

I-85 SOUTH CORRIDOR STUDY

# Land Use Plan

# Rowan County





## Acknowledgements

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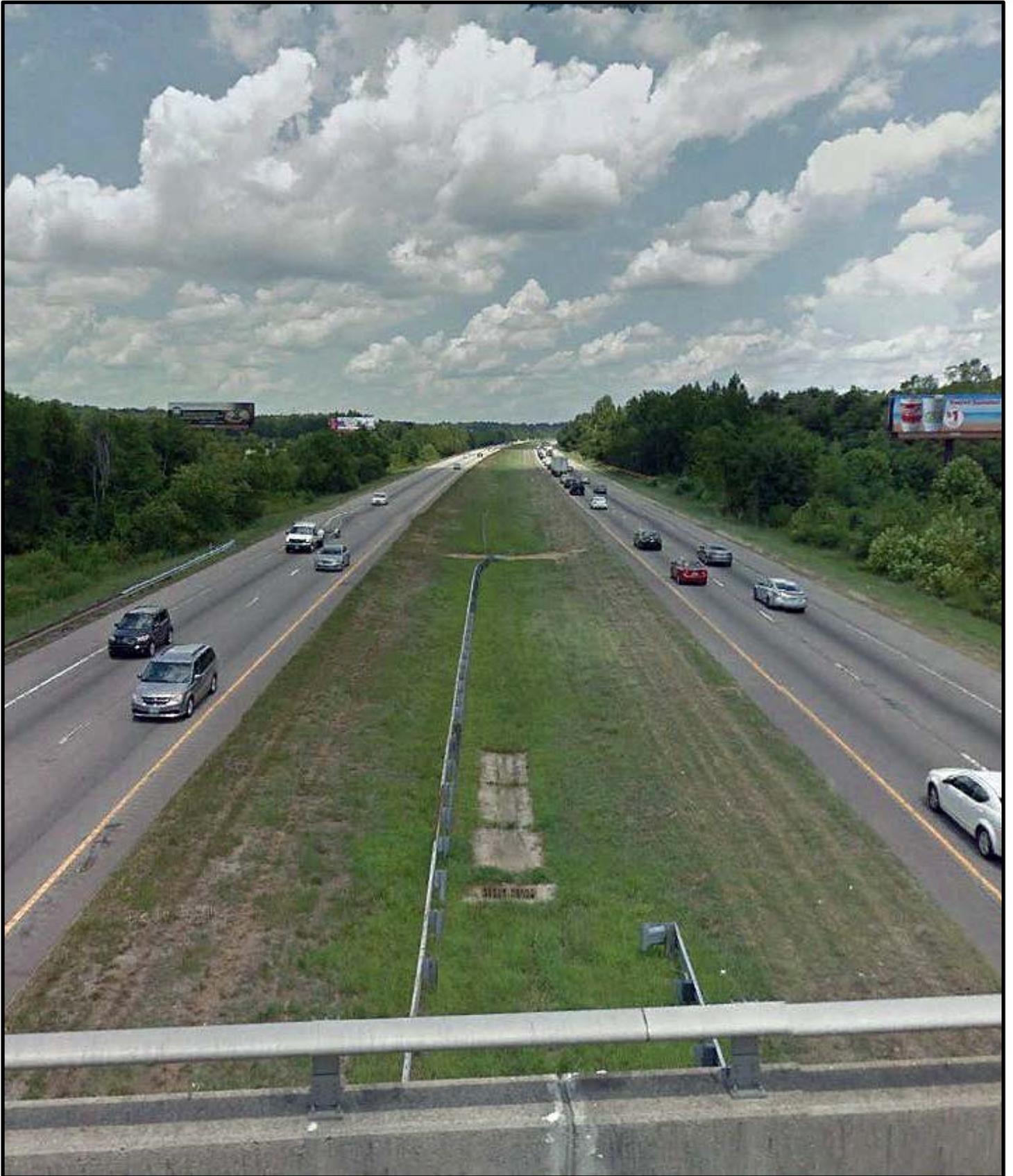
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Looking north on I-85 from Daugherty Road. Image from Google Earth Street View



## Section 1: Introduction & Background Information

### Introduction

This document may serve as a guide to future planning decisions within the I-85 south corridor in Rowan County. Planning is an important step toward creating the type of places needed within Rowan County to serve its resident's current and future needs. Prudent planning guides decisions in determining the direction for the kind of development desired within the County's jurisdiction. This practice seeks to alleviate negative issues related to the links between health and the built environment, and the role that land use plays in creating livable places that attract private investment, create jobs, and mitigate environmental impacts of development.

Planning is at the forefront of these issues in part because well-planned communities with a balance of housing, jobs, shopping, schools and recreation give people options of resulting in a more economically and environmentally sustainable community that promotes physical activity and more vibrant, healthy growth for the County.

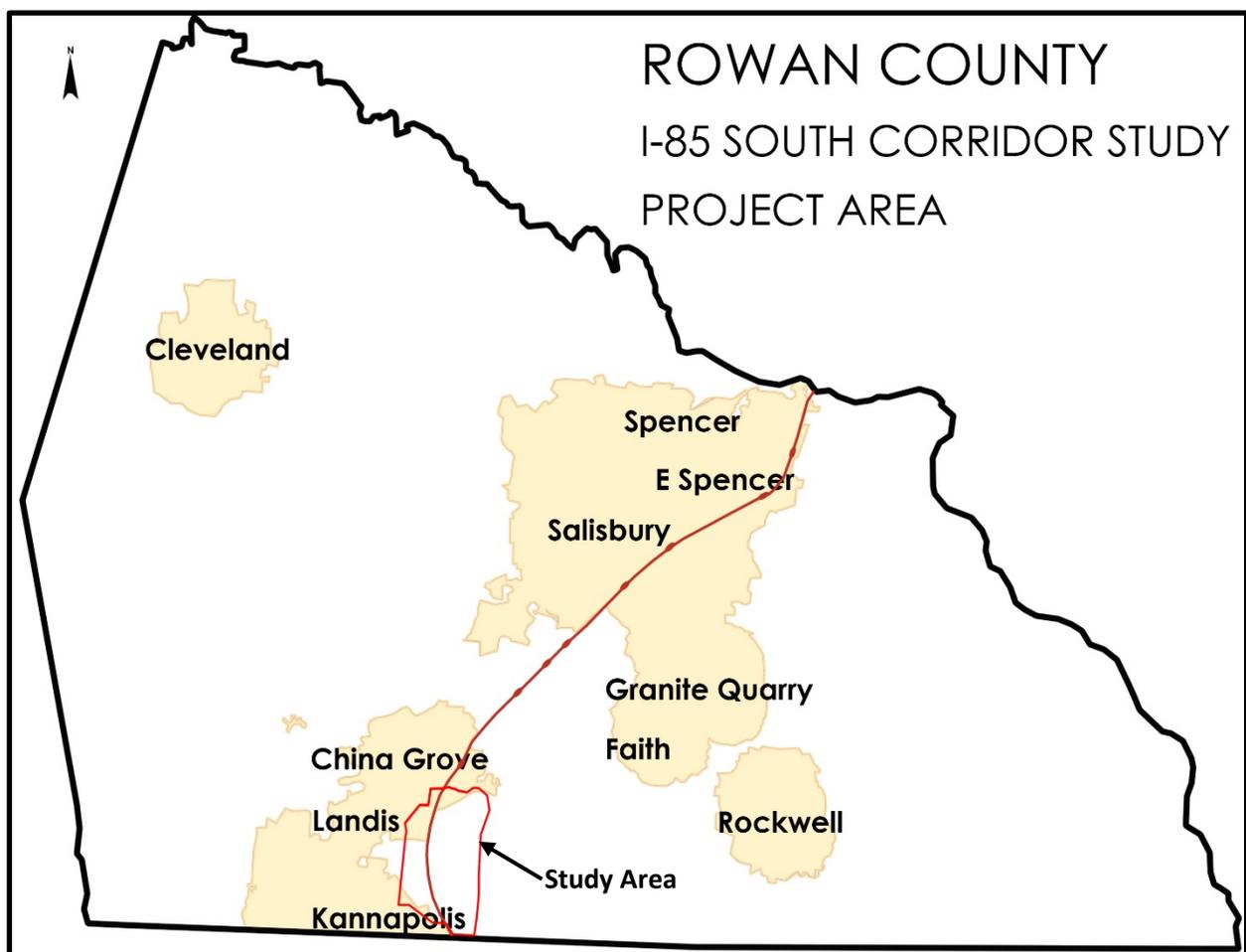


Figure 1: Rowan County with the south Rowan County I-85 study area outlined in red.

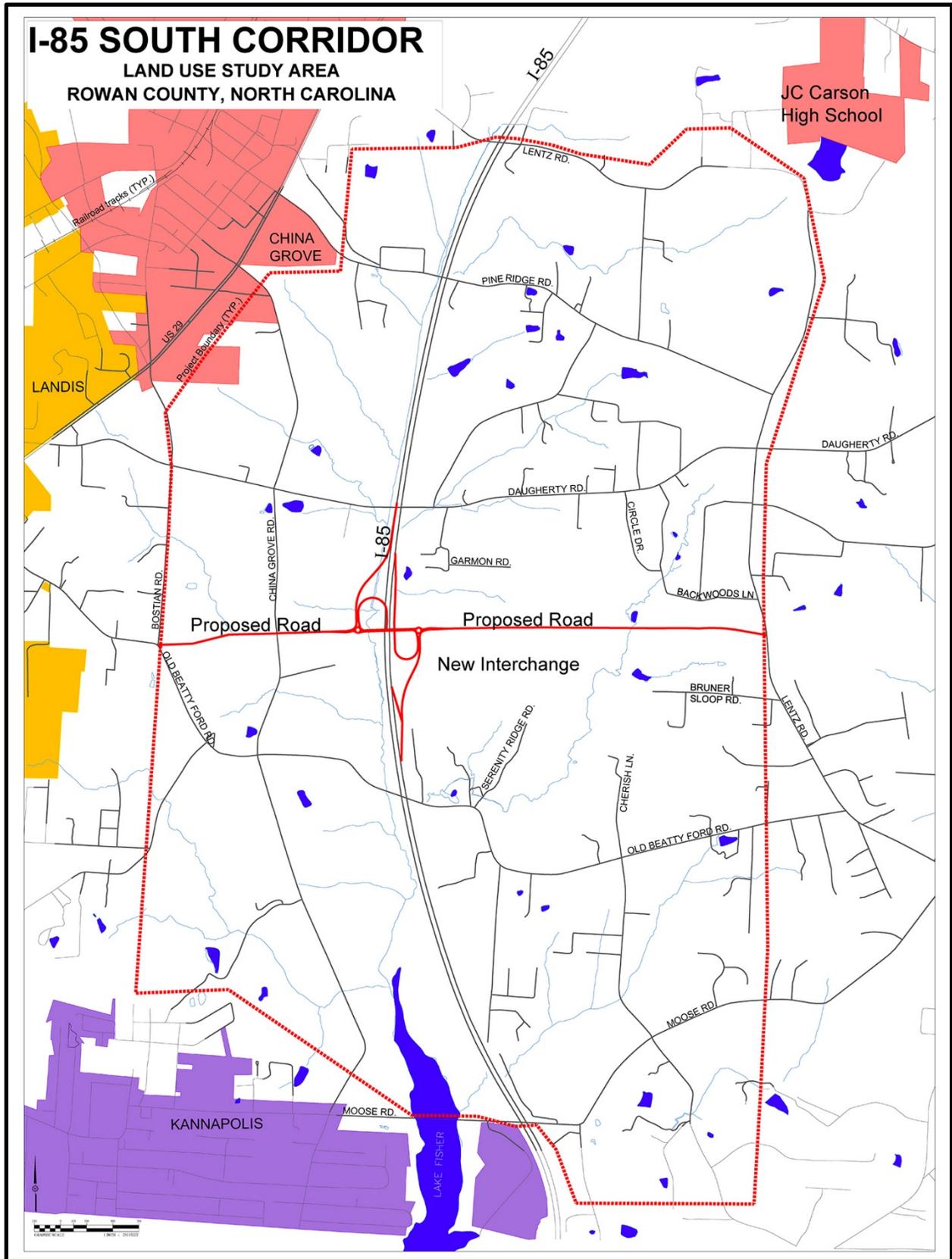


Figure 2: Rowan County with the south Rowan County I-85 study area outlined in red.



## Background

This study focuses on the southern Rowan County portion of I-85 from Lentz Road to Moose Road and surrounding land areas between Lentz Road and Bostian Road (see figure 2). The study was initiated by the Rowan County Board of Commissioners in response to the scheduled I-85 widening and new interchange improvements through Rowan County. As part of these highway improvements the North Carolina Department of Transportation (NCDOT) has proposed construction of a new interchange and relocation of Old Beatty Ford Rd between exits 68 (NC Hwy 152 E) and 63 (Lane Street - Kannapolis). Once completed this project (I-3804) will provide improved east/west connectivity and new development opportunities for economic development in this portion of Rowan County.

## Study Oversight

McGill Associates and Rowan County Planning Department collaborated in development, management and oversight of this land use study. A stakeholder group included representatives from the Towns of China Grove and Landis, county government and citizens provided input as the study advanced. Prior to the community meeting, planning concepts and ideas were shared with Rowan County Planning Board to get additional input and direction for the study.

## Public Input

On February 23, 2017 at 6:00 p.m. a public meeting was held to share planning concepts and collect community input. Visuals of potential development types and standards were shared as were locations of proposed development types within the study area; resultant comments, suggestions and preferences were incorporated into this document. Through open dialog and question/answer sessions, it was clear the main concern of the community was not what types of development would be proposed, but rather if the County was going to rezone properties within the study area. To the contrary, the County expressed a willingness to partner with the development community for project specific developments that sought zoning map changes. Other concerns voiced at the meeting included location and design of the proposed NCDOT interchange. Additional concerns from meeting participants related to the planned closing of the existing Old Beatty Ford Road at I-85. Some attendees wanted a connector road from the point of the existing Old Beatty Ford Road closure to the new Old Beatty Ford interchange.

## County History

The county was formed in 1753 from the northern part of Anson County and was named for Matthew Rowan, acting governor of North Carolina from 1753 to 1754. Its creation was intended to incorporate all the lands of the Granville District previously included in Anson County.



Section 1 Introduction & Background Information

Originally, Rowan County was a vast territory with an indefinite western boundary. Reductions in its extent began in 1770, when the eastern part of the boundary was combined with the western part of Orange County to become Guilford County. In 1771, a northeastern portion of Rowan County became Surry County and six years later a western part formed Burke County. The western part of the now much smaller Rowan County became Iredell County in 1788 and in 1822, the eastern part of the still shrinking county became Davidson County. Finally, in 1836 the part of Rowan County north of the South Yadkin River became Davie County.

**Population Projections**

Year	Rowan County (2015 State Data Center data)	Rowan County (2011 Demographers data from County LUP)	Rowan County (1998 Water and Sewer Study)
1990	-----	110,605	-----
2000	130,647	130,340	129,522 (proj.)
2010	138,756	138,428	155,480 (proj.)
2015	139,457	-----	-----
2020	141,467	147,491 (proj.)	187,957 (proj.)
2025	143,478	-----	-----
2030	145,489	156,331 (proj.)	-----
<b>2035</b>	147,502	-----	-----

Table 1: Population Projections

Rowan County experienced large increases in population between 1970 and 1990 with an 18% growth rate which is nearly 20,000 persons. During the 1990’s the county’s growth rate as a whole increased to 18%. Neighboring counties, Iredell and Cabarrus also showed a significant growth in population in the 1990s with 30,000 new residents for the combined counties.

This process of projecting future populations begins with assumptions regarding future population estimates and population distributions across the County. According to the 2011 East Rowan Land Use Plan, “During each decade between 1970 and 1990, Rowan County’s population increased by nearly 10,000 persons... The county’s population experienced its largest increase to date at nearly 20,000 persons or 18% growth rate during the 1990s. Rowan County’s population growth in the 2000s slowed to a pace comparable to the period between 1970 and 1990 with only 8,100 new residents...” While the southern portion of the Rowan County I-85 corridor has not experienced a large share of the growth it has a high potential for increased residential development and other economic development sites.



## Section 1 Introduction & Background Information

According to the State Data Center (SDC) of the NC Office of State Planning, the population in Rowan County had a total growth of 6% between 2000 and 2010, or an average annual growth rate of 0.58% per year.

The County's annual population growth exhibited minimal growth (0.16%) between 2010 and 2015. SDC data projects the population will grow at an annual rate of 0.28% the next 20 years for a 2035 projected population of 147,502, which is much less than projected in the 1998 Water & Sewer Study and NC Demographers data from 2011. Refer to the table 1.

### Housing

In 2007, there was an all-time high in the county for residential permits. According to the U.S. Census in 2015, 70% of the housing structures in Rowan County are comprised mainly of stick built single family homes and modular housing while manufactured homes make up 19% of dwellings followed by 11% multi-unit structures.

The study area lies within 20 miles of Charlotte and could conceivably see tremendous growth corresponding to the continued number of individuals looking to relocate to this region.

Average household sizes in the study area consisted of 2 person and small family homes. According to the American Community Survey (2015) the majority of the housing in Rowan County is single detached homes (71%) followed by mobile homes which made up 16%. The remaining 13% consisted of mainly multi-family units.

Rowan County median household value is \$128,300 which is below the state average of \$160,100. (American Community Surveys Census).

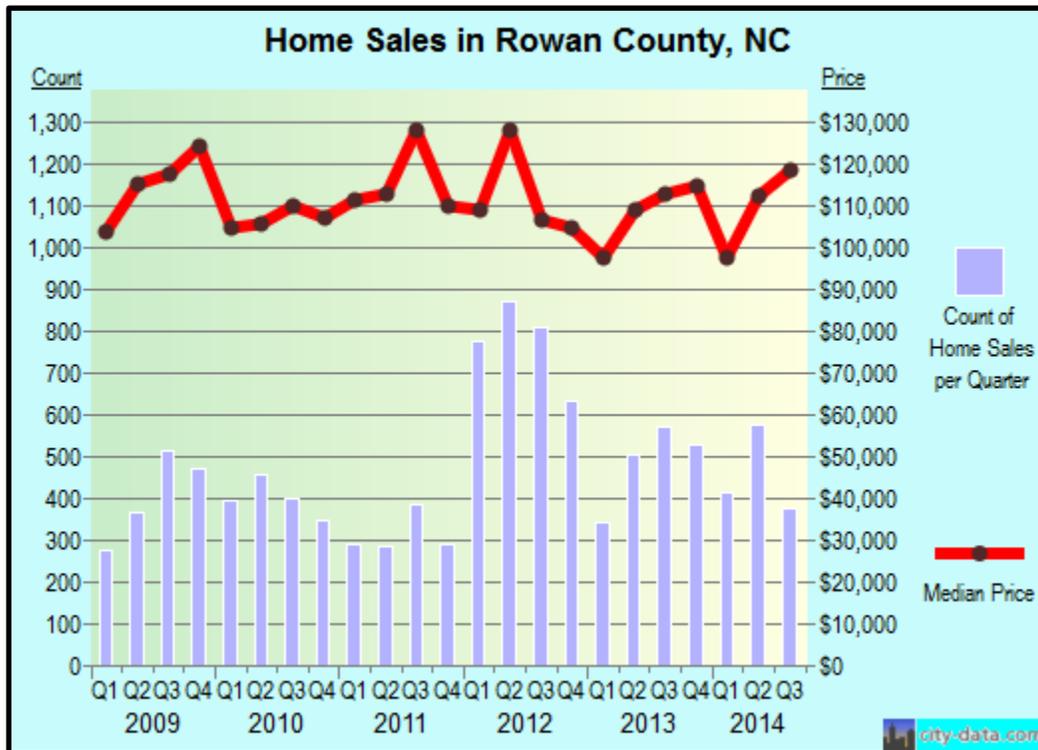


Table 2: Home Sales data from city-data.com

### Economic Development

Economic development opportunities are often limited by the ability to sufficiently provide water, wastewater, power, transportation and other services. The capacity of the County to allow for growth and to attract future industry, employment and housing is critical to supporting economic growth within this document’s study area.

Discussions held with the Rowan County Economic Development Commission suggest the primary site in the study area for development includes the Southland site (approximately 500 acres) and area surrounding the future I-85 Exit at the relocated Old Beatty Ford Road. This site is touted to be a significant site of future economic development. This portion of the study area would require substantial water and wastewater facilities in addition to other public services and site design to achieve desired economic vitality.

This document seeks to guide wise planning decisions aimed at supporting economic development within the southern portion of the Rowan County I-85 corridor. It is recommended that Rowan County use smart growth development principles when deciding how to proceed with planning within the overall study area.



## What is Smart Growth?

Smart growth is typically defined as planned economic and community development that attempts to curb urban sprawl and worsening environmental conditions. Smart growth development encourages compact and walkable development. This approach provides a diverse range of choices in land uses, building types, transportation, residences, employment providers, and retail locations. These types of projects are desirable to private-sector interests because they can find a ready market and compete financially. This is also good for the County because these types of developments can be the building blocks of a larger growing economy and economically sustainable neighborhoods and communities that also support a clean natural environment. Some of the advantages for developers, communities, and the county associated with smart growth include:

### **Compact Development:**

Using land and other resources more efficiently, redeveloping under used sites or neglected areas while retaining existing infrastructure to create economic advantages for real-estate developers, private investors and businesses. Compact development can generate more revenue per acre because it uses land in the most efficient way possible. It can reduce the costs of land and infrastructure for individual projects and the costs of providing fire and police protection, utilities, schools, and other public amenities. By locating job providers closer together, compact development can create a density of employment that increases economic productivity and may attract additional investment.

### **Walkability:**

Several well researched and respected studies conclude that planning for pedestrian oriented facilities at the beginning of the development process is vital to creating a safe, vibrant and walkable community. Walkable communities support stable land values and attract investment better than those strictly oriented towards vehicular transportation. There are several other benefits of walkability that include community health, destination tourism and establishing a high quality of life.

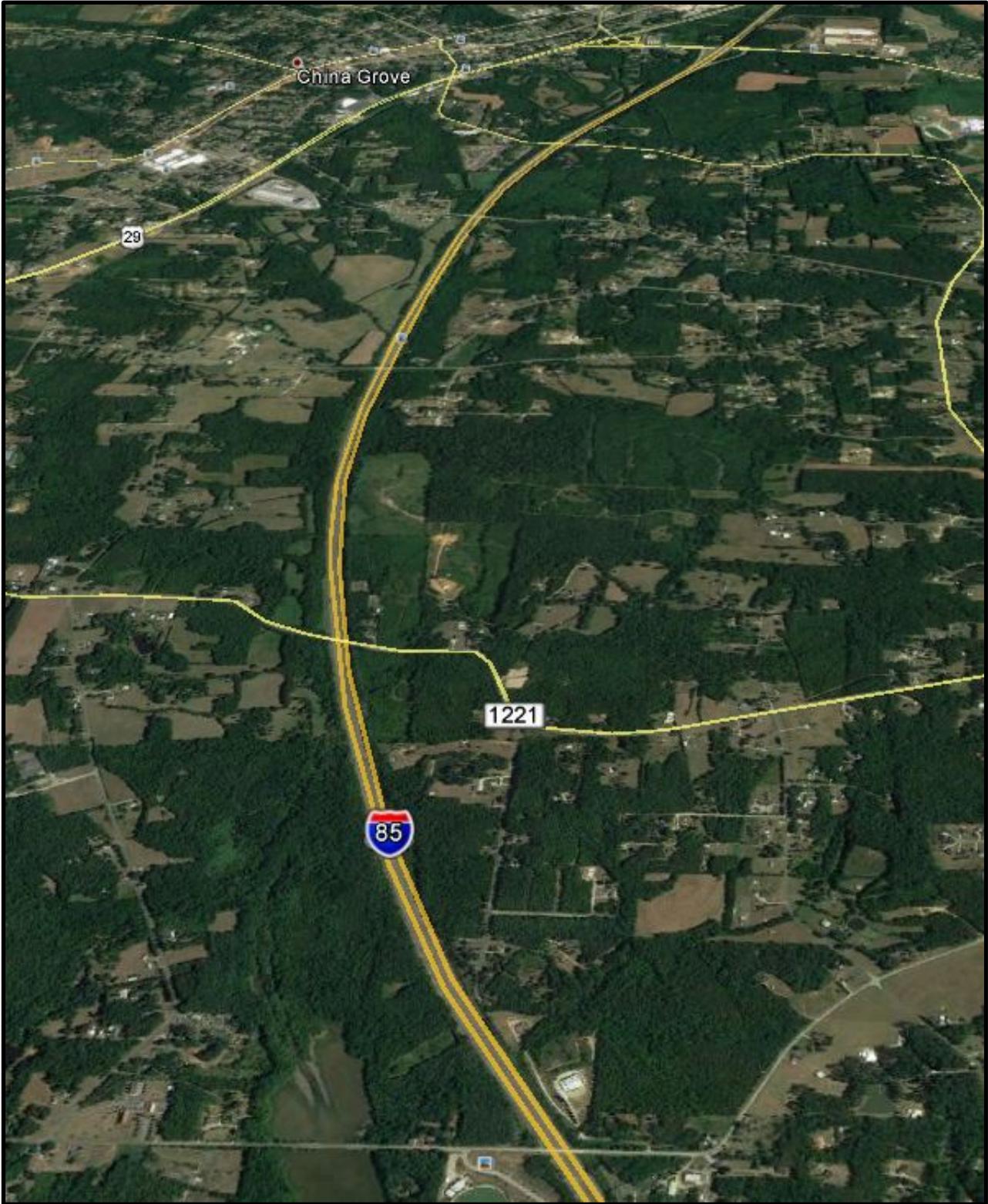
Walkable neighborhoods have well-connected streets and a mix of land uses near each other, making not only walking but also bicycling and transit more convenient and appealing. Projects in walkable neighborhoods earn real estate developers and investors a higher return on their investments. Improvements to streets and sidewalks as well as the development of multi-modal paths like greenways make communities more appealing to pedestrians. A pedestrian friendly community can benefit local businesses by attracting more customers. In turn, Rowan County could benefit through additional property and sales tax revenue.



**Attracting new residents:**

People and businesses value places that offer a variety of activities that can support vibrant settings for living. Many people in the two largest demographic groups, baby boomers and millennials, are particularly interested in moving to active neighborhoods with their daily needs close by. Communities with access to alternative transportation also help residents reduce their total transportation costs, allowing them to save more of their money or spend more on their homes, entertainment and other expenses. Evolving demographics will likely continue to increase the demand for smart growth development over the coming decades. By incorporating forward thinking investment and smart development principles into the South Rowan I-85 corridor, developers, investors, businesses, and County government could have the best return on their investments.

**END OF SECTION**





## Section 2: Geography and Environment

### **Environmental Considerations**

The study area is within the North Carolina Piedmont characterized by mostly rolling hills (1%-10% slopes) and some steep ravine landforms (>10%-25% slopes) with elevations ranging from 600' to 850' above sea level. The study area consists of approximately 4,700 acres located in the County's planning jurisdiction within the area bound by Lentz, Moose, and Bostian Roads. The area is bisected north and south by I-85 and east and west by Old Beatty Ford and Daugherty Roads.

Streams within the study area are oriented in a northeasterly direction and drain toward Lake Fisher. The primary tributary is Cold Water Creek running adjacent to I-85 on the west side. The study area is within the Yadkin River drainage basin. The most significant identified wetland area is located on the west side of I-85. The topography of the study area generally drains from the north to the south along Cold Water Creek parallel to I-85. Several sub-basins drain from both the west and east sides of the interstate down to Coldwater Creek where it flows into Lake Fisher.

McGill Associates created a model of the topography to analyze the slopes within the study area (see Figure 3 next page). This slope analysis provides information that reveals potential limitations and opportunities of certain areas within the study area. The areas shown as tan are relatively flat (0%-5%); orange areas represent slopes that range from 5%-10% ; and areas in bright red depict steep slopes (10%-20%). Areas with slopes of 25% or more are shown in dark red. A larger version of this graphic is in appendix B. Areas east of I-85 were in general steeper than those areas west of I-85.

Most of the areas within the study area are buildable with proper grading and shaping of the land. It is important to remember that when steep slopes are disturbed by removing vegetation and developing the hillside without investing in careful civil design to mitigate slope related issues, significant issues can happen. Those issues can often outweigh the benefits provided. It is important for the County to consider the consequences of building on slopes greater than 10% grade before allowing development there. Potential consequences can include increased erosion, landslides, and sedimentation and increased costs to install infrastructure. Proper analysis and design of the steep slopes within the study area would be necessary prior to development.

While residential and some smaller commercial developments are possible on land with steep grades, these steeper sites are very limiting industrial sites development which often require minimally sloped sites.

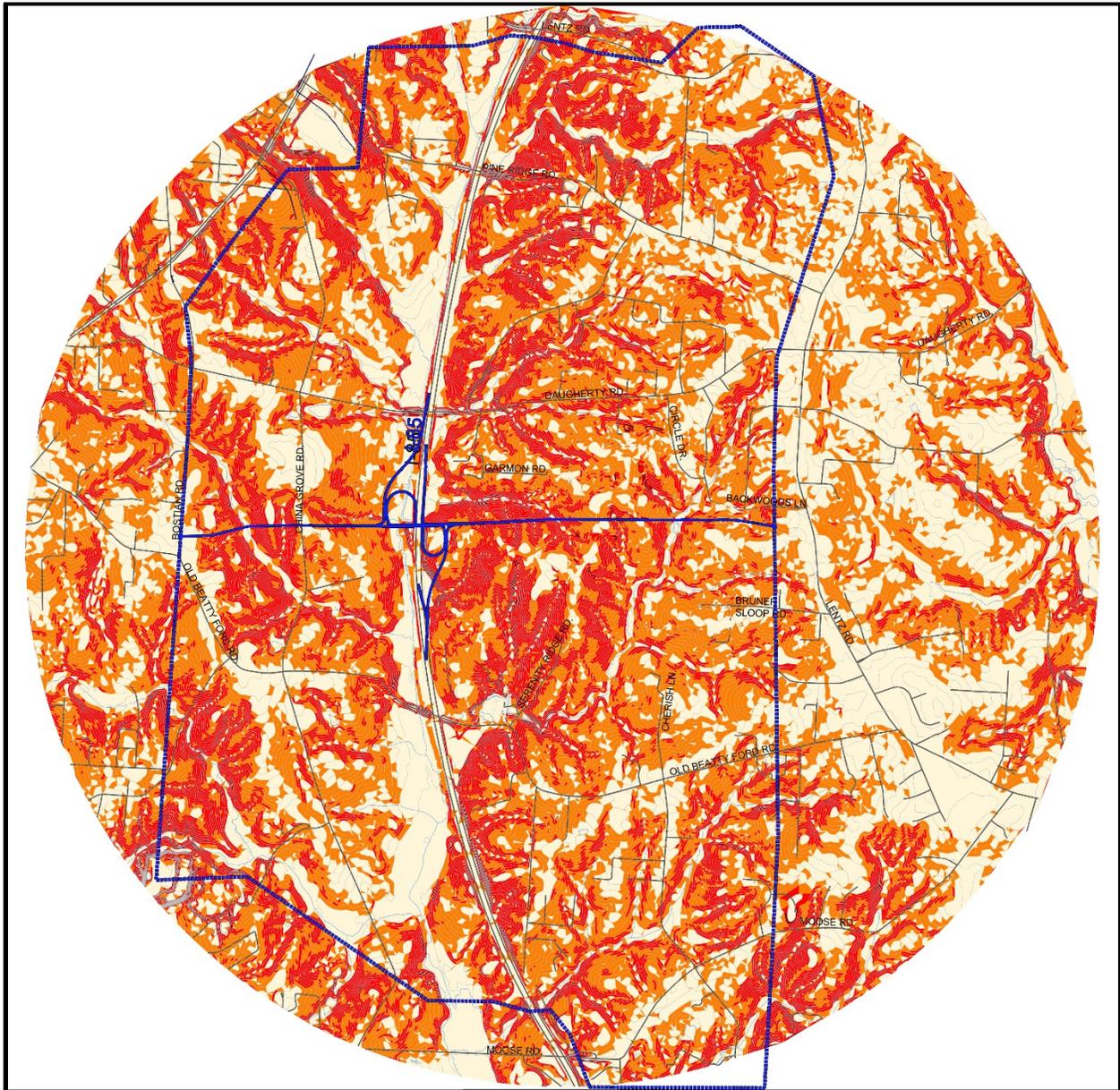


Figure 3: South Rowan County I-85 corridor Slopes Analysis Map (see larger version in appendix) Study Area outlined in Blue.



## Soils

Soil properties influence the development of building sites, including site selection, structure design, construction, performance after construction, and maintenance. Figure 4 is from the USDA Natural Resources Conservation Service (USDA NRCS) and depicts soil types found within the study area.

Soil suitability and characteristics were obtained from the USDA NRCS Soil Survey for Rowan County, NC. Soil analysis within the study area related to the construction of dwellings and small commercial buildings ranged from very limited to not limited; although the majority of study area soils did not limit the construction of dwellings with or without basements and small commercial buildings but soils within the study area are varied in distribution thus independent soil testing should be completed prior to any site design. Soils that may need to be mitigated included: Chewacla (ChA), Enon fine (EnB-C), Helena (HeB), Pacolet Sandy loam (PaB and PaD), Poindexter Rowan complex (PxD), Rowan (RnC), Sedgefield fine (SeB) (see USDA soil map Figure 3 on next page).

Soils also impact the suitability for other land uses such as agriculture, recreation facilities and the construction of roads. Soil classifications within the study area are ideal for farming, but have limitations for the construction of roads, streets and shallow excavations.

Ratings or suitability for development within the Soil Survey are based on the soil properties that affect the ease of excavation and grading and traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock, hardness of bedrock, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are "soil strength, subsidence, shrink-swell potential, the potential for frost action, depth to a water table, and ponding."

Two important properties of the soil include its ability to disperse effluent (permeability or hydraulic conductivity), and whether or not the effluent will be treated before reaching groundwater or bedrock. The texture, structure and density of the soil can affect how suitable it is for treatment of septic tank effluent. Soils within the study area were found to range from somewhat limiting to very limiting to the proper treatment of septic system effluent.

Soil suitability for recreation facilities was also analyzed. Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. Suitability ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Most existing soils within the study area were found to be "somewhat limited" to the suitability for recreation facilities such as paths, trails and grassed open spaces. The USDA report states that the ratings are based on "restrictive soil features, such as wetness, slope, and texture of the surface layer." Onsite investigation and study of past land use would be most valuable



when planning for future recreation facilities within the study area. Other planning considerations include: onsite assessment of the height, duration, intensity, and frequency of any known flooding.



Figure 4: South Rowan County I-85 corridor USDA Soil Map (see additional soils map in the Appendix)



### Flood Risk

Flood hazard areas identified on the Flood Insurance Rate Map (FIRM) are identified as a Special Flood Hazard Area (SFHA). SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood.

The areas within the south Rowan County I-85 corridor study area that are identified as flood areas are related to Cold Water Creek and its tributaries. The FEMA flood hazard designation for those areas is "Zone AE". Areas of minimal flood hazard, which are outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled Zone C or Zone X (unshaded). According to the FIRM (figure 6) most of the study area is not at high risk of flooding. A floodway is associated with the areas adjacent to Cold Water Creek and its tributary streams (See FIRM map figure 6).

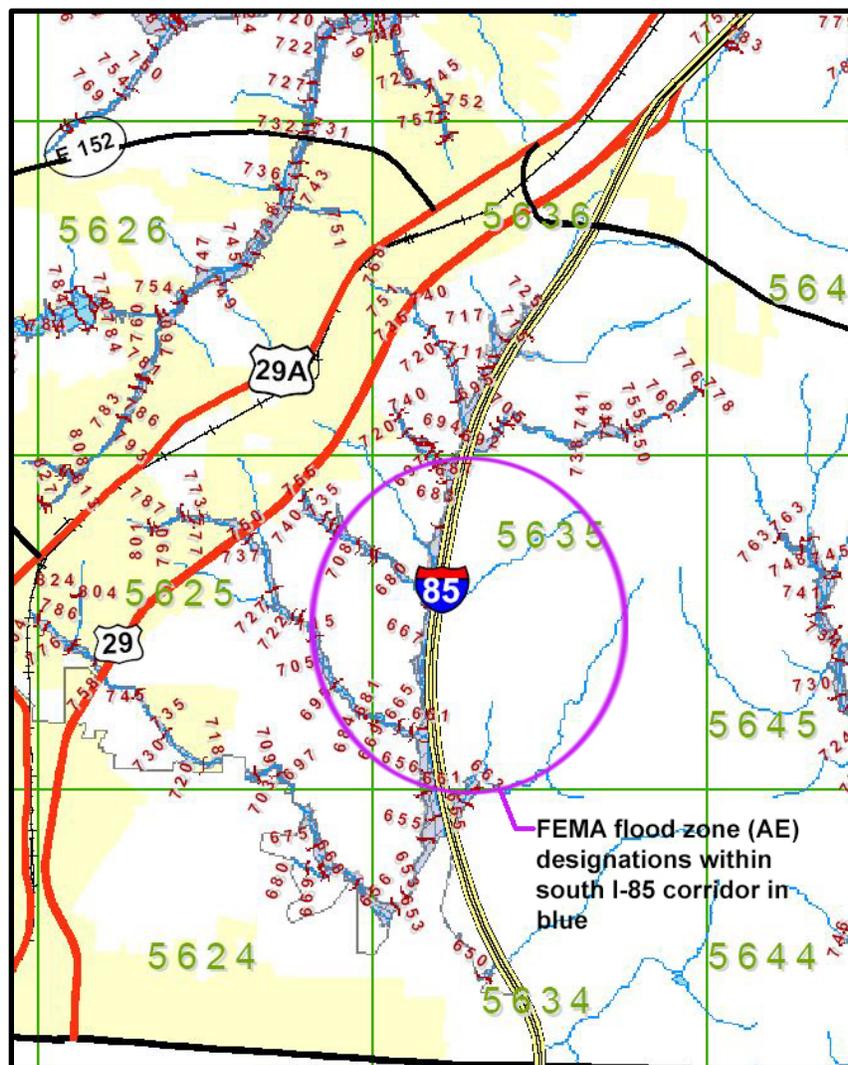


Figure 5: South Rowan County I-85 corridor Flood Hazard areas as seen on the Rowan County GIS website.

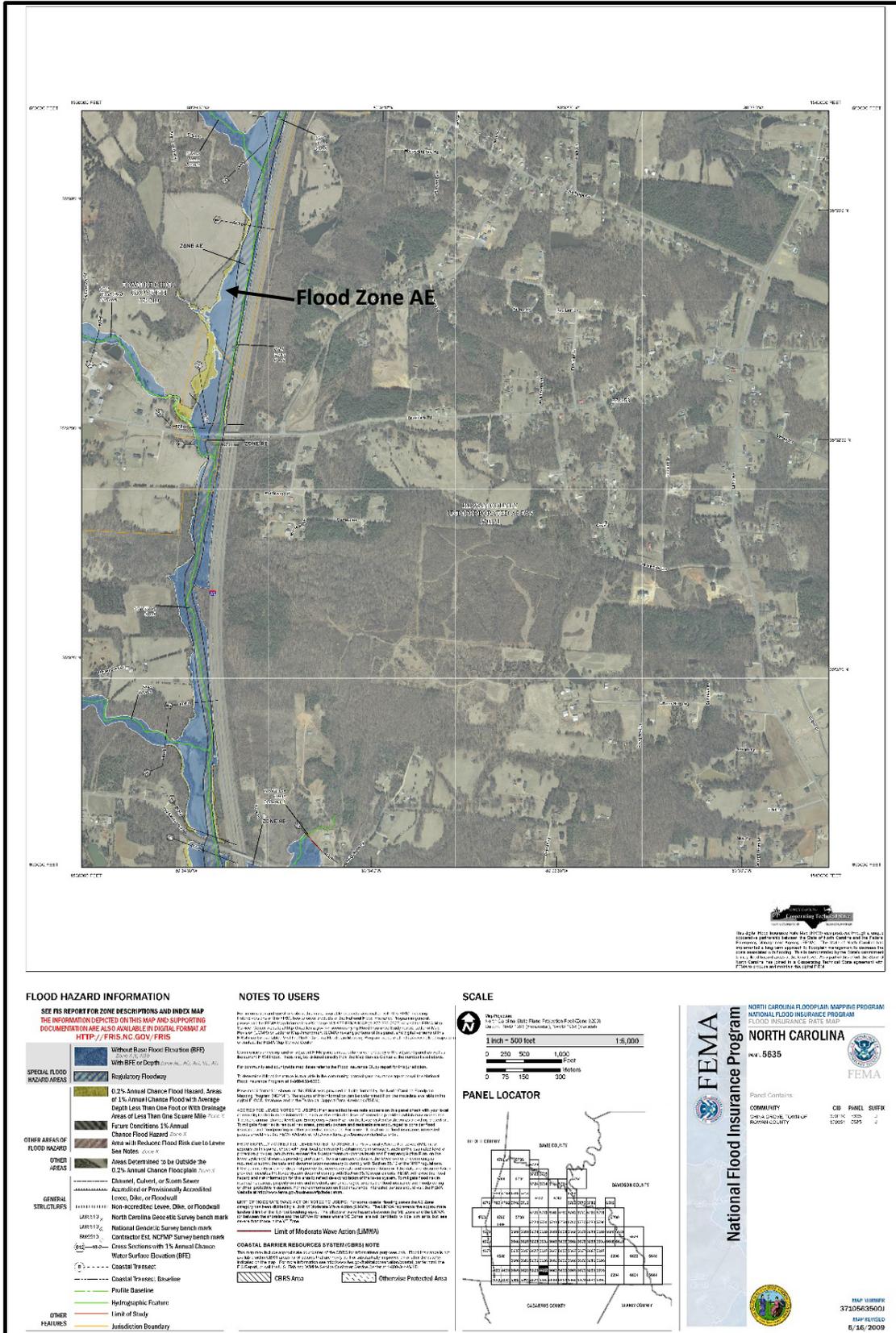


Figure 6: South Rowan County I-85 corridor FEMA Flood Hazard Map (see larger version in appendix)



## Water Supply Watershed Overlay (WSO)

The Coldwater Creek / Lake Fisher Watershed (WS-IV-PA) is designated a water supply watershed as it serves as a municipal water source for the City of Concord, NC. Development activities within this watershed are subject to the WS-IV-PA guidelines limiting residential development to a minimum lot size based on its method of waste disposal being either ground absorption septic (20,000 sq. ft.) or public wastewater system (10,000 sq. ft.). Non-residential development in the WS-IV-PA is regulated by an impervious cover limitation of 36% for projects without curb and gutter and 24% for projects with curb and gutter. The WS-IV-PA provisions allow for a Special Non-Residential Intensity Allocation (SNIA) where 10% of the watershed in the County's jurisdiction may be developed up to 70% built-upon area without utilizing engineered stormwater controls. The County currently considers these SNIA permit applications on a case-by-case basis. A total of 4,980 acres of the watershed area is located within the County's jurisdiction, allowing SNIA designation on 498 acres (10%). Once the 10/70 allocation has been "depleted", the County will need to amend the WSO provisions in its Zoning Ordinance requiring all non-residential development to employ engineered stormwater controls when the project exceeds the maximum built-upon area of 24% or 36% on a given site.

## Transportation

The largest transportation corridor within the study area is Interstate I-85 which is the second-longest interstate highway in North Carolina. This highway bisects the study area from north to south and is a primary route through Rowan County connecting it to more densely populated metropolitan areas such as the Charlotte Metro, Piedmont Triad and the Research Triangle.

Secondary corridors that link the east and west sides of the study area include: Lentz, Pine Ridge, Daugherty, Old Beatty Ford and Moose roads. These roads connect the more rural areas of the county to the more densely populated communities of China Grove, Landis and Kannapolis.

## Water and Sewer Service

Public water and sewer needs within the study areas were recently addressed in the 2015 Rowan County Targeted Water and Sewer Study. The study was based on anticipated growth in areas currently served by on-site wells and septic systems and economic development opportunities along the I-85 corridor.



## Section 2 Geography and Environment

The Water and Sewer Study's goals included planning for adequate water infrastructure and sewer where reasonable and deemed critical by the County to promote economic development. Options were provided for extending potable water and sewer service from the City of Salisbury or the City of Kannapolis to areas within this document's study area. The utility service analysis included preliminary interest level discussions with utility providers.

Potential implementation strategies including assisting the County with the establishment of priorities for serving the study area and recommending steps to achieve the County's infrastructure goals for public health and economic development. Please refer to the 2015 Rowan County Targeted Water and Sewer Study for additional infrastructure information.

### Public Facilities

The provision of public services and facilities in the built environment has a significant impact on the quality of life that residents and others enjoy. Quality public services, including law enforcement, fire rescue, education, health care and other community facilities, are critical to planning for and developing a sustainable community. Without annexation, these services will be provided by Rowan County.

From its location, north and east of the study area at 8211 Old Concord Road, Bostian Heights Fire and Rescue Station provides primary response to all fire and rescue and emergency medical service calls. The Rowan County Sheriff's Office provides law enforcement response and protection in the study area; and the North Carolina State Highway Patrol is responsible for enforcing vehicular laws on interstate and state roads, investigation of automobile accidents and back-up to county law enforcement agencies.

### Schools

Although multiple public school district boundaries for elementary, middle and high school extend throughout the study area, there are only two public schools located within; Jesse C Carson High School (290 Kress Venture Rd China Grove, NC 28023) and Bostian Elementary School (4245 Old Beatty Ford Rd. China Grove, NC 2802). While these two locations currently meet the existing needs of the community, it is likely that with an increase in residential development expansion of existing facilities or construction of new schools would need to occur.

### Recreation Facilities

No existing public or private recreation facilities are located within the South Rowan I-85 corridor study area.



## Agriculture

In 2015, Rowan County produced an annual \$33 million from the 571 animal farms, exceeded \$7 million in sales from the 46 vegetable farms and \$1 million in sales from 42 local fruit, nut and berry farms according to the NC Department of Agriculture. There are 1,011 farms averaging 120+ acres. The top crop is soybeans and chicken farms are number one in livestock inventory.

A substantial portion of the south Rowan County I-85 corridor lies within rural Rowan County. Existing land being used for agriculture makes up about approximately 10% of the study area while wooded hardwood forest covers most of the surrounding properties with pockets of single residential development.

END OF SECTION



## Section 3: Land Use Recommendations

### Zoning

Zoning ordinances will list land uses that are allowed “by right” for each zone. The term “by right” does not mean the zoning ordinance confers an unconditional right to develop for a specific use. Zoning is only a legislative planning designation. Zones are always subject to change and do not grant an entitlement. Instead, the term “by right” means the permit is not subject to the discretionary review that is typical of the conditional use permit process.

Rowan County’s zoning ordinance was created to promote the health, safety and general welfare of the public and serve as a guide to land use and development. This study found that like much of Rowan County, the south Rowan I-85 corridor study area has developed with smaller businesses and industries located in rural areas along with residential properties.

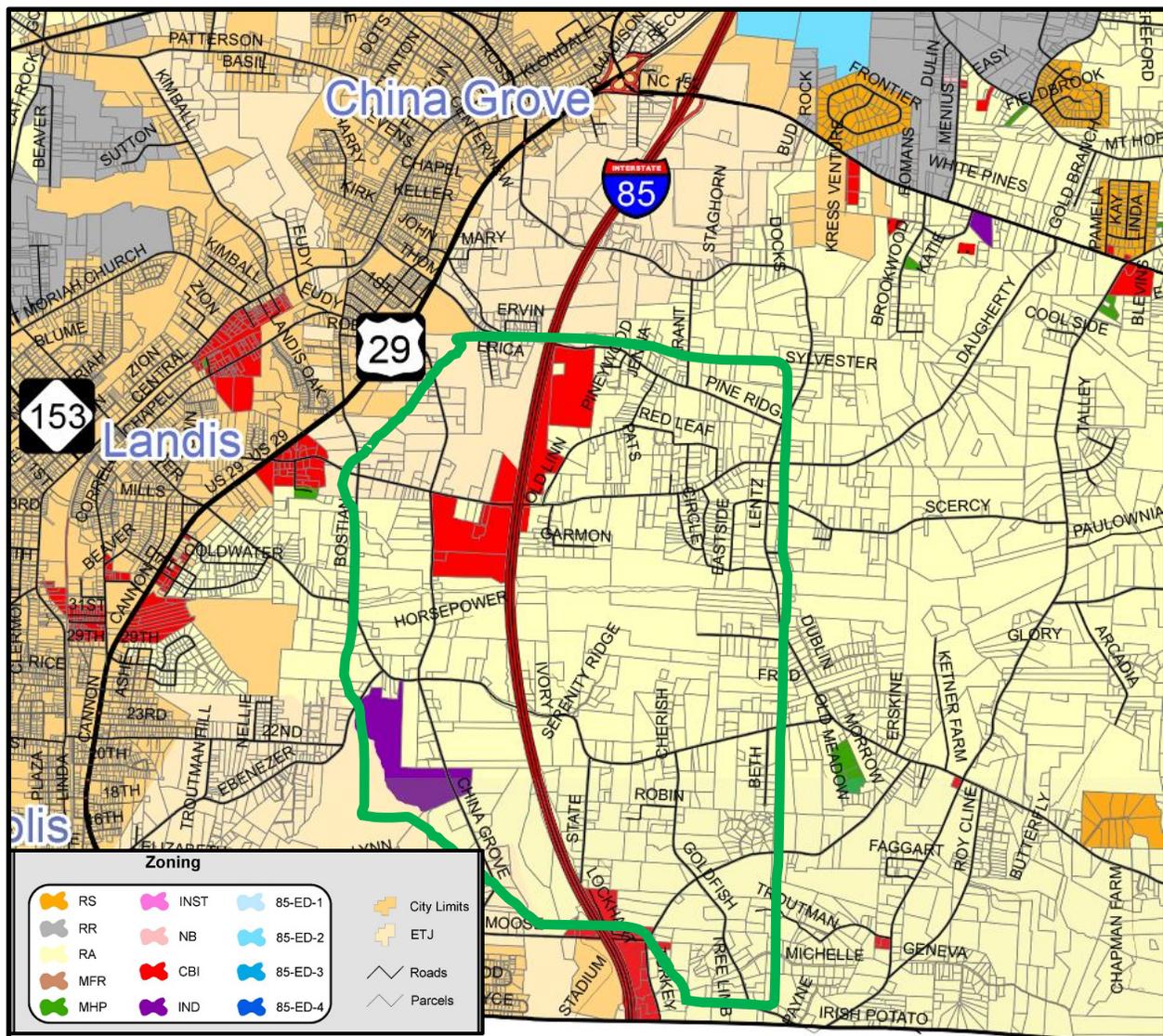


Figure 7: Existing Rowan County zoning map within the south Rowan County I-85 corridor and approximate study area in green.



### Section 3 Land Use & Recommendations

Through open discussion with public meeting participants there were many in the study area that expressed a desire for more separation of residential uses from business and industrial uses. However, there was also support for increased connectivity to general services and more commercial and retail opportunities. A portion of the existing Rowan County Zoning Map pertaining to the south I-85 corridor study can be seen in Figure 7.

For purposes of this study, the current zoning ordinance was reviewed to determine what limitations exist for various development types. Findings concluded that residential uses were predominantly allowed as the majority of the study area is zoned Rural Agricultural (RA). Commercial development in the RA district is generally limited to ten percent (10%) of the lot size provided the property owner resides on or adjacent to the property. The Rowan County Zoning Ordinance describes the RA zoning designation as follows:

"Rural Agricultural, RA. This district is developed to provide for a minimum level of land use regulations appropriate for outlying areas of the County. These outlying areas typically consist of rural single-family housing, larger tracts of land used for agriculture or in fields and forest land, with some nonresidential uses intermingled. Multifamily uses are discouraged in this district. This district would provide for protection from the most intensive land uses while containing provisions for a variety of less intensive land uses. It is the intent of this district to rely upon development standards to protect residences from potential adverse impacts of allowed nonresidential uses. The most intensive land uses would not be allowed in this district."

Aside from the dominance of RA within the study area, there is a pocket of Industrial (IND) zoning in the southwest corner of the study area between Ebenezer and China Grove roads bordering the Kannapolis Extraterritorial Jurisdiction (ETJ) that accommodates quarrying operations and aggregate material production for Martian Marietta Materials, Inc. The Rowan County Zoning Ordinance describes the IND zoning designation as follows:

"Industrial, IND. This district is intended to provide for industrial activities involving extraction, manufacturing, processing, assembling, storage, and distribution of products. The district is also designed to accommodate other, more intense nonresidential uses which generate adverse side effects such as noise, odor or dust. The district is typically applied in areas with maximum accessibility to major highways, rail lines, and other significant transportation systems. However, this district may also exist or be created in an area other than listed in this subsection if the existing or proposed development is compatible with the surrounding area and the overall public good is served."

Centrally located within the study area along the I-85 corridor is a Commercial, Business, Industrial (CBI) district comprising approximately 235 acres. This district includes parcels on the west side of I-85 between the interstate and China Grove Road at Daugherty Road and east of I-85 between the interstate and areas just north of Daugherty Road to Pine Ridge Road. Instances



### Section 3 Land Use & Recommendations

of two smaller CBI-zoned areas also exist at the southern end of the study area adjacent to and north of Moose Road.

The Rowan County Zoning Ordinance describes the CBI zoning designation as follows:

“Commercial, Business, Industrial, CBI. This zone allows for a wide range of commercial, business and light industrial activities which provide goods and services. This district is typically for more densely developed suburban areas, major transportation corridors, and major cross-roads communities. However, this district may also exist or be created in an area other than listed in this subsection if the existing or proposed development is compatible with the surrounding area and the overall public good is served.”

Certain portions of the study area are appropriate for concentrations of commercial, business and institutional use. Economic development is a recognized goal of the County and provisions are made to allow timely location of industries that will advance the general welfare of the County's citizens, while insuring that residential areas are protected from adverse impacts of this type of development. This plan proposes no change to the current zoning map; however, the County should consider amending its zoning ordinance to include a hybrid of new smart growth districts that incorporate commercial, industrial, residential and overlay zones as options where they wish to encourage the level or types of development within the study area, e.g. along a particular corridor or specific nodes of development.

An overlay zone places additional regulations on existing zones within specific planned areas. Their boundaries are fixed and usually encompass all or part of multiple zones. Overlay zones are often used in areas where special provisions are necessary to ensure public safety or to guide development to meet a goal set by the County. Overlay zones are also commonly applied to areas to shape the aesthetic character, protect the environment and guide development efforts to a preplanned vision set by the County.

Another option the County could consider is a planned unit development. A planned unit development (PUD) is both a zoning classification and a type of development sometimes referred to as “planned communities”. Planned unit developments normally consist of individually owned lots with communal areas for open space, parking, recreation and street improvements. Conventional zoning standards are often set aside to permit a more creative use of the property, such as clustering residential uses or integrating compatible commercial and industrial uses. Any substantial alteration in the physical characteristics of the development usually requires rezoning procedures be followed.

#### **Land Use Plan for Areas East of I-85**

Rowan County adopted a land use plan for its jurisdictional area east of I-85 on January 17, 2012. The study area for this corridor plan resides in Area Three of that document and specifically focuses on the geography depicted in Figure 7. The ELUP recommendations did not anticipate the provision of water and sewer infrastructure within the study area and therefore do not



acknowledge the density and potential patterns or types of development resulting from these utilities.

Future land use recommendations for this corridor study area are expected to supersede the broad Area Three recommendations of the Eastern Land Use Plan (ELUP) within the utility service area, particularly surrounding the regional node positioned at the realignment and new I-85 interchange of Old Beatty Ford Road. In the absence of these utilities, proposed or existing development in the study area should be in a format consistent with the Area Three recommendations of the ELUP. However, applicable recommendations of this corridor study should warrant consideration for proposals immediately surrounding the future interchange.

### Smart Growth

Rowan County is a rural county on the cusp of realizing increased growth and development as future sprawl from both Mecklenburg and Cabarrus Counties continues to work its way into Rowan County. Guiding this growth is an important responsibility of County government charged with serving the needs of County residents. This guide promotes the use of smart growth principles being applied to decision making process. "Smart growth" has become a trendy phrase accepted by many regulators and developers. Smart growth is a planning and transportation theory that concentrates growth to avoid typical pitfalls of sprawl and advocates walkable, bicycle friendly land use, including mixed use development with a range of housing choices. Smart growth balances developer's and communities' perspectives on environmental sensitivity, economic efficiency, and enhancement of community and civic life. The goal is to implement land development principles that are profitable for developers while being community-oriented, environmentally sensitive, and fiscally responsible. Its goals are to achieve a unique sense of community and place; expand the range of transportation, employment and housing choices, equitably distribute the costs and benefits of development, preserve and enhance natural and cultural resources and promote public health. The smart growth principles guiding this study are as follows:

- Promote development that reflects the character of Rowan County
- Encourage a distinctive community with a diversity of uses that can attract private investment and job creation
- Create a physically attractive atmosphere for prospective homeowners and businesses

### Types of Possible Development

The south Rowan County I-85 corridor and adjacent land area will have a mix of development types that include commercial, retail, industrial and residential. This study recommends that these development types be oriented in a way that maximizes the cost effectiveness and constructability of future projects.



## Single Family

Both single family and multi-family units should be accommodated. Single family residential lots should consist of three general sub-categories. These categories are lots over one acre in area, one to half acre and those on less than a half-acre in area. Some examples of these sub-categories are below.



Figure 8: Single Family home on 1+ acre lot



Figure 9: Single Family home on 1 to 0.5 acre lot



Figure 10: Single Family home on less than 1/2-acre lot.

## Multi-Family

When allowing for multifamily development require attractive, quality design that supports the aesthetic and sustainability goals of the County. Use trees and plants to make attractive and livable places, add and retain economic value, and confer numerous environmental benefits, such as those associated with stormwater quality and eliminating pockets of excessive heat (i.e., heat islands). Landscaping can also influence the way spaces are used, such as to set a boundary between private and public spaces.



Figure 11: Multi-family apartment building



Figure 12: Duplex

### Commercial and Office Retail

Commercial development can include both small scale and large scale. Small scale commercial can include convenience stores, small dining and drive-thru type restaurants, local retail businesses and single office buildings.



Figure 13: Gas Station/convenience store



Figure 14: Small office building



Figure 15: Small Drive-thru restaurant

Large scale commercial development often includes office complexes, big box stores and retail shopping centers.



Figure 16: Grocery Stores are an example of large scale commercial development type.



Figure 17: Big Box home stores are another example of large scale commercial development type.



## Industrial

Rowan County has expressed a desire to support the growth of employment opportunities and high quality jobs for its residents. Industrial development can play an important role in meeting the County's goals and should be included in the planned development of the south Rowan County I-85 corridor. Trending sectors to approach include, advanced manufacturing, corporate headquarters and professional services, health sciences and services, information technology solutions, and supply chain management.



Figure 18: Example of light industrial development.

Industrial development can include both heavy and light uses. Light industrial development often has a smaller overall footprint with a small employee count and lower need for water use. This leads to a lower impact on utility use overall as compared to heavy industrial development.



Figure 19: Example of heavy industrial development.

Heavy industrial development typically carries a high capital cost. The term "heavy" refers to the fact that the items produced by "heavy industry" used to be products such as iron, coal, oil, ships, etc. Today the reference also refers industries that require a high level of material and



Section 3 Land Use & Recommendations

energy input in order to meet intended business goals. The needs of heavy industry require well designed utility systems that include water and sewer needs.

**Water and Sewer Requirements**

Water and sewer service is a prime driving factor for development. This study looked at the water and sewer needs of each of the different development types outlined previously. Such information can be used by the County to help make planning decisions within the south Rowan County I-85 corridor. Below is a table that summarizes the different water and sewer needs for each development type.

Development Type	Water	Sewer
<u>Single Family Residential</u>		
1+ Acre	X	X
0.5 – 1 Acre	X	X
Less than 0.5 Acre	✓	✓
<u>Multi Family Residential</u>		
Duplexes	✓	X
Apartment Complexes	✓	✓
<u>Commercial</u>		
Small Scale	✓	X
Large Scale	✓	✓
<u>Industrial</u>		
Light Use	✓	X
Heavy Use	✓	✓

Table 3: Water and Sewer Needs per development type and scale.

In 2015 McGill Associates prepared a feasibility study for Rowan County to consider potential municipal water and sewer service to two (2) primarily unserved, targeted service areas. One of those service areas, South I-85, is consistent with the study area for this land use plan. That plan, “Rowan County Targeted Water and Sewer Study” identified existing water and sewer lines in and around the study area, as well as potential service providers. The plan further outlined key infrastructure needs to provide water and/or sewer to the corridor. Those needs are summarized in the figure 20 below, taken from that study.





When considering potential development types, consideration should also be given to the need for municipal water and sewer service. Further, when making decisions about water and sewer infrastructure investments, the density, as well as the type of development should be factored.

### **Proposed North Carolina Department of Transportation (NCDOT) Interchange**

Interstate I-85 is a critically important generator of economic opportunity not only significant to Rowan County, but is also vital to regional, statewide and interstate commerce. According to the North Carolina Department of Transportation estimates for 2015, an average of 74,000 vehicles travelled the I-85 corridor study area daily through Rowan County. This represents a seven percent (7%) increase in daily traffic volumes obtained in 2010. Recognizing the corridor's inherent economic opportunities and development potential, improvements and maintenance of Interstate 85 continue to be a priority of Rowan County.

The North Carolina Department of Transportation has proposed plans for improvements in how motorists will access I-85 through Rowan County. These plans include a full Interstate 85 interchange at N.C. 152 (TIP Project# I-3610) and a completely new interchange at Old Beatty Ford Road (TIP Project # I-3804). The N.C. 152 interchange and the proposed Old Beatty Ford Road will use roundabouts to direct traffic instead of traffic lights.

The current exit at N.C. 152<sub>7</sub> permits a motorist to enter the southbound lanes of I-85 while motorists are only allowed to exit I-85 if they are traveling in the northbound lanes. The north interchange at U.S. 29 is oriented the opposite way. The plan is to close the partial interchange at U.S. 29 creating an access road between N.C. 152 and Mount Hope Church Road. At the full interchange with N.C. 152, two roundabouts provide motorists an exit/entrance to I-85.

The I-3804 interchange project will be located between exits 68 (NC Hwy 152 E) and 63 (Lane Street - Kannapolis). Once completed, this project will create several development opportunities that will provide potential new businesses with prime I-85 frontage. These frontage properties will support expanded commercial and retail development in the adjacent areas. An additional benefit of this project is that Interstate I-85 traffic will gain better access to China Grove and Landis.

See the NCDOT graphic of the proposed interchange on the following page (figure 21):

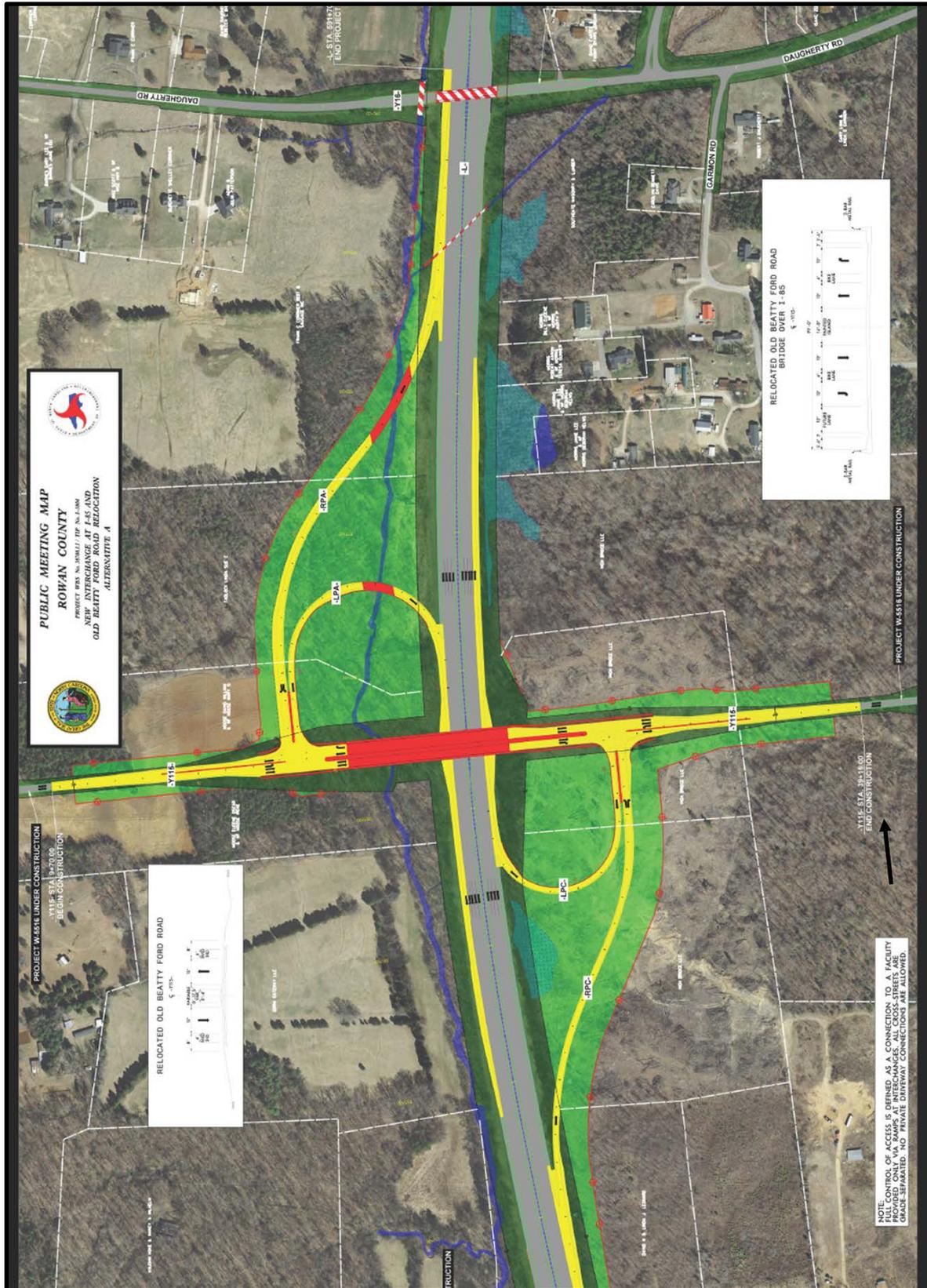


Figure 21: Proposed NCDOT interchange at Old Beatty Ford Road

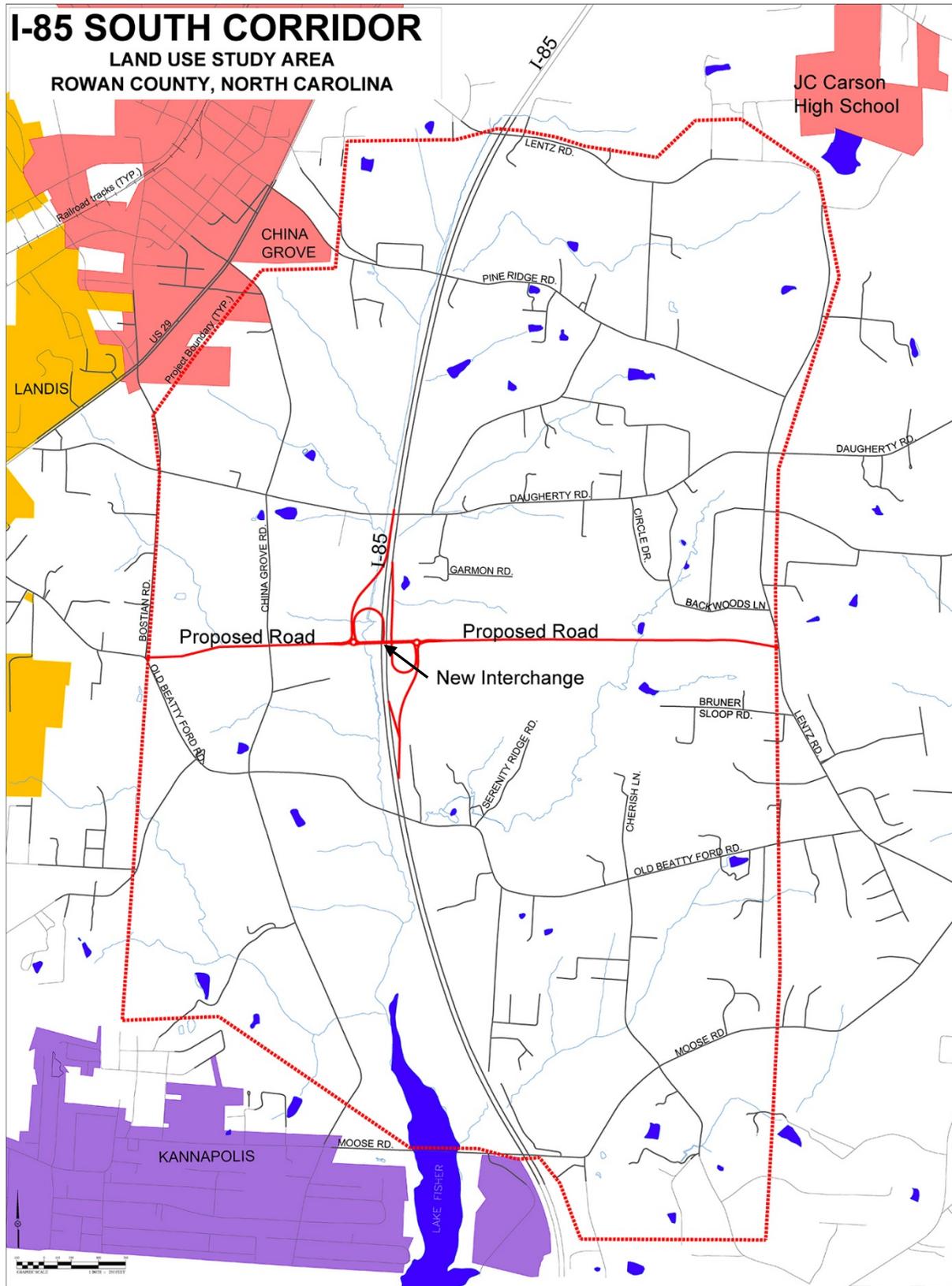


Figure 22: Proposed NCDOT interchange at Old Beatty Ford Road within the south Rowan County I-85 corridor study area.



## Patterns of Development

When considering local land use at the County level, one common differentiation is between areas within municipal boundaries (i.e., incorporated) and areas outside municipal boundaries (i.e., unincorporated). In addition, terms like “urban” and “rural” are often used to describe lifestyles as well as distinguish between people living within versus outside of town.

“Land use” at the local level typically refers to the activity taking place on a specific piece of property or aggregation of properties. Land use operates at the scale of parcels and buildings and is often viewed in terms of types of activity. Typical activity-based land use designations include; agricultural, residential, commercial, industrial, mixed-use, transportation, utilities, public-use, parks and recreation and areas in transition (i.e., vacant).

Land use designations can influence both economic valuation of a specific place. Patterns of development may be influenced by both, type development and the scale of a development type. Such as in the case between small scale family farm agriculture and corporate mega farming sites.

It should be noted that residential land use may be further divided into single family, multi-family, and manufactured housing (mobile homes). The arrangement and proximity of various land uses can either positively or negatively impact property valuation and quality of life in the developed area.

New development adjacent to existing land uses, particularly if it is much more intensive or involves operations or activities that have effects that extend beyond the property, may create land use incompatibilities. Proper arrangement of land uses and activity types as well as the scale and intensity of how adjacent properties are used will ensure balanced and highest quality of development.

The careful planning of land uses can enhance people’s experience and sustain positive future growth. Transitions between rural and urban areas, land use activities and densities of population should be considered when developing within the south Rowan County I-85 corridor study area. In any setting, buildings should be comprised of elements that relate well compositionally and have features and detailing comparable to a person’s size to provide a sense of human scale. This develops an aesthetic of continuity between where residential areas transition to commercial areas. Such visual continuity serves as a good transition between dissimilar land uses. Examples of commercial entities include banks, restaurants, grocery stores, and other types of retail establishments. Industrial land use generally encompasses manufacturing activity, but may also include areas with high spillover effects in terms of noise, emissions, or traffic that would be undesirable to locate near residential areas. Other types of industrial land uses include areas of extraction, refining, and/or processing of natural resources.



### Section 3 Land Use & Recommendations

Patterns of development will occur either in a planned manner or an uncontrolled and often random manner. This plan proposes the County seek to direct the future development of the south Rowan County I-85 corridor study area in a deliberate and controlled way.

The locations for development types proposed in this plan considered several factors including existing land uses, topography, hydrology, transportation and existing / proposed services such as water and wastewater utilities. The exact ratio of residential/commercial/industrial uses is less critical at this time than the idea that a mix of these uses should be woven into the future fabric of the study area.

#### Potential Development Nodes

The focus of planning decisions regarding the south Rowan County I-85 corridor study area should be how to best balance existing land use with the need to serve the community with opportunities for job creation, development density and connectivity. Attracting employment generators such as commercial, retail and industrial businesses is about both having a plan to provide the necessary infrastructure required to locate and providing a livable community for future employees/county residents. Such a livable community would not only entice employment generating businesses but also provide planning for community services such as places of worship, schools, recreation facilities, civic spaces, and other public services such as fire, police and health care.

The following recommendation is a suggested scenario of the development pattern in the future. The proposed distribution of development types is based on the collective professional knowledge and experiences of McGill Associates and County Planning staff that participated in the creation of this document.

The map in figure 23 (page 35) highlights where nodes of residential, commercial and industrial development are recommended. The main corridor of I-85 and the future improvements of Old Beatty Ford Road serve as frontage for commercial and mixed use (commercial/retail/residential) developments as well as some industry. The location proposed for industrial (light and heavy) development is a logical extension of the existing industrial zoning in China Grove.

These potential nodes of development encourage hubs of activity to naturally occur at major intersection termed neighborhood centers. Neighborhood centers provide a common, centrally located destination for residents. Centers are a symbolic, coalescing focal point, but they also provide needed services for people within walking distance. Neighborhood centers provide a means of connecting people to one another and to a larger shared public identity.

Shaded areas indicate likely locations for each development type shown. The exact scope of each potential development type will change over time as development begins and naturally expands. Areas shown in white are areas where future expansion is likely but only after the shaded areas are built out. This is only one of many possible scenarios which will depend on



availability of utilities, funds and economic/market forces. Areas shown as residential may consist of either single or multi-family units. Multi-family units may be best suited to areas of denser development such as near neighborhood centers and commercial/retail areas. Industrial

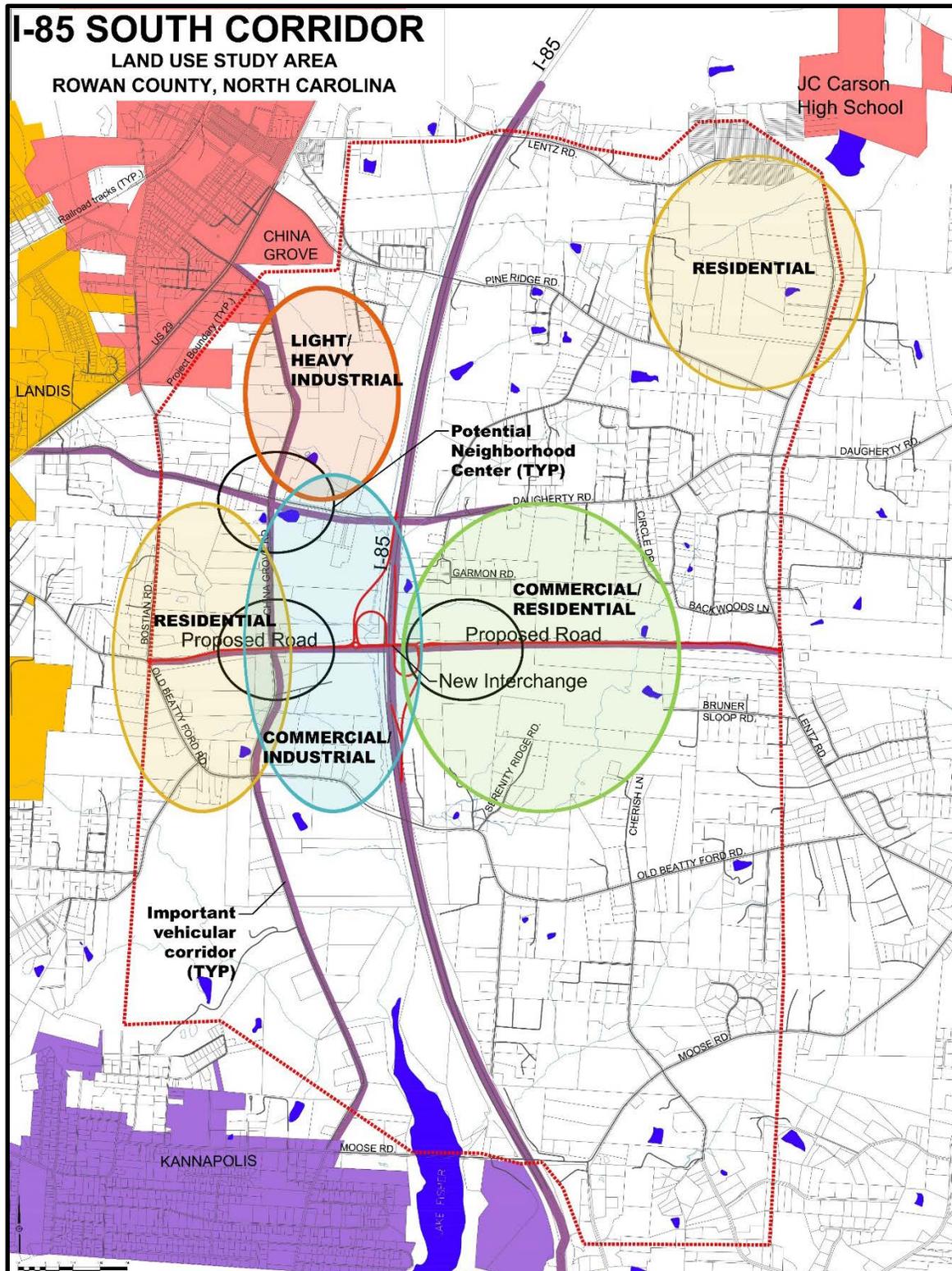


Figure 23: Potential development nodes.



**Section 3 Land Use & Recommendations**

development typically is located away from residential developments buffered by either undeveloped areas or commercial/retail areas.

As these proposed areas of development (see figure 23) are built out they will serve to link the existing areas in the east of both China Grove and Landis to the I-85 corridor and areas in the County to the west of I-85.

One major factor driving development of these nodal areas is the availability of water and sewer service. With Rowan County being positioned to facilitate extension of water and sewer to the area, the type of development desired, will be directed by the feasibility of service.

**Development Guidelines**

To control Rowan County’s vision of how the south Rowan County I-85 corridor will look and to prevent low quality development of the surrounding properties, this plan proposes the County amend its existing zoning ordinance and land use regulations to include smart growth districts or an overlay district for specific portions within the I-85 and Old Beatty Ford Road frontage corridors applicable to new developments. By carefully crafting and judicially applying a series of districts and standards aimed at guiding future development, Rowan County can protect and support identity while creating an environment that attracts positive investment.

**Single Family**

This plan recommends that all new residential development include:

- Dedicated open space areas
- Sidewalks
- Street lighting
- Street trees
- Curb and gutter in all sections



*Figure 24: Example of typical street with storm water controls, sidewalk, street trees, etc.*

It is also recommended that the County determine standard setback widths and types of buffer required for interconnected roadways.



Figure 25: Example of typical residential development with dedicated open space and sidewalks.



Figure 26: Sidewalks support a walkable community.

### Multi-Family

Multi-family residential developments should also undergo architectural review and include:

- Dedicated open space
- Sidewalks
- Street trees
- Interconnected roadways
- Setbacks
- Buffers/Screening/Walls/Fencing
- Parking lot and foundation landscaping
- Sign design review



Figure 27: Multi-family developments benefit from well planned and executed design guidelines.

By providing developers with design guidelines the County can help protect the value of residential developments long after the project is completed.



## Mixed Use

This plan recommends the County consider allowing mixed use development within the south Rowan County I-85 corridor study area. Studies show a clear connection between walkable environments and the economic viability of a town. Walking the Walk, a report by the CEO for Cities, states that the “resurgent interest in downtowns and in promoting mixed-use developments throughout metropolitan areas is, in part, driven by a recognition of the value of walkability.” Mixed-development that promotes a walkable built environment can help revitalize a downtown, increase private investment, lead to higher property values, promote tourism, and support the development of a good business climate. Mixed use developments offer good connectivity between residential, commercial and retail functions.

Smart Growth America released a study in May 2013 that examined 17 cities and states and the effect that expanded smart growth development, which includes mixed-use development, would have on the area in comparison to conventional suburban growth. That study noted that “Charlotte, North Carolina... found that fire department response times would be faster and fewer stations would be needed if the city had a better-connected street grid and closer-set homes.”

Mixed use developments help to provide public health benefits, walkable communities that are attractive, convenient, and may also contribute to a sense of place that could reap economic rewards for Rowan County.

Design guidelines to consider for mixed use developments should include:

- Building heights
- Pedestrian oriented streets
- Pedestrian amenities
- Sidewalks
- Crosswalks
- Tree planters
- Decorative street lamps
- Building Façades
- Signage types/Design
- Bike racks/Transit Stops



*Figure 28 Mixed Use developments combine housing and business functions within close proximity to one another.*



### Commercial/Office

The County should plan to incorporate commercial and office development into the study area. Commercial and office development provides both jobs and services which is a critical part of providing a livable environment for County residents and has the potential to contribute to a strong sense of community identity. The types of businesses often associated with this development type includes: Business parks, Mixed-use facilities, office buildings, trucking depots, retail parks, shopping mall/centers, shopping streets and districts, warehouse districts.

Commercial parcels can be organized and concentrated in various configurations to control circulation patterns. In some communities, commercial land is organized in a linear pattern along major arterial corridor; sometimes commercial parcels are concentrated in nodes at intersections or interspersed with predominantly residential uses. Linear patterns of development may require multiple driveway access points along the corridor (individual parking areas), requiring wider or multiple lanes to accommodate ingress/egress while developments laid out in a nodal pattern (shared parking areas) may require less driveways. Both forms significantly influence the nature of how residents access goods and services as well may require careful consideration of how traffic patterns will be affected.

Well-designed components reinforce the positive identity of a community's commercial core and contribute to neighborhood character. The following design guidelines are intended to address some of the most common, overarching challenges in planning commercial developments. The main areas of opportunity for achieving high quality design in commercial projects include: enhancing the quality of the pedestrian experience along commercial corridors; nurturing an overall active street presence; protecting the neighborhood architectural character; establishing height and massing transitions between residential and commercial uses; preserving visual and spatial relationships with adjacent buildings; and improving opportunities for high quality development that supports the visual and functional quality of the commercial environment within the context of neighborhood areas.

Commercial and office developments to consider include the following design guidelines:

- On/Off Street Parking
- Building Setbacks
- Loading Areas
- Architectural Standards
- Discouraged Building Elements
- Buffers/Screening/Walls/Fencing
- Landscaping
- Parking Lot Landscaping
- Lighting
- Sign Design Guidelines



Figure 29: Typical commercial development



## Industrial

Industrial development has the potential to create stable jobs for County residents. Through careful consideration of how industrial development fits within the study area, both aesthetic and design guidelines and potential environmental aspects can be controlled.

The County should ensure that industrial developments have clearly visible entrances with controlled site access. Landscaped and screened parking, with rear loading and service areas will help soften the typically harsh look of industrial facilities. The placement of structures that create opportunities for plazas, courtyards, or gardens/patio areas which can be utilized as pedestrian gathering places and common employee gathering areas should be encouraged.

A variety of architectural design treatments, including articulated building footprints to reduce massing and to promote architectural interest is also recommended.

Site design and improvements should anticipate the potential re-use of the building for other purposes. The preservation of distinct natural site features should be mandatory.

The County should consider the following additional design guidelines for both light and heavy industrial development:

- Storage Areas
- Loading Areas
- Building Placement Design
- Building Design
- Building Elements
- Discouraged Building Elements
- Landscaping
- Buffers/Screening/Walls/Fencing
- Parking Lot Landscaping
- Walls and Fences
- Lighting
- Sign Design Guidelines



*Figure 30: Typical industrial type of development*

## Summary

Rowan County has a unique opportunity to cast a vision for the look and feel of development around the new I-85 interchange in southern Rowan County. This land use plan examines the areas associated with the south Rowan County I-85 corridor, distinguishes the different types of development possibilities, and presents an analysis of where future types of development could be located.



### Section 3 Land Use & Recommendations

This plan indicates patterns of development and potential design guidelines the County should consider implementing. The plan recommends the development of a water and sewer service strategy to support the proposed density and scale of the development types desired and recommended. The plan also recommends acceptance of the proposed development patterns in key locations of the study area as seen on figure 20 and establishment of development guidelines through amendments to its Zoning Ordinance.

The intention of this plan is to be a guide for future land use decisions and should be referenced by the Planning Board and County Commissioners when reviewing future site plans, land use related issues and requests. This guide should be considered an evolving document and should be reviewed on a regular basis to ensure it is continuing to meet the needs of the south Rowan County I-85 corridor planning area. Well-planned communities balance residential, economic, and quality of life issues. Having a well-planned community results in a more economically and environmentally sustainable development.

The successful planning of the south Rowan County I-85 corridor depends on both a clear vision of what this area can be and the political will to see that vision through to reality. Sensible planning helps determine the type of development that will occur within the area and ultimately lead to higher quality destinations within the County, while attracting private investment, creating jobs and mitigating the environmental impacts of development. An update of this plan should be completed in five years with a thorough update in ten years.

END OF SECTION