

Elgin/Richland Northeast Sub-Area Plan



Final Report
June 2010



in conjunction with



BP Barber
Engineering • Experience • Excellence

and

Sprague & Sprague Consulting Engineers
Inner Image Designs



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- Appendix D Opinions of Probable Cost
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1. Introduction

In recent years, Northeast Richland County, and specifically the Town of Elgin, has experienced tremendous growth pressures from the Clemson Road/Two Notch Road area of Northeast Columbia. Over the past 10-15 years, US 1, the primary route through the sub-area, has seen increased traffic volumes associated with new development and commuter trips. To date, most delays along the corridor have been limited to peak hours and are of a short duration. However, modeling of future traffic conditions demonstrates that the present two-lane configuration will be inadequate to meet future volume demands. Therefore, it has become apparent that improvements to the transportation system and integrated land use policies will be necessary. Additionally, while improvement of the functionality of the entire transportation network in and around the Town of Elgin is important, preservation and enhancement of the community's character is paramount.

To address these concerns and provide a clear path for the future, the Central Midlands Council of Governments (CMCOG) undertook the Elgin/Richland Northeast (ERNE) Sub-Area Plan. This plan emphasizes and identifies key connections between transportation facilities and existing and future land uses within the study area. The plan also identifies and analyzes a range of multimodal transportation alternatives and land use strategies for implementation.





The ERNE Sub-Area Plan was formulated through a systematic and integrated planning process:

- Assessment of baseline information;
- Discussions with representatives from the Town of Elgin, Richland and Kershaw Counties, City of Columbia, South Carolina Department of Transportation (SCDOT), and local business groups through the Advisory Group and other targeted meetings;
- Examination of the needs of the transportation network and land use context;
- Formulation of a wide variety of alternative solutions that were developed and refined into recommendation scenarios and associated implementation plan; and
- Public comments solicited through a series of public information meetings conducted at key project milestones.

The document is divided into five sections. This **Introduction** provides a brief background to the sub-area plan and the process that was followed. Baseline information that documents the current reality of the study area is presented in **Existing Conditions**. **Technical Analyses** examines the challenges that needed to be addressed in both the transportation and land use contexts. **Recommendations** presents refined and fully developed planning, regulatory, and capital actions for implementation. Finally, **Implementation** outlines specific steps for moving the plan to reality.

1.1 Guiding Principles

From input provided by the community, three guiding principles were identified that directed the focus of the plan as it was developed:

- **Balance Transportation Improvements** – Improvements to the transportation network should appropriately balance capacity needs, preservation of community character, property access, mobility, variety of modes, and project magnitude.
- **Plan for Growth** – Understanding that growth is inevitable, it should be properly planned through coordinated land

development regulations in concert with transportation and infrastructure needs.

- **Enhance Identity** – Create a place to live, work, play, and stay with a rich quality of life that affords opportunities for civic, recreational, and environmental stewardship.

1.2 Study Area

The ERNE Sub-Area is approximately 37 square miles with a 2005 estimated population of 16,000 residents. The area's western boundary runs along Spears Creek Church Road from I-20 up to Bookman Road and Kelly Mill Road, then extending eastward into Kershaw County covering neighborhoods along Wildwood Drive and Watts Hill Drive. The study area then extends southward crossing I-20 to Fort Jackson Road. **Figure 1.2-1** graphically depicts the study area.

1.3 Previous Planning Documents

Several transportation, population, and land use documents that have been developed for the Central Midlands region in recent years were reviewed to identify applicability and opportunities to build upon previous efforts. The documents that were reviewed are noted below.

- *Midlands Tomorrow: 2035 Long Range Transportation Plan*, December 2008, CMCOG/COATS
- *COATS Regional Motor Freight Transportation Plan*, November 2008, CMCOG
- *Richland on the Move: Richland County Transportation Study*, July 2008, Richland County
- *Central Midlands Commuter Rail Feasibility Study*; July 2006, CMCOG
- *Bike & Pedestrian Pathways Plan*, March 2006, CMCOG
- *Town of Elgin, South Carolina, Comprehensive Plan*, November 2002, Town of Elgin, South Carolina



Content was reviewed to minimize redundant data collection, provide insight into the workings of the sub-area and its surrounding area, and gain understanding as to previous recommendations rationale. Summaries of these documents and their applicability to this study are included in **Appendix A**.

1.4 Public Participation

Public participation was essential to the success of the sub-area planning process; therefore, communication between the project team and the public was ongoing in the form of a Public Involvement Plan (PIP). This PIP consisted of three major parts: 1) an initial public planning charrette to develop guiding principles for moving the process forward; 2) an Advisory Group to provide overall guidance to the process; and 3) informing and soliciting comments/suggestions from the general public.

Advisory Group

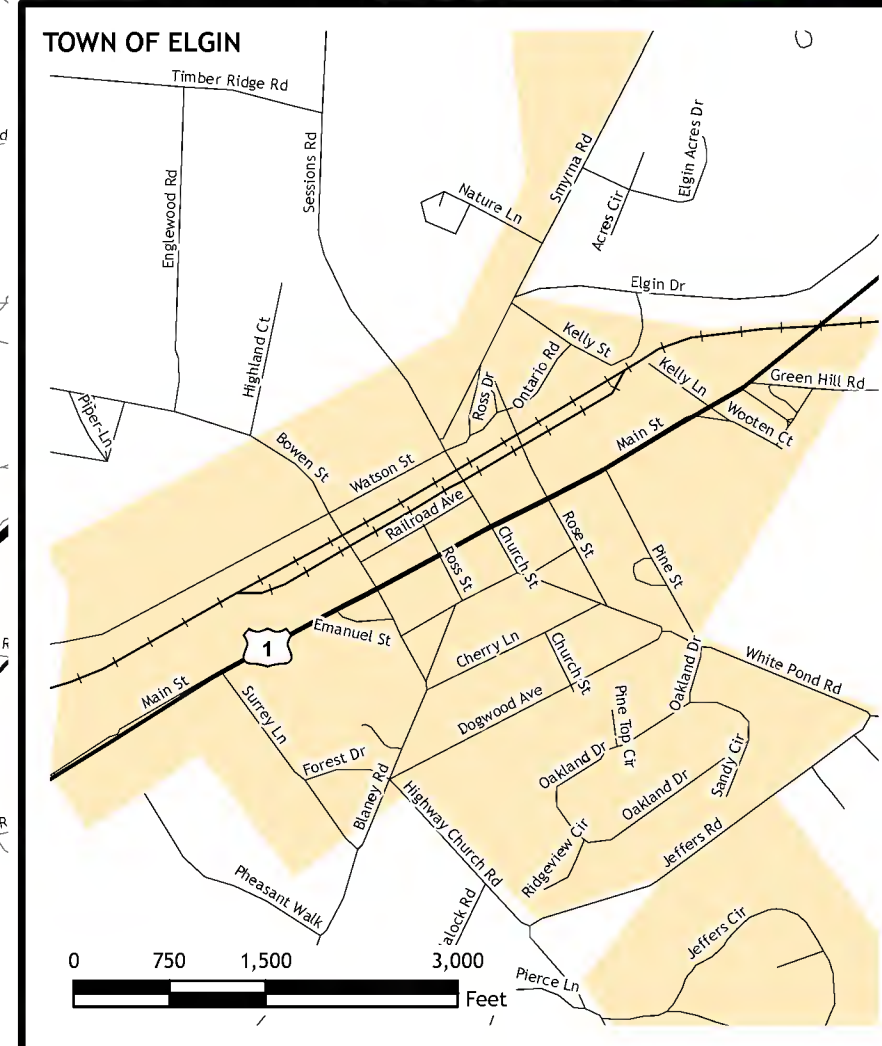
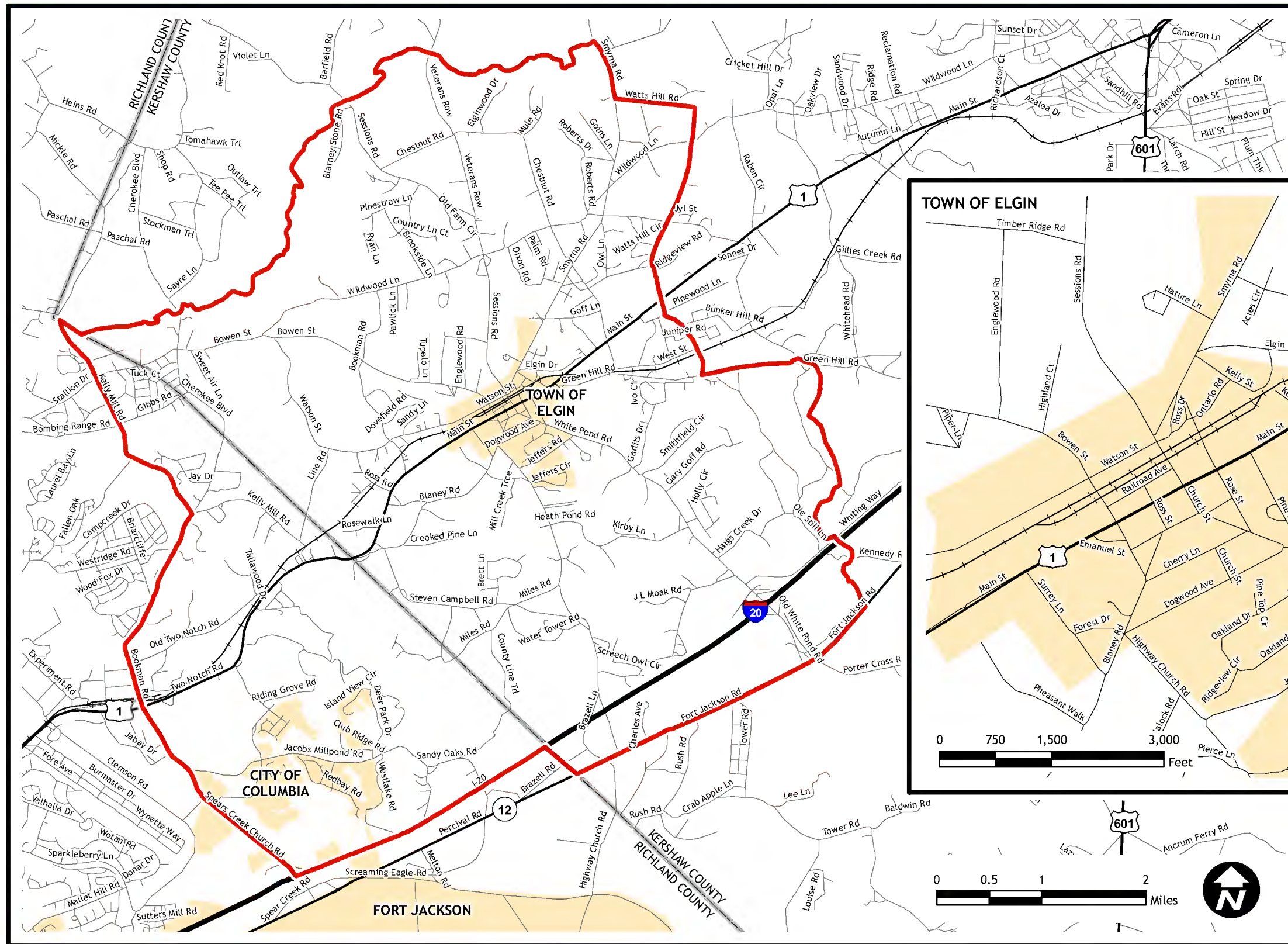
The Advisory Group provided oversight and guidance to the planning process. The members of the Advisory Group were selected given their particular expertise and involvement in the provision of the various modes of transportation services and/or guidance and regulation of development activities in the sub-area. Representatives from the following groups comprised the Advisory Group:

- CMCOG;
- Town of Elgin;
- Kershaw County;
- Richland County;
- City of Columbia;
- Local business leaders; and
- South Carolina Department of Transportation (SCDOT);

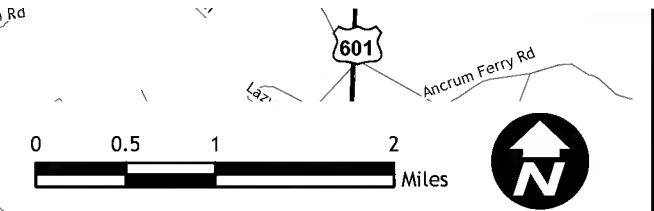
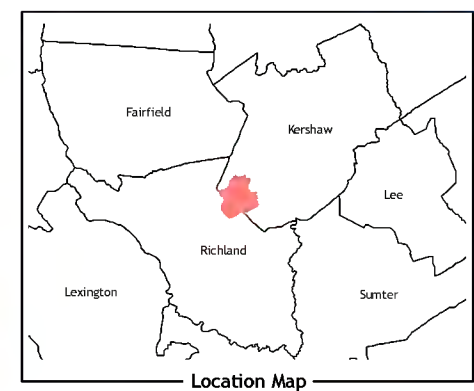
Understanding the scheduling demands faced by those serving on the Advisory Group, formal meetings of the group in its entirety was limited to three occasions. Additional one-on-one meetings with individual Advisory Group members were held as required throughout the study process.

Elgin/Richland Northeast Sub-Area Plan

Figure 1.2-1: Study Area



- Legend**
- Study Area
 - Interstates
 - US Highways
 - SC Highways
 - Local Roads
 - Railroads
 - County Boundary
 - Municipal Boundary



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Planning Charrette

To establish public ownership, engage key stakeholders, gain a clearer understanding of community values and guiding principles, and provide an opportunity to educate participants on the benefits of a balanced transportation and land use relationship, a planning charrette was held September 21-24, 2009.

Specific elements of the charrette process included:

- Active participation by over 40 individuals;
- Three focus group sessions;
- A public information meeting;
- A debrief/work session for the project team to compile and summarize information gathered; and
- A public meeting to summarize the process/findings of the charrette along with a question and answer period.



Opportunities for Public Comment

In order to solicit comments and ensure public acceptance of the alternatives/recommendations of the ERNE Sub-Area Plan, two public meetings were held (in addition to the planning charrette described above). The first meeting took place following the completion of the needs assessment and identification of draft transportation and land use solutions. The second public meeting occurred following the release of the draft plan.

Public information meetings were conducted in an open-house format to maximize citizen participation. Input obtained from each public meeting was considered throughout the remaining stages of the planning process and factored into subsequent technical memoranda, alternatives, and/or recommendations.

In addition to formal public meetings, fact sheets, fliers, and comment forms were distributed within the study area at key milestones in the planning process to solicit further public participation. All public outreach materials and comments received are on file and available for review at the CMCOG.

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2. Existing Conditions

To establish a baseline for analysis, existing conditions within the sub-area were inventoried. These are outlined in the sections that follow and include:

- Roadways;
- Bicycle and Pedestrian Facilities;
- Public Transit;
- Railroad; and
- Land Use Context.

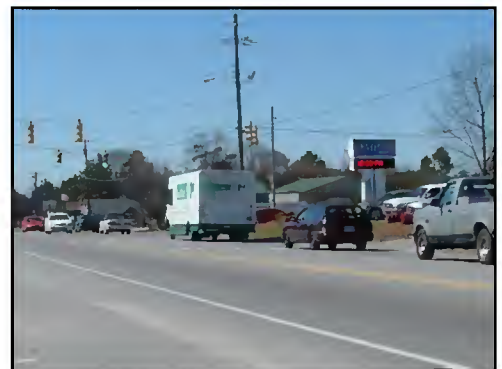
2.1 Roadways

With the exception of I-20, all roads within the study area are primarily two-lane road segments. Speed limits range from 35 mph to 45 mph in and around the Town of Elgin and 55 mph outside town limits. I-20's posted speed limit ranges from 60-70 mph.

Roadway traffic volumes, level of service, vehicle-miles of travel, and mileage by functional classification are evaluated using the COATS travel demand model. Major intersections and commuter travel behavior are evaluated based on field review and local expertise.

Roadway Classification

Roadway classification is a necessary step toward assessing and evaluating the effectiveness of the roadway network. Individual roads depend on surrounding and intersecting roads to create a functioning network. Currently, there are 80.88 miles of roadway within the study area encompassing all road types. The Federal Functional Classification System is used by SCDOT to classify roads in the study area by categorizing a road section based on attributes common to its role and function in the network. The different classifications are interstates, arterials, collectors, and local streets. **Figure 2.1-1** shows the functional class for the study area.



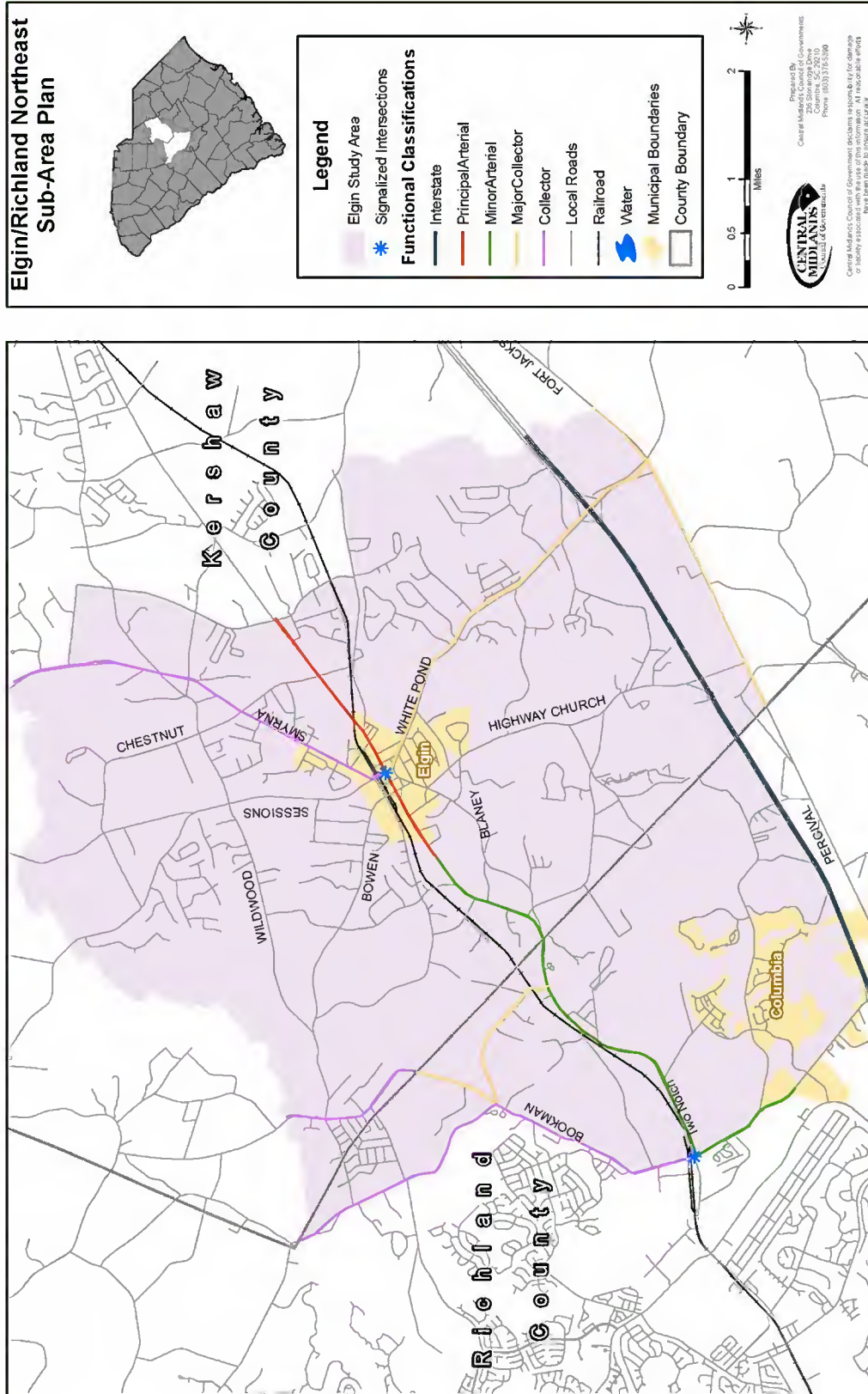


Figure 2.1-1: Functional Classification

Interstates

Interstates are significant highways featuring limited access and continuous, high-speed movements for a wide variety of traffic types. I-20 is the only interstate serving the study area, providing primary connector points between the study area and the City of Camden (and points northeast) and the City of Columbia (and areas south and west). Columbia is a major employment center for many residents of the study area and surrounding areas. Additionally, Camden and Columbia offer many alternative amenities and leisure activities that are attractive to the residents of the study area, such as shopping, dining, cultural arts, sporting events, and entertainment. I-20 provides a faster, more efficient means of commuting into the Columbia area, as opposed to US 1, a two-lane rural highway. I-20 parallels US 1 through the study area, but is located toward the southern edge of the sub-area with interchanges at Exits 82 and 87 (Spears Creek Church Road and White Pond Road, respectively). I-20 accounts for 12.33 miles of total roadway. The 2005 Annual Average Daily Traffic (AADT) on this roadway was 42,750 vehicles per day (vpd).

Arterials

Arterials (classified as major or minor) are roads that connect activity centers and carry large volumes of traffic at moderate speeds. The arterial system in the study area totals approximately 7.7 miles, consisting of 1.89 miles of major arterials and 5.81 miles of minor arterials. There are four major arterials in the study area: US 1 (Two Notch Road/Main Street), Spears Creek Church Road, White Pond Road, and Percival Road (SC 12). All arterials, with the exception of Spears Creek Church Road, provide direct access to downtown Columbia and serve as prime routes for traffic in the morning and evening peak hours. Spears Creek Church Road is a north-south route that relieves congestion off the busy two-lane US 1 and provides commuters with another access to I-20. The AADT on arterial roadways in the study area averages 10,100 vpd on major arterials and 10,400 vpd on minor arterials. US 1 carries the majority of the traffic with approximately 10,300 vpd as it enters the Columbia city limits.

Collectors

Collectors typically allow access to activity centers from residential areas. Collectors can also be categorized as major

and minor, depending on the urbanized or rural setting. Their purpose is to collect traffic from streets in residential and commercial areas and distribute it to the arterial system. The collector system in the study area consists of 22.25 total miles with a collector roadway average of 681 vpd in the study area.

Local Streets

Local Streets feed the collector system from low volume residential and commercial areas. Local streets are usually found in subdivisions and rural areas. Local streets account for 37.06 miles within the study area. AADT volumes were not available for local streets, as SCDOT collects AADTs for only a limited number of local roadways across the state.

Traffic Volumes

Roadway statistics evaluated in this report show the ERNE Sub-Area has five major roadways and two signalized intersections. In addition to I-20, the other four are US 1 (Two Notch Road/Main Street), SC 12 (Percival Road), White Pond Road, and Spears Creek Church Road. **Table 2.1-1** shows the 2000 and 2005 AADT count and the projected 2010, 2025, and 2035 AADT volumes and percent changes along these roads.

Table 2.1-1
Major Roadway Traffic Volumes

Roadway	AADT*					PERCENT CHANGE		
	2000	2005	2010	2025	2035	00-05	00-25	00-35
US 1 (Main St/Two Notch Rd)	8,733	10,300	11,904	16,516	19,591	17.9%	89.1%	124.3%
SC 12 (Percival Rd)	1,875	2,250	2,690	3,870	4,657	20.0%	106.4%	148.4%
White Pond Rd	3,850	4,150	5,577	8,469	10,396	7.8%	120.0%	170.0%
I-20	35,300	42,750	47,205	67,038	80,260	21.1%	89.9%	127.4%
Spears Creek Rd	6,100	8,000	9,520	14,552	17,907	31.1%	138.6%	193.6%

*All SCDOT roadway count stations were averaged to provide AADT.

SCDOT traffic counts in the study area reveal significant growth trends occurring along I-20, US 1, SC 12, and Spears Creek Church Road. This can be attributed to the large

residential growth the area has experienced in recent years. As the table indicates, the study area is on course to transform from a rural low-density residential area into a more residential suburban area as time passes.

Planned Roadway Improvements

The study area currently has no planned improvements of roadways in the current *COATS Transportation Improvement Program 2009-2015*. However, according to the *COATS Midlands Tomorrow 2035 LRTP*, there are several widening and intersection projects located in the study area. The COATS list identified a total of 66 prioritized widening projects (i.e., widening the existing two-lane roadway to five lanes) and 58 intersection projects. Of these, **Tables 2.1-2** and **2.1-3** present the widening and intersection projects (by ranking) that are pertinent to the study area (see **Figure 2.1-2**).



Table 2.1-2
LRTP Widening Projects

Rank	Route Name	Project Limits	Length
1*	Two Notch Road (US 1)	Steven Campbell Rd to end of Spears Creek Church Rd	2.34
17	Jefferson Davis Hwy (US 1)	Steven Campbell Rd to Sessions Rd	1.95
32	Jefferson Davis Hwy (US 1)	Sessions Rd to Watts Hill Rd	1.76
35	SC 12 (Percival Rd)	Spears Creek Church Rd to Highway Church Rd	2.73
38	Spears Creek Church Rd	1-20 to Two Notch Rd (US 1)	2.25
43	White Pond Rd	Jefferson Davis Hwy (US 1) to Heath Pond Rd	2.10
60	Bookman Rd	Robinhood Rd to Two Notch Rd (US 1)	3.88

* Only Two Notch Road (US 1) is identified in the COATS 2035 Cost Constrained Project List, which identifies those projects with funding over the next 30 years.

Table 2.1-3
LRTP Intersection Improvement Projects

Rank	Major Route	Minor Route	Proposed Improvement
35	Church St./Sessions Rd	Smyrna Rd	Traffic signal and/or possible redesign
42	Main St (US 1)	Pine St	Left Turn lane on US 1
53	Blaney Rd	Forest Rd/Highway Church Rd/Dogwood Ln	Traffic signal and/or possible redesign

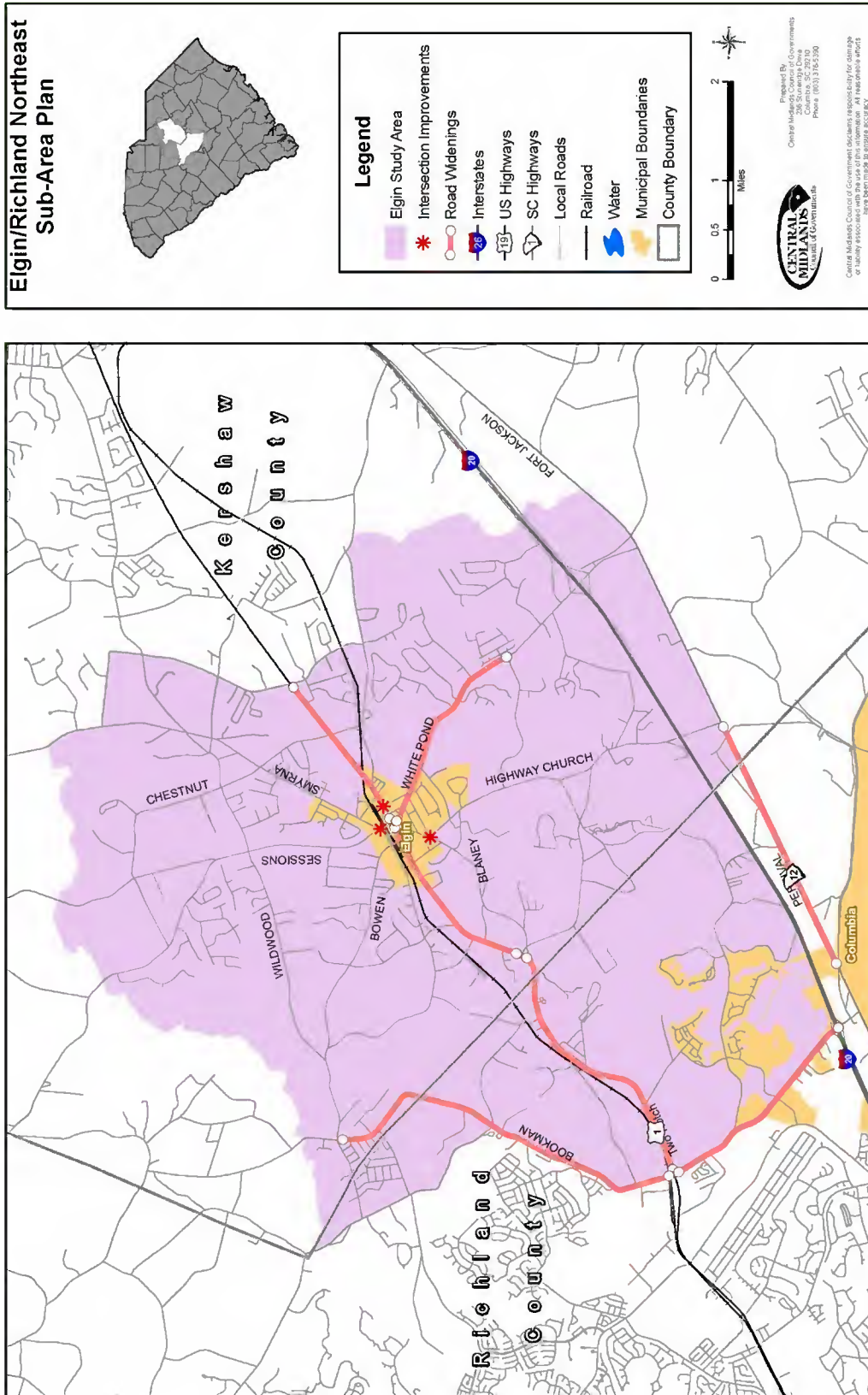


Figure 2.1-2: LRTP Projects

2.2 Bicycle and Pedestrian Facilities

Figure 2.2-1 depicts the current bicycle and pedestrian facilities in the study area. Existing facilities were identified available mapping, site visits, and discussions with town officials. It was observed that most pedestrian traffic occurs along portions of US 1 (Main Street in the Town of Elgin and Two Notch Road in the unincorporated area of Pontiac). Along these sections of US 1, there are sidewalks around the intersection of Spears Creek Church Road. Closer to Elgin, sidewalks are located only on one side along US 1 from Rose Street to Greenhill Road. Also, there are sidewalks along Smyrna Road from Church St/Sessions Road to Blaney Elementary School. Several neighborhoods, particularly on the Richland County side, have sidewalks; however, those sidewalks are primarily for internal use with no connections to the outside arterial street. It was also observed that limited pedestrian safety measures exist at the schools (two elementary and one middle), but outside of these site-specific amenities, only one crosswalk and pedestrian signal exist in the study area; they are located across Church Street where it intersects with Main Street (US 1). Otherwise, no pedestrian amenities such as crosswalks, street furniture, wayfinding signage, or caution lights currently exist in the study area. No bike lanes or wide shoulders were identified throughout the area.

In discussions with some Elgin town officials and residents, there is strong support for more sidewalks in the town, particularly along both sides of Main Street from the Elgin Branch of the Kershaw County Library to Green Hill Road. Main Street is the hub of the Elgin business district. The current vehicular congestion along Main Street has had a negative impact on business as people seek alternative routes to get through town.



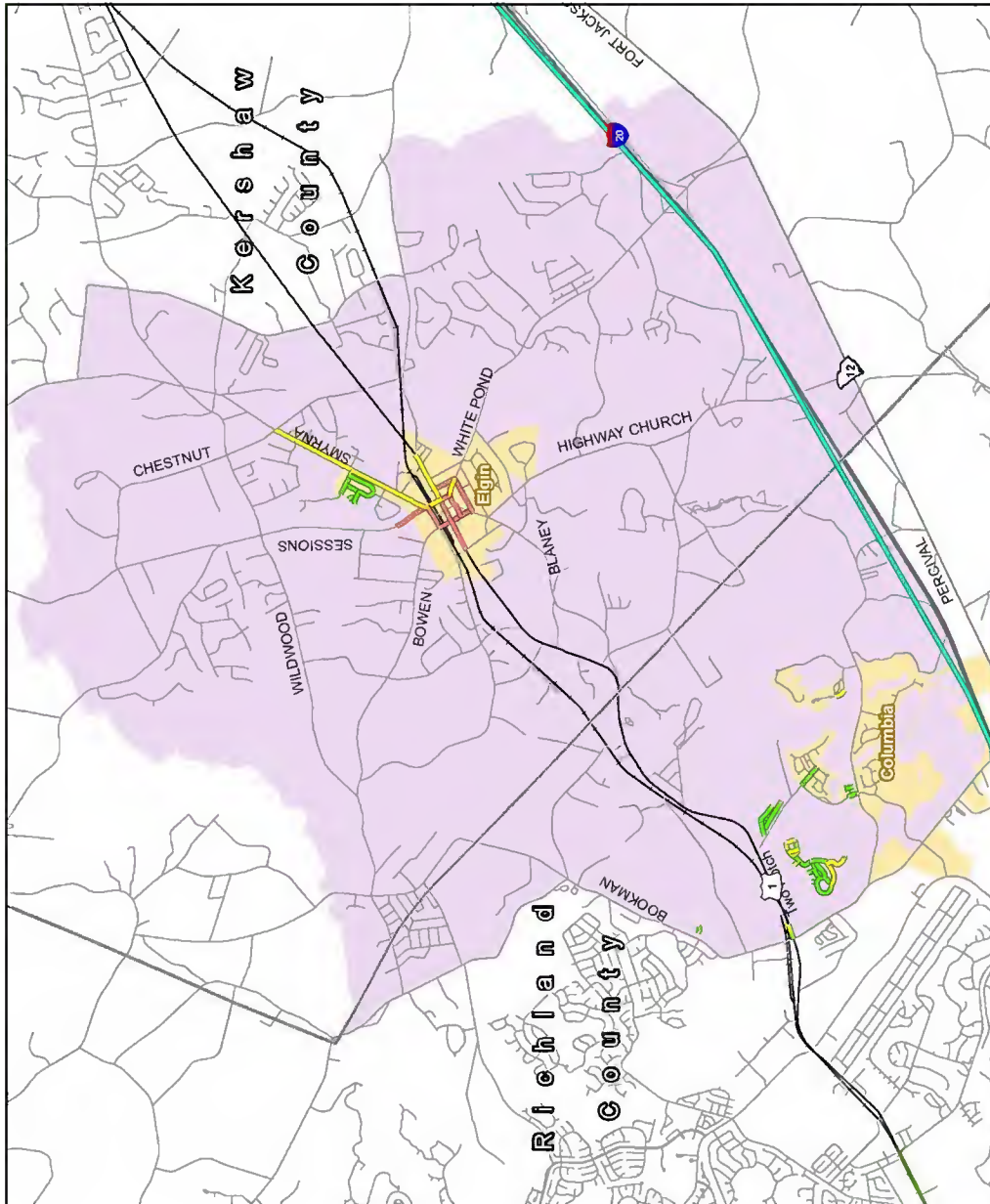
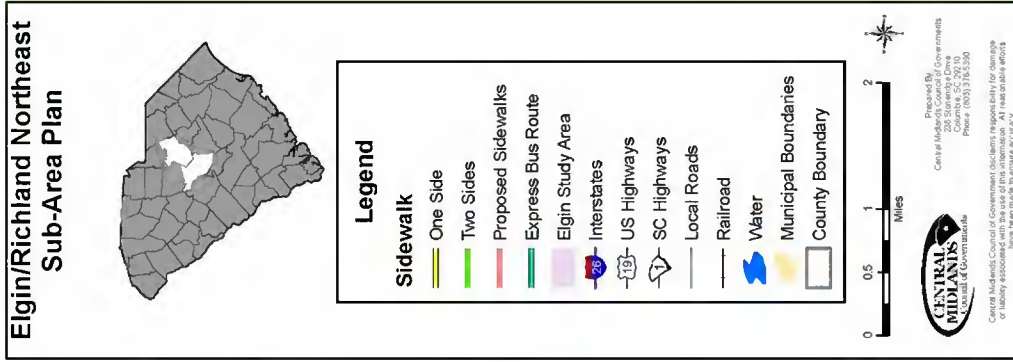


Figure 2.2-1: Bicycle and Pedestrian Facilities

According to residents and officials, having more sidewalks would impact the town economically and not to mention, all the transportation, social, and recreational purposes it would serve. For instance, instead of having to travel by car to various town destinations, such as Town Hall, grocery stores, library, and local businesses and offices along Main Street (US 1), many residents would simply prefer to walk. Town officials would like to see pedestrian connections not only to the school complex on Symrna Road, but also to the Town Recreation Park (and tennis courts), businesses along Main Street, and neighborhoods along Bowen Street, Blaney Road, Cherry Lane, and White Pond Road. These desired locations are depicted as “proposed sidewalks” as part of Figure 2.2-1 (a more detailed evaluation of future bicycle and pedestrian connections is included in Section 3.3).

While there are no current planned pedestrian and bike improvements in the study area, the *COATS Bike and Pedestrian Pathways Plan* does recommend bike-pedestrian improvements to US 1 in and through the Town of Elgin: a minimum of four-foot shoulders on each side of the roadway. This is evaluated further in the “Analyses” section of this plan.

2.3 Public Transit

Identification of public transit facilities in the study area were undertaken through consultations with CMCOG, Central Midlands Regional Transit Authority (CMRTA), and Santee-Wateree Regional Transit Authority (SWRTA).

CMRTA

CMRTA provides both local fixed-route service and on-demand paratransit service for the Columbia area. Presently, the CMRTA’s closest fixed-route service, Route 35 (Dentsville Express/Village at Sandhills), terminates at US 1 and Clemson Road approximately one mile west of the study area.

Expansion of CMRTA service into the study area is not a possibility at this time. The CMRTA does not have a dedicated source of funding and until one is identified, no expansions of service will occur. In fact, in recent months the CMRTA has reduced service due to funding challenges. Two studies (one

completed and the other in progress) will assist in remedying this problem.

Richland County Transportation Study

The Richland County Transportation Study conducted in 2008 focused heavily on the viability, sustainability, and expansion of transit, specifically CMRTA. It identified a range of recommendations for improving the system and generating capital for operations and maintenance. The study recommended a one-cent sales tax be established, with one-quarter of the tax being dedicated to transit. County Council did not move that recommendation forward for a referendum in 2008 but is considering such a tax again. To that end, the County is having the study updated. This update was not yet available at the publication of this sub-area plan. It is important to note that recommendations from the 2008 study did not include any service within the ERNE Sub-Area; further, any recommendations included in the study update now underway will be specific to Richland County and, at best, would only affect the portions of the ERNE Sub-Area within Richland County.

CMRTA Comprehensive Operations Analysis

The CMRTA recently completed a Comprehensive Operations Analysis (COA) of its entire system. This analysis was recommended by the 2008 Richland County Transportation Study and was funded jointly by the County and the Federal Transit Administration (FTA). The Executive Summary of the COA identifies near-term, short-range, and long-range adjustments that will be implemented if/when CMRTA secures a dedicated funding source.

The Executive Summary of the COA states that CMRTA service needs to be more reliable, connect more places together, and be accessible to more of the community. The northern boundary of Fort Jackson and the Two Notch Road corridor are both sited as areas where service is needed. However, specific recommended improvements are limited to the first and second suburban rings of Columbia and do not encompass locations within the ERNE Sub-Area.

SWRTA SmartRide

SWRTA operates the SmartRide commuter bus service between Camden, Lugoff, and Columbia. SmartRide service passes through the study area on I-20, but does not stop within the study area. Currently, two routes exist, both starting in Camden; one departs at 6:00 a.m. and the other at 7:00 a.m. Three stops are provided in Camden, one in Lugoff, and eleven in downtown Columbia with connecting services via CMRTA (transfer is included in SmartRide fare). Fares for the service are \$2.00 one way, \$4.00 roundtrip, and \$20.00 weekly. Total average daily ridership for both routes is 38.

2.4 Railroads

Railroad tracks run west to east paralleling US 1 in and through the Town of Elgin, then under US 1 on the east side of town where it parallels US 1 to the south until the community of Lugoff. CSX Transportation owns the rail line. The line is referenced as the Hamlet Subdivision, which is part of the larger Florence Division or Florence “Service Lane” of CSX’s Southern Region (“Service Lane” is a term generally assigned to a line containing key corridor routes.)



According to the Federal Railroad Administration (FRA) an average of six trains traverse the study area twice a day. The typical speed of these trains is between 55 and 60 mph. There are a total of ten railroad crossings in the study area; all but one (at US 1) are at-grade crossings. Three crossings are located on the Richland County side, while the remaining seven are located within Elgin town limits. **Table 2.4-1** identifies these crossings, along with the most recent average annual daily traffic counts (AADT) and the most recent average number of school bus crossings. Each of these crossings is equipped with traffic control devices that include advanced warning signals, cross bucks, and pavement markings. Over the past twenty years, there has only been one incident reported: a train and vehicle collision at the Bookman Road crossing (August 2004).

Daytime crossings are from the hours of 6:00 a.m. to 6:00 p.m. Nighttime crossings are from the hours of 6:00 p.m. to 6:00 a.m. Switching movements involve a single train crossing the roadway multiple times in order to serve local businesses. Of

those trains engaged in switching movements, the FRA does not designate whether these movements occur during daytime or nighttime hours.

Table 2.4-1
Railroad Crossing Inventory

Crossing #	Street Name	County	AADT	AADT Year	# School Bus Crossings
634281N	Bookman Rd	Richland	3500	1989	0
634280G	Old Two Notch Rd	Richland	275	1989	0
634279M	Kelly Mill Rd	Richland	250	1989	0
634278F	Ross Rd	Kershaw	425	2006	5
634277Y	Bookman Rd	Kershaw	555	2006	3
634276S	Bowen St	Kershaw	2460	2006	2
634275K	Church St	Kershaw	7360	2006	20
634274D	US 1 Highway	Kershaw	-	2006	-
634273W	West St	Kershaw	80	1990	0
634272P	Watts Hill Rd	Kershaw	745	2006	0

Perhaps the busiest of these ten railroad crossings is the Church Street crossing. The Church Street corridor serves as the key north-south route for commuters, primarily because of its proximity to downtown Elgin and the middle and elementary school complex. According to FRA, twenty school buses pass through this intersection daily. Providing safe access for vehicles and pedestrians across these crossings is crucial to both the short and long term mobility needs of the residents in the study area.

2.5 Land Use Context

This section presents information on the existing land use characteristics of the sub-area, pertinent development regulations, and future land use within the study area.

Land Use Patterns

Figure 2.5-1 depicts existing land use patterns across the study area. The majority of uses are consistent with conventional expectations for rural communities, wherein most of the study area is rural residential/agricultural, except along major roads. Along the US 1 corridor, land use patterns include development types such as:

- Commercial (general office, general commercial and, within the Town of Elgin, downtown commercial);
- Rural-scale residential;
- Public and institutional (such as government and religious);
- Light industrial; and
- Large tracts of vacant land.

In general, land use patterns are most dense along US 1 in proximity to the Spears Creek Church Road intersection and the Elgin municipal limits. Land uses in proximity of these sections are dominated by commercial and general type uses, such as service stations, banks, convenience/drug stores, shops, beauty salons, and recreational uses, like a skating rink. Other major roads in the sub-area, such as Spears Creek Church, White Pond, and Sessions Roads, have less dense development. The dominant land use along these corridors, as well as throughout the study area, is rural low-density residential. There are a few occurrences of multifamily residential near the intersection of Old National Highway and US 1, along Percival Road, and along Watson Street (near the western town limits of Elgin).



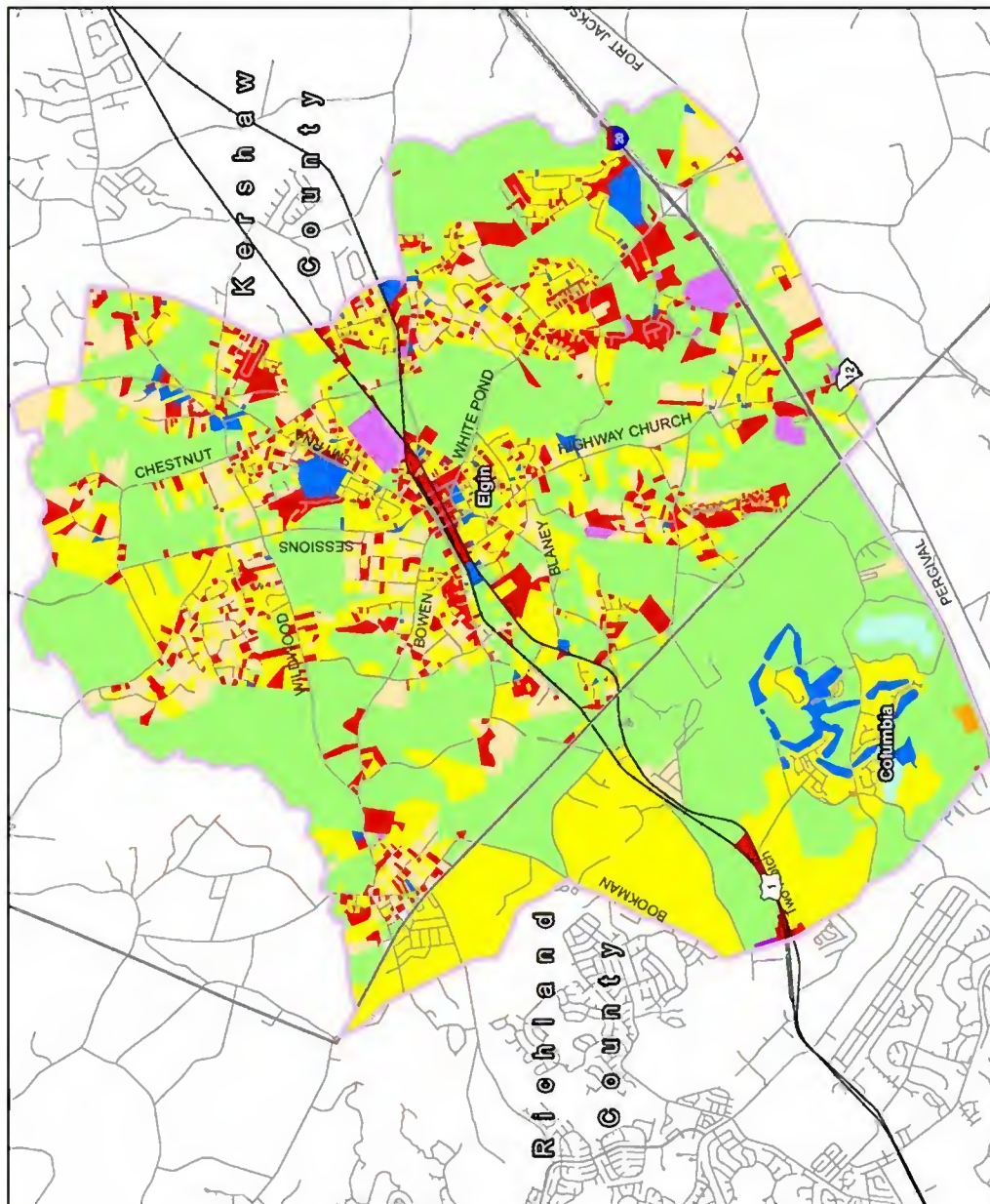
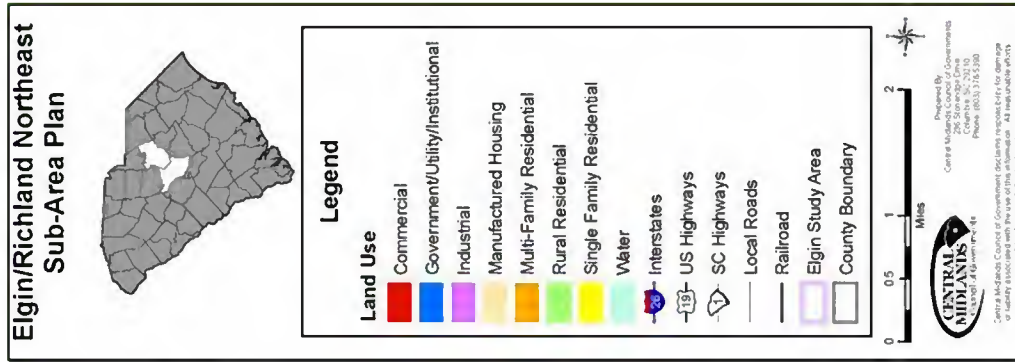


Figure 2.5-1: Existing Land Use

Zoning

The study area includes four jurisdictions, each with its own zoning ordinance and set of zoning classifications and definitions. In order to capture and convey the proper intent of each zoning district in the study area, a cross-analysis was performed and the various zoning districts were organized into five main categories: Rural/Agriculture, Residential Low Density, Residential High Density, Commercial/Office, and Industrial. These zoning categories are summarized in **Table 2.5-1** and depicted in **Figure 2.5-2**.

Table 2.5-1
Aggregated Zoning Classifications

Zoning Category	Description
Rural / Agricultural	Very rural residential. Emphasis is on protecting natural resource areas that include, but are not limited to, agricultural lands, woodlands, and wetlands.
Residential Low Density	Primarily low to medium density single family housing, accommodating single-family and two-family residential development.
Residential High Density	Accommodates higher density residential and special type residential uses. High density residential housing types on small lots in proximity to major streets and commercial uses AND/OR Planned Development Districts (PDD) encouraging flexibility in the zoning of the land to promote mixed, best use with surrounding properties.
Commercial / Office	Primarily for nonresidential, commercial, office, and/or institutional uses.
Industrial	Heavy & light manufacturing uses.

Zoning in the Richland County section (which includes City of Columbia zones) varies between rural scale residential, general commercial/office and light industrial. Of these, the most predominant is rural residential, which is prevalent throughout much of the western side of the study area from Bookman Road down to I-20. The orange colored areas denote the planned development districts, of which Richland County foresees as future medium-density housing. Like existing land use, most of the nonresidential zones are scattered. Most commercial and office zones are located along portions of US 1 (particularly at the Spears Creek Church Road intersection) and beyond the Spears Creek Church Road/I-20/Percival Road area. Light Industrial is located near the county line along I-20 near Exit 87 White Pond Road.

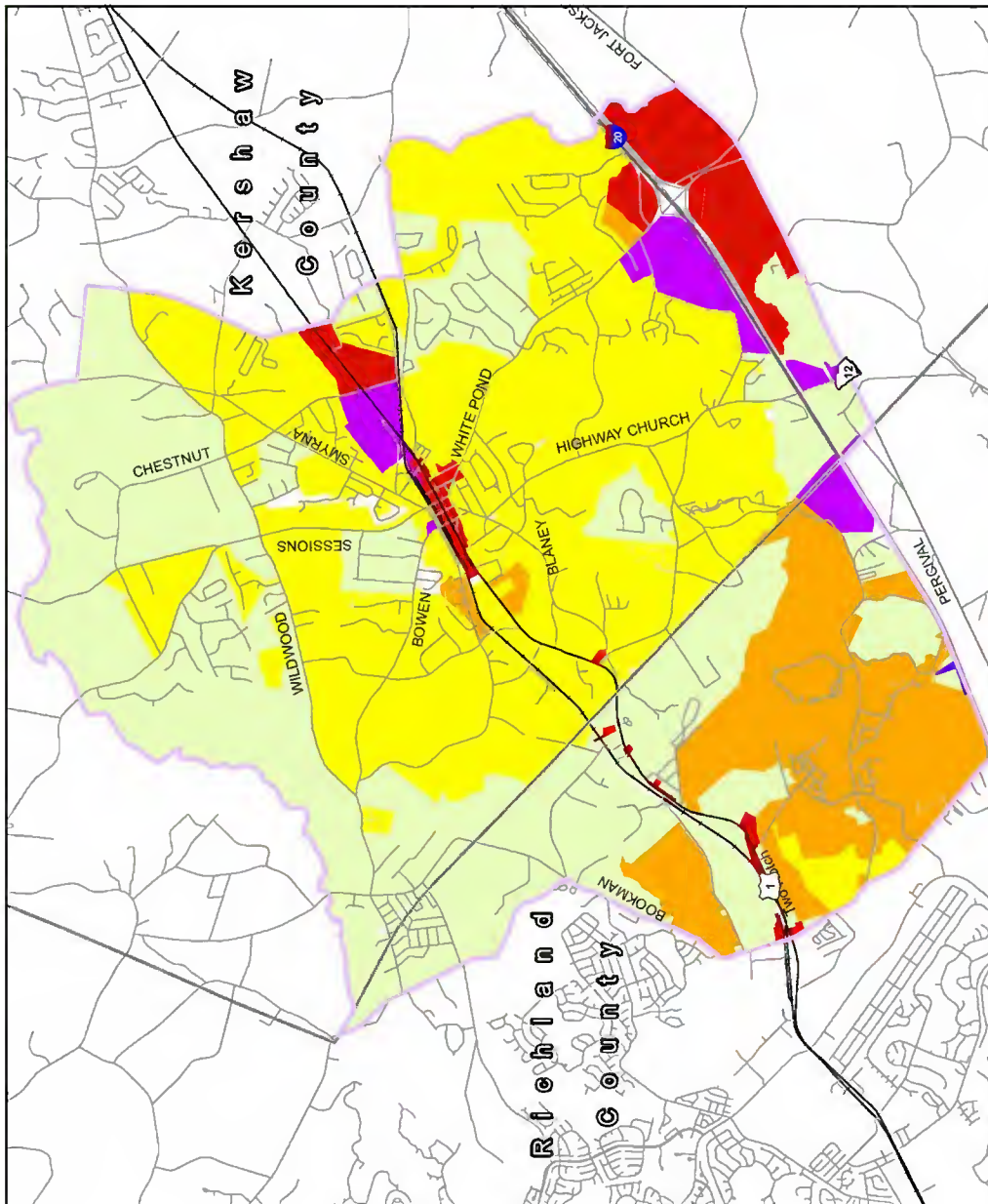
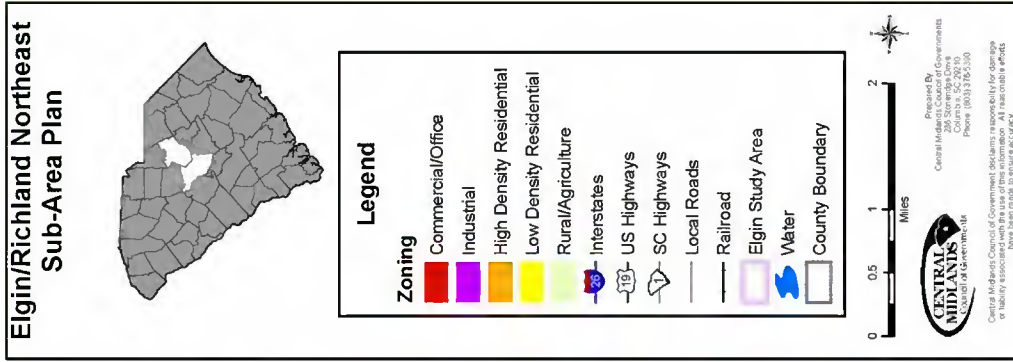


Figure 2.5-2: Existing Zoning

The same zoning patterns continue on the Kershaw County side, approaching and surrounding the Town of Elgin. Rural residential dominates the unincorporated areas of Kershaw County as well as in the Elgin municipal limits. There is only one section of multifamily zoning, which is located near the western boundary of the Elgin town limits. Commercial, office, and some light industrial saturate both sides of US 1 through Elgin and proceed eastward along US 1 toward the eastern boundary of the study area. In addition, large tracts of light and heavy industrial as well as general commercial/office occur in proximity to the I-20/White Pond Road intersection.

Land Development Regulations

Municipal land development regulations serve as a means to ensure the progressive development of land while preserving the basic health, safety, and general quality of life of the public. Land development regulations cover traditional subdivisions, group developments, and planned developments.

In examining the land development regulations for Kershaw County, Richland County, Town of Elgin, and City of Columbia, there were many similarities and very few differences. The process for acquiring approval of the subdivision of property is essentially three steps: submittal of a sketch plan; preliminary plan/plat; and final plan/plat. The first two steps must be completed prior to making any infrastructure improvements, while the final plat is submitted once streets and utilities are in place, but before any lots are sold or building permits are issued. Group developments, such as shopping centers, office park, and apartment complexes, require submittal of a site plan and in some instances a traffic impact study (in accordance with improvements outlined in that jurisdiction's zoning ordinance).

When subdividing land, the land development regulations institute design standards that address:

- Traffic impact;
- Vehicle and pedestrian safety;



- Potential impact of noise, lights, fumes, or obstruction of air flow on adjoining properties;
- Adverse impact of proposed use on aesthetic character of the environment (i.e. screening); and
- Orientation and spacing of improvements or buildings.



These standards establish the minimum acceptable specifications for various “public” elements of new developments, including right-of-way and pavement widths, block and lot dimensions, easement placement, curbs and gutters, open space (common areas), and placement of street trees. For Richland County, subdivisions greater than 50 lots or projects requiring new infrastructure must install sidewalks along roads abutting the development and must submit a traffic management plan. A traffic management plan is also required by Kershaw County and the Town of Elgin for subdivisions greater than 40 lots or planned development or commercial projects other than subdivisions. The City of Columbia encourages the planting of street trees and stresses that streets and/or walkways be designed to provide convenient access to adjoining parks, playgrounds, schools, and other places of public assembly.

Future Land Use Patterns

Evaluating future land use for the study area was done primarily by viewing future land use maps for Richland County, Kershaw County, and the City of Columbia. According to the *2009 Richland County Comprehensive Plan*, the Richland County section of the study area will continue to see an influx of suburban-type single family development. Therefore, according to the Richland County Future Land Use Map, that area is labeled “Suburban Residential,” which calls for:

- Medium density housing, between four and eight dwelling units per acre;
- Multimodal street design that accommodates automobiles, transit, bicycling, and walking;
- Residential areas to contain a mix of residential and civic land uses;
- Commercial/office activities to locate at traffic junctions or areas where existing commercial and office uses are

located and not encroaching on established residential areas;

- Industrial activities to be compatible with surrounding land uses and should not locate near residential or commercial uses without adequate space for buffering/setbacks;
- Public facilities such as schools, libraries, and recreation centers should be located where they reinforce neighborhoods and communities; and
- Recreational uses are to be located in areas adjacent to or within residential developments with provisions for connectivity to the surrounding area.

The Elgin area is recognized as part of the West Wateree Planning Area by Kershaw County Planning Officials. According to the Future Land Use Map for the West Wateree area (as indicated in the Kershaw County Comprehensive Plan (2006-2016)), areas in proximity to the Town of Elgin are primarily labeled “Economic Development Areas.” These are areas where infrastructure development is most intense and higher density residential developments are more appropriate. This would suggest that most of greater Elgin would be comprised of development that would pertain to business, commercial, employment, and other nonresidential service uses. Residential development located within these economic development areas could shorten the time and distance between the workplace and home. **Figure 2.5-3** is a composite depiction of the study area, based upon information illustrated in the future land use maps of both counties. To provide consistency, standards from the Kershaw County Comprehensive Plan were used based on **Table 2.5-2** on the following page.

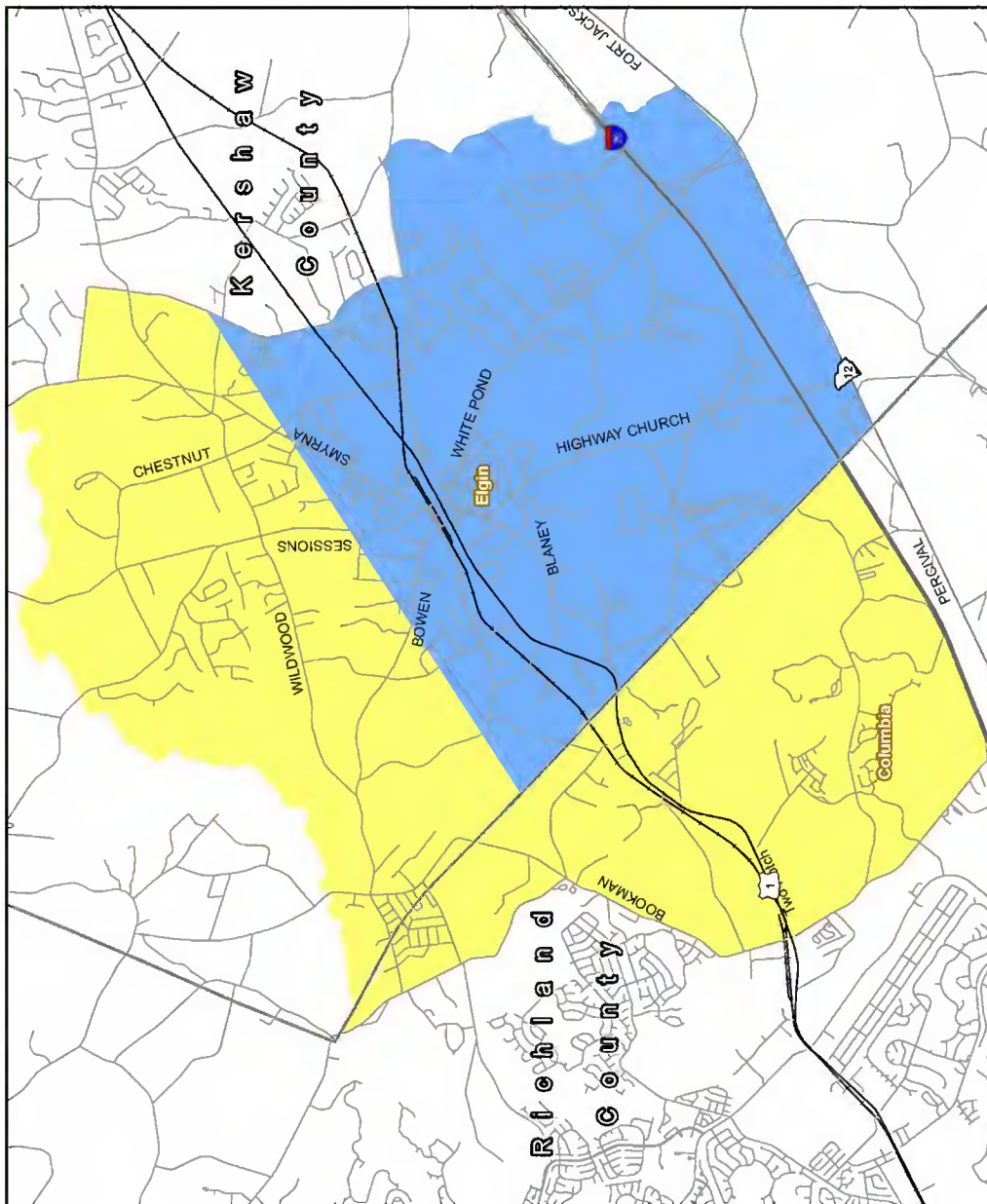


Figure 2.5-3: Future Land Use

Table 2.5-2
Aggregated Future Land Use Categories*

CODE	GENERALIZED LAND USE CLASSIFICATIONS
ED	<p>ED – ECONOMIC DEVELOPMENT AREAS</p> <p>Contain the full range of business, commercial, employment, industrial, institutional, and service uses and are projected to accommodate the bulk of such development in the future. Residential development located with ED areas could shorten the time and distance between the work place and home. As infrastructure development is most intense in the ED areas, higher density residential developments are more appropriate. Many existing residential developments are located in ED designated areas. The principals applied to Residential Development areas below will also apply to residential enclaves within in the ED areas.</p>
RD	<p>RD - RESIDENTIAL DEVELOPMENT AREAS</p> <p>Typically characterized by suburban developments beginning on the periphery of the urban core and spreading outward into the unincorporated areas of the County, although some suburban areas are under municipal jurisdiction. Also included in the RD land use classification are the associated non-residential uses that support the residents such as institutional, retail and office commercial, and service businesses. Regional commercial centers and industrial development would typically be reserved for areas receiving Economic Development land use classifications.</p>
RR	<p>RR – RURAL RESOURCE DEVELOPMENT AREAS</p> <p>Most areas classified RR on the plan map generally are outside the path of projected development, characteristically rural and predominantly undeveloped at this time. Few changes to these areas are anticipated during the ten-year life of this Plan (2007 – 2017). This, however, is not to minimize the importance of these areas to the County. Open lands, woodlands and wetlands are essential to clean air, water, wildlife, and many natural cycles, and a balanced environment. Therefore, they should be protected from encroachment or misuse. This also includes the retention of agricultural lands, equine farm lands, water resources, and historical places, many of which are located in the RR Area shown on the Future Land Use Plan Map. The importance of these areas may be measured in economic and development terms. And their protection and enhancement are considered critical to the general welfare of the County.</p>
CP	<p>CP CONSERVATION AND PROTECTED AREAS</p> <p>Conservation areas include existing public parks and preserves and land under private conservation easements. Conservation areas also include jurisdictional wetlands, flood plains, and protected species habitat. These CP areas can be located within ED, RD, and RR land uses areas, and should be protected - regardless of their delineation on the future land use map</p> <p>Other no-growth areas include lands that are undevelopable because of unstable and/highly erodible topography such as steep slopes and soil types unsuitable for construction. Development on these lands will be restricted regardless of their delineation on the future land use map.</p>

*Based on Kershaw County Comprehensive Plan Future Land Use Categories

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3. Technical Analyses

To determine the needs of the transportation network and land use context of the ERNE Sub-Area, several technical analyses were performed. These are outlined in the sections that follow and include:

- Traffic Operations Analysis;
- Transit Analysis;
- Bicycle and Pedestrian Analysis; and
- Development Trends Analysis.

3.1 Traffic Operations Analysis

The purpose of the traffic operations analysis was to identify critical intersections in the study area for review.¹ The intersections were selected by obtaining input from citizens who participated in the public meetings for the sub-area plan and by preliminary observations in the field. Various levels of review were conducted:

- **Primary intersections selected for conducting capacity analysis** – These intersections were selected for capacity analysis, and turning movement counts were conducted. These intersections were selected for this more detailed review because they are two of the larger volume intersections in the study area.
 - Main Street/Church Street
 - White Pond Road/Whiting Way
- **Primary intersections selected for suggesting geometric changes** – These intersections were selected for review, and turning movement counts were conducted. Potential geometric changes were considered, but detailed analyses were not conducted.
 - Bookman Road/Kelly Mill Road

¹ No interstate interchanges were analyzed, as this was not included in the scope of this sub-area plan.

- Blaney Road/Highway Church Road/Dogwood Avenue/Forest Drive
 - Main Street/Pine Street
 - Sessions Road/Smyrna Road/Watson Road
 - Watts Hill Road/Eskie Dixon Road
 - Smyrna Road/Wildwood Lane
- **Secondary intersections selected for suggesting geometric changes** – These intersections were selected for review but only 24-hour automatic counts were conducted:
- Bowen Road/Wildwood Lane
 - Main Street/Green Hill Road

Traffic Volumes

Existing Traffic Volumes

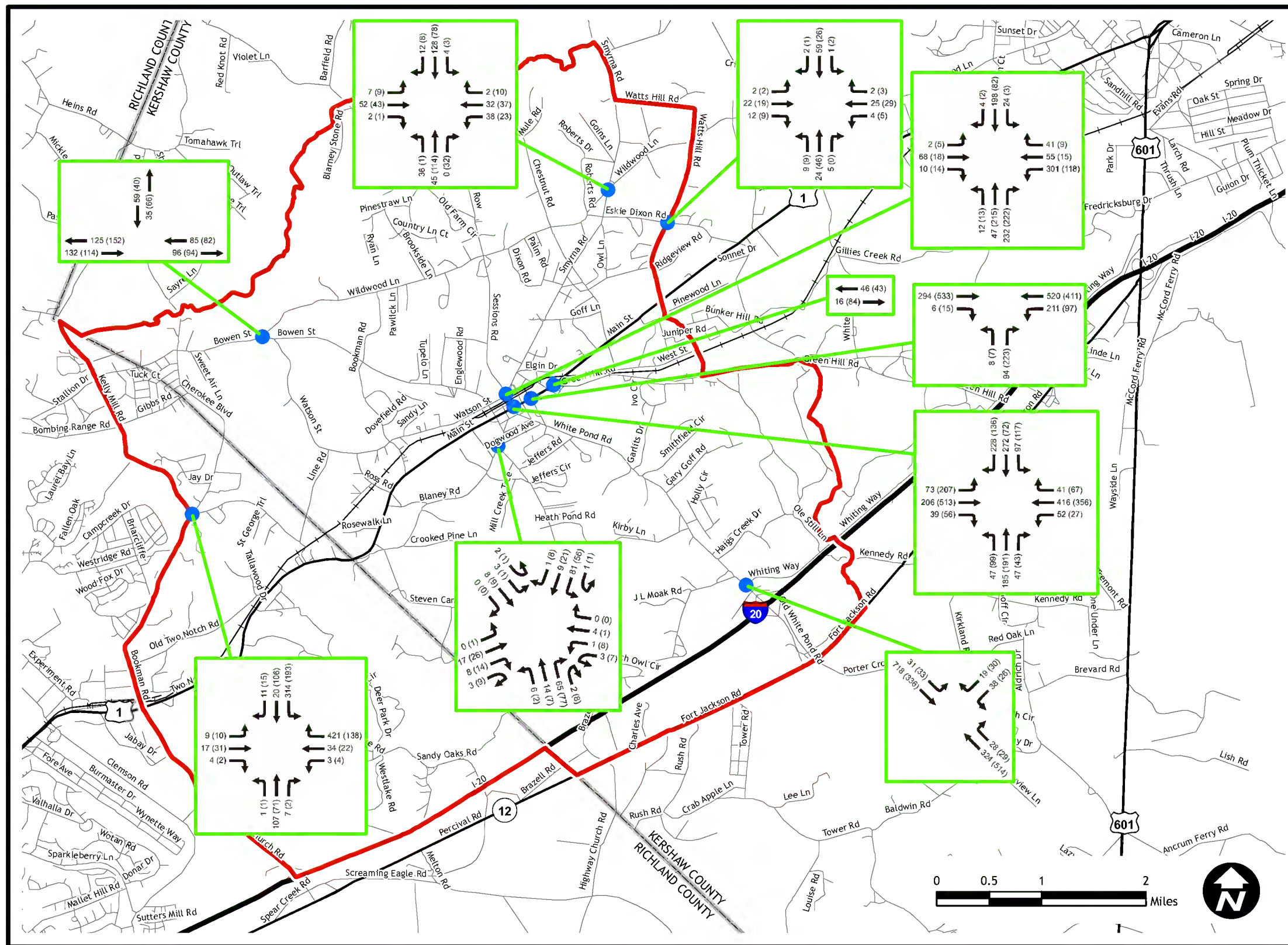
In November 2009, manual turning movement counts were conducted between 7:00 a.m. and 9:00 a.m. and between 4:00 p.m. and 6:00 p.m., and automatic counts were conducted for 24 hours. Peak hours were identified, and the morning and afternoon peak hour volumes are shown in **Figure 3.1-1**.

Future Traffic Volumes

Traffic volumes for the design year of 2035 were estimated by using the outputs of the regional transportation model maintained by CMCOG for the Columbia Area Transportation Study (COATS). For the legs of the primary and secondary intersections, the 2005 and 2035 volumes were obtained from the model and an equivalent annual growth was calculated. These growth rates are shown in **Figure 3.1-2**.

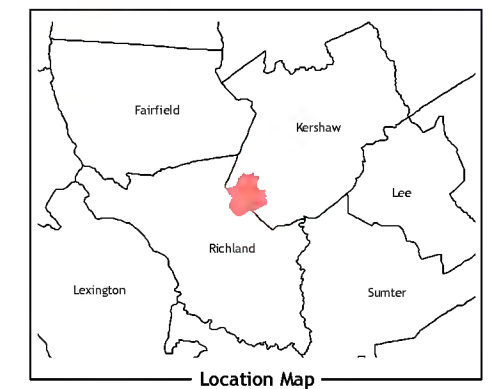
Elgin/Richland Northeast Sub-Area Plan

Figure 3.1-1: 2009 Peak Hour Volumes



Legend

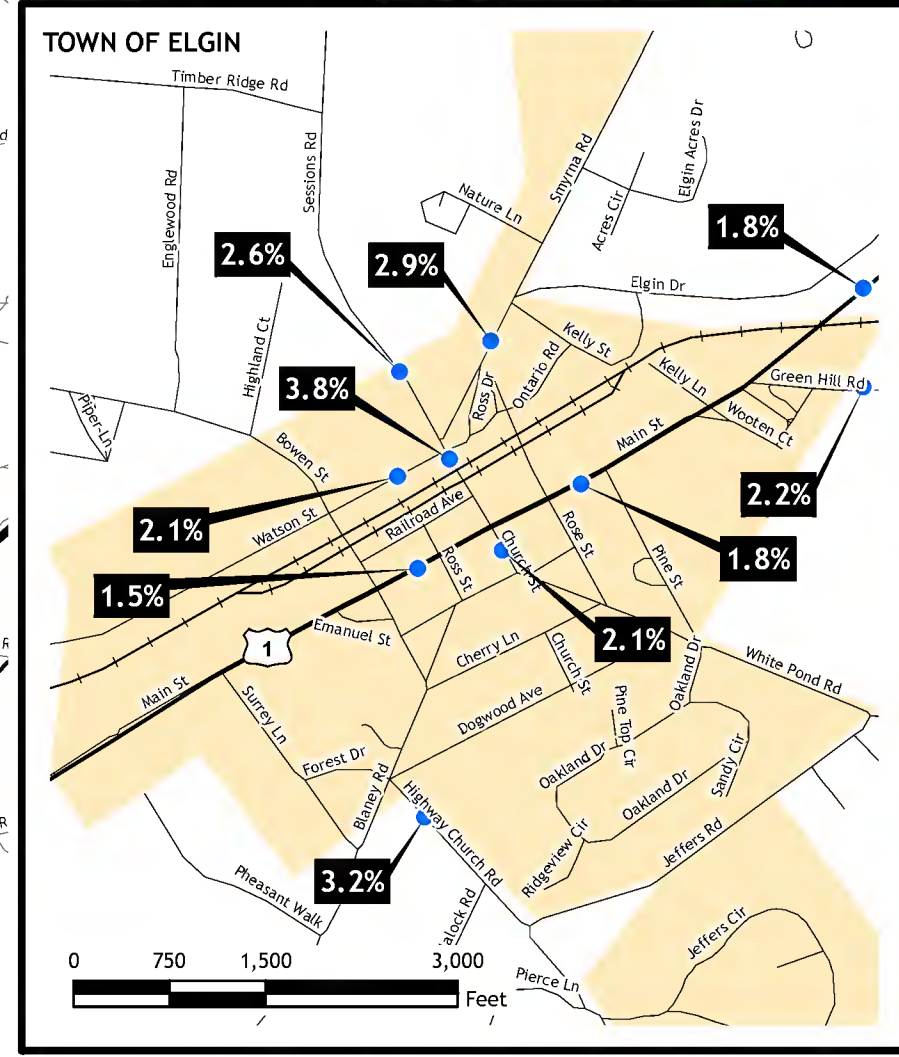
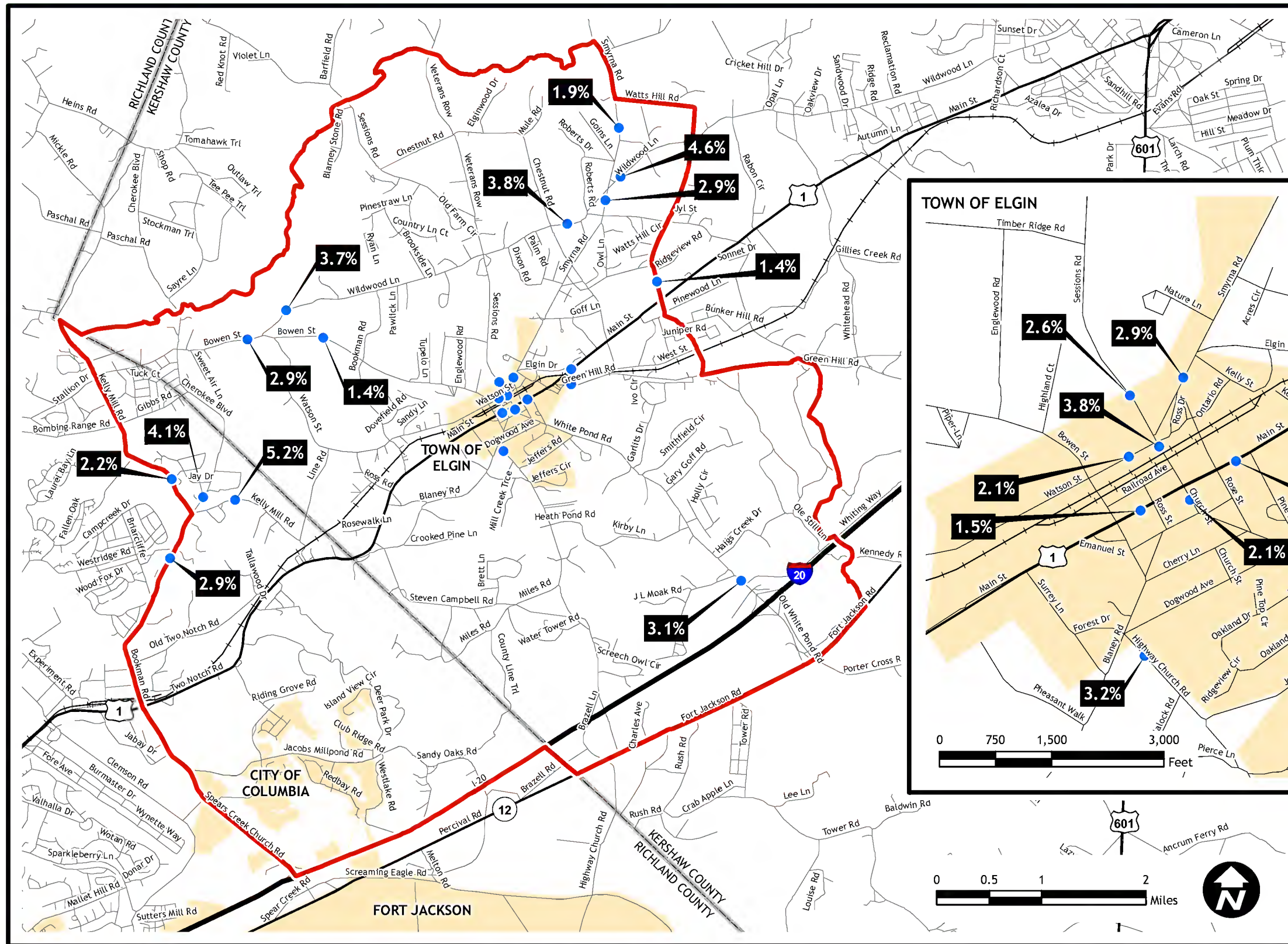
- 123 AM Peak Hour Volume
- (123) PM Peak Hour Volume
- Study Area
- Interstates
- US Highways
- SC Highways
- Local Roads
- Railroads
- County Boundary
- Municipal Boundary



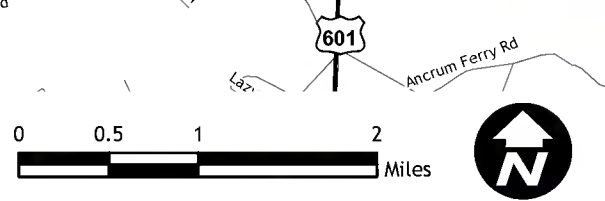
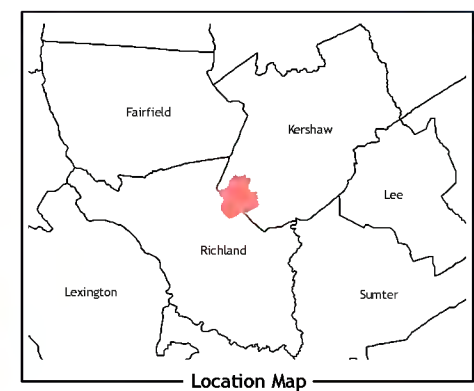
Central Midlands Council of Governments and BP Barber disclaim responsibility for damage or liability associated with the use of this information. All reasonable efforts have been made to ensure accuracy.

Elgin/Richland Northeast Sub-Area Plan

Figure 3.1-2: Equivalent Annual Traffic Growth



- Legend**
- Study Area
 - Interstates
 - US Highways
 - SC Highways
 - Local Roads
 - Railroads
 - County Boundary
 - Municipal Boundary



Central Midlands Council of Governments and BP Barber disclaim responsibility for damage or liability associated with the use of this information. All reasonable efforts have been made to ensure accuracy.

The growth was applied for a period of 26 years to the 2009 volumes to obtain the 2035 volumes shown in **Figure 3.1-3**. Where model volumes were not available to estimate a specific growth rate for a leg of an intersection, a growth rate of two percent was utilized. The growth rate was applied to the approach volumes on the leg for which the growth rate was calculated. For the purposes of this study, no attempt was made to balance exiting and entering volumes. This is reasonable because at most of the study intersections, the growth rates on all legs are similar.

Capacity Analyses

To this point, the *quantity* of traffic flow has been discussed, but the purpose of the study is to examine the *quality* of traffic flow. The methodology used in this study for assessing the quality of traffic flow is the methodology described in the 2000 *Highway Capacity Manual* (HCM), Transportation Research Board. In general, the HCM expresses quality of flow in terms of Level of Service (LOS). The types of transportation facilities which will be examined in this study are signalized and unsignalized intersections.

The criteria for the signalized intersection LOS are shown in **Table 3.1-1**, and the criteria for the unsignalized intersection are shown in **Table 3.1-2**. The variable used is control delay. This is the delay attributed to traffic control measures and includes deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Usually, at a signalized intersection LOS D is considered the lowest acceptable LOS.

Table 3.1-1
Signalized Intersection LOS Criteria

Level of Service	Control Delay Range (seconds/vehicle)
A	<10
B	>10 and <20
C	>20 and <35
D	>35 and <55
E	>55 and <80
F	>80

Table 3.1-2
Unsignalized Intersection LOS Criteria

Level of Service	Control Delay Range (seconds/vehicle)
A	< 10
B	>10 and <15
C	>15 and <25
D	>25 and <35
E	>35 and <50
F	>50

Peak hour factors and percentages of heavy vehicles were taken from existing counts. Lane widths were measured from aerial photographs, and grades were considered not to be an issue. Signal timings were optimized.

Main Street/Church Street

This is the intersection of the two principal non-interstate roads in the study area. The intersection is signalized, and every approach has a left turn lane and a through/right lane. At this intersection, Main Street is considered eastbound/westbound. Citizens participating in the public input sessions for the area plan requested that a left turn phase be provided from Main to Church. The eastbound left does meet the cross product of 50,000 which is a guideline for providing a left turn phase.

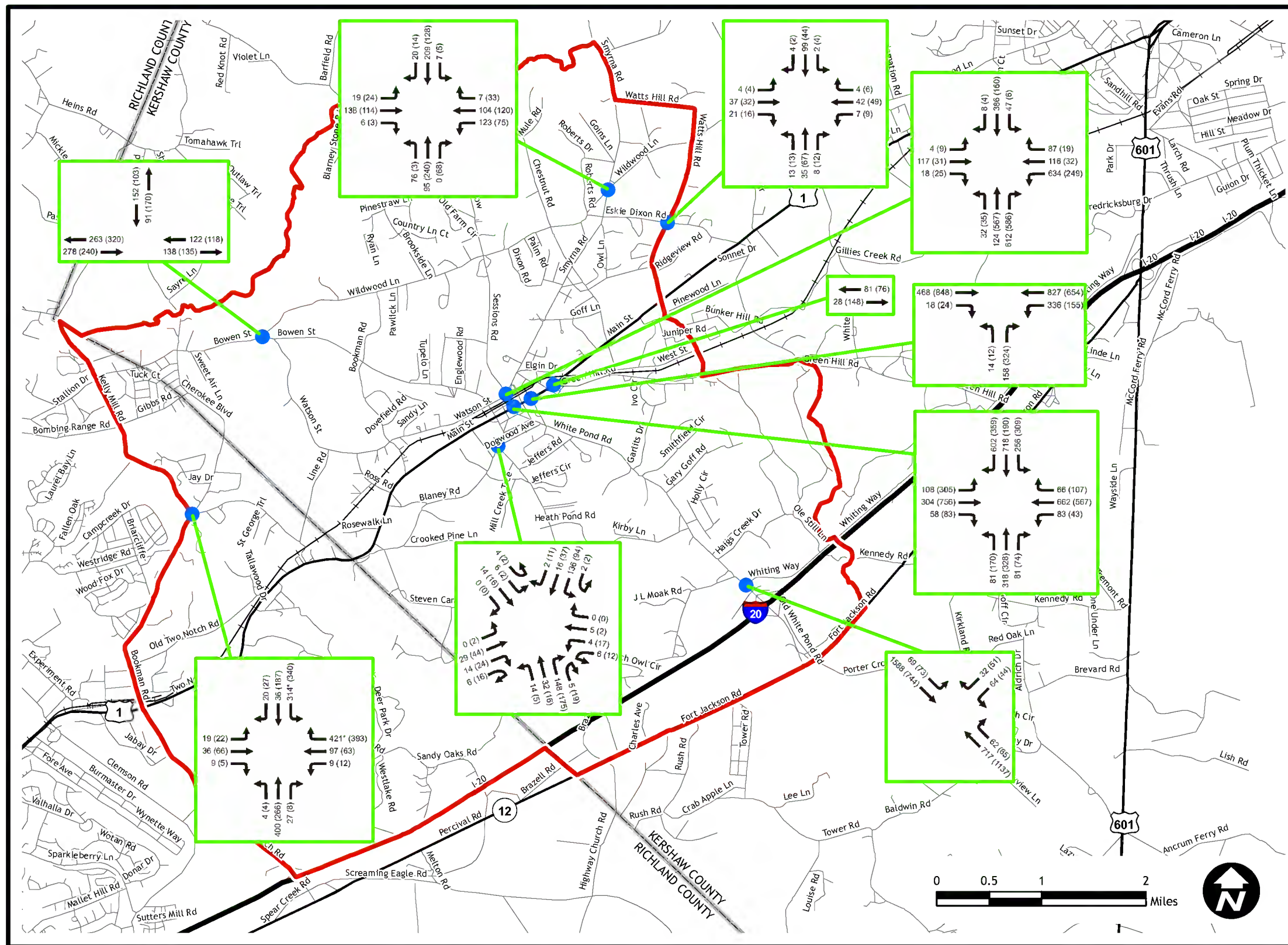
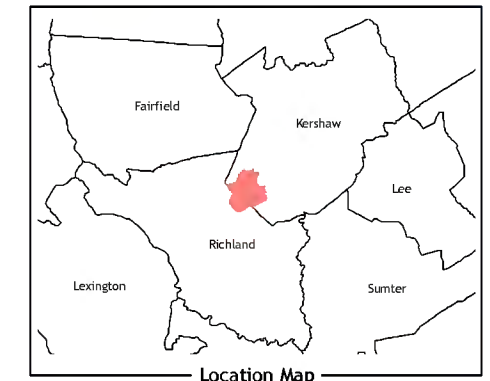
The results of the capacity analyses for Main/Church are shown in **Table 3.1-3** for morning peak hour and in **Table 3.1-4** for afternoon peak hour and indicate that the intersection currently operates acceptably overall. The intersection can still operate acceptably with the addition of the eastbound left turn phase, but the LOS is reduced to D in the morning. Therefore, the addition of a southbound right turn lane was considered, and that addition would bring the LOS back to the existing level.

Elgin/Richland Northeast Sub-Area Plan

Figure 3.1-3: 2035 Estimated Peak Hour Volumes

- Legend**
- 123 AM Peak Hour Volume
 - (123) PM Peak Hour Volume
 - Study Area
 - Interstates
 - US Highways
 - SC Highways
 - Local Roads
 - Railroads
 - County Boundary
 - Municipal Boundary

* Because these volumes are heavily influenced by school traffic they were not increased for 2035.



Central Midlands Council of Governments and BP Barber disclaim responsibility for damage or liability associated with the use of this information. All reasonable efforts have been made to ensure accuracy.

By 2035, however, the intersection will operate at LOS F even with the addition of the southbound right turn lane. Even the addition of a southbound left turn phase (not shown in the table), does not lift the intersection to LOS D. Only the addition of more through lanes on either Main or Church or shifting some or all of the traffic traveling through Elgin away from this intersection will allow this intersection to operate acceptably in the future. The addition of the southbound right turn lane will be needed to reduce delay until through street widening or shifting can be accomplished.

Table 3.1-3
Main Street/Church Street AM Peak Capacity Analysis

Movement	2009			2035	
	Existing Geometry & Phasing	Existing Geometry/ Add EB LTP	Add SB LTL & EB LTP	Add SB LTL & EB LTP	
	LOS/Delay	LOS/Delay	LOS/Delay	LOS/Delay	
EB Left	C/22	C/20	B/14	F/391	
	Through/right	B/12	B/14	A/10	C/25
WB Left	B/12	C/21	B/15	C/30	
	Through/right	C/26	D/50	C/29	F/195
NB Left	B/16	D/40	C/22	F/630	
	Through/right	B/15	C/25	C/27	D/43
SB Left	B/15	C/27	C/34	F/664	
	Through/right	C/28	D/44	C/25	F/94
	Right		B/17	E/62	
Overall	C/22	D/36	C/23	F/175	

Notes:

- LOS = Level of Service
- Delay is in seconds per vehicle.
- Eastbound (EB); Westbound (WB); Northbound (NB); Southbound (SB)
- Main Street is eastbound/westbound; Church Street is northbound/southbound
- Left turn phase (LTP); Left turn lane (LTL)

Table 2-4
Main Street/Church Street PM Peak Capacity Analysis

Movement	2009			2035
	Existing Geometry & Phasing	Existing Geometry/ Add EB LTP	Add SB LTL & EB LTP	Add SB LTL & EB LTP
	LOS/Delay	LOS/Delay	LOS/Delay	LOS/Delay
EB Left	B/16	C/30	B/18	F/257
	Through/right	B/11	A/9	D/41
WB Left	A/7	B/11	B/12	D/42
	Through/right	A/9	B/18	F/192
NB Left	C/22	C/28	C/22	D/40
	Through/right	C/23	C/28	D/41
SB Left	C/24	C/31	C/34	F/567
	Through/right	C/23	C/27	C/30
	Right		B/12	B/18
Overall	B/15	C/20	B/18	F/140

Notes:

- LOS = Level of Service
- Delay is in seconds per vehicle.
- Eastbound (EB); Westbound (WB); Northbound (NB); Southbound (SB)
- Main Street is eastbound/westbound; Church Street is northbound/southbound
- Left turn phase (LTP); Left turn lane (LTL)

White Pond Road/Whiting Way

Whiting Way serves as the frontage road to I-20 and intersects White Pond Road just north of the westbound ramp intersection. The intersection is controlled by a stop sign on Whiting. As shown in **Table 3.1-5**, the side street currently operates at LOS E in the morning peak hour, but that is not unusual for a side street at an unsignalized intersection. By 2035, however, delay on the side street will be so high that it

cannot be expressed by this analysis. Therefore, another form of traffic control will have to be considered.

As shown in **Table 3.1-6**, capacity analyses were conducted for the intersection under signal control in 2035. The intersection will operate acceptably in the afternoon but will operate at LOS F in the morning. Additional lanes on White Pond will be needed to allow the intersection to operate at an acceptable LOS in 2035. It must be noted that the volumes projected at this intersection assumed a two percent per year growth rate on the side street. Development of some of the large parcels along the frontage road could easily cause side street volumes to be higher than projected.

There is currently no turn lane on White Pond at Whiting. In general, it is desirable to have a left turn lane on the major street at a driveway or side street so that vehicles stopped to turn left have a place to store outside the through lane. This arrangement reduces the potential for rear end collisions. The disadvantages of the additional lane are the maintenance costs and the additional run-off caused by a paved surface as well as the accident potential during construction.

Because the addition of a left turn lane has both advantages and disadvantages, it is appropriate to determine if the traffic volumes at the intersection are such that the advantages of the lane would outweigh the disadvantages. Although there is little in the way of formal analysis available for the suburban street which White Pond is becoming, the *South Carolina Highway Design Manual, 2003* does offer guidelines for two-lane highways. That guideline was checked for existing volumes and indicates that a left turn lane should be considered on White Pond at Whiting.

Table 3.1-5
White Pond Road/Whiting Way Capacity Analysis - Unsignalized

Movement		Morning Peak Hour		Afternoon Peak Hour	
		Level of Service/Delay		Level of Service/Delay	
		2009	2035	2009	2035
WB –	Left/right	E/36	F/*	C/19	F/707
SB –	Left	A/8	B/11	A/9	B/13

Notes:

- Westbound (WB); Southbound (SB)
- Delay is in seconds per vehicle
- *Delay is so high it cannot be expressed by this analysis.

Table 3.1-6
White Pond Road/Whiting Way Capacity Analysis – Signalized 2035

Movement		Morning Peak Hour	Afternoon Peak Hour
		Level of Service/Delay	Level of Service/Delay
WB –	Left	E/66	E/62
	Right	E/62	E/65
NB –	Through/right	A/4	B/12
SB –	Left	A/2	A/3
	Through	F/137	A/4
Overall		F/92	B/11

Notes:

- Westbound (WB); Northbound (NB); Southbound (SB)
- Delay is in seconds per vehicle

Other Intersections

Most of the roads in the study area are two-lane roads with widths less than the standard 24 feet and little or no shoulders. Therefore, widening to a minimum road width

with at least a two-foot shoulder should be considered for all roads in the study area.

- **Smyrna Road/Wildwood Lane** – Wildwood is under stop sign control at this intersection. Because the road intersects at small angles, there are various confusing channelized movements at the intersection. The volumes are low with low left turn volumes on Smyrna. Although Wildwood is expected to have a higher traffic growth rate, Smyrna is expected to maintain the higher volume of the two, but the difference between the two is expected to shrink. The treatment of this intersection in the future should be considered in an overall plan for Wildwood, which will increasingly serve as a thoroughfare north of Elgin. Treatment of intersections and accommodation of existing residences will be factors.
- **Smyrna Road/Sessions Road/Watson Street** – The acute angle of the intersection of Smyrna with Sessions is compounded by the confusing stop control at this intersection. Short-term preparations must be made for signalization of this intersection. Although the Sessions to Smyrna volume is high, the Sessions through volume is similar. Therefore, Smyrna should be brought into Sessions at more of a 90 degree angle, and a left turn lane should be added on Sessions. Longer term, a shift of through traffic away from this intersection should be considered.
- **Dogwood Avenue/Blanney Road/Forest Drive/Highway Church Road** – Volumes at this intersection are low and are expected to continue to be so. The unusual angles of this five-legged intersection make traffic control confusing.
- **Main Street/Pine Street** – The side street volumes at this intersection are primarily right turns, making it difficult to justify a signal at this time. However, the left turn volume from Main onto Pine is high, and it is likely that signalization is inevitable. In addition, Pine Street could be part of a plan to shift some through traffic from Smyrna.
- **Watts Hill Road/Eskie Dixon Road** – The low volumes and low left turns at this intersection are expected to continue

through 2035. It appears, however, there could be a challenge in getting drivers to stop on the side street at this rural intersection, especially as volumes increase, even if slightly. Two fatal collisions have occurred at this intersection in the past five years.

- **Kelly Mill Road/Bookman Road** – It appears that changes have been made recently to this intersection to accommodate school traffic, but preparations should be made for signalization. The northbound Bookman to eastbound Kelly Mill movement has a larger percentage of trucks and the current turning radius is not adequate to accommodate them.
- **Bowen Street/Wildwood Lane** – Traffic is nearly evenly split between Wildwood and Bowen to the east. Although greater growth is expected on Wildwood than on Bowen to the east, traffic is projected to still be relatively evenly split in 2035. Reconfiguration of this intersection should be considered as part of a larger plan for the Wildwood Lane corridor as a whole.
- **Main Street/Green Hill Road** – Volumes on Green Hill near Main Street are low and are expected to stay low through 2035. The topography adjacent to the intersection makes any intersection improvements difficult.

3.2 Transit Analysis

Currently, there is no public transit service within the study area to analyze. However, the two regional providers with service in close proximity to the study area, CMRTA and SWRTA, were interviewed to determine the potential for future service.

Expansion of CMRTA service into the study area is not a possibility at this time. The CMRTA does not have a dedicated source of funding and until one is identified, no expansions of service will occur. However, based on the recommendations and strategies to come out of the Richland County Transportation Study and the Comprehensive Operations Analysis (see Section 2.3), service in the study area may be feasible in the future.

Interest in providing SmartRide stops in the Elgin and Northeast Richland areas has been expressed to SWRTA by a number of citizens and employers. SWRTA is open to considering such requests, but presently funding is not adequate to do so. Additionally, consideration must be given to the efficiency of adding additional stops to existing routes. With each additional stop, time is added to the total trip time; if this time increases too much, then the service will no longer be efficient for those that utilize it, as it will be functioning more like a local service rather than the express commuter service for which it is intended.

Comments received from the public indicate that commuter transit service is desired more highly than local or circulator service. Based on the 2000 Census, **Figure 3.2-1** depicts the percentage of workers in the study area that travel 20 minutes or more one-way to work. These percentages are broken down by census block group, the smallest geographic area on which such data is available. All block groups intersecting the study area are included; even though several of these block groups encompass populations outside the study area, the trend for commuter travel is still representative of the overall geography. It can be seen that a majority of workers living in the study area travel at least 20 minutes to get to work. Across the entire area sampled, over 70% of workers travel 20 minutes or more to work. This further supports commuter transit.

The Camden-Columbia Commuter Rail Study is ongoing and should be referenced for additional information on transit analysis within the sub-area.

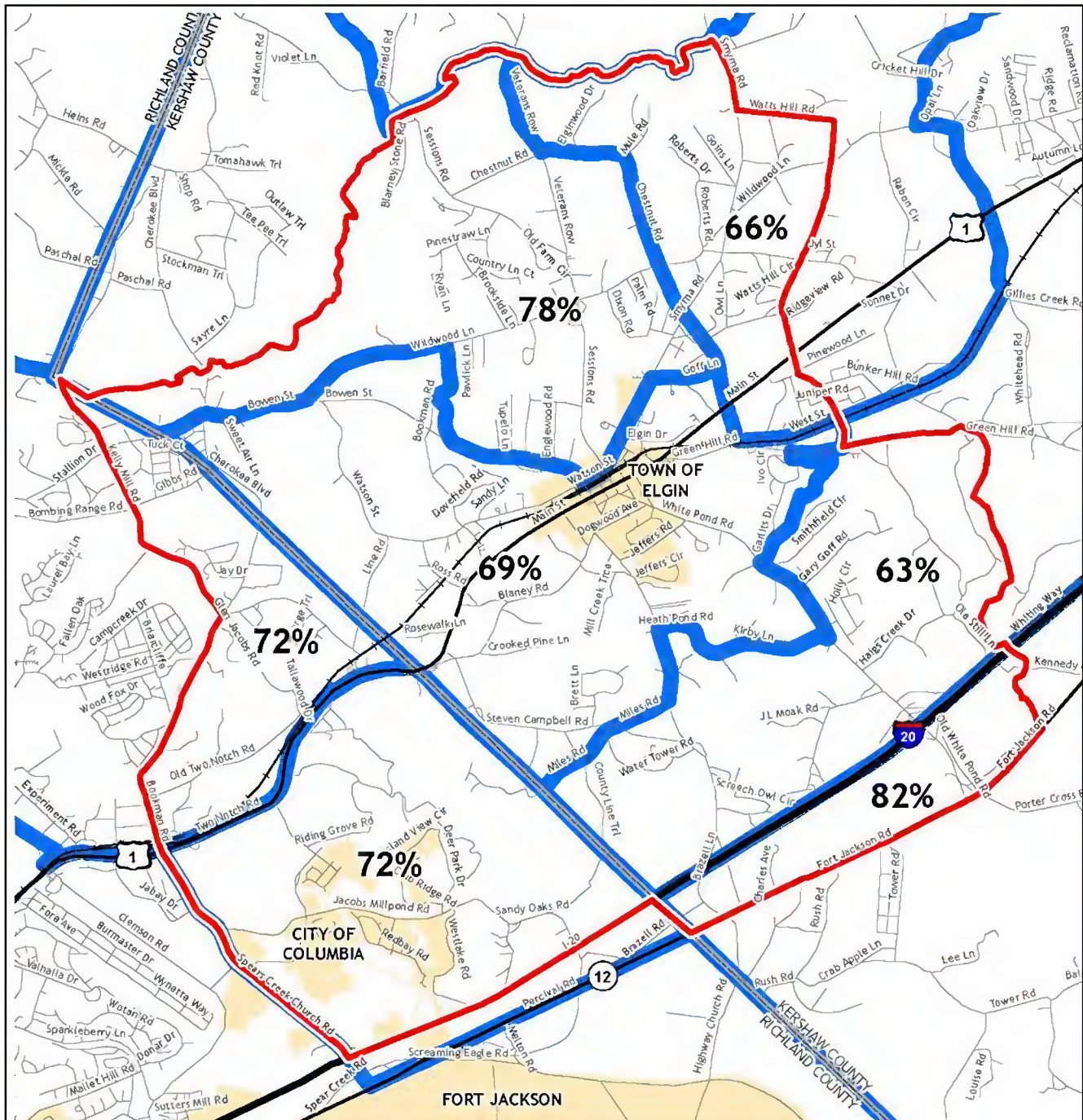


Figure 3.2-1: Percentage Traveling 20 Minutes or More to Work

3.3 Bicycle and Pedestrian Analysis

In order to recommend a bicycle and pedestrian network for the ERNE Sub-Area, it is important to examine the existing conditions that make up the bicycle and pedestrian environment. Existing facilities, geography, development patterns, and roadway configurations greatly influence the potential for bicycle and pedestrian trips.

Bicycle and Pedestrian Environment

Currently, the majority of the study area is not bicycle- or pedestrian-friendly. Only a small percentage of streets have sidewalks and there are no bike lanes. Even with the limited sidewalks that do exist, true connectivity does not, making any meaningful travel on foot almost impossible.

Intersections pose additional challenges. To begin, only two intersections in the study area are signalized: US 1/Spears Creek Church Road and Main Street/Church Street. No crosswalks or pedestrian signals exist at the intersection of US 1 and Spears Creek Church Road. A crosswalk and pedestrian signal does exist crossing Church Street on the south side of Main Street, but the other three quadrants of the intersection of Main Street and Church Street do not have any pedestrian facilities. With all other intersections in the study area being stop sign controlled, and most on only the side streets, pedestrian crossings are very hazardous.

Most roads have little to no paved shoulder, providing no real refuge for bicyclists and pedestrians. Being rural in character, the geometry of the roads in the study area creates numerous blind spots/corners resulting in extreme safety hazards for bicyclists and pedestrians who may attempt to utilize the edges of roadways. Drivers also tend to travel at higher speeds on rural roads than their urban or suburban counterparts. Finally, numerous at-grade railroad crossings in the study area further complicate the potential for bike and pedestrian trips.

Trip Generation

Whether they are made by car, bicycle, or on foot, trips of all kinds have a starting point, or *origin*, and an ending point, a *destination*. Naturally, people are more likely to walk or bike

if the distances between these origins and destinations are shorter. Areas that have a higher density and greater mix of origins and destinations in close proximity to one another will tend to be more attractive for bicycle and pedestrian trips. Therefore, the potential for bicycle and pedestrian trips is greatly influenced by development patterns. Land development patterns that have residences, grocery stores, places of employment, churches, schools, and parks all within a relatively short distance will result in areas where walking and biking are considered viable modes of travel.

A number of features were used to evaluate the potential for bicycle and pedestrian trips within the ERNE Sub-Area. These include a variety of origins and destinations as well as population density. **Figure 3.3-1** graphically depicts these features, including:

- Places of employment (i.e., aggregated by number of jobs);
- Retail businesses;
- Primary and secondary schools (i.e., public and private elementary, middle, and high schools);
- Parks and recreation;
- Libraries;
- Churches; and
- Healthcare establishments.

It is not the intention of Figure 3.3-1 to depict individual occurrences of the above features, but rather to depict concentrations and mixes of these features in concert with population density. Higher concentrations and greater mixes of these features, combined with higher population densities, indicate areas with greater potential for bicycle and pedestrian trips.

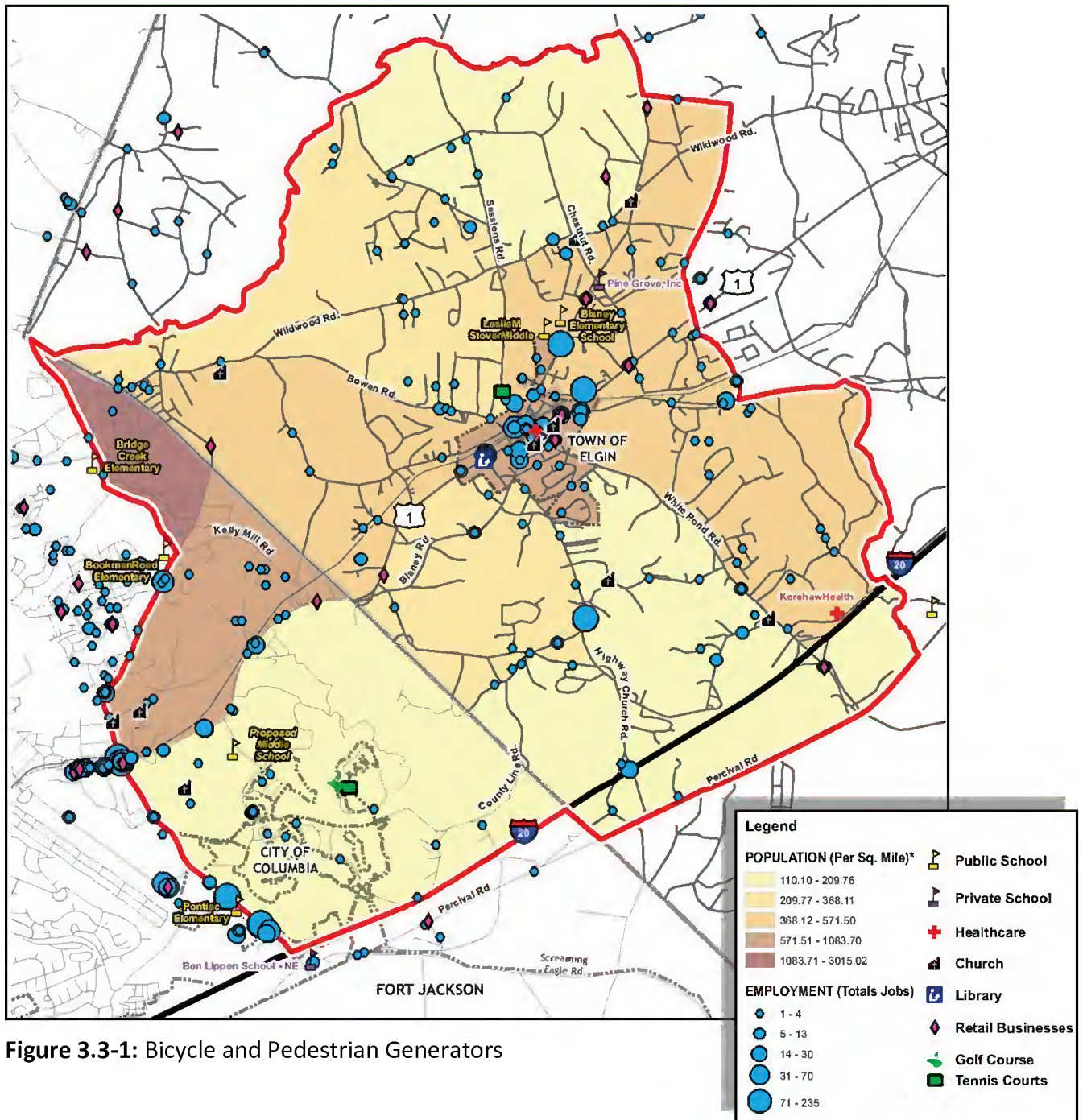


Figure 3.3-1: Bicycle and Pedestrian Generators

Potential for Bicycle and Pedestrian Trips

Although bicycle and pedestrian trips are made throughout the study area, Figure 3.3-1 demonstrates that there are several areas within the ERNE Sub-Area that are more conducive to bicycle and pedestrian travel.

Downtown Elgin has the highest concentration of workplaces, stores, churches, and other trip attractors in close proximity to higher population densities. This area has the greatest potential for bicycle and pedestrian trips within the study area. Additionally, several corridors leading out of downtown Elgin also have substantial potential for bicycle and pedestrian trips as they serve as key linkages between residences, schools, and places of employment. These corridors include Main Street (US 1), Sessions Road, Smyrna Road, Highway Church Road, and White Pond Road.

The other primary area experiencing a high concentration of trip attractors and relatively high population density is on the western boundary of the study area at the intersection of US 1, Spears Creek Church Road, and Bookman Road. A large number of jobs are located in this area along with a number of retail businesses. Additionally, Spears Creek Church and Bookman Roads serve as key connectors to a number of residential communities, as well as three elementary schools.

Bicycle and pedestrian improvements should be considered for the areas described above, as such will improve the viability of trips by bike and on foot in the ERNE Sub-Area.

3.4 Development Trends Analysis

The purpose of the development trends analysis is to reasonably anticipate future land use and transportation infrastructure requirements through thoughtful examination of historic data and existing development patterns in the study area. Development over the previous decade has seen drastic swings in activity – ranging from rapid expansion through the mid-years, to near absent development over the more recent timeframe.

This dramatic shift in development patterns, coupled with the economic uncertainty surrounding a return to even moderate

growth, makes 2035 data projections challenging. However, it can be assumed that development will return, albeit not at the rapid rate seen during 2004–2005. For this reason, data collected from the previous decade was averaged, providing a reasonable expectation for future development.

The Development Trends Analysis considered data from the following resources:

- 2005 Estimated and 2035 Projected Population Data;
- Existing and Proposed Regional Water and Wastewater Infrastructure;
- Known Environmental Barriers;
- School and Recreational Developments;
- Historical Building Permit Approvals; and
- Proposed Military Development.

Population Trends

US Census data collected in 2000 confirms that approximately 8,800 people resided in the study area. Based on estimated data, the 2005 population of the study area was approximately 16,000. This rapid increase in residents is a function of significant growth in the regions northeast of the City of Columbia that spurred commercial development in the Village at Sandhill area along the Two Notch Road (US 1) and Clemson Road corridors.

The source for population data presented here is the Columbia Area Transportation Study (COATS) travel demand model.² Within the model, the study area is comprised of

² Base year 2005 population estimates and 2035 population projections included in the COATS travel demand model were generated through a two step process: 1) reliable county level control totals were derived by refining a number of credible forecasting sources; and 2) these control totals were then disaggregated to the Census Tract and TAZ level by analyzing growth/development trends based on a variety of excepted local planning factors. The estimates and projections that result, while not perfectly reflecting the populations of each and every jurisdiction, do provide accurate guidance for holistic regional planning efforts such as the one undertaken here. For additional information, please contact the CMCOG Research and Planning Department.

fourteen Transportation Analysis Zones (TAZ); three TAZs fall within Richland County, ten from Kershaw County, and one represented by the Town of Elgin.

The highest 2005 populations occurred in the study area's Richland County sectors north of Two Notch Road. In fact, approximately one-third of the study area's estimated 2005 population resides in this relatively small area. Pushing into Kershaw County, larger populations tend to branch off Two Notch Road/Main Street to the west and east of the Town of Elgin. By comparison, smaller numbers are apparent along the north-south axis through the study area, Sessions Road, and Highway Church Road.

When population projections are forecast to 2035 a familiar development trend is apparent. Population continues to increase in the western-central portions of the study area, as the US 1 corridor will undoubtedly continue to promote development. The Town of Elgin's projected population increase is slower by comparison, and the areas of higher population will continue to be to the west and east of Town.

When the total percent change in population is calculated between estimated 2005 levels and 2035 projections, an interesting trend develops. The greatest percent increase in population stems from the north-south axis of Sessions Road and Highway Church Road. In fact, the single largest percentage increase in population is projected to occur just north of the I-20 corridor between the Richland-Kershaw County line and White Pond Road. The population increase within this TAZ is estimated at approximately 750%, as shown in **Table 3.4-1**.

When the true population densities are mapped on **Figures 3.4-1** and **3.4-2**, the central swath of the study area, between I-20 to the south and Wildwood Lane to the north, are home to the highest concentrations of residents.

Several conclusions can be derived from the population data:

- The greatest density will continue to be in the Richland County sectors of the study area, north of Two Notch Road. However, the growth in these areas is expected to somewhat plateau. As build-out in this vicinity is

effectively maximized, development will likely continue its easterly trend.

- Relative growth within the Town of Elgin’s municipal boundary is expected to be the lowest in the study area.
- The sectors immediately south of the Town of Elgin will experience rapid growth over the next 25 years, and by 2035 will exhibit moderate density. A corresponding increase in traffic is likely along White Pond Road, the major collector linking the Town with I-20, and Highway Church Road.
- The sectors immediately north of the Town of Elgin will experience moderate growth over the next 25 years. Related traffic is likely to be funneled along the following collectors or local streets: Bowen Street, Wildwood Lane, Sessions Road, and Smyrna Road.

Table 3.4-1
2005–2035 TAZ Population Increase

TAZ	2005 Estimated Population	2035 Projected Population	Percent Increase
RC 1 (Kelly Mill Rd)	2,951	4,412	49.5%
RC 2 (Bookman Rd)	2,499	4,656	86.3%
RC 3 (Spears Creek Church Rd)	754	1,408	86.7%
KC 1 (Wildwood Ln)	1,059	2,814	165.7%
KC 2 (Veterans Row)	546	2,209	304.6%
KC 3 (Watson St)	1,855	5,044	171.9%
KC 4 (Bowen St)	526	2,381	353.2%
KC 5 (Smyrna Rd)	1,267	3,405	168.7%
Town of Elgin	888	1,062	19.6%
KC 6 (Steven Campbell Rd)	744	3,361	351.7%
KC 7 (Heath Pond Rd)	472	2,863	506.6%
KC 8 (White Pond Rd)	1,891	3,906	106.6%
KC 9 (County Line Trl)	266	2,250	745.9%
KC 10 (Fort Jackson Rd)	203	805	296.6%

Note: RC = Richland County; KC = Kershaw County

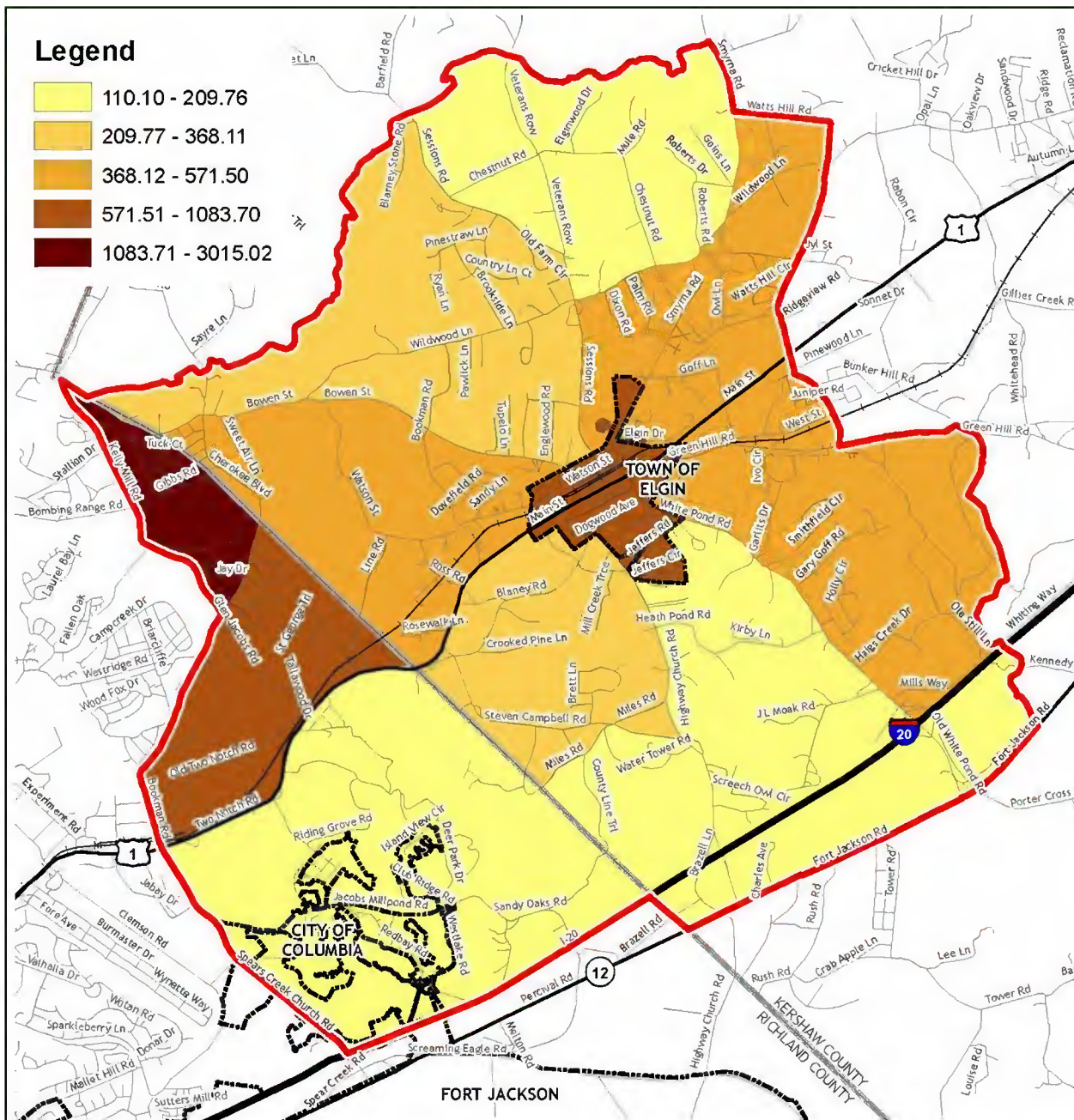


Figure 3.4-1: 2005 Estimated Population Per Square Mile

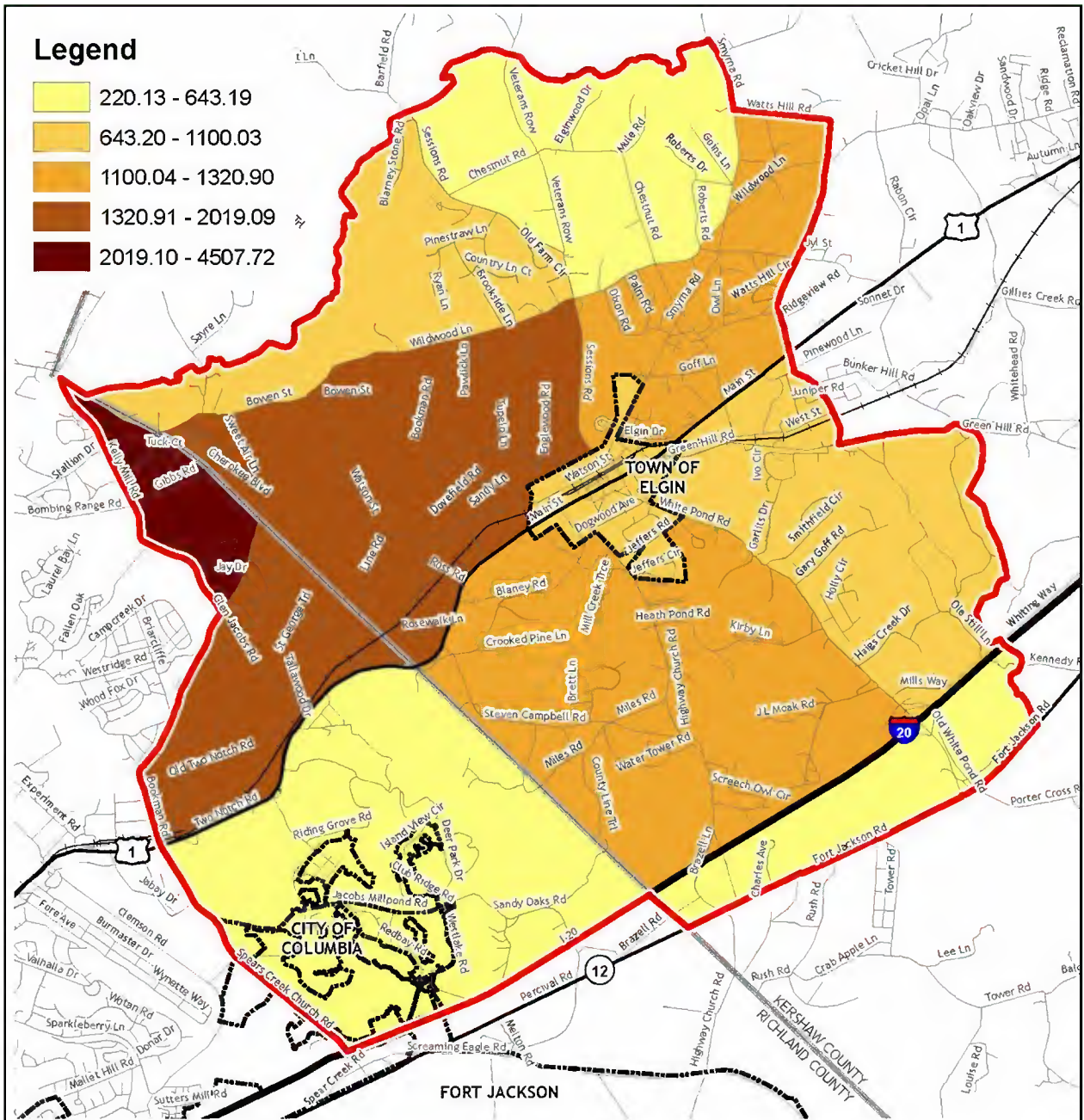


Figure 3.4-2: 2035 Projected Population Per Square Mile

Water and Wastewater Infrastructure

Several utility providers service the study area.³ The water providers are the City of Columbia, which provides water to portions of the study area that fall within Richland County, and the Lugoff-Elgin Water Authority, which services the Kershaw County portion of the study area. Currently, the City of Columbia services the Woodcreek Farms development and nearby area in the southwestern corner of the study area, while the Lugoff-Elgin Water Authority maintains the majority of the study area's water system.

There is significant planned residential development in the Lugoff-Elgin Water service area. Kelsney Ridge subdivision along Steven Campbell Road includes plans for 125 units. To the north, Laurel Ridge and Regal Woods subdivisions, with 79 and 68 units respectively, continue to develop along Wildwood Lane. Of particular interest, the Haig's Creek subdivision east of White Pond Road has potential for up to 600 more homes. However, plans are contingent on finding another access route to mitigate traffic pressure along Whiting Way.

Wastewater collection and treatment is provided by two utilities in the study area: Palmetto Utilities and the Kershaw County Utilities Department. Palmetto Utilities acts under contract with Richland County to service Richland County portions of the study area. In addition, Palmetto Utilities' service area extends into Kershaw County between US 1 and I-20 east to White Pond Road. Palmetto Utilities maintains a wastewater treatment plant on Spears Creek. According to their franchise agreement with Kershaw County, Palmetto Utilities has been granted approval to service two subdivisions within Kershaw County: Heath Pond and Woodtrace. Although Palmetto Utilities has a proposal to install a north-south force main just west of the Town of Elgin, the current structure of the franchise agreement will prevent additional sanitary sewer taps into the new line from Kershaw County residents.

³ Maps depicting existing water and wastewater utility infrastructure in the study area are included in Appendix B.

Kershaw County Utilities services the remainder of the study area, essentially all Kershaw County areas north of US 1 and the areas east of White Pond Road. As shown in Figure 3.4-7, Kershaw County Utilities maintains several wastewater lines in the study area. Of note, the force main along White Pond Road has existing excess capacity that may provide service for future development.

Kershaw County Utilities has several infrastructure projects that may influence future development in the area. First, a proposed force main along US 1 will extend wastewater service from Elgin to the Richland County line. This project should enter the implementation phase in the near future, as survey has been completed. Additionally, a proposed force main along Whiting Way is planned. Each of these proposed improvements will collect wastewater for Kershaw Utilities' new wastewater treatment plant near Lugoff. This facility is permitted for 1.25 million gallons per day, is designed to handle 2.0 million gallons per day, and maintains a Preliminary Engineering Report for 4.0 million gallons per day. The excess capacity represented by the figures could help to spur development in the Kershaw County Utilities service area.

Environmental Barriers

Significant environmental barriers to development include flood zones, wetlands, brownfields, and/or landfills. In the case of flood zones and wetlands, physical or regulatory barriers may prevent development. In the case of the latter two, cleanup costs and/or stereotypical perceptions may impede localized development in proximity.

Of the environmental barriers identified in the ERNE Sub-Area, wetlands will pose the most significant barrier to future development. There are numerous branches of wetlands north and south of the Town of Elgin that may redirect localized development. More detailed analysis of all environmental barriers is included in **Appendix B**.

Schools and Parks

School Development

Siting of schools has been shown to be a historical catalyst for localized residential and commercial growth. Within the study area, there are two existing schools, Leslie M. Stover Middle

School and Blaney Elementary School. Blaney Elementary was built in 1986, and Stover Middle in 1999. The development of the Pine Forest subdivision immediately adjacent to the schools has been a classic example of school-related growth. Development of the subdivision continues, with Phase II on-going.

There also are several schools just outside the study boundary that may impact development within the study area. Bridge Creek Elementary, completed in 2008, is located near the intersection of Bombing Range Road and Kelly Mill Road. Its current attendance is approximately 450 students, and it has capacity for more. This school is part of Richland County School District Two, Even though it is located approximately 1 mile from the Kershaw County line, it should only enroll students that live within Richland County. Therefore, it is unlikely to spark any significant growth within the larger portion of the study area. More likely, the school district will use Bridge Creek Elementary to reduce attendance pressures in its other elementary schools.

Doby's Mill Elementary School, located near the southeast boundary of the study area near the intersection of White Pond Road and Fort Jackson Road, was opened in 2002. It is possible that its relative proximity to Haig's Creek may help spark further development of that subdivision once the economic climate improves.

Additionally, Richland County School District Two expansion plans call for a future middle school along Old National Highway. When constructed, this school may act as a catalyst for residential development in the area.

Park Development

The development of parks has been limited within the study area. In fact, the only recreational facility of note, a tennis court facility on Sessions Road, was recently purchased by the Town of Elgin. This facility consists of a single tennis court and small parking lot. In its unimproved state, this facility is not expected to generate significant development or traffic.

A larger facility possessing a more regional attraction, Sesquicentennial State Park is located just four miles



Town of Elgin Tennis Court Facility

southwest of the study area along Two Notch Road (US 1). The Park drew over 120,000 vehicles in 2009; however, the Park's contribution to total traffic in the study area is negligible.

Building Permits

Municipalities within the study area issue building permits for commercial and residential construction within their respective jurisdictions. Richland County, Kershaw County, and the Town of Elgin each maintain historical records of these building permits. In the case of Richland County, building permits are tied to a Geographic Information System (GIS) for data analysis. CMCOG obtained building permit data from Richland County for the last ten years (2000 – 2009).

Kershaw County and the Town of Elgin do not presently tie their building permit data to GIS. Building permits from these municipalities were collected manually, and the corresponding addresses and attributes were geo-coded into GIS. This data was combined with Richland County's data to produce **Figure 3.4-3**, a cumulative illustration of building permits issued for the entire decade.⁴

Taken at face value, the development trends shown in these building permits depict a continued preference towards subdivision construction. A majority of the development activity within the Richland County sectors of the study area occurred south of Two Notch Road along Jacobs Millpond Road and Old National Highway. Woodcreek Farms subdivision and Green Hill Parish subdivision were the dominant forces. A sizable amount of remaining land is available in each subdivision, and a total build-out scenario would increase pressure on Two Notch Road and Spears Creek Church Road. Additionally, Richland County School District Two expansion plans call for a future middle school along Old National Highway. When constructed, this school may act as a

⁴ It is important to note that although Richland County building permit data was available beginning in 2000, Town of Elgin and Kershaw County data was not; data for these two jurisdictions begin in 2002 and 2004 respectively. Year-by-year breakdowns for building permits are on file and available for review at CMCOG.

catalyst for residential development in the area. The proposed widening of Two Notch Road between Spears Creek Church Road and Steven Campbell Road will be additional incentive for continued development.

Development within the Town of Elgin has been concentrated along Smyrna Road in the immediate vicinity of Stover Middle and Blaney Elementary. Beginning in 2002, and peaking in 2004–2005, Pine Forest subdivision Phase I was completed in a few years. Pine Forest subdivision Phase II construction began in 2006 and continued through 2009, albeit at a slower pace. Pine Forest is located adjacent to Stover Middle, and its proximity to the school campuses will continue to fuel build-out under more favorable economic conditions.

Development in Kershaw County has also been dominated by subdivision construction. North of Elgin, Wildwood Lane has seen some density, with Laurel Ridge subdivision construction immediately west of Veterans Row peaking between 2004 and 2005. Farther east near the boundary of the study area, Taylor Oaks subdivision along Watts Hill Road received approximately 70 building permits, primarily between 2004 and 2007.

South of Elgin, development in Kershaw County was slightly more active, capitalizing on access to I-20. Most of the development was centered on White Pond Road, with Stratford Plantation, Tall Pines, Heath Pond, and Haigs Creek North subdivisions all experiencing significant growth into 2009. This added density along White Pond Road has resulted in congested traffic, particularly during peak hours when turning movements have resulted in traffic queues.

Woodtrace subdivision Phases I and II have provided a cluster of activity along Miles Road immediately east of County Line Trail. This development has resulted in increased traffic along Highway Church Road and Steven Campbell Road.

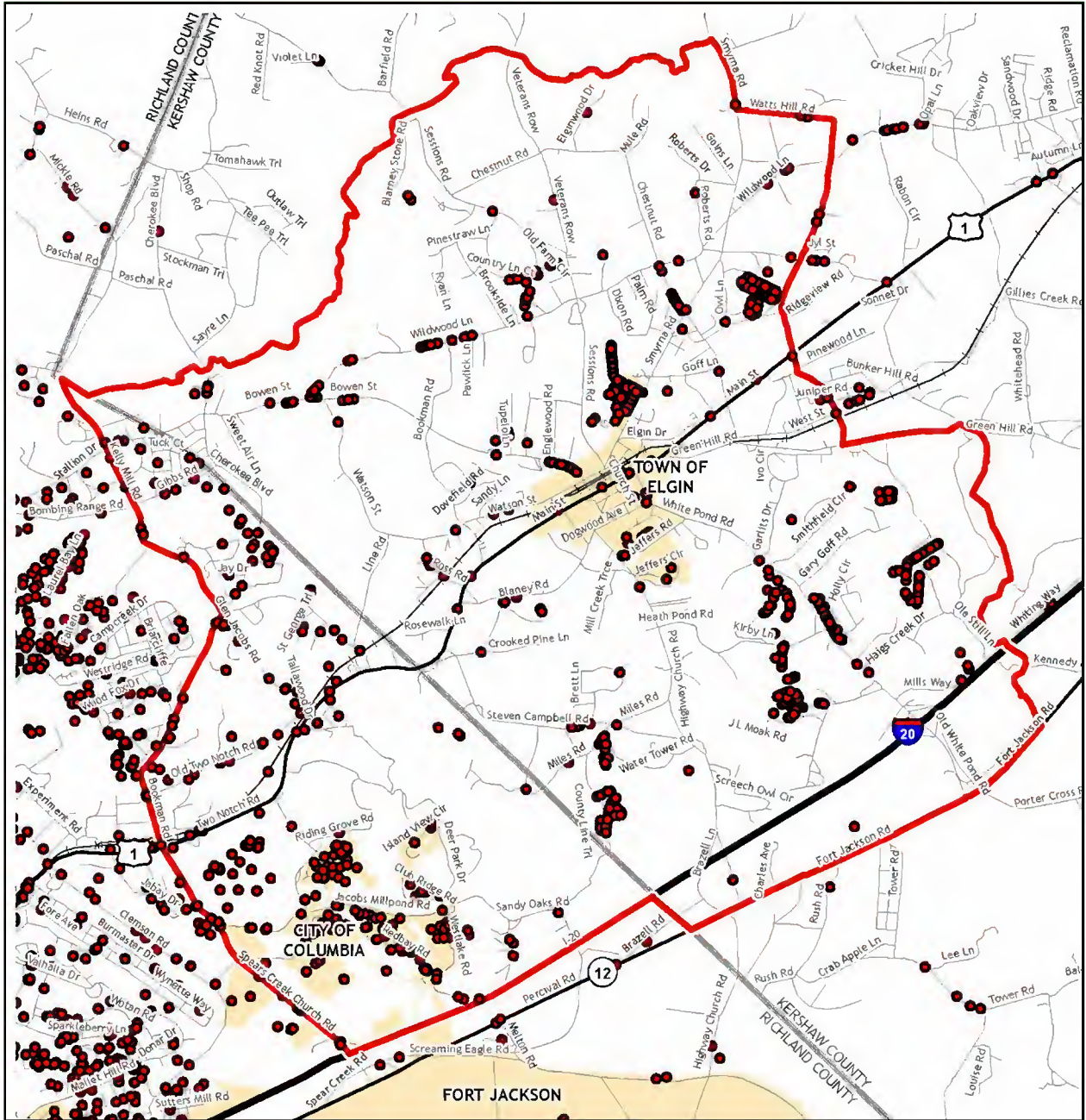


Figure 3.4-3: 2000-2009 Building Permits

Military Considerations

Installation Proximity

Currently, Fort Jackson is the only military installation with the potential to effect appreciable development within the study area. The Post's northern boundary lies a mere 1,500 feet south of the intersection of I-20 and Spears Creek Church Road, the study area's southwestern corner. However, the nearest active access to the Post is approximately 7 miles to the southwest. This access, Gate 4, is located near the intersection of I-77 and Decker Boulevard, and is the primary entrance for the Post's Graduation Parade observers. The more commonly used access is Gate 2, the Main Gate, at the Forest Drive exit on I-77, another 2 miles southwest. Each of these gates is more convenient to the City of Columbia's approaches than they are to the Elgin area due to the distances involved. For this reason, the study area has not seen a dramatic influx of soldiers or US Army civilian employees seeking residence. However, the study area's proximity to Fort Jackson may have far-reaching effects on development in the future.

National Cemetery

Currently, the Department of Veterans Affairs (VA) is developing a National Cemetery on approximately 600 acres carved out of the Post's landmass. The National Cemetery is located along the Post's northern boundary between the intersections of Percival Road and Spears Creek Church Road and Percival Road and Clemson Road. Currently, visitors access the Cemetery through a temporary entrance at Wildcat Road. Within five years, however, the Cemetery's master plan calls for a more formalized entrance at Clemson Road, as shown in **Figure 3.4-4**.

The development of the cemetery will be a continual process as build-out is expected to take 400 years. The VA expects the Cemetery to serve as an economic engine for the area, with hotels and restaurants experiencing an increase in traffic during internments. The Cemetery is in its low-scale initial development stages, with approximately 40 interred and 3 to 5 employees. This number will undoubtedly increase as build-out progresses, but the relative numbers should remain small,

and the Cemetery is not expected to become a large regional employer within the period of study.

A more important possibility is a redistribution of off-post housing into the study area. For access reasons already mentioned, the study area has not seen large numbers of post personnel seeking residence. However, should the planned Clemson Road entrance to the National Cemetery also provide another gate for access onto Fort Jackson, there will be an added incentive for post personnel to seek housing opportunities within the study area. This potential increase in traffic would be most likely realized along Percival Road and Spears Creek Church Road.

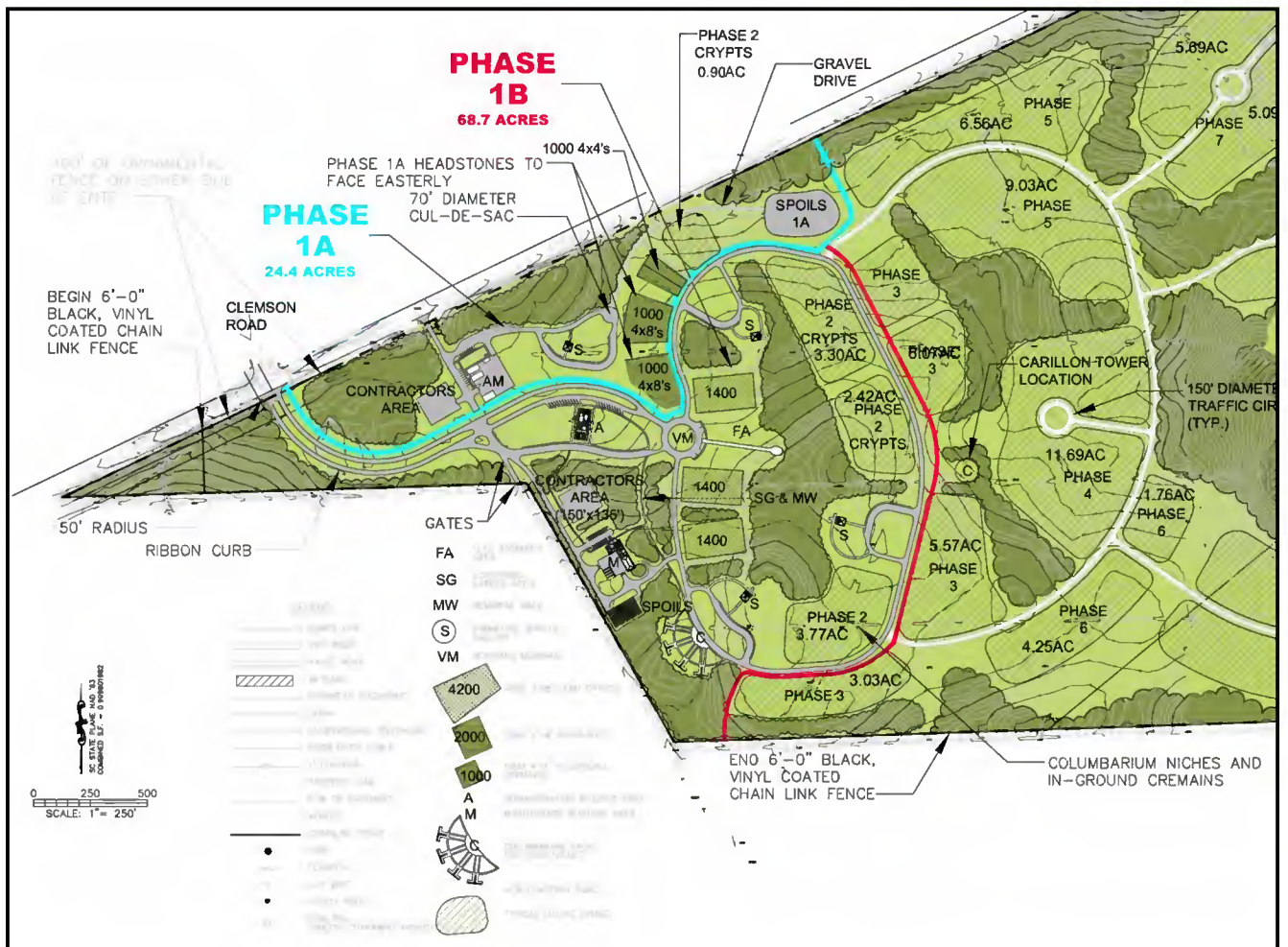


Figure 3.4-4: Excerpt from National Cemetery Master Plan

Potential Growth Areas

Analysis primarily focused on the population trends, historical building permits, and proximity to environmental constraints points to several likely areas of growth. When infrastructure and transportation improvements and current/projected land use are factored in, three areas in particular appear ripe for growth when favorable economic conditions return; these are presented below and graphically in **Figure 3.4-5**.

The first area is centered about one mile south of the intersection of US 1 and Steven Campbell Road. This area is currently home to the developing Kelsney Ridge subdivision. Its proximity to a planned widening of US 1 and a new sanitary sewer force main, coupled with a lack of environmental constraints and an abundance of undeveloped land point to significant growth potential. This area could be the first to experience renewed development pressures when the economic climate improves.

The second area is located near the intersection of Wildwood Lane and Sessions Road. Although there are no wastewater infrastructure improvements on the drawing board in this area, its location on the north-south axis of the study area, and wealth of relatively unencumbered under-developed land indicate that the area may be poised for growth.

The final area that appears to be a prime target for development is immediately adjacent to the Town of Elgin along White Pond Road. Under the right market conditions, its convenience to Town, access to I-20, available sanitary sewer service, and proximity to the natural settings surrounding White Pond combine to make the area attractive to developers.

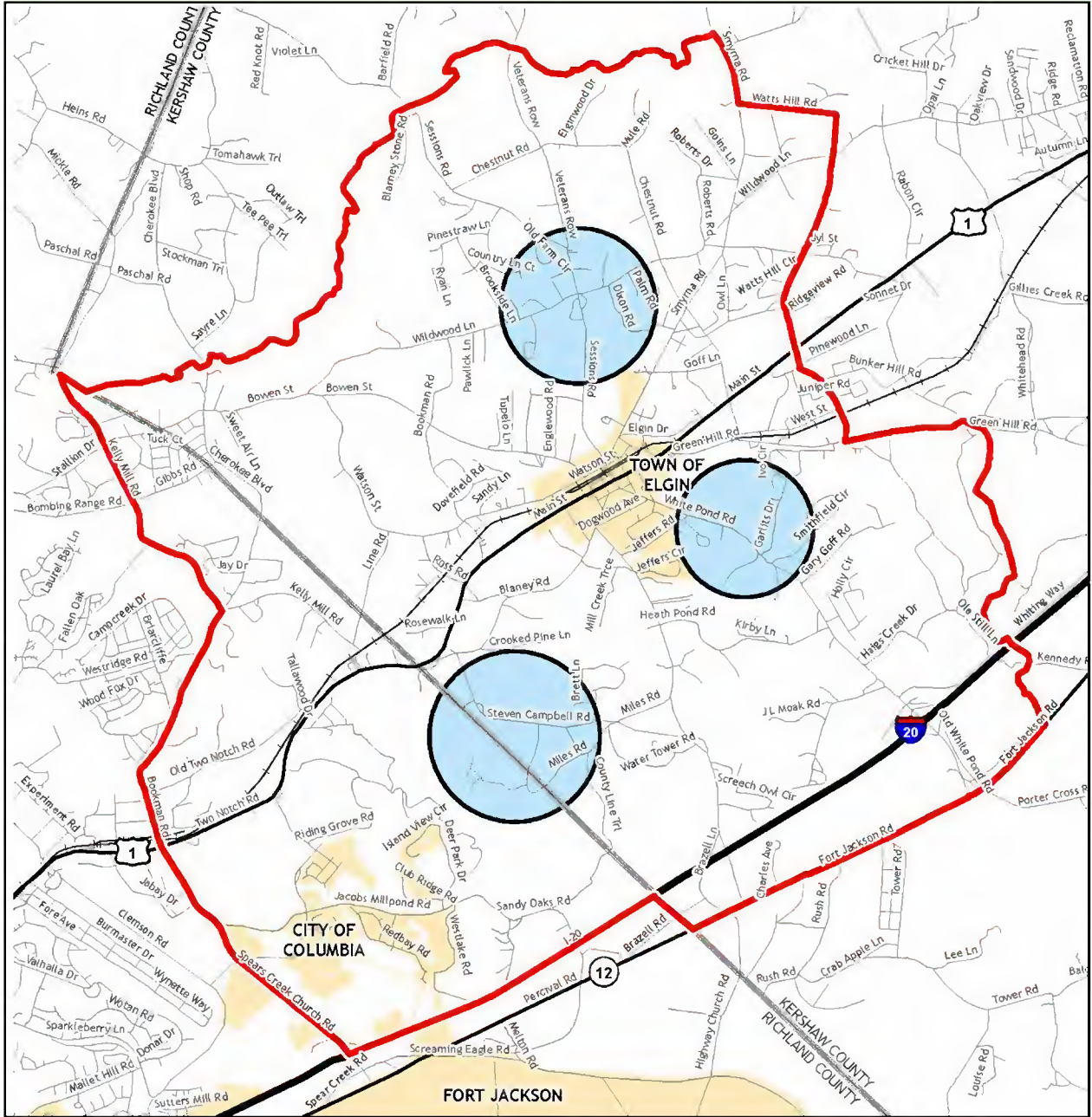


Figure 3.4-5: Potential Growth Areas

3.5 Needs Assessment

Based on the traffic operations, transit, bicycle and pedestrian, and development trends analyses documented above, a needs assessment was completed for the transportation network. This assessment revealed needs within the transportation network that can be classified into four distinct categories.

Intersection Needs

- A number of intersections are in need of improvements to preserve and/or enhance their level of service (maintain appropriate traffic flow).
- Several intersections, although adequate for traffic flow both now and in the future, need geometric improvements to increase safety and functionality.

Roadway Needs

- Additional connectivity throughout the study area is needed to provide optional routes of travel. These connections may be in the form of new roadways, short connections between existing roadways, and/or new ingress/egress from existing properties.
- Capacity improvements are needed on some roads to maintain/enhance mobility. Widening of existing roadways will meet this need.

Transit Needs

- Future transit service would be beneficial as an alternative means for commuters to travel between the Elgin area and downtown Columbia. The ongoing transit alternatives analysis being conducted by CMCOG should provide additional assessment of this need and potential alternative solutions.

Bicycle and Pedestrian Needs

- A number of improvements are needed to increase safety for pedestrians and bicyclists. These include additional refuge areas and intersection improvements (e.g., crosswalks, pedestrian signals, etc.).
- Adequate pedestrian and bicycle facilities are needed to provide a basic level of mobility for those within the study

area that may not have other transportation options (e.g., people who do not own a car).

- Bicycle and pedestrian connectivity is needed between residential areas and activity centers/generators.
- Provision of bicycle and pedestrian facilities will satisfy the need for transportation users to have optional travel modes when travel distances are short and do not necessarily require an automobile.

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4. Recommendations

Balancing the needs identified in the technical analyses (see Section 3) with the guiding principles developed during the charrette process (and documented in Section 1.1), a series of recommendations were crafted. These solutions are intended to meet the identified needs while holding true to the desires of the community for its future character.

These recommendations were developed initially as preliminary alternative solutions. Those alternatives communicated basic ideas for improvement but did not provide detailed information. Based on feedback received from the Advisory Group and the general public, those alternative solutions were more fully developed into the recommendations presented here.

Recommendations are comprehensive in nature and address a variety of transportation and land use issues. In most cases, recommendations include both transportation and land use solutions so as to provide an integrated approach to meeting the study area's needs.

4.1 Roadway Character Improvements

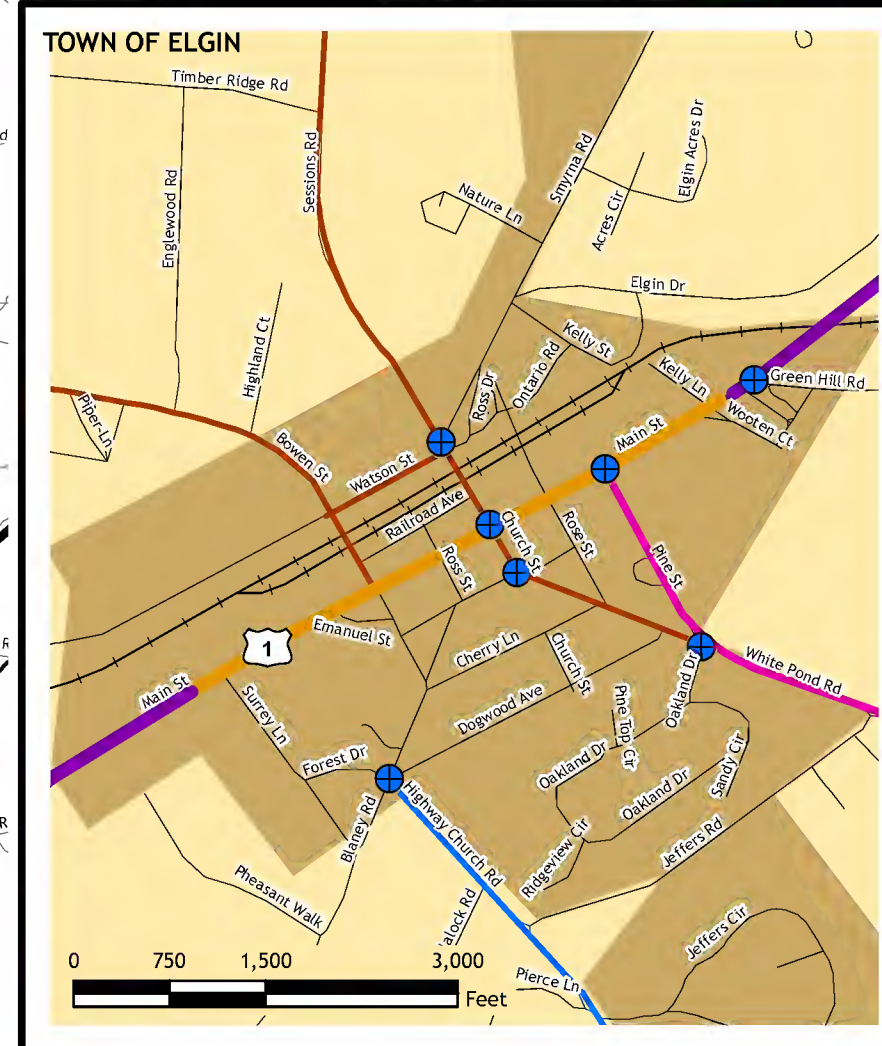
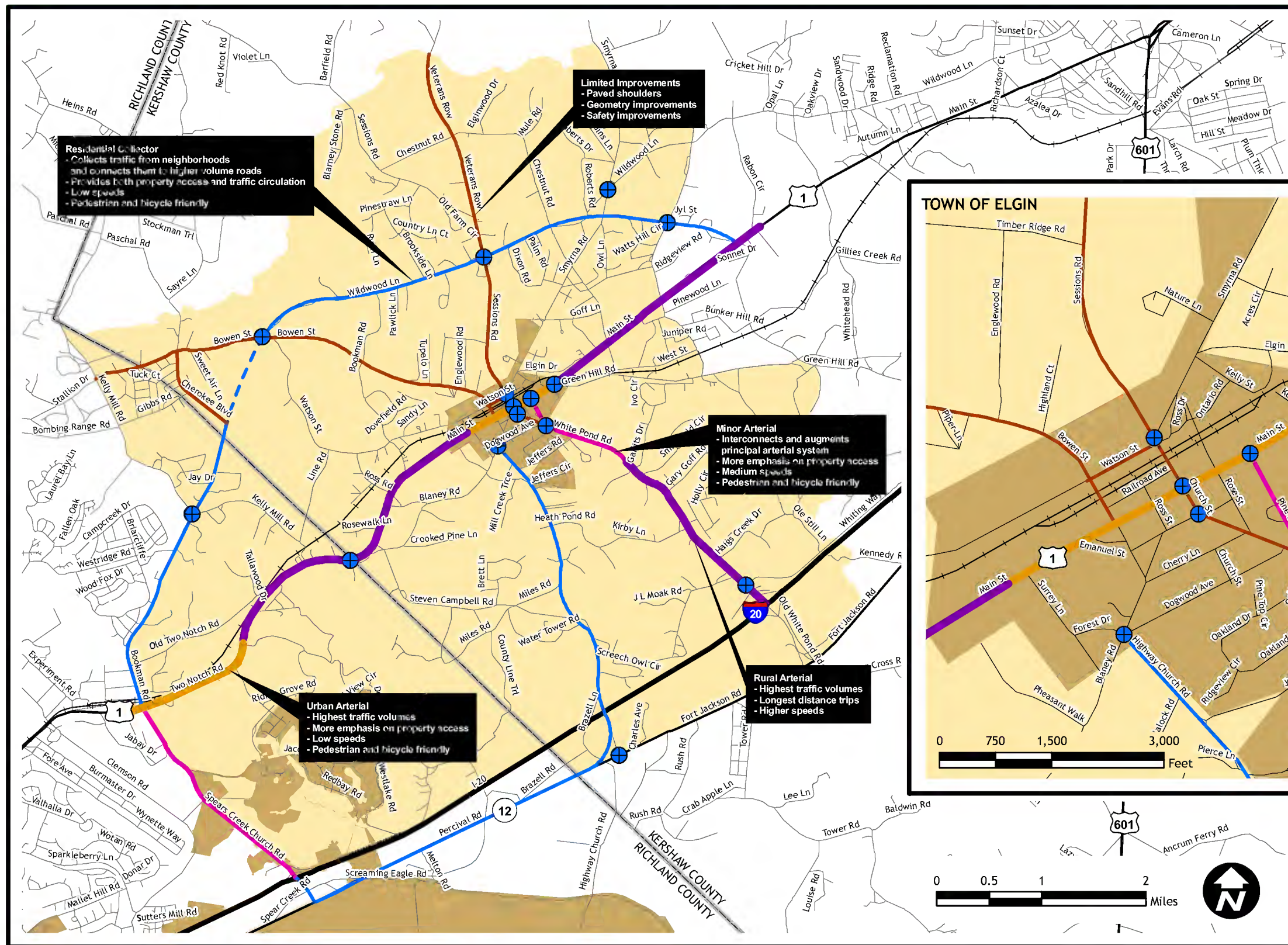
Figure 4.1-1 presents recommended roadway improvements for the ERNE Sub-Area. These are based on desired corridor character types and address the needs of the roadway network as identified in Section 3.5 of this plan. The following sections offer descriptions of each roadway character type along with complementary land use controls.⁵

⁵ It is important to note that recommendations to amend existing or create new land use regulations may require action by multiple jurisdictions and could impact a larger area than just the ERNE Sub-Area. Therefore, these types of recommendations will most likely need to be implemented as part of larger, more comprehensive land use strategies. However, recommendations presented here are intended to complement and further strengthen local regulatory controls.

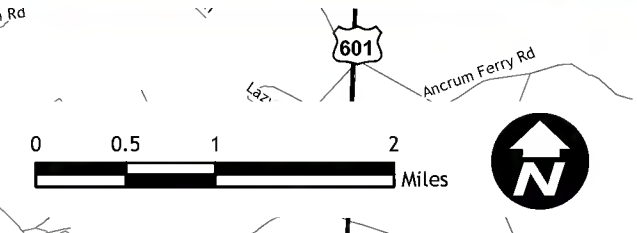
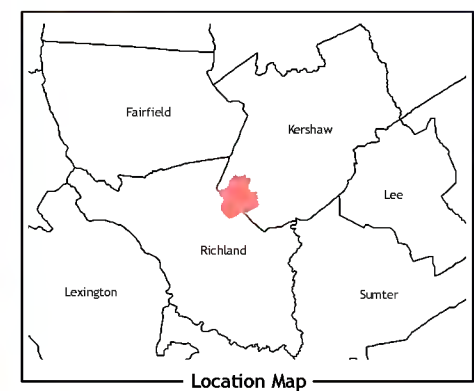
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Elgin/Richland Northeast Sub-Area Plan

Figure 4.1-1: Roadway Improvements



- Legend**
- Intersection Improvements
 - Urban Arterial
 - Rural Arterial
 - Minor Arterial
 - Residential Collector
 - Limited Improvements
 - New Connection
 - Study Area
 - County Boundary
 - Municipal Boundary



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Urban Arterial

Urban Arterial roadways have the highest traffic volumes, place emphasis on property access, have low speeds, and are bicycle and pedestrian friendly. The Urban Arterial designation has been applied to roads that are projected to experience higher traffic volumes in the future and will require capacity improvements to maintain adequate traffic flow. Urban Arterial roadway characters are recommended along US 1 in two distinct locations:

- Two Notch Road from just west of the western study area boundary and ending east of Old National Highway;
- Main Street from west of Surrey Lane to west of Green Hill Road.

Figure 4.1-2 presents the conceptual cross section for the Urban Arterial, which achieves a balance of transportation modes through the provision of:

- Four vehicular travel lanes (two in each direction). Lanes would be eleven feet wide to slow vehicular speeds.
- Center turn lane that doubles as a landscaped median (where appropriate and feasible).
- Six-foot dedicated bicycle refuge lanes in each direction.
- Closed drainage with concrete curb and gutter.
- Ten-foot sidewalks with street trees, pedestrian scale decorative lighting, and street furniture (as appropriate).
- Design speed of 45 mph; posted speed limit of 35 mph.

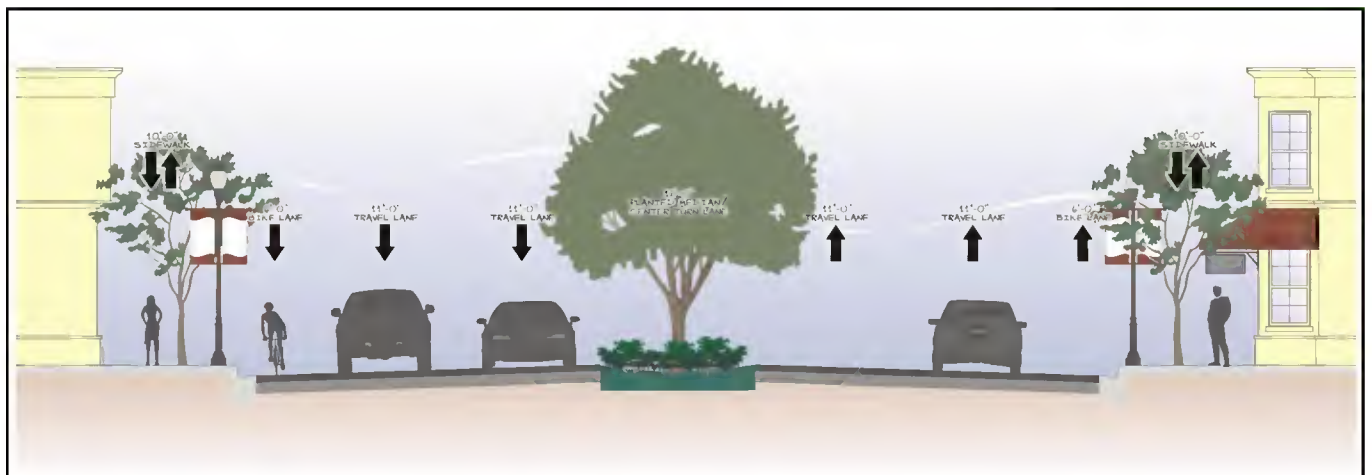


Figure 4.1-2: Urban Arterial Conceptual Cross Section

Development controls specific to the Urban Arterial roadway character type should be implemented in the form of a zoning overlay district.⁶ To achieve walkability and bikeability, the overlay district should encourage denser development with a mix of uses in close proximity to one another. This will be especially important along Main Street where a vibrant, walkable, 24-hour, 7-day-a-week downtown identity is desired. Additional requirements of the overlay district could include signage regulations, landscaping requirements, architectural design guidelines, and maximum setback or build-to standards.

Figure 4.1-3 presents a photo simulation of what the Urban Arterial roadway character type might look like along Main Street (US 1) in downtown Elgin.

⁶ An overlay district places additional requirements on or may relax existing requirements to the underlying zoning district. It is not a separate zoning classification; rather it superimposes regulations on an area that is already zoned. It is quite common to apply overlay districts to transportation corridors.

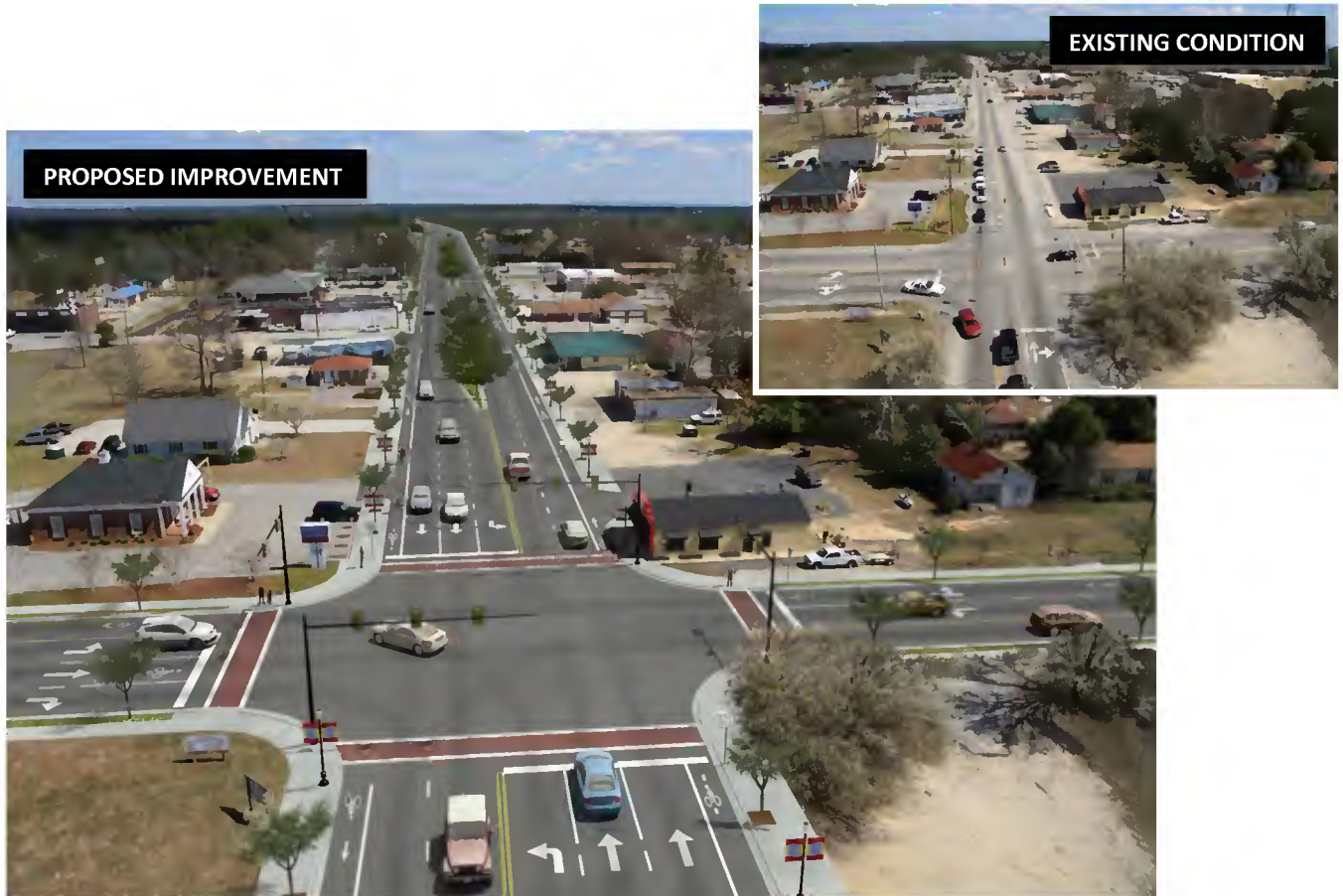


Figure 4.1-3: Photo Simulation of Main Street as Urban Arterial

Rural Arterial

Rural Arterial roads have high traffic volumes, longest distance trips, and higher vehicular speeds. The Rural Arterial designation has been applied to roads that are projected to experience higher traffic volumes in the future and will require capacity improvements to maintain adequate traffic flow. The Rural Arterial roadway character is recommended for the following roadways:

- US 1 from east of Old National Highway to just west of Surrey Lane;
- US 1 from west of Green Hill Road to east of Rabon Circle; and
- White Pond Road from Garlits Drive to I-20.

A conceptual cross section for the Rural Arterial roadway character type is presented in **Figure 4.1-4**. This road type is

designed to move vehicular traffic between destinations while retaining a rural character. Although not ideal for bicycle and pedestrian travel, limited accommodations are made for these modes. The Rural Arterial possesses the following features:

- Four twelve-foot wide vehicular travel lanes (two in each direction).
- Fifteen-foot grass median dividing opposing travel lanes.
- Four-foot paved shoulders on each side of roadway to provide a level of refuge for bicyclists and pedestrians.
- Design speed of 60 mph; posted speed limit of 45-50 mph.

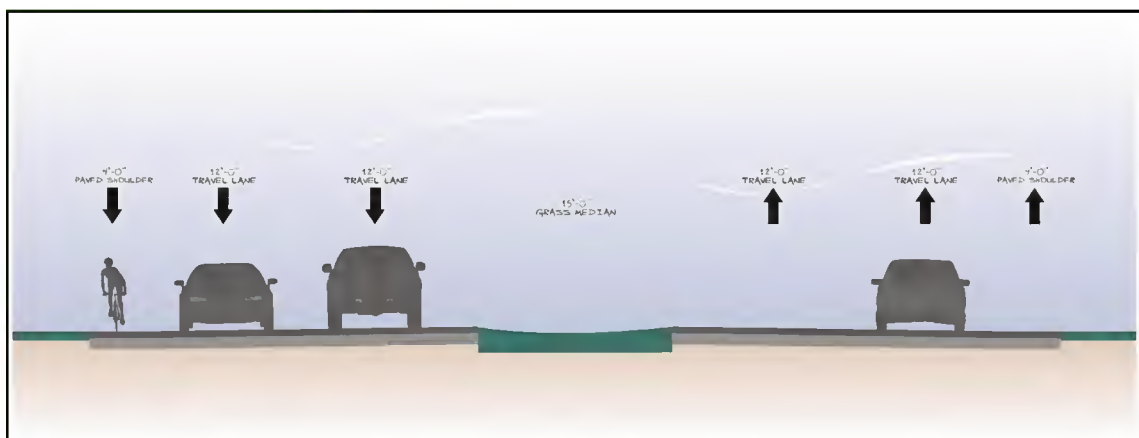


Figure 4.1-4: Rural Arterial Conceptual Cross Section

Along Rural Arterials development controls should be considered to limit the size and scale of development. The desire of the community is to keep these areas from becoming an extension of the big-box retail seen along Two Notch Road in Northeast Columbia. Regulations should focus on providing opportunities for pockets of commercial development on interconnected parcels so as to efficiently limit the number and frequency of access points (i.e., curb cuts) to/from US 1 and White Pond Road. Other regulations that should be incorporated include frontage improvement standards (e.g., trails, landscaping, etc.), buffer yards between incompatible land uses, and dedicated open space requirements to encourage a level of rural conservation.

Minor Arterial

Minor Arterial roads interconnect and augment the principal arterial system (which includes Urban and Rural Arterial roadway character types), emphasize property access, have medium speeds, and are relatively pedestrian and bicycle friendly. The Minor Arterial roadway character is recommended for the following:

- Spears Creek Church Road from its intersection with Two Notch Road to I-20.
- White Pond Road/Pine Street from Garlits Drive to Main Street (US 1).

Figure 4.1-5 depicts a conceptual cross section for the Minor Arterial roadway character type that includes:

- Two fourteen-foot shared travel lanes (one in each direction). Lanes would have shared travel pavement markings (see Section 4.2), also known as “sharrows,” to alert motorists to the presence of bicyclists and show bicyclists the appropriate location for travel.
- Fifteen-foot center turn lane that doubles as a grass median (where appropriate and feasible).
- Closed drainage system with concrete curb and gutter.
- Six-foot planted verge on either side of roadway with street trees (where appropriate and feasible).
- Six-foot sidewalk on both sides of roadway.
- Design speed of 50 mph; posted speed limit of 35-40 mph.

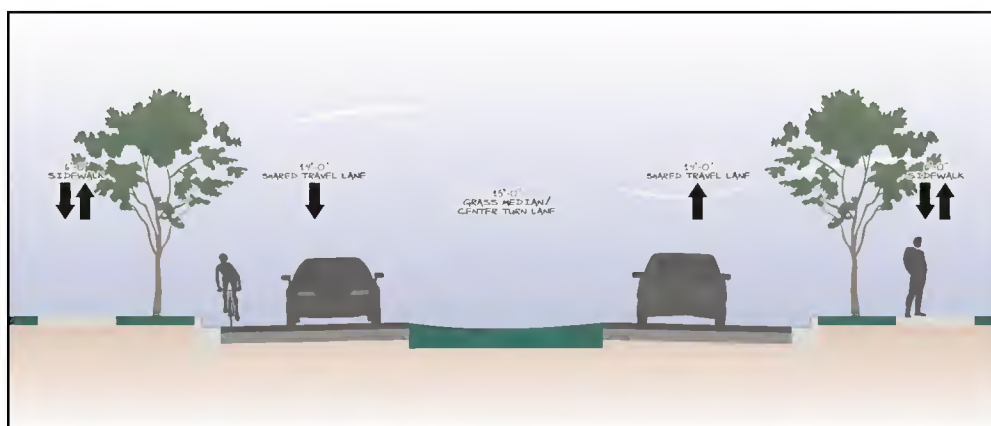


Figure 4.1-5: Minor Arterial Conceptual Cross Section

Minor Arterial roadways are envisioned as neighborhood commercial corridors with residential subdivisions along their length. Development controls should limit the type and scale of development along these corridors through the institution of overlay districts. Performance standards would encourage compatible transitions between adjacent land uses, including provisions for internal and external sidewalks and trails, landscaping requirements, provisions for public open space, buffer yards between adjacent land uses, interconnectivity of parcels, and shared parking.

Although Figure 4.1-5 depicts the Minor Arterial as having only two travel lanes (one in each direction), the Minor Arterial roadway type could also be employed with four travel lanes (two in each direction) where volumes warrant such. As growth occurs, additional, more detailed analysis should determine exact applications, but Spears Creek Church Road might be one road that requires four travel lanes instead of two. The use of sharrows along the outside travel lane would still apply and development controls should still be employed to encourage the desired development types.

Residential Collector

Residential Collector roadways collect traffic from neighborhoods and connect them to higher volume roads, provide both property access and traffic circulation, have lower speeds, and are pedestrian and bicycle friendly. The following roads have been recommended for the Residential Collector designation:

- Spears Creek Church Road from I-20 to Percival Road.
- New collector roadway south of US 1 to be formed by the linking of the following road segments:
 - Highway Church Road from Blaney Road to Percival/Fort Jackson Roads.
 - Percival Road from Highway Church Road to Spears Creek Church Road.
- New collector roadway north of US 1 to be formed by the linking of the following road segments:
 - Bookman Road from intersection with Two Notch Road (US 1) to Cherokee Boulevard.

- Wildwood Lane from Bowen Street to Eskie Dixon Road.
- Eskie Dixon Road from Wildwood Lane to Main Street (US 1).

A conceptual cross section for the Residential Collector roadway character type is depicted in **Figure 4.1-6**. Key components include:

- Two twelve-foot travel lanes (one in each direction).
- Fifteen-foot center turn lane that doubles as a landscaped median (where appropriate and feasible).
- Closed drainage system with concrete curb and gutter.
- Planted verge adjacent to curb with street trees (as appropriate and feasible).
- Twelve-foot wide shared-use pathway for bicycle and pedestrian travel on one side of road and six-foot sidewalk on opposite side of road.
- Decorative fencing to define right-of-way (where appropriate and feasible).
- Design speed of 50 mph; posted speed limit of 35-40 mph.

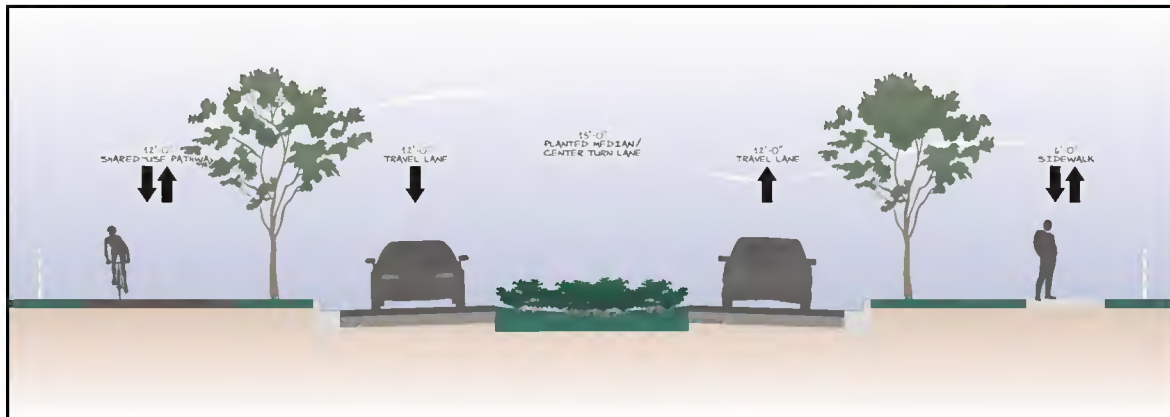


Figure 4.1-6: Residential Collector Conceptual Cross Section

The intention of the Residential Collector is to provide a transportation corridor that is not only conducive to residential uses, but that will act as an attractor and catalyst for residential development. The Residential Collector is recommended in areas that already are seeing a residential

influx, are ripe for additional residential development, and have been identified as areas where continued residential development is desired. The roadway type is designed to carry moderate levels of traffic, while also providing a safe and attractive environment for bicyclists and pedestrians.

It is of paramount importance that overlay districts be put in place to limit the type, size, and scale of development along Residential Collector corridors. Without such, these scenic corridors will quickly devolve into big-box, strip shopping center type development, as they will be in close proximity to the “rooftops” that commercial developers crave. This is not to say that some level of limited commercial is not appropriate; however, larger commercial developments should be directed to the primary arterial system. Pockets of neighborhood commercial (e.g., pharmacies, convenience stores, etc.) uses should be allowed at major intersections along the corridors, but the “spilling out” of this development to the entire corridor should be discouraged. Additionally, performance standards should be adopted that will create a partnership between local governments and developers. Such should include frontage improvement standards that would require developers to assist in the realization of the landscaping, sidewalk, and pathway components of the Residential Collector cross section.

Figure 4.1-7 presents a photo simulation of what the Residential Collector roadway character type might look like along Wildwood Lane.



Figure 4.1-7: Photo Simulation of Wildwood Lane as Residential Collector

In addition to serving as attractors for residential development, another purpose of the Residential Collectors is to provide alternative routes for vehicular traffic that presently must utilize US 1 to efficiently travel through the study area. It is important to note, that the capacity of the Residential Collectors has been intentionally limited to three lanes (one travel lane in each direction and a center turn lane) to ensure they do not become “bypass” routes, but rather function as true collectors for surrounding neighborhoods. It is recommended that three lanes be the maximum cross section planned for these facilities.

Although the Residential Collectors are neither envisioned nor intended to divert dramatic amounts of traffic from the surrounding network, they should provide limited relief that will make traffic volumes on other roads in the network more bearable in the design year 2035. To validate this theory, the Wildwood Lane Residential Collector was programmed into

the COATS travel demand model to determine its ability to alleviate traffic on surrounding routes. Overall, the model run indicated that the Wildwood Lane Residential Collector would perform as hoped. Several of the noted changes in vehicles per day are highlighted below:⁷

- Reduction of 3,000 vpd (38%) on Sessions Road between Wildwood Lane and Main Street (US 1).
- Reduction of 1,000 vpd (19%) on Smyrna Road between Wildwood Lane and Sessions Road.
- Reduction of 1,500 vpd (6%) on Main Street (US 1) in downtown Elgin.

Limited Improvements

Several roads within the study area require limited improvements that include paved shoulders, geometric improvements, and basic safety improvements. These corridors carry moderate amounts of traffic but are currently substandard in lane width and geometry. Additional, detailed study should be performed to determine the exact nature of these improvements. Roadways recommended for limited improvement are:

- Bowen Street from Kelly Mill Road to Main Street (US 1).
- Cherokee Boulevard from Bowen Street to Bookman Road.
- Veterans Row from the northern study area boundary to Wildwood Lane.
- Sessions Road from Wildwood Lane to Main Street.

4.2 Bicycle and Pedestrian Improvements

It is important to develop and implement a connected pedestrian and bicycle network within the study area. Such a network will meet the need of citizens who utilize walking and biking for transportation or recreational purposes. Safe, secure, efficient bicycle and pedestrian mobility and access

⁷ Vehicles per day are averaged and rounded for demonstration purposes. Actual model run data is on file and available for review at CMCOG.

between residences, places of employment, and businesses will enhance quality of life in the sub-area.

Bicycle and Pedestrian Facility Plan

It is recommended that a system of pedestrian and bicycle facilities be established (see **Figure 4.2-1**) to complement the existing vehicular travel network. These are not presented as a comprehensive mapping of facilities, but rather designate critical connections for walking and biking between homes, schools, employment centers, and business locations.

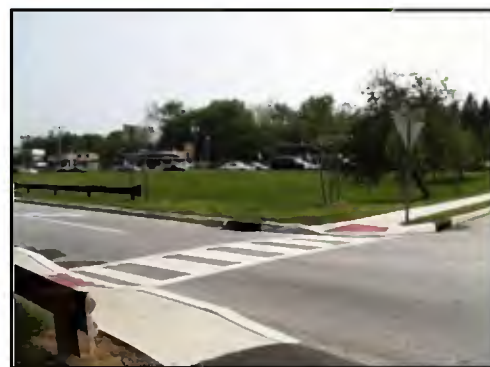
Facility types included in the facility plan are:

- **Shared-Use Pathway** – Twelve-foot wide pathway for both bicycle and pedestrian travel within the roadway right-of-way but separated from the roadway itself.
- **Sidewalks/Bike Lanes** – Combination of sidewalks and on-road six-foot bike lanes.
- **Sidewalks/Shared Travel Lanes** – Sidewalks for pedestrian travel, while bicycles share the road with automobiles.
- **Paved Shoulders** – In more rural areas bicycle and pedestrian travel would occur on paved shoulders ranging from two to four feet in width.

Bicycle and Pedestrian Amenities

In addition to the facilities outlined above, a variety of bicycle and pedestrian amenities are recommended for use throughout the sub-area. The implementation of each should be reviewed on a case-by-case basis to determine the most appropriate application. Specific recommended amenities include:

- **Crosswalks** – Installation of crosswalks at all intersections is recommended. At unsignalized intersections, crossings of the uncontrolled street should be preceded by advanced warning devices such as pavement markings, signage, and flashing signals. Crosswalks at signalized intersections should allow for pedestrian travel in all four directions (as appropriate and feasible). Crosswalks should also follow ADA and MUTCD guidelines. Crosswalks should be composed of an enhanced striping pattern so as to provide greater visibility. At key intersections the use of patterned concrete or asphalt products is suggested to



Crosswalk with Enhanced Striping

**Countdown
Pedestrian Signal**

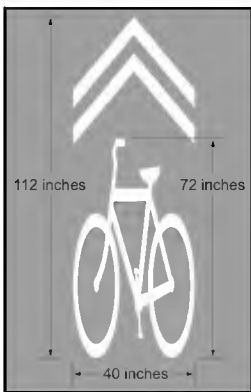


Audible Pedestrian Signal Push Button with Operational Signage

define the crossing area, calm traffic, and provide visual queues (see Section 4.3 for additional information).

- **Pedestrian Signals** – In conjunction with crosswalk recommendations, actuated countdown pedestrian signals with audible confirmation and signage indicating signal operation and crossing safety should be installed. ADA requirements pertaining to signal timing, audible signals, locator tones for push buttons, placement, and mounting locations should be evaluated as individual improvement projects are pursued.
- **Curb Ramps** – Curb ramps that meet or exceed American’s with Disabilities Act (ADA) public rights-of-way guidelines should be installed at all intersections parallel to crosswalks. At signalized intersections, where pedestrians may cross in both directions, ramps should be located within the width of each crosswalk. In most cases this would require two separate ramps at a corner instead of a single, diagonal-opening ramp at the corner. ADA suggests dual ramp installations for several reasons:

“Single ramps can misdirect blind pedestrians who use the slope of curb ramps as cues. They can increase crossing times for persons who use wheeled mobility aids and can place users into oncoming traffic at small radius corners where it is difficult to provide landing space at the bottom that is wholly within marked crossings. Also, drivers may not be as alert to persons crossing at the apex of the corner.”



*Shared Lane Marking
(Source: MUTCD)*

- **Sharrows** – Where sufficient cartway width is not available for dedicated bicycle lanes, wide outside travel lanes can be marked for shared travel between automobiles and bicycles. The “sharrow” pavement marking should be utilized to alert motorists to bicycles and inform bicyclists of the proper area to ride.

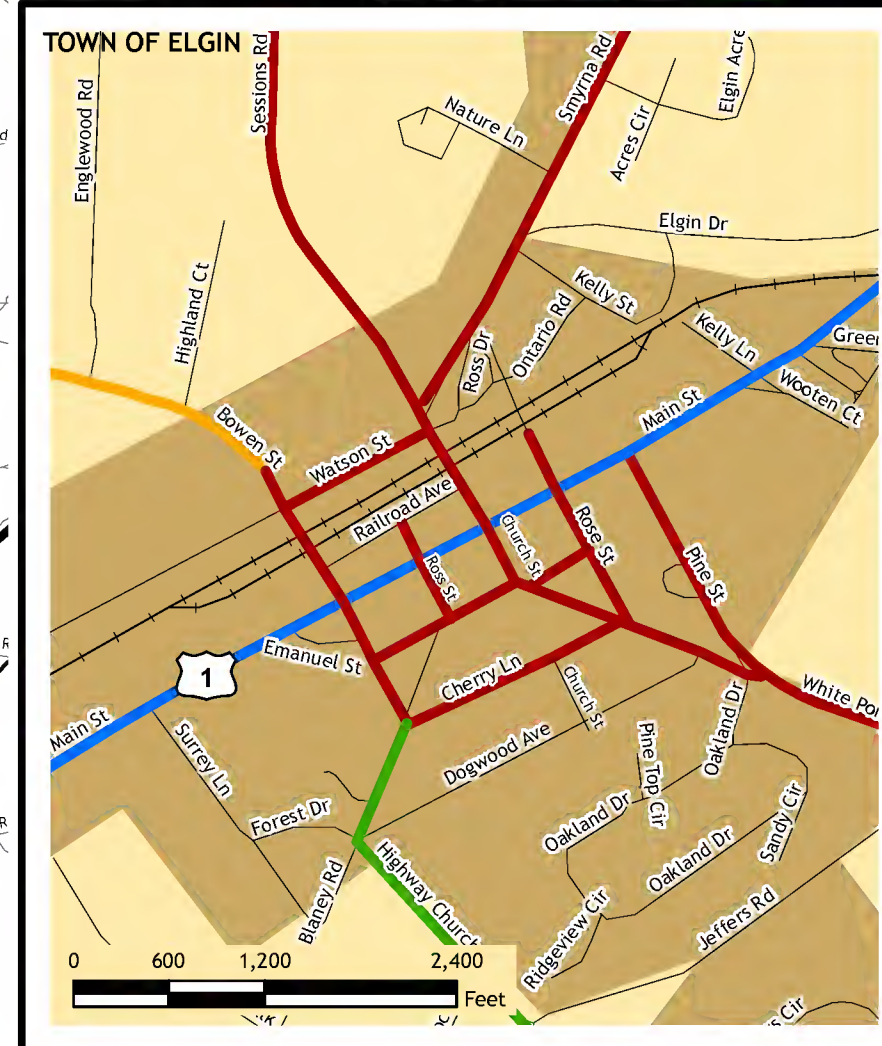
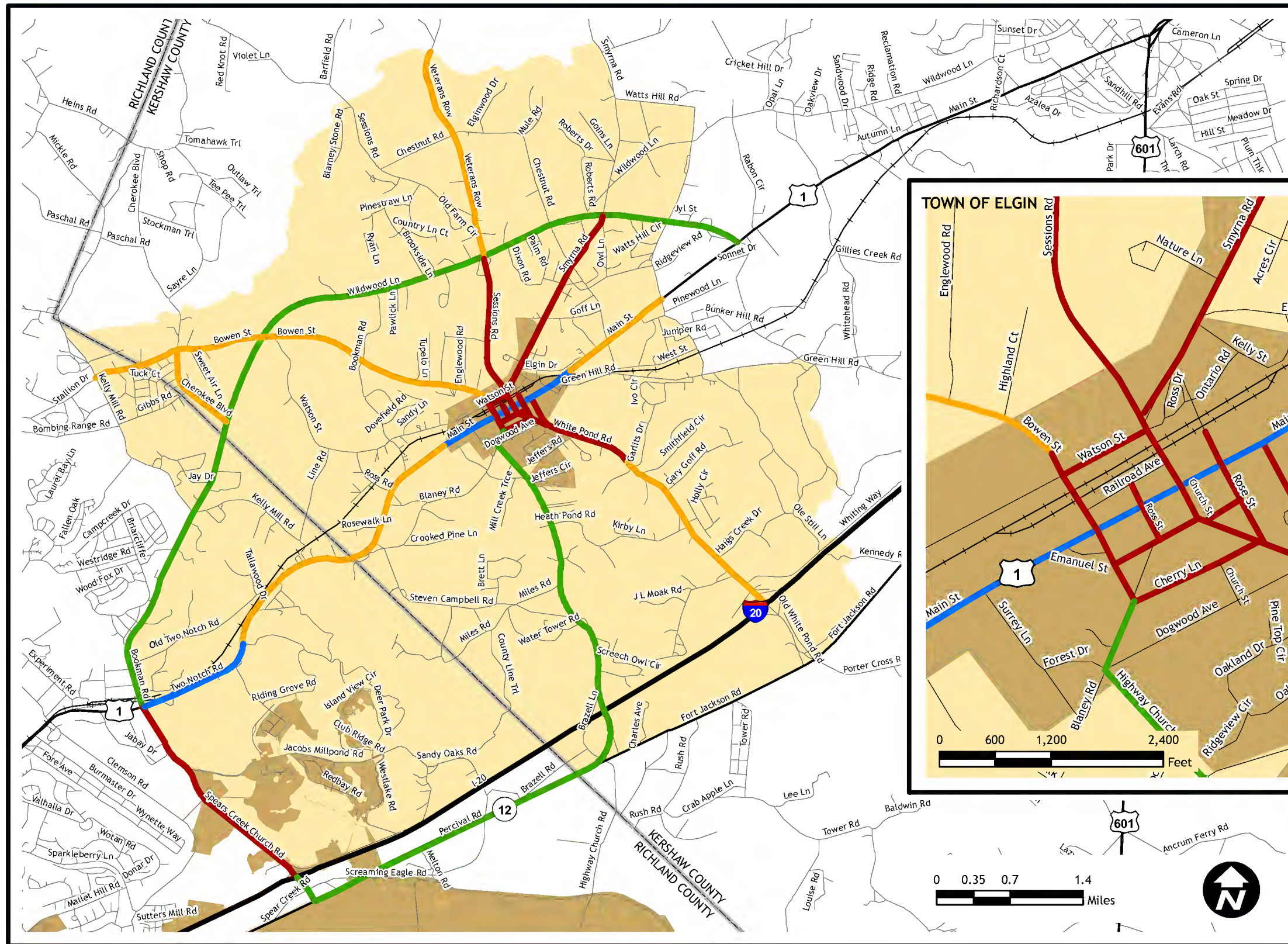


*Bicycle Detection Marking and Signage
(Source: MUTCD)*

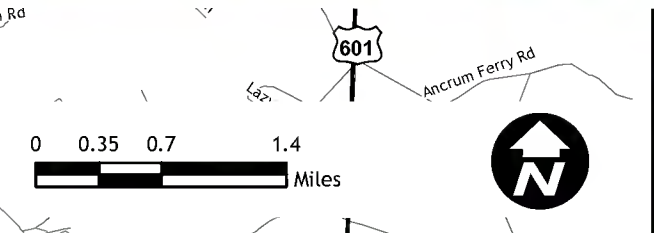
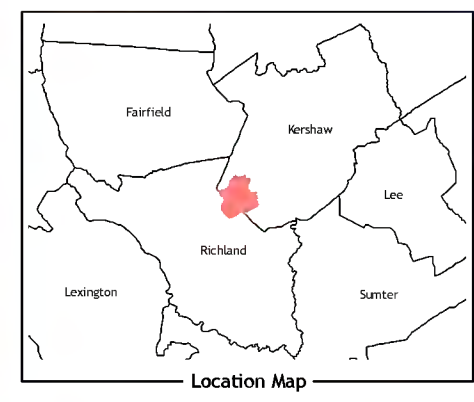
- **Bicycle Detection** – At signalized intersections where bicycle facilities also converge, bicycle detector loops should be evaluated. Traditional loop detectors do not detect bicycles, but these loops enable bicyclists to trigger a green light. Appropriate pavement markings and associated signage would accompany such improvements.

Elgin/Richland Northeast Sub-Area Plan

Figure 4.2-1: Bicycle and Pedestrian Improvements



- Legend**
- Shared-Use Pathway
 - Sidewalks/Bike Lanes
 - Sidewalks/Shared Travel Lane
 - Paved Shoulders
 - Study Area
 - County Boundary
 - Municipal Boundary



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4.3 Intersection Improvements

Fifteen intersections were identified for improvement. Recommended improvements range from geometric realignment to improved sight distance and general safety to the addition of lanes.

Case Study Intersections

Two intersections have been identified for detailed case study within the confines of the recommendations of this plan. These intersections were selected based on their prominence in the sub-area and integration into larger transportation and land use recommendations.

Main Street/Church Street Intersection

The Main Street/Church Street Intersection is arguably the most critical intersection in the sub-area and is part of the larger downtown Urban Arterial recommendation outlined in Section 4.1.

In the near-term, a dedicated eastbound left turn lane and signal should be installed on Main Street, and planning should begin for a dedicated southbound right turn lane on Church Street. Additional through lanes will be necessary on Main Street in the long-term to maintain an acceptable LOS. The creation of the Wildwood Lane residential collector (see Section 4.1) should draw enough traffic off of Sessions Road to eliminate the need for additional north and south through lanes.

Long-term improvements will require four through lanes (two in each direction) and a dedicated left turn lane and signal in both directions on Main Street. The right turn lane on southbound Church Street will be necessary as well. Bicycle and pedestrian facilities should be added to improve the safety and functionality of this intersection for these modes.

The program of improvements for the intersection of Main and Church Streets should include:

- Four through lanes (two in each direction) on Main Street.
- Dedicated left-turn lane in both directions on Main Street.
- Dedicated right-turn lane on southbound Church Street.

- Bicycle refuge lanes on Main Street.
- Ten-foot sidewalks with streets trees on Main Street.
- Six-foot sidewalks on Church Street and Sessions Road.
- Decorative stamped asphalt crosswalks.
- ADA compliant curb ramps with detectable warnings.
- Traffic signal mastarms and pedestrian scale lighting.
- Actuated pedestrian countdown signals.
- Shared lane markings (“sharrows”) on Church Street and Sessions Road.
- Bicycle signal detection with associated pavement markings and signage.

Figure 4.3-1 presents a schematic design for the Main Street/Church Intersection and it is also simulated in the foreground of Figure 4.1-3 which was previously presented in Section 4.1 of this document.

Wildwood Lane/Sessions Road/Veterans Row Intersection

The intersection of Wildwood Lane, Sessions Road, and Veterans Row was not one of the intersections included in the intersection technical analysis of this document. However, the bicycle, pedestrian, and development trends analyses began to point to this intersection as a critical location in the sub-area. This intersection rose to prominence as not only a key crossroads for automobile, bicycle, and pedestrian traffic, but also as one of the potential growth areas identified.

As larger, more comprehensive recommendations were formulated, the intersection of Wildwood Lane, Sessions Road, and Veterans Row continued to present itself as an intersection of future significance. The Wildwood Lane Residential Collector described in Section 4.1 of this plan will draw residential development to the north of the Town of Elgin along its length, and this intersection will act as a central connection back to downtown Elgin from this new corridor. Additionally, key bicycle and pedestrian facilities will converge at this intersection. Based on these factors, improvements to this intersection will be necessary.



Figure 4.3-1: Main Street/Church Street Intersection Schematic Design

The program of improvements for the intersection of Wildwood Lane, Sessions Road, and Veterans Row should include:

- The intersection becomes four-way stop sign controlled to improve vehicular, pedestrian, and bicycle safety. As additional development comes online, it is anticipated that this intersection will ultimately become signalized.⁸
- Two through lanes (one in each direction).
- Dedicated left-turn lanes on Wildwood Lane in anticipation of future signalization.
- Closed drainage with concrete curb and gutter.
- Twelve-foot shared-use pathway along northern side of Wildwood Lane with planted verge and street trees (as appropriate and feasible).
- Six-foot sidewalk on southern side of Wildwood Lane with planted verge and street trees (as appropriate and feasible).
- Six-foot sidewalk on eastern side of Sessions Road.
- Enhanced crosswalk on northern leg of intersection at shared-use pathway crossing; standard thermoplastic striped crosswalks on all other legs.
- ADA compliant curb ramps with detectable warnings.

Figure 4.3-2 presents a schematic design for the Wildwood Lane/Sessions Road/Veterans Row Intersection and it is also simulated in the foreground of Figure 4.1-7 which was previously presented in Section 4.1 of this document.

⁸ The recommendation for four-way stop sign control is based on anecdotal evidence regarding vehicular and pedestrian safety concerns at this intersection. Prior to implementation, a more detailed analysis of this intersection should be performed.

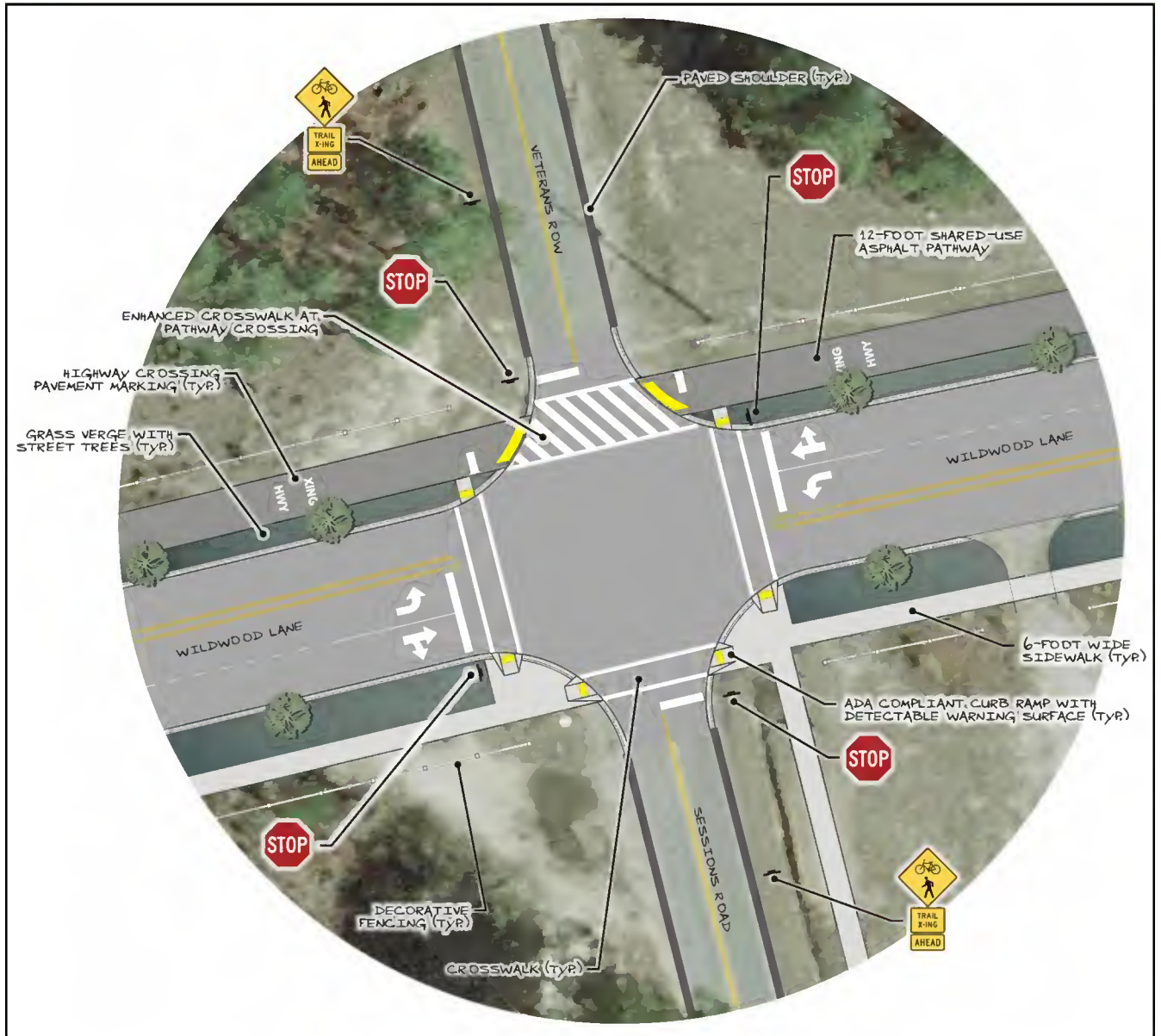


Figure 4.3-2: Wildwood Lane/Sessions Road/Veterans Row Intersection Schematic Design

Other Intersections

Recommendations for the following intersections are preliminary. Once these intersections move toward funding and actual implementation, they should be investigated further with more detailed traffic analysis.

White Pond Road/Whiting Way

A left turn lane is recommended in the near-term on White Pond Road at Whiting Way. Long-term improvements will require four through lanes (two in each direction) on White Pond Road and the intersection will need to be signalized for an acceptable level of service to be achieved. Paved shoulders will provide refuge for bicyclists and pedestrians. In addition, crosswalks and actuated pedestrian countdown signals should be installed.

Smyrna Road/Wildwood Lane

In the mid-term, the side streets should be brought into Smyrna at more of a 90 degree angle. This can be done with a low-speed design on Wildwood because Wildwood traffic has to stop. Longer term, when this intersection requires signalization, a higher design speed will have to be used because Wildwood traffic will not have to stop when its light is green. At that time, left turn lanes on Smyrna should be examined.

Smyrna Road/Sessions Road/Watson Street

Short-term preparations must be made for signalization of this intersection. Smyrna should be brought into Sessions at more of a 90 degree angle, and a left turn lane should be added on Smyrna. Property owners near this intersection expressed concerns over the intersection but more passionately spoke to their opposition to its reconfiguration. Since the Wildwood Lane Residential Collector demonstrates an ability to move trips away from this intersection, improvements may be less dramatic than anticipated.

Dogwood Avenue/Blaney Road/Forest Drive/ Highway Church Road

Recognizing the residential nature of the area in which the intersection is located, it is suggested that the five-way stop be continued. A realignment to obtain better angles and an improved radius on the corner of northbound Blaney to

Highway Church to accommodate trucks making that turn should be pursued short-term. In the future, reconfiguration of Highway Church Road should be evaluated to determine the feasibility of bringing it into Elgin further to the west.

Main Street/Pine Street

A right turn lane should be added on Pine with a larger corner radius, and a left turn lane should be provided on Main at Pine to accommodate existing left turn traffic and to accommodate future signalization.

Watts Hill Road/Eskie Dixon Road

Based on historic fatalities at this intersection associated with disregard for the stop sign and high vehicular speeds, the appropriateness of advanced warning devices should be evaluated. As short-term improvements, the installation of rumble strips, flashing signals, and/or reflectors should be considered. Long-term, the reconfiguration of Eskie Dixon as part of the Wildwood Lane Residential Collector should eliminate the need for such devices.

Kelly Mill Road/Bookman Road

It appears that changes have been made recently to this intersection to accommodate school traffic, but preparations should be made for signalization. The side streets should be brought in more at 90 degrees. The northbound Bookman to eastbound Kelly Mill movement has a larger percentage of trucks, and a larger radius should be provided to accommodate them.

Bowen Street/Wildwood Lane

With the creation of the Wildwood Lane Residential Collector (and connecting Wildwood Lane to Bookman Road), this intersection will change dramatically. Wildwood will become the dominate through movement and the intersection will most likely be signalized in the long-term. The intersection should be realigned to obtain close to a 90 degree intersection, and a left turn lane should be added on Bowen to accommodate left movements onto the new Wildwood Lane Residential Collector.

Main Street/Green Hill Road

Sight distance, adjacent topography, and close location to the railroad viaduct make any intersection improvements difficult. However, improvement in the angle of the intersection and the addition of a left turn lane on Main Street and Green Hill will eventually be needed. Further evaluation of the paving of Green Hill in its entirety and its ability to serve as a western link back to Whiting Way and I-20 should be further investigated.

White Pond Road/Pine Street

In the short-term it is likely that this intersection will need to be signalized. To accommodate that signalization short-term, Pine Street should be brought into White Pond at more of a 90 degree angle with consideration of the offset to adjacent intersections, and a left turn lane should be provided on White Pond. Long-term, Pine Street could be part of a route that would shift traffic from the center of town. In that case, the Pine/White Pond movement would be the through movement, and the western leg of White Pond would “T” in.

White Pond Road/Church Street/Branham Street

The White Pond/Church curve should be improved allowing that to be the through movement with Branham as a “T.” This would not be a large curve because the design speed should be lower in the downtown area.

US 1/Blaney Road

Eastbound on US 1 drivers can easily be led off US 1 onto Blaney because Blaney comes into US 1 in a “Y” intersection in a curve. Realignment of Blaney or a reconfiguration of the triangle formed by US 1, Blaney, and Steven Campbell Road should be pursued to eliminate the “Y” intersection.

Highway Church Road/Percival Road/Fort Jackson Road

Presently, Highway Church terminates at Percival and Fort Jackson Roads. However, the dominate movement is between Highway Church and Percival with very little traffic coming from or going onto Fort Jackson Road. Changing the alignment of this intersection to connect Highway Church and Percival as the through movement should be investigated. Fort Jackson Road would then “T” into the intersection.

4.4 Transit Improvements

Transit recommendations are not included in the ERNE Sub-Area Plan. Although a limited transit analysis was conducted as part of this study, this sub-area plan defers to the Columbia-Camden Transit Alternatives Analysis for more in-depth analyses and recommendations. Once complete, that document will provide a comprehensive and focused study specific to transit in and through the ERNE Sub-Area.

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5. Implementation

It is not enough to identify needs and then propose improvements to meet those needs; it is imperative to provide a framework for implementation of recommendations. This section provides:

- Perspective on the role of the sub-area plan in the overall planning, design, and implementation process;
- Guidance on the role of local governments in turning recommendations into reality; and
- Action Plan outlining recommendations, implementation period, order-of-magnitude opinions of probable cost, potential responsible agencies, and relevant comments.

5.1 Role of the Sub-Area Plan

The sub-area plan product fulfills a critical role in the overall transportation planning process. It is important to recognize the merits and limitations of the sub-area planning process in order to appropriately understand the next steps that must be taken to achieve the recommendations of this plan.

Relationship to the Project Delivery Process

Metropolitan Planning Organizations (MPOs) are mandated by the federal government to oversee transportation policy and planning for urbanized areas with populations greater than 50,000. The CMCOG, serving as the Columbia Area Transportation Study (COATS), is the designated MPO for the Columbia region. The MPO project delivery process is composed of three basic elements:

- The **Long Range Transportation Plan (LRTP)** identifies critical transportation needs of the region over a 20-30 year period and establishes a broad vision for meeting these needs. Potential projects are ranked according to criteria established at the state and/or local level and are financially constrained based on anticipated funding (see discussion below concerning Act 114).⁹



⁹ To review the current COATS LRTP, please visit www.centralmidlands.org.

- Based on the vision established in the LRTP, more focused planning projects are developed to assist in refining that vision and provide additional details on the nature of future recommendations. These planning projects are executed through the MPO's annual **Unified Planning Work Program (UPWP)**; the ERNE Sub-Area Plan is one of these projects. Upon completion, recommendations from the ERNE Sub-Area Plan will cycle back into the LRTP for competitive ranking against the other projects already included in the LRTP; in this regard, there is a cyclical and symbiotic relationship between the LRTP and the UPWP.¹⁰
- Projects that have actual federal funding assigned to them are included in the **Transportation Improvement Program (TIP)**.¹¹ The TIP is predominately composed of projects that make their way onto the LRTP's fiscally constrained lists and then graduate to the TIP once actual funding is allocated; however, some projects are added to the TIP without being on the LRTP, if dedicated federal funding sources are assigned to them. The local TIP becomes part of the larger Statewide Transportation Improvement Program (STIP) for implementation by the SCDOT. SCDOT will then move projects through its Project Development Process, which includes detailed study and analysis, public participation, environmental documentation, design, permitting, right-of-way acquisition, and construction.¹²

A sub-area plan is not designed to provide definitive answers to all questions that may arise, but rather is a bridge between the extremely broad nature of the initial analyses conducted as part of the LRTP and the site-specific investigations of an actual design/construction project. The sub-area plan can be thought of as a view from 50,000 feet, while the LRTP's view is

¹⁰ The current COATS UPWP is also available at www.centralmidlands.org.

¹¹ The COATS TIP can be reviewed at www.centralmidlands.org.

¹² The STIP and SCDOT Project Development Process are available at www.scdot.org.

taken from 100,000 feet and a design/construction project is at “ground level.”¹³

Relationship to Act 114

In 2007, the South Carolina Legislature passed Act 114¹⁴ requiring SCDOT to follow a new project selection process. The SCDOT then passed that process down to the MPOs and COGs through its issuance of Engineering Directive Memorandum (EDM) 60 (see **Appendix C**).

Act 114 establishes weighted ranking criteria for three categories of project lists:

- Statewide widening list;
- Local MPO and COG intersection improvement list; and
- Statewide new-location roadway list.

Individual MPOs and COGs may use the standard ranking criteria as established within Act 114 or may develop additional and/or modified criteria for approval by the South Carolina Transportation Commission. Although the widening and new-location roadway lists are statewide compilations, individual projects only compete with similar projects within each respective urban or rural region. The ranking criteria of Act 114 are utilized to develop the widening, intersection, and new-location lists contained in the LRTP. Those projects ranking highest on each of these lists become part of the financially constrained portion of the LRTP and have the greatest opportunity for advancement to the TIP and actual implementation.

As mentioned previously, the sub-area planning process is taken from a 50,000-foot vantage. At this level of planning it is challenging to measure the merits of individual recommendations based on the ranking criteria of Act 114 because numerous project details have yet to be considered. However, it is still important to acknowledge that once the

¹³ For more information on the transportation planning process, visit www.fhwa.dot.gov/planning/decisionmaking/index.htm.

¹⁴ SC Code of Laws Sections 57-1-370 and 57-1-460.

recommendations of the ERNE Sub-Area Plan are adopted, they will most likely find their way into the LRTP and will have to compete against other projects based on how well they satisfy the various ranking criteria. The Town of Elgin, Kershaw County, and Richland County should begin to determine now methods for bolstering the competitive nature of recommendations coming out of the ERNE Sub-Area Plan.

5.2 Role of Local Governments

Historically, it has been the perspective of local governments that it is SCDOT's responsibility to handle all transportation improvements. However, in recent years it has become apparent that SCDOT's perceived responsibilities far outweigh their available resources. More and more local communities are realizing that for transportation improvements to keep up with transportation demand, they must become involved in not only the transportation planning process, but the implementation process as well. Additionally, local governments must adopt land use regulations that support a healthy transportation-land use balance.

In order to advance the recommendations of this plan, four key points of guidance are offered to the local governments composing the ERNE Sub-Area. These are by no means exhaustive of the methods available, but rather basic building blocks that will serve as a starting point for inserting the ERNE Sub-Area Plan into the regional transportation discussion.

- The first and most basic action local governments should take is to continuously educate themselves on the transportation planning process to gain a more complete understanding of how projects are conceived and advanced through local, state, and federal processes. Understanding the individual milestones of project development as outlined in Section 5.1 is essential to being able to influence such projects.
- Next, local government representatives should regularly attend meetings of the COATS Technical, Transportation Sub-, and Policy Committees. Richland and Kershaw Counties have appointed and voting seats on each of these committees and should regularly utilize these positions of influence to champion projects important to their

constituents. These meetings are open to the public and the Town of Elgin should also regularly attend to keep abreast of current transportation thought in the region and potential projects that may emerge in the immediate and distant future.¹⁵

- Third, local governments should implement development regulations to support the various transportation recommendations included in this plan. Kershaw County, Richland County, and the Town of Elgin should incorporate the recommendations of this sub-area plan into both the land use and transportation elements of their comprehensive plans; in fact, Elgin should utilize this document as the transportation element of its comprehensive plan. The institution of appropriate setbacks along improvement corridors will ensure that adequate right-of-way is available in the future; this will not only reduce conflicts between the built environment and roadway improvements, but will also reduce the purchase price for right-of-way because such will not involve the acquisition/demolition of existing structures. Establishing the land use context along important corridors through zoning overlay districts will assist in achieving desired characters through the control of the type, size, and scale of development. Additionally, putting performance standards in place will shift some of the financial burden for facilities to adjacent developers, as they will construct sidewalks and shared-use paths (or provide fees in lieu) as part of required frontage improvements.
- Finally, the Town of Elgin, Kershaw County, and Richland County should explore methods for funding transportation projects on the local level. This may be as simple as completing transportation enhancement projects such as sidewalk improvements or streetscape projects. It could also entail more comprehensive programs like the

¹⁵ An additional advantage of attending these meetings is the ability to network with key transportation decision-makers in the region.

implementation of a vehicle fee or local option sales tax to finance more complex transportation improvements.¹⁶

5.3 Action Plan

Table 5.3-2 located at the end of this section presents the Action Plan for implementation of recommended improvements presented in Section 4 of this sub-area plan.

Where applicable, an estimated order-of-magnitude opinion of probable cost is presented for each recommendation in the Action Plan (detailed opinions of probable cost are included in **Appendix D**). Costs were developed using unit pricing values from locally and nationally published cost-estimating sources.

Actions have been categorized by implementation period:

- **Near-term (0-2 years)** – These are actions that should occur almost immediately. They are critical to establishing early momentum, resolving urgent issues, and setting the foundation for the success of future improvements.
- **Short-term (0-5 years)** – Although not as urgent as near-term recommendations, these improvements are considered “low hanging fruit” and have a relatively low cost. They can be implemented through a variety of means and are not singularly dependent on one source of funding or agency.
- **Mid-term (5-10 years)** – These improvements are not needed immediately. Planning, establishment of support, and identification of funding sources should begin now for these projects so they are on track for implementation within this period.
- **Long-term (10-20 years)** – Long-term projects are part of a vision to meet the needs of the design year 2035. These improvements will require a level of planning and funding that must be formulated over a number of years. Additionally, these projects will most likely be accomplished using funding sources that require a competitive ranking process.

¹⁶ Kershaw and Richland Counties are both presently exploring sales tax programs.

Although implementation periods have been established, these designations are for planning purposes only; actions should be implemented as soon as opportunities arise. For example, if circumstances provide an opportunity to complete a mid-term project two years after this sub-area plan is adopted, the improvement should be made, regardless of its designation as “mid-term.”

Capital Cost Breakdowns

The breakdowns of capital cost by implementation period and project type are outlined in **Table 5.3-1**.

Table 5.3-1
Capital Cost by Implementation Period and Project Type

Project Type	Implementation Period				Total Capital Costs
	Near-term (0-2 years)	Short-term (0-5 years)	Mid-term (5-10 years)	Long-term (10-20 years)	
Widening	\$0	\$0	\$4,665,000	\$43,922,000	\$48,587,000
Intersection/Safety	\$411,000	\$797,000	\$2,321,000	\$1,199,000	\$4,728,000
New Location	\$0	\$0	\$1,812,000	\$0	\$1,812,000
Bicycle/Pedestrian*	\$0	\$380,000	\$2,532,000	\$4,809,000	\$7,721,000
TOTAL	\$411,000	\$1,177,000	\$11,330,000	\$49,930,000	\$62,848,000

* The costs for bicycle and pedestrian projects that are associated with “Residential Collector” roadway projects have been broken out separately from those roadway improvements. The purpose for this is to quantify the cost of bicycle and pedestrian projects that have the potential to be funded by private property owners as frontage improvements.

Potential Funding Sources

A listing of potential funding sources for completing recommendations included in the Action Plan can be found in **Appendix E**.

Table 5.3-2
Action Plan

Recommended Action	Estimated Cost ³	Potential Responsible Agency	Comments
Near-term (0-2 years)			
\$411,000			
Overlay zoning districts for roadway corridors	n/a	Town of Elgin; Kershaw County; Richland County	<ul style="list-style-type: none"> ▪ Implementation of overlay districts will be critical to achieving the characters desired along roadway corridors ▪ Institution of setbacks at intersections and along roadway corridors will ensure right-of-way preservation ▪ Outreach to affected property owners will be required ▪ May require the assistance of COG or a consulting firm
Watts Hill Road/Eskie Dixon Road Intersection Evaluation	n/a	SCDOT	<ul style="list-style-type: none"> ▪ Evaluate need for advanced warning devices, including but not limited to rumble strips and flashing signals
Main Street/Church Street Intersection Improvement	\$10,000 ^b	SCDOT	<ul style="list-style-type: none"> ▪ Improvements to this intersection are already included in the LRTP ▪ Install dedicated eastbound left turn signal ▪ Begin planning for dedicated southbound right turn lane
Main Street/Pine Street Intersection Improvement	\$215,000 ^b	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Improvements to this intersection are already included in the LRTP ▪ Add right turn lane to Pine ▪ Install dedicated westbound left turn lane on Main Street
White Pond Road/Whiting Way Intersection Improvement	\$186,000 ^b	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Install dedicated southbound left turn lane
Short-term (0-5 years)			
\$1,177,000			
Watson Street Sidewalks and Sharrows <ul style="list-style-type: none"> ▪ Bowen Street to Sessions Road 	\$49,000 ^b	Town of Elgin; SCDOT	<ul style="list-style-type: none"> ▪ With adoption of applicable development regulations, sidewalks could be realized through frontage improvement requirements
Bowen Street Sidewalks and Sharrows <ul style="list-style-type: none"> ▪ North of Watson Street to Blaney Road 	\$76,000 ^b	Town of Elgin; SCDOT	<ul style="list-style-type: none"> ▪ With adoption of applicable development regulations, sidewalks could be realized through frontage improvement requirements

Recommended Action	Estimated Cost ¹	Potential Responsible Agency	Comments
Church Street Sidewalks and Sharrows <ul style="list-style-type: none"> ▪ Main Street to White Pond Road 	\$20,000 ^b	Town of Elgin; SCDOT	<ul style="list-style-type: none"> ▪ With adoption of applicable development regulations, sidewalks could be realized through frontage improvement requirements
Rose Street Side walks and Sharrows <ul style="list-style-type: none"> ▪ Railroad to White Pond Road 	\$46,000 ^b	Town of Elgin; SCDOT	<ul style="list-style-type: none"> ▪ With adoption of applicable development regulations, sidewalks could be realized through frontage improvement requirements
Campbell Street Sidewalks and Sharrows <ul style="list-style-type: none"> ▪ Rose Street to White Pond Road 	\$21,000 ^b	Town of Elgin; SCDOT	<ul style="list-style-type: none"> ▪ With adoption of applicable development regulations, sidewalks could be realized through frontage improvement requirements
Ross Street Sidewalks and Sharrows <ul style="list-style-type: none"> ▪ Railroad Avenue to Blaney Road 	\$43,000 ^b	Town of Elgin; SCDOT	<ul style="list-style-type: none"> ▪ With adoption of applicable development regulations, sidewalks could be realized through frontage improvement requirements
Branham Street/Blaney Road Sidewalks and Sharrows <ul style="list-style-type: none"> ▪ Bowen Street to Church Street 	\$49,000 ^b	Town of Elgin; SCDOT	<ul style="list-style-type: none"> ▪ With adoption of applicable development regulations, sidewalks could be realized through frontage improvement requirements
Cherry Lane Sidewalks and Sharrows <ul style="list-style-type: none"> ▪ Blaney Road to White Pond Road 	\$76,000 ^b	Town of Elgin; SCDOT	<ul style="list-style-type: none"> ▪ With adoption of applicable development regulations, sidewalks could be realized through frontage improvement requirements
Dogwood Avenue/Blaney Road/Forest Drive/Highway Church Road Intersection Improvement	\$81,000 ^b	Town of Elgin; Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Improvements to this intersection are already included in the LRTP ▪ Maintain five-way stop ▪ Minor realignment of intersection to obtain better turning angles

Recommended Action	Estimated Cost ^a	Potential Responsible Agency	Comments
Smyrna Road/Sessions Road/Watson Street Intersection Improvement	\$376,000 ^b	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Signalize intersection ▪ Reconfigure geometry of intersection ▪ Add southbound dedicated left turn lane ▪ Working closely with surrounding property owners will be necessary to gain support for improvements ▪ If Wildwood Lane Residential Collector can be implemented sooner than planned, this intersection may not require major improvements
White Pond Road/Pine Street Intersection Improvement	\$340,000 ^b	Town of Elgin; Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Reconfigure geometry of intersection ▪ Add southbound left turn lane to White Pond ▪ Signalize intersection
Mid-term (5-10 years)			
\$11,330,000			
Sessions Road Sidewalks and Sharrows <ul style="list-style-type: none"> ▪ Wildwood Lane to Main Street 	\$390,000 ^b	Town of Elgin; Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ With adoption of applicable development regulations, sidewalks could be realized through frontage improvement requirements
Smyrna Road Sidewalks and Sharrows <ul style="list-style-type: none"> ▪ Eskie Dixon to Sessions Road 	\$501,000 ^b	Town of Elgin; Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ With adoption of applicable development regulations, sidewalks could be realized through frontage improvement requirements
Smyrna Road/Wildwood Lane Intersection Improvement	\$178,000 ^b	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Reconfigure geometry of intersection
Kelly Mill Road/Bookman Road Intersection Improvement	\$144,000 ^b	Richland County; SCDOT	<ul style="list-style-type: none"> ▪ Reconfigure geometry of intersection ▪ Install larger turning radius northbound to eastbound to accommodate trucks

Recommended Action	Estimated Cost ^a	Potential Responsible Agency	Comments
Main Street/Green Hill Road Intersection Improvement	\$194,000 ^b	Town of Elgin; Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Reconfigure geometry of intersection ▪ Add left turn lanes to Main and Green Hill ▪ Further evaluation of Green Hill's ability to serve as a western link to Whiting Way and I-20 should be performed
White Pond Road/Church Street/Branham Street Intersection Improvement	\$93,000 ^b	Town of Elgin; Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Reconfigure geometry of intersection
US 1/Blaney Road Intersection Improvement	\$44,000 ^b	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Remove "Y" intersection
Highway Church Road/Percival Road/Fort Jackson Road Intersection Improvement	\$586,000 ^b	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Connect Highway Church and Percival as the through movement
Bowen Street Limited Improvements <ul style="list-style-type: none"> ▪ Kelly Mill Road to Main Street 	\$334,000 ^b	Kershaw County; Richland County; SCDOT	
Cherokee Boulevard Limited Improvements <ul style="list-style-type: none"> ▪ Bowen Street to Bookman Road 	\$74,000 ^b	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Improvements to Cherokee Boulevard are already included in the LRTP
Veterans Row Limited Improvements <ul style="list-style-type: none"> ▪ Northern study area boundary to Wildwood Lane 	\$166,000 ^b	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Paved shoulder improvements were recently completed on Veterans Row

Recommended Action	Estimated Cost ^a	Potential Responsible Agency	Comments
Sessions Road Limited Improvements <ul style="list-style-type: none"> ▪ Wildwood Lane to Main Street 	\$123,000 ^b	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Paved shoulder improvements were recently completed on Sessions Road
Bookman Road Residential Collector <ul style="list-style-type: none"> ▪ Two Notch Road to Cherokee Boulevard ▪ Shared-Use Pathway ▪ Sidewalk 	\$4,665,000 ^b \$734,000 ^b \$524,000 ^b	Richland County; SCDOT; Developers	<ul style="list-style-type: none"> ▪ Improvements to Bookman Road are already included in the LRTP ▪ Adopt regulations to encourage residential, limit commercial development, and preserve right-of-way ▪ With adoption of applicable development regulations, shared-use pathways and sidewalks could be realized through frontage improvement requirements
Bowen Street/Wildwood Lane Intersection Improvement	\$385,000 ^b	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Reconfigure geometry of intersection ▪ Signalize intersection ▪ Add left turn lane on Bowen ▪ Implement in conjunction with or prior to New Connection Residential Collector
New Connection Residential Collector <ul style="list-style-type: none"> ▪ Cherokee Boulevard to Bowen Street ▪ Shared-Use Pathway ▪ Sidewalk 	\$1,812,000 ^b \$224,000 ^b \$159,000 ^b	Kershaw County; SCDOT; Developers	<ul style="list-style-type: none"> ▪ Adopt regulations to encourage residential, limit commercial development, and preserve right-of-way ▪ With adoption of applicable development regulations, shared-use pathways and sidewalks could be realized through frontage improvement requirements

Recommended Action	Estimated Cost ^a	Potential Responsible Agency	Comments
Long-term (10-20 years)			
\$49,930,000			
White Pond Road/Whiting Way Intersection Improvement	\$223,000 ^b	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Signalize intersection ▪ Implement in conjunction with White Pond Road Rural Arterial
Wildwood Lane/Sessions Road/Veterans Row Intersection Improvement	\$52,000 ^b	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Full improvement as shown in Figure 4.3-2 ▪ Implement in conjunction with or just prior to Wildwood Lane Residential Collector Phase 1
Wildwood Lane Residential Collector – Phase 1			
<ul style="list-style-type: none"> ▪ Bowen Street to Sessions Road ▪ Shared-Use Pathway ▪ Sidewalk 	<ul style="list-style-type: none"> ▪ \$3,577,000^b ▪ \$565,000^b ▪ \$401,000^b 	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Adopt regulations to encourage residential, limit commercial development, and preserve right-of-way ▪ With adoption of applicable development regulations, shared-use pathways and sidewalks could be realized through frontage improvement requirements
Wildwood Lane Residential Collector – Phase 2			
<ul style="list-style-type: none"> ▪ Sessions Road to Main Street (via Eskie Dixon Road) ▪ Shared-Use Pathway ▪ Sidewalk 	<ul style="list-style-type: none"> ▪ \$4,121,000^b ▪ \$651,000^b ▪ \$462,000^b 	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Adopt regulations to encourage residential, limit commercial development, and preserve right-of-way ▪ With adoption of applicable development regulations, shared-use pathways and sidewalks could be realized through frontage improvement requirements
Smyrna Road/Wildwood Lane Intersection Improvement	\$456,000 ^b	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Signalize intersection ▪ Install left turn lanes on Smyrna
White Pond Road/Pine Street Intersection Improvement	\$207,000 ^b	Town of Elgin; Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Convert Pine/White Pond movement to through movement

Recommended Action	Estimated Cost ¹	Potential Responsible Agency	Comments
Two Notch Road (US 1) Urban Arterial <ul style="list-style-type: none"> ▪ Just west of Spears Creek Church Road to east of Old National Highway 	\$2,671,000 ^b	SCDOT	<ul style="list-style-type: none"> ▪ Improvements to US 1 in this area are already included in the LRTP ▪ Includes sidewalks and bike lanes
US 1 West Rural Arterial <ul style="list-style-type: none"> ▪ East of Old National Highway to just west of Surrey Lane 	\$6,786,000 ^b	SCDOT	<ul style="list-style-type: none"> ▪ Improvements to US 1 in this area are already included in the LRTP ▪ Adopt regulations to preserve right-of-way and direct type, size, and scale of development
Main Street (US 1) Urban Arterial <ul style="list-style-type: none"> ▪ West of Surrey Lane to east of Green Hill Road 	\$3,197,000 ^b	SCDOT	<ul style="list-style-type: none"> ▪ Improvements to US 1 in this area are already included in the LRTP ▪ Adopt regulations to encourage denser development with a mix of uses in close proximity
Main Street/Church Street Intersection Improvement	\$261,000 ^b	SCDOT	<ul style="list-style-type: none"> ▪ Full improvement as shown in Figure 4.3-1 ▪ Implement in conjunction with Main Street Urban Arterial
US 1 East Rural Arterial <ul style="list-style-type: none"> ▪ West of Green Hill Road to east of Rabon Circle 	\$4,128,000 ^b	SCDOT	<ul style="list-style-type: none"> ▪ Adopt regulations to preserve right-of-way and direct type, size, and scale of development
Spears Creek Church Road Minor Arterial <ul style="list-style-type: none"> ▪ Two Notch Road to I-20 	\$3,895,000 ^b	Richland County; SCDOT	<ul style="list-style-type: none"> ▪ Improvements to Spears Creek Church Road are already included in the LRTP ▪ Includes sidewalks and sharrows
White Pond Road/Pine Street Minor Arterial <ul style="list-style-type: none"> ▪ Garlits Drive to Main Street 	\$2,272,000 ^b	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Improvements to this section of White Pond Road are already included in the LRTP ▪ Includes sidewalks and sharrows
White Pond Road Rural Arterial <ul style="list-style-type: none"> ▪ Garlits Drive to I-20 	\$3,166,000 ^b	SCDOT	<ul style="list-style-type: none"> ▪ Improvements to a portion of this section of White Pond Road are already included in the LRTP ▪ Adopt regulations to preserve right-of-way and direct type, size, and scale of development

Recommended Action	Estimated Cost ^a	Potential Responsible Agency	Comments
Percival and Spears Creek Church Roads Residential Collector <ul style="list-style-type: none"> ▪ New connection with Highway Church Road to I-20 ▪ Shared-Use Pathway ▪ Sidewalk 	\$5,210,000 ^b \$823,000 ^b \$584,000 ^b	Richland County; SCDOT	<ul style="list-style-type: none"> ▪ Adopt regulations to encourage residential, limit commercial development, and preserve right-of-way ▪ Improvements to a portion of Percival Road are already included in the LRTP ▪ With adoption of applicable development regulations, shared-use pathways and sidewalks could be realized through frontage improvement requirements
Highway Church Road Residential Collector <ul style="list-style-type: none"> ▪ Blaney Road to new connection with Percival Road ▪ Shared-Use Pathway ▪ Sidewalk 	\$4,899,000 ^b \$774,000 ^b \$549,000 ^b	Kershaw County; SCDOT	<ul style="list-style-type: none"> ▪ Adopt regulations to encourage residential, limit commercial development, and preserve right-of-way ▪ With adoption of applicable development regulations, shared-use pathways and sidewalks could be realized through frontage improvement requirements

^a Opinions of probable cost are in 2010 dollars.

^b Itemized opinion of probable cost located in Appendix D.

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