This section extends from US 1A (Park Avenue) in Youngsville to the US 1A (South Main Street) junction south of the Town of Franklinton (See Figure 1-2A). This area is predominantly rural, consisting of isolated residences, light industrial facilities, and agricultural lands. This section is also an environmentally sensitive area where US 1 crosses tributaries of the Tar-Pamlico River Basin.
- **Central Section:** This section extends from the US 1A (South Main Street) junction south of the Town of Franklinton to the US 1A (North Main Street) junction north of Franklinton (See Figure 1-2B). This is the most developed area within the project limits, consisting of commercial establishments and established residential neighborhoods within the Franklinton town limits.
- **North Section:** This section extends from the US 1A (North Main Street) junction north of Franklinton to the Vance County line (See Figure 1-2C). This section is a rural area, which consists of low density residential neighborhoods and agricultural lands. The CSX railroad tracks are located just east of US 1, limiting development potential and the need for access from the east.

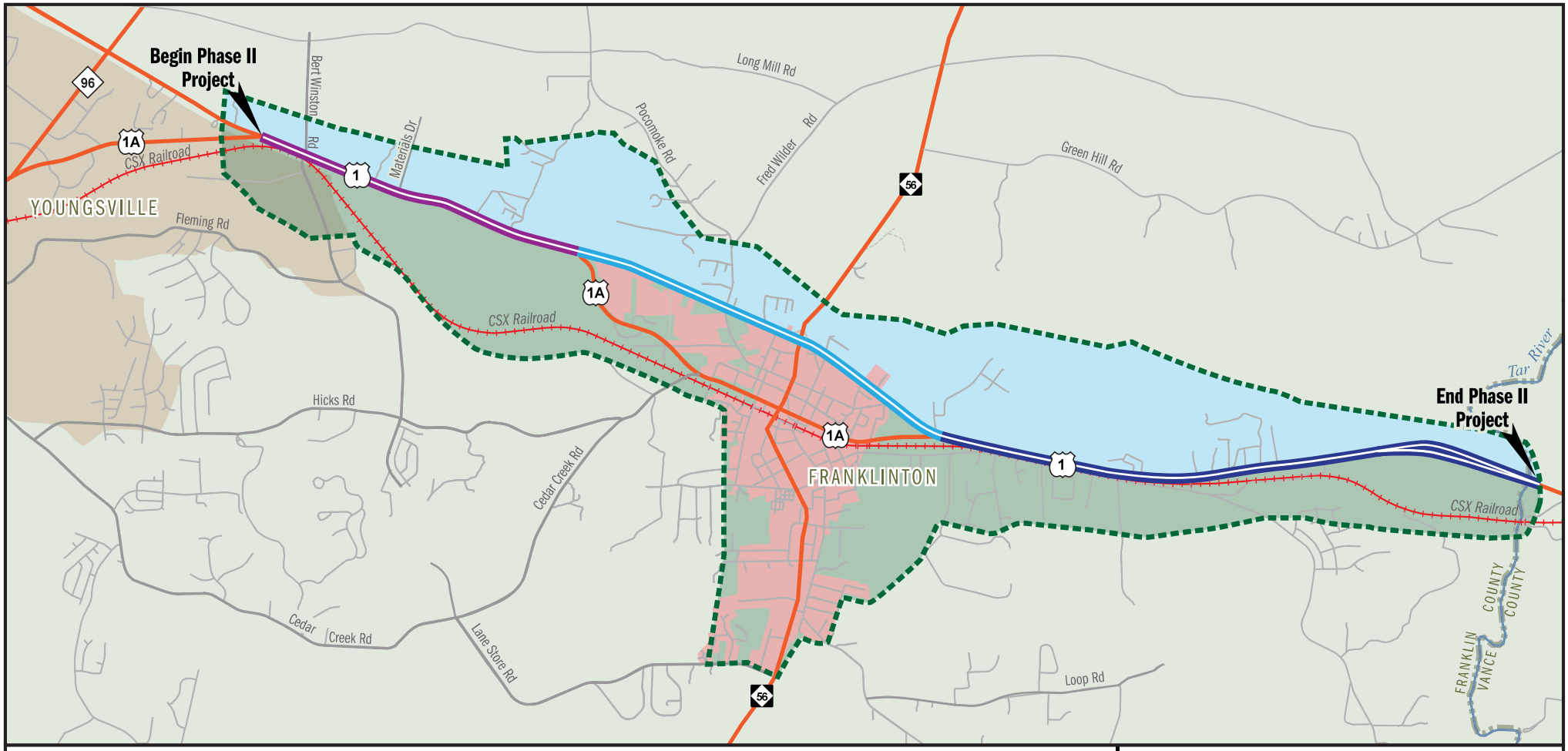
1.4 Future Vision

The Study Team will evaluate and identify interchange, local street, bicycle and pedestrian and multi-modal alternatives to establish a clear transportation vision for the US 1 corridor.

1.4.1 US 1 Corridor Study Phase I

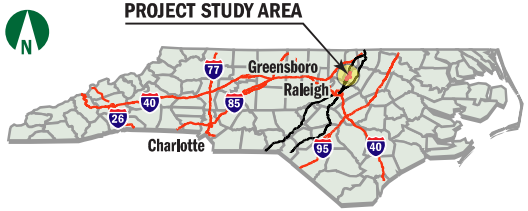
The US 1 Corridor Study Phase I, examined the US 1 corridor from I-540 in Raleigh to US 1A (Park Avenue) in Youngsville. It presented a comprehensive corridor management plan to preserve the functional integrity of US 1 and to manage the overall growth within the corridor. The analysis was performed in three phases to screen, evaluate, and select viable alternatives. A

US1 North Corridor Study Phase II



LEGEND

- Phase II Study Boundary
- South Segment
- Central Segment
- North Segment
- East Section
- West Section
- Franklin Town Limits



US 1 Phase II Study - Franklin County

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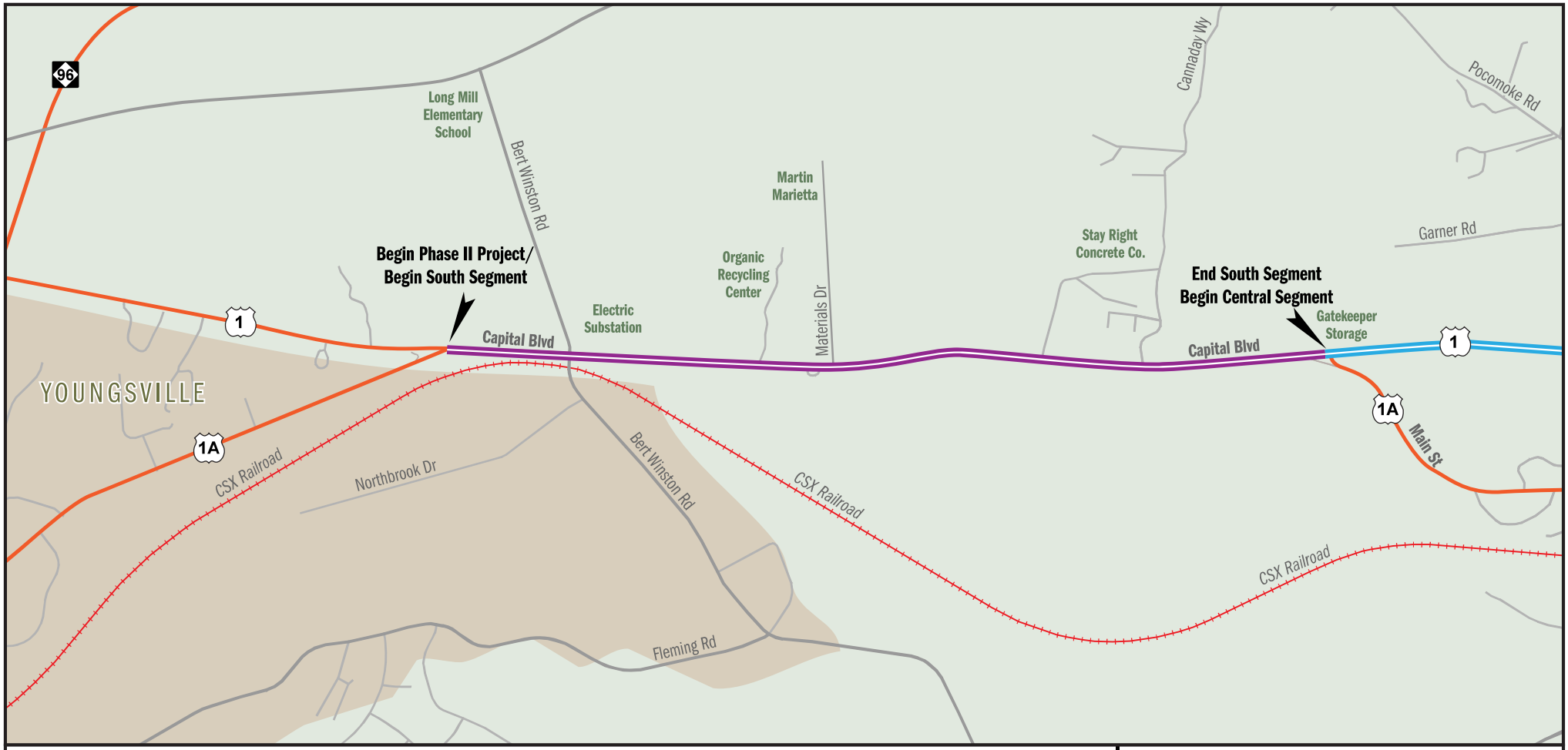
Study Area Map

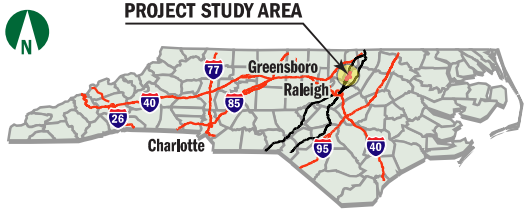
Figure 1-1

US1 North Corridor Study Phase II



LEGEND

- South Segment
- Youngsville Corporate Limits



US 1 Phase II Study - Franklin County

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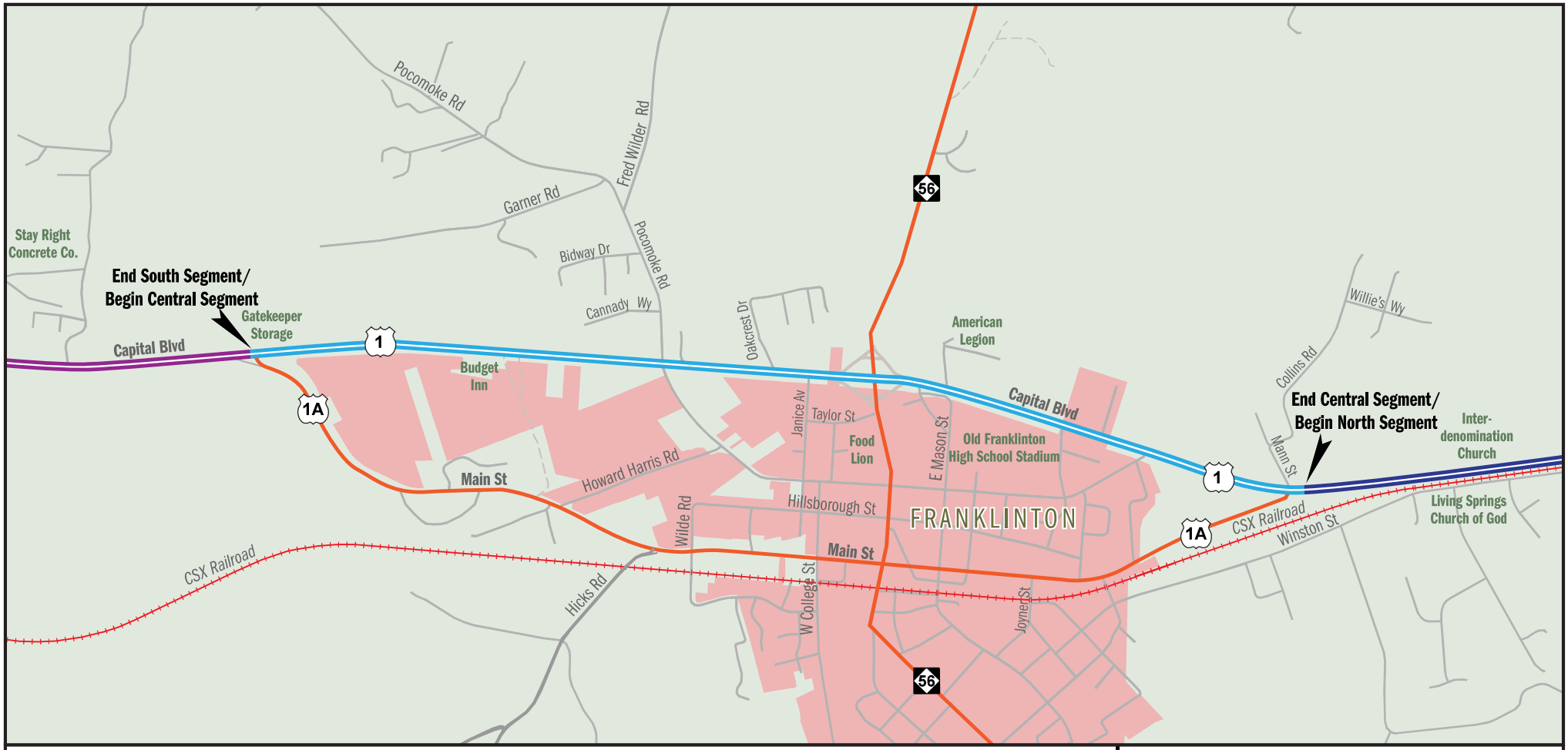
South Section of Study Area

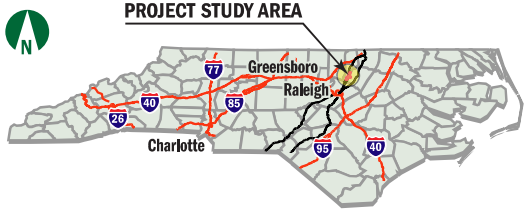
Figure 1-2A

US1 North Corridor Study Phase II



LEGEND

- Central Segment
- Franklinton Corporate Limits



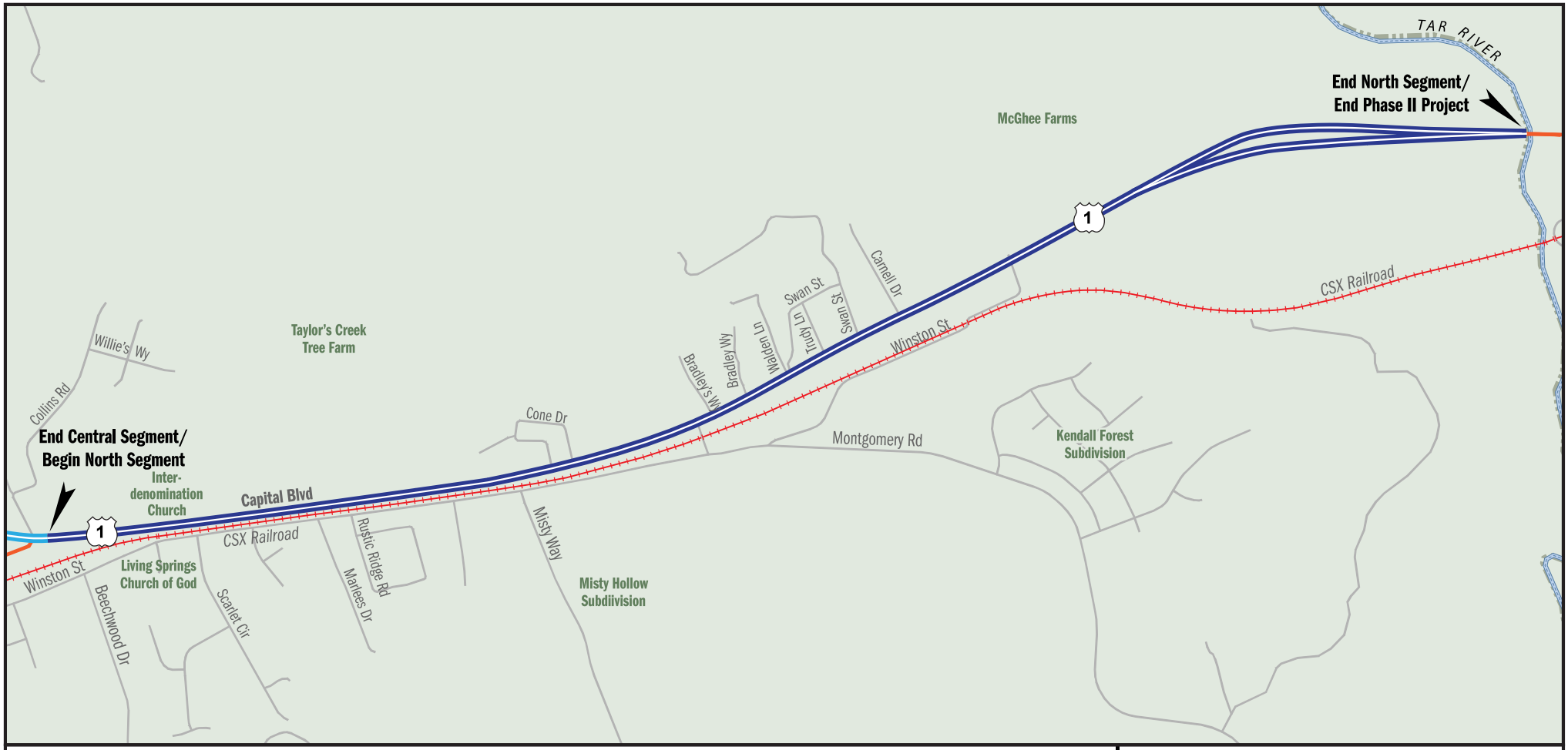
US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

Central Section of Study Area

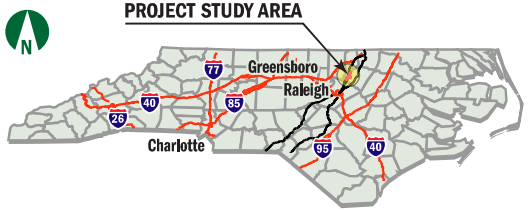
Figure 1-2B

US1 North Corridor Study Phase II



LEGEND

North Segment



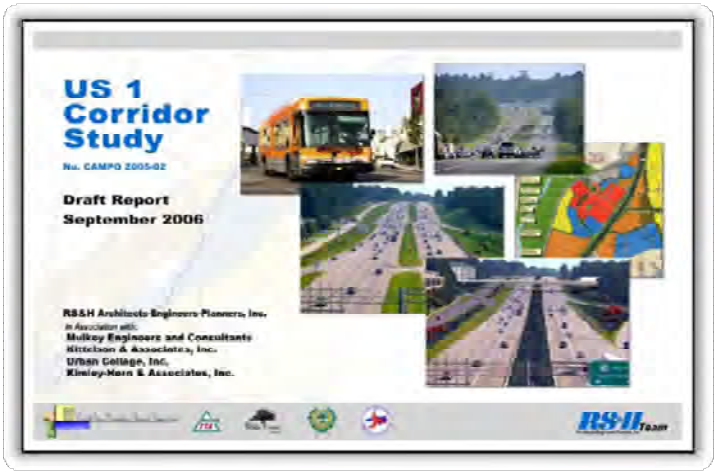
US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

North Section of Study Area

Figure 1-2C

locally preferred alternative was selected, and an implementation strategy was developed. A key provision was the development of a memorandum of understanding (MOU) between governing entities to encourage implementation of the plan in the consideration of all new development. The MOU also facilitated that implementation of the US 1 Council of Planning (COP) to assist local jurisdictions in evaluating development and improvements on the corridor.



The US 1 Corridor Study Phase I locally preferred alternative included completion of frontage/backage roads, improvement to US 1 to a full-access controlled freeway with interchanges, and grade-separations of US 1. The local street enhancements will minimize and ultimately eliminate the need for direct access to US 1, promote east-west connectivity over US 1, and improve pedestrian and bicycle access on the local streets. Transit recommendations included conversion of commuter bus service to bus rapid transit service, development of an intercity rail station, and other transit related expansions. Long-term improvements were considered beyond the 2040 horizon year and will include the completion of US 1 as a freeway and potential completion of intercity rail service within the corridor. The US 1 Corridor Study Phase II will use the Phase I document as a basis, and will build from it.

1.4.2 Land Use

The future vision for land use in the vicinity of the US 1 corridor is to preserve the residential and rural nature of the corridor while supporting regional economic growth. Using input from stakeholder groups, public workshops, and the SOT and CTT meetings, the study team developed future land use plans and identified opportunities to enhance land use planning to consider preservation, sustainability, and quality of life while allowing for growth consistent with the US 1 corridor ultimate freeway vision.

1.4.3 US 1

The future vision for US 1 is to improve transportation mobility and traffic safety with the ultimate goal to provide a full access-controlled freeway linking I-540 in Raleigh to I-85 in Vance County. This vision is shown in the NCDOT Strategic Highway Corridor Vision Plan. Present conditions on the US 1 corridor will be evaluated and used to formulate interim and future visions, which are key aspects of the study in order to develop an implementable plan.

1.4.3.1 *Ultimate Freeway*

The final recommendations will include new interchanges and a freeway typical section for US 1. The final Phase I recommendation that includes a 4/6-lane freeway with median for future improvements was evaluated at the transition area in the vicinity of US 1A (Park Avenue). The need for a freeway, and the appropriate freeway configuration and typical section were evaluated through Level of Service (LOS) traffic analysis and traffic models.

1.4.3.2 *Interim Superstreet*

Interim Superstreet alternatives will provide short-term options that can: improve traffic operations and safety; be implemented for lower costs than a freeway; and ultimately be phased into a freeway. The access management will consider current and future land uses, apply the Complete Street concept (accommodations for bicycle, pedestrian, and transit), and promote development of a system of frontage and backage roads that will later take the burden of local traffic as Superstreet intersections are systematically closed.

1.4.4 Local Street Network with Complete Streets Philosophy

The focus of this study is to develop a multi-modal network that utilizes the existing local street network along US 1. The multi-modal network will be developed through the evaluation of local street connector alternatives (frontage roads, backage roads, and alternative accesses to residential neighborhoods and businesses) and will consider safe and efficient use by vehicular and freight motorists, transit, bicyclists and pedestrians. A future transit vision will be developed utilizing current transportation plans as a base, including short-term and long-term improvements.

1.4.5 Bicycle and Pedestrian

The future vision for bicycle and pedestrian facilities within the project limits is to provide for bicycle and pedestrian access using the Complete Street philosophy on the local street network (and future preferred local street connectors and US 1 over/under passes). This updates the County's current bicycle and pedestrian plan, which is focused on downtown Franklinton. The existing local roadway network was evaluated for future bicycle and pedestrian facilities. Proposed local street alternatives will be enhanced with bicycle and pedestrian facilities consistent with the Complete Streets concept. Land uses that could be enhanced by providing bicycle and pedestrian facility connectivity will be identified in plans and appropriate facilities will be provided.

1.4.6 Transit

A key issue for the study area is the provision of transit services as an alternative to traditional vehicular focused travel patterns. Although it is recognized that Franklin County is primarily rural, and that development will likely transition into a more suburban environment, options for transit are examined, and potential opportunities for express bus, park and ride lots, and other transit are suggested.

1.5 Review of Local Plans

The Study Team reviewed and evaluated available roadway, bicycle and pedestrian, transit, and rail studies conducted within and nearby the project limits. A brief summary of each study is presented in the sections below.

1.5.1 CAMPO-DCHC 2035 Long Range Transportation Plan (LRTP)

The NC Capital Area MPO and the Durham-Chapel Hill-Carrboro MPO are two organizations charged with transportation decision-making responsibilities in the Research Triangle Region. The NC Capital Area MPO and the Durham-Chapel Hill-Carrboro MPO developed the *2035 LRTP* as the guiding documents for future investments in roads, transit services, bicycle and pedestrian facilities and related transportation activities to accommodate the expected growth in the region. In 2030, the LRTP recommendation for the US 1 corridor is a corridor study to determine the feasibility of High Speed Occupancy Vehicle (HOV) lanes and review access management options from I-440 in Raleigh to Wake Forest. The transportation options considered for managing congestion are:

- US 1 widening and conversion to a freeway
- Access management improvement to US 1 in interim improvement
- Express bus service
- HOV lanes on US 1 as a freeway south of NC 98 Bypass
- Extend Triangle Transit Authority (TTA) rail to Durant Road or Wake Forest
- The *2035 LRTP* recommendation includes the following improvements to the US 1 corridor:
- 2035 US 1 roadway improvements from I-540 to Thornton Road (project F11-1a), existing 4-lane highway to proposed 8-lane freeway

- 2035 US 1 roadway improvements from Thornton Road to Burlington Mills Road (project F11-1b), existing 4-lane highway to proposed 8-lane freeway
- 2035 interchanges at Thornton Road and Burlington Mills Road
- 2025 light rail transit on US 1 up to I-540 (Triangle Town Center)
- 2025 commuter rail transit from Raleigh to Wake Forest
- 2025 local bus service from Wake Forest to Youngsville
- 2035 express bus service from NC 98 and Wake Forest to the town of Franklinton

It should be noted that the 2035 LRTP recommended roadway improvements to US 1 are approximately 10 miles south of the US 1 Corridor Study Phase II study limits. No improvements on US 1 within the study limits are included as part of the 2035 LRTP.

1.5.2 Franklin County Comprehensive Transportation Plan

The *Franklin County Comprehensive Transportation Plan* (CTP) is a joint effort between Franklin County municipalities, NCDOT, the NC Capital Area MPO, and the Kerr-Tar Regional Planning Organization (RPO). The plan and maps have been adopted by Franklin County, the towns of Centerville and Louisburg, the NC Capital Area MPO (June 15, 2011), and the NCDOT (July 7, 2011). The maps have been endorsed by the Kerr-Tar RPO and the towns of Bunn, Franklinton, and Youngsville. Elements of the Franklin County CTP roadway improvements within the US 1 corridor study area are shown in Figure 1-3 and include:

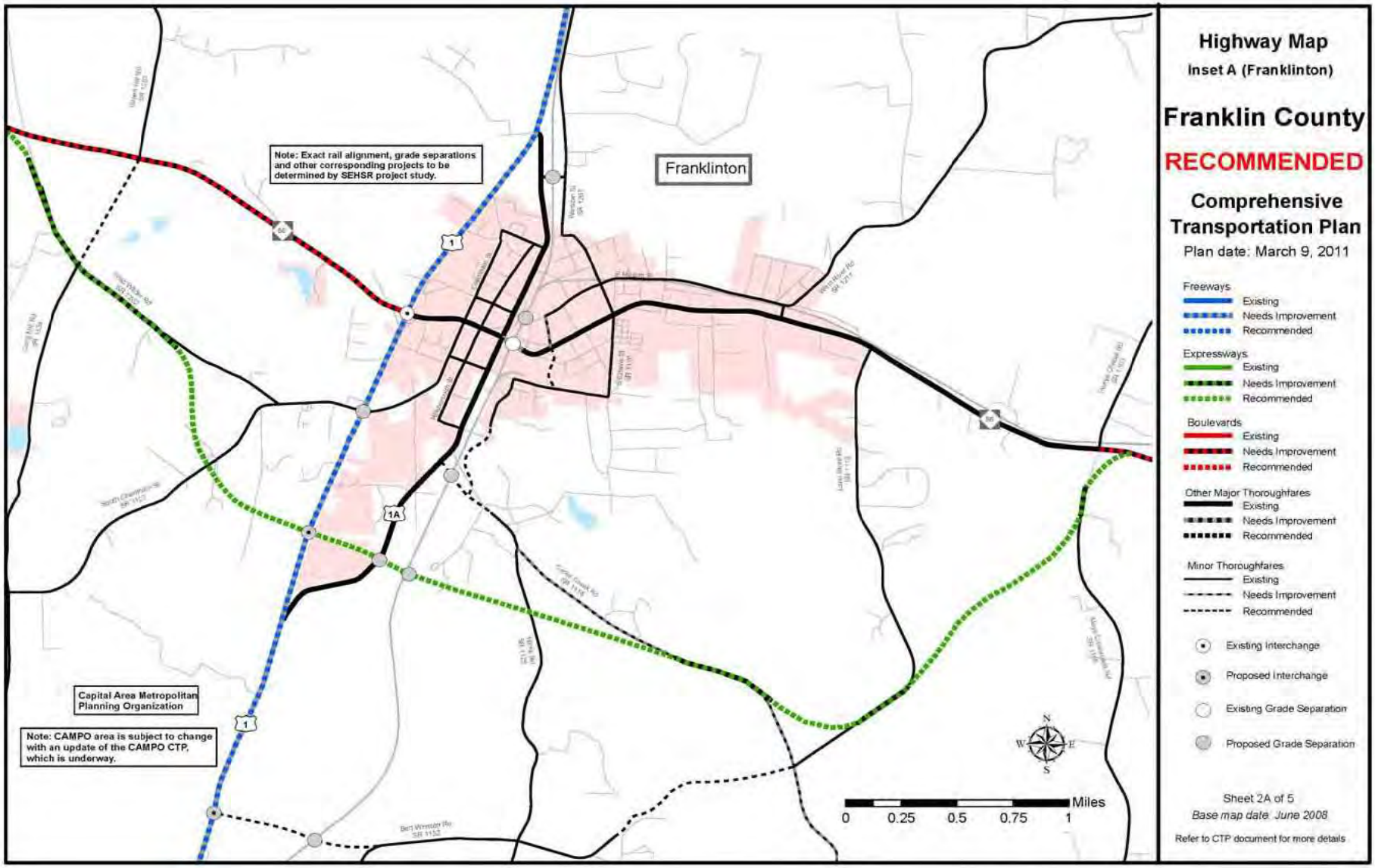
1.5.2.1 *North Youngsville*

- Improvements to US 1 (freeway) through Youngsville (6-lane divided facility full access control)
- Improvements to NC 96 at US 1 and south of downtown Youngsville
- Improvements to Cedar Creek Road and Cross Street
- Recommended NC 96 Bypass from US 1A to NC 96 south of Youngsville
- Recommended Fleming Road and Cedar Creek Road realignments
- Recommended (US 1 Phase I Study) frontage/backage roads

1.5.2.2 *Franklinton*

- Improvements to US 1 (freeway) through Franklinton (6-lane divided south of NC 56 and 4-lane divided north of NC 56 with full access control)
- Proposed NC 56 Bypass of Franklinton

Figure 1-3. Franklin County Recommended CTP – Highway Map



- Improvements to NC 56 west of US 1and east of Perrys Chapel Road
- Improvements to Fred Wilder Road, Cedar Creek Road, Lane Store Road east of Cedar Creek Road, and Mays Crossroads Road in the vicinity of NC 56
- Improvements to Tanyard Street and recommended extension to College Street
- Recommended Long Mill Road extension to Green Hill Road
- Recommended Cedar Creek Road realignment to Hawkins Street
- Recommended NC 56 Bypass (southwest and southeast of Franklinton)
- Recommended Bert Winston Road connection and extension to US 1
- Proposed US 1 interchanges at the new Bert Winston Road extension and the NC 56 Bypass
- Proposed railway grade separations at the intersections of CSX/SEHSR and the new Bert Winston Road extension, the NC 56 Bypass, the Cedar Creek Road realignment, Mason Street, and the proposed SEHSR roadway connection (between US 1A and Winston Street north of Franklinton)
- Proposed grade separation at the intersection of US 1 and Pocomoke Road/Cheatham Street and the intersection of the proposed NC 56 Bypass and US 1A south of Franklinton

1.5.2.3 *Franklin County CTP bicycle and pedestrian improvements within the US 1 corridor study area:*

Elements of the Franklin County CTP bicycle and pedestrian improvements within the US 1 corridor study area are shown in Figure 1-4A and Figure 1-4B and include:

- Recommended bicycle facility improvements in downtown Franklinton (Hillsborough Street, Green Street, Mason Street, and Cheatham Street)
- Recommended pedestrian facility improvements in downtown Franklinton (Hillsborough Street, Green Street, Mason Street, Cheatham Street, and College Street)
- Recommended bicycle facility improvements on Pocomoke Road, Hicks Road, Cedar Creek Road, Fleming Road (north Youngsville), and NC 96 (north Youngsville).
- Recommended multi-use path east of US 1 and the CSX/SEHSR alignment (through Youngsville and Franklin) throughout the project limits
- Recommended multi-use path along an abandoned CSX railroad from downtown Franklinton heading to Louisburg (north of NC 56)

Figure 1-4A. Franklin County Recommended CTP – Bicycle Map

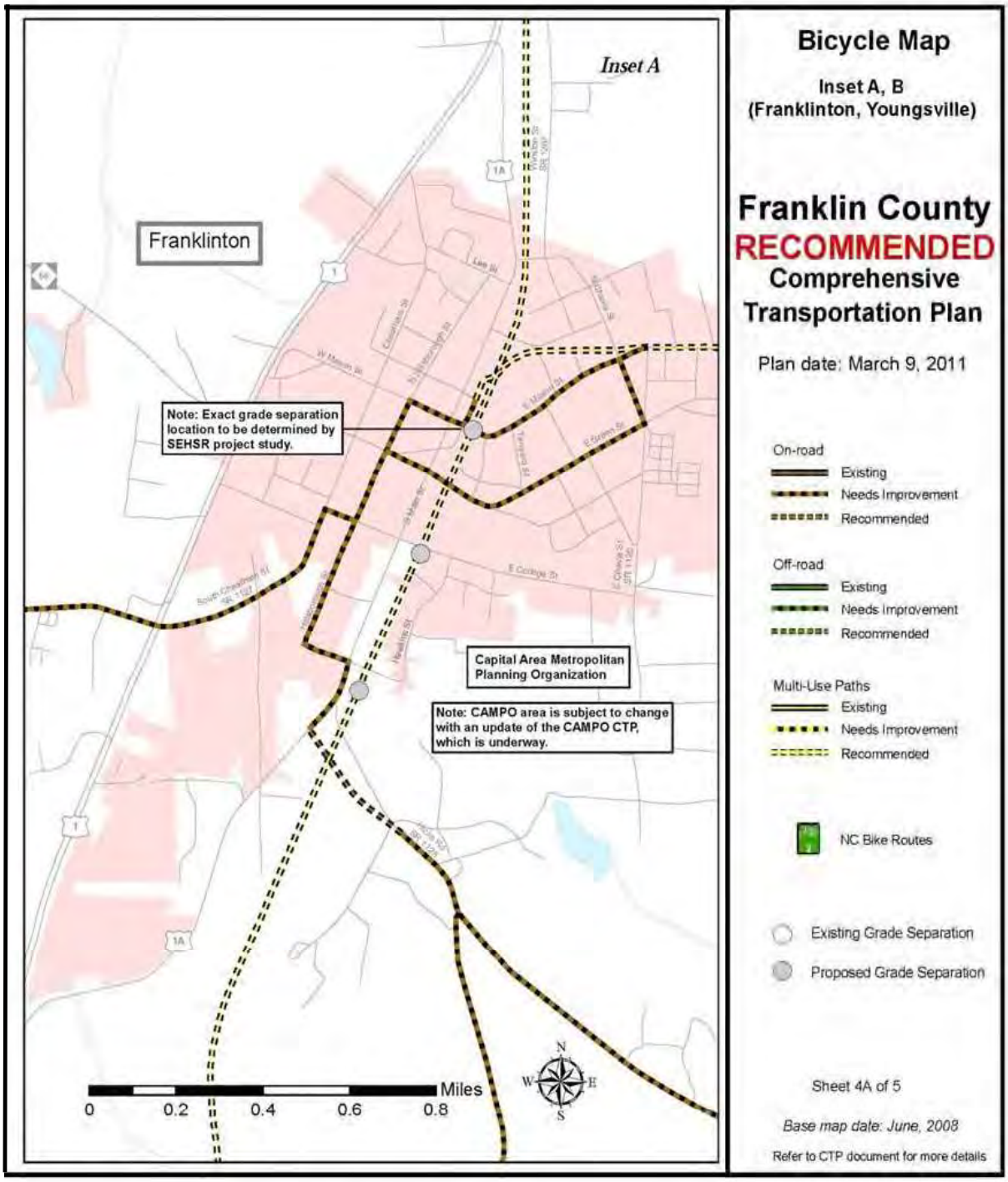
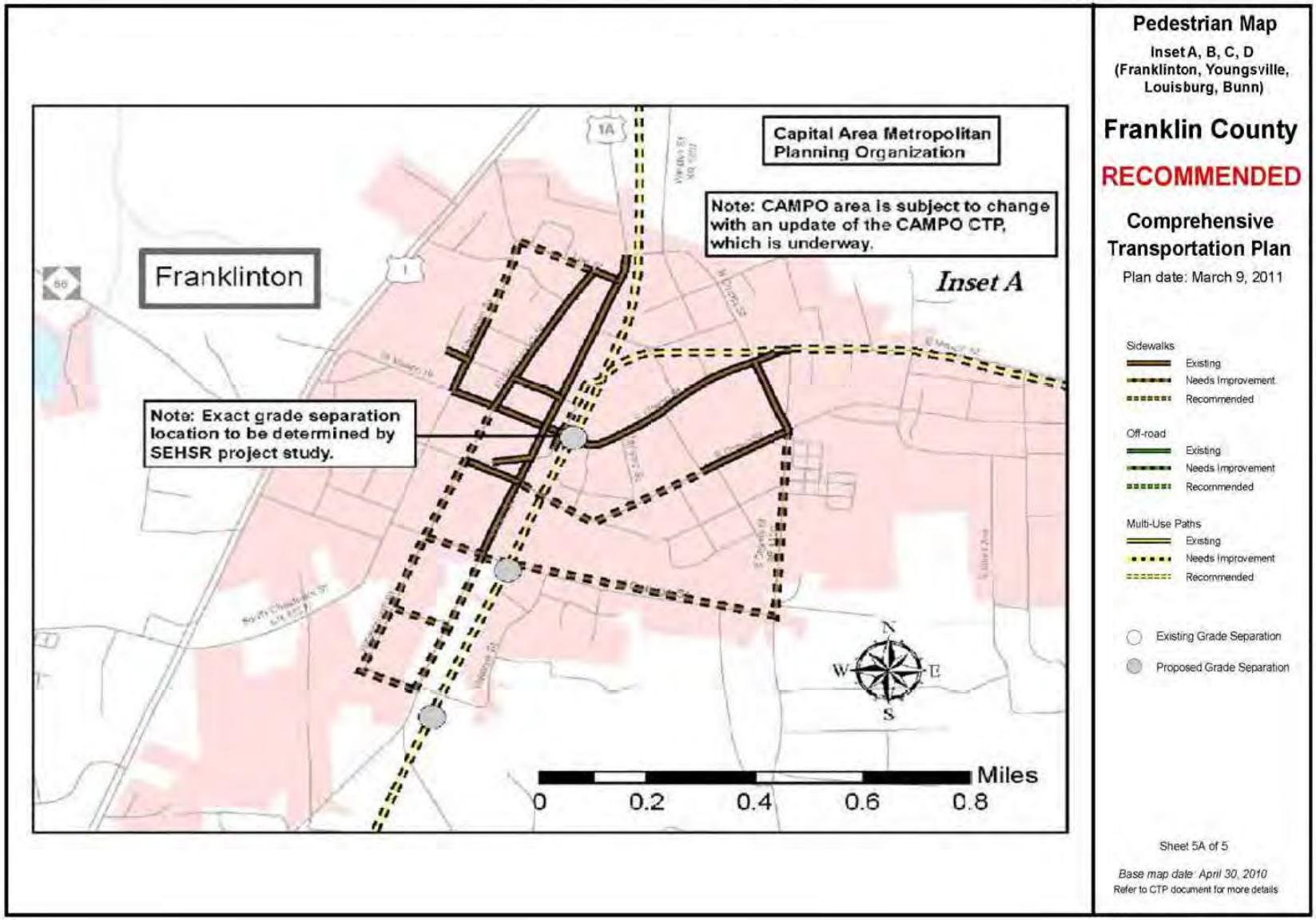


Figure 1-4B. Franklin County Recommended CTP – Bicycle Map



- Three proposed pedestrian grade separations of the railroad tracks with CSX/SEHSR in downtown Franklinton

1.5.2.4 *Franklin County CTP transit and rail improvements within the US 1 corridor study area:*

Elements of the Franklin County CTP bicycle and pedestrian improvements within the US 1 corridor study area are shown in Figure 1-5 and include:

- Recommended express bus route on US 1 (LRTP) from Wake County to Youngsville, Franklinton, and the Vance County line with proposed bus stop at US 1 and NC 56
- Recommended bus route through downtown Franklinton to Louisburg
- Recommended Southeast High Speed Rail corridor east of US 1 on the CSX railroad line

1.5.3 Triangle Transit Short-Range Transit Plan

The Triangle Transit Authority *Short-Range Transit Plan* prepared July 23, 2008, is a five-year transit operating plan and capital program for public transportation and ridesharing services in Wake, Durham, and Orange counties. The plan proposes to expand the regional bus system. One of the planned service improvements (near the project limits) for fiscal year 2009 was to provide a local circulator service that feeds into the Triangle Transit express service on behalf of the Town of Wake Forest. In 2011-2012, the plan proposed to increase the frequency of the Wake Forest Express. No extension of service into the Phase II study area is proposed.

1.5.4 South East High Speed Rail (SEHSR)

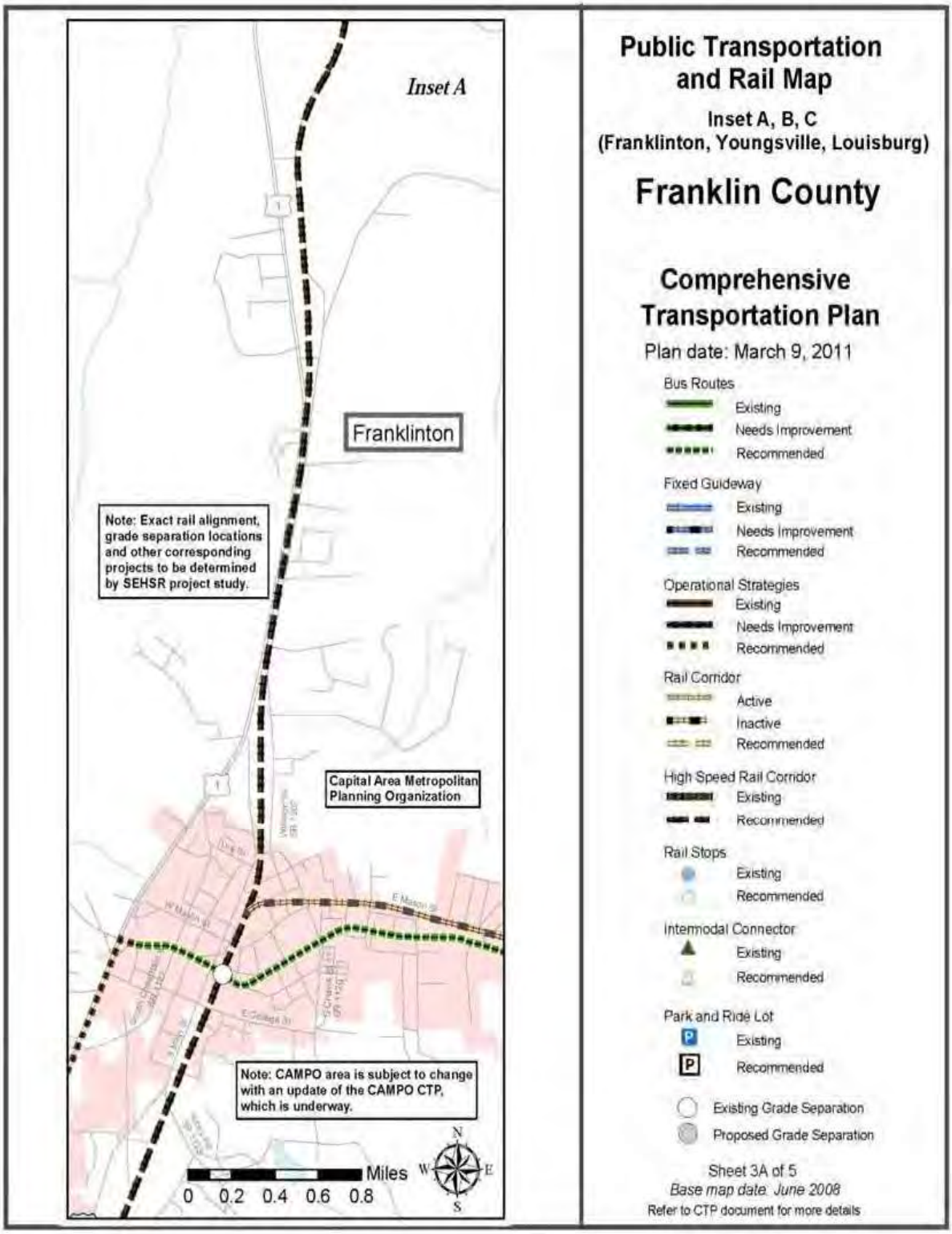
1.5.4.1 *SEHSR Tier II Draft Environmental Impact Statement*

The NCDOT Rail Division, the Virginia Department of Rail and Public Transportation (DRPT), the Federal Rail Administration (FRA) and Federal Highway Administration (FHWA) are working together to develop the 450-mile SEHSR corridor from Washington D.C. through Richmond, Virginia, and Raleigh, North Carolina, to Charlotte, North Carolina.

The Tier I Draft Environmental Impact Statement (EIS) completed in 2002 covered the entire project limits at a program level, to establish the overall project purpose and need along the preferred corridor. The plan proposes high speed rail on the CSX railroad line paralleling US 1 and crossing through Franklinton.

The Tier II Draft EIS, which was completed in May 2010, included detailed environmental analysis within the preferred corridor between Richmond, Virginia, and Raleigh, North Carolina. Three railroad alignment alternatives (NC1, NC2, and NC3) were evaluated in North

Figure 1-5. Franklin County Recommended CTP – Transit & Rail Map



Carolina. Each alternative included highway improvements where necessary. Several alternatives shared a common alignment in some areas, such as in the vicinity of the US 1 Corridor Study Phase II project limits (where NC1 and NC3 are shown throughout the project limits). The proposed rail improvements in the vicinity of the US 1 Corridor Study Phase II project limits include:

- New single track with 5-mile long sidings every 10 miles
- Maximum authorized speed of 110 mph
- Three alternative rail alignments

A key impact of the SEHSR is the closure of multiple at-grade crossings and their replacement with grade-separated crossings. This reduction in future railroad crossings will affect connectivity in the current roadway network across the tracks. Grade separations and at-grade closures recommended by the SEHSR in the study area include:

- **Full grade separations at the following locations:**
    - Bert Winston Road (with realignment of Northbrook Drive)
    - Proposed Bert Winston Road extension
    - Proposed NC 56 Bypass
    - Proposed Cedar Creek Road realignment
    - NC 56
    - Proposed connector from Winston Street to US 1A
    - Proposed connector from Montgomery Road to US 1
- **Closures of the following at-grade crossings:**
    - Northbrook Drive
    - Cedar Creek Road
    - Hillsborough Street
    - College Street
    - Mason Street
    - Joyner Street
    - Pearce Street
    - Cambridge Drive

- Medlin Road
- Winston Street (closed prior to 2012)

A Multi-use Greenway Concept is being evaluated in the SEHSR EIS that would allow a greenway to be built on separate right-of-way from the rail system, but in the same study corridor. The Multi-use Greenway Concept is being evaluated at the request of Virginia's Department of Conservation and Recreation and the North Carolina Department of Environment and Natural Resources, and findings will be documented in the Final EIS based on the location of the preferred railroad alternative. The greenway will typically follow old, unused rail right-of-way when the rail alignment is on new location. The Multi-use Greenway Concept may be incorporated into the East Coast Greenway which is a developing trail system between Canada and Key West, Florida, linking all the major cities of the eastern seaboard. According to NCDOT Rail Division representatives, the Final EIS is anticipated to be approved in early 2013.

1.5.5 SEHSR Final Recommendation Report Tier II Environmental Impact Statement

The *Final Recommendation Report* of the Tier II EIS was published in February 2012. This report presents the recommendations of the Virginia DRPT and the NCDOT Rail Division to the FRA regarding the preferred rail alternatives for the SEHSR corridor between Richmond, Virginia, and Raleigh, North Carolina.

These recommendations include only the selection of the preferred rail alignments. They do not include preference for highway improvement alternatives associated with the SEHSR. Highway improvements and revisions are currently under consideration based on public comment. Any substantial roadway changes will be presented to the public and published in the Final EIS.

According to the *Final Recommendation Report,* the recommended SEHSR rail alternative in the vicinity and within the US 1 Corridor Study Phase II project limits is Preferred Alternative NC1 (common with Alternative NC3). South of Franklinton, the alignment of Preferred Alternative NC1 is closer to the existing railroad compared to Alternative NC 2. North of Franklinton, the general alignment of Preferred Alternative NC1 is farther from the existing railroad compared to Alternative NC 2.

CHAPTER 2

2.0 EXISTING CONDITIONS

The Phase II study area extends along US 1 from US 1A (Park Avenue) to the north and ends at the Vance County line (See Figures 2-2A, 2-2B, and 2-2C). To focus on areas with different needs and characteristics, this corridor has been divided out into three sections: south, central, and north.

- **South Section:** The South Section starts at the transition point from the US 1 Phase I study area to the US 1 Phase II study area and runs from US 1A (Park Avenue) to the US 1A (South Main Street) junction south of Franklinton.
- **Central Section:** The Central Section extends from the US 1A (South Main Street) junction south of Franklinton to the US 1A (North Main Street) junction north of Franklinton.
- **North Section:** The North Section extends from the US 1A (North Main Street) junction north of Franklinton to the Vance County line.

For this study, inventories of existing land uses, environmental, and transportation data have been obtained and summarized below.

2.1 Land Use Data Inventory

Land use context was analyzed as part of the existing conditions inventory and includes the assessment of all the parcels within the study boundary. The analysis evaluated current land use, existing zoning, regional development trends and opportunities for future development. Land use and zoning data was compiled through GIS information and zoning maps received from jurisdictions within the study area; including Franklin County, the Town of Youngsville and the Town of Franklinton. The land use examination covered an area extending approximately one mile on either side of US 1.

2.1.1 Existing Land Use Patterns

Overall, the US 1 Corridor land use development pattern displays a rural character, with most of the commercial and industrial developments concentrated at major intersections and interchanges. It transitions to residential and agricultural uses as one travels north from the Town of Franklinton. US 1 and NC 56 are the key corridors serving the Town of Franklinton. The existing land use patterns are illustrated in Figures 2-1A, 2-1B, and 2-1C for the south, central, and north sections, respectively.

US1 North Corridor Study Phase II

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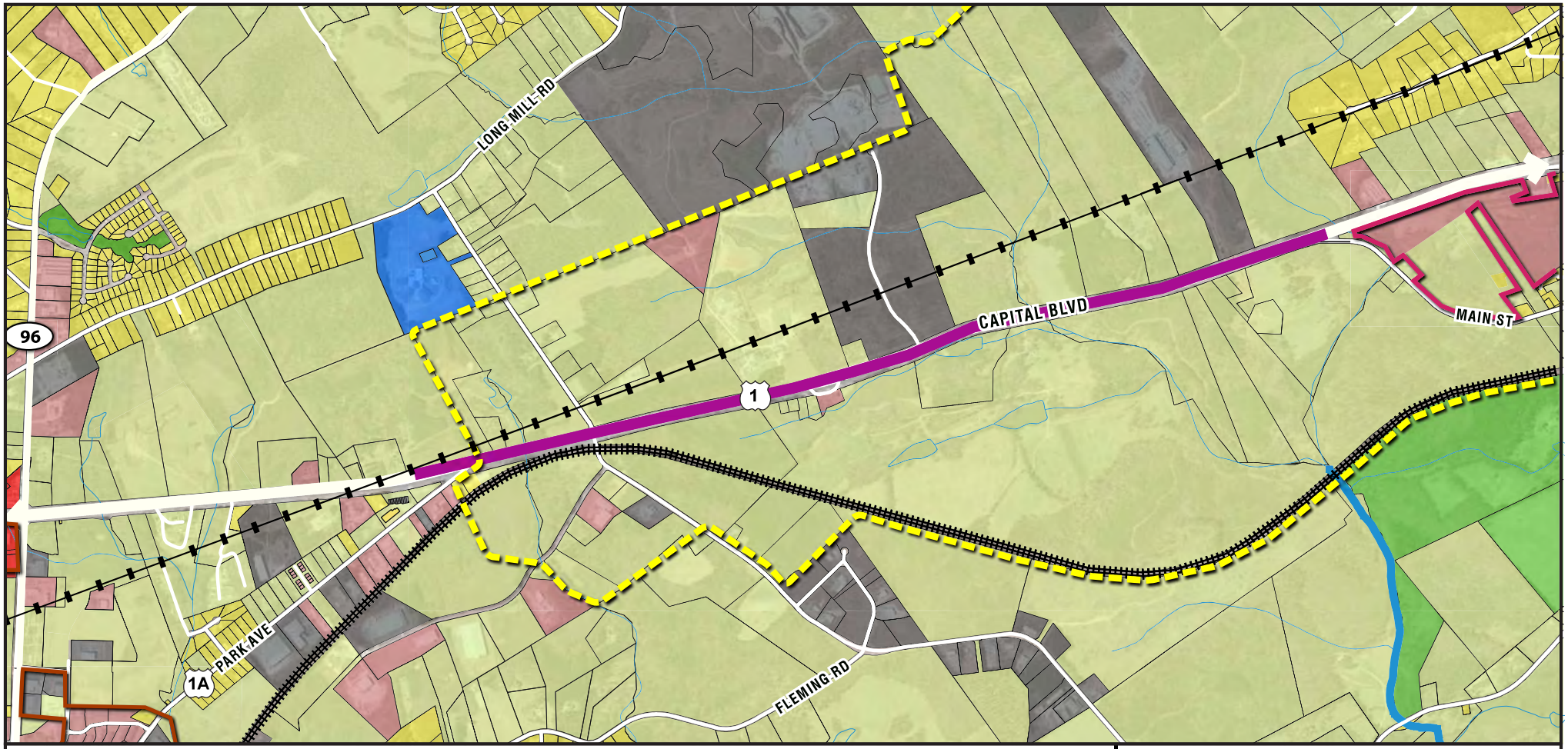
Scale in miles

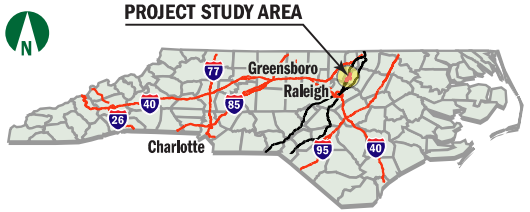


LEGEND

- Primary Study Area
- Major Roads
- CSX Railroad
- High Tension Line
- Franklinton Town Boundary

LAND USE CATEGORIES

- Agricultural Land
- Agricultural/Residential
- Suburban Residential
- Open Space
- Commercial
- Rural Commercial Area
- Industrial
- Institutional



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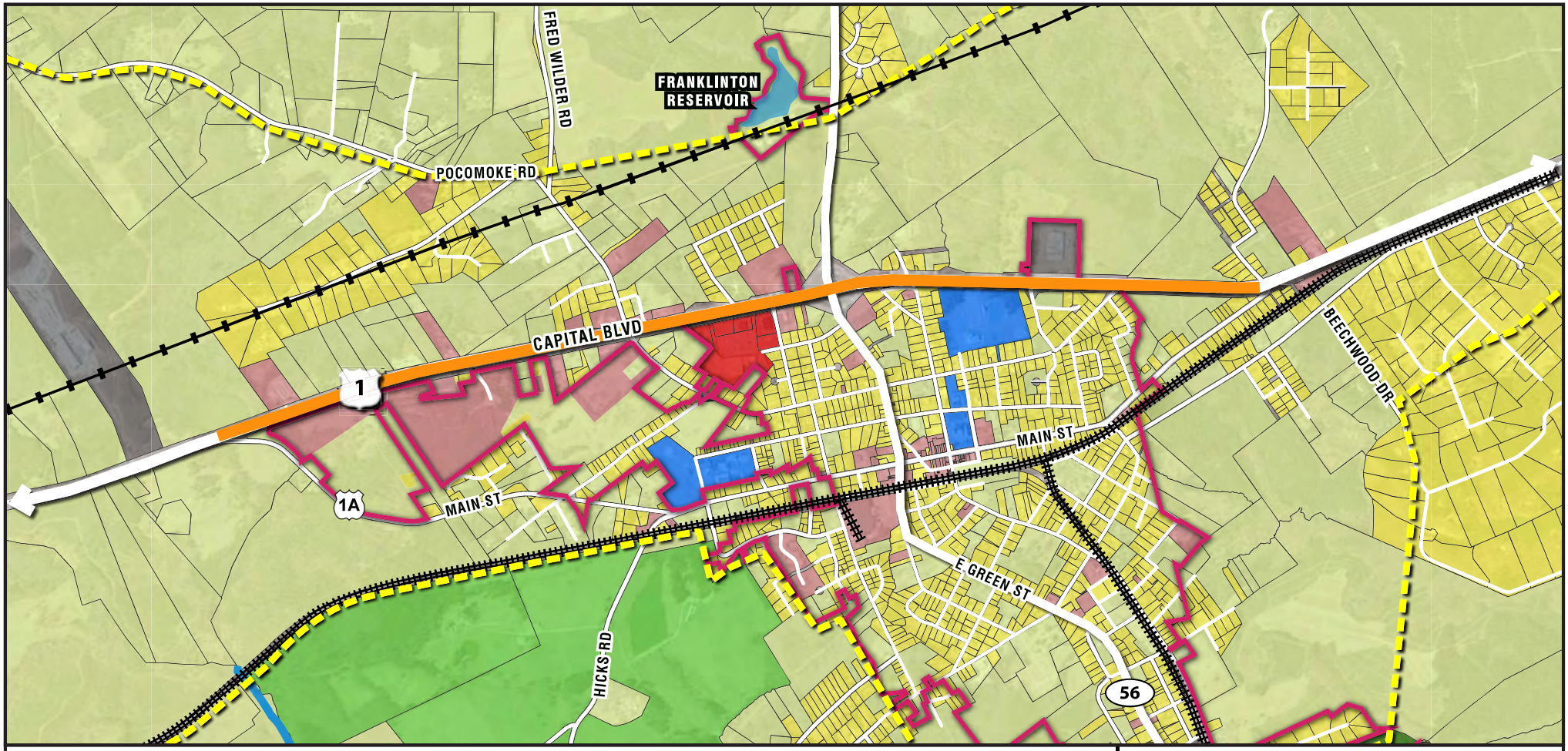
URBAN Collage

Existing Land Use in South Section

Figure 2-1A

US1 North Corridor Study Phase II



0 0.125 0.25 0.375 0.5 0.75

Scale in miles

LEGEND

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LAND USE CATEGORIES

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- Open Space
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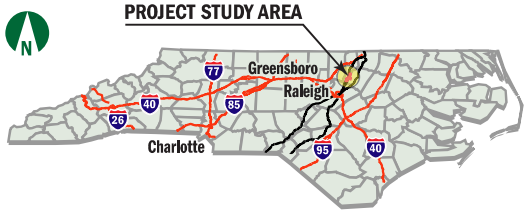
- Rural Commercial Area
- Industrial
- Institutional



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URBAN Collage

Existing Land Use in Central Section

Figure 2-1B

US1 North Corridor Study Phase II

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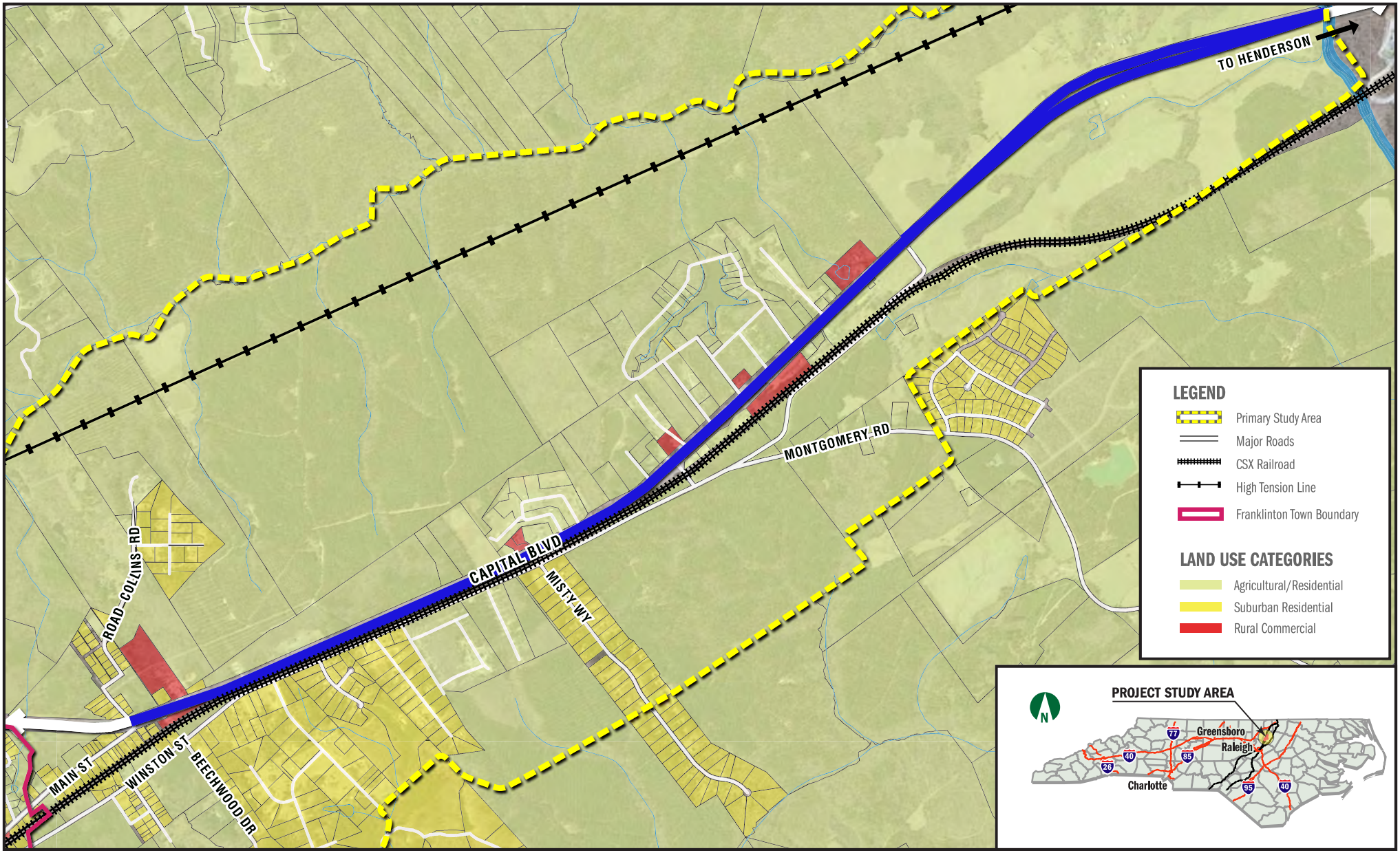
Scale in miles



US 1 Phase II Study - Franklin County

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Existing Land Use in North Section

Figure 2-1C

- **South Section:** Existing development consists of low density residential neighborhoods, secluded homes on agricultural lands, and light industrial facilities as shown in Figure 2-1A.

  The residential uses are mostly suburban style single-family detached. There are an additional 600 lots approved by Olde Liberty Road, and another 1,000 lots approved south of the study area, in between Youngsville and Franklinton, near the New Franklinton High School.

  Smaller industrial parcels are mostly located along or in close proximity to the CSX railroad and US 1 forming small industrial parks. Bigger industrial parcels are located mostly west of the US 1 corridor and have anchors including Martin Marietta and Stay Right Concrete.

The Long Mill Elementary School is the only institutional use parcel within this section and is one of the most important traffic drivers.

There are no public open spaces within the study area. The horse farm located just east of the CSX Railroad is categorized as agricultural and adds to the beautiful context of this study area.

Much of the land in this section is undeveloped and provides opportunity for future growth.

- **Central Section:** This section covers the Town of Franklinton portion of the US 1 corridor and clearly reflects a development pattern of commercial along US 1 and Main Street. The pattern transitions to residential uses further from US 1 as shown in Figure 2-1B.

  Commercial out-parcels and strip malls in this section are located along US 1. Neighborhood-style commercial establishments are located along Main Street and around the Main Street/NC 56 intersection. There are unoccupied buildings and vacant properties along Main Street, which have the potential to be redeveloped in the future.

The dominant land use within the town of Franklinton is residential. Franklinton has a great resource of historic neighborhoods exhibiting significant architectural character, which should be preserved and enhanced.

Institutional uses includes the educational campuses within the study area, including Franklinton Elementary School, the old Franklinton High School (which is being renovated into a middle school), as well as the athletic fields and gymnasium for the high school. No office developments are located within this section.

There are very few parcels with industrial uses observed within the Central section. The two exceptions are Griffin Trucks west of US 1 and a vacant parcel of about 11 acres towards the east of the town along NC 56. It should be noted that Novozymes, although not located within the project study area, is a key industrial development located east of Franklinton on NC 56. Access to US 1 from this site is focused on using NC 56 through downtown Franklinton.

Aside from the 25 acres of open space, located at the east end of the town, there are no other major public open spaces in the area. The Triple R Ranch farm is an operating farm located south of Franklinton and adds to the unique character of the town.

- **North Section:** This section is largely dominated by agricultural and residential land uses, with some scattered rural commercial parcels along the US 1 corridor, as shown in Figure 2-1C. Though the majority of the area is categorized as agricultural or residential, most of it is undeveloped woodlands or farmlands. These parcels could be seen as potential opportunity for development in the future.

The Person-McGhee Farm is a key feature located on the northern-most mile of US 1 in Franklin County. The farm is split by US 1, with property both west and east of US 1. As documented in the historic resources section, the Person-McGhee Farm is listed on the National Register of Historic Places (NRHP). In addition, the

owners of the Person-McGhee Farm are supportive of long-term conservation which will help preserve the rural character of the area.

The land use patterns on US 1 in this section have been influenced by the CSX rail line that runs immediately adjacent to US 1. As a result, direct access from the east side of US 1 is limited since businesses and residences have not yet been developed.

Overall, the US 1 Corridor land use development pattern displays a rural character that appears to be transitioning into a more suburban development pattern, particularly south of Franklinton. Most of the commercial and industrial developments are concentrated at major intersections.

2.1.2 Future Land Use Policies and Trends

Franklin County and the towns of Franklinton and Youngsville provide services to only the properties within their limits. In addition, they are responsible for the land use and zoning policies for the properties within their extra-territorial jurisdiction (ETJ). Zoning is assumed to be indicative of future land use patterns and to convey clear policy goals by the demarcation of future land uses.

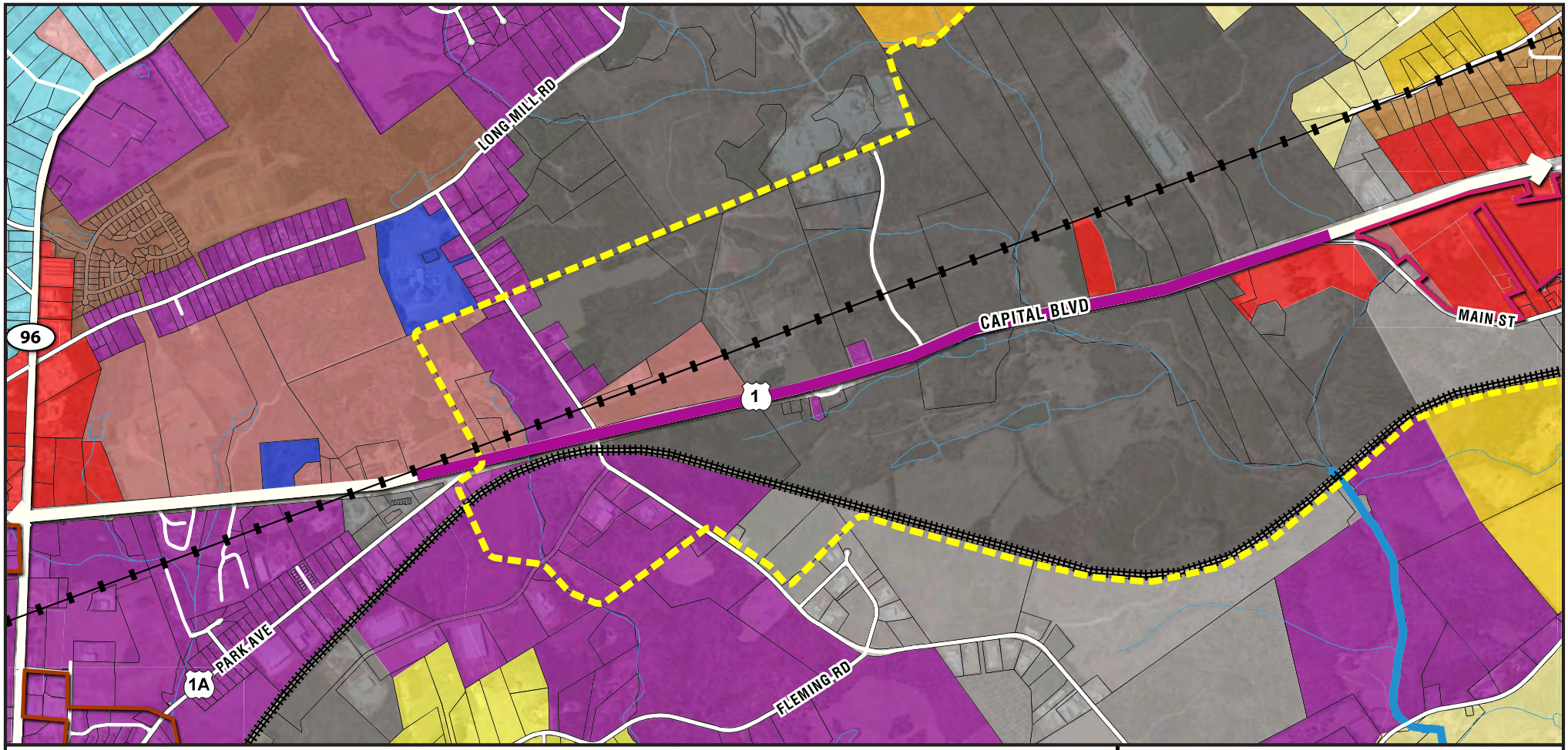
A review of the Franklin County, Town of Franklinton and Town of Youngsville zoning maps indicates that the overall development pattern will continue to be more intense in the southern section of the Phase II study area. These zoning maps also indicate that the land use pattern along US 1 will be industrial in the south section, retail in the central section, and residential and agriculture in the north section. This change in zoning reflects the trend that development is occurring more rapidly and intensely in the south and central sections. The northern area, in contrast, is anticipated to continue to have low density residential development combined with farmland preservation and conservation areas.

Most of the land located off the immediate corridor is zoned residential. The zoning patterns indicate a strong economic agenda to allow for future industrial growth along the US 1 corridor as well as on NC 56 between Franklinton and Louisburg.

The current zoning for the corridor is illustrated in Figures 2-2A, 2-2B, and 2-2C for the south, central, and north sections, respectively.

- **South Section:** The southern portion is predominantly zoned industrial – heavy and light, along both sides of the US 1 Corridor, while the remaining areas are mostly zoned commercial or mixed use. This area has the maximum potential for development and makes a potentially considerable economic impact for the county. This area is the only

US1 North Corridor Study Phase II



0 0.125 0.25 0.375 0.5 0.75

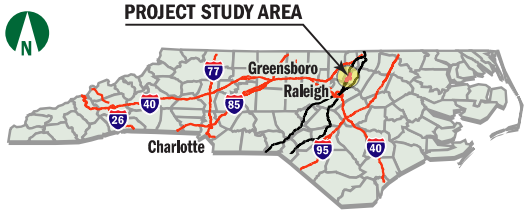
Scale in miles

LEGEND

- Primary Study Area
- Major Roads
- CSX Railroad
- High Tension Line
- Franklinton Town Boundary

ZONING DISTRICTS

- GB: General Business District
- HB: Highway Business District
- NB: Neighborhood Business District
- O/I: Office/Institutional District
- R-1: Residential - Low Density
- R-8: Residential - High Density
- R-15: Residential - Medium Density
- R-15 PUD: Residential - Planned Unit Development
- R-40: Water Supply Watershed District I
- MU: Mixed-Use District
- HI: Heavy Industrial District
- LI: Light Industrial District



US 1 Phase II Study - Franklin County

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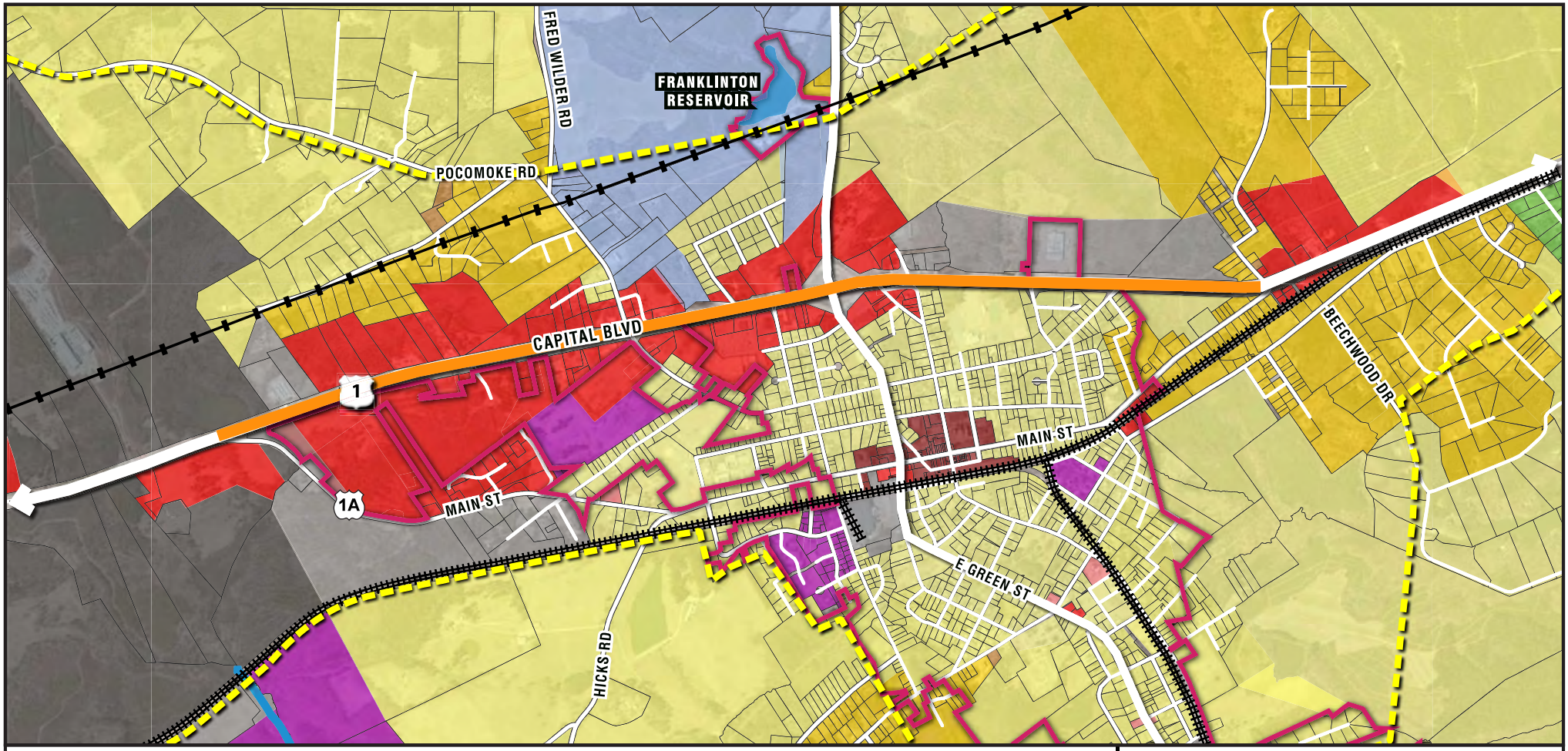
Zoning in South Section

Figure 2-2A

US1 North Corridor Study Phase II



0 0.125 0.25 0.375 0.5 0.75

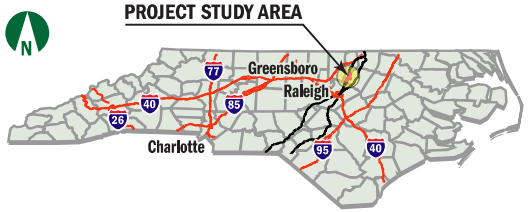
Scale in miles

LEGEND

- Primary Study Area
- Major Roads
- CSX Railroad
- High Tension Line
- Franklinton Town Boundary

ZONING DISTRICTS

- AR: Agricultural-Residential
- R-1/R-1A: Residential District
- R-MH: Medium Density Residential District
- HB/C-3H: Highway Business District
- C-1N: Neighborhood Commercial District
- C-2D: Downtown Commercial District
- R-80: Water Supply Watershed District II
- C-R1: Conservation District
- MU: Mixed-Use District
- HI: Heavy Industrial District
- LI: Light Industrial District



US 1 Phase II Study - Franklin County

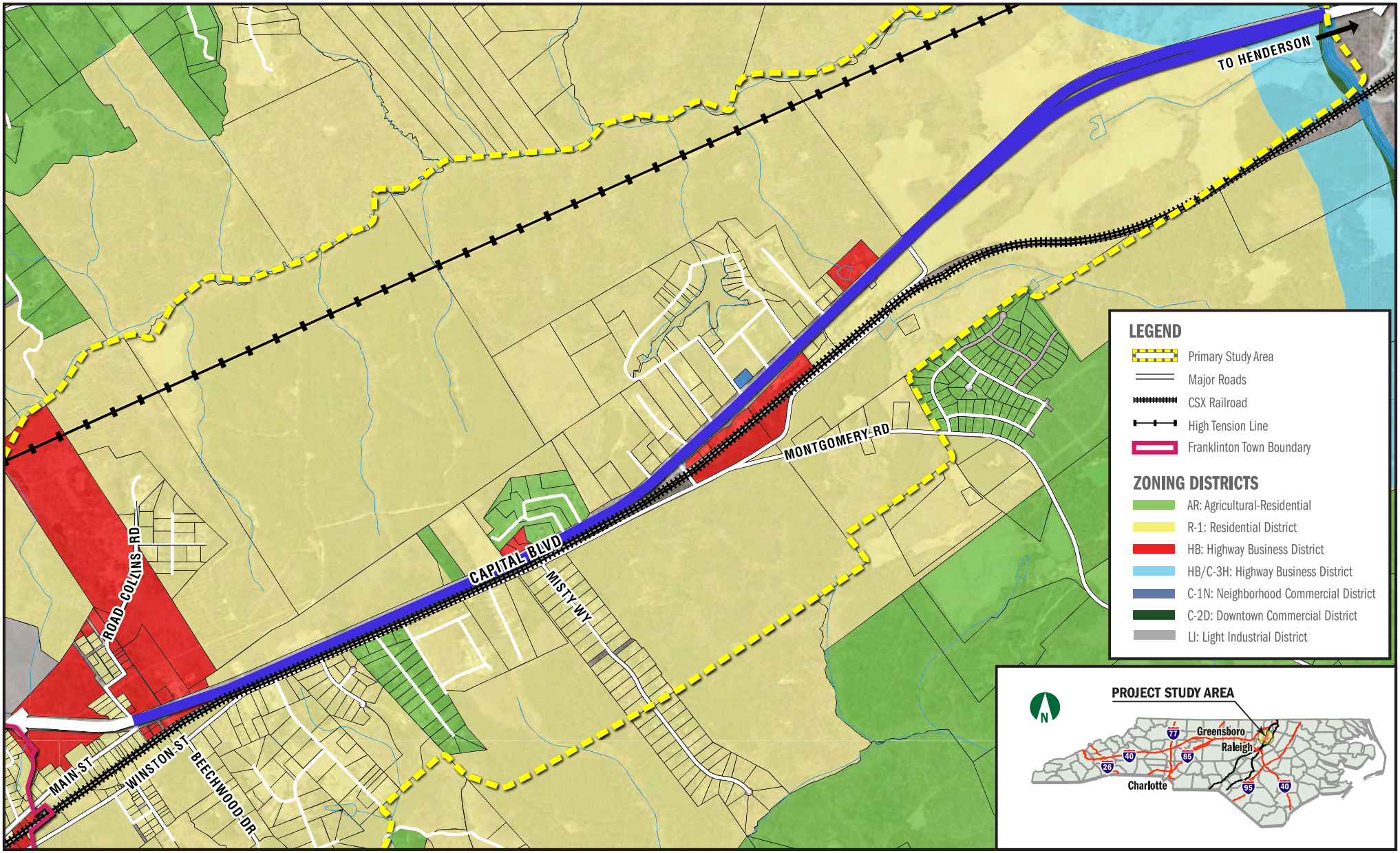
PARSONS BRINCKERHOFF

URBAN Collage

Zoning in Central Section

Figure 2-2B

US1 North Corridor Study Phase II



US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

URBAN Collage

Zoning in North Section

Figure 2-2C

area zoned Heavy Industrial. The other industrial area is located to the east, between the Towns of Franklinton and Louisburg.

With respect to the industrial zones in the south, it appears that Franklin County's general intent is to focus industrial growth along the US 1 corridor in order to take advantage of highway access. The heavy industrial zoning along US 1 is focused in the southern segment, adjacent to the existing Martin Marietta and Stay Right Concrete facilities.

The concentration of industrial zoning in the south section also introduces potential issues with the interaction of industrial and residential zoning. East of US 1, the industrial area is buffered from residential land uses by mixed-use zoning on the undeveloped land adjacent to the CSX railroad and the Triple Ranch Farm. West of US 1, there is no such buffer zone indicating that this area may be considered a transitional development area between Youngsville and Franklinton in the future.

- **Central Section:** The central portion, as indicated in the map, is mostly zoned highway commercial along the US 1 corridor, neighborhood commercial along US 1A (Main Street) in the Town of Franklinton, and low-to-medium density residential moving away from the US 1 corridor.
- **North Section:** The northern portion is largely zoned low density residential. Most of the land in this section is undeveloped, presenting long-term opportunities for development. The Taylor Tree Farm located west of US 1 has the potential to be developed as a large residential subdivision in the future.

  The remaining area is zoned as a conservation district and consists mainly of the farmlands along Tar River. A key reason for this zoning is density restrictions due to run-off issues related to the Tar River basin. The McGhee Farm property is located on both sides of US 1 near the Vance County line, and is consistent with an agricultural open space vision.

2.1.3 Land Use and Zoning Constraints

Constraints to future development, land use, and zoning are discussed by corridor section in Table 2-1 below.

Table 2-1. Land Use and Zoning Constraints

	South	Central	North
Constraints	• Flood plain & stream on both sides of US 1 • Power line easement on west side of US 1	• Franklinton Reservoir	• US 1 parallels CSX railroad tracks which restricts access to US 1 from the east • Tar River at north terminus
Existing Land Use	• Low Density Residential • Industrial Sites • Undeveloped Land	• Downtown Franklinton • Retail and industrial on US 1 focused south of NC 56 • North of NC 56: isolated streets and driveways serving businesses and residential • Residential in town	• Agriculture/undeveloped land • Isolated industrial • Mixed low and medium density residential along US 1
Zoning	• Industrial focus along US 1 • Mixed Use & Residential • Business District closer to Youngsville	• Heavy industrial south of US 1A • Residential to the northwest • Mixed-use to the southeast • Highway Business District	• Residential on both sides of US 1 • Highway Business District
Key Features	• Martin Marietta • Stay Right Concrete • Light industrial development on Park Ave. • Long Mill Elementary	• Downtown Franklinton • Food Lion Shopping Center • Triple Ranch Farm	• CSX rail line next to US 1 • Person-McGhee Farm

2.2 Environmental Data Inventory

An inventory of both the human environment and natural environment was conducted for this study using site visits, GIS data, and the SEHSR DEIS document as primary resources. Detailed field studies were not included as part of this effort.

2.2.1 Human Environment

The human environment consists of man-made features, cultural resources, social conditions and economic resources important to those living in an area. Examining the existing human environment conditions allows planners the knowledge of how to better incorporate context sensitive solutions into the planning process. The assessment of the human environment in the Phase II study corridor was made using census data, GIS, aerial photography, and review of previous plans and studies. A summary of this inventory is presented below. Maps of the

human environmental features are presented as Figures 2-3A, 2-3B, and 2-3C for the South, Central, and Northern sections, respectively.

2.2.1.1 *Demographics*

The study area includes part of two towns in Franklin County – Franklinton and part of Youngsville. Demographics for the area were compiled using 2010 Census information and the North Carolina State Data Center population projections for each of the three jurisdictions.

Franklin County - (2010 population 60,619)

Franklin County lies just north of Wake County and is an outlying portion of the suburbanizing Triangle area. Municipalities within the county and their 2010 population numbers include:

- Bunn (344)
- Youngsville (1,157)
- Franklinton (2,023)
- Louisburg (3,359)
- Centerville (89)
- Franklin County portion of Wake Forest (899)

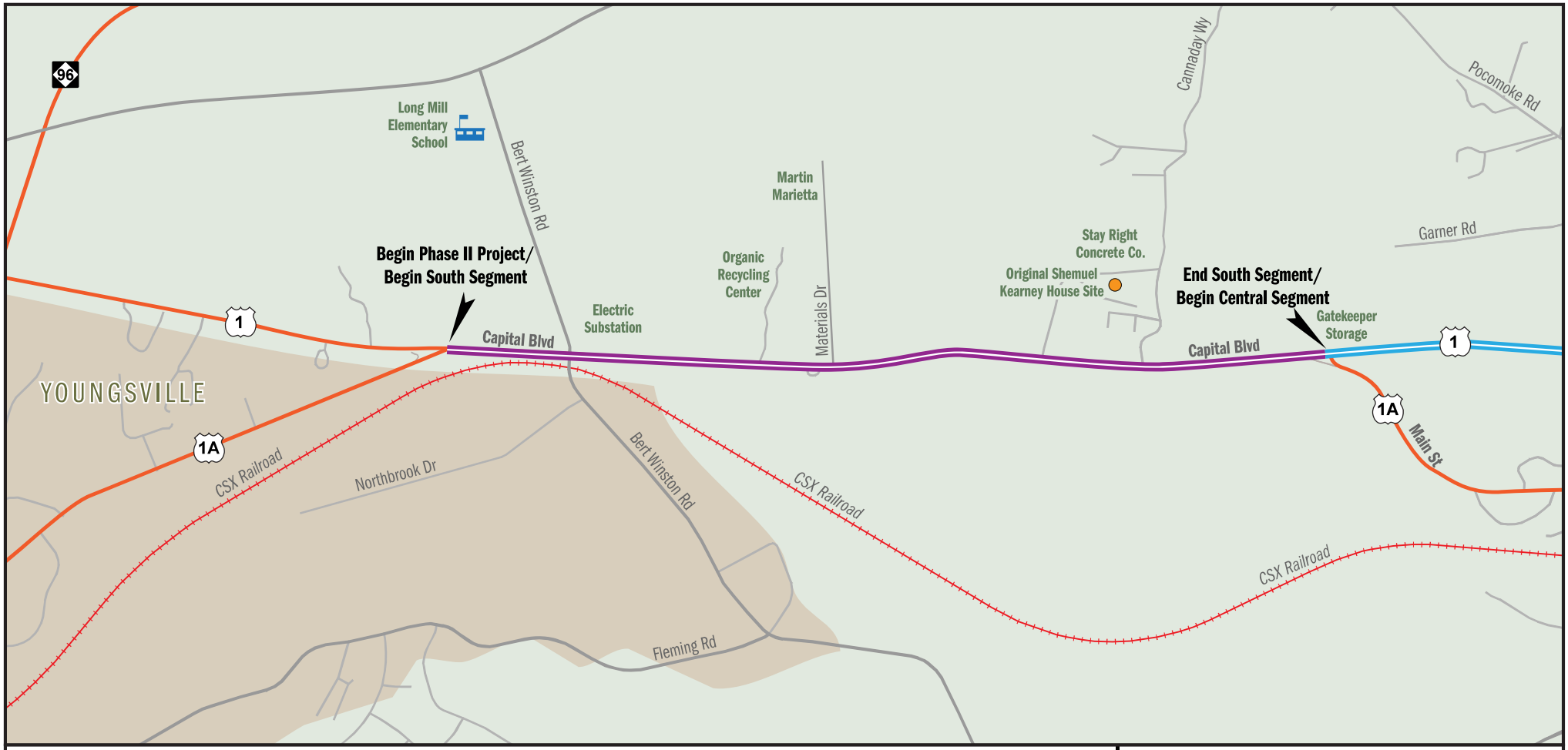
The remaining 54,771 persons (approximately 90 percent of the population) live in rural unincorporated areas of Franklin County. Franklin County has an anticipated average annual growth rate of 2.8 percent and the population is expected to rise to 84,586 by 2030 based on North Carolina State Data Center projections.

The median age in Franklin County is 38. Racially, the county is approximately 72 percent White, 22 percent African American, and approximately six percent classified as "Other" races. Approximately eight percent the county's population identifies as Hispanic or Latino.

Town of Franklinton- (2010 population 2,023)

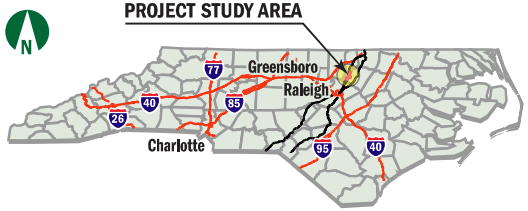
Franklinton is an old railroad town that straddles the active CSX rail corridor and the old alignment for US 1 (now US 1A [Main Street]). The street grid reflects a north-south orientation. The primary north-south road is US 1. The primary east-west road is NC 56, although Mason Street historically provided the main east-west route through town.

US1 North Corridor Study Phase II



LEGEND

- South Segment
- National Registry Historic Structures
- Cemeteries
- Churches
- Schools
- Potential HazMat Sites
- Youngsville Corporate Limits



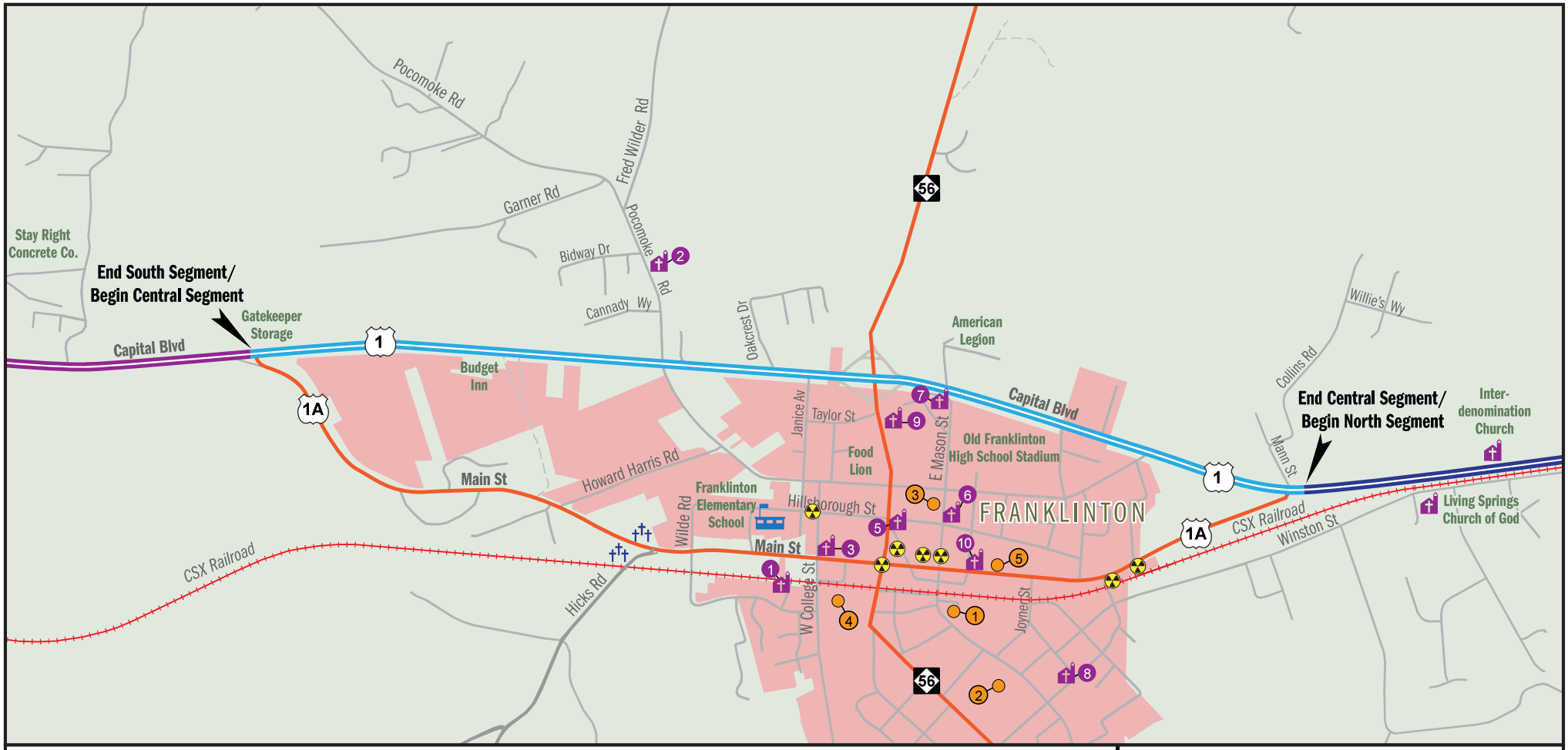
US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

Human Environment Features in South Section

Figure 2-3A

US1 North Corridor Study Phase II



LEGEND

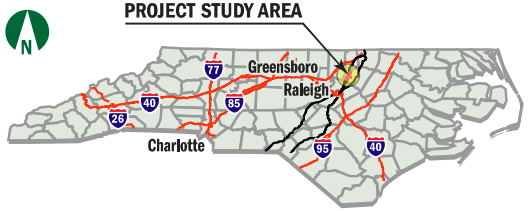
- Central Segment
- National Registry Historic Structures
- Cemeteries
- Churches
- Schools
- Potential HazMat Sites
- Franklinton Corporate Limits

CHURCHES

1. New Life Outreach Ministry
2. Greater New Life Church of Christ
3. Mount Pleasant Presbyterian Church
4. First Baptist Church
5. First United Church of Christ
6. Franklinton Baptist Church
7. Hands of Hope Ministry
8. Union View Baptist Church
9. Allen Metropolitan A.M.E. Zion Church
10. Franklinton United Methodist Church

NATIONAL REGISTER HISTORIC STRUCTURES

1. Franklinton Depot
2. Dr. J. H. Harris House
3. C.L. and Bessie G. McGhee House
4. Sterling Cotton Mill
5. Aldridge H. Vann House



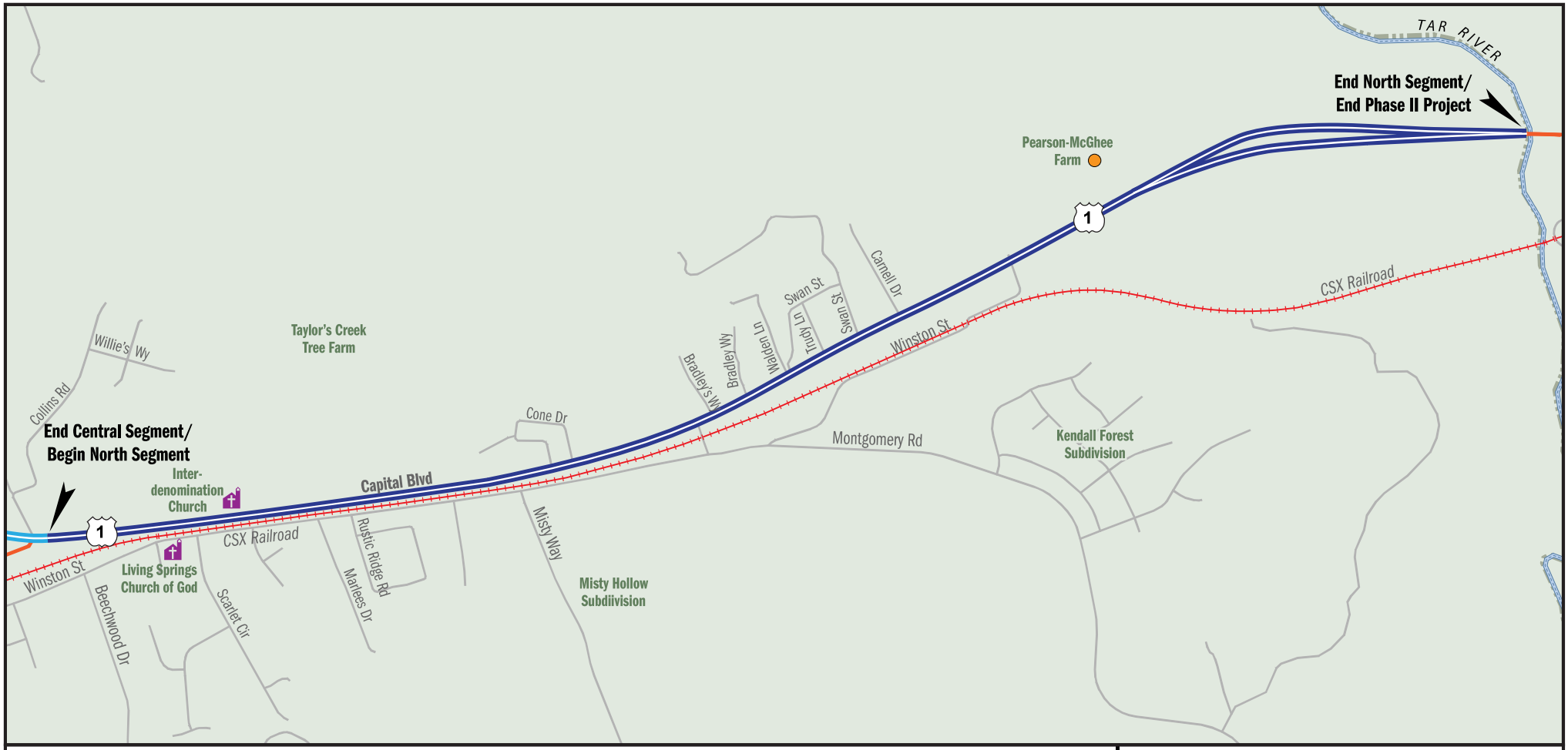
US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

Human Environment Features in Central Section

Figure 2-3B

US1 North Corridor Study Phase II

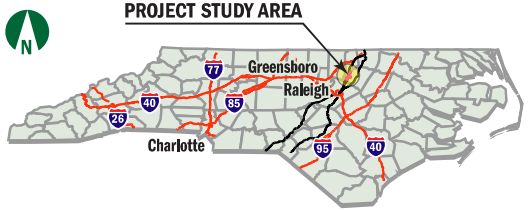


0 0.5 1

Scale in miles

LEGEND

- North Segment
- National Registry Historic Structures
- Cemeteries
- Churches
- Schools
- Potential HazMat Sites



US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

Human Environment Features in North Section

Figure 2-3C

The area is mostly residential and institutional, with a commercial core centered on US 1A (Main Street). Recent development includes retail focused development including the Food Lion shopping center on US 1 near the NC 56 interchange.

Town of Youngsville – (2010 population 1,157)

Youngsville was incorporated in 1875 and is smaller than Franklinton. It developed along the railroad and became a center for tobacco shipping within the state. In more modern times, Youngsville has experienced suburban growth both within and outside its town limits. Development in Youngsville along US 1 is denser than in Franklinton, driven primarily by Youngsville's closer proximity to Raleigh and Wake Forest. In the Phase II study area, the key roadway is US 1A (Park Avenue), which provides access to multiple light industrial developments and has direct access to US 1. Within Youngsville, the US 1 Corridor Study Phase I proposed an interchange at NC 96 with US 1.

2.2.1.2 *Economy*

Much of the development in Franklin County over the past several decades has been a result of the booming Triangle region in Wake County. It is estimated that of the 21,000 person workforce living in Franklin County, approximately 60 percent travel outside the county for work. Employment data for 2010 within Franklin County shows that the largest employment sectors in the county are:

- Manufacturing (16 percent)
- Health Care and Social Assistance (12.3 percent)
- Educational Services (12 percent)
- Retail Trade (9.8 percent)
- Public Administration (9.7 percent)

The average 2010 household income in Franklin County was $54,898, which is higher than average 2010 annual wage of $34,060. The labor force reduced from 27,660 to 25,373 in the period between December 2011 and June 2012. The 2010 unemployment rate was 10.0 percent, which reduced to 9 percent in 2012.

2.2.1.3 *Housing*

According to 2012 census data, approximately 8,890 housing units are located within the entire US 1 study area, out of which 91 percent are occupied. Franklin County's total housing is 23,023 with an occupancy rate of 84.6 percent. The 2016 projected total housing for the County is estimated to be 29,510, an increase of 9.1 percent in 4 years.

2.2.1.4 *Commute*

Commuting patterns are oriented to the automobile with 82 percent commuting to work using a personal vehicle. Only 0.3 percent use public transportation and 3 percent work from home. The average travel time for commuting to work is 32 minutes with 13.2 percent of workers driving more than 60 minutes to work each day.

2.2.1.5 *Schools*

Schools within the study area were identified through GIS, field review and review of available plans and reports. The schools in the study area include:

- Cedar Creek Middle School, located at 2228 Cedar Creek Road north of Youngsville.
- Long Mill Elementary School, located at 1753 Long Mill Road in Youngsville
- New Franklinton High School, located at 910 Cedar Creek Road.
- Franklinton Elementary, located at 431 South Hillsborough Street in Franklinton, west of the existing rail line. This school is located near the Franklinton town core.
- Old Franklinton High School, located at 3 North Main Street in Franklinton, west of the existing rail line. The school is located within the town core. It is being converted to a Middle School.

2.2.1.6 *Cemeteries*

Cemeteries in the project study area include the Fairview Cemetery, located at Green Street and Chavis Street in Franklinton, and the Evergreen Cemetery, located at US 1A (Main Street) at Cedar Creek Road in Franklinton.

2.2.1.7 *Churches*

Churches within the study limits included those shown below. It is possible that these churches may have private cemeteries on-site that were not included in the Cemeteries inventory above.

- New Life Outreach Ministry located in Franklinton at 131 Church Street
- Greater New Life Church-Christ located in Franklinton at 86 Pocomoke Road
- Mount Pleasant Presbyterian Church located in Franklinton on College Street
- First Baptist Church located in Franklinton at 304 South Main Street
- First United Church of Christ located at 20 West Green Street.
- Franklinton Baptist Church located at 102 West Mason Street
- Hands of Hope Ministry located in Franklinton at 229 West Mason Street.

- Franklinton United Methodist Church located at 109 North Main Street.
- Union View Baptist Church located in Franklinton at 13 Chavis Street.
- Living Springs Church of God located in Franklinton at 708 Winston Street.
- Inter-Denominational Church located in Franklinton at 4441 US 1.
- Allen Metropolitan A.M.E. Zion Church located at 210 West Green Street in Franklinton.

2.2.1.8 *Hazardous Materials*

Potential hazardous material sites within the study limits were found through a review of available plans and reports. These are shown below.

- Brodie, Howard/First Flight Way of The Cross 402 is located in Franklinton at North Main Street
- H & R Grocery located in Franklinton at 302 North Main Street.
- Franklinton High School located in Franklinton at 3 North Main Street.
- House Texaco Service located in Franklinton at 1 South Main Street.
- City Service Station located in Franklinton at 27 South Main Street.
- AR Snack Shack #245 located in Franklinton at 108 S. Main Street/Highway 56
- Ken's Quickie Mart located in Franklinton at 101 East Green Street.
- Bondsman located in Franklinton at 402 South Main Street.

2.2.1.9 *Historic Resources*

Historic resources in the study area were identified through GIS and review of available plans and reports, such the Southeast High Speed Rail DEIS. These include the following.

- **Sterling Cotton Mill:** The Sterling Cotton Mill, located within downtown Franklinton, is listed in the National Register of Historic Places (NRHP) under Criterion A for industry and under Criterion C for architecture. The two-story, simplified Italianate mill opened along the Raleigh and Gaston Railroad at the south end of town in 1895. Owned by Franklinton merchant, S.C. Vann, this yarn mill was the largest textile operation in Franklin County.

  By the early twentieth century, the mill included a complex network of spinning, looming, and carding rooms and adjacent cotton warehouses surrounded by worker housing for some 400 operatives. The mill village was constructed trackside beside the

mill and extended northward to form a cluster of worker housing on the east side of the tracks near the business district.

- **Franklinton Historic District (Includes Sterling Mill Historic District):** The SEHSR identified sections of downtown Franklinton as being eligible under Criterion A of the NRHP for community development, planning, industry, education, and commerce, and under Criterion C for architecture. The area, defined as the Franklinton Historic District in the SEHSR DEIS, includes structures listed in the NRHP, including the Sterling Cotton Mill (discussed above), the Dr. J. H. Harris House, the Dr. J. A. Savage House, the C.L. and Bessie G. McGhee House, and the Aldridge H. Vann House.

  The DEIS identifies the downtown historic district as notable for its range of residential, religious, commercial, civic, and industrial architecture epitomizing the development of a Piedmont railroad town and remaining one of the most intact, small railroad towns in the Piedmont. The Franklinton Historic District identified in the DEIS is loosely bounded by College Street, Cheatham Street, N. Hillsborough Street, Pearce Street, Chavis Street, Mason Street, Tanyard Street, and Green Street. However, it should be noted that the Town of Franklinton is not in agreement with the designation of the area as a historic district.

- **Person-McGhee Farm:** The Person-McGhee Farm is listed in the NRHP under Criterion A for agriculture and Criterion C for architecture. The Person-McGhee Farm is an especially expansive and well-preserved farmstead established in a valley of the Tar River beginning in the 1830s. The centerpiece of the farm is a large and unusually elaborate Queen Anne dwelling surrounded by an array of outbuildings. This house includes a Federal-style rear section built for the Person family.

  The present 500-acre working farm tract is both historically and visually significant with clearly defined natural boundaries of streams and hills, and manmade boundaries of farm roads and railroad tracks. The Person-McGhee Farm is located just south of the study corridor's northern terminus with property both west and east of US 1.

- **Shemuel Kearney House Property:** The Shemuel Kearney House, built in 1759 by town founder Shemuel Kearney, was originally located south of Franklinton on the west side of US 1. Currently the oldest residence in Franklin County, the house was recently purchased and has been moved to Louisburg for restoration.

- **Franklinton Depot:** The Franklinton Depot, located at 201 East Mason Street in Franklinton, functioned as the Seaboard Coastal Railroad Line station. The building was built in 1840 and was placed on the National Register of Historic Places in 1973.

2.2.2 Natural Environment

A review of natural environmental features in the project corridor was conducted. The evaluation was primarily based on available GIS information and a review of the SEHSR analysis within Franklin County. The inventory of natural environmental data focused on hydrology, including surface water, lakes and ponds, and wetlands as well as air quality. A map of the natural environmental features in the corridor is summarized in Figure 2-4.

2.2.2.1 *Hydrology*

Surface Water

The surface water, river basins and watersheds identified within the project study area are listed below.

- **Tar River/Tar-Pamlico River Basin:** The entire Phase II Study Corridor is contained within the Upper Tar River subsection of the Tar-Pamlico River Basin. All waters within this river basin are classified as Nutrient Sensitive Waters (NSW) (NCDWQ, 2000), which require certain management techniques to prevent excessive growth of macroscopic or microscopic vegetation. The watershed is classified WS-IV (water supplies that are generally in moderately to highly developed watersheds).
- **Cedar Creek:** Cedar Creek crosses US 1 south of the Town of Franklinton in the South Section of the study corridor and is a major tributary to the Tar River. The Cedar Creek watershed is classified WS-II (generally in predominantly undeveloped watersheds).
- **Unnamed tributary of Cedar Creek:** An unnamed tributary of Cedar Creek crosses US 1 south of Cedar Creek in the South Section of the study corridor.

Lakes and Ponds

- Lakes and ponds identified within the project study area include Franklinton Reservoir, which is located east of US 1 at NC 56, and Gupton's Lake, which is located along Swan Street.

Wetlands

Wetlands within the project study area were identified through GIS and review of available plans and reports. The wetlands found include the following:

- Along Cedar creek south of Franklinton – Classified as Freshwater Forested/Shrub Wetland
- Along unnamed tributary of Cedar Creek – Classified as Freshwater Forested/Shrub Wetland
- Along Tar River at north terminus – Classified as Freshwater Emergent Wetland/ Freshwater Forested/Shrub Wetland

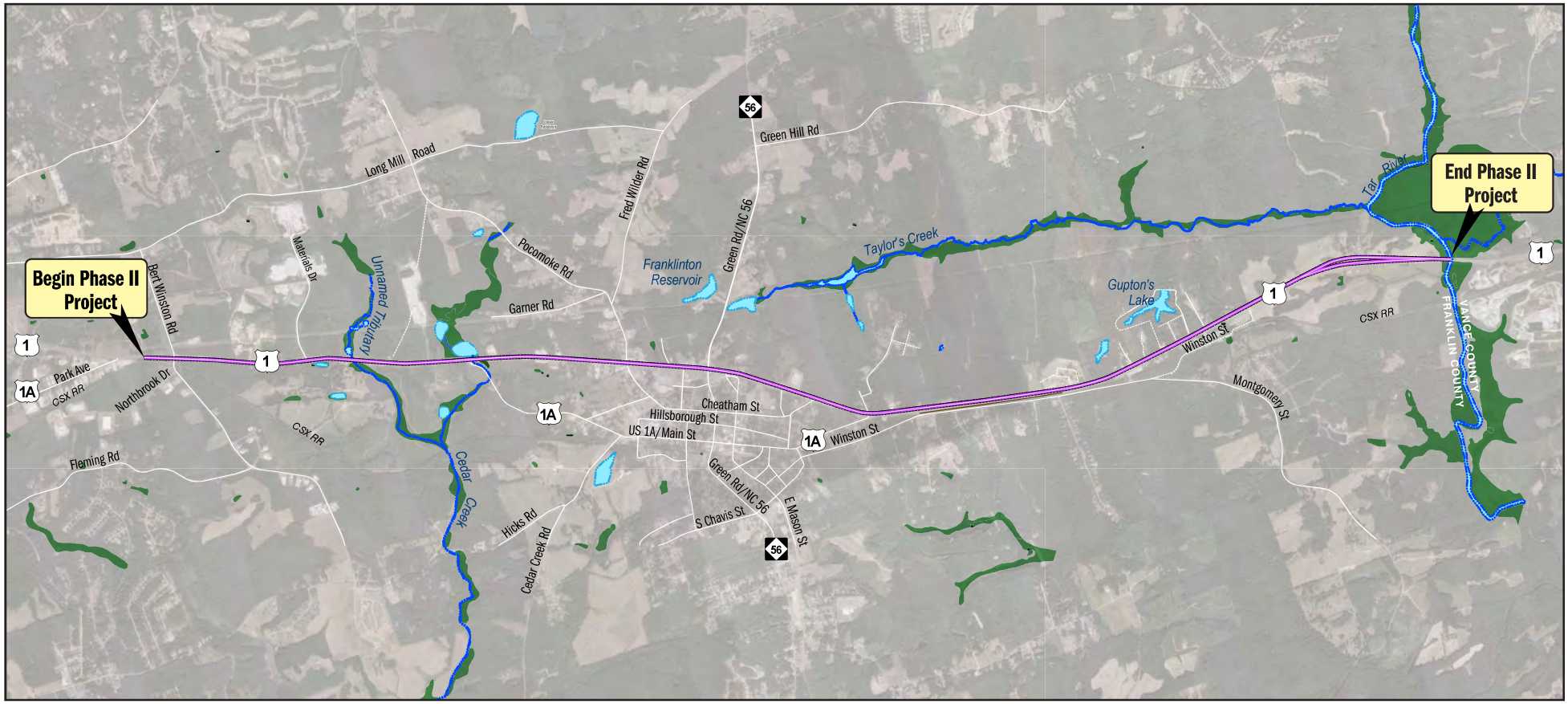
2.2.2.2 *Air Quality*

In 1997 the National Ambient Air Quality Standards (NAAQS) for ozone were revised by the US Environmental Protection Agency based on improved scientific understanding of health impacts of ozone. An eight-hour ozone standard was established and took in effect June 15, 2004.

Franklin County, as part of the Triangle Area (consisting of NC Capital Area MPO, Durham-Chapel Hill-Carrboro MPO, and Burlington-Graham MPO), was designated non-attainment for 8-hour ozone. The *State Implementation Plan* has been prepared to provide implementation and enforcement of emission control measures, and outline how the Triangle Area (and Franklin County) will meet the current NAAQS.

As part of the *State Implementation Plan*, transportation plans, transportation improvement programs, and federally funded or approved transportation projects within the non-attainment area must undergo transportation conformity. The conformity determination would demonstrate that the total emissions projects for a plan or program are within emission limits established by the State Implementation Plan, and that transportation control measures are implemented in a timely fashion.

US1 North Corridor Study Phase II



LEGEND

- Streams
- Water Bodies
- Wetlands

US 1 Phase II Study - Franklin County PARSONS BRINCKERHOFF	Natural Environmental Features in Study Area	Figure 2-4

Backside of Figure 2-4 (11x17 figure)

2.3 Transportation Data Inventory

2.3.1 Roadways

A review of the existing roadway system on US 1 and the other major and local roadways was conducted for the study area. This included an evaluation of physical features, traffic volumes, and right of way. Project area roadways are shown in Figures 2-3A, 2-3B, and 2-3C for the south, central, and north sections, respectively.

2.3.1.1 *US 1*

US 1 is a four-lane, divided, rural highway that runs through Franklin County. It has paved shoulders that are 2 feet wide along the grass center median, and 6 feet wide along the outside of the highway. Left turn lanes are cut through the center median at intersections and grade crossings, and the center median varies in width throughout the corridor. The locations where the median widths vary are shown in Table 2-2.

Table 2-2. Locations of Varying Median Width

Location		Notes	Median Width (in feet)	Approx. Distance (in miles)
From	To			
Southern project limit at US 1A Park Avenue	1,000 feet north of US 1A (Main St.) S. of Franklinton	None	32'	2.4
1,000 feet north of US 1A (Main St.) S. of Franklinton	2200 feet N. of Winston Street	None	46'	5.1
2200 feet N. of Winston Street	1000 feet S. of the Tar River	Northbound/southbound alignments diverge at this point.	46' (south) 154' (middle) 58' (north)	0.7
1000 feet S. of the Tar River	Franklin/Vance County line at Tar River Bridge	None	58'	0.2

Note: Compass directions are abbreviated (N., S., E., and W. are north, south, east and west.)

The roadway right-of-way (ROW) also varies along the corridor to accommodate various roadway elements, intersections, and construction limits. The locations where the ROW widths vary are shown in Table 2-3.

Table 2-3. Right of Way Widths on US 1

Location		Notes	ROW Width (in feet)	Approx. Distance (in miles)
From	To			
Southern project limit at US 1A Park Avenue	1,000 feet north of US 1A (Main St.) S. of Franklinton	None	200'	2.4
1,000 feet north of US 1A (Main St.) S. of Franklinton	500 feet north of US 1A (Main St) N of Franklinton	Includes widened areas for intersections and the NC 56 interchange.	200' to 220'	2.4
500 feet north of US 1A (Main St) N of Franklinton	Eric Medlin Road	US 1 is immediately adjacent to and parallels the CSX railroad	180'	1.5
Eric Medlin Rd.	Swan St.	None	210'	0.4
Swan St.	Franklinton/Vance County line	None	200'	1.7

Note: Compass directions are abbreviated (N., S., E., and W. are north, south, east and west.)

There is one existing interchange at NC 56. The NC 56 interchange provides a two-lane bridge over US 1. However, its geometric design does not meet the current NCDOT standards for new design with short approach ramps and stop signs controlling flow from the ramps onto US 1. In addition, there are currently two signalized intersections on US 1 at Bert Winston Road and Pocomoke Road/Cheatham Street. The posted speed limit for US 1 is 55 mph.

2.3.1.2 *Other Roadways*

Cross Streets

There are a number of cross streets that intersect US 1 in the study area. The cross streets include, from south to north:

- **US 1A (Park Avenue)**: This roadway is a two-lane undivided roadway that also serves as the northern leg of US 1A that goes through Youngsville. Park Avenue (US 1A) is a non-signalized T- intersection with a full median opening. The existing average annual daily traffic (AADT) is 3,200 vehicles per day (vpd).
- **Bert Winston Road:** This roadway is a two-lane undivided east-west roadway, with a signalized intersection at US 1. It is a preferred truck route for transporting goods and materials between Youngsville and Louisburg. It also crosses the CSX railroad east of US 1.

- **US 1A South Main Street:** This roadway is the southern end of the US 1A leg that goes through the downtown Franklinton. It is a two-lane undivided roadway with an unsignalized T- intersection at US 1 and a full median opening. The existing AADT is 2,200 vpd near US 1 and 4,600 vpd near NC 56.
- **Pocomoke Road/Cheatham Street:** This roadway is a two-lane undivided roadway, with a signalized intersection at US 1 and a full median opening. It serves as a connector between NC 96 and US 1, and as a thoroughfare for the residents of southwest Franklinton to get to downtown Franklinton. The existing AADT is 2,600 vpd on Pocomoke Road.
- **Janice Street:** This roadway is a two-lane undivided roadway, with a non-signalized T-intersection at US 1 and restricted median. It is a connector between US 1 and Cheatham Street and serves as an access to retail establishments and the Food Lion store on US 1.
- **NC 56 Green Street:** This roadway is a two-lane undivided roadway with a substandard conventional diamond interchange at US 1. It connects Franklinton with Creedmoor to the west and Louisburg to the east. The interchange has inadequate ramp lengths and merge areas. Stop signs are utilized at the merge connections with US 1, and would require improvements as part of the freeway upgrades to US 1. NC 56 also crosses the CSX railroad east of US 1 with an existing underpass. The existing AADT is 6,000 vpd near

US 1 and 7,900 vpd near US 1A.

- **Mason Street:** This roadway is a two-lane undivided roadway with a non-signalized T-intersection at US 1 and full median opening. It is an east-west roadway that serves established residential neighborhoods in the northern part of downtown Franklinton, and it crosses the CSX railroad east of US 1. Historically it was the main east west connection through Franklinton before NC 56.
- **Cheatham Street:** This roadway is a two-lane undivided roadway with a non-signalized T- intersection at US 1 and full median opening. A portion of Cheatham Street is a north-south roadway that serves established residential neighborhoods in the northern part of downtown Franklinton.

- **US 1A North Main Street:** This roadway is the northern end of the US 1A leg that goes through the downtown Franklinton. It is north of Franklinton and is a two-lane undivided roadway with a four-leg, non-signalized intersection at US 1 and a full median opening. It connects with Mann Street west of US 1. The existing AADT is 950 vpd near US 1.
- **Mann Street:** This roadway is a two-lane undivided roadway that provides a connection between US 1 and Collins Road. It primarily provides access to residential areas, and connects to the US 1A/ North Main Street with a 4-leg intersection.
- **Cone Drive:** This roadway is a two-lane undivided roadway with a non-signalized T-intersection at US 1 and a full median opening. It serves single-family (mobile home) residences west of US 1 and north of Franklinton.
- **Eric Medlin Road:** This roadway is a two-lane undivided roadway with a non-signalized T- intersection at US 1 and full median opening. It is a local connector between US 1 and Winston Street, and it crosses the CSX railroad east of US 1.
- **Winston Street:** This roadway is a two-lane undivided roadway with a non-signalized T- intersection at US 1 and full median opening. It is a local connector between US 1 and Montgomery Road, and is currently closed at the CSX railroad crossing.

Parallel Streets

Roadways west of US 1

- **Long Mill Road:** This roadway is a two-lane undivided roadway that connects Long Mill Elementary School in the South section of the US 1 corridor to residential neighborhoods in the vicinity of NC 56. It also connects the Long Mill Elementary School to Youngsville.

- **Green Hill Road:** This roadway is a two-lane undivided roadway that connects to NC 56 to residential neighborhoods north of NC 56. The existing AADT is 1,200 vpd.

Roadways east of US 1

- **Fleming Road:** This roadway is a two-lane undivided roadway that connects NC **96 (eastern You**ngsville) to Bert Winston Road and serves residential neighborhoods east of US 1.

- **Hicks Road:** This roadway is a two-lane undivided roadway that connects Cedar Creek Road and forms a loop. It serves residential neighborhoods between US 1 and Cedar Creek Road.

- **Cedar Creek Road:** This roadway is a two-lane undivided north-south roadway that connects NC 96 (eastern Youngsville) to US 1A in downtown Franklinton. It serves as a thoroughfare between the towns of Youngsville and Franklinton, and also serves residential neighborhoods and the new Franklinton High School.

- **Lane Store Road:** This roadway is a two-lane undivided north-south roadway that connects Cedar Creek Road and NC 56 east of Franklinton. Lane Store Road serves residential neighborhoods on the east side of downtown Franklinton.

- **Winston Street:** This roadway is a two-lane undivided roadway that parallels US 1 from downtown Franklinton to Montgomery Road, and serves low density residential neighborhoods adjacent to the east of US 1.

- **Montgomery Road:** This roadway is a two-lane undivided roadway that connects Winston Street (and US 1) to residential neighborhoods and new subdivisions at the northeastern portion of the project study area. The existing AADT is 560 vpd.

2.3.1.3 *Roadway Conditions*

Geometric Design Issues

The existing US 1 corridor was investigated to identify roadway characteristics that would require improvements to provide a 60 mph design speed. The following observations were noted:

Horizontal Alignment: Approximately 2,000 feet south of the Tar River Bridge, US 1 follows separate horizontal alignments in the northbound and southbound directions. The northbound movement is on a newer alignment with a longer radius and higher design speed. Regardless, both directions meet the horizontal requirements for a 60 mph design speed. All remaining horizontal curves on the project segment of US 1 also meet the requirements for a 60 mph design speed.

Vertical Alignment: Final Construction plans and LIDAR elevation data were used to determine the project segment vertical alignment attributes. All together, more than 65 vertical curves (and associated grades) were reviewed along existing US 1. These attributes are presented in Table 2-4 and are discussed below.

For a rural and urban freeway with a design speed of 60 MPH, the American Association of State Highway and Transportation Officials (AASHTO) recommends a maximum grade of 4 percent and a minimum grade of 0.3 percent. Nine grade discrepancies were noted. Of the nine grade discrepancies, three did not meet a minimum grade of 0.3 percent. Six grades were greater than the recommended 4 percent maximum.

However all grades were less than 5 percent which is acceptable for a freeway with a design speed of 55 mph. NCDOT generally allows use of the posted speed in design assumptions. Since the existing US 1 is posted at 55 mph, maintaining existing conditions of a 55 mph design speed could be acceptable, although a design exception would need to be granted. Grades exceeding the maximum 4 percent are highlighted in blue in Table 2-4.

AASHTO also recommends that all vertical curves meet at least the stopping sight distance based on design speed. A total of 19 vertical curves (30 percent of total) do not meet a 60 mph design speed. Of those 19 discrepancies, 13 (20 percent) met a design speed equal to the posted speed of 55 mph, however, and could potentially be acceptable with a design exception.

Table 2-4. Vertical Alignment Deficiencies

Direction	Location of Curve VPI or Begin Grade	Type of Discrepancy	Design Speed Met	Remarks	Recommendations
Both	Intersection of US 1/US 1A Park Ave	Grade (max)	55	Existing grade exceeds maximum grade of 4% for 60 MPH Freeway	Grade meets requirements for posted speed of 55 MPH, therefore no corrective action required.
Both	800' south of Bert Winston	Sag Vertical Curve	30	Existing vertical curve does not meet required K values for 60 MPH	Use longer vertical curve to meet 60 MPH design speed. Approximately 1200' of reconstruction.
Both	500' north of Bert Winston	Split Grades		Approximately 2000' of split grade between NB and SB lanes	May require raising the grade or corrective action in the median.
Both	800' north of Materials Drive	Grade (max)	55	Existing grade exceeds maximum grade of 4% for 60 MPH Freeway	Grade meets requirements for posted speed of 55 MPH, therefore no corrective action required.
Both	1600' north of Materials Drive	Sag Vertical Curve	55	Existing vertical curve does not meet required K values for 60 MPH	Sag vertical curve meets 55 MPH posted speed, therefore no corrective action required.
Both	1600' north of Materials Drive	Grade (max)	55	Existing grade exceeds maximum grade of 4% for 60 MPH Freeway	Grade meets requirements for posted speed of 55 MPH, therefore no corrective action required.
Both	2600' north of Materials Drive	Crest Vertical Curve	50	Existing vertical curve does not meet required K values for 60 MPH	Use longer vertical curve to meet 60 MPH design speed. Approximately 600' of reconstruction.
SB	500' north of US 1/US 1A (South Main Street)	Sag Vertical Curve	55	Existing vertical curve does not meet required K values for 60 MPH	Sag vertical curve meets 55 MPH posted speed, therefore no corrective action required.
SB	500' north of US 1/US 1A (South Main Street)	Grade (max)	55	Existing grade exceeds maximum grade of 4% for 60 MPH Freeway	Grade meets requirements for posted speed of 55 MPH, therefore no corrective action required.
SB	1700' north of NC-56	Sag Vertical Curve	55	Existing vertical curve does not meet required K values for 60 MPH	Sag vertical curve meets 55 MPH posted speed, therefore no corrective action required.
SB	500' north of Cheatham Street	Sag Vertical Curve	55	Existing vertical curve does not meet required K values for 60 MPH	Sag vertical curve meets 55 MPH posted speed, therefore no corrective action required.

Table 2-4. Vertical Alignment Deficiencies (continued)

Direction	Location of Curve VPI or Begin Grade	Type of Discrepancy	Design Speed Met	Remarks	Recommendations
Both	US-1A/US-1 (Main Street - north)	Split Grades		Approximately 2000' of split grade between NB and SB lanes	May require raising the grade or corrective action in the median.
NB	1500' north of US-1A/US-1 (Main Street -north)	Sag Vertical Curve	40	Existing vertical curve does not meet required K values for 60 MPH	Vertical curves are located relatively close to one another. Adjusting any of the vertical curves would likely require adjusting all vertical curves in this area. Approximately 2000' of reconstruction.
NB	1800' north of US-1A/US-1 (Main Street -north)	Crest Vertical Curve	45	Existing vertical curve does not meet required K values for 60 MPH	
NB	2200' north of US-1A/US-1 (Main Street -north)	Sag Vertical Curve	55	Existing vertical curve does not meet required K values for 60 MPH	
NB	2200' north of US-1A/US-1 (Main Street -north)	Grade (min)		Existing grade does not meet required 0.3% minimum	
NB	4000' north of US-1A/US-1 (Main Street -north)	Sag Vertical Curve	55	Existing vertical curve does not meet required K values for 60 MPH	Sag vertical curve meets 55 MPH posted speed, therefore no corrective action required.
NB	2000' south of Eric Medlin Road	Crest Vertical Curve	50	Existing vertical curve does not meet required K values for 60 MPH	Use longer vertical curve to meet 60 MPH design speed. Approximately 300' of reconstruction.
NB	1250' south of Eric Medlin Road	Sag Vertical Curve	40	Existing vertical curve does not meet required K values for 60 MPH	Use longer vertical curve to meet 60 MPH design speed. Approximately 700' of reconstruction.
SB	1250' south of Eric Medlin Road	Sag Vertical Curve	55	Existing vertical curve does not meet required K values for 60 MPH	Sag vertical curve meets 55 MPH posted speed, therefore no corrective action required.
NB	300' north of Eric Medlin Road	Grade (max)	55	Existing grade exceeds maximum grade of 4% for 60 MPH Freeway	Grade meets requirements for posted speed of 55 MPH, therefore no corrective action required.

Table 2-4. Vertical Alignment Deficiencies (concluded)

Direction	Location of Curve VPI or Begin Grade	Type of Discrepancy	Design Speed Met	Remarks	Recommendations
NB	1100' north of Eric Medlin Road	Sag Vertical Curve	55	Existing vertical curve does not meet required K values for 60 MPH	Sag vertical curve meets 55 MPH posted speed, therefore no corrective action required.
NB	1100' north of Eric Medlin Road	Grade (min)		Existing grade does not meet required 0.3% minimum	If existing cross slope is sufficient enough to allow for drainage then no action required.
SB	900' south of Winston Street	Sag Vertical Curve	55	Existing vertical curve does not meet required K values for 60 MPH	Sag vertical curve meets 55 MPH posted speed, therefore no corrective action required.
NB	900' south of Winston Street	Sag Vertical Curve	55	Existing vertical curve does not meet required K values for 60 MPH	Sag vertical curve meets 55 MPH posted speed, therefore no corrective action required.
SB	900' north of Winston Street	Sag Vertical Curve	55	Existing vertical curve does not meet required K values for 60 MPH	Sag vertical curve meets 55 MPH posted speed, therefore no corrective action required.
NB	900' north of Winston Street	Sag Vertical Curve	55	Existing vertical curve does not meet required K values for 60 MPH	Sag vertical curve meets 55 MPH posted speed, therefore no corrective action required.
NB	1500' south of Tar River Bridge	Grade (max)	55	Existing grade exceeds maximum grade of 4% for 60 MPH Freeway	Grade meets requirements for posted speed of 55 MPH, therefore no corrective action required.
NB	700' south of Tar River Bridge	Sag Vertical Curve	55	Existing vertical curve does not meet required K values for 60 MPH	Sag vertical curve meets 55 MPH posted speed, therefore no corrective action required.
NB	700' south of Tar River Bridge	Grade (min)		Existing grade does not meet required 0.3% minimum	If existing cross slope is sufficient enough to allow for drainage then no action required.

Color Legend:

Green: Vertical curves meeting 55 mph design speed.

Yellow: Vertical curves meeting 50 mph design speed.

Red: Vertical curves with lower than 50 mph design speed.

Orange: Split grades with different NB and SB profiles.

Blue: Grades either exceeding 4% or less than 0.3%.

Notes:

1. The data above does not include vertical curves providing a design speed of 60 mph or greater.
2. Design exceptions may be applicable, particularly if the posted 55 mph speed limit is not exceeded.

In addition, all of these 13 curves are sags which are less critical than crest curves. Of the remaining vertical curves, 2 vertical curves met a design speed of 50 mph (highlighted yellow in Table 2-4) and 4 vertical curves failed to meet a design speed of 50 mph (highlighted red). These six curves will need improvements as part of the ultimate freeway upgrade on the US 1.

Upon review of the final construction plans, there are some segments along US 1 where the original two-lane US 1 (now southbound lanes) follow a different vertical profile than the newer northbound lanes. Field review has identified two areas where the difference in elevation is significant as shown in orange in Table 2-4. This is not desirable for a freeway without proper median treatments. As part of a freeway upgrade, these segments of US 1 would need reconstruction.

Access Issues

Existing access was reviewed for the US 1 corridor. The results of the review are presented below in Table 2-5. The review determined that most of the median openings along the corridor are at least 1,200 feet apart. However, three median openings were found to be approximately 1,000 feet apart. In addition the Janis Street and Mason Street crossovers are both located less than 400 feet from the NC 56 interchange ramp connections to US 1.

Although 400 feet spacing can be allowed for an intersection without full access, the NCDOT standard for spacing between median breaks allowing all movements is 1,200 feet. With turn restrictions this can be reduced to 400 feet. A separate criterion is the need to have adequate distance for merging on either side of an interchange (typically 1,200 feet). Using this criterion, the following recommendations are made:

- **Janice Street:** At Janice Street, close the existing median crossing in the short term. This is recommended due to the crash history and potential for weaving of traffic from the NC 96 interchange southbound ramp to a left turn at Janice Street.
- **Mason Street:** At Mason Street, conversion to a leftover is recommended in the short term. Although this intersection is also 400 feet from the interchange, southbound traffic using Mason Street of the NC 96 ramp make their maneuvers approaching the

Table 2-5. Median Openings and Access on US 1

Type of Intersection/ Access Point	South Sect. 1 Park Avenue to US 1A south	Central Sect. 2A and 2B US 1A south to US 1A north	North Sect. 3 US 1A north to Vance County	Adjusted Total for Study Area
Miles	1.81	2.80	3.58	8.19
Interchange	0	1	0	1
Traffic Signal	1 (4-leg)	1 (4-leg)	0	2
4-leg median opening	0	3	2	5
3-leg (T) median opening	2	6	5	13
U-turn only median opening	0	0	3	3
Total Median Openings	3	10	10	23
Right In-Right Out Access Points	11	22	16	49

Note: Computation of Total Median Openings does not include the NC 56 interchange.

interchange instead of departing the interchange. This allows more decision time and less conflict. The elimination of the left turn from Mason Street to US 1 southbound would eliminate potential conflict of Mason Street traffic exiting immediately at NC 96.

2.3.2 Traffic Analysis

One of the key purposes of this study is to identify possible capacity constraints on US 1 and along major connections to US 1. Using this information, proposed improvements will be investigated to provide adequate capacity through the 2040 design year. Evaluations of congestion thresholds are examined as part of this study to identify the need for interim improvements to maintain acceptable operations prior to 2040.

2.3.2.1 *Capacity Analysis Thresholds*

Level of service (LOS) thresholds are used to characterize traffic capacity on highways and roadways. The LOS approach uses a standardized technique that results in categorizing a roadway or highway from LOS A to LOS F. LOS A represents uncongested flow. LOS F represents extreme congestion and high levels of delay. In general, LOS D is used as the desired threshold when examining urban facilities and LOS C is preferred for rural facilities. LOS for various types of highways and roadways is presented below in Table 2-6.

To provide an initial capacity analysis of the corridor, LOS thresholds for average daily traffic were determined for the existing 4-lane rural highway as well as potential for future typical

Table 2-6. Level of Service Thresholds for 4 typical sections

Facility Type	Level of Service Thresholds (vehicles per day)				
	A	B	C	D	E
4–lane section					
Rural Highway	16,400	26,800	38,700	52,000	55,200
Principal Arterial	16,000	29,800	31,700	34,200	37,700
Superstreet	36,400	39,600	41,900	45,200	49,700
Freeway	18,100	29,600	42,700	53,800	60,800

Notes:

1. ADT lookup table developed using NCLOS software.
2. Daily volumes based on assumption of 10% peak hour percentage and 60-40 directional split.
3. Principal arterial analysis assumes 50% green time for US 1 throughs. Superstreet analysis assumes 65% green time for US 1 throughs.

sections that are considered for US 1 improvements. NCLOS planning level capacity software was used to estimate the daily LOS thresholds. The LOS thresholds are shown in Table 2-6.

It needs to be noted that LOS for freeways and arterials cannot be directly compared. In some cases, a freeway may operate at a worse LOS than an arterial with similar volumes. This apparent discrepancy is because the LOS ratings are based on a driver's perception of the quality of flow. On a freeway even small reductions in speed are perceived negatively although the drivers can continue to flow at a relatively high speed without stops. With an arterial or superstreet, however, the average driver is conditioned to accept a certain amount of delay including, by necessity, stopping at red lights. In general, a freeway will almost always provide relatively continuous flow with no stops except at very high levels of congestion and breakdown conditions.

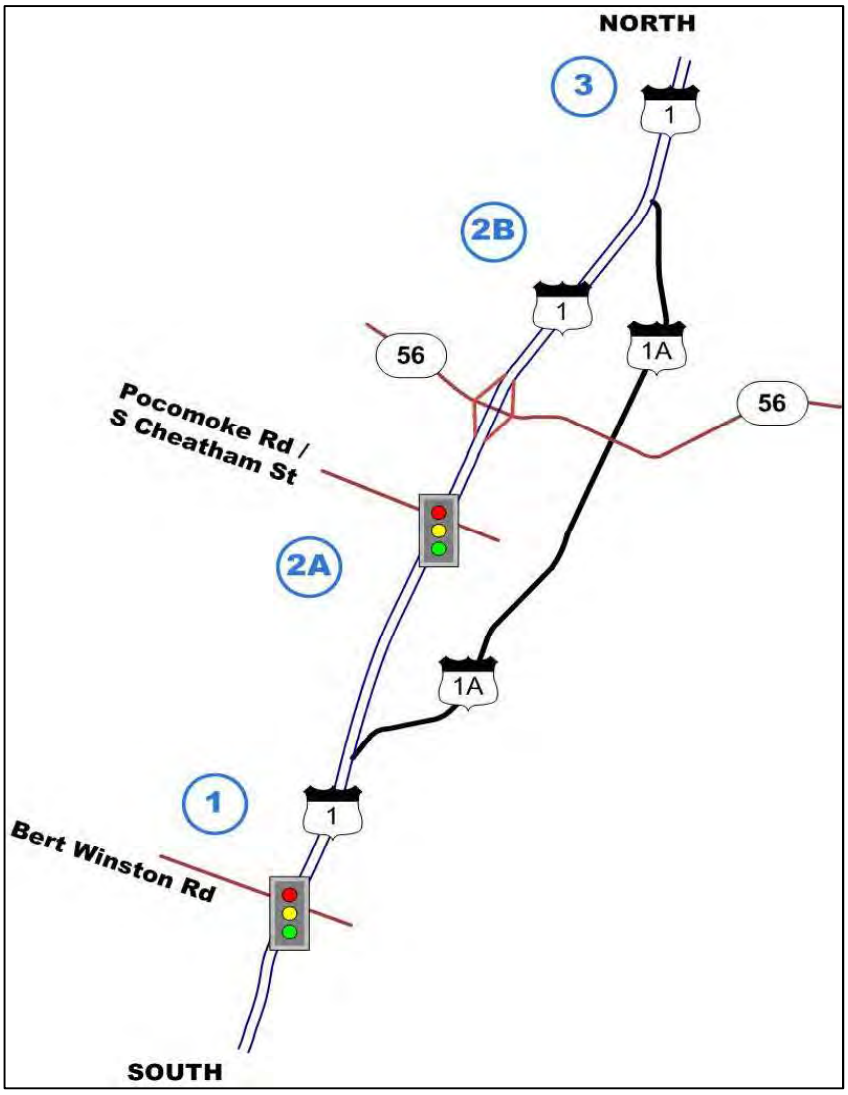
2.3.2.2 *Existing US 1 Traffic Volumes & Capacity Analysis*

Daily traffic volumes were examined to estimate existing Level of Service (LOS) on the corridor. The Rural Highway category was used to characterize the northern portion of US 1 because it is consistent with the present roadway. The Principal Arterial category was used to characterize the US 1 portion south of NC 56 because of the presence of two signals in this location. Table 2-7 presents the existing LOS for the project sections. The sections in the table below are shown in Figure 2-5.

Table 2-7. Existing Volumes and Capacity Analysis

Section	Roadway Description	Existing 2010 Vehicles per Day (VPD)	LOS
North	Northern Limit - Vance County	12,000	A
3	North of Franklinton - north of US 1A	12,000	A
2B	Franklinton - north of NC 56	12,000	A
2A	Franklinton south of NC 56	16,000	B
1	South of Franklinton - south of US 1A	18,000	B
South	Southern Limit to Youngsville	17,000	B

Figure 2-5. Roadway Sections for Capacity Analysis



In general, existing traffic volumes on US 1 in the study area are relatively low for a four-lane roadway, ranging from 18,000 vpd on the southern section of the corridor to 12,000 vpd near the corridor's northern limits. Traffic volumes are higher south of the existing NC 56 interchange in Franklinton with a higher volume of vehicles traveling to and from the south. Based on the results of the volumes and capacity analysis, it can be concluded that the existing US 1 corridor as sufficient capacity to serve the existing traffic volumes.

2.3.2.3 *Crash Analysis*

A crash analysis was also conducted for 8.2 miles of US 1 within the study area. This included an examination of crash rates, crash types and identification of high crash locations on the corridor.

Crash Rate Analysis

The crash rate analysis was conducted using data provided by the NCDOT Traffic Engineering Accident Analysis System (TEAAS) crash records database for the three year period between December 2008 and November 2011. The total, fatal, and injury-only crash rates were calculated for four sections along the corridor and for the entire corridor. The analysis is summarized in Table 2-8.

Table 2-8. Crash Rate Analysis for US 1

	South Sect. 1 Park Avenue to US 1A south	Central Sect. 2A US 1A south to NC 56	Central Sect. 2B NC 56 to US 1A north	North Sect. 3 US 1A north to Vance County	Adjusted Total for Study Area	Statewide Average
Miles	2.09	1.54	1.02	3.75	8.40	N/A
Total Crash Rate	**122.35**	61.00	35.81	45.92	66.47	84.06
Fatal Crash Rate	0.00	0.00	0.00	**2.78**	**1.24**	0.72
Injury Crash Rate	**42.45**	13.55	10.23	8.35	18.02	26.65

Notes:

1. Crash rates summarized in crashes per 100 million vehicle miles (100 MVM).
2. Rates shown in bold exceed the statewide average for rural 4-lane divided US highways.

From Table 2-8 it is observed that:

- Overall the total crash rate on US 1 is slightly lower than similar rural 4-lane divided US highways in North Carolina.

- The South Section 1 has the highest total and injury crash rate. The rates in this section exceed the statewide average for both crash classifications.
- North Section 3 had two fatal crashes. Of these, one occurred near the intersection of Cone Drive. The second fatality occurred approximately 0.5 miles south of Cone Drive. One of the crashes involved a head-on truck-car collision with alcohol involved. The other involved a single vehicle entering a ditch and overturning at 4:30 AM. Both crashes occurred on a straight section of roadway. The combination of these two crashes resulted in a fatal crash rate on US 1 exceeding the state average.

Type of Crashes

In addition to the crash rate analysis, a review of the types of crashes occurring on the corridor was conducted. This analysis is summarized in Table 2-9.

Table 2-9. Types of Crashes on US 1

Type of Crash	South Sect. 1 Park Avenue to US 1A south		Central Sect. 2A US 1A south to NC 56		Central Sect. 2B NC 56 to US 1A north		North Sect. 3 US 1A north to Vance County		Adjusted Total for Study Area	
Miles	2.09		1.54		1.02		3.75		8.40	
Angle	5	10.2%	2	11.1%	0	0.0%	1	3.0%	8	7.5%
Animal	10	20.4%	6	33.3%	4	57.1%	16	48.5%	36	33.6%
Fixed Object	17	34.7%	2	11.1%	1	14.3%	5	15.2%	25	23.4%
Head On	0	0.0%	0	0.0%	0	0.0%	1	3.0%	1	0.9%
Left Turn – Different Roadways	0	0.0%	4	22.2%	0	0.0%	0	0.0%	4	3.7%
Left Turn – Same Roadway	2	4.1%	0	0.0%	0	0.0%	0	0.0%	2	1.9%
Movable Object	2	4.1%	0	0.0%	0	0.0%	2	6.1%	4	3.7%
Other Non-Collision	1	2.0%	0	0.0%	0	0.0%	0	0.0%	1	0.9%
Overturn/Rollover	3	6.1%	0	0.0%	1	14.3%	2	6.1%	6	5.6%
Ran Off Road – Left	0	0.0%	0	0.0%	0	0.0%	1	3.0%	1	0.9%
Rear End – Slow or Stop	3	6.1%	1	5.6%	0	0.0%	4	12.1%	8	7.5%
Rear End – Turn	1	2.0%	0	0.0%	0	0.0%	0	0.0%	1	0.9%
Sideswipe, Same Direction	5	10.2%	3	16.7%	1	14.3%	1	3.0%	10	9.3%
Total	49	100%	18	100%	7	100%	33	100%	107	100%
Single Vehicle Crashes		65%		42%		86%		79%		67%

From the analysis in Table 2-9 it is observed that:

- Overall 67 percent of crashes involved a single vehicle. The only section of the corridor with more than 50 percent of crashes involving two vehicles was the Central section between US 1A and NC 56.This data is indicative of crashes related to access patterns.
- The second most common type of crash (23.4 percent) is "Fixed Object" type.
- The southern section had more than double the percentage of fixed object crashes (34.7 percent) than any other segment. A review of the data indicated that 4 of the 6 crashes related to catch basins in the US 1 study area occurred in this section (2 in the median, 2 on the shoulder). In addition, 50 percent of the fixed object crashes in the South Section were with the shoulder, embankment, or trees.
- The most common type of crash (33.6 percent) involved an animal being hit by a vehicle. These crashes occurred throughout the corridor.
- There was only one head-on collision. It resulted in a fatality. The crash was alcohol related.
- The percent of crashes involving more than one vehicle was highest (58 percent) in the central section. This observation confirms a higher level of intersection and access related crashes related to the higher levels of retail development.

High Frequency Crash Locations

The following locations were identified as part of NCDOT's high frequency crash location review of Franklin County (locations are identified from south to north):

- US 1 at US 1A (Park Avenue)
- US 1 at US 1A (South Main Street)
- US 1 at US 1A (North Main Street)
- US 1 between Bert Winston Road and US 1A (South Main Street)
- US 1 just south of the Tar River Bridge

Using this data as a starting point and the NCDOT TEAAS crash data to identify the locations of specific crashes, additional analysis was performed. Table 2-10 identifies the high frequency crash locations identified along the corridor.

Table 2-10. High Frequency Crash Locations

Location	Number of Crashes	Comments
US 1 at US 1A Park Avenue	6	Highest intersection crash rate on the corridor (42.15).
US 1 at Bert Winston	7	Third highest intersection crash rate (30.44) in corridor, but signal recently installed.
US 1 north of Bert Winston	9	Dual vertical alignments with multiple vertical curves and graded median.
US 1 at US 1A South Main Street	6	Increasing volumes may warrant signal in short term.
US 1 at Cheatham/Pocomoke	7	Second highest intersection crash rate on the corridor (30.96).
US 1 at Janis Street	4	Janis Street is a low volume road with a median opening located less than 400 feet from the NC 56 interchange.
US 1 south of Tar River Bridge	7	Roadway geometry has separate horizontal alignments, but even distribution of crashes north and south bound.

Notes:

1. Intersection crash rate shown in crashes per 100 million vehicles entering the intersection.

2. Crash locations are identified from south to north.

2.3.3 Transit and Paratransit

Within the US 1 Phase II study corridor, transit does not provide substantial congestion relief due to low-density rural land uses in the corridor, sparse industrial developments, and limited transit investments. However, there are several transit projects in adopted local and regional plans which will change the transit travel markets and enhance transit mobility and connectivity in the future. These planned transit improvements are listed in Table 4-1.

Cumulatively, these transit projects define the No-Build or "Baseline" transit conditions for the US 1 Phase II study corridor. These transit projects will primarily cover areas south of the US 1 Phase II corridor. The region's 2035 Long-Range Transportation Plan (2035 LRTP), however, does call for Express Bus to be extended to Franklinton by 2035.

The transit alternatives investigated in the US 1 Phase II corridor study would provide enhanced connectivity with such destinations as Town of Wake Forest, Capital Plaza Shopping Center located along US 1 south of NC 98, and the Triangle Town Center Shopping Mall located along US 1 just south of I-540.

2.3.3.1 *Paratransit Services*

The Kerr Area Rural Transit System (KARTS) is a public transportation system operation under the Kerr Area Transportation Authority that is located in Henderson, NC. KARTS is a regional community system that serves human service agencies and the public through subscription, deviated fixed and dial-a-ride routes.

The Kerr-Tar Council of Government website indicates that KARTS serves Franklin, Granville, Vance, and Warren counties with out-of-area destinations to Durham, Chapel Hill, and Raleigh. Within the Franklin County area, the major destination points are the Food Lion in Franklinton and the Wal-Mart near Louisburg. Longer distance destinations include the Triangle Town Center Mall, Wake Forest, and other Durham and Raleigh destinations. In the future these paratransit services will continue to serve an important role for transit-dependent populations in the region.

According to the Executive Director of the Kerr Area Transportation Authority, KARTS provided a fixed-route service between the towns of Louisburg, Franklinton, and Youngsville in 2007. This service was discontinued due to low ridership. The Executive Director also indicated that most of KARTS demand response trips originated in Franklinton for service to areas in Louisburg. There are very few trips that would originate from outlying areas to Franklinton.

2.3.4 Rail

A CSX railroad runs through the towns of Youngsville and Franklinton and continues past the Vance County line north of Franklinton. This rail line is the CSX "S" line, which runs from Hamlet, North Carolina to Henderson, North Carolina. This portion of the "S" line from the Edgeton Station north of Raleigh extends through the study area and on to the end of the main track in Henderson that is called the Norlina Subdivision.

2.3.4.1 *CSX Rail Line in the Study Area*

The CSX railroad provides for freight service using CSX trains with a frequency of two trains per day (one northbound and one southbound) through the study area. Neither Amtrak nor Norfolk Southern trains utilize the Norlina Subdivision. Information regarding the "S" line and Norlina Subdivision was obtained from the report *CSX Transportation Florence Division Timetable No. 7* (CSX, May 2012).

The CSX railroad runs along the east side of US 1. This railroad alignment is a single track system throughout the study limits and a double track system outside of the study limits south of the US 1A Park Avenue junction with US 1. There are private railroad spurs serving small industrial or commercial areas north of Youngsville and in downtown Franklinton. There are no railroad sidings or railyards within the project study area. The closest railroad sidings and railyards are in Henderson to the north and in downtown Youngsville to the south.

Within the study area limits, the railroad right-of-way varies from 94 feet between US 1 A and downtown Franklinton, to a 100-foot wide section north of downtown Franklinton, and 80 foot section from north of Franklinton to the Vance County line. The CSX railroad right-of-way is adjacent to the US 1 right-of-way on a short segment just south of Bert Winston Road and starting from north of US 1A (north of Franklinton) to south of Eric Medlin Road. The railroad right-of-way in these areas is approximately 94 feet and 80 feet, respectively.

In addition to the main CSX line running north-south along US 1, there is an abandoned rail line currently in place between Franklinton and Louisburg. This line connects with the main line just north of Mason Street. The rail has been removed from this section of rail right of way. The corridor has been identified as a future rails to trails project linking Franklinton and Louisburg.

2.3.4.2 *Rail – Roadway Crossings in the Study Area*

The CSX railroad is typically at grade with adjacent roadways, except for areas where the railroad section is generally higher than the topography (and nearby or crossing roadways) in the vicinity of Bert Winston Road east of US 1, in areas of downtown Franklinton (NC 56), and in areas adjacent to US 1 from US 1A (north of Franklinton) to south of Eric Medlin Road.

There are a total of 11 at-grade private and public crossings within the project study area. Of the 11 at-grade crossings, six are within the Franklinton town limits. All of the at-grade roadway railroad crossings are protected by crossbucks, signals, and automatic gates to stop the flow of traffic, with the exception of the Joyner Street crossing, which is protected by crossbucks and signals only.

Automatic warning devices are also provided to detect the presence (and speed) of trains as they approach the railroad crossing to signal lights and the gates to either close or open. Typical electronic sensing devices are grade crossing predictors (stand-alone circuit sensors that identify an incoming train, evaluate its speed, and continually sends information to protection facilities at the railroad crossing), style "C" predictors (direct current track circuit at a fixed distance from the railroad crossing that triggers protection facilities at the railroad crossing), and relays which utilize overhead electric wires to relay information between railroad crossings.

The only grade separated crossing in the study area is the NC 56 Green Street underpass. This underpass has restricted width with structure walls immediately adjacent to the travelway.

The at-grade railroad crossings within the project study area and the crossing safety/protection facility and automatic warning devices (if applicable) that are associated with them are presented below:

- **Bert Winston Road:** This crossing includes signals and gates for each roadway direction and automatic warning via grade crossing predictors
- **Cedar Creek Road:** This crossing includes signals and gates for each roadway direction and automatic warning via relay
- **Hawkins Road**: This crossing includes signals and gates for each roadway direction and automatic warning via relay
- **College Street:** This crossing includes signals and gates for each roadway direction and automatic warning via relay
- **Mason Street:** This crossing includes signals and gates for each roadway direction and automatic warning via relay
- **Joyner Street:** This crossing includes crossbucks and flashing lights only and automatic warning via relay
- **Pearce Street:** This crossing includes signals and gates for each roadway direction and automatic warning via relay
- **Private Road north of US 1A:** This crossing includes crossbucks only (residential property access to US 1)

- **Eric Medlin Road:** This crossing includes This crossing includes signals and gates for each roadway direction and automatic warning via relay
- **Winston Street:** This crossing was recently closed and will not be reopened.
- **Private Road north of Winston Street:** This crossing includes crossbucks only (agricultural/residential property access to US 1)

There are no designated railroad horn quiet zones within the study limits. The speed limit for trains throughout the study area is 25 mph.

2.3.5 Bicycle

Currently there are no designated or dedicated bicycle facilities with the project study area. The existing local street network within the project limits typically includes rural two-lane undivided and rural four-lane divided roadways that do not have separated accommodations for bicyclists.

A rails to trails corridor has been identified linking Franklinton and Louisburg. Within Louisburg, the trail has been constructed for bicycle and pedestrian access, but no work has been done in Franklinton or the connector.

2.3.6 Pedestrian

Currently there are sidewalks that are limited to a few streets within the Town of Franklinton. The existing local street network within the project limits typically includes rural two-lane undivided and rural four-lane divided roadways that do not have accommodations for sidewalks. Below is a list of streets with existing sidewalks within the study area

2.3.6.1 *Youngsville*

The Oak Park Subdivision has sidewalks on Oak Park Boulevard, Glen Loft Drive, Shore Pine Drive, Ambergate Drive and Leaf Spring Way.

2.3.6.2 *Franklinton*

Sidewalks existing in the Town of Franklinton include those found at the following locations:

- **US 1A Main Street:** On both sides of US 1A Main Street from College Street to Peace Street
- **College Street:** On the north side of College Street from Hillsborough Street to Main Street/US 1A

- **Green Street:** On the south side of Green Street/NC 56 from Hillsborough Street to Main Street/US 1A, and both Sides of Green Street/NC 56 from Clegg Street to Chavis Street.
- **Water Street:** On the north Side of Water Street from US 1A (South Main Street) to W. Green Street.
- **Chavis Street:** On both sides of Chavis Stree**t** from US 1A Main Street to Mason Street, and the west side of Chavis Street south of Joyner Street.
- **Mason Street:** On both sides of Mason Street from Cheatham Street to Billy Goat Street, and the north side of Mason Street from Billy Goat Street to Korea Street.
- **Cheatham Street:** On the west side of Cheatham Street from Mason Street to north of Williams Street.
- **Hillsborough Street:** On the west side of Hillsborough Street from Mason Street to Lee Street.
- **Vine Street:** On the south side of Vine Street from Rams Way to Cheatham Street, and both sides of Vine Street from Hillsborough Street to US 1A Main Street.
- **Winston Street:** On the east side of Winston Street north of Joyner Street.
- **Joyner Street:** On the south side of Joyner Street from Winston Street to Chavis Street.
- **Williams Street:** On the north side of Williams Street from N. Hillsborough Street to Cheatham Street.
- **Lee Street:** On the south side of Lee Street from Hillsborough Street to US 1A Main Street

Town of Franklinton officials stated that the primary destinations for walking and bicycling are the Food Lion, Franklinton Elementary and Franklinton High School, and the Wal-Mart in Louisburg. According to town officials, pedestrians typically use College Street (partial sidewalk) to walk to the Food Lion and Main Street (no sidewalk) to walk to Franklinton Elementary.

CHAPTER 3

3.0 SELECTION OF CONCEPTUAL US 1 ALTERNATIVES

The Study Team reviewed the project area's existing land uses, previous planning efforts, transportation characteristics, environmental features and anticipated 2040 traffic volumes in order to prepare concepts that were refined into four conceptual project alternatives including:

- A No-Build (Rural Highway/High Speed Arterial) Alternative;
- A Superstreet Alternative;
- A Freeway Alternative; and
- A Freeway with Local Street Enhancements Alternative.

The design specifications of these alternatives are discussed in greater detail in the sections below. After their selection, the four alternatives were then compared for their:

- Ability to improve US 1 traffic operations and safety;
- Compatibility with state, county and long range plans for US 1;
- Opportunity to improve bicycle and pedestrian travel in the project area;
- Ability to balance future US 1 access changes with urban development needs;
- Impacts on the human and natural environment; and
- Costs.

Through the comparison above concerns, it became evident that two of the four alternatives - the Superstreet Alternative and the Freeway with Local Street Enhancements Alternative - are the best match for the short and long term transportation goals of US 1 in the project study area.

The Superstreet Alternative was shown to be the best alternative for the interim period between 2012 and 2040, and the Freeway with Local Street Enhancements Alternative was shown to be the best alternative after 2040. The analysis of the alternatives also indicated that the Superstreet Alternative has a design that easily facilitates a later conversion of US 1 to a freeway. The freeway design is shown as the ultimate goal for US 1 in the state, county and township plans.

Upon selection of the conceptual US 1 alternatives, more detailed analysis is presented in Chapter 4.

3.1 Identification of Conceptual US 1 Alternatives

In order to determine the types of improvements that would be necessary to assure that US 1 would sufficiently serve future transportation needs, the Study Team reviewed the project area's existing land uses, previous planning efforts, transportation characteristics and environmental features. The Study Team also considered future year 2040 traffic volumes. With this knowledge, the following four conceptual alternatives were identified and analyzed:

- **No-Build (Rural Highway/High Speed Arterial) Alternative:** This conceptual alternative is considered the No-Build. In this alternative, no improvements will be implemented. The only exception would be the addition of new traffic signals, potentially at both existing local roads and at proposed development access points to US 1.

  US 1 south of NC 56 will continue to be a high speed arterial that will include traffic signals at the US 1 intersections with Bert Winston Road, Cheatham Street/ Pocomoke Road, US 1A (South Main Street), and potentially additional roads on US 1. North of NC 56 and particularly north of US 1A (North Main Street), the volumes on US 1 will be lower so the demand for future signals would be less. Nevertheless, a single large development or other increases in traffic demand could warrant a signal in the north, thereby introducing delays.

- **Superstreet Alternative:** In this conceptual alternative US 1 will be a superstreet, a type of roadway design that does not allow for left turns from side streets or driveways. Traffic from side streets would only be able to make right turns onto US 1 and then take U-turns at median breaks. The benefits associated with superstreet design include greater mainline capacity, safety and green-signal time because of the elimination of traffic conflicts associated with left turns.

- **Freeway Alternative:** In this conceptual alternative, US 1 will be a freeway with access only at interchanges. This design will eliminate side street and driveway conflicts and would offer the highest capacity and safety. Additionally, NCDOT has identified US 1 as a future freeway in its *North Carolina Strategic Highway Corridors Vision Plan*.

- **Freeway with Local Street Enhancements Alternative:** In this conceptual alternative, US 1 will have the same freeway design as the Freeway Alternative, but local streets will be enhanced to become frontage and backage roads to facilitate better travel and provide access within the local community for non-freeway users.

Note that for all four conceptual alternatives (including the No-Build) it is assumed that the SEHSR will be constructed including proposed local streets and connections to US 1.

3.2 Comparison of Conceptual US 1 Alternatives

The four conceptual alternatives presented above were compared utilizing multiple criteria including:

- US 1 traffic operations and safety;
- Compatibility with US 1 long range plans;
- Provisions for bicyclists and pedestrians;
- Balancing access needs and development potential with traffic operations;
- Impacts to the natural and human environments; and
- Preliminary Costs.

Because this comparison occurred within the earlier stages of the project, some detailed data did not exist at the time. In these instances, impacts were inferred from available data.

3.2.1 US 1 Traffic Operations and Safety

3.2.1.1 *Average Daily Traffic Capacity Analysis*

The preliminary version of the *Triangle Regional Model* Version 5 (TRM-V5) was used to predict future US 1 traffic volumes to evaluate long term capacity on US 1. Although the Study Team recognizes that TRM-V5 is not yet official, it was utilized at the request of the MPO because it includes more detail about the local roadway network in the study area. It also includes the latest population and employment projections for 2040. It is important to note that the volumes in the TRM-V5 model are slightly lower than those in the 2035 TRM-V4 model. This is due primarily to a reduction in overall land use intensities anticipated to be in place by 2040.

As shown in Table 3-1, traffic projections for US 1 will be greater south of NC 56 and lower north of NC 56. Between the southern project limits and the future NC 56 Bypass, daily volumes are expected to exceed 40,000 vpd by 2040. Between the future NC 56 Bypass and existing NC 56, the US 1 volumes are

expected to exceed 30,000 vpd in 2040. North of NC 56, US 1 will carry less than 30,000 vpd in 2040.

Table 3-1. 2040 Volumes and Capacity Analysis

US 1 Segment		2040 Daily Traffic Volume	Alternative				
			No Build		Superstreet	Freeway	Freeway with Local Street Enhancements
From	To		North of NC 56	South of NC 56			
Vance County line	North project limit	22,800	B	--	A	B	B
North project limit	US 1A (near Mann St.)	26,100	B	--	A	B	B
US 1A (North Main Street)/ Mann St.)	NC 56	25,800	B	--	A	B	B
NC 56	US 1A (S. Main Street)	31,600	--	C	A	C	C
US 1A (South Main Street)	US 1A (Park Ave.)	40,600	--	F	C	C	C
US 1A (Park Ave.)	Youngsville	43,400	--	F	D	D	D

Note: -- indicates that data for the cell shown is not applicable.

The four alternatives were evaluated for traffic operations using the 2040 daily traffic volumes. Specific design assumptions in this evaluation include:

- **No-Build:** The rural highway segment of US 1 north of NC 56 would be a four lane highway without signals. The high speed arterial segment of US 1 south of NC 56 would have conventional signals.
- **Superstreet Alternative:** US 1 would be a four lane superstreet with two-phase signals.
- **Freeway Alternative:** US 1 would be a four lane freeway.
- **Freeway with Local Street Enhancements Alternative:** US 1 would be a four lane freeway with local streets providing access to development.

The daily level of service (LOS) thresholds used in this analysis are found in Table 2-6. As indicated in Table 3-1, traffic volumes in the south section are projected to be almost 50 percent

higher than those anticipated in north section. Key findings from this analysis include the following points:

- **Improvements needed in southernmost project segment prior to 2040:** In the project section between US 1A S. Main Street and US 1A (Park Avenue), the existing roadway has traffic signals and is an arterial roadway. However under the No Build Alternative, LOS F is anticipated by 2040.
- **Capacity is not the primary concern in the northernmost project section:** In this section, traffic volumes are lower and capacity is not the primary criteria in determining the future typical section. However, future traffic signals will need to be introduced at additional intersections, and the inclusion thereof would result in delays on US 1.
- **The Superstreet Alternative would improve operations and safety, but would not meet ultimate freeway goal:** Although traffic signals will still be required, they would operate more efficiently than on a traditional arterial roadway, and the Superstreet Alternative will allow for LOS D or better operations throughout the entire corridor as well as improve safety. However, the Superstreet Alternative does not meet the ultimate goal of having US 1 as a freeway.
- **The Superstreet, Freeway, and Freeway with Local Street Enhancements Alternatives perform well into 2040:** With four lanes, any of these alternatives provide suitable capacity for the entire corridor through 2040.

An earlier analysis had been conducted for the project using the TRM-V4 model which utilizes 2035 daily traffic volumes. Using the TRM-V4 model, future traffic volumes were generally 5,000-8,000 vehicles per day (VPD) greater on the southernmost segment of US 1 between the southern project limit and NC 56. To accommodate these higher volumes, a six-lane section would have been more suitable in this segment of US 1.

While the TRM-V4 model has been superseded by TRM-V5 model, which has adjusted lower daily volumes, the higher daily volumes of the V4 model could be used to infer what could occur after the 2040 timeframe. Hence, it appears beneficial to take into account the possibility for a six-lane section in the southernmost segment of US 1 in the longer term beyond 2040. The current recommendations are not to provide right of way for six-lanes, but to require setbacks of up to 30 additional feet to minimize future impacts if six-lane widening were to occur south of NC 56. It is recommended, however, that overpass structures over US 1 be designed to allow for a 6-lane median divided section with paved shoulders.

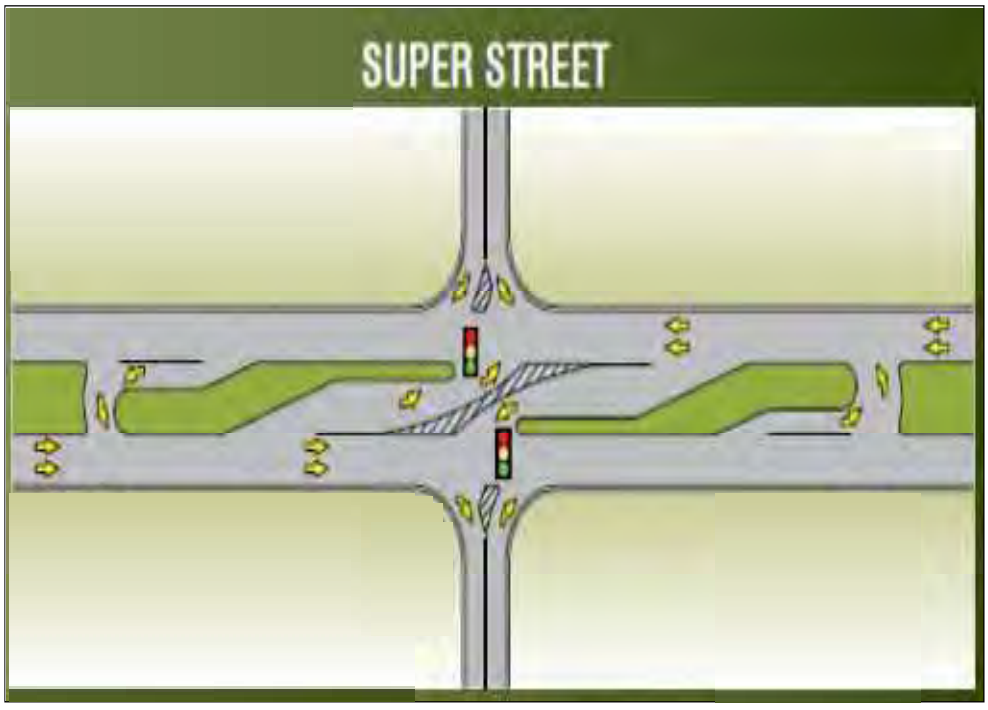
3.2.2 Intersection Capacity Analysis

In addition to the average daily traffic capacity analysis discussed above, a more detailed intersection analysis was conducted using Synchro software. The intersection analysis was conducted using three intersection types:

- A non-signalized intersection (if not currently signalized);
- A traditional signalized intersection; and
- A "superstreet" intersection.

A superstreet intersection allows only right turns, therefore motorist wishing to turn left from a superstreet intersection would be directed to turn right, and then make a U-turn approximately 1,000 feet beyond the main intersection. This is shown in Figure 3-1. A Typical Superstreet Intersection. Traffic signals can be applied at either the main intersection or at the U-turn locations on each side of the main intersection. Superstreet traffic signals operate independently in each direction of flow and, as a result, have significantly more green time for the mainline traffic.

Figure 3-1. A Typical Superstreet Intersection



The intersection analysis was conducted to identify specific time periods when traffic flow would be anticipated to reach congested conditions. The analysis was divided into 10 year

increments from 2012 through 2040. Traffic growth was estimated to continue at a constant rate until 2050, in order to estimate long-term requirements

It should be noted that an intersection analysis is based on the peak hour traffic volumes and examines capacity in greater detail than a daily traffic review. Therefore, specific findings between the ADT capacity analysis in Table 3-1 and the intersection analysis in Table 3-2 may not reflect the same level of service. In addition, level of service is measured differently for an intersection and a roadway section.

Table 3-2. Intersection Capacity Analysis

US 1 Intersection	Intersection Type	Level of Service				
		2012	2020	2030	2040	2050
Cheatham St.	Signalized	A	B	C	C	**E**
	Superstreet	A	A	B	B	C
US 1A (South Main St.)	Non-signalized (WB left)	E	**F**	**F**	**F**	**F**
	Signalized	A	A	B	C	D
	Superstreet	A	A	A	C	D
Bert Winston Rd.	Signalized	A	B	C	D	**F**
	Superstreet	A	A	B	C	**E**

A review of Table 3-2 indicates:

- **Non-Signalized Intersections:** US 1A (South Main Street) will require intersection improvements in the form of traditional signals or superstreet design by 2020.
- **Signalized Intersections:** Conventional arterial signals are expected to provide LOS D through 2040. LOS C is typically preferred on rural facilities, particularly on regionally important highways.
- **Superstreet Intersections:** Superstreet type improvements would provide LOS C or better traffic operations through 2040.
- **Cheatham Street and Bert Winston Road Intersections by 2050:** With the exception of the Cheatham Street intersection as a superstreet intersection in 2050, all other signalized or superstreet versions of the Cheatham Street and Bert Winston Road intersections would function at LOS F or below in 2050, thereby indicating that the long-term solution for these intersections, and potentially others that were not modeled, would include grade separations and interchanges along US 1.

3.2.2.1 *Traffic Safety Comparison*

The alternatives were compared for safety. The key differentiator in the level of safety of a roadway is the level of access control. The existing US 1 has limited to no access control. A superstreet version of US 1 will have partial access control, and a freeway version will have full access control. Review of NCDOT average crash rates for roadways with no access control, partial access control and full access control revealed the rates shown in Table 3-3. These rates may be used to infer the conditions of US 1 with the various access control scenarios.

Table 3-3. NCDOT Average Crash Rates for Rural Divided US Highways (2008-2010)

Roadway Type	Access Control Level	Crash Rates per Type		
		Injury	Fatality	Total
Rural highway or arterial	None	36.24	1.05	**109.29**
Superstreet	Partial	26.65	0.72	**84.06**
Freeway	Full	18.83	0.56	**74.19**

Note: All crash rates are shown in crashes per 100 million vehicle miles. It is important to note that although a superstreet is a partially access controlled facility, the majority of four-lane divided US highways with partial access control are not superstreets. Therefore, additional information is needed to verify the improved safety with a superstreet.

Improved safety is one of the primary reasons that NCDOT encourages superstreets because this method reduces the risk of crashes and specifically the risk of severe crashes such as side-collisions or T-bone type accidents that occur on more conventional arterials. As a result, the likelihood of severe and fatal incidents at a superstreet intersection are significantly reduced because the design eliminates two movements (side street through movements and left turns) that are statistically considered higher risk for serious injury.

A comparison of the number of conflict points between a traditional and superstreet intersection further demonstrates the reduced potential for crashes. As shown in Figure 3-2, a conventional intersection has 32 potential conflict points.

Figure 3-3 shows a four-leg superstreet intersection with only 14 potential conflict points. Due to the simplification of traffic flow and the reduction of potential conflicts with turning vehicles, pedestrians also benefit from superstreet intersection design.

Figure 3-2. Conventional Intersection Potential Conflict Points

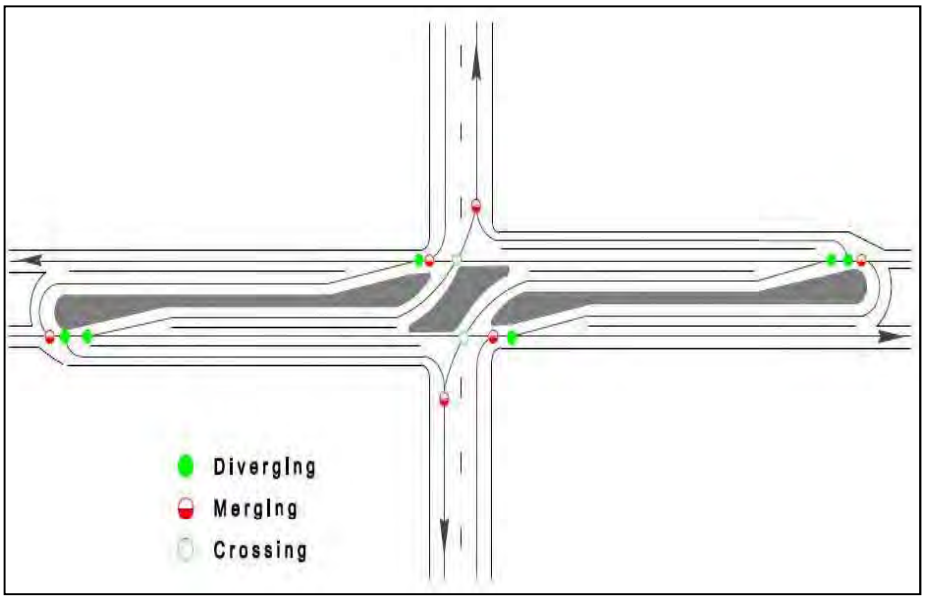
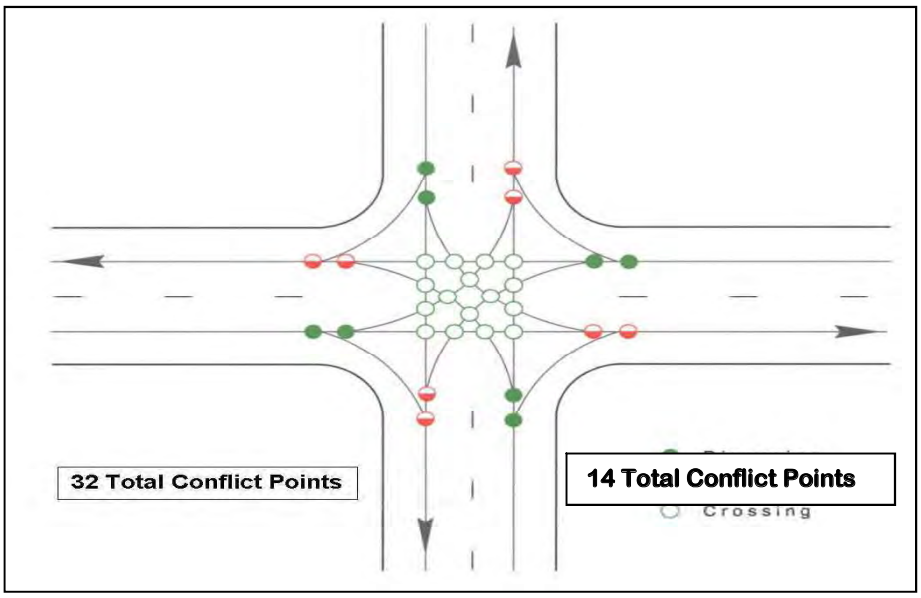


Figure 3-3. Superstreet Intersection Potential Conflict Points



3.3 Compatibility with US 1 Long Range Plans

The Study Team reviewed existing MPO and local plans for Franklinton and Franklin County and the *North Carolina Strategic Highway Corridor Plan* (NCSHCP), discussed in Section 4.1.

3.3.1 Franklin County Comprehensive Transportation Plan

A key resource in this review was the *Franklin County Comprehensive Transportation Plan* (CTP) Highway Map, which is shown in Figure 1-3. In the CTP, Franklin County identified the following desires for US 1:

- US 1 would be a freeway on the existing alignment.
- Future interchanges would be constructed at the new Bert Winston Road, the proposed NC 56 Bypass, and existing NC 56. It was noted that the CTP showed spacing of approximately one mile between interchanges, likely preventing the inclusion of additional interchanges on US 1 south of NC 56.
- A future NC 56 Bypass would be constructed on the south side of Franklinton. The facility was recommended as an Expressway.
- A future realignment of Bert Winston Road and new interchange with US 1

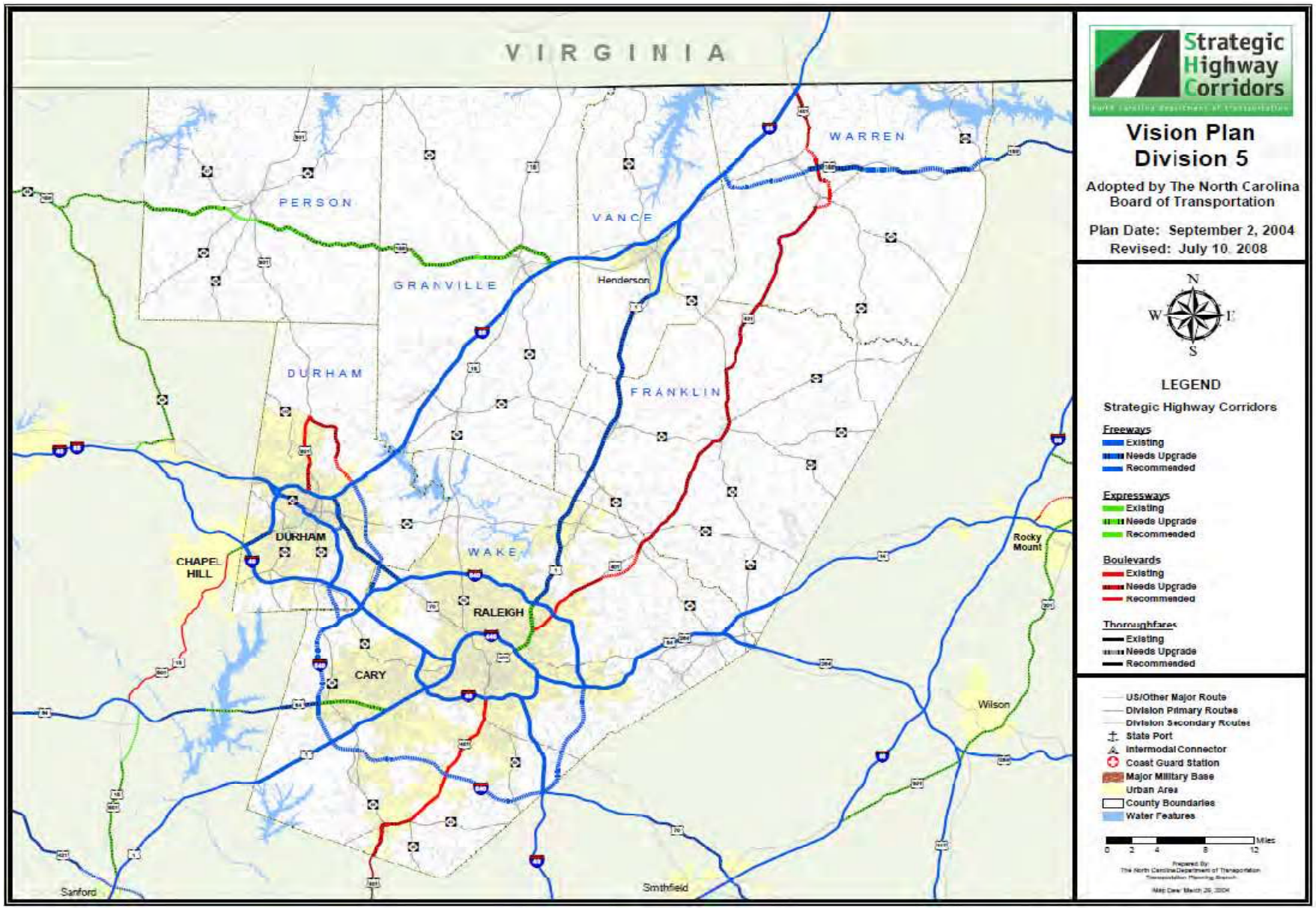
3.3.2 North Carolina Strategic Highway Corridors Vision Plan

The North Carolina Strategic Highway Corridors Vision Plan (Strategic Corridors Plan) calls for a freeway that would link I-85 near Henderson to I-540 in Raleigh. This vision is also discussed in the Phase I US 1 Corridor Study. The Strategic Corridors Plan envisions a six-lane freeway just north of the NC 96 interchange in Youngsville (the northern limit of the Phase I study area and the southern limit for this Phase II study). To note, CAMPO's Long Range Transportation Plan (LRTP) also calls for a future freeway. The map showing NCDOT's long range vision of a freeway from the Strategic Corridors Plan is shown on Figure 3-4.

3.3.3 Franklin County Zoning

The Study Team reviewed future land use and zoning to understand the desired future land use patterns manifested in existing policy. This review allows for increased understanding of the potential relationships between the future land uses and the types of roadways considered in each alternative.

Figure 3-4. North Carolina Strategic Highway Corridors Vision Plan Map



Franklin County's zoning map calls for a combination of industrial and highway oriented development along US 1 (see Chapter 2 for greater detail and figures). These types of development can only occur if access is provided to them from US 1 directly, or from a system of local frontage or backage roads along US 1.

3.3.4 Overall Compatibility with US 1 Long Range Transportation & Land Use Plans

Each of the four conceptual alternatives were compared for compatibility with the two transportation plans and future land use plans. The analysis indicates:

- **No-Build Alternative:** The No-Build Alternative does not meet the needs of the existing transportation and land use plans. The US 1 arterial section is effectively a boulevard. This design is well below the freeway design called for in regional transportation plans. In addition, the existing arterial has relatively unlimited access to adjacent parcels with the exception of the median restrictions. As congestion and development increases, it becomes increasingly likely that future access permits may be rejected by NCDOT and that development would decide to find other locations with longer term access solutions.
- **Superstreet Alternative:** The superstreet solution will not meet the long term vision of regional transportation plans for a freeway. However, it can be consistent with a phased approach to upgrade from the superstreet design to a freeway design. In terms of land use planning, the superstreet provides better and safer access than an arterial, but ultimately would require a longer range solution. As volumes increase on US 1 past 2040, congestion and capacity issues would occur on US 1. This would ultimately require six-lane widening.
- **Freeway Alternative:** This alternative meets the CTP and NCSHCP goals for US 1 as a freeway. However, it does not provide the required access needed to meet the long term development plans for the area. The Freeway Alternative will not provide a long range access solution and will likely discourage development on the corridor.
- **Freeway with Local Street Improvements Alternative:** This alternative meets the CTP and NCSHCP goals for US 1 as a freeway and will provide access that is compatible with future development plans. It is the only solution that meets the long term vision for both transportation and land use in the study area.

3.4 Provisions for Bicyclists and Pedestrians

A key component of this study is to expand and improve the existing bicycle and pedestrian facilities within the study area. It is anticipated that over time, demand will increase for these modes. As part of future construction projects, it is also anticipated that a "complete streets" philosophy will be applied as part of improvements or new streets in the area.

Under existing conditions, there is very little pedestrian and bicycle demand to cross US 1 or travel along it. There are no bicycle or pedestrian facilities or special accommodations along or across US 1. Over time, if development would occur as anticipated on the west and east sides of US 1, the demand for bicycle or pedestrian facilities would likely increase.

Each alternative was considered in terms of its provision for safe bicycle and pedestrian operations.

- **No-Build Alternative:** The existing US 1 is an arterial roadway that provides relatively few pedestrian and bicycle accommodations. Under the No Build Alternative, new pedestrian and bicycle improvements are not expected and crossing of US 1 will become less safe with increased traffic congestion.
- **Superstreet Alternative:** The superstreet design will be an improvement over the existing arterial. The phasing of the signal system, as well as the center median splitter will provide a refuge for pedestrians. However, US 1 in this section of Franklin County, will still be a high speed rural facility so pedestrian movements would not be encouraged.
- **Freeway Alternative:** A freeway is consistent with the CTP and NCSHCP goals. While freeways legally prohibit bicyclists and pedestrians along their length, they provide overpasses that can be designed to serve bicyclists and pedestrians crossing US 1. This would be a significant improvement over existing conditions, particularly in the Central section of US 1 where businesses are located on both sides of the roadway.
- **Freeway with Local Street Improvements Alternative:** This alternative would provide an ideal scenario for the development of a bicycle and pedestrian system for Franklinton and the study area. While the freeway will provide the safest and fastest means for US 1 vehicle through traffic, local streets will be planned to provide bicycle and pedestrian accommodations. In addition, the local streets will create a network allowing travel north and south parallel to US 1 as well as east to west over US 1 at overpasses.

3.5 Balancing Access Needs and Development Potential with Traffic Operations

Key stakeholder concerns expressed at steering committee meetings included the following:

- Whether existing land uses with US 1 access would maintain access even if US 1 were to be converted to a freeway.
- Future investors/developers for land along US 1 would be assured access to their sites in the short- and long-term.
- Future direct access to US 1 from driveways should not be permitted, but access to US 1 should occur by using local streets with connections to US 1 at specific locations.
- The addition of new traffic signals along US 1 should be prevented.

The intent of managing the access of new developments is to improve the short to medium-term capacity of US 1, as well as to improve safety by eliminating multiple access points. The goal of providing access to serve development is in direct conflict with the goal to reduce access points to maximize capacity and improve safety. A review of how well the alternatives would balance access needs with mobility needs is provided below:

- **No-Build Alternative:** As traffic increases on a rural highway, volumes gradually increase until the point where traffic signals are required to allow safe and efficient access at major intersections. In the southernmost project areas, traffic signals have already been introduced at Bert Winston Road and Cheatham Street. As volumes increase on US 1 and new developments occur, more signals would be needed. These needs will likely appear earliest at the US 1A intersections and ultimately at other intersections. This type of progression can serve local access well, but diminishes the capacity of the roadway and introduces safety issues that would be associated with higher speed traffic slowing or stopping at intersections.
- **Superstreet Alternative:** The Superstreet Alternative is an at-grade alternative that balances access provision, capacity and safety. Through the utilization of dual leftovers, traffic can turn left or U-turn at locations spaced typically 1,000 to 1,500 feet from the nearest intersection. The allowance of a left turn from the main roadway preserves access. This movement is the most efficient and safest left turn at a standard intersection since the turning vehicle has a clear view of approaching traffic. Left turns from the local roadway are forced to take a right followed by a U-turn. In general, this approach allows for access into businesses and would not restrict development.

From a traffic capacity perspective, the restricted movements at the superstreet intersections allow for higher volumes than a conventional four-leg signal. In the proposed configuration, signal timing is programmed separately for each direction of mainline traffic.

In addition, the signals operate with only two phases substantially reducing the amount of yellow and red time between phases. Note, however, that a superstreet does not have the capacity of a freeway. As a result, although a superstreet can be very effective at balancing access requirements with highway operational needs, once the overall capacity of the roadway is exceeded, a freeway may be required. Thus with a freeway, all access would be eliminated, except at interchanges.

- **Freeway Alternative:** The Freeway Alternative will be designed exclusively to provide high speed travel, reduced congestion and increase safety. The key element to achieving these goals is eliminating all access points, thus the freeway alternative would provide adequate mainline capacity, but at the expense of local access. With a freeway, all access would be eliminated except at interchanges.
- **Freeway with Local Street Improvements Alternative:** Recognizing that the Freeway Alternative will not afford suitable access to existing and future land uses along US 1, an option of a US 1 as freeway combined with an enhanced local road network was considered. Although direct access to US 1 will be eliminated, the effect on access and development would be reduced by allowing access via local street enhancements.

3.6 Impacts to Natural & Human Environment

At this conceptual level of analysis, it is not possible to identify specific impacts. However, it is possible to perform a GIS-level evaluation of the likely impacts of each alternative. The potential environmental impacts are similar for most of the alternatives.

- **No-Build Alternative:** Under the No-Build Alternative, traffic congestion will increase substantially on US 1. In addition, traffic signals would likely be warranted at more locations further reducing mobility on US 1. Effects of the No-Build approach would be higher congestion and delays with extended peak periods for traffic. From a non-highway standpoint, impacts of the No-Build would include a reduced quality of life and potential air quality degradation.

- **Superstreet Alternative:** Because the Superstreet Alternative will include access changes at existing intersections, side roads and driveways, the type of direct impacts discussed above would occur. These would occur to a minor degree at "bulb-outs" at U-turn locations. If the US 1 superstreet remains four lanes beyond 2040, congestion would occur at higher volume intersections. Ultimately, delays would increase resulting in similar impacts (although to a lesser degree) as the No-Build approach. If a superstreet were maintained for the long term, it is likely that it would need to be expanded to six lanes past 2040. A widening to six-lanes would result in multiple impacts to both the human and natural environment along US 1.
- **Freeway Alternative:** The Freeway Alternative will be similar to existing conditions along US 1, although the existing grass shoulder would likely need to be converted to a paved shoulder. This could likely be accommodated within the existing right of way in most locations. Given this, only minor environmental impacts of the type above will likely occur. However, with US 1 as a freeway, interchanges would need to be provided. Three interchanges are proposed in the CTP, and more may be considered. Although interchange footprints vary, they are each likely to be approximately 35-40 acres. Thus the greatest level of environmental impact is associated with interchange locations.
- **Freeway with Local Street Improvements Alternative:** This alternative would have all of the potential impacts associated with the above Freeway Alternative including interchange impacts. In addition, the improvements to local streets would have a higher potential for greater impacts to the natural environment. Natural environment impacts would include multiple stream and wetland crossings to provide continuous local street connections between interchanges.

3.7 Preliminary Cost Comparison

At this preliminary stage of the alternative comparison analysis, cost estimates were not possible. Therefore, a subjective comparison was developed based on the characteristics of each alternative concept.

- **No-Build Alternative:** The No-Build Alternative will likely have minimal costs as long as a four lane section remains. Widening to six lanes will likely result in moderate costs, although the additional right of way required could be high.
- **Superstreet Alternative:** The cost of implementing a superstreet will be moderate. The construction costs will be focused at reconfiguring each intersection. If it is roughly assumed that there are 20 crossovers, an overall cost would be $10 million ($500,000 per

crossover). Even if this cost were doubled, it would be roughly similar to a single interchange concept.

- **Freeway Alternative:** The Freeway Alternative will be more expensive. Assuming 4 interchanges are provided, the construction costs of all four interchanges alone could be in the range of $50 to $70 million dollars (excluding other project costs). In addition, the interchanges will require approximately 35-40 acres of land for each location. (Note: More detailed cost estimates are identified in Chapter 5 for the final alternative.)
- **Freeway with Local Street Improvements Alternative:** This alternative will be the most expensive. It involves costs associated with the US 1 improvements as well as the interchanges. In addition, the local street network for the 9-mile section under study could require 10 -18 miles with local streets on each side of US 1.

3.8 Comparison Summary of Conceptual Alternatives

Based upon the comparisons presented in Sections 3.2 through 3.7, a comparison of how well each alternative met the requirements of each criterion is summarized in Table 3-4. A color coded system was utilized to rate each of the alternatives. In this color coded system: green is a positive assessment; yellow is generally positive although there are constraints; orange is generally negative; and red represents a scenario that is negative.

In addition to the color overview, a numerical comparison was prepared. In general, the number of green shaded measures received 4 points, yellow received 3 points, orange 2 points, and red only 1 point. As a result, an alternative concept with a high number rating will likely be preferable to an alternative concept with a lower score. A brief synopsis of the findings for each alternative includes:

- **No-Build Alternative:** The No-Build Alternative generally provided mediocre results. The alternative will yield higher traffic delays and likely higher crash rates than the other alternatives. The need for six lanes south of NC 56 introduces impacts and costs, albeit less than some other alternatives. Three categories had a poor rating with this alternative:
    - Traffic operations south of NC 56 where widening to six lanes will be required to avoid LOS F,
    - Bicycle and pedestrian provisions, and
    - Compatibility with both the transportation and local land use plans.

  This approach scored a total of 18 points, the lowest of all alternatives.

- **Superstreet Alternative:** The Superstreet Alternative rated highly in this analysis. In terms of traffic operations, safety, and compatibility with regional plans, it ranked generally positive although it did not precisely meet the plan for an ultimate freeway. Impacts were minimal since the majority of improvements are limited to the intersections on US 1, primarily within the median area. The highest ranked criteria, however, was cost since it will likely be less expensive than widening US 1 to six lanes (as required with an arterial) and involves no interchange construction (as required with both freeway alternatives).

  The superstreet scored 29 points, the second highest of the alternative concepts. It should be noted, however, that this analysis focused on the 2040 planning horizon. It is likely that the superstreet will require either widening to 6 lanes or improvement to a freeway by 2050 (primarily on those sections south of NC 56) to accommodate projected volumes.

- **Freeway Alternative:** The Freeway Alternative overall did not rate highly. While it exceeded all traffic requirements and conforms to the freeway vision in the long range regional plans, it was viewed negatively by local planners in terms of not providing adequate access to attract planned development. In addition, it will require right of way related to both the interchange locations combined with right of way for development that will lose access directly to US 1.

  This alternative scored 22 points, better than the arterial concept, but lower than the two top ranked alternatives.

- **Freeway with Local Street Improvements Alternative:** As with the Freeway Alternative, this alternative ranks highly in all traffic categories and conforms to the regional plan. Compared with the freeway only alternative, the primary difference is that the local street system provides good access to development and develops a network of bicycle and pedestrian facilities. The primary drawbacks are environmental impacts due to the impact new local streets can have on specific environmental features. In addition, this alternative is likely the most expensive since it is a combination of US 1 improvements, interchange alternatives, and the local streets.

  Nevertheless, the combined freeway and local street solution scores the highest of all alternative concepts with a total of 30 points.

Based on the matrix comparison evaluated in Table 3-4, and the scoring of the alternatives therein, two alternatives were recommended for more detailed analysis:

1. **Superstreet Alternative:** The Superstreet Alternative was highly rated. Although it does not meet the ultimate freeway vision, it is substantially less expensive and also provides a potential interim solution.
2. **Freeway with Local Street Improvements Alternative:** This alternative ranked highest and meets all goals of the forecast study. It involves numerous local street projects beyond improvements to US 1 itself resulting in increased impacts as well as higher costs. It may be possible, however, to offset some or most of the local street costs by requiring construction or funding as part of private development.

Table 3-4. Comparison of Conceptual Alternatives

Alternative	Score	US 1 Traffic Operations – South of NC 56	US 1 Traffic Operations – North of NC 56	US 1 Traffic Safety	Compatibility with Regional Plans	Provisions for Bicyclists and Pedestrians	Providing Local Access for Land Use	Natural Environment Impacts	Human Environment Impacts	Cost
No Build Alternative (Existing Arterial/ Rural Highway)	**18 points**	LOS F south of NC 96 by 2040 (would require 6 lanes)	Rural Highway will likely be converted to arterial with some signals	Increasing crash rates likely with additional access points	No – Meets Boulevard standard (2 steps below freeway). Development access congested.	None - US 1 remains a barrier to bicyclists and pedestrians. Signal operations would worsen with pedestrian phases.	Likely that developments will continue to directly access US 1	Moderate – Initial improvements would be focused on US 1. Widening to 6 lanes would be required which would increase impacts.	Moderate – Widening of US 1 would impact building located adjacent to the existing US 1.	Moderate costs would be associated with widening to 6 lanes.
Superstreet Alternative	**29 points**	Increased capacity allows for LOS D operations to 2040. LOS E and F likely to occur by 2050 (would require 6 lanes)	Adequate capacity. Two phase signals increase green time for US 1 through traffic although stops are still required for US 1 through traffic.	Leftovers and superstreet channelization reduce conflicting movements improving safety.	Partial – Meets Expressway standard (1 step below freeway), but serves planned development. May be acceptable as an interim solution.	Minimal – US 1 improvements allow for improved safety for pedestrians crossing at intersections due to the unique signal phasing.	Development could continue to access US 1 directly, but left turn movements from side street development would be eliminated	Minimal – Improvements focused on US 1	Minimal – Improvements focused on US 1	Low Costs for conversion to Superstreet and leftover intersections.
Freeway Alternative	**22 points**	Four lane freeway has excess capacity through 2050 and likely longer.	Good operations through 2040.	Safest type of roadway since intersections and access points eliminated.	Partial Yes - Freeway called for in plans, but restricts development access and potential.	Moderate – Provides overpasses at US 1 that would be designed to serve bicycle and pedestrian traffic.	Conversion to freeway would likely require closure of businesses and residences reliant on US 1 for access	Moderate – Improvements focused at US 1 and interchanges.	Very high – Improvements focused at US 1 and interchanges. In addition, controlled access freeway would likely require multiple building impacts	Very high costs related to construction, and very high ROW costs associated with lost access.
Freeway with Enhanced Local Street Network Alternative	**30 points**	Four lane freeway has excess capacity through 2050 and likely longer. In addition, local street network will likely divert 1000-4000 vpd from US 1.	Good operations through 2040. Slightly US 1 trips diverted to local street network.	Safest type of roadway since intersections and access points eliminated.	Yes - Freeway called for in plans. Local street network serves existing & future development.	High – In addition to US 1 overpasses, local streets would be developed with Complete Streets principles. Would provide network for bicyclists & pedestrians	The provision of local streets provide alternate access for existing businesses and provide plan for future business. Conversion to freeway would reduce number of building impacts.	High - Improvements include US 1, interchanges, and local streets. Local streets likely impact some streams and wetlands.	Moderate – Although improvements include US 1 and interchanges, local streets would generally be placed in consideration of maintaining access and minimizing building impacts	Very high costs related to US 1 upgrade and interchanges. Medium costs associated with Local Streets (although this could include requirements that developers assist in financing local access).

Legend:

Green = Positive (4 Points)

Yellow = Generally positive with some negatives (3 Points)

Orange = Generally negative, but does function (2 Points)

Red = Negative (1 Point)

CHAPTER 4

4.0 ANALYSIS OF FUTURE ALTERNATIVE

The two conceptual alternatives selected in Chapter 3, the Superstreet and Freeway with Local Street Enhancements alternatives, were examined in greater detail to consider their merits as long term solutions for the US 1 corridor. The detailed analysis examined how well the two alternatives met the following concerns:

- Compatibility with future land use
- Mobility and safety on US 1
- Provision of access for existing and future development;
- Incorporation of bicycle and pedestrian uses; and
- Incorporation of transit.

Options for the roadway type, interchanges, local roads, and multi-modal facilities were also compared.

4.1 Design Philosophy and Approach

Recognizing the long term vision of a freeway with local streets providing local access, each jurisdictional agency should develop and adopt guidelines or standards for application in the development of US 1 and the local street network. These guidelines or standards should reflect the design philosophy and approach utilized in the development of this study. Two key components in the overall design philosophy are Access Management and Complete Streets. The US 1 Council of Planning, as identified in the Memorandum of Understanding associated with this study, should be responsive to local jurisdictions in the development, approval, and application of these guidelines. Information on these two concepts is included in Appendix F.

4.1.1 Access Management

These best access management practices should be applied to all future roads and local streets built within the study area to ensure the capacity and safety objectives are maintained for each capital roadway investment. The US 1 Council of Planning as identified in the Memorandum of Understanding associated with this study should be responsible for the future corridor wide access management guidelines and its implementation.

With the conversion of the US 1 corridor to a freeway facility, it will be critical to implement access management along the corridor to assure safe and efficient traffic operations. The most substantial access management improvement is the proposed local street system. The provision of access on the proposed two-way local street system will allow for the ultimate closure of all access directly onto US 1 as required for a freeway.

In addition, the provision of superstreets on US 1 is an access management technique that can be applied to individual intersections or an entire corridor. The provision of turn restrictions associated with superstreets substantially reduces conflict points for increased safety. In addition, corridor capacity can be improved with the removal and/or replacement of conventional signal phasing with two phased signals thereby reducing delays and allowing for improved through capacity on the corridor. Intersection access, spacing, and turn restrictions on US 1 are subject to the access permit approval process controlled by NCDOT.

This change in access philosophy may require modifications to the existing development access, as well as having new development and/or redevelopment orient their access to the new local street system. As new development is approved, there also would be an opportunity for property owners to contribute toward the construction of the local street system adjacent to and supporting access to their site. Good access management guidelines on the local street system will need to be applied to locate and design local access that will provide safe and efficient traffic operations.

Access management in the vicinity of interchanges will also be required to divert access away from interchange ramp terminals (usually signalized). NCDOT access management standards will need to be applied related to restricted access in interchange areas. If possible, NCDOT's planning guidelines suggest a minimum of 1,000 feet between the ramp terminal signal and the first major cross street intersection (i.e., frontage or backage road).

4.1.2 Complete Streets

A key objective of the US 1 Corridor Study has been the provision of accommodations to support increased safety and access for all modes including bicyclists, pedestrians, and transit in addition to cars and trucks. To apply this vision, it is assumed that a Complete Streets philosophy will be applied in the construction of local streets with a particular focus on providing sidewalks, bicycle lanes, and or wider shoulders as part of the initial construction of facilities.

NCDOT is currently developing Complete Streets Guidelines for application across the state. These guidelines would provide insights and could serve as a starting point for including

Complete Streets within the standards of the local jurisdictions. The provision of bicycle and pedestrian features in the initial construction of projects is essential for multiple reasons, the key one being the need to develop a fully connected network of bicycle and pedestrian facilities.

It should be noted that although Complete Streets are applicable to many road types, freeways are not a desired location for bicycles and pedestrian due to safety concerns. For this reason, bicycles and pedestrians are legally prohibited from using freeways. Recognizing the different purposes of the road system, the plan provides an extensive network of bicycle and pedestrian facilities as part of the ultimate local street network.

4.2 Land Use

A key question to ask when seeking to balance land use and roadway design is: which came first? Land uses that are established before the construction of a new roadway will greatly influence the new roadway's design. Likewise, roadways that are established before the construction of new land uses will greatly influence the developmental pattern of the new land uses. Factors that come into play in this relationship include: having an established land use and/or zoning plan and the availability of roadway access and other design features that facilitate/accommodate future land uses. These concerns were considered in the analysis.

4.2.1 No-Build

With the No-Build Alternative, land use development along the US 1 corridor is assumed to follow existing zoning ordinances and developer trends. The result of this trend along US 1 would include industrial development south of Franklinton, additional highway oriented retail in Franklinton, and the likely addition of low density residential subdivisions north of Franklinton. The expansion of industrial development may be accelerated with improved railroad access that is proposed to occur with the SEHSR project that is assumed to be in place even in the No-Build scenario for US 1.

If land use development follows the existing trend for the area, it is very likely that developers will request access directly onto US 1 for each lot they develop. This would increase pressure for both unsignalized and signalized access points. These additional unsignalized or signalized access points would diminish capacity and increase crash rates along US 1 due to potential conflicts associated with through traffic and turning vehicles.

A limiting factor to the otherwise unmitigated addition of access points is the fact that NCDOT is the approver of US 1 access permits. As such, NCDOT could moderate the number of new US 1 access points. Given this, should businesses disagree with NCDOT's manner of access

permit approvals, they could decide not to build along US 1 and shift to other locations in the region.

4.2.2 Future Land Use Vision

4.2.2.1 *Land Use Based on Opportunity Analysis*

Themes that are evident in Franklin County's future land use policy for areas along the US 1 corridor includes:

- Optimizing business opportunities associated with future upgrades and capacity increases along US 1 and the CSX rail line;
- Efficiently developing the transition zone between Raleigh's exurban area and Franklin County's rural area; and
- Recognizing the separate growth agendas of established towns in the area.

These themes help explain why the Franklin County future land use strategy appears to favor industrial /commercial development along the US 1 and CSX rail corridors, gives preference to low-density residential and agricultural uses north of Franklinton, and defines towns and their extra-territorial jurisdictions as "activity centers."

4.2.2.2 *Public Input*

During a public meeting that was held on March 6, 2012 the public expressed a desire for greater farmland preservation and protection of conservation and recreation areas. There was negative regard for implementing traditional heavy manufacturing uses and dense urban development anywhere in the corridor. Public input is summarized for each segment of the corridor.

- **South Segment:** Suburban commercial (retail and office) and low-density, single-family residential land uses are preferred by the public for this segment. Flex space and warehouse space was also considered appropriate by some participants. Light industrial was preferred to heavy industrial development by the general public.
- **Central Segment:** Preservation of Franklinton's traditional land use pattern (i.e. historic single family homes, Main Street retail, and nearby farms) is considered a critical issue. The public also stated that commercial development, including strip commercial, would be appropriate if well-designed and compatible with existing structures. They also recognized a need for hotels and entertainment facilities in this segment.

- **North Segment:** The public indicated a great desire to protect rural areas and allow only low-density, single family residential development in this segment. They also stated that they did not consider strip commercial, office or manufacturing uses appropriate for this segment.

The public's input indicates that although the area is growing and suburbanizing, the general public values the rural nature of the corridor. Any expansion that will occur over time should preserve a small-town land use pattern and character in and near Franklinton.

4.2.3 Future Land Use Opportunities

There are a number of commercial office and light industrial land uses on US 1A Park Avenue located south of the southern project limit. This area represents a concentration of land uses (a node) that likely developed as the result of the close proximity of the US 1/NC 96 and US 1/Park Avenue intersections, and the CSX rail alignment. Recognizing that changes in the transportation system in the US 1 corridor will have impacts on land use patterns, this study examines land use opportunities, Therefore, future land use development options were analyzed further at two key development nodes: the US 1/Bert Winston Road Extension and the US 1/NC56 Bypass junctions. Both locations will include future interchanges with US 1.

4.2.3.1 *The Bert Winston Road Extension Development Node*

The Bert Winston extension is included in the CTP and involves a rerouting of the existing Bert Winston Road onto a new alignment. The long term vision is that the extension will connect to US 1 across from Materials Drive. An interchange is proposed in the long term at this location.

The Bert Winston Extension interchange location occupies the center of the only substantial land area zoned for heavy industrial in Franklin County. This is a key economic development area for the county, and the prospect for business attraction would be enhanced by the future interchange. It is largely in a natural state although one-third of the land west of US 1 is occupied by existing businesses.

A detailed summary of the breakdown of the node area indicates that the overall acreage of the node is 1,875 acres. Of this approximately 80 percent (1,495 acres) is zoned for heavy industrial and the remaining 20 percent (380 acres) is zoned for light industrial.

Of the 1,495 acres zoned heavy industrial, 395 acres (26 percent) are already developed, 120 acres (8 percent) are wetlands, and approximately 504 acres (34 percent) are difficult to develop due to future right of way needs as well as terrain and other constraints. This leaves 476 acres (32 percent) divided over multiple development zones.

A similar analysis of the 380 acres zoned light industrial was also conducted. In these areas, 68 acres (18 percent) are already developed, 0 acres are wetlands, and approximately 130 acres (34 percent) are difficult to develop due to future right of way needs as well as terrain and other constraints. This leaves 182 acres (48 percent) divided over multiple development zones.

Future Zoning

This location is identified as the future Bert Winston Extension interchange and is shown on the Franklin County zoning map as being a General Business, Light Industrial and Heavy Industrial District. The future zoning indicates that this location is a key economic development area for the Franklin County. Interchange access and the CSX rail line adds to the attractiveness of this area for future businesses.

Factors Constraining Development

The project Study Team analyzed constraining factors to the development capacity of the US 1/Bert Winston Road intersection area. The constraining factors include:

- Existing properties with land uses that are unlikely to change;
- Existing and proposed road and rail rights of way;
- Wetlands and watersheds; and
- Topography (difficult or prohibitive slopes).

Figure 4-1 presents the locations of these constraining factors at the Bert Winston node. Observations made from this analysis include the following:

- **Development Pad Size:** Disregarding parcel lines, the resulting development pads could range from 30 to 90 acres, though some larger pads could be obtained through redevelopment or re-combination. High concentrations of the smaller pads are on the east side of US 1 which may be less conducive to large operations focused on railroad access.
- **Development Pads West of US 1:** Most of the larger pads are located west of US 1. However, these are constrained by wetlands and existing businesses.
- **Development Pads East of US 1:** The realignment of the CSX rail line under the Southeast High Speed Rail (SEHSR) project in this area will create more space for development, but would not significantly change the pattern of small pads east of US 1.

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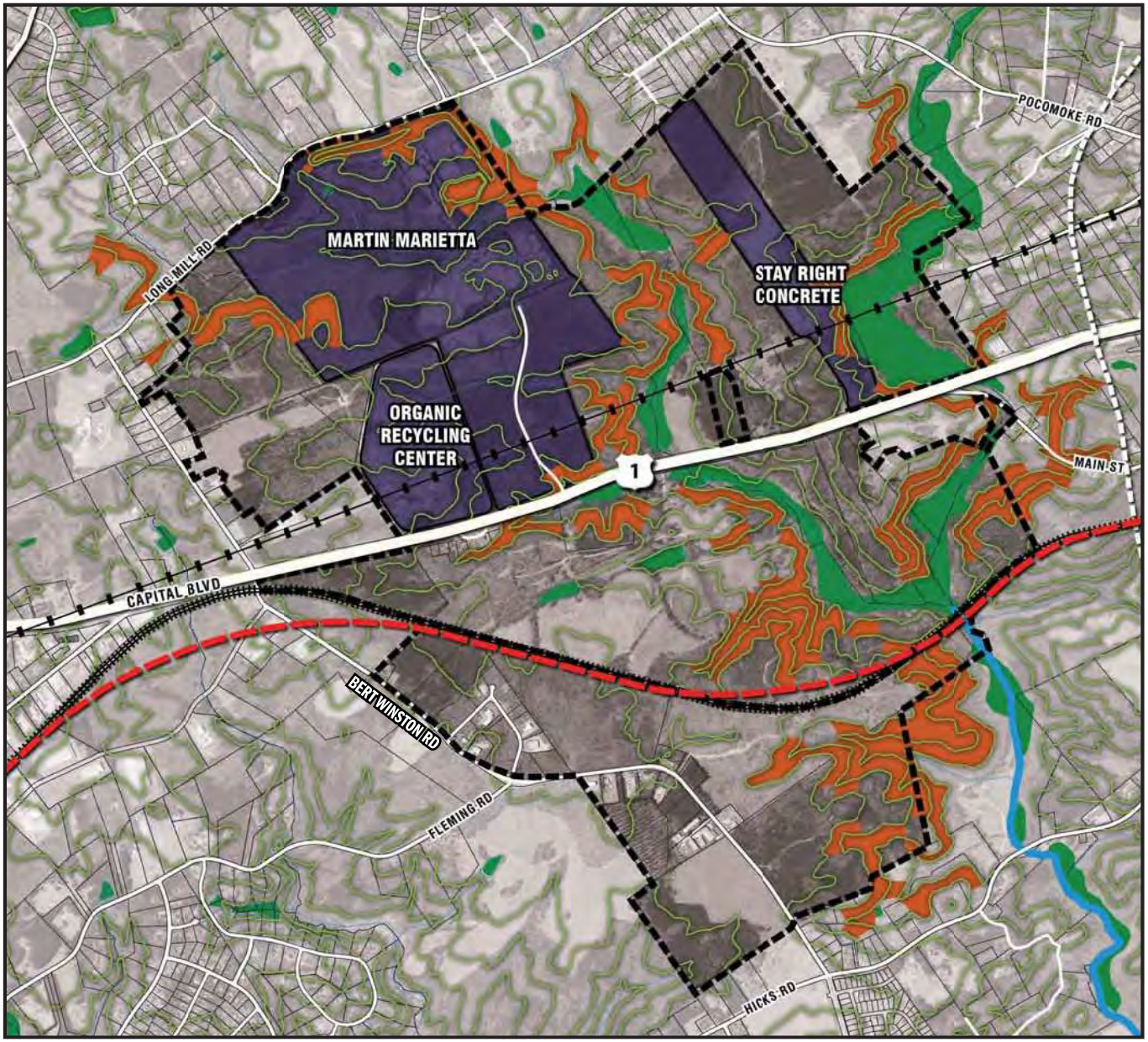
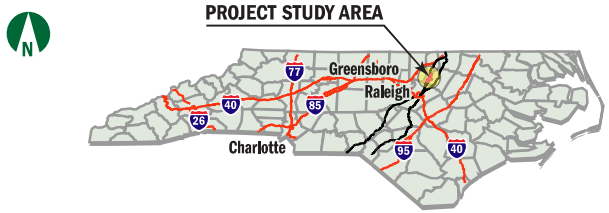
0 Miles 0.125 0.25 0.375 0.5 0.75



LEGEND

- Existing Development
- Surface Water
- Floodplain
- Contours - 20 Feet
- Difficult Slopes
- Contour Elevation Lines



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Factors Constraining Development: Bert Winston Extension Node

Figure 4-1

Land Consumption per Land Use Type

The project Study Team also reviewed other local and regional land uses to estimate the amount of land each land use type typically consumes. Based on this review, it appears that office and Research & Development land uses can consume as little as 10 acres; flex space and warehouse land uses can consume up to 100 acres; manufacturing land uses can consume up to 140 acres; and comprehensive freight-oriented development or "freight village" can consume over 3,000 acres.

Comparisons of Similar Industrial Sites

The team also assembled a variety of local and regional comparisons to examine the rough space implications of various types of industrial and office development. Two local manufacturing plants – Novozymes in Franklin County and Covidien Pharmaceuticals in Wake County – both need a minimum of about 140 acres for their facilities. Flex-space warehouses observed in Henderson also require about 100 acres for a large footprint building. Similarly, true freight villages are also space-intensive with 3,000 acre developments not uncommon.

In contrast, office and R&D uses are more easily accommodated on smaller development pads; and though the development economics of office parks may dictate larger land assembly, they can be more easily accommodated on rolling topography.

The results of this comparison suggest several opportunities for future refinement of the vision for the Bert Winston Extension node.

- The overall node is sizable and can accommodate many different uses. Development pads identified in the Bert Winston node total over 600 acres. Each interchange quadrant has between 125 to 200 acres of developable land.
- Existing environmental conditions, topography, and offsets to adjacent development limit the size of easily developed parcels. The development pads in the Bert Winston Extension node are generally 70 acres or smaller, although there may be options for combining some nodes.
- Large scale industrial development can often exceed 100 acres. This indicates that there may be potential to selectively consider alternative development patterns in isolated development pads.
- The surrounding roadway network is well-positioned to support multiple business types in the node.

Reasonable Future Development

With this being the case, the following land uses and land use type interactions can be reasonably foreseen. Figure 4-2 shows these land uses:

- A heavy industrial / manufacturing zone south of Martin Marietta, buffered from Bert Winston Road by future commercial development, with the existing organic recycling facility redeveloped as part of a larger assembly;
- A light industrial / flex-warehousing zone at the northwest, with a direct connection to Pocomoke Road and the future NC56 bypass interchange for greater flexibility of truck access, and a land use pattern more compatible with adjacent residential;
- An office / research / corporate zone straddling the forks of Cedar Creek, exploiting the desirable natural landscape, the visibility to the future freeway, and the connection to downtown Franklinton; and
- A rail-based manufacturing / warehousing / distribution zone on either side of the CSX line, with room for smaller businesses that might benefit from rail access as in Garner's Greenfield North Business Park, or line synergies as in the Charlotte's Red Line, but less integrated than a true freight village.

Collectively, the four combinations discussed above reframe the current heavy industrial district not as one massive land use / industrial park, but as multiple "mini-parks" that take advantage of localized assets and connections. As such, they could provide economic flexibility to help weather uncertain markets and balance the goals of Franklin County and Franklinton.

An industrial market assessment and competitive analysis can be conducted as a next step to provide supplemental information for future land use decisions in the Bert Winston node development area.

4.2.3.2 *The NC 56 Bypass / Franklinton South Node*

A site on US 1 that is approximately one mile south of the existing US 1/NC 56 interchange is slated to become a future NC 56 Bypass interchange. This location is at the southern extent of Franklinton's extra territorial jurisdiction. A small residential development parallels US 1 to the west and a handful of businesses front the highway. Otherwise the surroundings in this area are largely undeveloped. A fork of Cedar Creek and a major wetland bisect US 1 immediately south of the proposed NC 56 Bypass interchange, and the CSX line parallels US 1 approximately one-half mile to the east.

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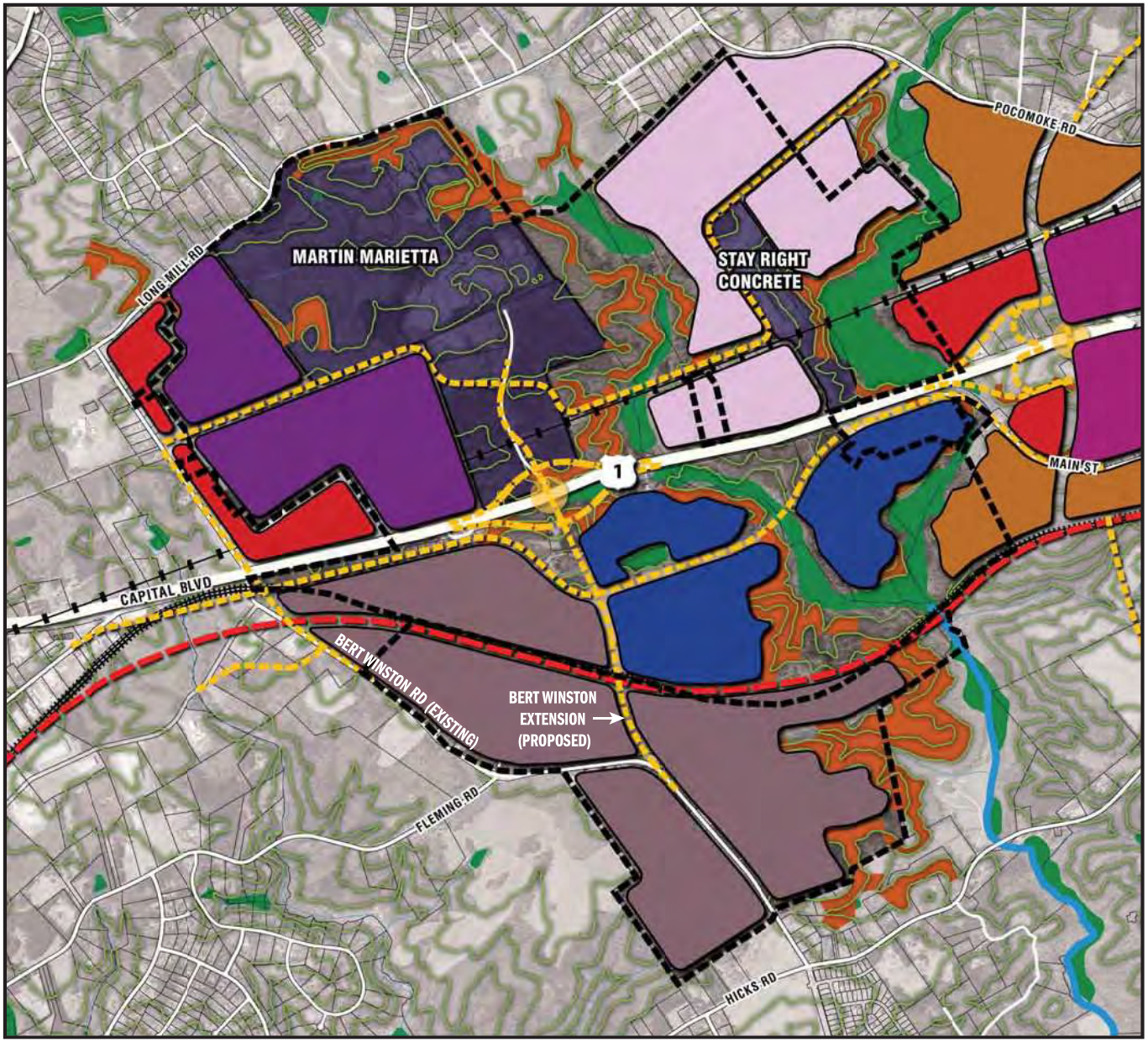

0 Miles 0.125 0.25 0.375 0.5 0.75

LEGEND

- Node Potential Impact Boundary (Premise: Industrial Zoning District)
- Commercial
- Office / R&D
- Mixed-Use
- Mixed Residential
- Heavy Industrial
- Light Industrial / Warehousing
- Rail-based Industrial
- Proposed Interchange
- Proposed Road / Street
- Possible SEHSR Alignment
- Contour Elevation Lines

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Foreseeable Development: Bert Winston Extension Node

Figure 4-2

Future Zoning

Because the Franklinton town limits extend to the proposed NC 56 Bypass, this node could be thought of as a complement to the more developed areas near the existing NC 56 junction to the north, and a strategic growth area for the city. However, current zoning reinforces the strip commercial and highway commercial land use pattern that is prevalent in the south US 1 segment. Highway Business (HB/C3H) and Light Industrial (LI) districts line both sides of US 1 in the Franklinton area except in established residential areas. With the exception of one parcel that carries a development proposal anchored by big-box commercial, mixed-use districts are not present. While appropriate for current conditions, this zoning does not take full advantage of the variety of uses and economic potential an interchange can bring.

Factors Constraining Development

The project Study Team analyzed the constraints to development capacity for this node in the same manner as the Bert Winston Extension. Figure 4-3 presents the locations of these constraining factors. What became evident from this analysis is that future development in this area is far more constrained. Pads are concentrated to the north of the potential interchange location because of watershed and topography (slope) issues to the south. Moreover, the network of existing streets and town development significantly limit pad sizes; the largest is approximately 80 acres, with an average pad size closer to 25 acres.

Comparisons of Similar Retail Oriented Interchange Nodes

Three similar North Carolina interchanges were reviewed for comparison to this node. Two interchanges are along Interstate 77 north of Charlotte, and the other is along the US 1 Phase 1 segment in Wake County. The interchange locations were identified based on their characteristics including proximity to small towns, high levels of development that would serve as a comparison with future land use, and a focus on retail type development. The three comparison interchanges are:

- **I-77 / NC 73 in Huntersville:** This interchange contains major suburban development and the Birkdale Village retail center. Its development intensity reflects its position as the primary economic center for the Lake Norman area.
- **Gilead Road Interchange, south of I-77:** This interchange is more modest in scale and anchored by the mixed-use Rosedale Village, Presbyterian Hospital and a large office park. It is roughly one mile from the center of historic Huntersville.

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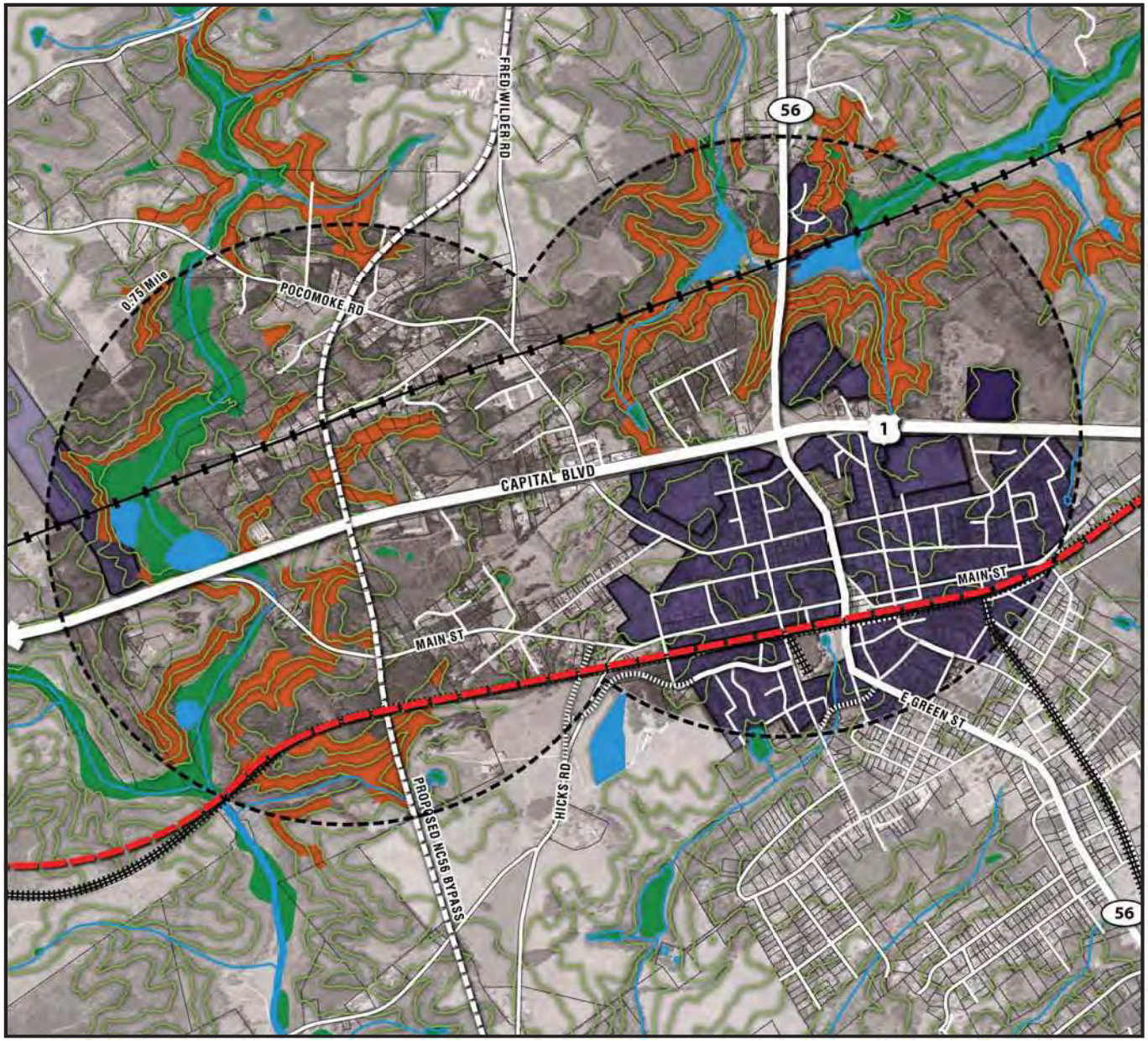
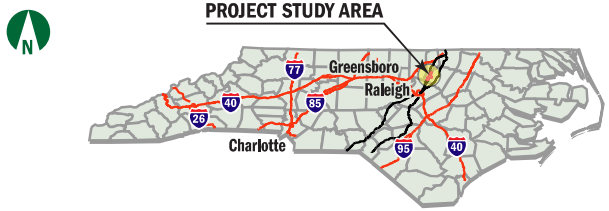


0 Miles 0.125 0.25 0.375 0.5 0.75

LEGEND

- Existing Development
- Surface Water
- Floodplain
- Contours - 20 Feet
- Difficult Slopes
- Contour Elevation Lines



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Factors Constraining Development: NC 56 Bypass/Franklin South Node

Figure 4-3

- **New Falls of Neuse Road at US 1:** This interchange is twelve miles south of Franklinton at US 1 and the New Falls of Neuse Road. It is similar in scale to the Gilead Road interchange, though more populated by big-box retail and car dealerships.

While future land use and development, especially in the long-term, is highly contingent on economic conditions and the construction of the interchange, there are some lessons to be learned from this very general comparison. These include:

- Unlike the Bert Winston Extension node, there is quite a wide variety of development that could be physically accommodated in the NC 56 Bypass/Franklinton South Node if enough land could be assembled to make project economics work at this node.
- The Gilead Road Interchange used for comparison is approximately one mile from historic Huntersville. The future NC 56 Bypass will be roughly the same distance from historic downtown Franklinton. The land uses in the Gilead Road Interchange node appear to be considerate of their neighboring historic lands uses. Similarly, land use decisions for future development in NC 56 Bypass node should consider how to compliment the neighboring historic Franklinton downtown area.

Reasonable Future Development

Considering the above, the following land uses can be reasonably foreseen as illustrated in Figure 4-4:

- Providing for transit-oriented development at or near the interchange to minimize transit routing through Franklinton while providing good connectivity and access through the local street network.
- Encouraging mixed-use at the center of the node to allow for denser (but contained) residential and commercial development to complement downtown Franklinton.
- Broadening the market for future retail by including areas of mixed residential (single-family detached and attached homes, four-unit townhouses, small apartment buildings) away from Franklinton's historic neighborhoods but close to downtown, transit and open space.
- Preserving (limited) space for straight auto-oriented commercial, close to interchange locations to minimize spillover traffic into downtown and residential areas.
- Expanding Franklinton's traditional / historic single-family fabric in key infill locations.
- Preserving sensitive environmental areas with residential cluster development.

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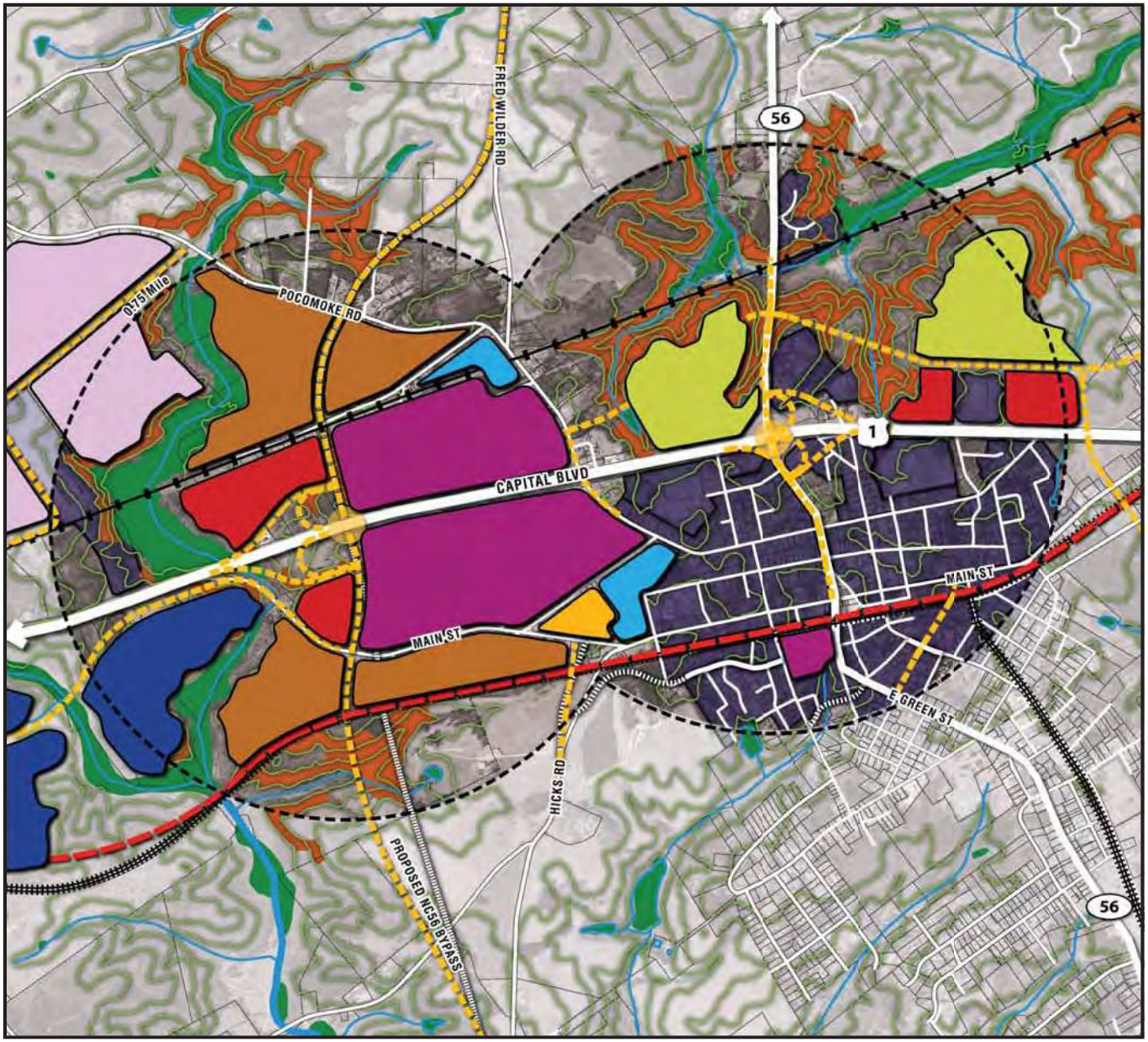
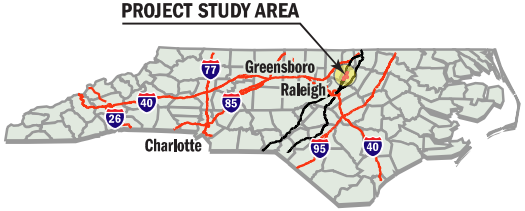


0 Miles 0.125 0.25 0.375 0.5 0.75

LEGEND

- Node Potential Impact Boundary (Premise: Accessibility)
- Commercial
- Office / R&D
- Mixed-Use / TOD
- Institutional / Public Utility
- Cluster Residential
- Low-Density / Traditional Residential
- Mixed Residential
- Light Industrial / Warehousing
- Proposed Interchange
- Proposed Road / Street
- Possible SEHSR Alignment
- Contour Elevation Lines



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Foreseeable Development: NC 56 Bypass/Franklinton South Node

Figure 4-4

The project Study Team recommends that Franklinton work with Franklin County to undertake a community-based visioning and development plan for the town and this growth area that considers the economic opportunity of the future interstate and interchanges, and the potential for greater Franklinton to become a key activity center in the county and region.

The visioning should be informed by a comprehensive market study that would use community input and land use observations. One of the outcomes of the plan would be land use and zoning modifications that could enable development offering high economic return to the city without compromising its small-town character.

4.3 US 1

Chapter 4 evaluated a detailed comparison of four US 1 conceptual alternatives. Two conceptual alternatives were recommended for more detailed analysis:

- Superstreet Alternative: The superstreet alternative was highly rated. Although it does not meet the ultimate freeway vision, it is substantially less expensive and also provides a potential interim solution.
- Freeway with Local Streets Improvements Alternative: This alternative ranked highest and meets all goals of the study. It involves numerous local street projects beyond improvements to US 1, and would result in increased impacts as well as higher costs. It may be possible, however, to offset some or most of the local street costs by requiring construction or funding as part of private development.

4.3.1 Superstreet Alternative

As discussed in Chapter 3, a Superstreet is a facility that maximizes through capacity on a roadway by restricting access and left turns. As shown on Figure 3-1, the unique characteristic of a superstreet is the configuration of the intersections. Side-street traffic wishing to turn left or cross the highway must turn right onto the divided highway then make a U-turn through the median a short distance away from the intersection. After making a U-turn, drivers can then either go straight (the equivalent of an intended left turn) or make a right turn at their original intersection (the equivalent of a crossing of the highway).

The Superstreet Alternative involves a 4-lane divided arterial highway typical section as illustrated in Figure 4-5. The paved shoulders would not be required, but may be provided near intersections. In general, the existing right of way (180 ft-220 ft as shown in Table 2-3) will be adequate for the superstreet with isolated exceptions.

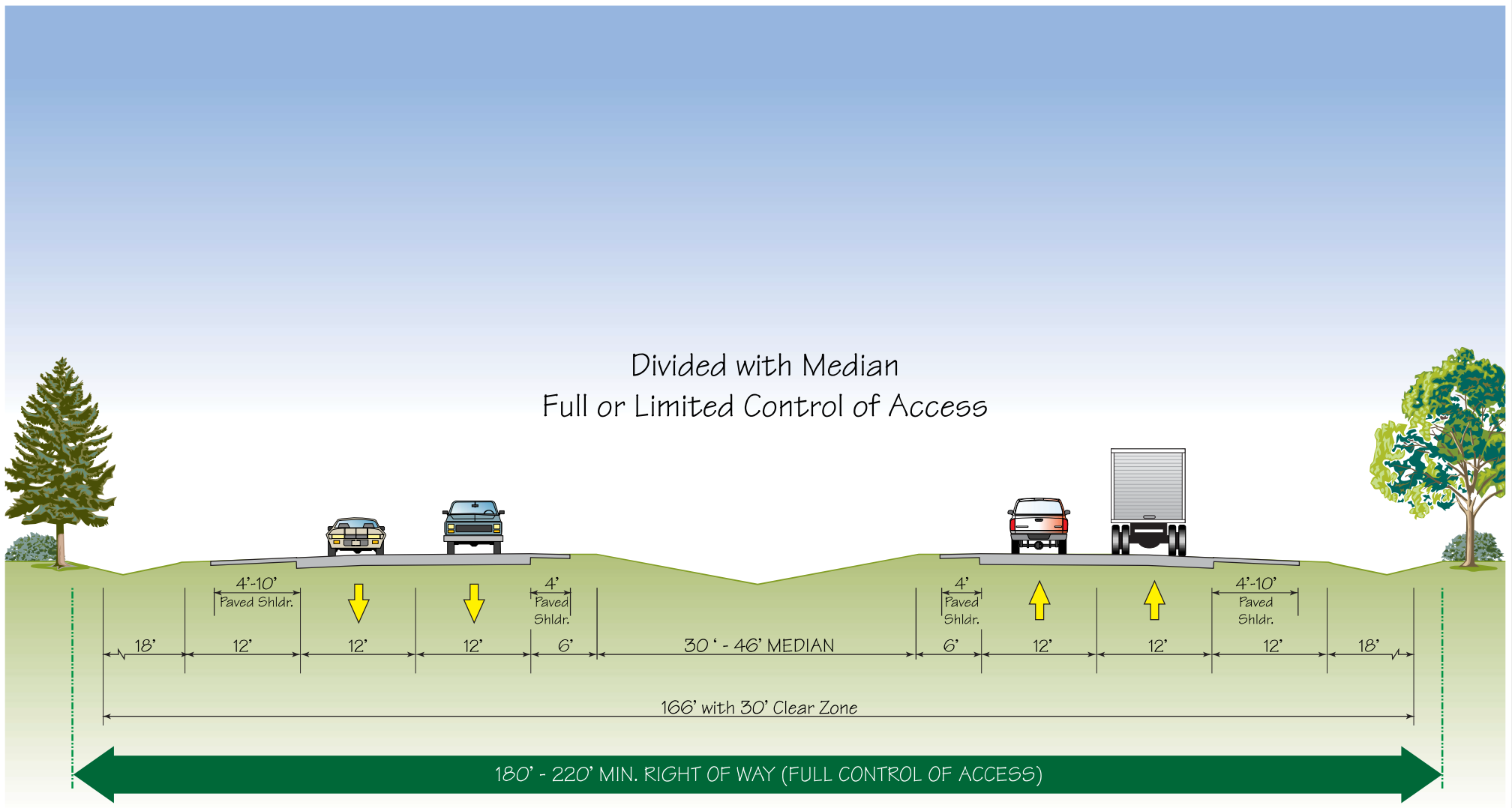
In addition, superstreet intersection improvements will be implemented at the intersections shown in Table 4-1.

4.3.2 Freeway with Local Street Enhancements

A Freeway alternative with Local Street enhancements was identified as a viable long term alternative for the US 1 corridor. Compared with the Superstreet, the Freeway alternative is the only alternative that serves traffic beyond the 2040 planning horizon identified for US 1.

Figure 4-5 also illustrates the assumed typical section for the freeway. Specifically it is assumed that the freeway will utilize the existing roadway. This will require some design exceptions, but provides a proper balance of minimizing impacts. Specific exceptions include:

- The current median width in the south section is 30 feet as shown in Table 2-2. It is proposed that this median be maintained to minimize impacts. This is not atypical of other freeways in North Carolina, specifically for upgrades of older road sections. Median treatments may be needed to prevent crossover crashes.
- The existing roadway does not have paved shoulders. It is proposed that the freeway upgrade include paved shoulders in order to incorporate rumble strips, but that this paving would effectively entail paving the existing grass shoulder, not widening the width of the shoulder.
- The current right of way width varies from 180 feet to 220 feet as shown in Table 2-2. This is less than the 250 foot minimum typically specified for full access control facilities. Nevertheless, the proposed typical section does fit within the current right of way with an assumed 30 foot clear zone. Exceptions may occur in areas where regrading is needed to improve vertical curves, but this would be determined at a more advanced stage. In addition, it may be possible to incorporate expressway gutter or other treatments to minimize the roadway footprint.



*Maintain existing right-of-way.

Typical Section for Superstreet or Freeway

Figure 4-5

Table 4-1. Superstreet Alternative Intersection Improvements

Intersection	Improvement Type	Location	Reason
US 1A/Park Avenue	Dual left over	At this intersection	To maintain access at this intersection
Bert Winston Road	Dual left over	At this intersection	To maintain access at this intersection (replacement of existing conventional signalized intersection to maximize through capacity). This assumes the new Bert Winston extension is built.
Private driveway to the Organic Recycling Center	Dual left over	At this intersection	To maintain access at this intersection
Materials Drive/ New Bert Winston Extension	Superstreet intersection with signal	From the private driveway at the Organic Recycling Center to the new access south of Stay Right Concrete Co.	Signalized superstreet intersection to maintain access and maximize through capacity
Access south of Stay Right Concrete Co. driveway	Dual left over	At this access	To accommodate the superstreet intersection at Materials Drive. Provides new median break for northbound lefts into Stay Right.
Private driveway at Stay Right Concrete Co.	Dual left over	At this intersection	To maintain access at this intersection and accommodate the superstreet intersection at US 1A
US 1A south of Franklinton	Superstreet intersection with signal	From the private driveway to Stay Right Concrete Co. to a dual left over at Budget Inn	Signalized superstreet intersection to maintain access and maximize through capacity
Access in front of Budget Inn	Dual left over	At this access	To maintain access and accommodate the superstreet intersection at US 1A
Access south of Pocomoke Road/Cheatham Street	Dual left over	At this access	To maintain access and accommodate the superstreet intersection at Pocomoke Road/Cheatham Street
Pocomoke Road/Cheatham Street	Superstreet intersection with signal	From a dual left over south of Pocomoke Road/Cheatham Street to a dual left over at Oak Crest Drive	Signalized superstreet intersection (replacement of signalized conventional intersection) to maximize through capacity
Oak Crest Drive	Dual left over	At this intersection	To maintain access and accommodate the superstreet intersection at Pocomoke Road/Cheatham Street. Janice Avenue is to be closed.

Table 4-1. Superstreet Alternative Intersection Improvements (concluded)

Intersection	Improvement Type	Location	Reason
Janice Avenue	Close median opening	At this intersection	To improve safety by eliminating crossover that can impact flows from the NC 56 southbound ramp (See Section 2.3.1 Access Issues)
Mason Street	Left Over	At this intersection	To maintain access at this intersection (See Section 2.3.1 Access Issues)
Swannanoa Street	Dual left over	At this intersection	To maintain access at this intersection
Cheatham Street north of Franklinton	Dual left over	At this intersection	To maintain access at this intersection and accommodate the superstreet intersection at US 1A
US 1A/Main Street	Superstreet intersection with future signal	From a dual left over at Cheatham Street to a dual left over north of US 1A	Signalized superstreet intersection to maintain access and maximize through capacity
Access north of US 1A	Dual left over	At this access	To maintain access and accommodate the superstreet intersection at US 1A
Access north of Interdenominational Church	Dual left over	At this access	To maintain access
Access south of Cone Drive	Dual left over	At this access	To maintain access
Cone Drive	Dual left over	At this intersection	To maintain access at this intersection
Bradleys Way	Dual left over	At this intersection	To maintain access at this intersection
Walden Lane	Dual left over	At this intersection	To maintain access at this intersection and accommodate the superstreet intersection at Carnell Drive
Carnell Drive	Superstreet intersection with future signal	From a dual left over at Walden Lane to a dual left over at Winston Street	Non-signalized superstreet intersection to maintain access and maximize through capacity
Winston Street	Dual left over	At this intersection	To maintain access at this intersection and accommodate the superstreet intersection at Carnell Drive
Access north of Winston Street	Dual left over	At this access	To maintain access. McGhee Farms to be closed.
Access and median crossover at McGhee Farms	Close median opening	At this access	To improve safety.
Access south of the Tar River	Dual left over	At this access	To maintain access

- Some deficiencies were noted in the vertical grades in Table 2-3. One element that occurred at 14 locations was sag vertical curves that met the posted speed of 55 mph, but not the design speed of 60 mph. It is proposed that a design exception be applied to these locations.
- The review and recommendations for future typical sections, horizontal and vertical curves, and potential design exception is based on an assumption that US 1 would remain posted at 55 miles per hour (mph) with a desired 60 mph design speed. If the decision were made in final design to utilize a higher design speed, additional modifications to the existing roadway would be required likely increasing impacts, right of way requirements, and costs. It is recommended that the future vision maintain the existing 55 mph posted speed on US 1 for these reasons.
- The US 1 Corridor Study Phase II Study examined in detail and proposed the implementation of High Occupancy Vehicle (HOV) lanes south of NC 98 in Wake Forest. As part of the initial traffic analysis it was confirmed that HOV or other managed lanes would not be required for the study corridor.

4.3.2.1 *Interchange Locations*

In developing a freeway alternative, the primary considerations are the locations for the interchanges access and type of interchanges for each location. Three interchange locations are proposed as part of the Franklin County CTP. The three CTP interchange locations are:

- **Bert Winston Road Extension/Materials Drive:** A new interchange north of Bert Winston Road
- **NC 56 Bypass:** A new interchange between US 1A and Pocomoke Road/Cheatham Street
- **NC 56:** The existing interchange in downtown Franklinton which will require upgrading when US 1 is improved to a freeway for safety and operations.

As part of the steering committee process, it was verified that these three locations were appropriate for interchanges. It was also noted that each of these interchanges were spaced approximately one mile apart. In general, it is preferable to have a one mile minimum spacing between interchanges. Therefore no additional interchange locations were considered south of NC 56. Two additional interchange locations were considered as part of the CTT process. The general consensus of the CTT was that an interchange would be required on the northern section of the corridor. Two locations were considered:

- **US 1A Main Street at the north end of Franklinton:** This location was considered recognizing that US 1A Main Street provides direct access from the north to the center of

Franklinton. After discussions with the CTT, however, it was determined that an interchange at this location would be redundant with the existing NC 56 interchange. Therefore, no interchange is proposed at this location.

- **Northern Franklin County:** It was identified that the northern part of Franklin County required access to US 1 (as evidenced by numerous residential and farm access points onto US 1). Without an interchange, all trips would need to travel south to the NC 56 interchange and through downtown Franklinton. Therefore, an interchange was investigated and proposed. After evaluation it was identified that the intersection of Swan Street and a proposed SEHSR connector between Montgomery Street and US 1 was the best location for the interchange. Swan Street was the preferred location because it allows for simplified connections to the local street network, can be connected directly into a proposed SEHSR rail crossing, and minimizes impacts to buildings. In addition, an interchange can be constructed without impacting the Person-McGhee Farm property. A more detailed analysis is presented in Section 4.4.2.5.

4.3.2.2 *Selection of Preferred Interchange Types*

Multiple interchange types were considered for the interchange locations discussed above. This section provides an overview of interchange types considered. It must be noted, however, that as projects are pursued in the future, the specific interchange types may be re-examined as part of the formal environmental analysis and final design. Nevertheless, the recommended interchange types in the study will provide guidance to planners and engineers in evaluating proposed developments and future roadway investments within the area.

For the locations that interchanges are proposed, multiple interchange types were investigated. Concerns considered included:

- Interchange Traffic Operations
- Impacts to Local Roads
- Provisions for Bicyclists and Pedestrians
- Providing Local Access for Land Use
- Natural Environment Impacts
- Human Environment Impacts
- Conceptual Cost

The outcomes of the above investigation were tabulated and coded in Table 4-2 through Table 4-5 using the same color/numeric coding system utilized in Table 3-4. To re-cap: green is a

positive assessment (worth 4 points); yellow is generally positive although there are constraints (worth 3 points); orange is generally negative (worth 2 points), and red represents a scenario that is negative (worth 1 point).

It is important to note that in the tables below, although an interchange type could have red under one or more comparison measures, it may still be a viable alternative. Similarly, although an interchange type could have green under one or more comparison measures, it may not be the best alternative. Table 4-2 through Table 4-5 are provided to demonstrate the subjective considerations used to compare and select the preferred interchange types. Figure 4-6 through Figure 4-9 provide a conceptual layout for the recommended alternative.

Table 4-2. Interchange Type Comparisons for the Bert Winston Extension

Interchange Type	Interchange Traffic Operations	Impacts to Local Roads	Provisions for Bicyclists and Pedestrians	Providing Local Access for Land Use	Natural Environment Impacts	Human Environment Impacts	Conceptual Cost	Other Issues	Recommendation
New Bert Winston Extension Interchange	Future side street volumes less than 10,000 vpd. High volume of trucks related to industrial development.	Local street proposed both west and east of US 1.	Overpass will provide opportunity for bicyclists/pedestrians to cross US 1. Possible conflict between industrial oriented traffic versus bicycle pedestrian.	Industrial development planned on west. Industrial development oriented to RR access planned on east. Local roads need to be continuous north-south.	Wetlands and pond/stream located in NE quadrant	4 houses located adjacent to US 1 in SE quadrant. 1 house located in NE quadrant near pond.	Based on CAMPO cost estimation for interchanges. Does not include ROW.	If Bert Winston Extension occurs prior to 2030, at-grade signalized superstreet intersection would be adequate as interim improvement.	
Simple Diamond	Sufficient long term traffic capacity. Diamond works well with trucks. No weaves on US 1 or overpass.	1200 ft spacing can be provided to west and east.	Diamond interchange provides signals that can be phased to include pedestrians.	Local roads offset from US 1 with 1200 ft spacing	Interchange area for simple diamond likely 35 acres. Wetland/ stream impact in NE quadrant.	Between 1-4 houses in SE quadrant may be impacted. 1 house in NE quadrant may be impacted.	$7.1 million	24 pts	Simple Diamond Recommended for Bert Winston Extension
Partial Cloverleaf SW and SE quadrants	Sufficient long term traffic capacity. Loop ramps can be unsafe for higher speed trucks. Weave on EB section of overpass.	1000 ft spacing can be provided west and east.	Sidewalk can be provided on north side with no crossing traffic	Local roads offset from US 1 with 1000 ft spacing	Interchange area for partial clover varies, but approximately 40 acres. SW and SE quadrants have minimal environmental issues.	4 houses in SE quadrant will be impacted.	$10.7 million	19 pts	
Partial Cloverleaf NW and SE quadrants	Sufficient long term traffic capacity. Loop ramps can be unsafe for higher speed trucks. No weaves on US 1 or overpass.	1000 foot spacing can be provided west and east.	Loop ramps can introduce safety issues for bicyclists/ pedestrians since movements do not stop at intersection.	Local roads offset from US 1 with 1000 ft spacing	Interchange area for partial clover varies, but approximately 40 acres. SW and SE quadrants have minimal environmental issues.	4 houses in SE quadrant will be impacted.	$10.7 million	18 pts	

Legend:

Green = Positive (4 Points)	Yellow = Generally positive with some negatives (3 Points)	Orange = Generally negative, but does function (2 Points)	Red = Negative (1 Point)

Back of Table 4-2 (11x17 table)

Table 4-3. Interchange Type Comparisons for the NC 56 Bypass Interchange

Interchange Type	Interchange Traffic Operations	Impacts to Local Roads	Provisions for Bicyclists and Pedestrians	Providing Local Access for Land Use	Natural Environment Impacts	Human Environment Impacts	Conceptual Cost	Other Issues	Recommendation
NC 56 Bypass	Future side street volumes will exceed 25.000 vpd to east, 10,000 vpd to west.	US 1A spaced 1200 feet to east. Pocomoke Road spaced 2400 feet to west.	Overpass will provide opportunity for bicyclists/pedestrians to cross US 1.	Between NC 56 Bypass & NC 56, local plans anticipate extensive retail focus. Multiple existing businesses need local access road for back side access in future.	Wetlands and pond/stream located in NE and SE quadrant	Isolated houses & businesses with direct access to US 1	Based on CAMPO cost estimation for interchanges. Does not include ROW.	Interchange would be constructed as part of NC 56 Bypass project	
Simple Diamond	Sufficient long term traffic capacity. Diamond works well with trucks. No weaves on US 1 or overpass.	1200 ft spacing can be provided to US 1A, but 2400 ft to Pocomoke Rd. Trucks and local trips must divert to Pocomoke or US 1A. Higher volumes on these roads since new local streets difficult to access.	Diamond interchange provides signals that can be phased to include pedestrians.	On the west, Pocomoke Rd spaced too far from interchange to serve planned development. On the east, development existing and future access required near US 1, not off US 1A.	Interchange area for simple diamond likely 35 acres in 4 quadrants. Wetland/ stream impact in NE & SE quadrants.	6 lots impacted: 1 business in SW quadrant, 2 businesses in NW quadrant. 1 house, 1 business, & 1 hotel in NE quadrant	$7.1 million	19 pts	
Partial Cloverleaf SW and SE quadrants	Sufficient long term traffic capacity. Weave on EB section of overpass. Adding local street intersection as 4th leg not preferred, but adequate capacity can be provided.	In addition to offset to US 1A and Pocomoke Rd, local streets can be connected directly to interchange ramps.	Sidewalk can be provided on north side with no crossing traffic.	New local streets planned directly off interchange ramp intersections to serve future development west and east of US 1. Strong desire of local stakeholders.	Interchange area for partial clover varies, but approximately 40 acres in 2 quadrants. Wetland/ stream impact in SE quadrant.	1 business impacted in SW quadrant	$10.7 million	22 pts	Partial Cloverleaf with loops in SW and SE quadrants recommended

Legend:

Green = Positive (4 Points)	Yellow = Generally positive with some negatives (3 Points)	Orange = Generally negative, but does function (2 Points)	Red = Negative (1 Point)

Back of Table 4-3 (11x17 table)

Table 4-4. Interchange Type Comparisons for the NC 56 Interchange

Interchange Type	Interchange Traffic Operations	Impacts to Local Roads	Provisions for Bicyclists and Pedestrians	Providing Local Access for Land Use	Natural Environment Impacts	Human Environment Impacts	Conceptual Cost	Other Issues	Recommendation
NC 56	Future side street volumes will exceed 25.000 vpd to east, 10,000 vpd to west.	US 1A spaced 1200 feet to east. Pocomoke Road spaced 2400 feet to west.	Overpass will provide opportunity for bicyclists/ pedestrians to cross US 1.	Between NC 56 Bypass & NC 56, local plans anticipate extensive retail focus. Multiple existing businesses need local access road for back side access	Wetlands and pond/stream located in NE and SE quadrant	Isolated houses & businesses with direct access to US 1	Based on CAMPO cost estimation for interchanges. Does not include ROW.	Interchange would be constructed as part of NC 56 Bypass project	
Existing Interchange – Diamond interchange (1950s standards)	Very poor in future. Bridge will likely require 4 lanes & signals. Stop signs at merge area with US 1 have safety and capacity issues.	As currently designed, spaced too close to Janice Avenue and East Mason Street. Future spacing, congestion, & safety issues on NC 56.	Existing interchange has paved shoulders on NC 56 & allows crossing of US 1 at grade separation.	Poor access to local streets & development on west side of US 1.	No impacts since interchange already in place.	No impacts since interchange already in place.	Existing interchange, therefore assuming no cost.	20 pts, but does not meet current standards for safety or design.	
Simple Diamond	Sufficient long term traffic capacity. No weaves on US 1 or overpass.	Offset to local streets may require widening of NC 56 to Cheatham.	Diamond interchange provides signals that can be phased to include pedestrians.	No direct access provided to local streets. Ramps in SE and SW quadrant will minimize development potential or impact existing business.	Interchange area for simple diamond likely 35 acres in 4 quadrants. No sensitive environmental features noted.	22 lots impacted: 4 businesses in SE quadrant, 2 businesses in SW quadrant, 5 houses & 1 business in NW quadrant, 6 houses, 3 businesses, & 1 church in NE quadrant	$7.1 million	20 pts	
Partial Cloverleaf NW and NE quadrants	Sufficient long term traffic capacity. Weave on WB section of overpass. High volume of lefts into Franklinton.	Local street access to west will require new street. NC 56 requires widening to Cheatham.	Sidewalk can be provided on south side with no crossing traffic.	Local access requires turning onto NC 56 and diverting to either Cheatham or new local street on west.	Interchange area for partial clover varies, but approximately 40 acres in 2 quadrants. No sensitive natural features noted.	16 lots impacted: 5 houses & 1 business in NW quadrant, 6 houses, 3 businesses, & 1 church in NE quadrant	$10.7 million	19 pts	
Partial Cloverleaf NW and NE quadrants with ramp in SE quadrant	Sufficient long term traffic capacity. Weave on WB section of overpass. SE quadrant ramp improves flow to Franklinton.	Local street access to west will require new street. NC 56 requires widening to Cheatham.	Sidewalk on south side has crossing traffic from SE ramp.	Local access requires turning onto NC 56 and diverting to either Cheatham or new local street on west.	Interchange area for partial clover varies, but approximately 40 acres in 2 quadrants. No sensitive natural features noted.	16 lots impacted: 5 houses & 1 business in NW quadrant, 6 houses, 3 businesses, & 1 church in NE quadrant, tight ramp in SE quadrant has no building impact	$12.7 million	20 pts	Partial Cloverleaf with loops in NW and NE quadrants with ramp in SE quadrant recommended.
Partial Cloverleaf SW and NE quadrants	Sufficient long term traffic capacity. No weaves on US 1 or overpass.	In addition to offset to US 1A and Pocomoke Rd, local streets to NW can be connected directly to interchange ramps. NC 56 requires widening to Cheatham	Sidewalk will be directed through intersection & loop ramp.	New local streets can serve SW and NE quadrants well. SW quadrant may not link NC 56 and Cheatham. West and east of US 1.	Interchange area for partial clover varies, but approximately 40 acres in 2 quadrants. No sensitive natural features noted.	12 lots impacted: 2 businesses in SW quadrant, 6 houses, 3 businesses, & 1 church in NE quadrant,	$10.7 million	22 pts	Steering Committee did not select this alternative.

Legend:

Green = Positive (4 Points)	Yellow = Generally positive with some negatives (3 Points)	Orange = Generally negative, but does function (2 Points)	Red = Negative (1 Point)

Back of Table 4-4 (11x17 table)

Table 4-5. Interchange Type Comparisons for the Northern Franklin County Interchange

Interchange Type	Interchange Traffic Operations	Impacts to Local Roads	Provisions for Bicyclists and Pedestrians	Providing Local Access for Land Use	Natural Environment Impacts	Human Environment Impacts	Conceptual Cost	Other Issues	Recommendation
Northern Franklin County Interchange	Future side street volume less than 5,000 vpd. Isolated housing units on West require access. SEHSR will construct initial connection from Winston Rd to US 1.	Local street proposed both west and east of US 1.	Overpass will provide opportunity for bicyclists/pedestrians to cross US 1. Possible conflict between industrial oriented traffic versus bicycle pedestrian.	Industrial development planned on west. Industrial development oriented to RR access planned on east. Local roads need to be continuous north-south.	Wetlands and pond/stream located in NE quadrant	Residential and business in all 4 quadrants. McGhee Farm historic/ conservation area located 2000 feet north of Swan St.	Based on CAMPO cost estimation for interchanges. Does not include ROW.	Location assumed at Swan Street to balance impacts to SW quadrant residential and avoid ramp construction impacts to McGhee Farm. Likely a long term plan item.	
Simple Diamond	Sufficient long term traffic capacity. No weaves on US 1 or overpass.	Trudy St, Walden Ln, Miss Kitty Ave, & Carnell Dr closed on west. Winston St closed on east.	Diamond interchange channels all movements to 2 simple intersections, but no signals for phasing.	Spacing to west cannot be easily provided without new local street around Swan Lake on west.	Interchange area for simple diamond likely 35 acres in 4 quadrants. Pond in NE quadrant impacted.	Impacts to 12 lots: 1 motel in SE quadrant. 3 houses & 1 business in NE quadrant. 4 houses in NW quadrant. 2 houses & 1 business in SW quadrant.	Total: $9.1 million $7.1 million interchange plus extra local street $2.0 million	16 pts	
Partial Cloverleaf NW and NE quadrants	Sufficient long term traffic capacity. Weave on WB section of overpass. Adding local street intersection as 4th leg not preferred, but capacity is adequate.	Carnell Dr closed on west. Winston St closed on east.	Loop ramps can introduce safety issues for bicyclists/ pedestrians since movements do not stop at intersection, but sidewalk can be provided on south side with no traffic conflicts.	Local roads feed directly to the south into the interchange ramps.	Interchange area for partial clover varies, but approximately 40 acres in 2 quadrants. Pond in NE quadrant impacted.	Impacts to 9 lots: 1 motel in SE quadrant (due to access). 3 houses & 1 business in NE quadrant. 4 houses in NW quadrant.	$10.7 million	21 pts	Partial clover with loops in NW and NE quadrants recommended

Legend:

Green = Positive (4 Points)	Yellow = Generally positive with some negatives (3 Points)	Orange = Generally negative, but does function (2 Points)	Red = Negative (1 Point)

Back of Table 4-5 (11x17 table)

4.3.2.3 *Recommended Interchange Types*

Utilizing the comparison measures shown in the top rows of Table 4-2 through Table 4-5, the interchanges illustrated in Figure 4-6 through Figure 4-9 are recommended for the four interchange locations.

Figure 4-6. Simple Diamond Interchange
Recommended for Bert Winston Extension

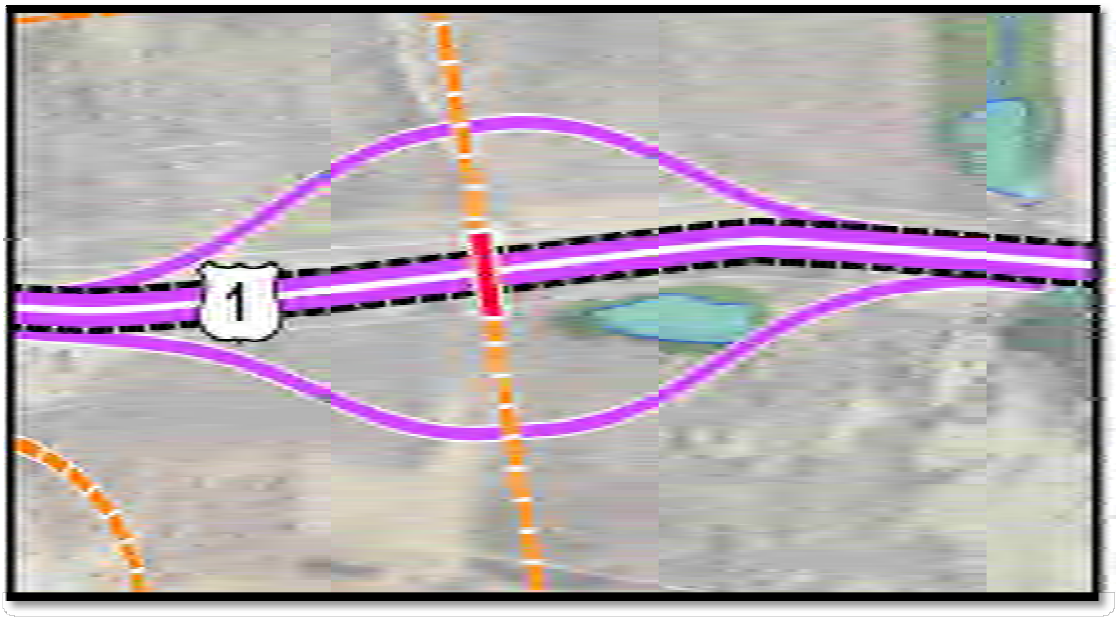


Figure 4-7. Partial Cloverleaf with Loops in SW and SE Quadrants
Recommended for NC 56 Bypass

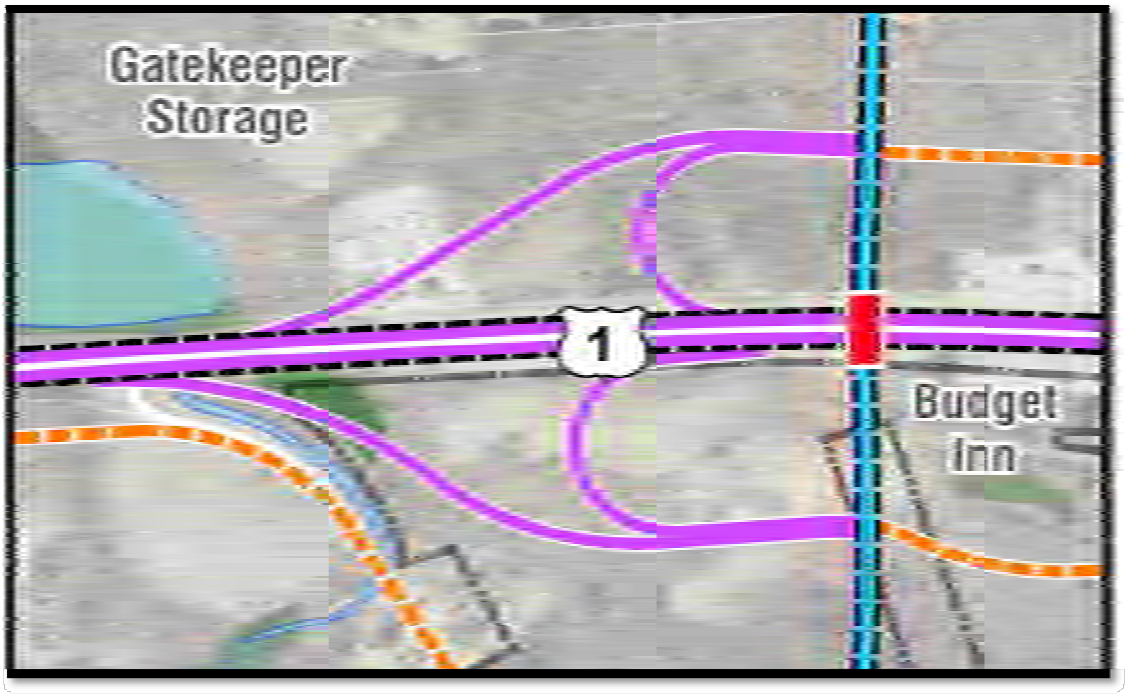
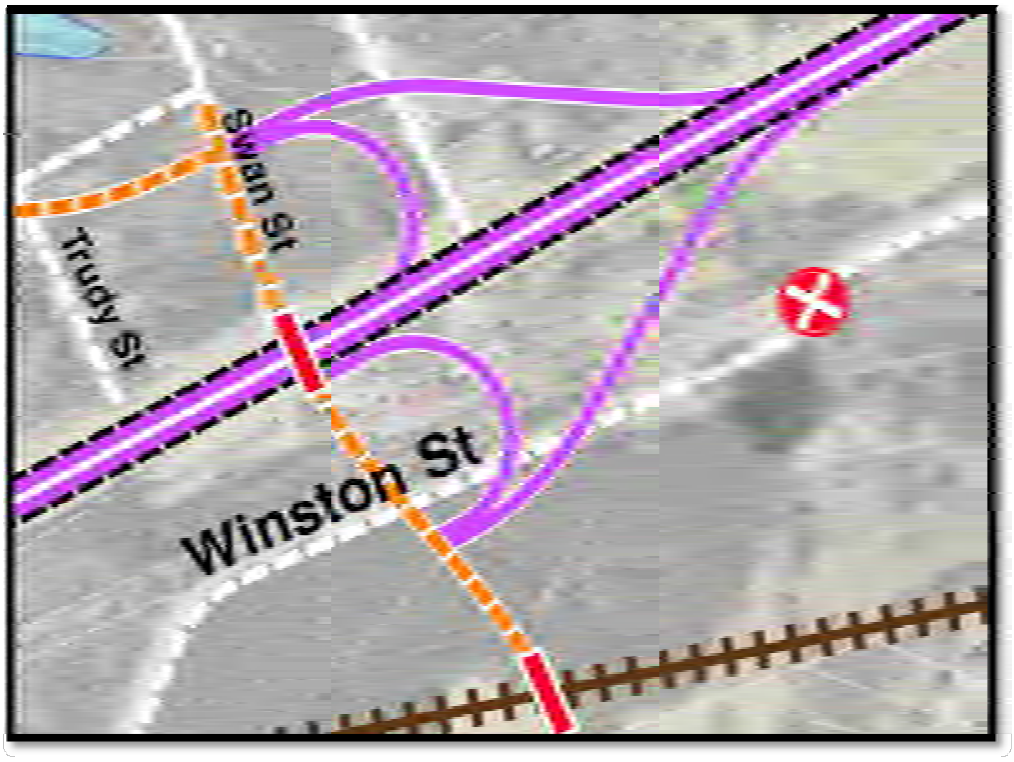


Figure 4-8. Partial Cloverleaf Interchange with Loops in NW and NE Quadrant & Ramp in SE Quadrant - Recommended for Upgrade to NC 56 Interchange

Figure 4-9. Partial Cloverleaf Interchange with Loops in SW and SE Quadrant Recommended for Interchange in Northern Franklin County



4.3.2.4 *Intelligent Transportation Systems (ITS)*

Intelligent Transportation systems (ITS) are a combination of computer and communication technologies, as well as institutional partnerships, which can allow higher volume facilities to operate more efficiently and safely. In addition, they can be utilized for guidance to motorists or as part of an incident management program. Within the study area, the implementation of ITS technology on US 1 would offer potential advantages in the management of future traffic, particularly as part of a freeway section.

ITS technology that may be applicable on the US corridor includes:

- Traffic monitoring through detectors and closed circuit video equipment as well as better traffic management through computerized signal systems on arterials
- Transit management systems (i.e., Transit Signal Priority), regional transportation management centers, and provision of real-time information to travelers through the use of electronic message signs and other means
- 511 telephone services, websites, road weather information systems, and other devices that are used to communicate with drivers to manage, monitor, and control traffic in order to improve traffic flow

In the interim period with the Superstreet implementation, it is recommended that signals associated with the Superstreet be coordinated with signals to the south including Youngsville. If Express Bus were to be implemented prior to a freeway upgrade, transit signal priority (TSP) could be considered. It should be noted, however, that the lower volumes and reduced levels of congestion on this section of US 1 will result in fewer benefits than application of signal coordination or TSP in a more congested corridor.

The primary implementation of ITS would likely occur as part of upgrades to a freeway. The ITS needs in this corridor are more applicable for driver information and incident management than congestion relief for the same reasons discussed for the interim solution. Nevertheless, the upgrade of US 1 to a freeway will increase the demand for variable message signs and cameras for remote viewing. It would likely involve an extension of an ITS system extending northward from I-540 in Raleigh.

It should be noted, however, that NCDOT does currently maintain a variable message sign on I-85 on the approach to the US 1 exit. Extension of the ITS communication and system through the study area in order to link the I-85 system with Raleigh would allow for management of flows from Virginia to the Durham and Raleigh regions.

ITS provisions on US 1 would also likely serve to provide driver information to longer distance traffic approaching Wake Forest and Raleigh from the north. In the interim period, it is likely that a variable message sign would be located on US 1 just north of the NC 98 Bypass. In the longer term, however, High Occupancy Vehicle (HOV) lanes were proposed as part of the Phase 1 study south of NC 98. When this would occur, there would be need to utilize the variable message signs and other equipment near NC 98 for HOV operations. Therefore, it could be reasonable to expect a variable message sign would be located in the study area, likely located north of NC 96 and the future NC 96 Bypass.

In addition, as ITS applications become more prevalent, ITS strategies to assist in incident response as well as non-recurring congestion should be implemented on US 1. This would include monitoring of speed data as well as video cameras to detect incidents and respond appropriately. Tying the communication and operation into NCDOT's system would also be required.

4.4 Local Street Network

As determined in Chapter 3.0, the ultimate alternative for US 1 is a Freeway with Local Street Enhancements to replace access that would be removed in the future due to the conversion of US 1 to a freeway. The local street network is critical not just to serve existing development, but also to assure prospective new development in the corridor that long term access will be available. A key goal of the local street plan would be to develop a plan that could be implemented in incremental steps in response to development projects. In addition, it is anticipated that substantial sections of the local street network connections could be constructed with funding assistance, dedication of right of way, and/ or construction by the prospective development.

4.4.1 No-Build

Local street improvements would be limited in the No-Build scenarios. New development would likely provide internal access to their site with minimal improvements to the public network. If improvements to the local network were required for a development, it could be anticipated that the improvements would be sporadic if no local plan was in place to guide the

improvements. In addition, there would likely be a continuation of the past trends that new development would request access directly onto US 1.

Note that the No-Build scenario assumes that the SEHSR project will occur. Under this scenario there will be local street improvements. In all there are six SEHSR local roadway projects anticipated to be in place. The primary purpose of these projects is to replace or mitigate for the closure of nine railroad crossings within the Franklin County study area. More detail and a listing of these improvements are included in Section 5.6.

4.4.2 Future Enhancements to Local Road Network

As part of the Freeway Alternative with Local Street Enhancements and prior to implementation of full access management, the local street network would have to be improved with backage and/or frontage roads to establish connectivity between local streets, proposed interchanges, and US 1. The recommended improvements are shown in Chapter 5.

It is anticipated that the improved local street network would run north-south along the east and west sides of US 1. Three types of roadways were evaluated for future enhancements including:

- **Frontage Roads:** This alignment option would run immediately adjacent to US 1. In general, these types of roadways require a number of land takes and would impact existing developments fronting US 1.
- **Backage Roads:** This alignment option would run farther away from US 1 along the backs of existing developments on US 1. With these types of roadways, existing lots can be served by the backage road, and new lots could be developed on the opposite side of the backage road, generating less of the above noted impacts. Ideally the backage roads would be located 350 feet to 500 feet off the US 1 right of way.
- **Independent Alignments:** These options would be located further from US 1, but could run between the locations of frontage and backage roads. They would generally allow for alignment shifts to minimize impacts and provide adequate offset to interchange ramps.

4.4.2.1 *Description of Coding Convention*

Each proposed local street alignment, new bridges, or roadway improvement was given a unique project number that is shown in the code column of the following tables. These codes are explained in detail below.

Location

On its east-west axis, the project area is broken into two sections using US 1 as the break point. On its south-north axis, the project area is broken into seven sections from south to north, these sections include south sections 1 and 2 (S1 and S2), central sections 1, 2 and 3 (C1, C2 and C3), and north sections 1 and 2 (N1 and N2). Hence, WS1 would indicate an improvement on the west of US 1, in the south section 1. The breaks for these sections are presented below and shown in Figure 4-10.

- **S1:** Park Avenue/US 1A to the proposed Bert Winston Road Extension
- **S2:** Proposed Bert Winston Road Extension to the proposed NC 56 Bypass
- **C1:** Proposed NC 56 Bypass to Pocomoke Road/Cheatham Street
- **C2:** Pocomoke Road/Cheatham Street to NC 56
- **C3:** NC 56 to Collins Road
- **N1:** Collins Road to Carnell Road
- **N2:** Carnell Road to the Vance County line
- **W:** West of US 1
- **E:** East of US 1

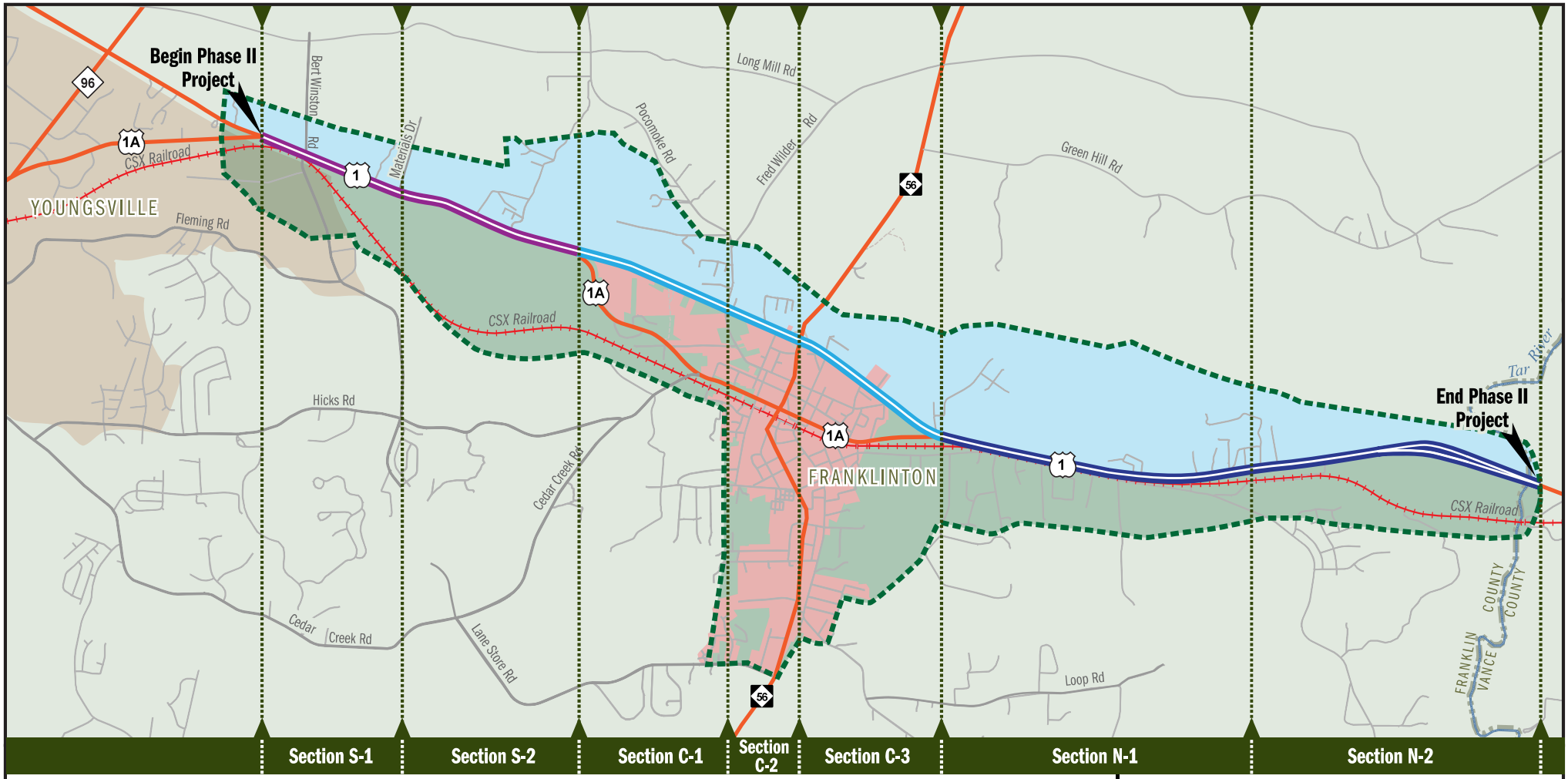
Improvement Type

The improvement types are coded "L" for local street and local street connectors, "bypass" for bypasses, and "B" for bridges. These are followed by numbers to add greater specificity. Hence, WS1-L1 would indicate an improvement on the west of US 1, in the south section 1 that is a local street or local connector designated number 1.

Improvement Versions

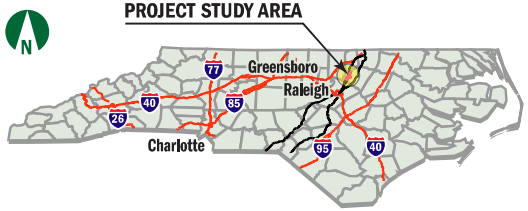
Improvement versions will typically be designated A through F, depending on the number of versions. Hence, WS1-L1-A would indicate an improvement on the west of US 1, in the south section 1, that is a local street or local connector designated number 1, that is the A variant thereof.

US1 North Corridor Study Phase II



LEGEND

- Phase II Study Boundary
- South Segment
- Central Segment
- North Segment
- East Section
- West Section
- Franklin Town Limits



US 1 Phase II Study - Franklin County

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Project Sections and Section Breaks

Figure 4-10

4.4.2.2 *Local Street Alternatives for Streets Parallel to US 1*

A key component to providing an alternate access to US 1 is providing parallel local streets to US 1 on both the east and west. For these streets, multiple alignments were evaluated and discussed with the CTT and SOT. Table 4-6 describes the alignment options considered for running parallel to US 1 as well as identifying key features or impacts of each alignment. The proposed alignment is highlighted in green. For reference, the alignment options are illustrated in Figure 4-11.

4.4.2.3 *Local Street Connectors*

In addition to the local streets paralleling US 1, there are multiple cross street intersecting US 1 or providing other connections in the network. Typically, these did not have multiple alignment options. Table 4-7 identifies these local street connectors.

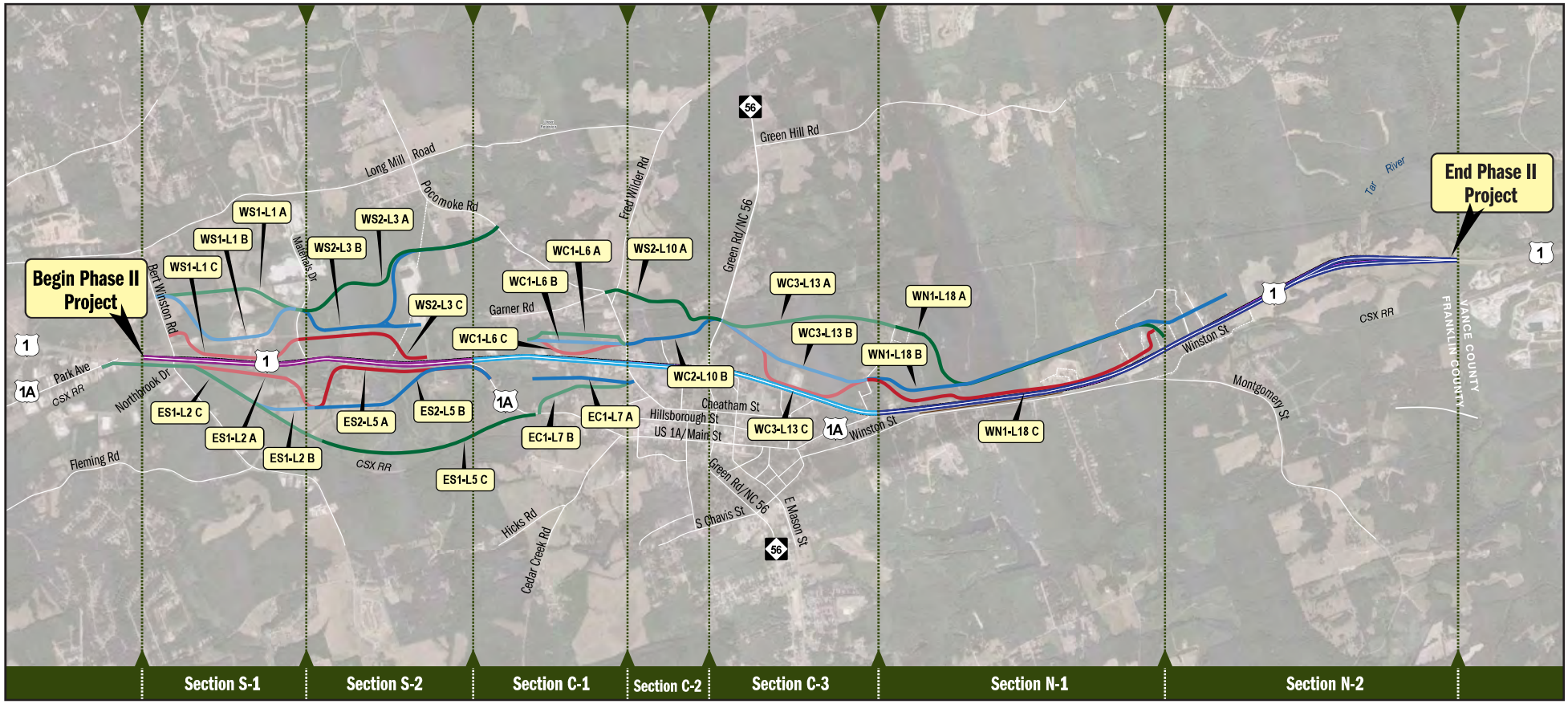
4.4.2.4 *NC 56 Bypass*

The most significant project planned for the study area is the NC 56 Bypass. Envisioned as an Expressway as part of the 2035 CTP, this project would provide a four-lane divided high speed route crossing US 1 roughly one mile south of the existing NC 56 interchange. The project is projected to carry more than 20,000 vpd east of US 1 and less than 10,000 vpd west of US 1.

The primary purpose of this facility is to divert vehicular and freight through traffic from using NC 56 through Franklinton. The existing NC 56 is on a very tight two-lane section and widening would have extensive impacts to buildings through the center of Franklinton and therefore is likely not a viable option. It is anticipated that by 2040 volumes on NC 56 will exceed the capacity of NC 56 through town and at the two signalized intersections on NC 56 if a bypass is not built.

The NC 56 Bypass is considered as a separate project from the US 1 Corridor Study. Nevertheless, it has been included in the phasing analysis for this study. The interchange configuration of US 1 at the NC 56 Bypass was evaluated since it is a critical interchange for US 1. Before construction, detailed environmental studies and final design would be required to determine the final alignment for the NC 56 Bypass.

US1 North Corridor Study Phase II



LEGEND

- South Segment
- Central Segment
- North Segment
- XXX-XX X — Local Street Alignment Option Name

US 1 Phase II Study - Franklin County PARSONS BRINCKERHOFF	Local Street Alignment Options	Figure 4-11

Back of Figure 4-11 (11x17 figure)

Table 4-6. Local Street Alternatives East and West of US 1

Street	Street Orientation	Proposed Improvement	Code
West of US 1			
Bert Winston Road to Materials Drive	Independent	Local street alternative with diamond interchange Materials Drive.	WS1-L1-A
	Backage	Local street alternative with no interchange at Materials Drive.	WS1-L1-B
	Frontage		WS1-L1-C
Independent road selected as preferred alignment in order to provide spacing from future Material Dr interchange. In addition, this alignment parallels the existing overhead utility easement that effectively divides lots. Finally, the local stakeholders on the CTT indicated it provided best alignment for attracting desired industrial development.			
Materials Drive to Pocomoke Road	Independent	Local street alternative with Interchange Option S1-IA at Materials Drive.	WS2-L3-A
	Backage	Local street alternative with no interchange at Materials Drive.	WS2-L3-B
	Frontage		WS2-L3-B
Near Materials Drive, independent road selected as preferred alignment in order to provide spacing from future Material Dr interchange. In addition, this alignment parallels the existing overhead utility easement that effectively divides lots. Finally, the local stakeholders on the CTT indicated it provided best alignment for attracting desired industrial development. In the longer term, an extension would be provided from Stay Right Concrete to Pocomoke Rd. Options were examined east of Stay Right, but wetlands and contours prevented crossing to the east. Therefore, alignment west of Stay Right north to Pocomoke is proposed.			
NC 56 Bypass to Pocomoke	Independent	Not possible due to NC 56 Bypass access restrictions. Traffic would need to utilize Pocomoke.	WC1-L6B
	Backage	Local street alternative with partial cloverleaf interchanges at the NC 56 Bypass and NC 56 Business. Backage road can be served by connection opposite the southwest loop ramp.	WC1-L6A
Backage Road located approximately 350 feet off of US 1 was selected due to access requirements. By tying into the ramp terminal of the partial cloverleaf loop ramps, access can be provided directly to the proposed development node. If not provided, access to the local street would be limited to Pocomoke Avenue which is too far to serve growth adjacent to US 1 in this section with envisioned retail and related development. A frontage road was considered for this area, but it impacted all existing businesses west of US 1.			

Table 4-6. Local Street Alternatives East and West of US 1(continued)

Street	Street Orientation	Proposed Improvement	Code
Pocomoke Road to NC 56	Independent	Local street alternative with conventional diamond interchanges at the NC 56 Bypass and NC 56 Business.	WC2-L10-A
	Frontage	Local street alternative with partial cloverleaf interchanges at the NC 56 Bypass and NC 56 Business.	WC2-L10-B
North of Pocomoke Road connection was desired to NC 56 in order to provide alternate route to traveling on US 1 between NC 56 and NC 56 Bypass. In order to minimize impacts, road was connected to existing residential road at Oak Crest Drive. Local street was extended to NC 56 to intersection 1,200 ft north of existing NC 56 interchange. Avoided impacts to Franklinton County reservoir to the north. Note that the option tying in the loop ramp from NW quadrant of NC 56 were considered. This connection was not supported by the CTT due to impacts to the two existing businesses located on US 1 just west of NC 56.			
NC 56 to Collins Road	Independent	Local street alternative with conventional diamond interchange at the NC 56 Business.	WC3-L13-A
	Backage	Local street alternative with partial cloverleaf interchange at the NC 56 Business.	WC3-L13-B
	Frontage		WC3-L13-C
Alignment selected that connected 1200 ft north of NC 56 interchange. Aligned past the American Legion to provide access and then carried north past back of properties on US 1 including Griffin Trucks. Independent alignment also allowed for overpass to be placed over US 1 in north Franklinton providing a mini-loop connection of east and west Franklinton.			
Collins Road to Overpass "D"	Independent	Local street alternative to provide access to land uses west of US 1 and north of Franklinton. This roadway connector would mostly be within the property limits of Taylor's Creek Tree Farm.	WN1-L18-A
Collins Road to Overpass "F"	Backage	Local street alternative to provide access to land uses west of US 1 and north of Franklinton. This roadway connector would be adjacent to the property limits of Taylor's Creek Tree Farm and behind frontage properties to US 1.	WN1-L18-B

Table 4-6. Local Street Alternatives East and West of US 1(concluded)

Street	Street Orientation	Proposed Improvement	Code
Collins Road to Miss Kitty Drive	Frontage	Local street alternative to provide access to land uses west of US 1 and north of Franklinton. This roadway connector would be adjacent to US 1.	WN1-L18-C
The intermediate road option was identified as the preferred alignment in this section. The frontage road would impact a high number of residences and other buildings. The intermediate road provides access along the back side of the existing parcels that front US 1.			
East of US 1			
US 1A (Youngsville) to Bert Winston Road Extension	Independent	Local street alternative with diamond interchange Materials Drive.	ES1-L2-A
	Backage	Same	ES1-L2-B
	Frontage	Same	ES1-L2-C
The independent was selected. It would run from Park Avenue (US 1A) as a frontage road, then follow independent alignment to avoid wetlands near the proposed Bert Winston extension.			
Bert Winston Road Extension to US 1A	Backage	Local street alternative with diamond interchange at Materials Drive.	ES2-L5-A
	Independent	Same	ES2-L5-B
	Frontage	Same	ES2-L5-C
The independent was selected to provide offset from the Bert Winston extension and to minimize impacts to wetlands and streams.			
NC 56 Bypass to Cheatham	Independent	Local street alternative connecting to US 1A with diamond interchange at NC 56 Bypass. Requires all traffic to use US 1A to access businesses.	EC1-L7A
	Backage	Local street alternative connecting US 1A to Cheatham Street, with an NC 56 Bypass partial cloverleaf interchange.	EC1-L7B
Independent Road located approximately 300 feet off of US 1 was selected due to access requirements with the preferred partial cloverleaf interchange at the NC 56 Bypass and NC 56 Business.			

Table 4-7. Local Street Connectors

Street
West of US 1
NC 56 Bypass Connector west of US 1 (CTP, NCDOT)
Oak Crest Drive Extension
Miss Kitty Avenue Realignment from Bradleys Way to Carnell Drive
East of US 1
Realignment of North Brook Drive (SEHSR)
Realignment of Bert Winston Road and Bridge (SEHSR)
Bert Winston Road Extension to Materials Drive and Bridge
NC 56 Bypass Connector from US 1 to east of Franklinton–(CTP, NCDOT)
Cedar Creek Extension from US 1A to proposed connector EC1-L7
Cedar Creek Realignment to US 1A and Bridge (SEHSR)
Howard Harris Road connector to Hillsborough Street
Hawkins Street Connector to Cedar Creek Road (SEHSR)
Green Road/NC 56 widening and improvements (SEHSR)
Tanyard Street Improvements from Green Road to Mason Street (SEHSR)
Tanyard Street Extension to US 1A with railroad bridge
Connector from US 1A to Winston Street (SEHSR)
East-West Connector
North-East Connector
Connector from Montgomery Street to US 1 with railroad bridge
Connector from Swan Street to Carnell Drive

4.4.2.5 *Bridges over US 1*

As part of the study, overpasses were identified for three locations on the corridor. For each of these a review was conducted to determine an appropriate project alignment over US 1 and tie-in to the local streets network. Note that these overpasses are independent of interchange locations. The overpasses/bridges below would cross US 1 when a freeway is ultimately provided. No interchange ramps are proposed at these locations.

South

Existing Bert Winston Road: This location is currently a 4-leg signalized intersection with US 1. It is not appropriate for conversion to an interchange, because it is spaced too closely to the proposed NC 96 interchange (Phase I recommendation). There was a strong desire to keep this connection in place to provide access from residential areas on the east side of US 1 to the Long Mill Elementary School west of US 1. Note, however, that as part of the Phasing plan, it may not be possible to keep this link in place continuously, and it may be necessary to close this crossing until a time that an overpass can be constructed.

Central

Cheatham/Pocomoke: The existing intersection of Cheatham and Pocomoke at US 1 is signalized. It is located roughly half-way between NC 56 and the future NC 56 Bypass. It is a crucial link between the east and west sides of US 1 in Franklinton. It is also a safe option for bicyclists and pedestrians crossing US 1 without having to travel through an interchange.

North Franklinton town limits: At the intersection of US 1A North Main Street, there is currently a four-leg at-grade intersection with US 1. Although it had been determined that an interchange was not desired at this location, an overpass to connect the western and eastern sides of US 1 was identified as a future need for both connectivity and bicycle/ pedestrian provisions. Three alignments were investigated, the western-most using Cheatham Street and the eastern-most using Main Street. A new alignment between the Cheatham and Main street was selected since it reduced impacts and connected directly into a proposed SEHSR rail underpass increasing connectivity. The comparison analysis is provided in Table 4-8. The three tested alignments are shown in Figure 4-12.

North

Northern Franklin County: The CTT identified the need for a future interchange located in northern Franklin County as discussed in Section 4.3.2.1. It was determined that the future interchange should utilize the proposed SEHSR connector between Montgomery Road and US 1. As shown in Table 4-9, the recommended overpass alignment was Alignment E linking with Swan Street. Three locations were identified as potential crossings are illustrated in Figure 4-13.

4.4.2.6 *Local Streets Serving Eastern Franklinton*

Three local street traffic improvements would improve local connectivity, improve connections to proposed SEHSR and railroad grade separations, and indirectly reduce traffic on NC 56 and US 1. These are discussed below.

Table 4-8. Possible Overpass Locations in Northern Portion of Franklinton

	Traffic	Local Street Connections	Railroad Crossings	Impact	Points
Alignment A at Cheatham	Very low (<1,000 VPD)	Through residential	No Direct connection	Multiple residences on Cheatham	7
Alignment B connected with SEHSR crossing	Low (<2,000 VPD)	Creates continuous east-west route	Tie directly with railroad crossing linking sections west and east of US 1 and east of railroad tracks.	Minimal	15 Recommended
Alignment C at US 1 (Main St./Mann St.)	Low (<2,000 VPD)	Maintains US 1A	No direct connection	Multiple residences on US 1A and Mann St.	10

Figure 4-12. US 1 Bridge Options in Northern Franklinton

Table 4-9. Possible Overpass Locations in Northern Franklin County

	Traffic	Local Street Connections	Railroad Crossings	Impact	Points
Alignment D at Trudy Street	Moderate (up to 4,000 VPD)	Poor connection to Miss Kitty Avenue	Difficult to have alignment at grade and on overpass.	Impacts residences on Miss Kitty Avenue, Swan Street and Cornell Drive	10
Alignment E at Swan Street	Moderate (up to 4,000 VPD)	Connects well to Swan Street loop	Can provide different horizontal and vertical for ay grade and overpass	Impacts residences o Swan Street and Cornell Drive	15 Recommended
Alignment F at Winston St	Moderate (up to 4,000 VPD)	Connects into Cornell Drive, but requires new roads	Can provide different horizontal and vertical for ay grade and overpass	Impacts residences on Cornell Drive and McGhee Farms	12

Figure 4-13. US 1 Bridge Options in Northern Franklin County

Southeast Connector of Lane Store Road and Bert Winston Road

A key desire of the steering committee was to identify an alternate connection southeast of Franklinton. The intent was to provide a local access road linking US 1 near Youngsville to NC 56 east of downtown Franklinton. This connection is not intended as a replacement of the NC 56 Bypass, and would be limited to two lanes. Figure 4-14 shows the layout and location of this connector. The future roadway linkage would also include bicycle and pedestrian facilities. Two sections of new construction are required to make this linkage:

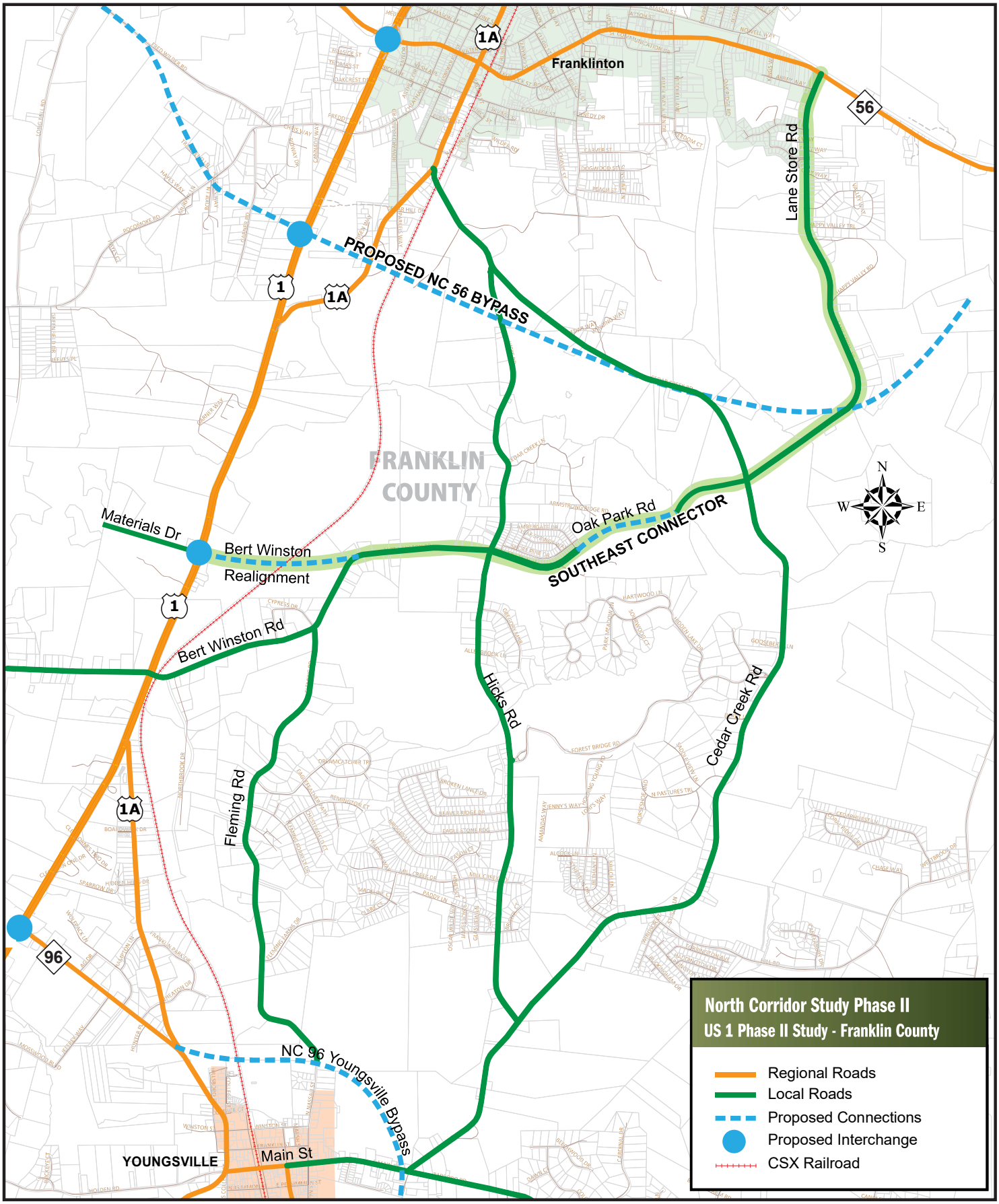
- **Bert Winston Road Extension:** This new alignment section is recommended in the current CTP. It provides a new linkage to a future interchange with US 1. It is important to note that this section may be an option as part of the SEHSR (although it is a change from the draft EIS).
- **Oak Park Road Extension:** This one half mile extension would provide a direct connection to the Lane Store Road from Bert Winston Road. The design should be sensitive to the residential development in this area. This connection would also improve access to the new Franklinton High School.

Northeast Connector

The steering committee also wished to provide an improved linkage from northern Franklin County to east of Franklinton. Currently a significant amount of residential development is located along Winston Road and Montgomery Street. In order to improve connectivity with this area and reduce the demand on NC 56 in downtown Franklinton, the new roadway would utilize the proposed SEHSR railroad overpass connecting Montgomery Street with US 1. The northeast connector would require the four improvements discussed below. Figure 4-15 shows the layout and location of the Northeast Connector.

- SEHSR connector of US 1 with Montgomery Street including the overpass of the rail line
- New alignment for approximately one mile connecting Montgomery Street to the north end of existing Loop Road.
- Potential improvements to approximately two miles of existing Loop Road
- New alignment for approximately one quarter mile from Loop Road to NC 56 at Lane Store Road.

The future connector should include bicycle and pedestrian facilities. It is envisioned that this connection could be provided incrementally as part of proposed development, although improvement to the existing Loop Road would require public funding.



US 1 Phase II Study - Franklin County	Southeast Connector	Figure 4-14
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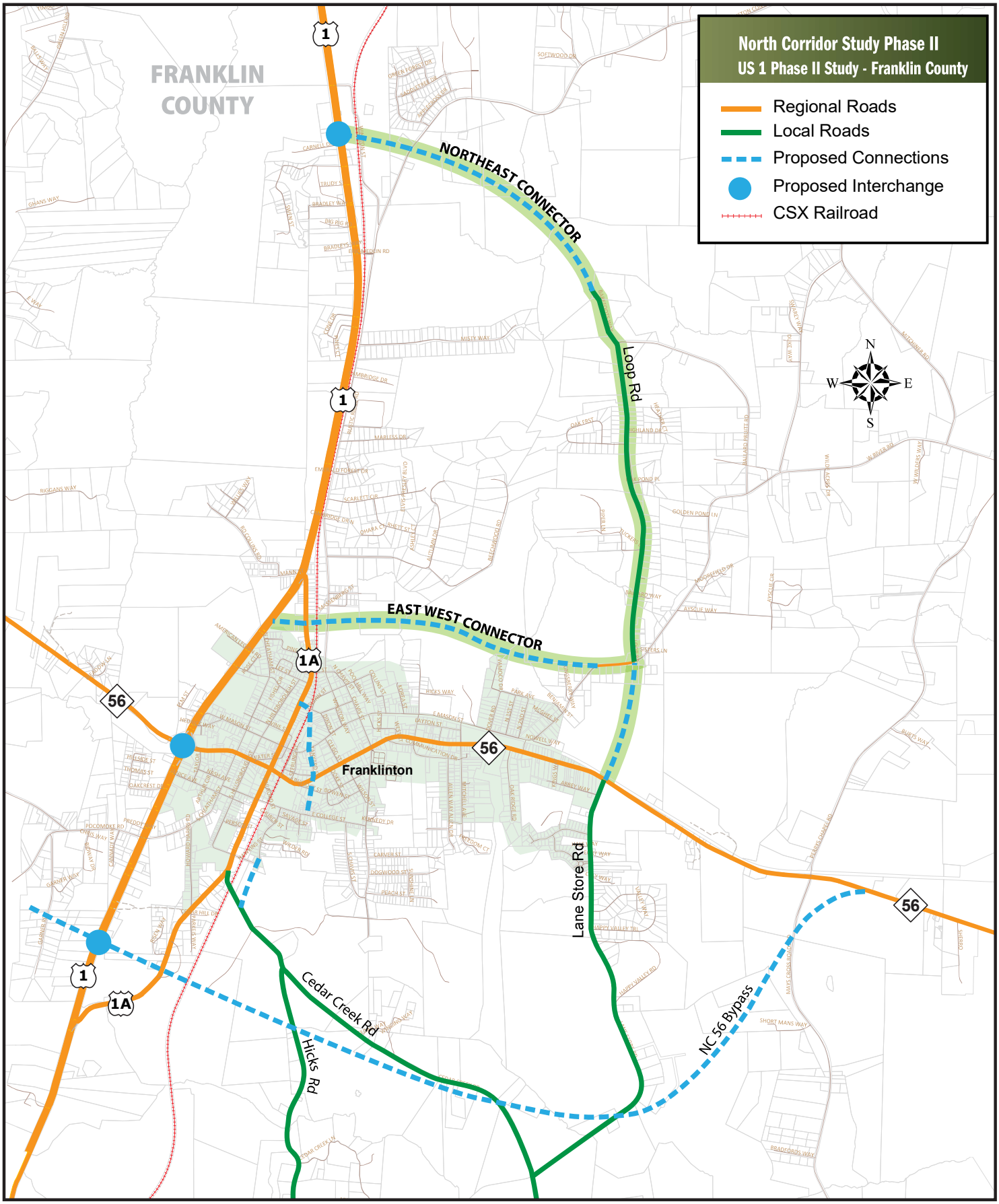

US 1 Phase II Study - Franklin County

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Northeast and East West Connectors

Figure 4-15

East-West Connector

This roadway was identified as a parallel roadway north of NC 56 that would serve as an alternate east-west route. Initially, it would be envisioned as a developer access road, but ultimately it would provide the backbone for a grid system between itself and NC 56. A key benefit of this roadway would be linking eastern and western Franklinton with the proposed SEHSR grade separation connecting Winston Street to US 1. West of the SEHSR, the roadway would extend over US 1 at a new overpass to Western Service Road. The alignment this roadway is divided into three primary sections, which are discussed below. The layout and location of the East West Connector is shown in Figure 4-15.

- From the proposed northeast connector west to Winston Street, this section would be on new alignment. It would need to avoid the Franklinton Park north NC 56.
- SEHSR connector and railroad underpass between Winston Street and US 1A.
- New alignment from US 1A west to the overpass at US 1 and connection to Western Service Road.
- As with the other local streets, accommodations for bicycle and pedestrians would be provided. The sections of this roadway east of Winston Street may be funded by developer participation.

4.5 Bicycle and Pedestrian

4.5.1 No-Build

Under the No-Build Alternative conditions, the provision of bicycle facilities within downtown Franklinton and throughout the project study area will remain as it is currently. This includes some sidewalks within Franklinton itself, but limited connectivity. No continuous connections would be in place connecting key local destinations such as the Food Lion, the new Franklinton High School, or residential developments outside the town limits. There would continue to be a lack of connections between Youngsville and Louisburg with Franklinton.

The primary source of pedestrian and bicycle improvements under this scenario would be the Southeast High Speed Rail project. Assuming this project is pursued, three pedestrian crossings of the railroad tracks in downtown Franklinton would be provided. In addition, a greenway alignment linking Franklinton to the East Coast Greenway would be identified although no funding for construction would be provided by the project.

4.5.2 Future Enhancements

To analyze existing and future bicycle and pedestrian conditions, the project Study Team gathered information from the following resources: Franklin County *Comprehensive Transportation Plan;* NCDOT's *Draft Complete Streets Guidelines; US 1 Corridor Study* (Phase I); the Southeast High Speed Rail (SEHSR) studies; and input from the public as well as SOT/CTT members. In addition, a meeting was held with the Town of Franklinton to specifically discuss the Town's bicycle and pedestrian needs.

What is evident from the review of the above resources is that one of the overarching goals of Franklin County is to plan facilities for pedestrians and bicyclists that would provide regional connectivity, improve safety, and allow for travel parallel to and across US 1. Currently, the design of local streets within the project limits do not safely allow for such bicyclist and pedestrian travel because they are typically rural, two-lane undivided roadways with shared lanes for bicycles and no sidewalks.

4.5.2.1 *Existing Plan Improvements*

The Franklin County *Comprehensive Transportation Plan* includes planned bicycle and pedestrian facilities that focus on downtown Franklinton. The project Study Team, with guidance from the steering committees and stakeholders, evaluated and expanded the *Comprehensive Transportation Plan* to update bicycle and pedestrian facilities in downtown and throughout the remainder of the project study area.

4.5.2.2 *Connectivity with US 1 Corridor Study Phase I*

The US 1 Corridor Study Phase I included widened outside lanes for bicycles and sidewalks for pedestrians on proposed frontage and backage roads along US 1 between I-540 and Park Avenue/US 1A in Franklin County. The US 1 Corridor Study Phase II proposed local street network in the South Section connecting to Long Mill Road west of US 1 and US 1A Park Avenue east of US 1. The new local street network in the Phase II study will continue the same bicycle and pedestrian improvements consistent with the Phase I study. These improvements will be maintained, where applicable, in all new local street connectivity and grade-separated crossings, including those over the SEHSR and US 1, throughout the project study area.

4.5.2.3 *Coordination with Local Officials*

An initial meeting was held with the Town to discuss specific bicycle desires, needs, and recommendations. Some of the key items included:

- Separation of bicycle and pedestrian facilities (i.e. multi-use paths, sidewalks, and bicycle lanes).
- Connection to schools, parks, and downtown area.
- Roadway crossing improvements.
- Focus improvements in downtown Franklinton.
- Preference for bicycle/pedestrian crossings on overpasses.
- Separated greenways.
- Pedestrian accommodations on local streets throughout Franklinton

4.5.2.4 *Recommendations*

Long-term recommendations would include greenways, multi-use paths, and side-paths. These are discussed in greater detail and illustrated in Chapter 6. Future multi-use paths and side-paths within the study area include:

- A Multi-use Greenway (north-south) along the SEHSR that may be incorporated into the East Coast Greenway. The SEHSR is developing a preferred alternative, but no funding for construction is to be provided.
- An east-west greenway utilizing Franklin County owned easement from Cedar Creek Road to NC 56 between downtown Franklinton and Lane Store Road.
- A north-south greenway utilizing an abandoned CSX railroad from downtown Franklinton heading to Louisburg (north of NC 56). This rails to trails project has been constructed in Louisburg, but not in Franklinton or between the two towns.
- A greenway connector from Peach Street in southeast Franklinton to the recommended north-south greenway.
- A side-path on Long Mill Road from the Phase I study improvements to Pocomoke Road.
- A side-path on Bert Winston Road from Long Mill Road to Cedar Creek Road.
- A side-path on Pocomoke Road from Long Mill Road to the east end of the grade-separated crossing over US 1.

- A side-path on Cedar Creek Road from the Bert Winston intersection to the west end of the grade-separated crossing over the SEHSR.
- A side-path on the NC 56 Bypass from the Cedar Creek Road intersection to Fred Wilder Road.

Appendix F shows additional toolkit items or consideration with the bicycle and pedestrian implementation.

4.6 Transit

4.6.1 No-Build

Under the No-Build Alternative conditions, existing transit service in the study area will remain. It is assumed that KARTS will still provide on-demand transportation services throughout Franklin County and in Franklinton.

4.6.2 Transit

The goals of providing future transit services in the US 1 Phase II corridor study area can be summarized as follows:

- Provide transit mobility for US 1 corridor commuters;
- Connect the Town of Franklinton with regional destinations to the south and east;
- Identify short-term and long-term park & ride locations in the study area to support transit services and transit-oriented developments; and
- Identify transit connection opportunities with adjacent communities.

Note, however, that the transit options identified below would be subject to more rigorous demand testing and cost analysis before specific routes or alternatives could be provided. Specific alternative concepts that were examined are discussed in the following sections.

4.6.2.1 *US 1 Express Bus Service*

In order to serve current and future commuters along the US 1 corridor that are traveling to such destinations as Wake Forest, Triangle Town Center and Raleigh, it is recommended to provide a regional express bus route along US 1 between downtown Franklinton and Triangle Town Center with limited number of stops. This is consistent with the 2035 CTP which calls for extension of Express Bus service to Franklinton along US 1 by 2035. The decision to extend the bus service, however, would be subject to future operational decisions, studies, and comparisons with other options for the region.

The express bus service would likely start as a peak hour service, operating only during the morning and afternoon commute times. In the near term, this express bus service could use the Food Lion shopping plaza as the temporary Park-and-Ride location. This arrangement would require a shared use agreement with the Food Lion shopping plaza parking lot (for up to 25 spaces). This service would make limited number of stops and connect with Youngsville at NC 96, Capital Plaza shopping center (south of NC 98), and the Triangle Town Center.

In the long range, this express bus service should originate from a permanent Park-and-Ride/Multi-modal Hub in Franklinton with good access to the US 1 corridor. In order to support the land use vision developed for the US 1 Phase II study area, it is recommended that this site be the northwest quadrant of the future US 1/NC 56 Bypass interchange. This future park-and-ride lot/multi-modal hub should accommodate approximately 100 parking spaces, and should have good access to/from US 1 and the future interchange with NC 56 Bypass.

4.6.2.2 *Local Circulator Serving Louisburg, Franklinton and Youngsville*

The US 1 Phase II corridor study stakeholders commented on the need to have bus routes along NC 56 connecting the Town of Franklinton with the Franklin county seat – Louisburg and other destinations along the NC 56 and US 401 corridors such as the Vance-Granville Community College, Wal-Mart shopping center, Louisburg College and Franklin Regional Medical Center. This connection is a 12-mile and 25 minute (by bus) one-way trip between Franklinton city center to the Franklin Regional Medical center, and could be best served by transit if it is operated along NC 56 and US 401 as an hourly service. Peak period service would not be feasible in the near term, but should be brought online at some date in the future when land use density and ridership numbers necessitate service. In addition, there was a desire to provide similar service to Youngsville, possibly as far south as the NC 98 Bypass.

This circulator service should have a coordinated schedule with the US 1 Express Bus Service such that it can serve riders connecting to/from the Youngsville area. It should be noted, however, that a full circulator route connecting these three communities in Franklin County with a single bus route would be inefficient to serve due to the length of the route and lack of population density along rural routes. Circulators typically work in urban settings where there

are many walkable destinations around bus stops. It is possible, however, that conditions could change and future analysis would be more optimistic.

4.6.2.3 *Potential Commuter Rail Station*

The SEHSR is improving the railroad line through Franklinton. There are no plans for a high speed rail station within Franklinton. There has been some interest expressed in investigating the feasibility of commuter rail along the rail line to Raleigh. In order to serve Franklinton, a depot station would be required. In order to pursue this option, a cost-benefit analysis would need to be completed as part of a more detailed study. Note that demand from the Town of Franklinton would likely not provide the demand required to justify a commuter rail line. It may be possible, however, that the stop could be provided as part of a longer system. There has been some discussion of a commuter rail service linking Raleigh to locations as far north as Henderson.

4.7 Southeast High Speed Rail (SEHSR)

4.7.1 No-Build

The Southeast High Speed Rail project is the primary project that is assumed to be in place under the No-Build conditions. This assumption is made because the funding sources are separate from the traditional funding mechanisms that would be utilized for US 1 improvements.

According to the SEHSR Tier II Draft EIS, the SEHSR plan has been developed to provide faster passenger train service between Washington, D.C. and Charlotte, NC. In the section of the corridor in Franklin County, the design speed would be 110 mile per hour requiring the closure of all at-grade railroad crossings. As currently planned, the SEHSR would not have a stop in Franklinton although there are local desires that a depot stop would be provided.

Based on the Tier II study future service options, the year chosen for the ticket revenue forecasts, and future stations, it is anticipated that the SEHSR recommended alternative alignment (Preferred Alternative NC1) would be constructed through the project limits prior to 2025. For the purposes of the US 1 corridor study, it is anticipated that construction would

occur before 2020. The primary impacts of the SEHSR in Franklinton and the study area are the closure of nine at-grade railroad crossings. The locations of grade crossing closures include:

South of Franklinton

- Bert Winston Road

Within Franklinton

- Cedar Creek Road
- Hawkins Street
- College Street
- Mason Street
- Joyner Street
- Pearce Street

North of Franklinton

- Eric Medlin Road
- Winston Street

In order to mitigate for the closures, the SEHSR has proposed some local roadway projects and bridge separated crossings of the railroad tracks. These seven projects are identified in Table 4-10.

As part of the SEHSR project there would also be the provision of some pedestrian improvements. Similar to the local street projects, the primary purpose of the pedestrian improvements is to provide a replacement for current access that is allowed at the location of at-grade crossings. Three pedestrian crossings of the railroad are proposed:

- Pedestrian crossing near existing Cedar Creek Road
- Pedestrian crossing near College Street
- Pedestrian crossing near Mason Street

In addition, the SEHSR project will identify a recommended route for a bicycle and pedestrian route near the railroad corridor. This facility is anticipated to ultimately become part of the national East Coast Greenway extending from Florida to Maine. Note, however, that the SEHSR does not provide funding for this facility.

Table 4-10. Southeast High Speed Rail Roadway Projects

SEHSR Project	Improvement Type	Includes	Purpose
Existing Bert Winston and Northbrook Road realignment	Relocate local roads	• Railroad bridge • Closure of at-grade RR crossing • New alignment for Northbrook Rd • Revised alignment for Bert Winston • Improved intersection at US 1	Realign railroad tracks to improve RR speeds Provide access to Northbrook
Cedar Creek Road realignment and railroad bridge	Relocate local road & construct RR bridge	• Railroad bridge • Closure of at-grade RR crossing • Revised alignment for Cedar Creek • Improved intersection at US 1A	Provide RR grade separation.
Hawkins Road extension	New local connector	• Local roadway	Provide connectivity between Green Rd and Cedar Creek Road east of the RR tracks
NC 56 Green Street Improvement	Railroad underpass	• Local roadway railroad underpass • Intersection improvements	Closing of Mason Street will increase volume.
Tanyard Street improvements	New local connector	• Local roadway	Provide connectivity between Green Rd and Mason St east of the RR tracks
Local connector from US 1A to Winston St	New local connector & RR underpass	• Connection from US 1A to Winston St • Railroad underpass	Provide replacement of multiple closed RR crossings
Montgomery Road connector to US 1 and railroad bridge	New local connector	• Local roadway • RR bridge • New intersection at US 1 (superstreet type)	Replace closed RR crossings at Eric Medlin Rd & Winston St

4.7.2 Changes if SEHSR Is Not Built

It is recognized that it is possible that the SEHSR project will not be pursued. It should be noted, however, that two of the projects that are key components of the local roadway network proposed as part of this study are needed with or without the SEHSR. These two projects are the realigned Bert Winston Road and the connector between US 1 and Winston Street in the

northern part of Franklin County. The other projects are primarily local access road improvements required because of the closure of current at-grade projects.

The delay of the SEHSR construction would affect the planned US 1 project phasing. Delay or cancellation of the SEHSR construction would result in delay of the following transportation projects shown in Table 4-11.

Table 4-11. Impact of Delays or Cancellation of SEHSR

SEHSR Project	Potential Impact on US 1 Corridor Study
Realignment of North Brook Drive (SEHSR) ES1-L22	Not required initially if railroad not realigned.
Realignment of Bert Winston Road and Bridge (SEHSR) ES1-L23	Not required initially if railroad not realigned. This project will be needed for the US 1 project. In addition, SEHSR funding would not be available for US 1 Superstreet improvement in the south. In the long term, an overpass could be provided as part of a single project involving both a railroad bridge and US 1 overpass.
Cedar Creek Realignment to US 1A and Bridge (SEHSR) EC1-L9	Minimal effect on project in short term. In long term may impact desired alignment for connector from US 1A, through Howard Harris Rd to the proposed local street paralleling US 1 on the east.
Hawkins Street Connector to Cedar Creek Road (SEHSR) EC2-L12	Minimal effect on the US 1 project in short term and long term.
Green Street/NC 56 and improvements (SEHSR) EC2-L30	Likely that an intersection improvement will be required at US 1A and Green Street just west of the railroad underpass. SEHSR was considering this as part of the SEHSR evaluation, but it would require local financing if SEHSR does not proceed.
Tanyard Street Improvements from Green Road to Mason Street (SEHSR) EC3-L14	Minimal effect on the US 1 project in short term and long term.
Connector from US 1A to Winston Street (SEHSR) EC3-L16	This connector provides a new railroad crossing in the northern section of Franklinton. No east-west roads connect into it, however. For this reason, this short section of roadway is proposed for extension to the west, over US 1, to the west side of US 1. If this project is not completed, the East-West Connector would be of limited value since it would not cross the RR tracks.
Connector from Montgomery Street to US 1	This connector is a critical link for northern Franklin County. If the Winston Street railroad crossing already closed, the Eric Medlin crossing would need to be open to provide access without travelling south to Franklinton. In the long term, the northern Franklinton interchange and the Northeast Connector were proposed to connect with this roadway. If this project were not built by SEHSR, it would likely be constructed when US 1 is converted to a freeway (i.e., the north Franklin interchange is constructed).

CHAPTER 5

5.0 FINAL RECOMMENDATIONS

This chapter of the report discusses the final recommendations prepared for the US 1 Corridor in the Phase II Study. The recommendations are based on the Preferred Alternative selected by the corridor stakeholders and are broken down by different elements of the corridor improvement and preservation plan. The corridor plan elements included land use, highway, local street network, transit, and bicycle and pedestrian recommendations.

The recommendations are also broken down into five implementation phases spreading from year 2015 to year 2050 by taking into account funding needs, multi-modal mobility needs, economic development goals, and other planned transportation projects in the study area such as the Southeast High Speed Rail (SEHSR). These recommendations are based on detailed technical evaluation of future land use and transportation conditions in the Phase II study area and extensive steering committee and citizen inputs.

The technical evaluation results are documented in Chapter 3 and Chapter 4 of this report, and the community engagement process and feedbacks are documented in Chapter 6 of this report. Chapter 7 of this report identifies the partnership and regulatory options that are available to advance the land use and transportation recommendations for funding and implementation.

5.1 Ultimate Improvements

The long term ultimate improvements for the US 1 corridor provide a multi-modal transportation plan that is consistent with regional transportation and land use plans. In order to meet these requirements, the Freeway with Local Street Enhancements was selected as the preferred conceptual alternative. This section examines the recommendation in detail, examining specific details related to land use, the US 1 freeway, the local street network, bicycle and pedestrian accommodations, and transit.

5.1.1 Land Use

The land use vision developed for the Phase II study area can be summarized as follows:

- Industrial and economic development south of the Town of Franklinton and in the immediate vicinity of the highway and rail corridors;
- Low-density residential and agricultural uses and rural preservation north of the Town of Franklinton; and

- Preservation and extension of the Town of Franklinton's traditional land use pattern.

In order to achieve this land use vision for the US 1 corridor, nodal development opportunities were explored around future highway interchanges. More specifically, future US 1 interchanges at the Bert Winston Road Extension and the NC 56 Bypass were analyzed to determine land capacity and constraints and type of future land use designations that can support anticipated growth in the area.

This land use analysis included an evaluation of constraints to development, local and regional land use comparisons to examine space requirements of various types of land uses, surrounding local roadway network, and the future local roadway network for vehicles, bicyclists, and pedestrians.

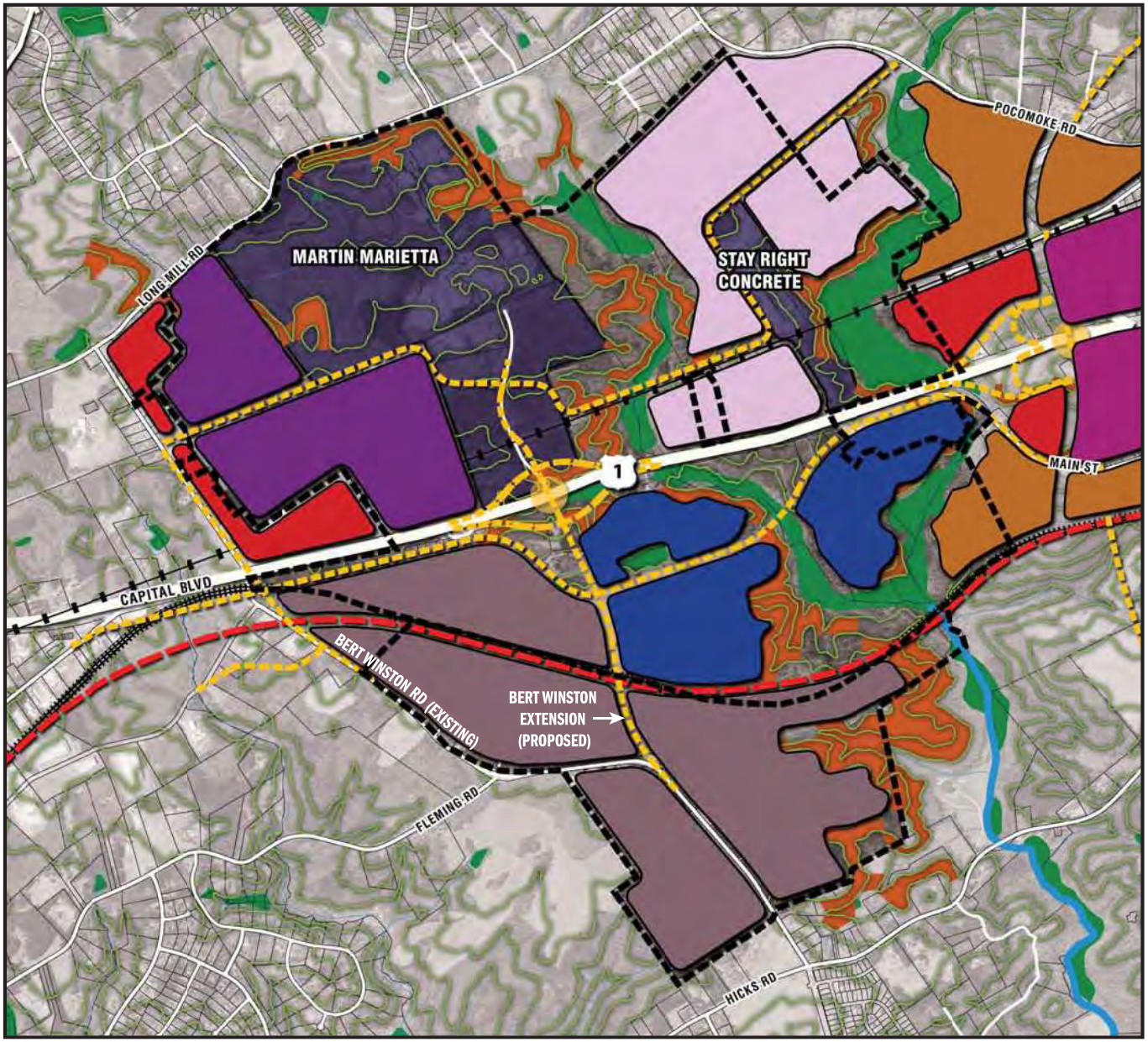
The land use development opportunities identified for the Bert Winston Extension node are illustrated in Figure 5-1. The development opportunities include the following:

- A heavy industrial / manufacturing zone south of Martin Marietta, buffered from Bert Winston Road by future commercial development, with the existing organic recycling facility redeveloped as part of a larger assembly.
- A light industrial / flex-warehousing zone at the northwest, with a direct connection to Pocomoke Road and the future NC 56 bypass interchange for greater flexibility for truck access, and a use pattern more compatible with adjacent residential.
- An office / research / corporate zone straddling the forks of Cedar Creek, exploiting the desirable natural landscape, the visibility to the future interstate, and the connection to downtown Franklinton.
- A rail-based manufacturing / warehousing / distribution zone on either side of the CSX line, with room for smaller businesses that might benefit from rail access as in Garner's Greenfield North Business Park, or line synergies as in the Charlotte's Red Line, but less integrated than a true freight village.

The land use development opportunities identified for the NC 56 Bypass node are illustrated in Figure 5-2. The development opportunities include the following:

- Providing for transit-oriented development (TOD) at or near the interchange to minimize transit routing through Franklinton while providing good connectivity and access through the local street network.
- Encouraging mixed-use at the center of the node to allow for denser (but contained) residential and commercial development to complement downtown Franklinton.

US1 North Corridor Study Phase II



0 Miles 0.125 0.25 0.375 0.5 0.75

LEGEND

- Node Potential Impact Boundary (Premise: Industrial Zoning District)
- Commercial
- Office / R&D
- Mixed-Use
- Mixed Residential
- Heavy Industrial
- Light Industrial / Warehousing
- Rail-based Industrial
- Proposed Interchange
- Proposed Road / Street
- Possible SEHSR Alignment
- Contour Elevation Lines

US 1 Phase II Study - Franklin County

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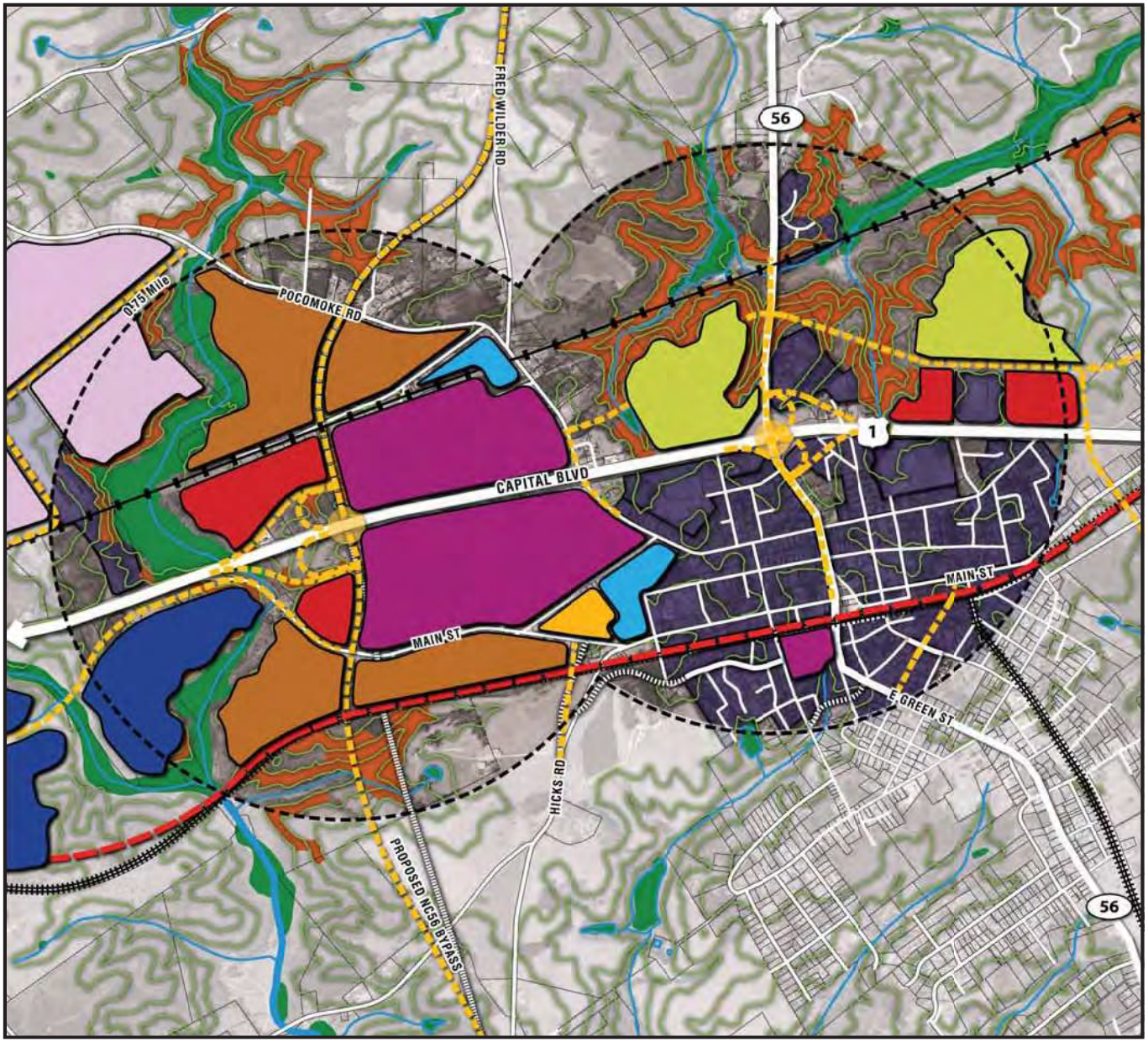
RBAN-Collage

Bert Winston Extension Node - Development Opportunities

Figure 5-1

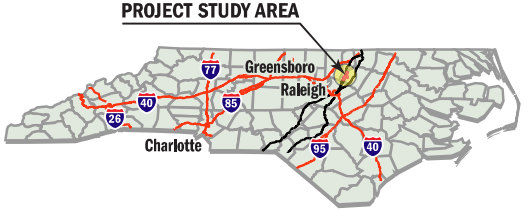
US1 North Corridor Study Phase II



0 Miles 0.125 0.25 0.375 0.5 0.75

LEGEND

- Node Potential Impact Boundary (Premise: Accessibility)
- Commercial
- Office / R&D
- Mixed-Use / TOD
- Institutional / Public Utility
- Cluster Residential
- Low-Density / Traditional Residential
- Mixed Residential
- Light Industrial / Warehousing
- Proposed Interchange
- Proposed Road / Street
- Possible SEHSR Alignment
- Contour Elevation Lines



US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

URBAN Collage

NC 56 Bypass Franklin Node - Development Opportunities

Figure 5-2

- Broadening the market for future retail by including areas of mixed residential (single-family detached and attached homes, four-unit townhouses, small apartment buildings) away from Franklinton's historic neighborhoods but close to downtown, transit and open space.
- Preserving (limited) space for straight auto-oriented commercial, close to interchange locations to minimize spillover traffic into downtown and residential areas.
- Expanding Franklinton's traditional / historic single-family fabric in key infill locations.
- Preserving sensitive environmental areas with residential cluster development.

5.1.2 US 1 Roadway Alternatives

Four conceptual alternatives were evaluated to support the long-term vision of the US 1 corridor, referred to in this report as the Ultimate Improvements. The alternatives considered include:

- No-Build Alternative
- Superstreet Alternative
- Freeway Only alternative
- Freeway with Local Street Enhancement Alternative

After an evaluation of several conceptual alternatives (see Chapter 3), two concepts were identified for more detailed analysis. These two concepts are: 1) US 1 Superstreet; and 2) US 1 Freeway with Local Street Enhancements.

The roadway alternatives were evaluated for interchange types on US 1 and alignments for local streets (see Chapters 3 and 4). As part of the Freeway Alternatives and prior to implementation of the freeway with fully controlled access, the local street network would have to be improved with a system of backage and/or frontage roads to establish connectivity between local streets and proposed interchanges. The recommended transportation alternatives are discussed in the following sections.

5.1.3 Recommended Freeway Alternative - Ultimate

The recommended ultimate design for the US 1 Corridor Study is a US 1 Freeway with an expanded Local Street network to provide access for developments that would otherwise access US 1 directly. The proposed Local Street enhancements rely on a system of local roads along the western and eastern sides of US 1.

The Ultimate Freeway with Local Streets plan is shown in Figure 5-3A for the South Section, Figure 5-3B for the Central Section, and Figure 5-3C for the North Section. A series of typical sections is shown in Figure 5-4 for the freeway and local streets in the South, Central, and North Sections. The following sections detail the interchange locations and types, other bridge crossings, and the local street enhancements.

5.1.3.1 *Recommended Interchange Concepts with Freeway*

The recommended Ultimate Freeway alternative includes four interchanges. These four interchange locations (listed from south to north) and the recommended interchange type are listed below:

US 1 at the proposed New Bert Winston Road extension: A simple diamond interchange is proposed for this location (see Figure 5-3A).

US 1 at the proposed NC 56 Bypass: This future interchange is proposed as a half clover with loop, and ramps in the southwest and southeast quadrants. In order to serve local development, the ramp termini intersections are proposed as four-legged intersections with local streets extending to the north (see Figure 5-3B).

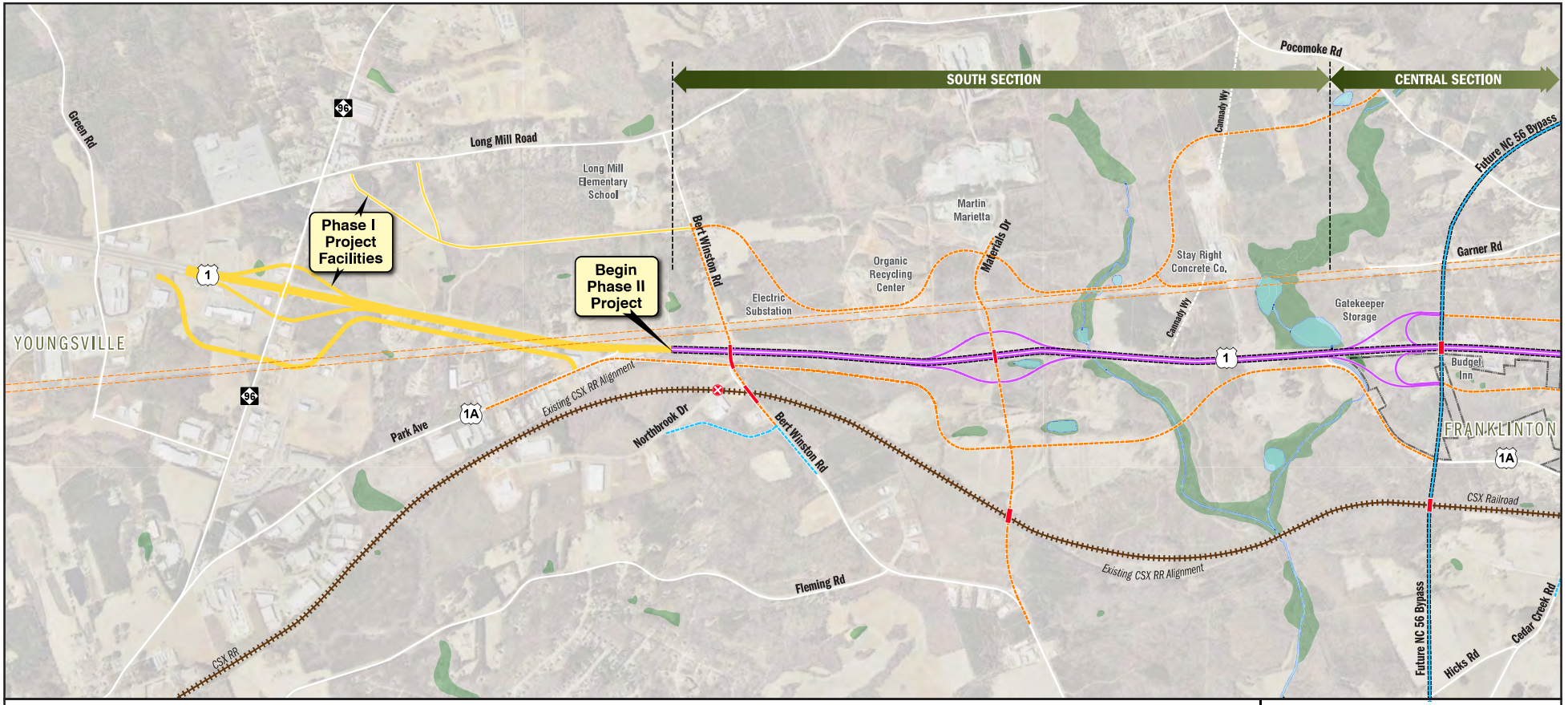
US 1 at the existing NC 56: Under existing conditions, there is a tight diamond interchange which does not meet current roadway design or traffic operations standards for a freeway. It is anticipated that this interchange would be improved to a partial cloverleaf with one additional ramp. Specifically, the interchange would include a loop and ramp in both the northwest and northeast quadrants. In addition, the southeast quadrant would have a short free flow northbound ramp providing flow to NC 56 eastbound toward downtown Franklinton (see Figure 5-3B).

US 1 in northern Franklin County: A future interchange is proposed in northern Franklin County to provide access for development north of Franklinton. After consideration of multiple tie-in points, it was identified that the existing Swan Street would be the preferred location for an interchange. On the west it would tie into the proposed local street system and on the east it would tie-into a future Northeast Connector. The interchange is proposed as a half clover with loops and ramps in the northwest and northeast quadrants to minimize impacts on the south while keeping the interchange footprint south of the McGhee Farms property (see Figure 5-3C).

5.1.3.2 *Recommended East-West Connectors on Bridge over US 1 with Freeway*

When the ultimate freeway is completed, it is necessary to provide overpass bridges at three locations (separate from the interchange locations). The overpasses will serve to link the local

US 1 North Corridor Study Phase II



LEGEND

- US 1 Corridor (Freeway)
- US 1 Interchanges
- Phase I Proposed Improvement
- Municipal Boundary

Other Roadways and Streets

- Proposed Boulevard (CTP)
- Preferred Alternative (Local Street)
- Proposed Local Street (CTP or SEHSR)
- Overpass
- SEHR Pedestrian Crossings

Railroad

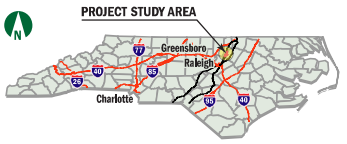
- Future SEHSR / CSX Rail
- Proposed Closing of At-Grade Rail Crossing

Environment

- Surface Waters
- Wetlands

Utilities

- Electric Transmission Line Easement



US 1 Phase II Study - Franklin County

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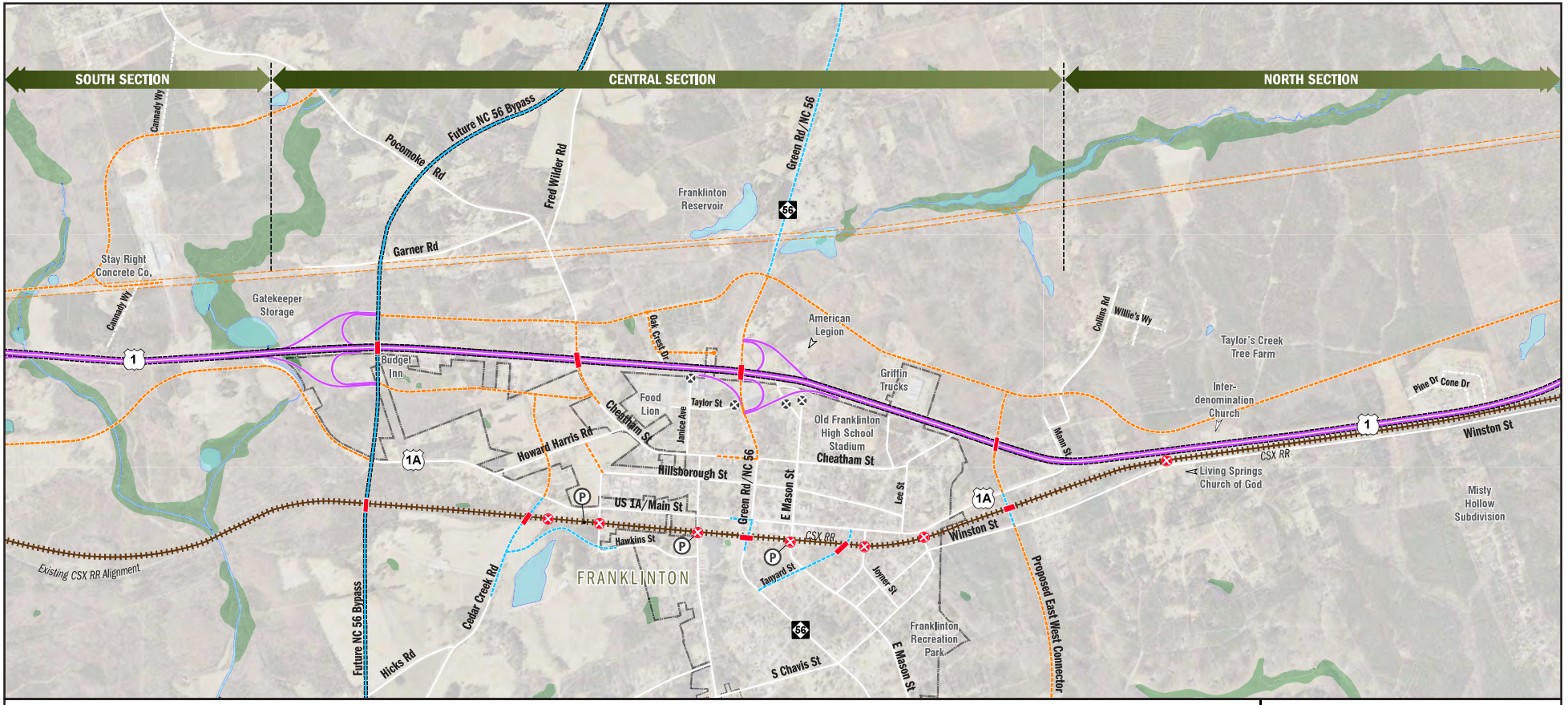
US 1 Ultimate Design - Freeway in South Section

Figure 5-3A

Sheet 1 of 3

Back side of Figure 5-3A (11x17 figure)

US1 North Corridor Study Phase II



LEGEND

- US 1 Corridor (Freeway)
- US 1 Interchanges
- Phase I Proposed Improvement
- Municipal Boundary

Other Roadways and Streets

- Proposed Boulevard (CTP)
- Preferred Alternative (Local Street)
- Proposed Local Street (CTP or SEHSR)
- Overpass
- SEHR Pedestrian Crossings
- Proposed Roadway Closure

Railroad

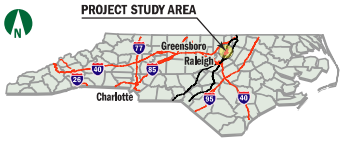
- Future SEHSR / CSX Rail
- Proposed Closing of At-Grade Rail Crossing

Environment

- Surface Waters
- Wetlands

Utilities

- Electric Transmission Line Easement



US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

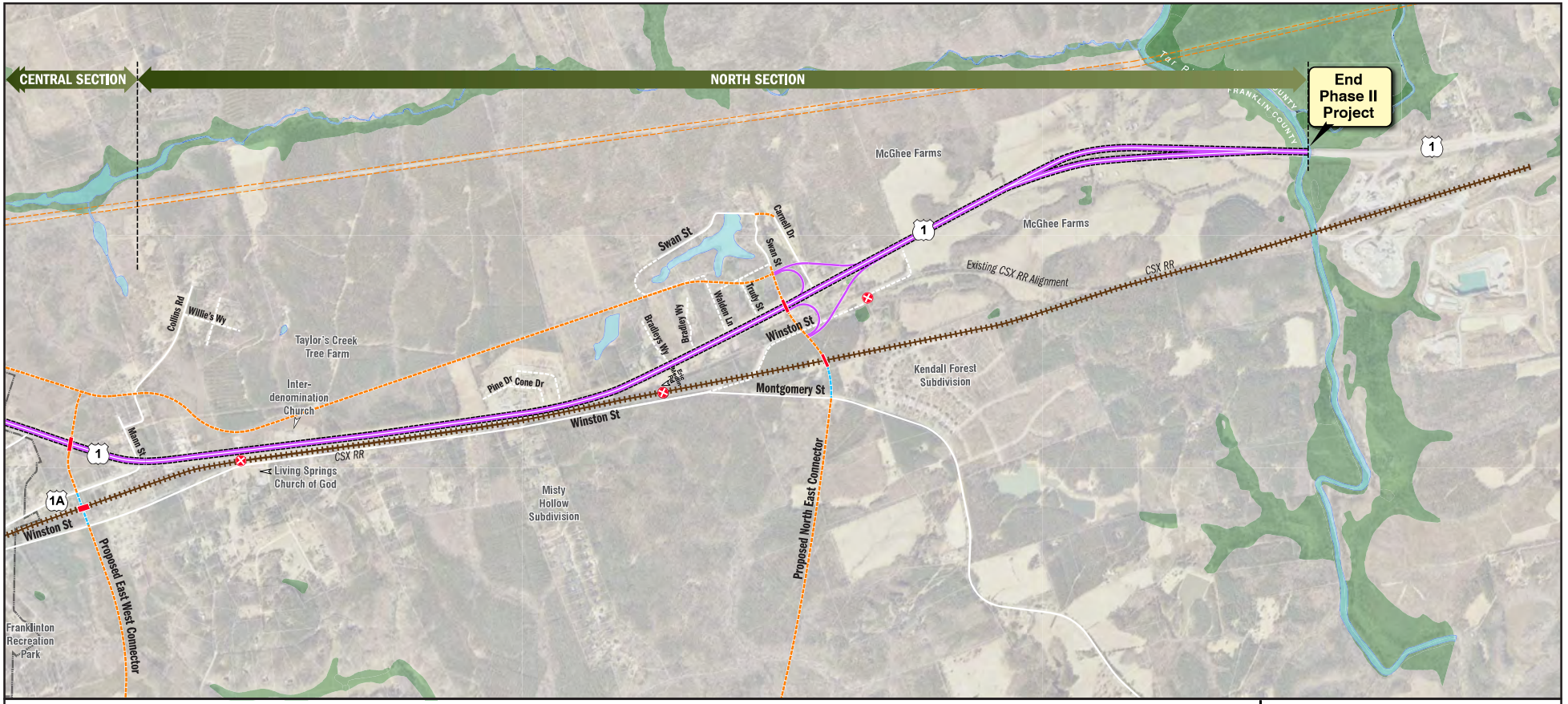
US 1 Ultimate Design - Freeway in Central Section

Figure 5-3B

Sheet 2 of 3

Back side of Figure 5-3B (11x17 figure)

US 1 North Corridor Study Phase II



LEGEND

- US 1 Corridor (Freeway)
- US 1 Interchanges
- Phase I Proposed Improvement
- Municipal Boundary

Other Roadways and Streets

- Proposed Boulevard (CTP)
- Preferred Alternative (Local Street)
- Proposed Local Street (CTP or SEHSR)
- Overpass
- SEHR Pedestrian Crossings

Railroad

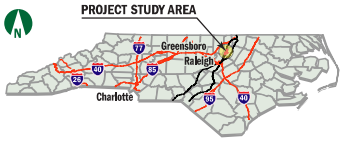
- Future SEHSR / CSX Rail
- Proposed Closing of At-Grade Rail Crossing

Environment

- Surface Waters
- Wetlands

Utilities

- Electric Transmission Line Easement



US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

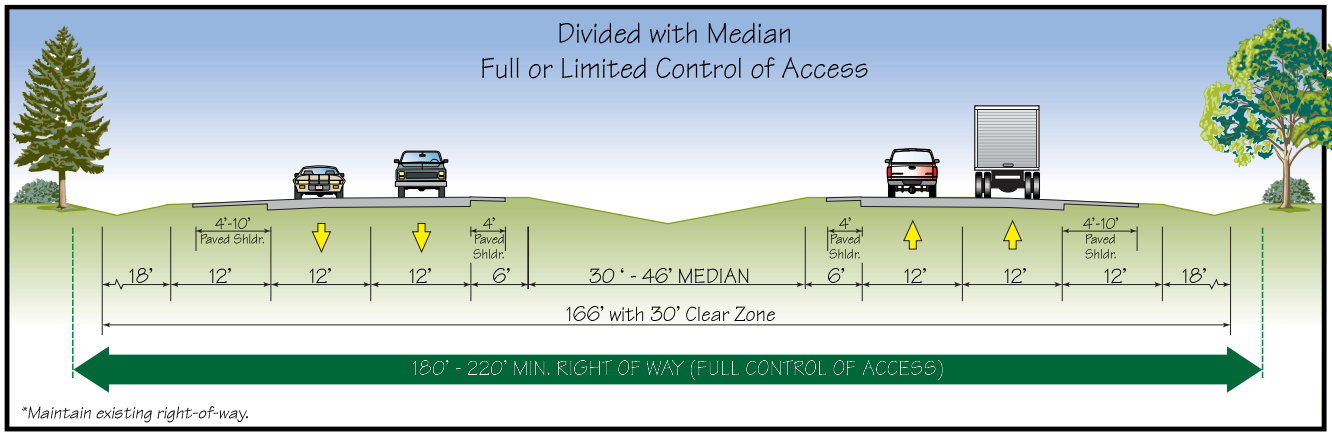
Ultimate Design - Freeway in North Section

Figure 5-3C

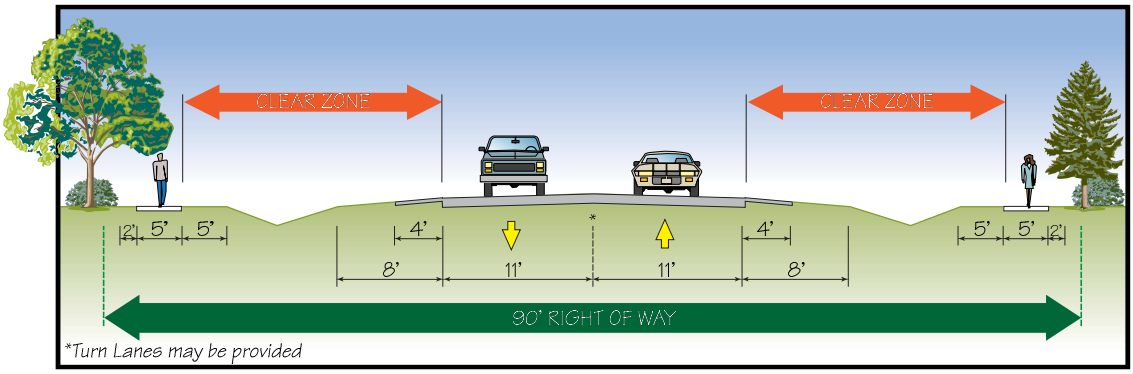
Sheet 3 of 3

Back side of Figure 5-3C (11x17 figure)

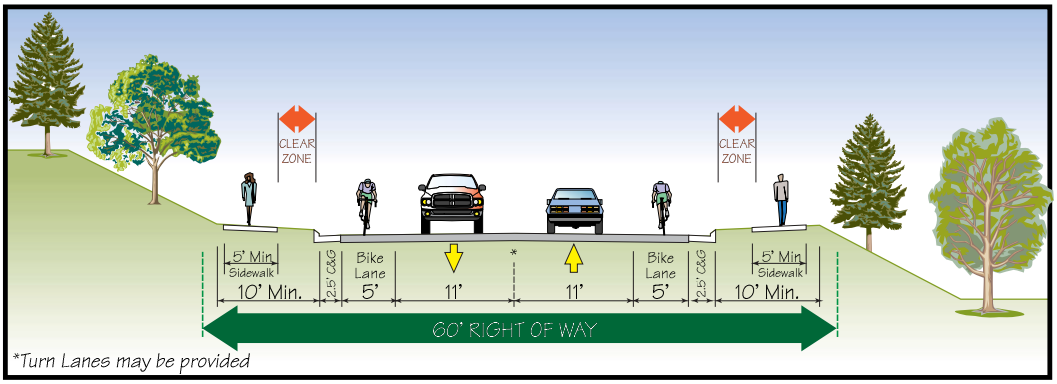
FREEWAY/EXPRESSWAY



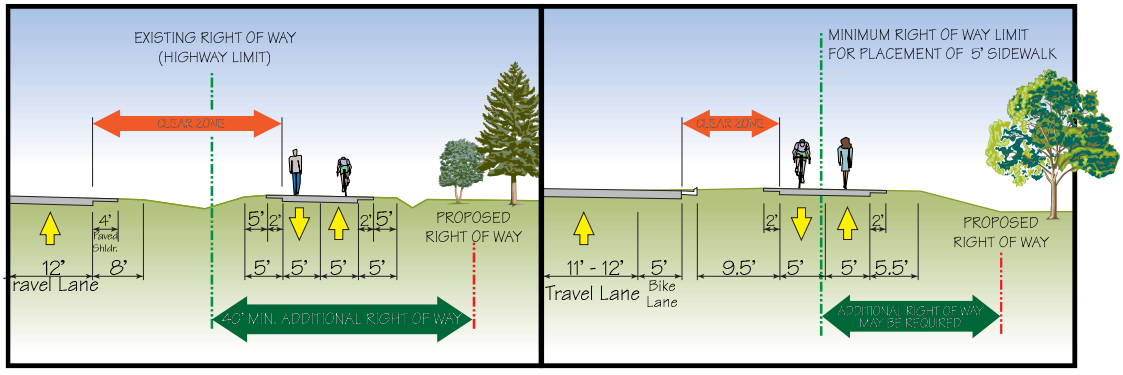
LOCAL STREET WITH SHOULDER



LOCAL STREET WITH CURB AND GUTTER



PEDESTRIAN/BIKE SIDEPATH



US 1 Phase II Study - Franklin County PARSONS BRINCKERHOFF	Typical Sections	Figure 5-4

roadway network on the west and east sides of US 1. The bridges will also provide linkage for bicycle and pedestrian facilities. The recommended bridges over US 1 are:

- Overpass at the existing Bert Winston Road over US 1. Note that this improvement will require a bridge over the realigned SEHSR as well as a bridge crossing of both US 1 and the US 1A extension from Park Avenue in Youngsville. This project would include local street construction on Bert Winston to reach the required clearance for the overpass (see Figure 5-3A).
- Overpass at the existing Cheatham Street / Pocomoke Road intersection over US 1. This is a key linkage within the anticipated Franklinton development node which will include commercial, retail, and other highway oriented development. This project will require reconstruction on Cheatham Street and Pocomoke Road to reach the required clearance for the overpass (see Figure 5-3B).
- Overpass for a proposed connector from US 1A in northern Franklinton to the proposed Western Service Road. The alignment for this connector is expected to cross US 1 on a new alignment between Cheatham Street and US 1A Main Street. On the east, this connector ties into a proposed new rail grade separation connecting US 1A and Winston Street and in the long term the Proposed East-West connector (see Figure 5-3B).

5.1.4 Recommended Local Street Alternatives

As part of the ultimate Freeway with Local Street enhancements, there are three types of Local Streets proposed. These include frontage/backage service roads parallel to US 1, new east-west connectors over US 1, isolated local road connections, and new local connectors. These categories are discussed below.

5.1.4.1 Local Service Roads Parallel to US 1

A key component of the recommended plan is the provision of local service roads constructed parallel to US 1 on both the west and east sides. These provide future access for existing development located on US 1 currently with a future provision for driveway and access connections to the local road. In addition, the roads would serve as a blueprint for providing access to new development.

In general, the local streets are identified as two-lane roadways with potential widening for turn lanes at intersections. For the industrial focused roads in the southwest, a wider section (albeit two lanes) is anticipated due to large trucks. It is anticipated that the sections between NC 56 Bypass and Collins Road will likely be curb and gutter, while segments north and south of Franklinton would be a rural shoulder section.

A key component of the local street plan is the inclusion of bicycle and pedestrian facilities on the local access roads. All local roads on new alignment would be constructed following a Complete Streets philosophy to provide safe and efficient service for all users of the facility, not just cars and trucks. For this reason, the term local street is also utilized in this document.

The recommended local streets running parallel to US 1 include:

West of US 1

- **Western Service Road South**: This street is proposed between Bert Winston Road north to Materials Drive. It then continues north to provide access to Stay Right Concrete. In the long term, and additional extension to Pocomoke Road is proposed. This street will serve primarily industrial traffic including trucks. (See Figure 5-3A.)
- **Western Backage Road:** This local street is proposed to provide a local street west of US 1 between the future NC 56 Bypass, north to Pocomoke Road, and linking to a new intersection with the existing NC 56. In this section, this will create a new link to serve existing and allow future development by providing an alternate to US 1 – the only route that serves this area in the existing network. This is needed if development is to occur west of US 1 as planned by Franklin County and Franklinton. (See Figure 5-3B.)
- **Western Service Road Central:** This local street extends north from the existing NC 56 at a proposed 4-leg intersection with the Western Backage Road. It extends north on the west side of US1 providing alternate access to US 1 for several properties including the American Legion and Griffin Trucks. Over time it is planned to extend north past Franklinton to serve as an alternate access to US 1 for existing developments and to serve as access to potentially large tracts of residential housing. In the long term it is planned to provide a western tie-in to the proposed north Franklin County interchange. (See Figure 5-3C.)

East of US 1

- **US 1A Extension**: On the west side of US 1, an extension of US 1A north from Park Avenue is proposed. It would extend from Park Avenue north to the future Bert Winston extension. It would extend further north to the existing US 1A Main Street in south Franklinton. Note that the complete connection would likely be made only once the NC 56 Bypass was in place closing off the existing US 1 at US 1A South Main Street intersection. (See Figure 5-3A.)

5.1.4.2 *Local Streets Proposed by SEHSR*

Several local street projects included in the Freeway Plan with Local Street enhancements are proposed as part of the SEHSR project. Although these do provide additional local access and are utilized to improve connectivity, the primary purpose of the SEHSR roadway project is to mitigate impacts to the local street network caused by the closure of nine at-grade crossings located in Franklinton and Franklin County. The roadways to be provided as part of the SEHSR are detailed in Table 5-1. It is assumed that these projects will likely in place by 2020 (2025 at the latest).

Of these SEHSR local street projects, the following three projects are critical elements of the Ultimate US 1 Freeway with Local Streets plan:

- Realignment of Bert Winston Road Extension (see Figure 5-3A).
- Green Road (NC 56) improvement, particularly intersection improvements at the NC 56/ US 1A intersection (see Figure 5-3B).
- Connector from Montgomery Street to US 1A (see Figure 5-3C).

5.1.4.3 *NC 56 Bypass*

The most significant project planned for the study area is the NC 56 Bypass. Envisioned as an Expressway as part of the 2035 CTP, this project would provide a four-lane divided high speed route roughly one mile south of the existing NC 56 interchange.

A key recommendation affecting the NC 56 Bypass is that the proposed facility be downgraded from an Expressway as designated in the 2035 CTP to a Boulevard. The reason is that a connection at the junction of NC 56 Bypass with US 1A Main Street is critical to serving the proposed land use within Franklinton. The projected volumes are also consistent with a Boulevard section.

The second recommendation is that the US 1 at NC 56 Bypass interchange would be a partial cloverleaf with loops in the southwest and southeast quadrants. The local street network serving Franklinton is proposed to connect directly into the ramp intersections (see Figure 5-3B).

The third finding that could be incorporated as part of a future construction schedule is that the southeast section of the Bypass from NC 56 east of Franklinton to US 1 carries higher volumes than the southwest section. Therefore, the southeast section should be the higher priority section. Nevertheless, a complete NC 56 Bypass will ultimately be required to serve east-west vehicular and freight through movements on NC 56 through Franklinton.

Table 5-1. Local Streets Planned by SEHSR & Key Issues

SEHSR Project	Improvement Type	Includes	Purpose	Key Issues
Existing Bert Winston and Northbrook Road realignment	Relocate local roads	• Railroad bridge • Closure of at-grade RR crossing • New alignment for Northbrook Rd • Revised alignment for Bert Winston • Improved intersection at US 1	Realign railroad tracks to improve RR speeds Replace	Bert Winston RR overpass cannot be designed to allow both an interim at-grade and ultimate grade separated at US 1. To cost effectively construct, consider construction of Bert Winston Extension as part of SEHSR.
Cedar Creek Road realignment and railroad bridge	Relocate local road & construct RR bridge	• Railroad bridge • Closure of at-grade RR crossing • Revised alignment for Cedar Creek • Improved intersection at US 1A	Provide RR grade separation.	Construct Cedar Creek horizontal alignment to avoid cemetery west of US 1A to allow future extension.
Hawkins Road extension	New local connector	• Local roadway	Provide connectivity between Green Rd and Cedar Creek Road east of the RR tracks	None
NC 56 Green Street Improvement	Railroad underpass	• Local roadway railroad underpass • Intersection improvements	Closing of Mason Street will increase volume.	Intersection improvements at US 1A/ NC 56 should be considered including adding right turn bay on US 1A northbound. Modify lane assignments and improve signal phasing.
Tanyard Street improvements	New local connector	• Local roadway	Provide connectivity between Green Rd and Mason St east of the RR tracks	Consider RR overpass on extended Tanyard St to US 1A as an alternate to the Mason St closure. Franklinton town officials and general public strongly support this project.
Local connector from US 1A to Winston St	New local connector & RR underpass	• Connection from US 1A to Winston St • Railroad underpass	Provide replacement of multiple closed RR crossings	Allow for 3-lane section to provide turn lanes at US 1A and Winston St. Future East-West Connector will use this section of road.
Montgomery Road connector to US 1	New local connector	• Local roadway • RR bridge • New intersection at US 1 (superstreet type)	Replace closed RR crossings at Eric Medlin Rd & Winston St	Construct RR bridge to allow interim at-grade and future overpass with US 1. Consider separate horizontal alignments for future MOT plan.

5.1.4.4 *Local Streets Serving Eastern Franklinton*

Three local street projects were identified to provide improved connectivity between US 1 and eastern portions of Franklinton as described in Section 4.4.2.6. The three projects are illustrated in Figures 4-14 and 4-15. The street projects include:

- Northeast Connector (See Figure 4-15)
- East-West Connector (See Figure 4-15)
- Southeast Connector (See Figure 4-14)

5.1.5 Bicycle & Pedestrian Facilities

Long-term recommendations would include greenways, multi-use paths, and side-paths. This is in addition to sidewalks, bicycle lanes, sharrows, and paved shoulders included on the proposed local street network. Future multi-use paths and side-paths within the study area include:

High Priority

- All local streets will be planned and constructed applying Complete Streets philosophy including accommodations for bicycle and pedestrian modes.
- All bridges crossing US 1 will have bicycle and pedestrian features to facilitate safe movements across US 1 for all users.
- A Multi-use Greenway (north-south) along the SEHSR that may be incorporated into the East Coast Greenway. It is divided into two sections: south and north of Franklinton.
- An east-west greenway utilizing an abandoned CSX railroad from downtown Franklinton heading to Louisburg (north of NC 56). This has been identified as a rails-to-trails project.

- A side-path on Cedar Creek Road from the Bert Winston intersection to the west end of the grade-separated crossing over the SEHSR.

Lower Priority

- A side-path on Long Mill Road from the Phase I study improvements to Pocomoke Road.
- A side-path on Bert Winston Road from Long Mill Road to Cedar Creek Road.

- A side-path on Pocomoke Road from Long Mill Road to the east end of the grade-separated crossing over US 1.
- A north-south greenway connector from Cedar Creek Road north to NC 56. The project includes greenway connections to Peach Street and Carver road.

These proposed improvements are shown in Figure 5-5A through Figure 5-5C for the South, Central, and North sections, respectively.

5.1.6 Transit

Multiple potential opportunities for transit were identified as documented in the Section 4.6 analysis. At this stage the recommendation for each of these possible transit provisions is to study their potential in more detail as both a local area and regional service. All recommendations would be subject to more rigorous demand testing and cost analysis before specific routes or alternatives could be provided.

The current 2035 CTP includes Express Bus on US 1 with the northern-most stop in Franklinton. This transit connection is recommended for consideration. The Express bus would be oriented primarily along US 1 with primary destinations at Youngsville, Wake Forest, Triangle Town Center and Raleigh, and would be provided when development density and ridership estimates necessitate it. This express bus service would start as an hourly service, operating only during the morning and afternoon commute times.

In the near term, it is recommended that a park and ride be identified and established for carpools. The lot could transition to serve as an initial Park-and-Ride location for future express bus. This approach would require a shared use agreement for the Food Lion shopping plaza parking lot (up to 25 spaces). In the long term, the Park-and-Ride/Multimodal Hub could locate at the northwest quadrant of the proposed NC 56 Bypass interchange with US 1. This future park-and-ride lot/multi-modal hub should accommodate approximately 100 parking spaces.

A circulator bus system serving Franklinton, Louisburg, and Youngsville was examined, but is not recommended as part of this study. Although a circulator system may have long term benefits, more detailed studies will be required to verify if the circulator would be viable.

The SEHSR is improving the railroad line through Franklinton. There are no plans for a high speed rail station within Franklinton. Interest was expressed, however, for the provision of a depot station in Franklinton for access to future commuter rail. In order to examine this option and identify if funds could be available, a cost-benefit study would be required. To pursue this option, a cost-benefit analysis would need to be completed as part of a more detailed study. Note that Franklinton likely would not be able to justify commuter rail, but a depot station may be valuable as part of a regional commuter rail line in the corridor.

5.2 Interim Improvements

The short-term improvements would incorporate all modes of transportation (roadway, bicyclist, pedestrian, and transit if necessary) and would consider proposed improvements that can easily be redeveloped to accommodate the future build condition. The goals of the short-term improvements are as follows:

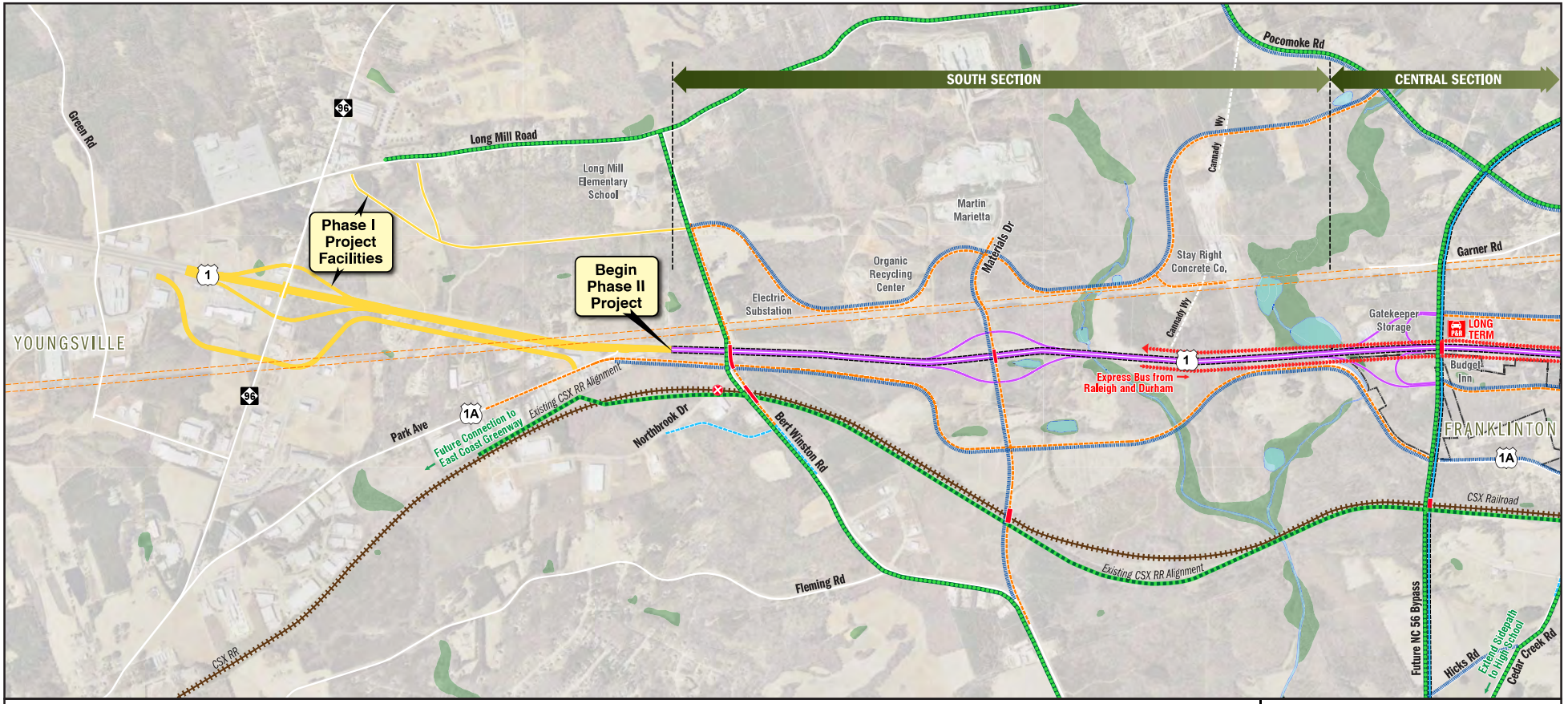
- Provide lower-cost improvements to US 1 that improve safety and increase capacity.
- Provide interim multi-modal transportation solutions for US 1 and existing local street network
- Provide necessary transportation connectivity to encourage short-term developments that are part of the future land use vision/opportunities
- Serve as a template in preserving future roadway improvement corridors, leading to the future transportation vision for US 1 and steering development that would be consistent with future land use opportunities
- Be flexible enough to design future transportation improvements without having to abandon newly built roads, require unplanned additional right-of-way, or demolish built roads and/or bridges because they are not compatible with future improvements

5.2.1 US 1 - Recommended Superstreet Alternative for Interim

As discussed in Chapter 4, a Superstreet is a facility that maximizes through capacity on a roadway by restricting access and left turns. Implemented as a continuous system, superstreet treatments can improve traffic operations over the short term and provide a longer term benefit by extending the life of a roadway section and delaying the need for ultimate improvements. As concluded in Chapter 4, the Superstreet is a viable alternative for the interim alternative.

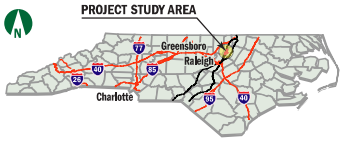
From a capacity perspective, the analysis discussed in Chapter 4 confirmed that south of NC 56, a superstreet on US 1 would have adequate capacity through 2040 to approximately 2050. North of NC 56, the US 1 superstreet would have adequate capacity beyond 2050 and longer

US 1 North Corridor Study Phase II



LEGEND

- Municipal Boundary
- **US 1 Corridor**
  - US 1 Corridor
  - US 1 and Interchanges (Freeway)
  - Phase I Proposed Ramp Improvement (Phase I)
- **Other Roadways and Streets**
  - Proposed Boulevard (CTP)
  - Preferred Alternative (Local Street)
  - Proposed Local Street (CTP or SEHSR)
  - SEHR Pedestrian Crossings
  - Recommended Greenway
  - Recommended Sidepath
  - Recommended Sidewalk
  - Existing Sidewalk
  - Overpass
- **Railroad**
  - Future SEHSR / CSX Rail
  - Proposed Closing of At-Grade Rail Crossing
- **On-Road Bike Recommendations**
  - Signed Bike Route
  - Bike Lane / Paved Shoulder
  - Sharrow
- **Transit**
  - Express Bus from Raleigh/Durham
  - Potential Park & Ride
- **Environment**
  - Surface Waters
  - Wetlands
- **Utilities**
  - Electric Transmission Line Easement



US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

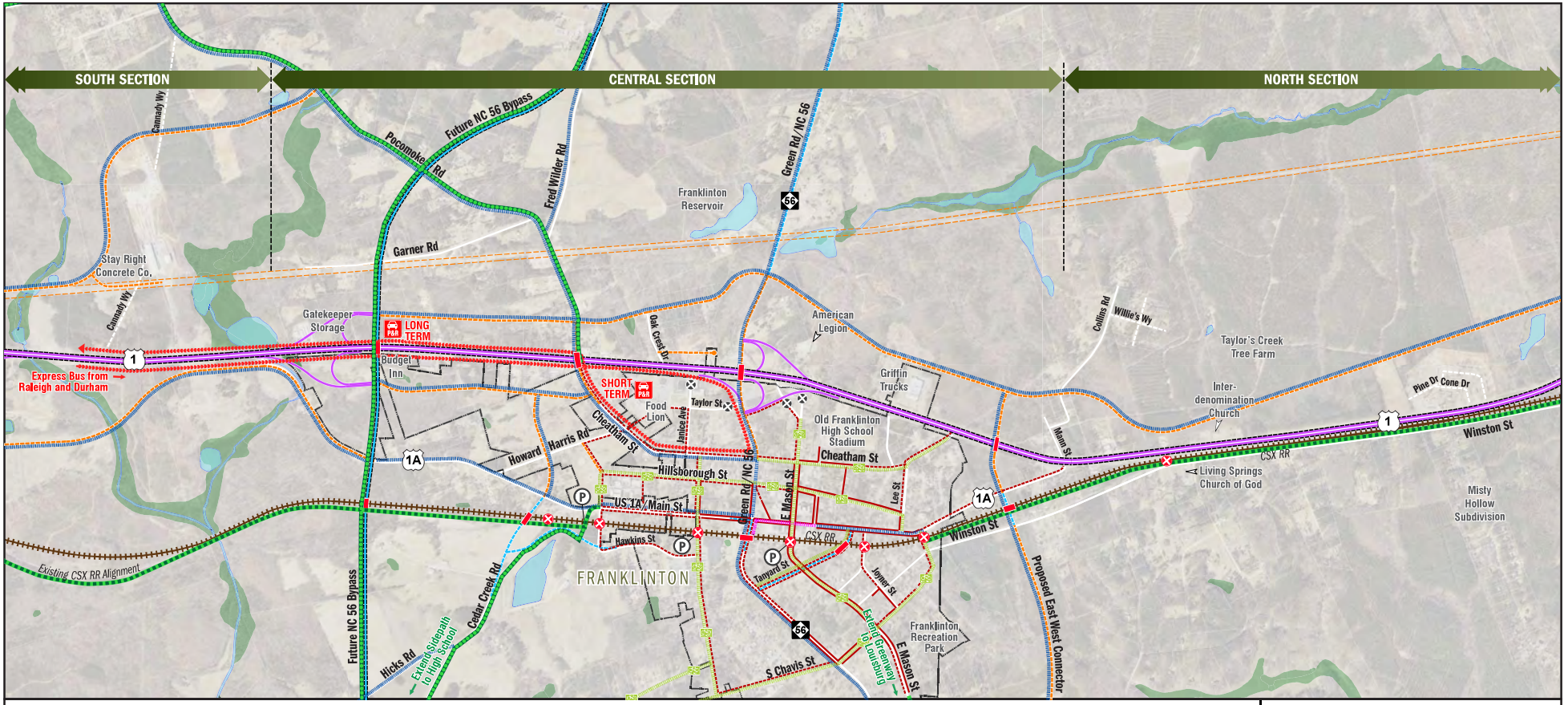
US 1 Bicycle / Pedestrian / Transit Plan in South Section

Figure 5-5A

Sheet 1 of 3

Back of Figure 5-5A (11x17 figure)

US 1 North Corridor Study Phase II



LEGEND

- Municipal Boundary
- **US 1 Corridor**
- US 1 Corridor
- US 1 and Interchanges (Freeway)
- Phase I Proposed Ramp Improvement (Phase I)

Other Roadways and Streets

- Proposed Boulevard (CTP)
- Preferred Alternative (Local Street)
- Proposed Local Street (CTP or SEHSR)
- SEHR Pedestrian Crossings
- Recommended Greenway
- Recommended Sidepath
- Recommended Sidewalk
- Existing Sidewalk
- Overpass
- Proposed Roadway Closures

Railroad

- Future SEHSR / CSX Rail
- Proposed Closing of At-Grade Rail Crossing

On-Road Bike Recommendations

- Signed Bike Route
- Bike Lane / Paved Shoulder
- Sharrow

Transit

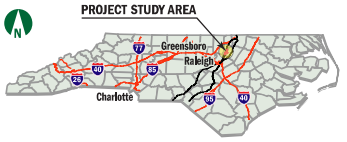
- Express Bus from Raleigh/Durham
- Potential Park & Ride

Environment

- Surface Waters
- Wetlands

Utilities

- Electric Transmission Line Easement



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Scale in feet

US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

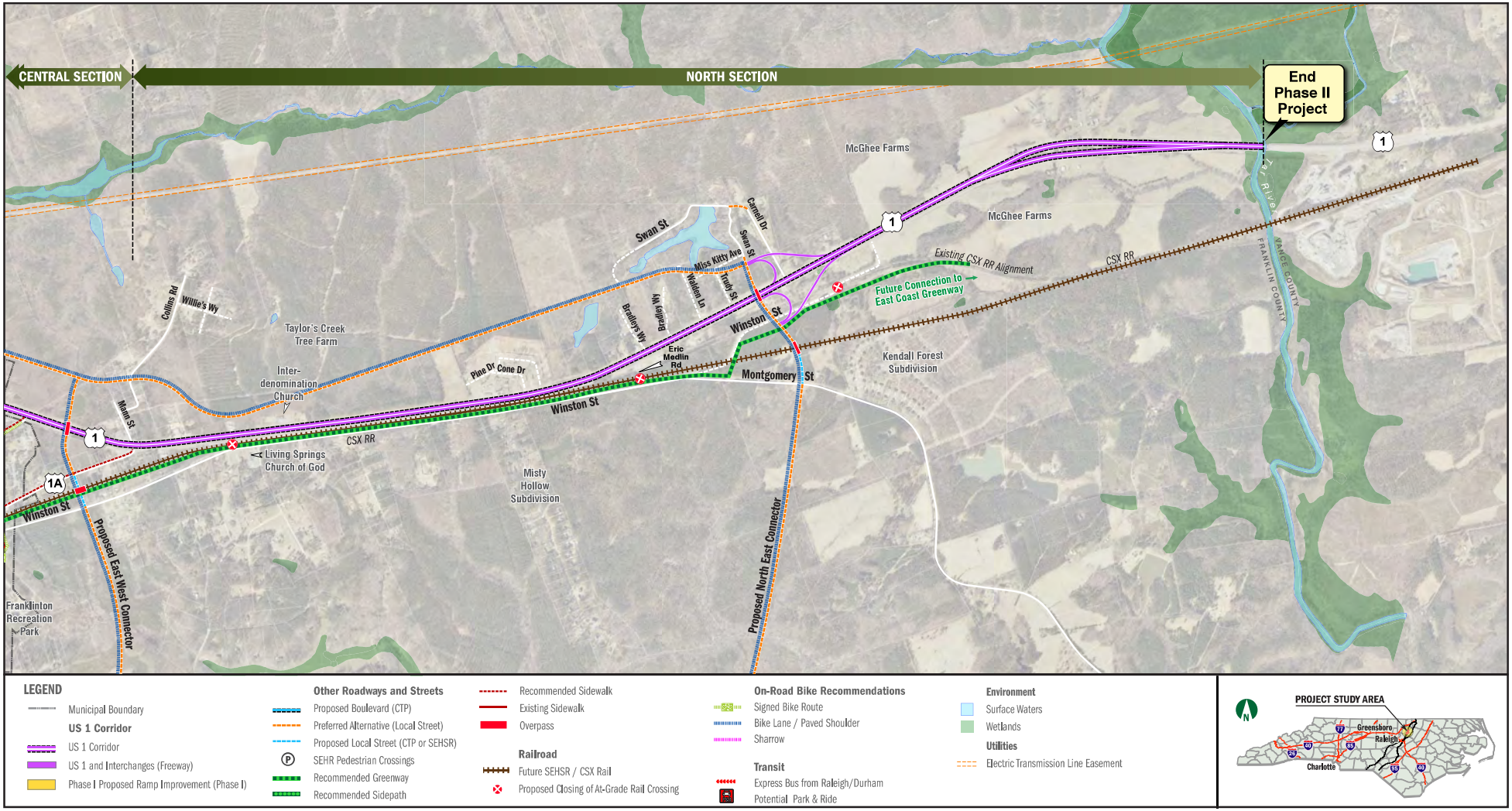
US 1 Bicycle / Pedestrian / Transit Plan in Central Section

Figure 5-5B

Sheet 2 of 3

Back of Figure 5-5B (11x17 figure)

US 1 North Corridor Study Phase II



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Scale in feet

LEGEND

- Municipal Boundary
- **US 1 Corridor**
- US 1 Corridor
- US 1 and Interchanges (Freeway)
- Phase I Proposed Ramp Improvement (Phase I)

Other Roadways and Streets

- Proposed Boulevard (CTP)
- Preferred Alternative (Local Street)
- Proposed Local Street (CTP or SEHSR)
- SEHR Pedestrian Crossings
- Recommended Greenway
- Recommended Sidepath
- Recommended Sidewalk
- Existing Sidewalk
- Overpass

Railroad

- Future SEHSR / CSX Rail
- Proposed Closing of At-Grade Rail Crossing

On-Road Bike Recommendations

- Signed Bike Route
- Bike Lane / Paved Shoulder
- Sharrow

Transit

- Express Bus from Raleigh/Durham
- Potential Park & Ride

Environment

- Surface Waters
- Wetlands

Utilities

- Electric Transmission Line Easement

US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

US 1 Bicycle / Pedestrian / Transit Plan in North Section

Figure 5-5C

Sheet 3 of 3

Back of Figure 5-5C (11x17 figure)

north of Franklinton. North of NC 56, and, in particular, north of Franklinton, a superstreet could provide adequate capacity for an extended period past 2040. Although it was identified that the Superstreet does not provide the ultimate solution for the corridor, it does provide an economical and efficient alternative to reduce congestion and delays on US 1 for more than 20 years for a relatively inexpensive investment as compared with a freeway. In addition, the superstreet would not preclude future conversion to a freeway section.

The proposed Superstreet Alternative utilizes the existing four-lane divided expressway typical section (as shown in Figure 5-4) with intersection improvements throughout the project limits including the intersections shown in Table 5-1. An interim Superstreet Plan is shown in Figure 5-6A, Figure 5-6B, and Figure 5-6C for the south, central, and north sections, respectively. It illustrates locations for dual leftovers, single leftovers, and signalized superstreet intersections. The Superstreet Plan figures also include details illustrating the intersection layout and traffic operations at each of these intersection types.

The improvement of intersections to a superstreet would, on a case-by-case basis, allow for the inclusion of pedestrian crossings and refuges at intersections, as well as consideration of pedestrian countdown signal heads and phasing to improve safety for pedestrians crossing US 1. This would be a transitional treatment limited to those intersections with planned overpasses included in the ultimate freeway plan.

As part of the Superstreet Plan, some local streets are anticipated to be constructed as part of future development with a plan to construct local streets over time. In many cases these local streets are independent of the needs of the Superstreet, but are illustrated to demonstrate the incremental construction of the local street network. More details are provided in the phasing plans.

In addition, the recommended plan does not recommend a superstreet conversion for the entire section of US 1 as part of a single project. Instead a phasing plan has been identified which incrementally improves US 1 to a superstreet while also encouraging the construction of local street sections. Through this approach, it is intended to minimize delays on US 1 while still providing a long range plan to ultimately provide a freeway.

The proposed phasing plan and related project costs are summarized in Section 5.3 and Section 5.4, respectively.

5.2.2 Local Street Network

Ideally, the local street network will be improved as part of the Superstreet Alternative and when the SEHSR improvements have been implemented. The SEHSR alignment would close

local streets within the project limits, but will also provide grade-separated crossings over the SEHSR that would connect to the local street network. Local street connectivity should be encouraged while the Superstreet Alternative is in place to minimize access impacts when an upgrade to a freeway occurs.

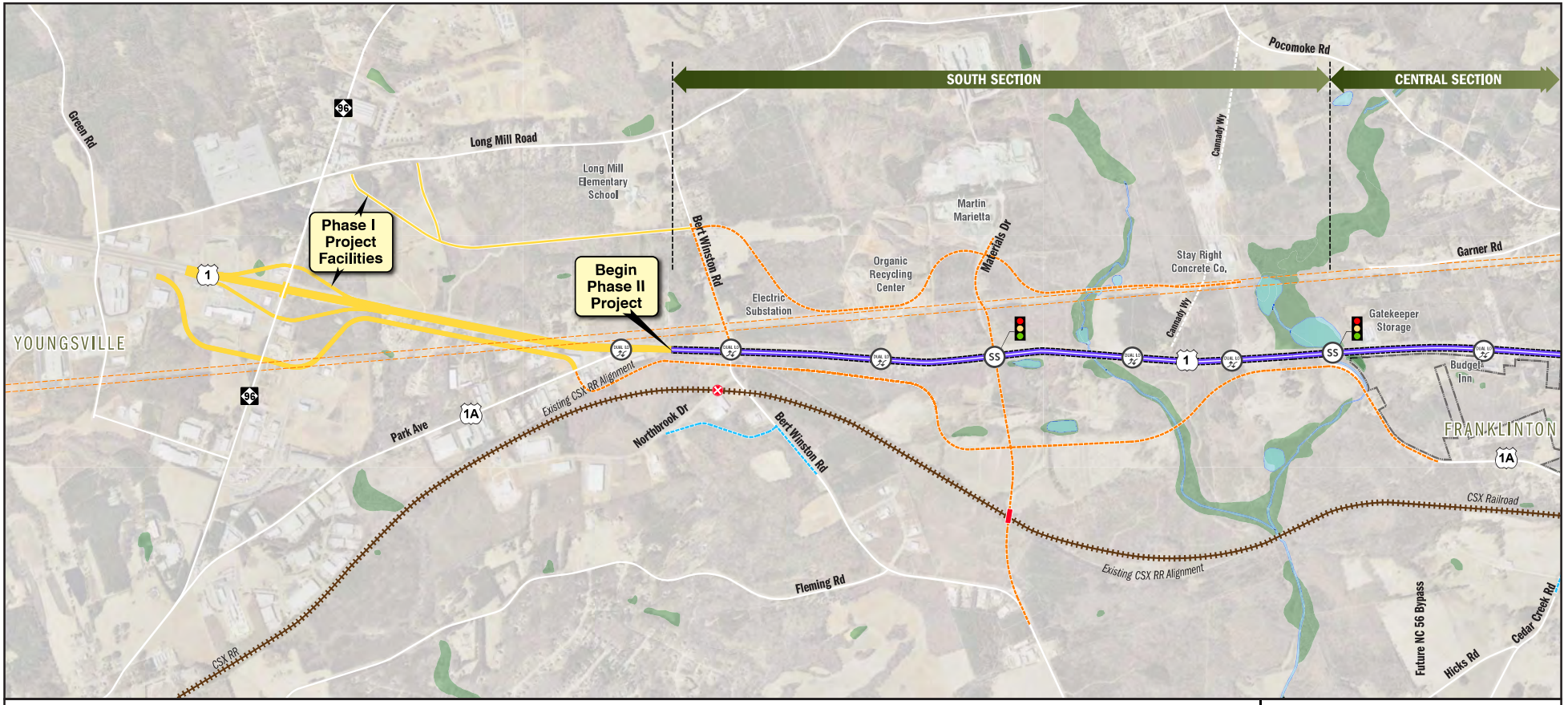
The local street connectors associated with the Superstreet Alternative and their implementation timeframes are listed below in Table 5-2 and illustrated in Figure 5-6A through Figure 5-6C. In addition, a more detailed phasing plan is illustrated in Section 5.3. Of the local street projects planned through the interim phases, the realignment of Bert Winston Road, the improvements to the US 1A at NC 56 intersection (as part of the NC 56 Green Road widening), and the Connector between Montgomery Street and US 1 are critical elements to the phasing in the Interim Superstreet and Ultimate Freeway improvements.

Table 5-2. Local Street Connectors and Implementation Timeframes

Street/Location	Implementation Timeframe	
	Phase I (2015-2020)	Phase II (2021-2030)
Materials Drive Extension	X	
Approximately 1,000 feet west of Pocomoke Road to Pocomoke Road		X
Pocomoke Road Improvements West of US 1		X
Pocomoke Road to Oak Crest Drive		X
Miss Kitty Avenue Realignment from Bradleys Way to Carnell Drive	X	
Realignment of Northbrook Drive (SEHSR)	X	
Realignment of Bert Winston Road and Bridge (SEHSR)	X	
Cheatham Street Improvements East of US 1		X
Cedar Creek Realignment to US 1A and Bridge (SEHSR)	X	
Howard Harris Road connector to Hillsborough Street	X	
Hawkins Street Connector to Cedar Creek Road (SEHSR)	X	
Tanyard Street Improvements from Green Street to Mason Street (SEHSR)	X	
Green Road/NC 56 widening and improvements (SEHSR)	X	
Connector from US 1A to Winston Street (SEHSR)	X	
Connector from Montgomery Street to US 1 with RR Bridge	X	

* Indicates that this connector at this phase consist of only a part of the project for the code shown.

US1 North Corridor Study Phase II



LEGEND

- Municipal Boundary
- **US 1 Corridor**
- US 1 Section (Superstreet)

Other Roadways and Streets

- Phase I Proposed Ramp Improvement (Phase I)
- Preferred Alternative (Local Street)
- Proposed Local Street (CTP or SEHSR)
- Traffic Signal
- Overpass

- Left Over
- Dual Left Over
- Super Street
- SEHR Pedestrian Crossings
- Close Median Openings

Railroad

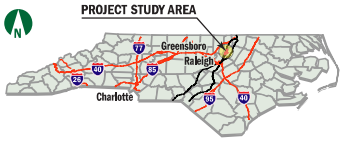
- Future SEHSR / CSX Rail
- Proposed Closing of At-Grade Rail Crossing

Environment

- Surface Waters
- Wetlands

Utilities

- Electric Transmission Line Easement



US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

US 1 Interim Design - Superstreet in South Section

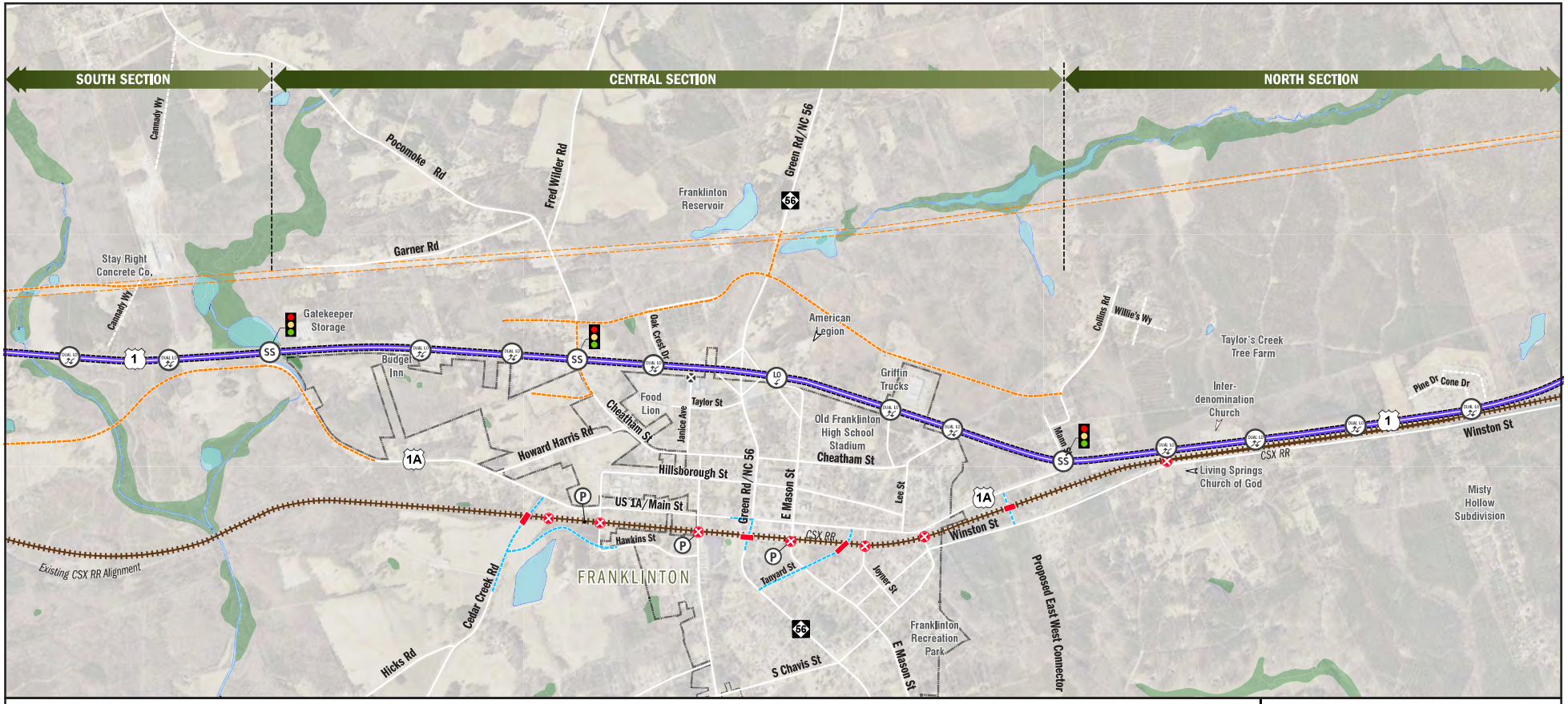
Figure 5-6A

Sheet 1 of 3

Back of Figure 5-6A (11x17 figure)

US1 North Corridor Study Phase II

0 400 800 1,600 ft
Scale in feet



LEGEND

- Municipal Boundary
- **US 1 Corridor**
- US 1 Section (Superstreet)

Other Roadways and Streets

- Phase I Proposed Ramp Improvement (Phase I)
- Preferred Alternative (Local Street)
- Proposed Local Street (CTP or SEHSR)
- Traffic Signal
- Overpass
- Proposed Roadway Closure

- Left Over
- Dual Left Over
- Super Street
- SEHR Pedestrian Crossings

Railroad

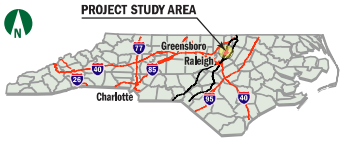
- Future SEHSR / CSX Rail
- Proposed Closing of At-Grade Rail Crossing

Environment

- Surface Waters
- Wetlands

Utilities

- Electric Transmission Line Easement



US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

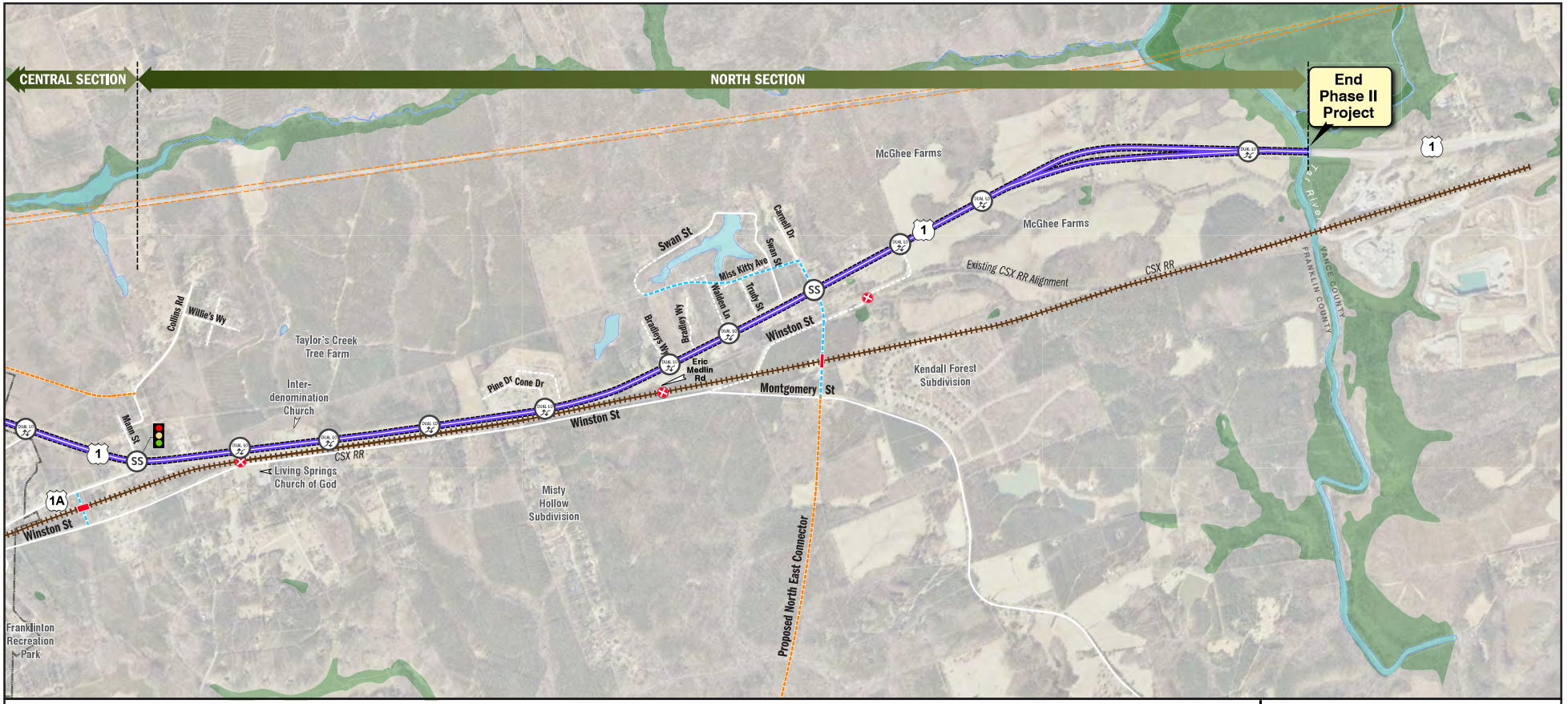
US 1 Interim Design - Superstreet in Central Section

Figure 5-6B

Sheet 2 of 3

Back of Figure 5-6B (11x17 figure)

US 1 North Corridor Study Phase II



LEGEND

- Municipal Boundary
- **US 1 Corridor**
- US 1 Section (Superstreet)

Other Roadways and Streets

- Phase I Proposed Ramp Improvement (Phase I)
- Preferred Alternative (Local Street)
- Proposed Local Street (CTP or SEHSR)
- Traffic Signal
- Overpass

- Left Over
- Dual Left Over
- Super Street
- SEHR Pedestrian Crossings
- Close Median Openings

Railroad

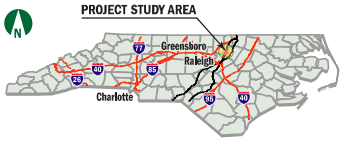
- Future SEHSR / CSX Rail
- Proposed Closing of At-Grade Rail Crossing

Environment

- Surface Waters
- Wetlands

Utilities

- Electric Transmission Line Easement



US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

US 1 Interim Design - Superstreet in North Section

Figure 5-6C

Sheet 3 of 3

Back of Figure 5-6C (11x17 figure)

5.2.3 Bicycle and Pedestrian

The public clearly indicated a desire for separated facilities, connectivity to important land uses, roadway crossing improvements, accommodations for bridges, and greenways. In response to the public's desires, the project Study Team focused on potential short-term improvements that could be implemented to provide solutions to most of the public's concerns. The Study Team focused on the safety of pedestrians utilizing the future roadway network in the US 1 corridor.

The first step proposed is the improvement of pedestrian facilities in downtown Franklinton. In order to achieve this, the limited existing sidewalks would need to be improved and pedestrian facilities would need to be implemented to provide connectivity between important land uses and neighborhoods.

The next step proposed is the enhancement of interim improvements. Interim transportation improvements would involve the conversion of Bert Winston Road, Pocomoke Road/Cheatham Street, US 1A, and minor intersections to Superstreet intersections. Consistent with the Complete Streets Guidelines, the Study Team proposes the incorporation of pedestrian crossings at intersections and the consideration of pedestrian countdown signal heads and pedestrian refuges into designs. As streets and roadways are constructed, any improvements should provide improvements as identified in Figure 5-5A through Figure 5-5C. This incremental improvement approach will be the key to future implementation of bicycle and pedestrian improvements.

Continuing through the interim improvement phase, the Complete Streets Guidelines will be factored into proposed rural street connections. Recommended improvements include sidewalk enhancements on proposed local roadway connectors, sidewalk enhancements on existing roads (with no existing sidewalks), and connectivity to (improved) existing sidewalks in downtown Franklinton. On-road bicycle recommendations include signed bicycle routes, bicycle lanes, and sharrows. These proposed improvements are shown in the bicycle and pedestrian plans in Figure 5-5A through Figure 5-5C.

Finally, the SEHSR rail-with-trail greenway and rail-to-trail greenway connection to Louisburg should be constructed. In response to a strong desire for off-road, separated paths, these greenways would provide key east-west and north-south connectivity for bicyclists and pedestrians. The SEHSR rail-with-trail should enter Downtown Franklinton along Main Street with crossing and streetscape improvements provided.

5.2.4 Transit

The goals of providing future transit services in the US 1 Phase II corridor study area for the interim improvements can be summarized as follows:

- Provide transit mobility for US 1 corridor commuters
- Connect the Town of Franklinton with regional destinations to the south
- Identify short-term park & ride locations in the study area to support transit services and transit-oriented developments

Unfortunately the current demographics would not support interim service such as an Express Bus service. It is recommended, however, that consideration be given to providing a temporary Park-and-Ride lot to encourage carpooling or vanpooling. This interim treatment would require setting up a shared use agreement for up to 25 spaces in the Food Lion shopping plaza parking lot.

It is also recommended that the Kerr Area Rural Transportation System (KARTS) continue to provide paratransit and on-demand service in Franklin County.

The Local Circulator Bus System and Commuter Rail Station discussed in Section 5.1.6 are not identified as interim improvements. More detailed studies could occur during this period to examine the feasibility as well as examining potential costs and benefits.

5.2.5 Southeast High Speed Rail

The SEHSR project is considered part of the interim scenario since it is anticipated to be complete between 2020 through 2025. The primary purpose of the SEHSR is to mitigate the closure of nine rail crossings in Franklinton and Franklin County. In order to mitigate for the closures, the SEHSR has proposed some local roadway projects and bridge separated crossings of the railroad tracks. These seven projects are described in Table 5-3. Identified in the table are also coordination issues to be resolved between the SEHSR and US 1 Corridor Study on specific projects. It is expected that these issues will be addressed at a later design stage for the SEHSR, and likely not included in the SEHSR Environmental Impact Statement (EIS) documents.

As part of the SEHSR project there would also be the provision of some pedestrian improvements. Similar to the local street projects, the primary purpose of the pedestrian improvements is to provide a replacement for current access that is allowed at the location of at-grade crossings. Three pedestrian crossing of the railroad are proposed:

- Pedestrian crossing near existing Cedar Creek Road

Table 5-3. Southeast High Speed Rail Roadway Projects

SEHSR Project	Includes	Issues with US 1 Study
Existing Bert Winston and Northbrook Road realignment	• Railroad bridge • Closure of at-grade RR crossing • New alignment for Northbrook Rd • Revised alignment for Bert Winston • Improved intersection at US 1	Bert Winston RR overpass cannot be designed to allow both at-grade & grade separated crossing of US 1. Therefore, proposing that SEHSR build Bert Winston Rd Extension instead. Provide superstreet intersection improvements on US 1.
Cedar Creek Road realignment and railroad bridge	• Railroad bridge • Closure of at-grade RR crossing • Revised alignment for Cedar Creek • Improved intersection at US 1A	Construct Cedar Creek horizontal alignment to avoid cemetery on west side of US 1A to allow future extension.
Hawkins Road extension	• Local roadway	None.
NC 56 Green Road Improvement	• Local roadway railroad underpass • Intersection improvements	Intersection improvement required at US 1A at NC 56 traffic signal.
Tanyard Street improvements	• Local roadway	Town strongly desires extension of Tanyard Road to US 1A north of Mason Street with new RR overpass.
Local connector from US 1A to Winston St	• Connection from US 1A to Winston St • Railroad underpass	Allow for 3-lane connector to provide turn lanes at both US 1A and Winston Street. Future East-West Connector will use this section. In addition, need pedestrian and bicycle provisions to connect East Coast Greenway under railroad.
Montgomery Road connector to US 1 and railroad bridge	• Local roadway • RR bridge • New intersection at US 1 (superstreet type)	Construct RR bridge to allow initial at-grade and ultimate grade separation at US 1. Provide superstreet intersection improvements at US 1.

- Pedestrian crossing near College Street
- Pedestrian crossing near Mason Street

5.3 Phasing Plan for Implementation

A detailed phasing plan was developed for implementation of the proposed US 1 improvements and associated projects on the local street network. This plan was developed

examining a series of congestion thresholds design to keep all network facilities operating at LOS D or better.

In developing this approach, it was assumed that the availability of funding would be adequate to make improvements based on the congestion thresholds, but not adequate to simply construct the entire project in a single phase. Note, however, that the availability of funds, source of funds, and/or changes in anticipated traffic growth patterns could accelerate specific projects before or after other projects identified in the phasing.

For this analysis, all projects in the study area were examined and scheduled. This includes projects proposed by the SEHSR that may not directly impact US 1, as well as regional projects such as the NC 56 Bypass that will impact US 1, but are intended to address a separate deficiency in the network.

Detailed phasing was examined for the US 1 Corridor Study looking from 2015 to beyond 2050. In this 35-year period, five phases separated by 10 years each were identified for the study. This includes projects required by 2020, 2030, 2040, 2050, and beyond 2050. The original scope of this study had been examining through 2040, but given the lower volumes of traffic than other sections of US 1 to the south, it was necessary to take a longer term view. In addition, the phasing includes an incremental provision of a superstreet which offset the need for freeway type improvements by approximately 10 years.

The Phasing Plan is shown in a series of colored maps in Figure 5-7A through Figure 5-7E. More detailed phasing maps divided separately into the south, central, and north sections are available in Appendix C. All projects from a specific phase are shown the same color. The color codes are:

- Yellow represents projects proposed between 2015 and 2020 (See Figure 5-7A)
- Orange represents projects proposed between 2021 and 2030 (See Figure 5-7B)
- Blue represents projects proposed between 2031 and 2040 (See Figure 5-7C)
- Green represents projects proposed between 2041 and 2050 (See Figure 5-7D)
- Pink represents projects proposed beyond 2050 (See Figure 5-7E)

These colors are carried through each of later phases remaining the original color to show the predecessor projects. The only exception is that US 1 sections are upgraded to a superstreet in

US1 North Corridor Study Phase II

Figure 5-7A (Years 2015 - 2020)

SOUTH SECTION | CENTRAL SECTION | NORTH SECTION

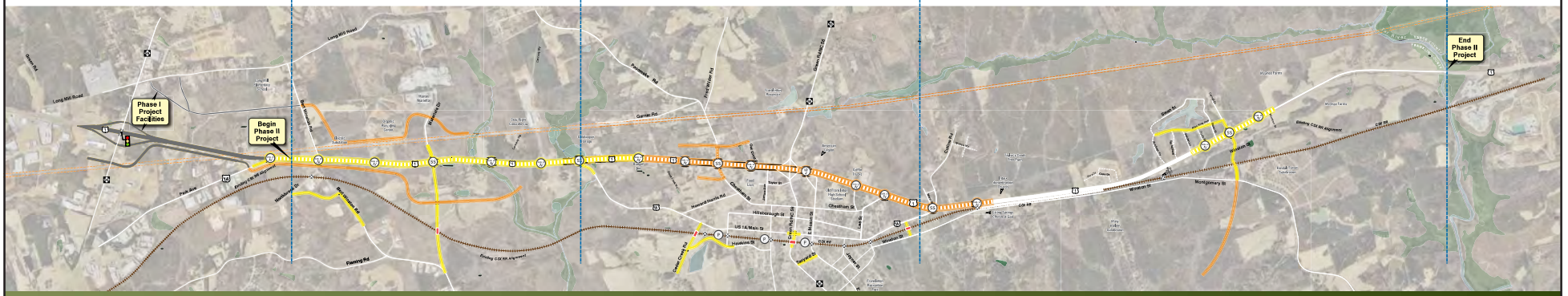


Figure 5-7B (Years 2021 - 2030)

LEGEND

US 1 SYMBOLS
- Existing
- Super Street
- Freeway

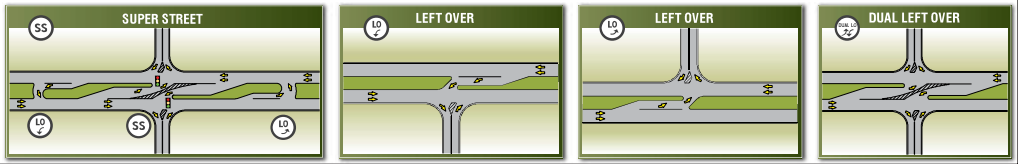
- 2015 - 2020 (Phase I)
- 2021 - 2030 (Phase II)
- 2031 - 2040 (Phase III)
- 2041 - 2050 (Phase IV)
- Beyond 2050 (Phase V)

- Left Over
- Dual Left Over
- Super Street
- SEHR Pedestrian Crossings
- Railroad Crossing
- Municipal Boundary
- Phase I Proposed Ramp Improvement (Phase I)
- Traffic Signal
- Bridge Structure

Railroad
- Future SEHSR / CSX Rail

Environment
- Surface Waters
- Wetlands

Utilities - Electric Transmission Line Easement



US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

US 1 - Years 2015 - 2020 and Years 2021 - 2030

Figures 5-7A & 5-7B

Back of Figure 5-7A and B (11x17 figure)

US1 North Corridor Study Phase II

Figure 5-7C (Years 2031 - 2040)

SOUTH SECTION | CENTRAL SECTION | NORTH SECTION

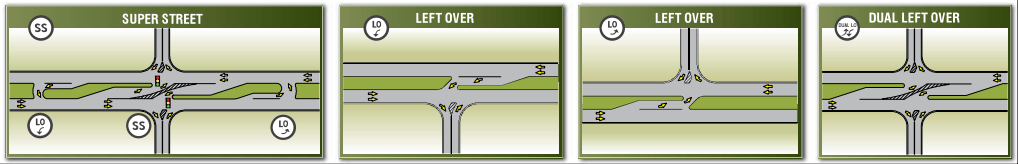
Figure 5-7D (Years 2041 - 2050)

LEGEND

US 1 SYMBOLS
- Existing
- Super Street
- Freeway

- 2015 - 2020 (Phase I)
- 2021 - 2030 (Phase II)
- 2031 - 2040 (Phase III)
- 2041 - 2050 (Phase IV)
- Beyond 2050 (Phase V)

- Left Over
- Dual Left Over
- Super Street
- SEHR Pedestrian Crossings
- Railroad Crossing
- Municipal Boundary
- Phase I Proposed Ramp Improvement (Phase I)
- Traffic Signal
- Bridge Structure
- **Railroad**
- Future SEHSR / CSX Rail
- **Environment**
- Surface Waters
- Wetlands
- **Utilities** - Electric Transmission Line Easement



US 1 Phase II Study - Franklin County

PARSONS BRINCKERHOFF

US 1 - Years 2031 - 2040 and Years 2041 - 2050

Figures 5-7C & 5-7D

Back of Figure 5-7C and D (11x17 figure)

US1 North Corridor Study Phase II

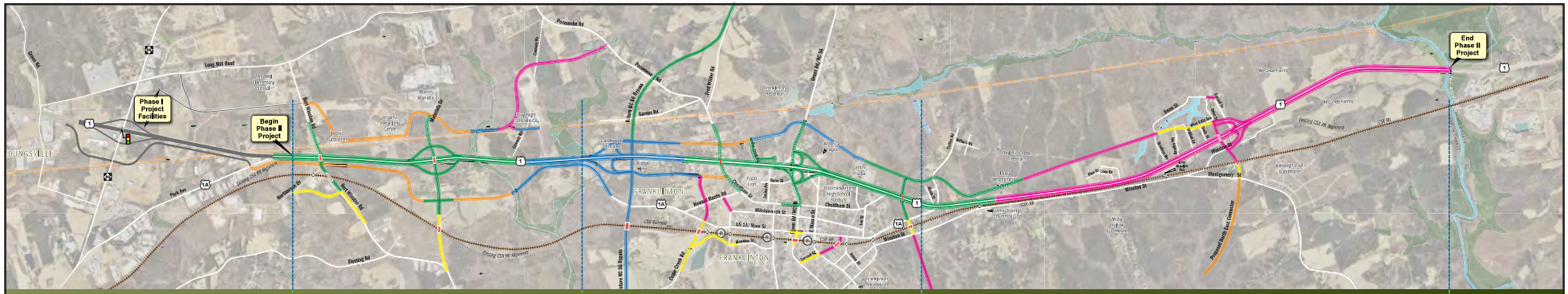


Figure 5-7E (Beyond Year 2050)

SOUTH SECTION | CENTRAL SECTION | NORTH SECTION

LEGEND

US 1 SYMBOLS
- Existing
- Super Street
- Freeway

- 2015 - 2020 (Phase I)
- 2021 - 2030 (Phase II)
- 2031 - 2040 (Phase III)
- 2041 - 2050 (Phase IV)
- Beyond 2050 (Phase V)

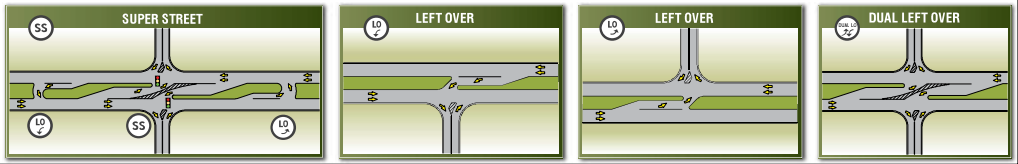
- Left Over
- Dual Left Over
- Super Street
- SEHR Pedestrian Crossings
- Railroad Crossing
- Municipal Boundary
- Phase I Proposed Ramp Improvement (Phase I)

- Traffic Signal
- Bridge Structure

Railroad
- Future SEHSR / CSX Rail

Environment
- Surface Waters
- Wetlands

Utilities - Electric Transmission Line Easement



US 1 Phase II Study - Franklin County PARSONS BRINCKERHOFF	US 1 - Beyond Year 2050	Figures 5-7E Sheet 3 of 3

Back of Figure 5-7E (11x17 figure)

an early phase and then the same section is upgraded to a freeway as part of a later phase, the section color is shown based on the latest project completed.

In addition to the colored phasing plans, Table 5-4 through Table 5-9 break down the projects included within each phase including a planning level estimate of project costs. Detailed information on the cost assumptions is included in Appendix C.

Also note that recommended phasing plan is to be utilized as a tool or blueprint for identifying future needs in the US 1 corridor. It is anticipated that the actual sequence of implementation will likely vary in the future. Decisions on the construction of specific projects will be subject to many considerations including (but not limited to):

- Availability of funding as well as requirements for different funding sources
- Timing, size, type, and approval conditions of future developments
- Changing traffic patterns and volumes
- Priorities of local and NCDOT officials
- Timing of related projects such as the South East High Speed Rail

Nevertheless, the phasing plan provides a valuable implementation strategy that can provide guidance to local officials, engineers, planners, and decision-makers as the improvements to US 1 and the local street network are constructed.

5.3.1 Phase 1 – 2015-2020

The initial phase has four specific areas that include improvements. A key component of this phase is an assumption that the SEHSR construction would occur during this phase. The Phase 1 projects are shown in yellow in the Figure 5-7A Phasing diagram. The total cost of projects identified in this phase is $42.5 million. The majority of this expense is part of the SEHSR projects. The critical projects in Phase 1 are described in Table 5-4.

The most significant Phase 1 issue is accelerating the construction of the Bert Winston Extension as part of the SEHSR construction to replace the Bert Winston Road overpass shown in the SEHSR preliminary designs. This sequencing is proposed, because engineering analysis indicates that the railroad bridge crossing on Bert Winston cannot be designed to provide short-term at grade access to US 1 as well as future long-term grade separation. As a result, the railroad bridge on Bert Winston would need demolished and replaced at a future date. Instead of crossing at the existing intersection, traffic would follow the new Bert Winston, turn onto US 1 for a short distance, and then access the western side of Bert Winston.

Table 5-4. Phase 1 Projects (2015-2020)

Project	Cost (2012 dollars)	Construction Issues	Traffic Issues	Timing Issues	Funding Issues
SOUTH SECTION: US 1A Park Avenue to US 1A South Main Street					
US 1 Superstreet: Park Avenue to US 1A South Main St	$5.7 Million	• Minimal. Leftovers will require bulbouts. • Long term grade issues at Bert Winston make 4 leg at grade costly. • RR bridge would need rebuilt in future.	• Bert Winston Ext at Materials will need SS signal. • Existing Bert Winston converted to tee and signal removed. • US 1A S. Main Street will need signal by 2020.	Bert Winston Rd cannot be closed until Bert Winston Ext. complete.	Will need to determine responsibility with SEHSR.
Bert Winston Extension/ Materials Drive	$7.7 Million	Instead of Bert Winston intersection, recommend SEHSR construct Bert Winston Extension	• Bert Winston Extension at Materials Dr will need SS signal. • Existing Bert Winston converted to tee and signal removed.	Bert Winston Rd cannot be closed until Bert Winston Ext. complete.	Determine if SEHSR will fund instead of Bert Winston connection.
SEHSR local street projects in South: Existing Bert Winston Rd & Northbrook Dr	$2.4 Million	Recommended to hold off on Bert Winston RR bridge & construct Bert Winston Extension	Realignment of RR requires access to Northbrook.	Bert Winston Rd cannot be closed until Bert Winston Ext. complete.	Determine if SEHSR will fund Bert Winston extension instead of RR bridge.
Oak Park Blvd Connection	$4.2 Million	Tying to existing roundabout on the western side of project.	• Roadway will require context sensitive design to reduce speeds in the residential neighborhood. • Roundabout capacity analysis will be required to determine if existing roundabout will have adequate capacity. • Not a replacement for NC 56 Bypass.	Ideally would be opened in short term to provide relief when SEHSR construction underway.	If not accelerated, developer funding may be possible.

Table 5-4. Phase 1 Projects (2015-2020) (Concluded)

Project	Cost (2012 dollars)	Construction Issues	Traffic Issues	Timing Issues	Funding Issues
CENTRAL SECTION: US 1A South Main Street to US 1A North Main Street					
SEHSR local street projects in Central: 1. Cedar Creek Rd 2. Hawkins Street 3. Tanyard St 4. NC 56 Green Road underpass 5. US 1A Main St connector to Winston St in north Franklinton	$17.4 Million	• Extension of Tanyard over RR deemed feasible for construction. Historic impact issues would need addressed. Included in Phase 5. • US 1A to Winston St connector underpass should be constructed to allow future 3 lanes due to overlapping left turns & future extensions.	• During construction of Green Street underpass, alternative truck route is needed to NC 56. • Intersection of US 1A at NC 56 needs improved due to increased traffic. Consider widening NB approach to 2 lanes, restriping intersection, and revising signal phasing. • Closing of Mason St would ideally be mitigated with extension of Tanyard St over RR	Local street crossovers cannot be closed until new grade separated crossings in place During construction, detours or phasing of RR crossovers will be needed.	These projects should be funded by SEHSR. SEHSR has indicated likely not able to fund Tanyard Extension. For this reason it has been excluded in this phase, but strong preference of locals is to include at this stage.
NORTH SECTION: US 1A North Main Street to Franklin/Vance County Line					
US 1 Superstreet at connector intersection with adjacent dual leftovers	$1.9 Million	Recommend at-grade intersection ties in at Carnell Drive will allow overpass to be constructed in future at Swan St without detour	Superstreet configuration recommended as part of intersection reconstruction. No signal required in this phase or anticipated for at least 20 years.	Superstreet should be implemented at same time as SEHSR connector from US 1 to Montgomery St	SEHSR funding likely available since part of new intersection
SEHSR local street projects in North Connector from Montgomery Street to US 1A	$5.6 Million	RR bridge vertical alignment should be designed to tie-in at-grade with US 1 in 2020. In future, the same RR bridge will need to tie in with grade separation. Similarly, RR bridge alignment should allow at-grade intersection at Carnell Dr & long term overpass at Swan St	Superstreet configuration recommended at US 1 tie-in as part of intersection reconstruction. No signal required in this phase or anticipated for at least 20 years.	• Ideally done at same time as US 1 Superstreet. • Do not close Eric Medlin RR crossing until this project is completed.	Identified as SEHSR project
Improve & connect Miss Kitty Avenue	$2.3 Million	Road needs improved to function in long term as service road to future northern interchange.	Ideally traffic from area diverted to superstreet intersection.	Not required at this stage, but if not provided ultimate interchange and local street connection would be challenging.	Unlikely to be funded by developers since residences in place. SEHSR participation not likely.

Table 5-5. Phase 2 Projects (2021-2030)

Project	Cost (2012 dollars)	Construction Issues	Traffic Issues	Timing Issues	Funding Issues
SOUTH SECTION: US 1A Park Avenue to US 1A South Main Street					
Western Service Road (South) – Local Street	$10.0 Million	--	• Roadway will have high truck percentage and industrial focus. • Need to accommodate bikes/peds that use Bert Winston Road. • Completion of this street will provide route for Bert Winston traffic without taking US 1. This movement includes school buses,	Construction will be driven by industrial development. Delays would have limited impact on US 1 corridor. Not required until freeway provided.	Encourage developer driven financing since primary purpose of road is access.
US 1A Extension (South) – Local Street	$11.7 Million	Cannot be connected until SEHSR realigns track at Bert Winston. Wetlands/ stream crossing will be required to connect to US 1A.	• Need to accommodate bikes/peds that will to link Youngsville and Franklinton. • Completion of this street will provide route for US 1A Park Avenue traffic without taking US 1. • Alignment and lack of spacing make connection with Bert Winston intersection at US 1 potentially unsafe.	Construction will be driven by industrial development on either side of Bert Winston Extension. Will serve local trips from Youngsville and Franklinton.	Encourage developer driven financing since primary purpose of road is access. Some public funding may be required for section linking Park Avenue
CENTRAL SECTION: US 1A South Main Street to US 1A North Main Street					
US 1 Superstreet: US 1A South Main St to US 1A North Main St	$6.0 Million	Minimal. Leftovers will require bulbouts.	• Cheatham/ Pocomoke will need SS signal. As west side of US 1 develops may be necessary to include pedestrian phase for Cheatham/Pocomoke signal. • US 1A North Main St will likely need SS signal. • Janice Avenue crossover to be closed.	Cheatham Street may require conversion prior to intersection south of NC 96.	Standard CTP process needed for funding.
Western Backage Road	$2.1 Million	Right of way will need to be coordinated with development plans.	Bike/ped will need to be included in section. As west side of US 1 develops may be necessary to include pedestrian phase for Cheatham/Pocomoke signal.	Construction will be driven by retail development.	Encourage developer driven financing since primary purpose of road is access.
Eastern Backage Road	$2.0 Million	Right of way will need to be coordinated with development plans.	Bike/ped will need to be included in section.	Construction will be driven by retail development.	Encourage developer driven financing since primary purpose of road is access.

Table 5-5. Phase 2 Projects (2021-2030) (Concluded)

Project	Cost (2012 dollars)	Construction Issues	Traffic Issues	Timing Issues	Funding Issues
NORTH SECTION: US 1A North Main Street to Franklin/Vance County Line					
Western Service Road North	$1.5 Million		Access to residential area would now be provided via Superstreet intersection at Cheatham Street	Access to residential area must be provided to prior to shutting off access at US 1 with freeway.	Developer funding could potentially occur, but public funding may be required to complete before Freeway conversion.
Northeast Connector	$13.8 Million	Detailed study required to identify preferred alignment.	Will provide long term benefit by providing alternate route for local trips instead of traveling on NC 56 to US 1.	• Construction will be driven by residential development. • Potentially diverts up to 2,000 vpd from NC 56 in downtown. This may delay need for NC 56 Bypass.	Encourage developer driven financing since road opens area to areas of planned residential. Likely requires public funding for improving existing road segment.

Table 5-6. Phase 3 Projects (2031-2040)

Project	Cost (2012 dollars)	Construction Issues	Traffic Issues	Timing Issues	Funding Issues
SOUTH SECTION: US 1A Park Avenue to US 1A South Main Street					
Western Service Road (South) – Local Street	$2.4 Million	Extending north to Stay Right Concrete Company requires crossing wetlands/stream.	• Roadway will have high truck percentage and industrial focus. • Need to accommodate bikes/peds that use Bert Winston Road.	Construction will be driven by industrial development. Delays would have limited impact on US 1 corridor. North connection to Stay Right required to close access.	Encourage developer driven financing since primary purpose of road is access. Extension to Stay Right may require public funding to close US 1 access.
US 1A Extension (South) – Local Street	$5.2 Million	Wetlands/ stream crossing will be required to connect to US 1A.	• Need to accommodate bikes/peds that will to link Youngsville and Franklinton. • Completion of this street will provide route for US 1A Park Avenue traffic without taking US 1. • Alignment and lack of spacing make connection with Bert Winston intersection at US 1 potentially unsafe.	• Construction will be driven by industrial development on either side of Bert Winston Extension. • NC 56 Bypass will warrant completion of connection.	Encourage developer driven financing since primary purpose of road is access. Some public funding may be required to complete final link to NC 56 Bypass.
CENTRAL SECTION: US 1A South Main Street to US 1A North Main Street					
NC 56 Bypass	$40.2 Million	Major project requiring detailed environmental studies.	• NC 56 required to divert traffic from downtown Franklinton. • Southeast connection of NC 56 Bypass is required. Southwest connection held off to the next phase. • Intersection connection needed at US 1A and NC 56 Bypass. • Recommend changing NC 56 Bypass from Expressway to Boulevard in CTP. • Interchange required with US 1. • Interchange will require closing Superstreet access at least one-quarter mile north and south on US 1. • Local streets to Central section need connected with interchange.	Interchange will require connections of local streets in Central section and closure of accesses to US 1 near new interchange.	Standard CTP process needed for funding.

Table 5-6. Phase 3 Projects (2031-2040) (Concluded)

Project	Cost (2012 dollars)	Construction Issues	Traffic Issues	Timing Issues	Funding Issues
US 1 Freeway conversion	$22.6 Million	Several areas do not meet a 60 MPH design speed. (See Table 2-4) for specific locations and recommendations for vertical curve/grade deficiencies.	Close access points and median breaks. This will require extension of local street in South and Central.	Access closure. Local street extensions and interchange need to be coordinated.	Standard CTP process needed for funding.
Western Backage Road	$2.4 Million	• Connection to NC 56 with intersection must avoid Franklinton Reservoir critical watershed. • Extend south to NC 56 Bypass interchange.	Bike/ped will need to be included in section.	Construction may be driven by retail development, but interchange will require local street connections.	Encourage developer driven financing since primary purpose of road is access, but may be included in NC 56 Bypass project.
Western Service Road (North)	$5.9 Million	Intersection of NC 56 will require extensive earthwork.	Access to local residential, American Legion, and Griffin Trucks required.	Construction will be driven by access needs in northwestern section of study area.	Encourage developer driven financing since primary purpose of road is access.
Eastern Backage Road	$3.7 Million	Extend south to NC 56 Bypass interchange.	Bike/ped will need to be included in section.	Construction may be driven by retail development, but interchange will require local street connections.	Encourage developer driven financing since primary purpose of road is access, but may be included in NC 56 Bypass project.
NORTH SECTION: US 1A North Main Street to Franklin/Vance County Line					
US 1 Superstreet: US 1A North Main St to Vance County line	$3.6 Million	Minimal. Leftovers will require bulbouts.	• Phase 1 Superstreet intersection at SEHSR connection from Montgomery St to US 1 may require signal. • Superstreet will improve safety and minimize capacity issues.	If local streets extended further than anticipated, may be possible to eliminate some dual leftovers.	Standard CTP process needed for funding.

Table 5-7. Phase 4 Projects (2041-2050)

Project	Cost (2012 dollars)	Construction Issues	Traffic Issues	Timing Issues	Funding Issues
SOUTH SECTION: US 1A Park Avenue to US 1A South Main Street					
Bert Winston Extension interchange	$13.8 Million	Wetland area within interchange footprint will need mitigation.	• Interchange structure needs to include bicycle and pedestrian facilities for crossing over US 1. • Overpass should allow for future widening to six lanes.	Conversion to freeway will require close coordination of access closures, interchange construction, and freeway upgrade.	Standard CTP process needed for funding.
Upgrade US 1 to Freeway	$6.3 Million	Several areas do not meet a 60 MPH design speed. See Table 2-4 for specific locations and recommendations for vertical curve/grade deficiencies. There are two areas that have a pronounced split in profile between the NB and SB lanes which may need to be addressed.	Increase in US 1 traffic forecast to require upgrade to freeway. Without freeway, 6-lane Superstreet required south of NC 56 Bypass.	Conversion to freeway will require close coordination of access closures, interchange construction, and freeway upgrade.	Standard CTP process needed for funding.
Bert Winston Overpass	$12.5 Million	• Project will include bridge crossing railroad and long span bridge crossing US 1 freeway and US 1A Extension. • At-grade not possible with Bert Winston at US 1A Extension	• Overpass structures need to include bicycle and pedestrian facilities for crossing over US 1. • Overpass should allow for future widening to six lanes.	Although included as part of US 1 freeway upgrade, this project could be delayed or not constructed if costs considered too high.	High cost of Bert Winston Overpass project may not warrant this connection.

Table 5-7. Phase 4 Projects (2041-2050) (Continued)

Project	Cost (2012 dollars)	Construction Issues	Traffic Issues	Timing Issues	Funding Issues
CENTRAL SECTION: US 1A South Main Street to US 1A North Main Street					
Existing NC 56 interchange	$21.1 Million	• Existing interchange does not meet current standards for geometric design or traffic operations. • Expanded interchange will have substantial impacts, particularly in the NE quadrant. • Requires local street improvements on NC 56 and to Oak Crest Lane.	• Interchange structure needs to include bicycle and pedestrian facilities for crossing over US 1. • Overpass should allow for future widening to six lanes. • US 1 traffic volumes at this interchange are less than Bert Winston extension allowing it to occur later.	• Interchange replacement should be timed to coincide with need to replace existing bridge over US 1. • Conversion to freeway will require close coordination of access closures, interchange construction, and freeway upgrade.	Standard CTP process needed for funding.
Cheatham Street/ Pocomoke Road Overpass	$4.6 Million	Grade separation will require raising profile of Cheatham Street and Pocomoke Road.	• Overpass structures need to include bicycle and pedestrian facilities for crossing over US 1. • Overpass should allow for future widening to six lanes.	This crossover needs to be maintained without closure.	Standard CTP process needed for funding.
East-West Connector Overpass & Local Street	$5.0 Million	Overpass will require 9% grade to cross over US 1 and tie back to existing.	• Overpass structures need to include bicycle and pedestrian facilities for crossing over US 1. • Overpass should allow for future widening to six lanes (not likely).	This connection can be provided as part of separate project to US 1 Freeway upgrade.	Standard CTP process needed for funding.
Oak Crest	$1.6 Million	Will require improvements to existing Oak Crest in existing residential area.	Access to southwest quadrant of NC 56 interchange will require cul-de-sac.	Cul-de-sac will need to be in place prior to closing off local access for freeway	Possibly developer funded in early stages although freeway conversion may require CTP finding if not completed earlier.

Table 5-7. Phase 4 Projects (2041-2050) (Concluded)

Project	Cost (2012 dollars)	Construction Issues	Traffic Issues	Timing Issues	Funding Issues
CENTRAL SECTION: US 1A South Main Street to US 1A North Main Street					
NC 56 Bypass	$32.9 Million	• Major project requiring detailed environmental studies.	• Completion of southwest potion will maximize diversion of trips from NC 56. • Boulevard treatment recommended.	Can be completed separate from US 1 Freeway related efforts.	Standard CTP process needed for funding.
Western Service Road North	$9.1 Million	• Extension to north planned to follow back of right of way. • Impacts anticipated near Mann St & Collins Rd.	• Bicyclists and pedestrians need to be provided for in section.	Construction likely driven by residential development near Taylor's Creek Tree Farm.	Encourage developer driven financing since primary purpose of road is access.

Table 5-8. Phase 5 Projects (Beyond 2050)

Project	Cost (2012 dollars)	Construction Issues	Traffic Issues	Timing Issues	Funding Issues
SOUTH SECTION: US 1A Park Avenue to US 1A South Main Street					
Western Service Road South	$6.2 Million	• Extension to Pocomoke will provide local connection. • Alignments east of Stay Right Concrete are not feasible due to costs, grades, and wetlands.	Bicyclists and pedestrians need to be provided for in section.	Can be completed independent of most projects.	Encourage developer driven financing since primary purpose of road is access.

Table 5-8. Phase 5 Projects (Beyond 2050) (Continued)

Project	Cost (2012 dollars)	Construction Issues	Traffic Issues	Timing Issues	Funding Issues
CENTRAL SECTION: US 1A South Main Street to US 1A North Main Street					
Local Streets: 1. Cedar Creek Road Extension 2. Hillsborough St to Howard Harris Connector 3. RR overpass at Tanyard St Extension	$2.1 Million $0.8 Million $5.0 Million	• Cedar Creek Extension needs to be planned to avoid Cemetery on US 1A. • RR overpass at Tanyard requires 12 percent grade, but feasible from construction standpoint.	• Hillsborough St. Connector could be a bicycle - pedestrian connector only if desired. • Cedar Creek Extension improves connection of residential to retail while avoiding NC 56. • Tanyard Street RR overpass would provide mitigation for closure of Mason St railroad crossing.	These projects can be completed independently.	Standard CTP process needed for funding.
East-West Connector	$7.7 Million	Alignment needs to avoid Franklinton Park.	• East-West connector provides long term alternate to Green St to access US 1A. • Provides basis for grid network as Franklinton expands.	This connection can be provided as separate project.	Developer funding may be an option as part of new residential. Standard CTP process likely needed to complete.

Table 5-8. Phase 5 Projects (Beyond 2050) (Concluded)

Project	Cost (2012 dollars)	Construction Issues	Traffic Issues	Timing Issues	Funding Issues
NORTH SECTION: US 1A North Main Street to Franklin/Vance County Line					
North Franklin County interchange	$17.4 Million	• Need to provide access to local streets and residences including McGhee Farms. • Interchange footprint must avoid McGhee Farms property. • Railroad bridge will be saved, but grade separation at US 1 will require change in horizontal and vertical alignment west of railroad bridge. • Utilize at-grade connection during construction for maintenance of traffic plan.	• Interchange structure needs to include bicycle and pedestrian facilities for crossing over US 1. • Overpass should allow for future widening to six lanes (although not likely).	Conversion to freeway will require close coordination of access closures, interchange construction, freeway upgrade, and extension of Western Service Road – North.	Standard CTP process needed for funding.
Upgrade US 1 north of Franklinton to Freeway	$6.3 Million	Several areas do not meet a 60 MPH design speed. See Table 2-4 for specific locations and recommendations for vertical curve/grade deficiencies.	Project will primarily be supported based on system linkage and future route continuity, not capacity.	Conversion to freeway will require close coordination of access closures, interchange construction, and freeway upgrade.	Standard CTP process needed for funding.
Western Service Road North	$7.9 Million	Extension to north planned to follow back of right of way.	• Bicyclists and pedestrians need to be provided for in section. • Extension needs to be in place for Freeway on US 1.	Construction likely driven by residential development near Taylor's Creek Tree Farm.	Encourage developer driven financing since primary purpose of road is access, but CTP process may be needed for final connection.

Table 5-9. Bicycle and Pedestrian Project Phasing

Project Name	Cost (2012 dollars)	Project Description	Potential Issues	Proposed Phase	Funding Issues
High Priority – Phase 1, 2, or 3					
Local Streets	Included in Local Streets Funding	All new alignment local streets will include bicycle and pedestrian accommodations.	Additional width and right-of-way likely required for each project. This is already included in estimate, however.	Varies by Roadway Phasing Plans	Ideally, local streets would be constructed with developer participation.
Bridge crossings over US 1	Included in either Local Streets or Freeway funding	All bridge crossings of US 1 will include bicycle and pedestrian accommodations.	Additional bridge width required which increases costs.	Varies be Roadway Phasing Plans	Standard CTP process needed for funding.
Infill of Downtown Streets with Bicycle & Pedestrian Improvements	$4.0 Million Assume $100,000 per year ($1 million per 10 year phase)	Combination of sidewalks, paved shoulder, sharrows and other bicycle and pedestrian projects.	Right of way and narrow roadways are primary challenge.	Continuous funding in Phases 2-5.	Requires serious commitment for continuous upgrade of existing local streets.
Pedestrian Crossings of SEHSR tracks in downtown Franklinton	SEHSR	• 3 Pedestrian Crossings of the SEHSR tracks in Downtown Franklinton: • Hawkins St, • College St, & • Mason St	• Handicapped access is required. • Bicyclists will need to walk. • Tie into existing sidewalk/streets on US 1A Main Street in downtown.	Phase 1 (2015-2020)	Funded by SEHSR.
Sidewalk & bicycle provision on College St & Chavis St	$0.4 Million	Provide sidewalk from Food Lion, east along College, and north on Chavis to NC 56 (1.4 miles)	• Sidewalk right of way issues will need to be studied in detail. Alternative may be provision of easements for sidewalks.	Phase 2 (2021-2030)	Standard CTP process needed for funding.

Note: The projects shown above are exclusively composed of either exclusive Greenway projects or sidepaths being added to existing roadways. It is assumed that bicycle and pedestrian improvements related to local street projects are phased and estimated as part of the roadway project.

Table 5-9. Bicycle and Pedestrian Project Phasing (Continued)

Project Name	Cost (2012 dollars)	Project Description	Potential Issues	Proposed Phase	Funding Issues
High Priority – Phase 1, 2, or 3					
East Coast Greenway (South of Franklinton)	South $2.5 Million	A Multi-use Greenway (north-south) along the SEHSR that may be incorporated into the East Coast Greenway (4.0 miles). It is divided into two sections: south and north of Franklinton.	Project will need to tie in with pedestrian and bicycle facilities in downtown Franklinton using existing sidewalk/streets on US 1A Main Street. Additional studies needed to determine options for crossing Tar River SEHSR DEIS includes planning study of the Greenway	South Ph. 2 (2021-2030)	No SEHSR funding available for construction. Standard CTP process needed for funding. NCDOT funding required to cross Tar River.
East Coast Greenway (North of Franklinton)	North $1.6 Million	3 Pedestrian Crossings of the SEHSR tracks in Downtown Franklinton A Multi-use Greenway (north-south) along the SEHSR that may be incorporated into the East Coast Greenway. It is divided into two sections: south and north of Franklinton.	Project will need to tie in with pedestrian and bicycle facilities in downtown Franklinton using existing sidewalk/streets on US 1A Main Street. Additional studies needed to determine options for crossing Tar River SEHSR DEIS includes planning study of the Greenway	North Ph, 3 (2031-2040)	No SEHSR funding available for construction. Standard CTP process needed for funding. NCDOT funding required to cross Tar River.
Franklinton to Louisburg Rails to Trails Greenway - US 1A to Lane Store Rd	$0.7 Million	Sidepath on Mason St from US 1A to abandoned railroad (1.1 miles) Greenway from sidepath to Lane Store Rd (0.5 miles)	Alternate routes available to get between US 1A & abandoned railroad Coordination required with East Coast Greenway & connections	Ph. 2 (2021-2030)	Standard CTP process needed for funding. NCDOT funding may be available since a regional rails to trails project.

Table 5-9. Bicycle and Pedestrian Project Phasing (Concluded)

Project Name	Cost (2012 dollars)	Project Description	Potential Issues	Proposed Phase	Funding Issues
HIGH PRIORITY – Phase 1, 2, or 3					
Franklinton to Louisburg Rails to Trails Greenway - Lane Store Rd to Louisburg	$2.4 Million	Greenway from side path to Lane Store Rd (5.8 miles)	Improve safety related to pedestrians and bicyclists currently using NC 56	Ph. 3 (2031-2040)	Standard CTP process needed for funding. NCDOT funding may be available since a regional rails to trail project.
Sidepath on Hicks Road and Cedar Creek	$1.0 million	Connect US 1A south of downtown to Franklin High School (2.1 miles)	Provides safe route for students walking/ bicycling to school.	Ph. 2 (2021-2030)	Standard CTP process needed for funding.
LOWER PRIORITY – Phase 4 or 5					
Sidepaths on Long Mill Road	$1.1 Million	Long Mill Road between NC 96 and Pocomoke Rd (2.8 miles)-	• Ideally could be timed to overlap with upgrade or maintenance project • Will serve Long Mill Elementary School.	Undetermined, but likely Phase 4 (2041-2050).	Standard CTP process needed for funding.
Sidepaths on Pocomoke Road	$0.8 Million	Pocomoke Road from US 1 to Long Mill Rd (2.0 miles)-	Ideally could be timed to overlap with upgrade or maintenance project	Undetermined, but likely Phase 4 (2041- 2050).	Standard CTP process needed for funding.
North-South Greenway in eastern Franklinton	$2.8 Million	Connects NC 56 south to Cedar Creek Rd & Franklinton High School (4.7 miles)	Would provide connectors to Peach St and Carver Street	Undetermined, but likely Phase 5 (beyond 2050).	Standard CTP process needed for funding.
Sidepath on Bert Winston Road	$1.5 Million	Connect Bert Winston between Franklinton High School to US 1 to Long Mill Rd & Elementary School (3.8 miles)	• Provides safe route for students walking/ bicycling to school. • Construction issues on Bert Winston Rd prevent crossing grade separate crossing at US 1 until Phase 4.	Ph. 4 (2041-2050)	Standard CTP process needed for funding.

Note: The projects shown above are exclusively composed of either exclusive Greenway projects or sidepaths being added to existing roadways. It is assumed that bicycle and pedestrian improvements related to local street projects are phased and estimated as part of the roadway project.

The other issue involves the construction of the Superstreet on US 1. It is recommended to be included as part of the SEHSR construction since intersection improvements and tie-ins are required. Upgrading to a Superstreet now would save the future investment. At the same time, it is recognized that some of the Superstreet improvements (such as at US 1A South Main Street) are not related to SEHSR so cooperative funding sources may be required.

The other issue to note is the possibility that the SEHSR would not be constructed or would be delayed. The majority of the SEHSR projects are not critical to the local road network since the projects are intended as mitigation to closing at-grade crossings. These local street SEHSR projects, however, do have future implications in terms of connections to other local streets and potential alignment shifts. Regardless of funding, however, it is anticipated that the Superstreet improvements in the South section will be required by 2020 or soon thereafter. In addition, the new Bert Winston Extension will be required although it could be pushed back to at least 2030 if the existing Bert Winston grade crossing remains in place.

5.3.2 Phase 2 – 2021-2030

Phase 2 includes an expansion of the US 1 Superstreet complemented by multiple local streets serving developments and access to isolated parcels. The Phase 2 projects are shown in orange in the Figure 5-7B Phasing diagram. The critical Phase 2 projects are shown in Table 5-5.

The completion of the Superstreet section through Franklinton is key element of this phase. If not provided, the need for a Freeway is accelerated in this section.

Except for the US 1 Superstreet section, the majority of projects in this phase are local streets envisioned as developer driven access roads. These roadway sections should be included as part of development agreements for incorporation into the overall local street plans. The objective is to have extensive portions of this network constructed and funded by developers. At a future date, it may become necessary for public funds to complete some final links, but it is not required that the entire roadway linkage be in place until a later phase.

5.3.3 Phase 3 – 2031-2040

By 2040, the critical project will be the NC 56 Bypass including the placement of an interchange on US 1 just south of Franklinton. In addition, the completion of a US 1 Superstreet is envisioned to US 1 north of Franklinton. The third component are continued extensions of the local street network including connection of the US 1A Extension between Youngsville and Franklinton as well as connection of local streets in the Central section to NC 56 Bypass. The Phase 3 projects are shown in blue in the Figure 5-7C Phasing diagram. The critical projects are shown in Table 5-6.

The construction of the NC 56 Bypass is a key element of Phase 3. If not constructed or delayed, additional access connections will be required. This would include completion of the Northeast Connector as well as possibly improving the Bert Winston Extension to hold higher volumes. The key trigger point for congestion will be the NC 56 at US 1A intersection in downtown Franklinton. With the construction of the NC 56 Bypass interchange, a freeway segment is created on US 1 for at least one-quarter mile on either side of the interchange.

The second key feature is the completion of the US 1 Superstreet to Vance County. While this could be done in an earlier phase for safety, the capacity threshold is not met until Phase 3. Also note that with a Superstreet this section of US 1 will have adequate capacity for an extended period past 2040.

The introduction of the US 1 freeway section, albeit relatively short in this phase, requires the connection of local streets in the Central section and connection of the US 1A Extension in the South section.

5.3.4 Phase 4 - 2041-2050

2050 is ten years beyond the next planned horizon of the 2040 CTP. This phase was identified assuming continued increases in traffic beyond 2040, but will need further verification as part of future CTP updates. Regardless, the key features of Phase 4 identified for the US 1 Corridor Study include the completion of a freeway through the South and Central section with the addition of the Bert Winston Extension interchange and replacement of the existing NC 56 interchange. Three grade separations are also proposed in this phase with local street connections. The Phase 4 projects are shown in green in the Figure 5-7D Phasing diagram. The critical projects are shown in Table 5-7.

As noted, the key projects in Phase 4 are the Bert Winston Road interchange and the upgrade of the existing NC 56 Bypass. In addition, the completion of the southwest section of the NC 56 Bypass will be the last major new roadway link in the area. As a result of these projects, US 1 is a four-lane freeway through the South and Central sections. The North section remains a Superstreet in Phase 4.

5.3.5 Phase 5 - Beyond 2050

This phase is intended to represent all possible long range projects for the area. It is also possible that these projects may be identified as desired in an earlier phase and included in the overall system. The key project is the completion of a four-lane freeway in the North section including a new interchange approximately 2 miles south of the Vance County line. As part of the freeway extension, the Western Service Road North must be completed for access. The

Phase 5 projects are shown in pink in the Figure 5-7E Phasing diagram. The critical Phase 5 projects are shown in Table 5-8.

The key project in Phase 5 is the completion of a freeway section through all of Franklin County. In order to complete the freeway, it is necessary to build one interchange and complete the Western Service Road North. Other local street projects have independent utility, serve various purposes, and are not required as part of a freeway upgrade.

5.3.6 Bicycle & Pedestrian Projects

A key element in the project phasing is the incremental provision of the Complete Streets concept to serve bicyclists and pedestrians in addition to the vehicular traffic. The phasing of these projects is not based on congestion thresholds, but instead it is more a systematic amount of improvements to improve safety and provide new links between major demand locations.

In order to prioritize bicycle and pedestrian projects, the list of high priority and lower priority projects from Section 5.1.5. Using this as a base, a review of approximate costs, phasing, and identification of issues were implemented. The result of this process is summarized in Table 5-9.

5.4 Funding & Cost Estimates

Cost estimates were prepared for each phase of roadway projects assuming each project identified was completed within each phase. As noted in the project identification tables, in some cases it can be expected that projects may be delayed, particularly projects that will be incrementally constructed as part of development plans. Nevertheless, Table 5-10 gives a breakdown of costs for different types of facilities. The cost estimates shown include construction costs, engineering and planning costs, and a planning-level estimate of right-of-way costs. Note that Bicycle/ Pedestrian and Transit modes are examined separately.

5.4.1 Cost Estimates by Type of Facility

The overall total cost of the projects was identified as approximately $354.2 Million. If the NC 56 Bypass project is excluded (including the US 1/ NC 56 Bypass interchange), the overall cost of the identified projects is $258.5 Million. Note that all costs provided in this report are estimated for 2012 costs.

Based on a review of Table 5-10, the following items were noted as to spending on specific types of facilities:

- Local streets and roadways account for 29.5 percent of costs with costs extended throughout all five phases. Note that this excludes local roads serving a more regional focus.

Table 5-10. Cost Estimates broken down by Phase and Type of Facility
(shown in millions of dollars)

Type of Facility	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	TOTAL	Percent by Facility Type
Local Streets/ Roads	$27.7	$27.3	$19.6	$9.3	$22.1	$106.0	29.5%
US-1 Superstreet	$7.6	$6.0	$3.6	$0.0	$0.0	$17.2	4.8%
US-1 Freeway Conversion	$0.0	$0.0	$3.4	$64.6	$23.6	$91.6	25.5%
NC 56 Bypass	$0.0	$0.0	$59.5	$32.9	$0.0	$92.4	25.7%
Regional Roads - Local	$11.9	$13.8	$0.0	$0.0	$7.7	$33.4	9.3%
Bicycle/ Pedestrians	$0.0	$5.6	$5.0	$4.4	$3.8	$18.8	5.2%
TOTAL	$47.2	$52.7	$91.1	$111.2	$57.2	$359.4	100.0%
Percent of Total Costs by Phase	13.1%	14.7%	25.3%	30.9%	15.9%	100.0%	

Note: All costs are based on year 2012 cost estimates.

- The Superstreet conversion itself is estimated at $17.2 million and accounts for only 4.8 percent of total costs.
- The Freeway conversion cost is estimated at $91.6 million excluding $21.1 million for the NC 56 Bypass interchange. This accounts for 25.5 percent of total costs.
- The most significant project in the area is the NC 56 Bypass project. It is estimated to be $92.4 million or 25.7 percent of costs including $21.1 million for the NC 56 Bypass interchange.
- Three local regional roads are included – the Southeast Connector, the Northeast Connector, and the East-West Connector. These projects total $33.4 million.
- Bicycle and pedestrian facilities account for 5.2 percent of total costs with an estimated cost of $18.8 million. Funding generally ranges from $4 million to $6 million every 10 years. This does not include any portion of the local street projects since the bicycle and pedestrian elements of these projects are included in the local street costs.
- Phase 3 (2031-2040) and Phase 4 (2041-2050) are the periods with the highest percentage of project spending. During these periods it is anticipated that the NC 56 Bypass is built

and three interchanges are constructed on US 1 (NC 56 Bypass, Bert Winston Extension, and NC 56).

5.4.2 Funding Sources & Options

The Phase II study envisioned using multiple funding sources to implement the corridor improvements. In the first phase, a critical funding source is the Southeast High Speed Rail (SEHSR) program commitments to the local roadway network. In addition, for the new local street sections, particularly those parallel to US 1, partnerships with private developers to build and construct access roads has been identified as a potential funding source. Finally, public funding has been anticipated for the multi-modal projects recommended in the Phase II study. These potential funding options are described next.

5.4.2.1 *NC Capital Area MPO*

The Capital Area MPO (CAMPO) receives transportation planning funding from Federal, State and Local agencies. Because of CAMPO's regional planning role, eighty percent of the funding comes from the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). The remaining twenty percent is provided by local jurisdictions who are members of the MPO.

- The two principal FWHA funds used by CAMPO are the Section 104(f) – Metropolitan Planning (PL) funds and Surface Transportation Program-Direct Attributable (STP-DA) funds. In addition, CAMPO manages the following funding programs:
- FTA Funds for Section 5303 and 5307 planning funds received by the MPO's transit operators;
- Congestion Mitigation Air Quality (CMAQ) funds; and
- State transportation improvement funds from NCDOT.

Overall, CAMPO will take the lead in identifying appropriate funding sources for a majority of the recommended improvement projects along the US 1 corridor. Some projects are likely to be undertaken through the local government capital improvement program (CIP) funding. The local road network may be constructed as an incidental portion of major improvements to US 1, or could be constructed using local or developer-provided funds. CAMPO's STP-DA funds are available for use by member governments for bicycle, pedestrian, transit, and some roadway projects. These funds are administered competitively through the MPO's Locally Administered Projects Program (LAPP).

5.4.2.2 *Southeast High Speed Rail*

The SEHSR program is expected to provide funding for implementation of several projects in the US 1 corridor plan. These funds are a combination of state and federal funding authorized under the High Speed Rail program. Ultimately, this will be funded as part of a combined Virginia- North Carolina joint program.

5.4.2.3 *Private Developer*

The Traffic Impact Analysis (TIA) ordinance of local governments along the US 1 corridor should be utilized in identifying opportunities for developer funded improvements. Future development proposals in the Phase II study area will need to be evaluated against the US 1 corridor plan to look for opportunities to advance any intersection modifications; frontage, backage and collector street construction; and bicycle and pedestrian facility improvements near proposed development sites.

In addition, the US 1 Council of Planning should look for opportunities for negotiated contributions from larger developers toward any larger project such as the Franklinton Multi-modal center/Park-and-Ride lot. It is likely that a majority of pedestrian improvements such as sidewalks will be constructed by private developers as development occurs in the study area.

5.4.2.4 *NCDOT Initiative*

A majority of the US 1 highway projects will be funded through the NCDOT's funds, a majority of which comes from the Highway Trust Fund. The projects will be prioritized as part of the NCDOT's TIP funding process. A few projects can be funded through competitive grant programs like the state transportation enhancement program, which requires a local match. The multimodal (sidewalks, multiuse paths, and pedestrian facilities) projects may be eligible for these funding grants, which would need to be included in the TIP.

5.4.2.5 *Other Sources*

Local governments can apply for many grants for transportation projects. However, in order to qualify for federal grants, projects will need to include in the CAMPO's LRTP and MTIP. Other grant opportunities include: 1) HUD Community Development Block Grant (CDBG) funding for infrastructure, 2) Sustainable Communities grants from HUD, EPA and USDOT including TIGER grants, and 3) the Powell Bill from NCDOT primarily intended for maintenance type projects.

Smaller non-governmental grant opportunities are available for alternate modes projects such as bicycle and pedestrian projects (e.g., Robert Wood Johnson Foundation grants, Centers for Disease Control active living grants). Note that under specific circumstances, NCDOT's Complete Streets philosophy can be applied to maintenance projects with proper planning and

coordination. This assumes that the improvements can be done without additional right-of-way, and are limited to less expensive improvements such as alternative striping patterns or shoulder widening.

5.4.3 Cost Estimates by Potential Funding Sources

In order to quantify estimated costs required as part of the long term CTP development process, a breakdown of the potential funding mechanisms has been identified in Table 5-11. Note that the Public Funding has been split into four project types recognizing that different revenue sources may be required for each project types.

Table 5-11. Cost Estimates broken down by Phase and Potential Funding Sources (shown in millions of dollars)

Potential Funding Sources	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	TOTAL	Percent by Funding Source
South East High Speed Rail	$38.5	$0.0	$0.0	$0.0	$0.0	$38.5	10.7%
Private Development	$0.0	$38.7	$19.6	$9.0	$10.1	$77.4	21.5%
Public - US-1 Superstreet	$2.2	$6.0	$3.6	$0.0	$0.0	$11.8	3.3%
Public - US-1 Freeway Conversion	$0.0	$0.0	$3.4	$40.1	$23.6	$67.1	18.7%
Public – Local Streets required for US 1 Access with Freeway	$2.3	$2.4	$0.0	$24.8	$10.8	$40.3	11.2%
Public - Regional Roads – Local	$4.2	$0.0	$0.0	$0.0	$8.9	$13.1	3.6%
Public - NC 56 Bypass	$0.0	$0.0	$59.5	$32.9	$0.0	$92.4	25.7%
Public - Bicycle & Pedestrian	$0.0	$5.6	$5.0	$4.4	$3.8	$18.8	5.2%
TOTAL	$47.2	$52.7	$91.1	$111.2	$57.2	$359.4	100.0%
Percent of Total Costs by Phase	13.1%	14.7%	25.3%	30.9%	15.9%	100.0%	

Note: All costs are based on year 2012 cost estimates.

Based on a review of Table 5-11, the following items were noted regarding potential sources of funding:

- The SEHSR has been identified as potentially providing up to $38.5 million for grade separations on roadways, local street connections, and some superstreet intersections on US 1. Railroad realignment and track reconstruction is not included in this estimate. It

is assumed that the majority of these funds would be constructed in Phase 1 (2015-2020). Overall, this level of funding would contribute approximately 10.7 percent.

- Private development is being viewed as potential funding for sections of the local street network providing access and connectivity to new development. The estimated maximum input would be $77.4 million or 21.5 percent of overall costs. Although the largest portion is identified in Phase 2 (2021-2030), the exact timing for these projects may progress slower (or faster) depending upon economic growth. It is also anticipated that public funding may be required for the construction of final linkage driven either by environmental issues and costs (such as connecting two streets on either side of a wetlands or the improvement of an existing road). Nevertheless, there is strong potential for some substantial contributions from private sources.
- Projects identified as likely requiring public funding include US 1 improvements, the NC 56 Bypass, some local streets, and bicycle/pedestrian projects. These have been broken into project types to reflect alternative funding programs that may be available. Overall, public funding is estimated to be $243.5 million or 67.7 percent of the total costs identified for the corridor improvements. Note that this does not include public funding that is classified as SEHSR funding.
- Public Funds for the Superstreet conversion would be $11.8 million reflecting 3.3 percent of total costs. Note that this assumes that the SEHSR is contributing $5.4 million due to the intersection revisions at Bert Winston and Bert Winston extension as well as in northern Franklin County at the connection to Montgomery Street.
- Public funds for the Freeway conversion cost is estimated at $67.1 million. This assumes that the $21.1 million for the NC 56 Bypass interchange is part of the NC 56 Bypass cost (since NC 56 would likely be constructed sooner). This accounts for 25.7 percent of total costs.
- The most significant project in the area is the NC 56 Bypass project. It is estimated to be $92.4 million or 25.7 percent of costs including $21.1 million for the NC 56 Bypass interchange.
- Three local regional roads are included – the Southeast Connector, the Northeast Connector, and the East-West Connector. These projects total $33.4 million. It is assumed that roughly 50 percent of the Northeast Connector and East-West Connector may be funded by private sources. The Southeast Connector may include supplemental funding from the SEHSR related to the Bert Winston Extension.

- Bicycle and pedestrian facilities account for 5.2 percent of the total costs which amounts to $18.8 million.
- Phase 3 (2031-2040) and Phase 4 (2041-2050) are the periods with the highest percentage of project spending. During these periods it is anticipated that the NC 56 Bypass is built and three interchanges are constructed on US 1 (NC 56 Bypass, Bert Winston Extension, and NC 56).
- In Phase 5, a Tanyard Street connection is included to provide a replacement for the Mason Street railroad crossing that is proposed for closing as part of the SEHSR. Although this is shown in Phase 5, the strong desire of the community would be that this would be included in Phase 1 as part of the SEHSR rail improvements. At the same time, it is understood that there may be federal restriction as to whether funding would be available for this project. The exact timing for this $5.2 million project still needs to be determined as part of the SEHSR project process.

CHAPTER 6

6.0 PUBLIC INVOLVEMENT

Engaging members of the public is essential to any effective and inclusive planning process and public involvement has been an integral part of this study. First, steering teams consisting of members of local and regional organizations were formed to guide the study process. These teams regularly met with and worked closely with the Study Team. Two public workshops were held to further involve the general public. Finally, project information and feedback opportunities were provided using a website and social media outlets. Each of these public involvement efforts are described below and additional materials may be found in Appendix D.

6.1 Steering Teams

The Study Oversight Team (SOT) and the Core Technical Team (CTT) were formed to provide insight and guidance to the Study Team throughout the study process. These teams consisted of members of local and regional organizations, including NC Capital Area MPO, Kerr-Tar Council of Governments, Capital Area Transit, NCDOT Transportation Planning Branch, NCDOT Rail Division, NCDOT Division 5, NCDOT Congestion Management, Wake County, Franklin County, Franklin County Economic Development Commission, Town of Franklinton, Town of Youngsville, Town of Wake Forest, City of Raleigh, Kerr Area Rural Transit System, and local business leaders. The teams' primary responsibilities are discussed below.

6.1.1 Study Oversight Team

The Study Oversight Team (SOT) was primarily responsible for the development of project vision and policy. The SOT participated in three interactive meetings throughout the study process. The SOT provided insights as to the desires and needs of the local community. The SOT included the members of the CTT as well as representatives of the Town and other key stakeholders.

6.1.2 Core Technical Team

In addition to participating in policy and vision development, the Core Technical Team (CTT) was responsible for developing the more technical aspects of the project. The Study Team participated in a total of six monthly interactive work sessions with the CTT to discuss technical matters related to transportation, land use, and public involvement. The CTT included members of the US 1 Council of Planning as well as some additional representatives from Franklinton and Franklin County.

6.2 SOT and CTT Meetings

The SOT and CTT were engaged in multiple meetings during the course of the project. More information, including the presentations, agenda, and meeting minutes are available in Appendix D. The following meetings were held (in chronological order):

- **CTT Meeting No. 1/ SOT Meeting No. 1: Kickoff**: A kickoff meeting for the start of Phase II of the corridor study was held December 13, 2011 at the Town of Franklinton Town Hall Annex and included both the Study Oversight Team (SOT) and the Core Technical Team (CTT). Discussion included an introduction to the Consultant team and committee members, a project overview, the project scope and schedule, public involvement, and project vision.
- **CTT Meeting No. 2:** CTT Meeting No. 2 was held February 14, 2012 at the Town of Franklinton Town Hall Annex. Discussion included an introduction of new attendees not present at CTT Meeting No. 1, a review of the last meeting, an overview of the US 1 Council of Planning role and process, a discussion of existing conditions and plans/future vision (including current and future land use, current and forecasted roadway conditions, and transportation plans). Finally, public involvement and next steps were discussed including plans for the first public workshop.

- **CTT Meeting No. 3:** CTT Meeting No. 3 was held March 29, 2012 at the Town of Franklinton Town Hall Annex. One key discussion during this meeting included an overview of the March 6th Public Meeting, including attendance statistics, summary of survey results, and preferences expressed during the dot exercise. An overview of access issues was given and the development of a long-term plan was discussed. A board exercise was conducted in which key issues for each section shown on boards while the CTT members were encouraged to review and discuss roadway alternatives for each section of the US 1 corridor with the given map.
- **CTT Meeting No. 4/ SOT Meeting No. 2:** The fourth meeting of the CTT, held at the Town of Franklinton Town Hall Annex on May 10th, 2012, was also the second joint meeting of the SOT. The discussions in this meeting centered on study alternatives as they relate to land use, bike and pedestrian plans, the Southeast High Speed Rail, and

alignments for local street options. A comparative discussion of study alternatives by project sections (south, central, and north) was held, with committee members offering opinions, concerns, and preferences about the different alternatives.

- **CTT Meeting No. 5:** CTT Meeting No. 5 was held June 14, 2012 in the Town of Franklin Town Hall Annex. Discussion focused on land use opportunities and restrictions, bicycle and pedestrian facilities, transit, and the Southeast High Speed Rail. The long-term plan for US 1 was discussed, including how and when to transition from interim to ultimate improvements relative to congestion thresholds. Proposed improvements to other roadways in the local road network were also discussed. Phasing was discussed by project section (south, central, and north). The meeting concluded with a discussion of schedules and next steps, specifically on plans and logistics for the July 19 Public Meeting.

- **CTT Meeting No. 6/SOT Meeting No. 3:** CTT Meeting No. 6 was held August 30, 2012 in the Town of Franklin Town Hall Annex. Discussion focused an overview of the July 19th Public Meeting, final project recommendations, phasing and cost estimates, revisions to the Memorandum of Understanding, the Draft Report, and presentations to local board meetings. Revisions to the phasing plan since the previous meeting particularly focused on accelerating the Bert Winston Extension project as a priority over the Bert Winston Road intersection. Coordination issues related to the SEHSR and updated cost estimates were presented.

  A key element of this meeting was that it served as both a steering committee meeting for the project, as well as serving as an official meeting of the US 1 Council of Planning. The Council voted to recommend adoption of the revised Memorandum of Understanding, and considered changes to the Council's bylaws. The Council was generally in agreement with the recommendations of the US 1 Corridor Study Phase II, but chose to hold off on formal endorsement until the local governments involved had endorsed the study.

6.3 Outreach to the General Public

Outreach to the general public was encouraged throughout the project process. From the beginning of the project, a project website was maintained to provide current information on the study. In addition, interviews with stakeholders were held at an early stage of the project to identify key concerns and potential opportunities.

6.3.1 Website and Social Media

For a plan to be successful, it is critical to engage the community and residents in and around the study area to obtain maximum input on pressing issues and create a vision. It is also important to educate the public, elected officials and other interested stakeholders on the project and its strategies.

As part of this effort of public education and information on the US1 corridor, the planning team worked with the SOT and the CTT to create a project website to serve as a one-stop platform for all the context, minutes and deliverables on the project. The website www.us-1corridornorth.com was organized in the following major sections:

- **About the Project:** consists of all the background information for the project, including the purpose of the study and information on the steering committee teams.
- **Community Involvement:** consists of information on upcoming events, meetings and meeting summaries, including presentations / information presented during the public workshops. The online version of the COMPASS survey was also housed under this section.
- **Plan Documents:** consists of the products created during the planning process and the final documents and reports generated from the study.
- **Resources:** consist of other major links used as resource for the project and also the QR code for the website.
- **Contact Us:** a section which could be used by the public to ask questions or sign up for the e-newsletters.

To encourage public involvement social media pages – Facebook and Twitter were set up so that general public could get information and learn about the major highlights and also provide their input. E-newsletters were also emailed out to provide periodic updates and information on the upcoming events and important project highlights.

6.3.2 Interviews with Key Stakeholders

In the initial stages of the project, a series of key stakeholders were identified for interviews relating to the US 1 study. The purpose was to receive input on the local area and the desires and needs of the local communities. In addition, input as to the desires and outcomes for the US 1 study were discussed. As part of this process, nine interviews were conducted with the following people:

- Ronnie Goswick, Director, Franklin County Economic Development Commission
- Elic Senter, Mayor, Town of Franklinton
- Tammy Ray, Planning Administrator, City of Franklinton
- Anita Fuller, Commissioner, City of Franklinton
- Angela Harris, Manager, Franklin County
- Scott Hammerbacher, Planning Director, Franklin County
- Mark McArn & Mark Thompson, Owners, Brassfield Commercial
- Brian Pate, Vice President and Sales Manager, Fonville Morisey Real Estate & Greater Franklin County Chamber of Commerce

Summaries of each of the interviews are included in Appendix D. A summary of the key findings from the stakeholder interviews is shown in Table 6-1.

6.4 Public Workshop #1

6.4.1 Overall Result

The first Public Workshop was held on March 6, 2012, at the Old Franklinton High School Auditorium in Franklinton. A total of 44 people attended, based on attendance sheets. This total included 30 from the general public, nine representatives from local government, and five representatives from the US 1 Council of Planning SOT and CTT. A copy of all public meeting materials is available in Appendix D.

6.4.2 Compass Survey

In order to identify issues, preferences and priorities for US 1 and establish a vision for the corridor, the planning team prepared a visual preference and short answer survey

Table 6-1. Key Findings for Stakeholder Interviews

Topic	Findings
Critical conditions impacting land use and potential development	• NC56 Bypass • SEHSR and railroad crossings • Water supply and watershed restrictions on development density
General observations or comments	• Perception of future demand for residential and supporting commercial • Trip patterns for local commuters • Capitalize on development around future interchanges • Need to increase tax base
Major concerns	• Character and aesthetics of US 1 and the local network • US 1 improvement and potential negative effects on local businesses (purchase of property, relocation, etc.) • Connectivity • Accessibility during transition / interim phases
Major improvements desired	• Streetscape improvements • Pedestrian / bike connectivity improvements • Transit improvements • Commuter rail, SEHSR depot (Franklinton economic development)
Potential development or major issues in south project segment	• Mostly residential, but also appropriate for industrial park • Concern about increased traffic from new developments • Limited by critical watershed conditions – cannot support high density development • CSX right-of-way realignment
Potential development or major issues in central project segment	• Revitalize Downtown Franklinton • Cedar Creek area – major development opportunity • North of US1 has long-term potential but also has infrastructure and service delivery issues • NC 56 bypass could have major impact – but long-term • SEHSR challenging to connectivity
Potential development or major issues in north project segment	• Conservation area • Some potential around Griffin Trucks – long-term and mostly residential

featuring images of development, public spaces, and transportation improvements to help the stakeholders consider and identify the most appropriate conditions for the study area. Entitled the Compass survey, it was divided into the following main categories:

- Development and Open Space (images and questions)
- Transportation (images and questions)
- Participant Demographics ("Tell me about yourself")

A hard-copy version of the survey was administered at the first Public Workshop, and was later made available online for two months to encourage additional public input. In all, forty surveys were compiled and analyzed with 84 percent of the participants having lived or worked in the area for over twenty years. In addition, most of the respondents were over 51 years of age. There is a strong reliance on single-occupancy vehicles as the dominant mode of transportation as 73 percent of the respondents reported travelling to work or school alone in a car; and 52 percent driving more than ten miles each day. Other observations from the COMPASS survey analysis are included in Table 6-2.

6.4.3 Dot Survey

Members of the public at the first Public Workshop were also invited to express their preferences on transportation and land use issues in the area by participating in a Dot Survey. Each participant was given a set of colored dots and directed to place them on study area maps with the following instructions:

- Put a red dot on places where you want to preserve and see no change
- Put a green dot on places where you want to see improvements, new development, or redevelopment
- Put a yellow dot on places that are important destinations for you in the area
- Put a blue dot on the two most critical intersections on the US 1 and explain your reasons on the note card.

Major findings of the dot exercise were:

- Residential lots located on the west side of US 1 across from US 1A Park Avenue is concerned about losing their access

Table 6-2. Key Findings for Compass Survey

Topic	Findings
Land Use and Development in South Section	• The respondents scored "retail" as the highest and most appropriate land use in the image section, whereas Farms/Agriculture and Business Parks/Corporate Campuses were preferred the most in the multiple-choice questions. • Suburban office, and to some degree flex space, was preferred over conventional manufacturing. • Light Industrial scored third highest in the question answer section in contrast to the image section, indicating that there are other elements (design, buffer, layout, etc.) related to this land use which should be addressed to make it more appropriate for the area. • There was also support for suburban type Subdivisions residential and Town-Center Subdivisions with mixed developments. • Heavy industrial was ranked the least desirable by the survey participants.
Land Use and Development in Central Section	• The most important priority in this segment was the preservation of Franklinton's traditional land use pattern and infill redevelopment compatible to the existing businesses and character. • New commercial development (including strip commercial) is appropriate but must be well-designed and compatible with existing structures and include mixed use opportunities. • There was also support for senior housing and mixed use residential developments along with the traditional single family residential development.
Land Use and Development in North Section	• Farm/rural character preservation was highly desired with some support for low-density single developments. • Other developments like commercial, manufacturing or office did not receive much support for the northern segment.
Open Space	• Preservation of natural landscapes, including farms, was most desired with a need for community-based open space (local parks, playgrounds). • Active recreation facilities and outdoor event space are desired, compatible with the rural/suburban form of the study area.
Transportation in US 1 Corridor	• There was general consensus for converting US 1 Corridor into a freeway, with the prime concern being accessibility, especially for the existing businesses. • The image preferences indicated the desire to maintain the rural character and be compatible with the context. • Street maintenance and traffic safety were other major issues identified.
Transportation on Local Road Network	• A strong character for the secondary road network was desired with smaller-scale road / streets being generally preferred. • There was a considerable support for improving the bicycle and pedestrian connectivity within the study area with concentrating the improvements more in Franklinton Downtown. • Street/Road Maintenance was in general the most important issue identified for South and Central segments, with traffic speed and safety and lack of transit service identified as other issues. • Traffic safety was the prime concern for the Northern Segment.

- McGhee Farms family is concerned about access between their properties and US 1. In addition, they are interested in rural preservation.
- The segment of US 1A South Main Street located one quarter mile north of the US 1 junction south of Franklinton was identified as needing improvement.
- Concerns voiced out by residents in a subdivision north of NC 56; they desire roadway and access improvements.
- The dot map scroll can be reviewed in Appendix D.

6.5 Public Workshop #2

The second Public Workshop was held Thursday, July 19th at the Old Franklinton High School, from 5:00 p.m. to 7:00 p.m. This workshop differed from the first in that it was formatted as an open house with no formal presentation. A copy of all public meeting materials is available in Appendix D. A variety of informational boards were available to view, and were arranged in stations according to theme. The four themes included:

- US 1 Improvements (including the Freeway and Superstreet Alternatives),
- Land Use
- Bicycle & Pedestrian Accommodations, and
- Project Phasing.

Boards were also presented to summarize the results of the Compass Survey from Public Workshop #1. Study Team members were present throughout the meeting to provide explanation and answer questions about the project.

The workshop was attended by members of the general public along with representatives from local businesses, government, and agencies. A total of 13 people attended. Some written comments were collected from attendees. These comments are summarized below:

- "Keep East Mason Street railroad crossing open. This is not only good for the Town of Franklinton by makes school bus transportation routes more efficient."

- "Expedite compensation of Right of Way impacted by proposed highway expansions and improvements. If this is not done, this is a very heavy negative economic burden."
- Comments were received regarding the current or potential closure due to the Southeast High Speed Rail.

Public comments also included:

- Concern about construction impacts required as part of upgrading/ improving the existing NC 56 intersection. The specific concern was the Family Dollar shopping center in the northeast quadrant of the interchange.

- Concern about access restrictions and impacts from the local street improvements on NC 56 just west of the existing interchange. The primary concern was a 10 acre lot in the southwest quadrant of the interchange.
- Multiple comments about the impacts that SEHSR would have on closing at-grade crossings in Franklinton. In particular, there were concerns about the proposed closure of Mason Street.
- General approval of the proposed Freeway with Local Street concept. The Superstreet improvements were also generally viewed as favorable. There was a general consensus that improvements will be required on US 1.
- Interest was expressed in providing a commuter rail station in Franklinton even if a high speed rail stop cannot be provided. There was interest in producing a cost-benefit study of this type of facility to potentially qualify for federal or state funding.

CHAPTER 7

7.0 IMPLEMENTATION TOOLKIT

This chapter presents a project implementation "tool kit" that consists of policies, regulations, and strategy options that have been successfully used by other local governments to implement their projects. Also included are example cases to demonstrate their manner of implementation. These tools have been provided to assist CAMPO, Franklin County and the Town of Franklinton in their development of harmonized land use and transportation policies that will facilitate the ultimate vision for the US 1 corridor in the Phase II study area.

7.1 Amending the 2007 Memorandum of Understanding

In 2007, the agencies shown below in Table 7-1 signed a Memorandum of Understanding (MOU) to manage land use development along the US 1 corridor. The agencies shown have planning jurisdiction in the study area, or are responsible for public investments along the corridor. The 2007 MOU established a common direction and vision, contained commitments, and identified the roles and responsibilities of the signatory agencies.

Table 7-1. Signatories of the 2007 US 1 Phase I Study Corridor MOU

Municipalities	Counties	Transit Agencies	Government Agencies
Raleigh	Franklin	Capital Area Transit (CAT)	NC Capital Area Metropolitan Planning Organization (CAMPO)
Wake Forest	Wake	Kerr Area Rural Transit System (KARTS)	NC Department of Transportation (NCDOT)
Youngsville	--	Triangle Transit Triangle Transit	--

The 2007 MOU also established the US 1 Council of Planning (COP), which is the advisory group with an oversight role on land use and transportation decisions along the US 1 corridor. The COP meets periodically to:

- Review land use developments and transportation projects that will impact congestion and travel movements;
- Review changes to the US-1 Corridor Plan; and
- Develop and/or update a Comprehensive Land Use Plan that facilitates land use developments along the corridor that are compatible with the US 1 transportation recommendations.

The Council of Planning serves in advisory role to provide local jurisdictions and agencies that may not have specialized staff or resources to provide technical guidance for assisting local decision makers in the development approval process. The MOU clearly indicates that COP guidance is strictly limited to recommendations. Approval authority (i.e., conditions set for the approval of a development request) remains the sole responsibility of the local jurisdiction. The COP review process provides assistance specifically suited to communities like Franklinton or Franklin County.

Because the Phase II study is a continuation of the Phase I study, the Phase II study partnership agencies prepared a draft amendment of the 2007 MOU which includes the following new elements:

- Adding the Phase II study as part of the project discussion;
- Including the Town of Franklinton as part of the US 1 COP; and
- Extending the US 1 corridor limit to the Vance County line.
- Amendment of the current bylaws (adopted on September 16, 2010)

Upon approval of the amendments by the partnership agencies (shown in Table 7-1) the updated MOU will be the guiding document for the US 1 corridor. A copy of the 2007 MOU with recommended amendments is shown in green highlight is included in Appendix A. On August 30, 2012, the US 1 Council of Planning met and voted to approve the language of the revised MOU. It is anticipated that it will be distributed to the signatory agencies in the upcoming months for final approval and acceptance.

7.2 Adding Partnering and Cooperative Agreements

In the longer-term, additional partnering and cooperative agreements can be considered by the partnership agencies for better management of the US 1 corridor. These potential future agreement types are briefly discussed below:

7.2.1 Intergovernmental Cooperative Agreements (ICA)

An ICA is a legal instrument authorized by state law between two or more units of government, in which the parties contract for the performance of a specific function through either mutual or delegated responsibilities. The ICA works best when revenue sharing or financial obligations are clearly defined. This is the most binding form of intergovernmental cooperation.

As part of a future ICA for the US 1 corridor, the US 1 COP could explore opportunities to introduce new express bus services along the US 1 corridor between Franklinton and the

Triangle Town Center through partnerships between Triangle Transit, NCDOT and Franklin County. The express bus service would be eligible for three years funding with Congestion Mitigation and Air Quality (CMAQ) funds, which are typically allocated to projects that demonstrate reductions in vehicle miles traveled (VMT) and air quality emissions.

This mechanism will likely be required for Franklinton and/or Franklin County in future extensions of service for Express Bus or other transit services. These agreements could be developed with transit agencies such as Triangle Transit or KARTS as well as other local jurisdictions such as Youngsville, Wake Forest, and Louisburg.

Example Case

The City of Durham signed an ICA with the Triangle Transit in 2010 for operational and route planning services for the Durham Area Transit Authority's fixed route bus services. Triangle Transit also entered into an agreement with the City of Raleigh in 2009 for the operation of express bus service between Wake Forest and downtown Raleigh.

7.2.2 Public-Private Partnerships (3P)

Public-private partnerships are a general term for collaborative relationships between public agencies and private entities to expedite project delivery. Potential 3P approaches relevant to the US 1 project area include agreements with:

- The Food Lion plaza property owner leasing parking spaces for transit users;
- A private contractor operating express bus services along US 1; and
- A utility provider addressing joint occupancy of public right-of-way.

Large scale public-private partnerships have limited application in Franklinton and Franklin County, but there are opportunities for smaller scale agreements. These could range from the examples above as well as negotiating direct funding or construction of local streets or intersection improvements.

Example Case

The Greater Cleveland Regional Transit Authority's bus rapid transit (BRT) provides service along the Euclid Avenue corridor, which runs from downtown to East Cleveland. A partnership between the Regional Transit Authority, University Hospitals, and the Cleveland Clinic allowed these institutions to purchase the naming rights for this BRT service. The Euclid Corridor BRT line was later named the Health Line. The funds generated from this P3 and other sponsorship agreements were used to develop branding and maintenance of the BRT stations.

7.3 Adopting Corridor Study Recommendations into Transportation Plans and Programs

Adopting the US 1 Phase II Corridor Study recommendations into relevant local, regional, and state plans is required for seeking state and federal funds for the US 1 corridor projects. These plans incorporate all modes of transportation including bicycle, pedestrians, and transit in addition to roadway and street improvements. It is a critical step in the project process to have specific projects identified as part of these plans in order to pursue or secure funding for all aspects of the projects from planning and design through construction. CAMPO and NCDOT are key partners with Franklinton and Franklin County in formalizing these plans.

7.3.1 2040 Metropolitan Transportation Plan (MTP)

One purpose of the US 1 Phase II Corridor Study is to update, support, and refine the Triangle region's *2040 Metropolitan Transportation Plan* (MTP). It is developed cooperatively by CAMPO and the Durham-Chapel Hill-Carrboro MPO. The MTP is the region's fiscally constrained plan to guide investments in roadway, transit, bicycle, and pedestrian improvement projects through 2040.

Projects identified as needed in years beyond 2040 will be included in the Comprehensive Transportation Plan (discussed below) element of the MTP, which is the vision element of the plan that is not fiscally constrained.

The process of incorporating the Phase II Corridor Study's recommended transportation improvements into the 2040 MTP begins with a presentation of the recommendations to the CAMPO Technical Coordinating Committee (TCC). Upon satisfactory review of the recommendations, the TCC will endorse and recommend them for inclusion in the 2040 MTP.

7.3.1.1 *Evaluation MTP Updates for Transportation Conformity*

Prior to formally adopting updates to the 2040 MTP, all transportation projects recommended for addition will need to be evaluated for transportation conformity. Transportation conformity is a process to demonstrate that the recommended transportation projects will not negatively impact air quality in the region.

Transportation conformity applies to transportation plans and projects funded and approved by the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA) in areas that do not meet required air quality standards. These areas are referred to as non-attainment areas or maintenance areas (see project area air quality discussion in Chapter 3). The transportation conformity determination process requires formal agency consultation between the US Environmental Protection Agency (EPA), FHWA, FTA, NCDOT, and CAMPO.

7.3.2 Franklin County Comprehensive Transportation Plan (CTP)

The recommended improvements for highway, bicycle, pedestrian and transit will need to be incorporated into the current *Franklin County Comprehensive Transportation Plan* (CTP) (see discussion of these improvements in Chapter 6).

The process of incorporation into the CTP involves a presentation of the US 1 Phase II Corridor Study recommendations to the Franklin County Board of Commissioners, followed by approval by the Board and incorporation into the CTP. After incorporation of recommended improvements, the CTP also will need to be endorsed and adopted by agencies and municipalities with jurisdiction in the study corridor, including CAMPO and NCDOT. The portion of the Franklin County CTP that lies within the CAMPO planning area will be incorporated into the overall MPO's CTP element of the Metropolitan Transportation Plan.

The CTP is a multi-modal plan addressing bicycles, pedestrians, and transit in addition to roadway facilities. It includes all sizes of projects from major regional expressways and freeways to local streets, greenways, and sidewalks. The plan also addresses maintenance and operations projects including transit operating costs.

7.3.3 State Transportation Improvement Program (STIP)

The *State Transportation Improvement Program* (STIP) lists the projects included in the NCDOT's Work Program, and provides prioritization, costs and schedules for each project. The STIP is organized by NCDOT division (Highway, Rail, Bicycle and Pedestrian, Ferry, Enhancements, and Public Transportation. Franklin County is in Highway Division 5.

The Highway Division part of the STIP is organized by project type (i.e. highway, bridge, urban loop, bicycle and pedestrian improvement, etc.). The STIP is updated every other year. The Phase II Corridor Study recommendations would need to be reviewed and approved by NCDOT for inclusion into the next update cycle (2014 to 2020). Before consideration as part of the STIP by NCDOT, the plan elements need to be incorporated into CAMPO's MTP.

7.3.4 Metropolitan Transportation Improvement Program (TIP)

The *Metropolitan Transportation Improvement Program* (TIP) is a defined subset of NCDOT STIP projects that fall under the jurisdiction of CAMPO. The current TIP is for years 2012 through 2018. The Phase II Corridor Study recommendations would need to be reviewed and approved by CAMPO for inclusion into the next TIP.

7.3.5 Triangle Transit Short-Range Transit Plan (SRTP)

Triangle Transit is responsible for operating regional bus service within Wake, Durham and Orange Counties, and has the ability to operate services in areas up to five miles beyond those County boundaries. Triangle Transit's *Short-Range Transit Plan* (SRTP) is a five-year transit operating plan and capital improvement program for the Triangle Transit's public transportation and ridesharing services. The current version of the SRTP was adopted in September 2011 by the Triangle Transit Board of Trustees.

The transit recommendations of the Phase II Corridor Study will need to be reviewed by Triangle Transit for inclusion in the next update of the SRTP. The Triangle Transit, CAMPO, NCDOT, and Franklin County contingent of the US 1 COP will need to jointly identify capital and operating funds for any new recommended transit services. This contingent may consider the possibility of targeting federal livability and TIGER grants.

7.3.6 KARTS Short-Range Transit Plan (SRTP)

Operating under the Kerr-Tar Rural Planning Organization, KARTS is a four-county public transportation program serving both the general public and the clients of human service agencies in Franklin, Granville, Vance and Warren Counties. The Kerr-Tar Rural Planning Organization's *Locally Developed Coordinated Human Services Public Transportation Plan* (April 2009) is a transit operating and funding plan for KARTS and other transit systems in the Kerr-Tar region.

KARTS receives administrative funds from the NCDOT and matching funds from the counties of Franklin, Vance, Warren, and Granville. The NCDOT funds requested for 2010 was $784,022 and current funding from the four counties is $102,996 for a total year 2010 funding of $887,018. According to the plan's prioritization needs, which was based on a workshop and needs assessment survey conducted in 2007, survey participants had indicated the need for a circulator service as top priority. This was closely followed by the preference for a fixed-route transportation system. These findings were included in the plan's final recommendations.

The transit recommendations of the Phase II Corridor Study incorporate short and long-term transit improvements that will need to be reviewed by the Kerr-Tar Rural Planning Organization and KARTS for possibly inclusion to their public transportation plan. The Kerr-Tar Rural Planning Organization, NCDOT, and Franklin County contingent of the US 1 COP will need to jointly indentify capital and operating funds for recommended transit services.

7.3.7 NCDOT Bicycle and Pedestrian Planning Grant Initiative

In recent years, communities throughout North Carolina have begun to place more emphasis on providing facilities for biking and walking. A desire for better modal choices, the demand for more walkable and bikeable communities, and a focus on smart growth initiatives have combined to highlight the need for better, more complete bicycle and pedestrian transportation systems. Comprehensive planning documents are an integral part of developing these systems, and can guide both local and state efforts to improve conditions for bicycling and walking.

To encourage the development of comprehensive local bicycle plans and pedestrian plans, the NCDOT Division of Bicycle and Pedestrian Transportation (DBPT) and the Transportation Planning Branch (TPB) have created a matching grant program to fund plan development. This program was initiated through a special allocation of funding approved by the North Carolina General Assembly along with federal funds earmarked specifically for bicycle and pedestrian planning by the TPB. Since 2004, 135 municipal plans have been selected and funded from 321 applicants. A total of $3.6 million has been allocated, with 2012 funding at $400,000.

As a North Carolina municipality, Franklinton is eligible to apply for a pedestrian or bicycle planning grant. Although regional plans are not currently funded, the relevant approval processes and procedures of MPO organizations should be followed. A resolution from CAMPO would be required prior to awarding funds.

For a community the size of Franklinton, NCDOT planning grant funds would cover 80 percent of costs with a local funding match of 20 percent. For a town with a population less than 10,000, NCDOT's funding cap ranges is $28,000 for a bicycle plan and $24,800 for a pedestrian plan in 2012. Note that this program is limited to municipalities only. Franklin County would be ineligible for a grant.

Plans may be developed by consultants or by a combination of both municipal staff and consultants. A full-time permanent employee of the Town would need to be assigned as project manager to oversee and coordinate the plan development. A task force/steering committee must also be formed to oversee development of the plan.

7.4 Reserving Right-of-Way

The need to reserve right-of-way is recognized in the 2007 MOU, and continues to be recognized in the proposed 2012 MOU. The discussion below presents the regulatory options and current practices that are available to reserve right-of-way for the purpose of implementing the recommended improvements to the US 1 corridor. The right of way can be for multiple

types of projects including roadway widening, new alignment, intersection improvements, or bicycle and pedestrian features such as greenways.

Current regulatory frameworks that are in place in the project area that may be used to reserve right-of-way include the following.

7.4.1 NCDOT Transportation Corridor Official Map Act

NCDOT's *Transportation Corridor Official Map Act* was passed in 1987 for the purpose of controlling the cost of acquiring transportation right-of-way for NCDOT projects. It allows NCDOT to freeze all development along protected road corridors for indefinite periods of time. This, in turn keeps parcel prices low until the point when NCDOT decides whether or not to use the land.

Under the Map Act, the *Transportation Corridor Official Map* was developed and is maintained. The NCDOT Board of Transportation uses the map to reserve right-of-way for future NCDOT projects. The Official Map places temporary (three year) restrictions on private property rights by prohibiting the issuance of building permits or property subdivision approvals for lands within intended new construction or widening rights-of-way. The three year restriction period begins when a request for building permit or subdivision is denied.

Right-of-way for NCDOT led US 1 projects in the Phase II study area can be reserved by request for incorporation of these projects into the Official Map. Proposed local roadway network improvements and connections that may be associated with the NCDOT led projects on US 1 may also be incorporated into the Official Map. The Official Map cannot be used to reserve right-of-way for proposed local roadways that are driven by private development needs. In general, the local roadway improvements would have to be incorporated as an NCDOT project in CAMPO's 2040 MTP and NCDOT's STIP.

The *Transportation Corridor Official Map Act* indicates that preliminary engineering must begin within one year of establishing a project as part of the Official Map. This provision may act as a constraint to longer term reservation of right-of-way, but does not negate the fact that inclusion of lands into the Official Map can be used as a means to secure right-of-way.

The long range nature of the US 1 Freeway improvement makes the *Map Act* a difficult tool to apply within Franklinton and Franklin County. However, closer to project implementation it may become more viable. Note, however, that the *Map Act* may be more applicable in preserving right of way related to the NC 56 Bypass instead of US 1.

7.4.2 Local Jurisdiction Right-of-Way Reservation Policies and Ordinances

Municipalities and local jurisdictions often adopt ordinances that establish policies and procedures for acquiring properties, preserving right-of-way, and protecting transportation corridors. Several examples of this exist from the City of Raleigh, Wake County, and other local jurisdictions. These are discussed below.

Example Case: City of Raleigh

The *2030 Comprehensive Plan for the City of Raleigh* in 2012 is the long range policy document to establish a vision for the City. The Transportation Element of the 2030 Comprehensive Plan contains following policies and implementing action items for right-of-way reservation that are directed at the City's leadership to implement the vision.

- **Policy T 1.2, Right-of-Way Reservation:** *"Support the early identification and acquisition of land for future transportation corridors though land use planning and development permitting."*
- **Action T 1.1, Corridor Preservation:** "*Create a tool kit of actions to help preserve future transportation corridors through development review and land use planning."*
- **Action T 2.**3, **Right-of-Way Reservation:** "*Conduct detailed analyses of proposed corridors and roadway connections to establish alignments, and take proactive steps to resolve future corridors and connections via development coordination or* by acquisition."
- **Policy T 4.4, R.O.W. Reservation for Transit: "***Preserve right-of-way for future transit and require that new development and redevelopment provide transit easements for planned alignments, rail stations, and bus stops within existing and planned transit corridors as identified in the Regional Transit Vision"*

Example Case: Wake County

The *Wake County Unified Development Ordinance* (UDO) includes zoning and subdivision regulations related to right-of-way reservation. These regulations are summarized below:

- **Article 3-71, Special Highway Overlay District:** The UDO created an overlay district for transportation right-of-way preservation. This overlay district is intended to be applied to areas identified as Special Transportation Corridors in the *Wake County Land Use Plan*.
- **Section 8-32-6, Article 8, Subdivision Design Improvements - Right-of-Way Dedication:** The UDO states that whenever a road or highway corridor is located on or adjacent to a proposed subdivision, the landowner must dedicate right-of-way needed to construct or widen the road to the right-of-way width indicated in the *Wake County Transportation Plan*.

- **Section 8-32-7, Article 8, Subdivision Design Improvements - Right-of-Way Reservation:** The UDO states that if any part of a subdivision lies within the corridor of a thoroughfare shown the NCDOT Official Map (refer to Section 8.4.1.1), no subdivision approval may be granted for the property located within the roadway corridor.

Each of these three UDO regulations could be applied to apply to US 1. The policies are particularly applicable to a corridor plan including local street connections running along the major corridor. The third regulation may not be directly applicable since it is unlikely that Franklinton or Franklin County would want to prevent development options as a matter of regulation, instead preferring to allow some flexibility in alignment selection. A key element of the US 1 study and plan is the flexibility that can be afforded in shifting local street alignments to serve development while providing a continuous route.

Example Case: City of Durham

The *City of Durham Unified Development Ordinance* contains a *Major Transportation Corridor* overlay zoning district for the purpose of "*enhancing the economic and aesthetic appeal and orderly development of properties adjacent to major transportation corridors*". This UDO overlay uses buffers as a means of securing additional space for future widening of existing roadways. The spatial extent of this zoning overlay includes all property within 1,250 feet of a designated major thoroughfare, and may extend up to 2,500 feet at intersections.

The width or spatial extent of the Durham overlay zoning district would be applicable to the US 1 plan, particularly the offset of local streets from the main corridor. This would require development of an overlay zoning district by both the Town and County in a cooperative process.

7.5 Utilizing Development Moratoria

Development moratoria are typically established through a jurisdiction's local law or ordinance. A development moratorium suspends the property owner's right to develop the property through limitations on subdivision approvals, building permits, and other required permits and approvals by the governing jurisdiction. A moratorium can be applied to a planned transportation corridor.

In 2005, the North Carolina General Assembly amended the zoning statutes to authorize the use of development moratoria by cities and counties. The General Assembly set a number of rules regarding the use of development moratoria, including:

- The moratorium must be adopted as an ordinance by the city or county.

- Adoption of a moratorium should be preceded with a public notice and a public hearing.
- A moratorium should not be applied to development areas or projects with an outstanding approved development plan or building permit, or for development projects with an ongoing permit application to the city or county.

Wake County municipalities that have adopted development moratoria include Knightdale and Zebulon. Orange County municipalities that have done the same include Carrboro and Chapel Hill. Most of the moratoria adopted in North Carolina have been for relatively short durations (generally about six months) and for the purpose of developing regulations for specific land uses or plan updates.

In general, a development moratoria is likely not applicable in Franklin County or Franklinton at this time. The only exception would be if the Town and County did want to update their land use requirements and development regulations. In general, however, this typically occurs in a rapidly expanding development period.

7.6 Acquiring Right-of-Way Prior to Project Initiation

One of the more common methods of right-of-way reservation is to acquire key parcels of land within the future transportation corridor in advance of initiating the project. Local jurisdictions may acquire properties through fee simple land acquisitions, typically by the exercise of eminent domain. Once acquired, the local jurisdiction may bank the property until design and construction begin.

Advantages of early acquisitions include:

- Jurisdictional regulation of the property is avoided.
- Acquired lands may be banked and set aside while other lands are acquired.
- Present purchase cost will likely be lower than costs at project initiation.
- Acquired lands may be used as a means of temporary revenue generation.

Disadvantages of early acquisitions include:

- Property is eliminated from the local tax base.
- Liabilities of managing large tracts of banked properties.
- Cost of maintaining properties (aesthetics and safety).
- Political implications.

Acquisition of right of way would have only limited application for the US 1 mainline corridor. It may have more application as part of the local street network. Given the long term phasing of this project, one potentially applicable practice would be the selective purchase of properties that are already being offered for sale. It may be possible to prioritize some sites to target when they become available, thereby avoid potential condemnation for future construction.

7.7 Utilizing Development Easements and Options to Purchase

7.7.1 Development Easements

An easement is a right of one party to use the real property of another party without having to purchase or obtain the property. A government entity may obtain development easements in order to preserve the land at its present state. Affirmative and negative easements are generally used in providing pathways across a property.

An affirmative easement is the right to use a property for a special purpose that is generally desired by the property owner. A negative easement is the right to prevent the property owner, or a third party, from using or performing general lawful activity on the property.

A government entity may choose to acquire rights to use privately owned lands for a special purpose by either providing utility access desired by the property owner through the land (thereby allowing the government entity to obtain water or sewer access for future development), or levying a restriction that would disallow the private owner from developing the land.

Development easements can be established for roadway corridor preservation by the purchase of development rights to offset the restricted use of the land. In other words, the government agency purchases the right to develop the property, but the property is not owned by the government agency. In addition, the property management and maintenance remains the responsibility of the private owner. Hence, the current condition of the property will be preserved under the terms and conditions of the easement agreement.

Utilizing development easements would have potential application on US 1. One particular focus could be on the ultimate freeway improvements to US 1. The goal is to provide a freeway using the existing right of way, especially in areas where no additional grading is required. In some sections of US 1 right of way narrows to 180 feet. This is less than typically required for a new freeway, but the proposed section could fit the right of way even with 30 foot clear zones.

Nevertheless, in order to pave shoulders and adjust side slopes, some construction easement may be needed. This would be a reasonable application for US 1 improvements.

7.7.2 Options to Purchase

A government agency may participate in a conditional contract to purchase the sole right to buy a property under specific conditions and within a specified timeframe. Options to purchase typically are exercised when a government agency identifies a key property (for transportation improvement) and determines that its value is likely to increase due to development pressure. Under conditions such as these, the government agency can enter into an option to purchase agreement with the property owner, which gives the government agency the right to purchase the property at a negotiated price and within a specified timeframe.

Advantages of development easements and option to purchase agreements include:

- Jurisdictional regulation of the property is avoided.
- Up-front capital costs to acquire property are avoided.
- Acquired properties remain in the local tax base (or until the transaction is complete with options to purchase agreements).
- Option to purchase agreements may allow the agencies to obtain properties at more reasonable costs if bought a "buyers market."
- Property owners (pre-purchase) are responsible for the maintenance and management of development easements.
- The sale of the land is typically bound to the terms and conditions of the development easement.

Disadvantages of development easements and option to purchase agreements include:

- Option to purchase agreements may be limited to a short timeframe for purchase during a "seller's market."
- Development easement agreements are often temporary, and rarely permanent, since the price of the easement is likely affected by its permanency.
- Development easement costs may be dictated by an immediate pressure to develop the property, and therefore may cost as much as the outright purchase of the property.

Setting up future options to purchase may have some application. Given the long term phasing of this project, one potentially applicable practice would be to identify key properties that are not yet required. It may be possible to identify lots that the current owner knows that will

ultimately be sold, but the timing is longer term. A key issue, however, would be setting an adequate time frame so that the option to purchase could reasonably be expected to be exercised.

7.8 Utilizing Exactions

Exactions are used to obtain funding from developers to offset the burdens of their new developments on the municipality or county. They are typically levied on developers in exchange for the approvals to proceed with a project (e.g., amendments to zoning maps, special use conditions, or obtaining permits). Exactions are synonymous with "impact fees" and may be used to build schools, parks or roadways that may or may not serve the new development. Examples of exactions may be used to obtain/reserve right-of-way include the following:

- Right-of-way dedication for streets and utilities (either by ordinance or agreed upon contribution).
- Dedication of land and construction or improvement of streets that would be detrimentally affected by traffic generated by the development.
- Impact fees collected and earmarked for corridor preservation.

Impact fees or exactions could be reasonably applied to development in Franklinton or in Franklin County along US 1. The primary reason is that development in this portion of the County is attracted to the area because of easy access to US 1. In other areas of the County, increasing developer costs may cause developers to examine alternate opportunities.

The local street system would likely be a good target for applying development fees. As part of the access management approval process with NCDOT, the Town or County could require construction of local street sections instead of allowing additional driveways to access US 501 directly. Note that development fees are typically more applicable on larger development projects such as retail centers, industry, or residential subdivisions.

7.9 Utilizing Developer Mitigations

Mitigations are measures used to minimize or eliminate impacts. In the context of facilitating the goals of the US 1 Phase II recommendations, mitigations are in essence "trade-offs" with the municipality or county by the developer for impacts that are anticipated with their new development.

For example: when a new development would degrade a roadway facility's level of service (LOS) below an applicable threshold, the facility would be considered deficient to support the new development, so the approving authority would seek mitigation of traffic impacts. In this

case, mitigation can take the form of development constraints such: as reducing the number of curb cuts to land uses within the new development; requiring the developer to construct transportation improvements to offset the level of impact; or require the developer to provide a financial contribution to the transportation improvements constructed by others.

The US 1 COP could agree to accept developer mitigation as a funding mechanism for providing a new park-and-ride service in the US 1 corridor. Another possible option is that, as a condition of development approval for more intense development plans with lower on-site parking supply, the US 1 COP could establish a process through which developers can make annual contributions toward a park-and-ride construction fund.

Similar to exactions, developer mitigation could be a valuable tool for Franklin County and Franklinton. This method requires establishment of operational minimums that must be met. For instance, if a developer has identified a site for development, regulations could be set requiring the developer to connect the lots with the sewer and water facilities within each jurisdiction.

7.10 Using Access Management for Implementation

Access management is an implementation strategy that NCDOT and local governments routinely use to control access to highways, major arterials, and other roadways. The benefits of access management include improved mobility, reduced crashes, and fewer vehicle conflicts. The primary concerns about access management are often related to potential reductions in revenue to local businesses, such as gas stations and mini-marts that depend on pass-by traffic. Two very good resources are available for the development or revision of an access management policy for the US 1 Phase II segment. These resources are discussed below.

7.10.1 NCDOT Access Management Policy

NCDOT's *Policy on Street and Driveway Access to North Carolina Highways* is the state's guidance document for approving access points along state-maintained roadways. It also provides guidance for the following concerns:

- Spacing of traffic signals and interchanges;
- Spacing, design, and location of driveways;
- Requirements for exclusive left-, right-, and U-turn lanes;
- Median treatments; and
- Transit, pedestrian, and bicycle safety treatments.

NCDOT's policy should be followed for approving future access points along the Phase II study corridor. Since NCDOT staff would be responsible for granting access to US 1, there is a need for close cooperation with Town or County staff and NCDOT. As part of this approval process, NCDOT could identify required improvements to mitigate traffic impacts. Depending upon the type of projects, it may be possible to implement fairly aggressive access management by requiring superstreet and intersection improvements. Similarly, NCDOT decisions could be that direct access to US 1 is denied and, therefore, the developer must construct sections of the Local Road network.

7.10.2 Transportation Research Board Access Management Manual

Chapter 6 of the Transportation Research Board (TRB) *Access Management Manual* provides information on corridor access management plans. Practical information on a range of issues and applications was incorporated throughout the manual, which appears to draw upon the shared knowledge of the many experienced access management professionals. Some of the access management techniques discussed in this manual includes the following:

- Using frontage and service roads to encourage development.
- Reducing driveways on major thoroughfares.
- Providing local collector roads to develop a network of adequately spaced signalized intersections.
- Land use and zoning incentives to promote node-based developments as opposed to strip developments.

7.11 Using Traffic Impact Analysis (TIA) to Facilitate Development Approvals

It is becoming increasingly more common that agencies require a Traffic Impact Analysis (TIA) to inform and help facilitate the development approval process. In brief, a TIA is an analysis of a proposed development's additional traffic on adjacent transportation networks. It identifies the need for congestion, safety and access improvements and ways to mitigate impacts. Typical TIA conditions reviewed and analyzed are presented in Table 7-2.

The requirement for conducting a TIA is typically applied to larger developments that are anticipated to exceed a pre-determined trip generation threshold (i.e. adding 150 vehicles during a peak hour). The size and detail of a TIA is usually based on the type, size, and location of the development. In developing the requirements for TIA studies, it is necessary for the approving agencies to identify specific criteria for conducting a TIA, such as:

Table 7-2. Typical Conditions Reviewed and Analyzed within a TIA

	Development in the Area		
	Existing	Background*	Background + Proposed Project
Conditions Reviewed and Analyzed	• Existing roadway network layout and design • Traffic volumes • Signal timing and phasing • LOS • Capacity	• Growth factors • Traffic generation • LOS changes • Capacity changes	• Trip generation • Trip distribution • Traffic Assignment • LOS changes • Capacity changes

Note: "Background" development in the area consists of existing development, plus other projects in the area with development approvals.

- Thresholds for when a TIA is required;
- What time periods the analysis must consider;
- The modeling approach that must be used; and
- The LOS threshold that cannot be exceeded by the new development without providing mitigation.

The benefits of having a TIA for proposed development projects include the following:

- The approving agency can better assess if adequate public facilities are in place to mitigate any potential negative impacts from a proposed development when it is combined with other planned/permitted projects in the influence area.
- The approving agency can evaluate whether or not the proposed development is appropriate for the proposed site.
- The approving agency can make better decisions regarding the types of transportation improvements necessary to accommodate traffic growth and mitigate traffic congestion and safety issues.
- The approving agency can better determine the appropriate level and type of improvements that will be developer's responsibility.

- The approving agency can better decide if the developer of a project in a downtown or high-density urban area has included the appropriate mixture of transportation modes (i.e. passenger vehicles and public transit) in their development design.

The US 1 COP should review the existing TIA ordinances for jurisdictions along the US 1 corridor to obtain an understanding of their current state. After this knowledge is obtained, the US 1 COP can work toward developing consistency and uniformity amongst these ordinances to facilitate an easier development approval process for US 1 improvements. Given that Franklinton and other jurisdictions do not have staff for the review of the reports, it may also necessary for the COP or NCDOT to provide review and approval of TIAs.

For reference, examples of TIA requirements and regulations from other local jurisdictions are included in Appendix E.

7.12 Additional Technical Information

The Phase II study recommended several congestion management strategies and project development concepts. While these strategies and concepts are familiar to planners and engineers, local elected officials and the general public may need further explanation. For this reason, the discussion below provides a brief description of the different congestion management strategies and project development concepts recommended by the Phase II Corridor Study. Additional technical materials and internet links on these strategies and concepts are provided in Appendix F.

Note: The materials provided in Appendix F were prepared by other agencies as educational materials, thus they are not intended to provide in-depth detail on a particular topic, but rather to provide information that will increase the understanding of these strategies and concepts for non-technical stakeholders and decision-makers. The congestion management strategies and project development concepts recommended or examined in the Phase II Corridor Study are defined as follows:

- **Access Management**: Access management refers to a set of techniques and standards to control access points along highways, major arterials, and other regionally-significant roadways.
- **Superstreets**: A superstreet design uses non-standard intersection and roadway crossing design to change the turning movements of a roadway in order to facilitate safety and improve traffic flow. Drivers on side-streets wanting to turn left or go straight must turn right onto the divided highway, and then make a U-turn through a median cut a short distance away from the intersection. After making the U-turn, drivers can either go

straight or make a right turn at their original intersection. This allows drivers to make the equivalent of a left turn or through movement.

- **NCDOT Strategic Highway Corridors Vision Plan**: This is NCDOT's plan that designates a limited number of in-state highways as Strategic Highway Corridors for the purpose of providing a network of high-speed, safe, and reliable highways throughout North Carolina.
- **Complete Streets**: This is NCDOT's policy to accommodate, whenever feasible, all modes of travel (e.g., pedestrian, bicycle, etc.) in designing new highways, arterials, and collector roads in North Carolina.
- **Bicycle & Pedestrian Treatments**: These are design attributes that are incorporated into transportation infrastructure projects, such as sidewalks, pedestrian signal heads, marked crosswalks, and separate bike lanes, to improve safety for bicyclists and pedestrians along transportation corridors.