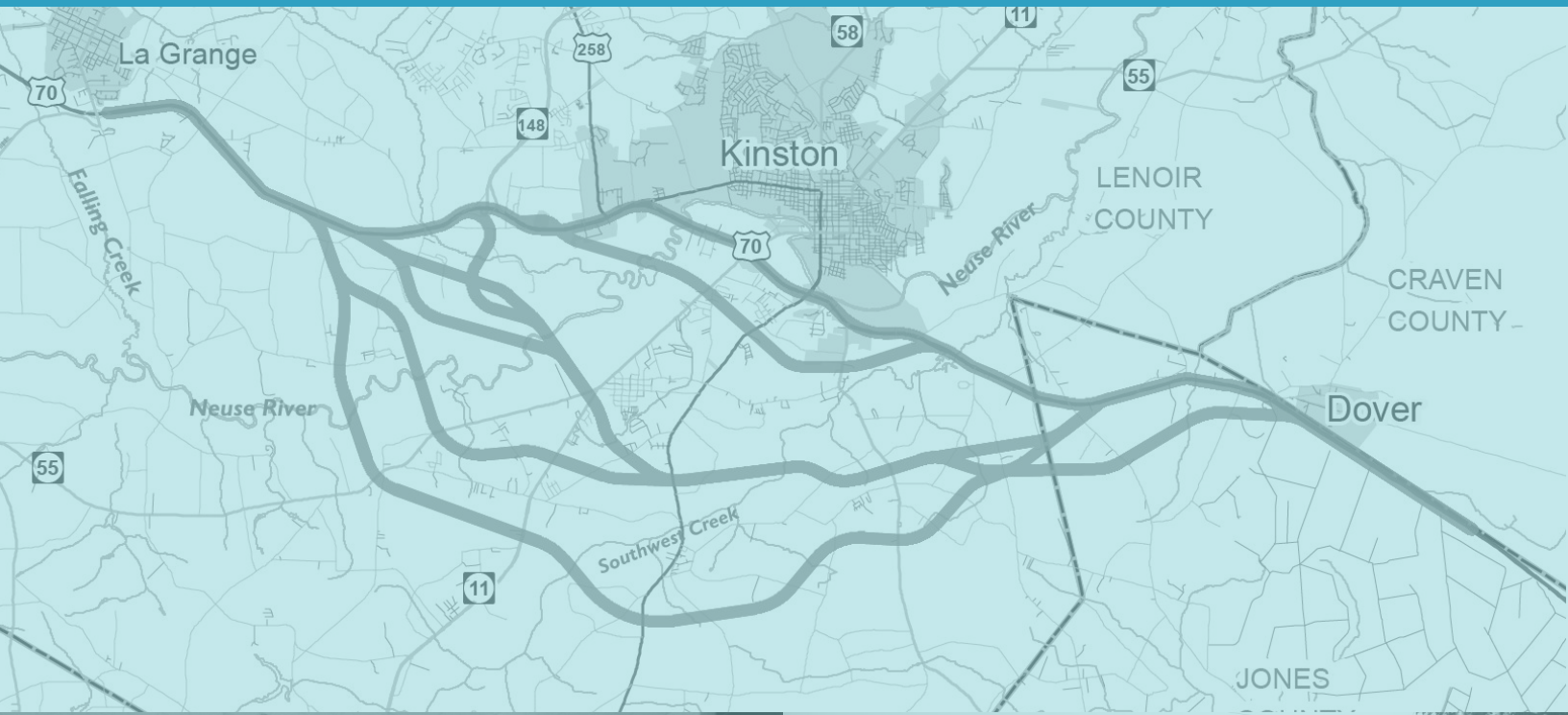


# KINSTON BYPASS



STIP Project Number R—2553

## Land Use Scenario Assessment



North Carolina Department of Transportation

October 2018  
(Updated May 2019)





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## Acronyms and Abbreviations

BUA	Built-upon area
CA	Critical area
CAMA	Coastal Area Management Act
CAWMP	Certified Animal Waste Management Plan
CIA	Community Impact Assessment
CTP	City of Kinston Comprehensive Transportation Plan
EIA	Economic Impact Assessment
EMC	North Carolina Environmental Management Commission
ETJ	Extraterritorial jurisdiction
FEMA	Federal Emergency Management Agency
FLUSA	Future land use scenario assessment
GIS	Geographic information system
GTP	Global TransPark
HMGF	Hazard Mitigation Grant Program
LCC	Lenoir Community College
LUSA	Land use scenario assessment
mph	Miles per hour
NC	North Carolina
NCDEQ	North Carolina Department of Environmental Quality
NCDNCR	North Carolina Department of Natural and Cultural Resources
NCDOC	North Carolina Department of Commerce
NCDOT	North Carolina Department of Transportation
NCDWR	North Carolina Division of Water Resources
NCNHP	North Carolina Natural Heritage Program
NCRR plan	North Carolina Resilient Redevelopment Plan
NHPNA	Natural Heritage Program Natural Area
NRCA	Neuse River Compliance Association
NSW	Nutrient sensitive water
ORW	Outstanding resource waters
OSBM	Office of State Budget and Management
PDA	Probable development area
ROW	Right-of-way
STIP	State Transportation Improvement Program
Sw	Swamp water
US	United States
VAD	Voluntary agricultural district
WASA	Water and Sewer Authority
WS-IV	Water supply- IV
WWTP	Wastewater treatment plant



## EXECUTIVE SUMMARY

### Project Overview

The North Carolina Department of Transportation (NCDOT) is proposing State Transportation Improvement Program (STIP) project R-2553, termed the Kinston Bypass, that is currently planned as a four-lane, median-divided freeway with full control of access on new location in Lenoir, Jones, and Craven counties, North Carolina. The proposed design speed of the project is 70 miles per hour. The project extends from United States (US) 70 near La Grange (in Lenoir County) to US 70 near Dover (on the Jones and Craven county line). Twelve build alternatives are being evaluated, including an alternative that upgrades the existing facility (Alternative 1UE), an alternative that upgrades a portion of the existing facility and includes a shallow bypass (Alternative 1SB), and 10 new location alternatives south of existing US 70. The alternatives vary from 20 to 24 miles in length.

### Summary of the Future Land Use Study Area

The future land use study area (FLUSA) includes 134,054 acres. Of this, 118,338 acres (88.3 percent) are considered available for development. The time horizon for the assessment is from 2000 to 2040.

Notable human environmental features in the FLUSA include the Wyse Fork Battlefield, four sites associated with the First Battle of Kinston, environmental justice communities, numerous parks and recreational facilities, the Federal Emergency Management Agency's Hazard Mitigation Grant Program buyout properties, and several Voluntary Agriculture Districts.

Notable natural environmental features include the Neuse River, and its extensive floodplain, stream segments within or partially within the FLUSA that are listed on the Final North Carolina Water Quality Assessment and Impaired Waters List (2016 integrated 305(b) and 303(d) report), wetlands, conservation easements, and North Carolina Department of Environmental Quality's Natural Heritage Program Natural Areas.

The population and job growth estimates based on data from the North Carolina Office of State Budget and Management (OSBM) show a -0.2 percent annualized growth rate for both population and employment for Lenoir County through 2037. For the last several decades Lenoir County has performed poorly economically compared to its neighboring counties and North Carolina as a whole. Population growth, employment growth, educational attainment, and income lag below the state. OSBM projects the population growth in Craven, Jones, and Lenoir counties will be negligible over the next twenty years.

Development in the FLUSA over the time horizon is expected to be limited, with or without the project. Development regulations in the area address future land use and many of the recent infrastructure improvements and expansions. The low-density rural residential and agricultural land uses are expected to continue.

The Lenoir County *Watershed Protection Ordinance* applies to a portion of the southwest area of the FLUSA (Lenoir County 2003a). The watershed ordinance establishes density and intensity standards for residential and non-residential development in the Neuse River Water Supply Watershed WS IV-CA (critical areas) and WS IV-PA (protected areas). In addition, the entire



FLUSA is subject to the Neuse River Riparian Buffer Rules. These rules require a 50-foot riparian area be protected and maintained along waterways in the river basin. A buffer mitigation rule allows some activities with prescribed mitigation (15A North Carolina Administrative Code [NCAC] 2B .0233 (6)). The buffer rules are administered by the North Carolina Division of Water Resources.

Various stormwater permitting programs exist in the FLUSA, which includes Lenoir County for the area in the WS IV-CA and WS IV-PA under the Local Watershed Protection Program; the City of Kinston under the Neuse River Stormwater Program; and Craven County, which is a Coastal Area Management Act (CAMA) county. The Town of Dover and Cove City are subject to the Coastal State Permitting Program.

### Summary of Probable Development Areas

Nine probable development areas (PDA) that surround major existing or potential interchanges were examined. The PDAs were evaluated for potential changes in development patterns. Construction of the proposed project would likely influence growth in PDAs 1, 2, 3, 5, and 6. On the other hand, construction of the proposed project would not likely influence growth in PDAs 4, 7, 8, and 9. The following is a condensed summary of the results (Table 23).

- The project would provide a freeway with full control of access, which would result in travel time savings that exceeds 10 minutes based on the time savings an individual user of the highway would likely experience while driving on the built project in the 2040 build year as compared to the project travel time of an individual user would experience in the no-build scenario in 2040. The travel time savings estimate is based on the Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study, TIP Project R-2553, Lenoir, Jones, and Craven counties (NCDOT 2016). Industrial development in PDA 2, in the vicinity of the interchange of US 70 with C.F. Harvey Parkway (NC 148), is expected to continue with or without the project. However, the project is expected to increase the likelihood and/or density of development in this area. Existing US 70 is a hub for commercial development in both PDA 2 and PDA 5. Changes in both traffic volumes and how properties are accessed would influence potential land use changes in these two PDAs. Study alternatives that divert traffic away from these commercial corridors and onto a new bypass would likely cause businesses that cater to highway users to either be replaced by businesses less dependent on highway users or to become vacant. Study alternatives that involve altering access to these commercial areas may cause a decrease in future development if it becomes more difficult to reach these businesses.
- All PDAs are likely to see some increase in development pressure for commercial businesses that cater to highway users near the location of interchanges. Development in PDA 6 would be limited by the floodplain and a large number of buyout properties. PDAs 4, 7, 8 and 9 are less suited for future development since they are outside the sewer service areas. PDA 3 is well suited for development given the proximity to other major highways, the availability of land suitable for development, and the availability of water and sewer.
- The project is not expected to influence the intensity or location of residential development, as PDAs without sewer service are expected to continue with low-density rural residential land use with or without the project. Some low-density rural residential development may occur in rural areas and would be served by septic systems. Some increase in residential



development in PDA 3 and PDA 6 is possible given other community amenities near these PDAs, such as convenience stores, grocery stores, and public utilities. However, given the stagnant population projections for the area, overall pressure for new residential development in the FLUSA is expected to be low.

Potential impacts to notable features within PDAs 1, 2, 3, 5, and 6 are summarized in Table 23. PDAs 4, 7, 8, and 9 do not have any notable features and are not listed in the table. Potential impacts to applicable PDAs and mitigation measures to minimize those impacts will be further discussed in the Final Environmental Impact Statement once a preferred alternative is selected.

### Land Use Scenario Assessment Matrix Results

Neuse River stormwater and buffer rules will help mitigate any negative water quality effects of development. Separate land use scenario assessment (LUSA) matrices were created for Alternative 1UE, Alternative 1SB, and the southern bypass alternatives. The results of the matrices showed the following:

- The land use scenario assessment matrices showed that, when compared to the no-build scenario, all three build scenarios would create slightly more pressure/demand for higher impact development. While the overall growth projections for the FLUSA are low, the construction of a new freeway and/or major improvements to the highway would likely have a slight increase in pressure/demand for new commercial/industrial development.
- The no-build scenario and the Upgrade Existing US 70 build scenario were both rated as medium-low concern for a shift in population growth. The Upgrade Existing US 70 with Shallow Bypass and the southern bypass build scenarios were more likely to shift future population growth areas with the concern being medium and medium-high, respectively. These rankings were based on the build scenarios' distances from the existing commercial and population centers.
- The FLUSA is in regulated areas, which includes a combination of the Neuse River buffer rules, a watershed protection ordinance, a flood damage protection ordinance, CAMA permits (Craven County), North Carolina Natural Heritage Program managed areas for conservation, NCDOT on-site mitigation sites, and the *Neuse River Basinwide Water Quality Plan*. Therefore, all three build scenarios and the no-build scenario were rated as low.
- Most of the land in the FLUSA is in planned areas that fall under the jurisdictions of one of the municipalities or the counties. These jurisdictions employ a combination of zoning ordinances, land use plans, a watershed protection ordinance, and others that provide adequate protections to the human environment. The no-build scenario, Alternative 1UE, and Alternative 1SB were all rated as low, since they would maintain the existing roadway section through Jones County, which does not implement zoning controls. However, the southern bypass build scenario would provide new access to land in Jones County; it was rated as medium-low.
- All build scenarios were rated as medium-high for development patterns, which is the same ranking as the no build scenario. This ranking signifies that the general low-density development patterns found in the LUSA are expected to remain the same both with and without the project.



- The areas that are projected for probable development are consistent with land development and stormwater management goals set in these respective areas; thus, there were no discernable differences between the no-build scenario and any of the build scenarios.

In summary, the LUSA matrix shows that there is little divergence between the build scenarios and the no-build scenario.

### Indirect and Cumulative Effects Summary

Examination of the PDAs shows that the Kinston Bypass project, which includes an alternative to upgrade existing US 70, an upgrade of existing US 70 with a shallow bypass, and new location alternatives is expected to encourage growth targeted to highway users in certain areas and/or influence future growth and land use along the US 70 corridor. However, given the low growth projections for the FLUSA, pressure for development is expected to be limited. Federal, state, and local regulations that include zoning ordinances and land use plans provide protection from development for human and natural environmental features in the FLUSA that include historic and cultural resources, protected populations, wetlands, natural systems, farmland, and other important features. Indirect land use impacts to these resources should be limited by the regulations in place.

Qualitative analyses of the probable development patterns in the FLUSA suggest that change in land use resulting from the project and subsequent private and public development actions could lead to an increase in impervious surface and could have an effect on future stormwater runoff and water quality in the watersheds encompassed by the project. However, the limited growth that is projected with or without the project in the FLUSA and the adopted ordinances and regulations that are in place will help mitigate potential water quality effects due to increased impervious surface coverage and increased water runoff. Water quality concerns will be avoided, minimized, and/or mitigated through compliance with regulations covering watershed protection, floodplain protection, stream and river buffers, and stormwater management.

This project is expected to contribute to indirect and cumulative effects of future land use changes in the FLUSA. The project is expected to result in travel time savings of greater than 10 minutes based on the time savings an individual user of the highway would likely experience while driving on the built project in the 2040 build year as compared to the project travel time of an individual user would experience in the no-build scenario in 2040. The travel time savings estimate is based on the Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study, TIP Project R-2553, Lenoir, Jones, and Craven counties (NCDOT 2016). The project would change property access and create new land use/transportation nodes.



## I. PROJECT DESCRIPTION

The North Carolina Department of Transportation (NCDOT) is proposing a four-lane, median-divided freeway with full control of access in Lenoir, Jones, and Craven counties in North Carolina. This roadway is being proposed as a principal arterial. The project extends from United States (US) 70, a designated principal arterial, near La Grange (in Lenoir County) to US 70 near Dover (on the Jones and Craven county line). The project location is shown on Figure 1. Other highways that are in the project vicinity include US 70 Business, US 258, North Carolina (NC) 11, NC 55, NC 58, and NC 148 (C.F. Harvey Parkway).

The project has a design speed of 70 miles per hour (mph) and would upgrade existing US 70 or bypass Kinston from La Grange to Dover. The alternatives vary from 20 to 24 miles in length. The proposed action is listed in the 2018-2027 State Transportation Improvement Program (STIP) as project R-2553, and is funded for \$379 million.

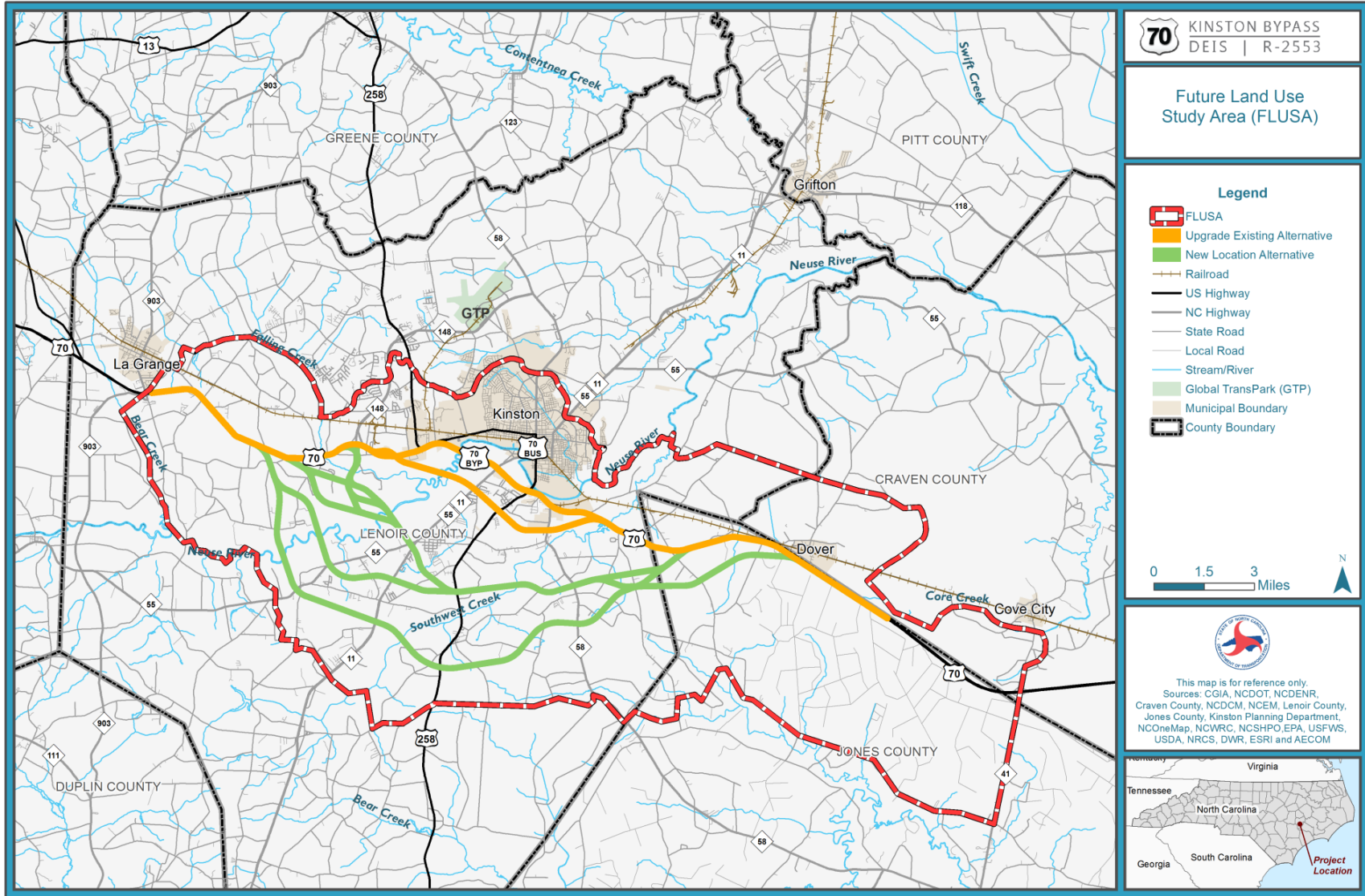
### I.1 PROJECT PURPOSE AND NEED

The purpose of the project is to improve regional mobility, connectivity, and capacity for US 70 between La Grange and Dover in a manner that meets the intent of the North Carolina Strategic Transportation Corridors Policy (NCDOT 2015b). The primary needs for the project are to address traffic congestion, capacity deficiencies, and through-traffic delays on US 70 between La Grange and Dover. US 70, designated as a Strategic Transportation Corridor (which runs from Raleigh to Morehead City), is part of the North Carolina Intrastate System. The Strategic Transportation Corridors Map designates this portion of US 70 as a freeway. Other projects planned along the US 70 corridor that support this vision include US 70 Goldsboro Bypass and US 70 Havelock Bypass.

In addition to addressing the primary needs, additional benefits of the proposed action include improving the mobility of armed forces at Seymour Johnson Air Force Base and Cherry Point Marine Corps Air Station and reducing clearance time during hurricane evacuations for residents and visitors that use the US 70 corridor during evacuations.

An Economic Impact Assessment (EIA) Report prepared for the Kinston Bypass project anticipates that project-related benefits would at least maintain and likely improve Lenoir County's business competitiveness and business development potential (NCDOT 2018b). A fully controlled access highway from Raleigh to Morehead City would result in significant travel efficiencies for existing businesses and residents.

**Figure I: Future land use study area (FLUSA)**





## I.2 PROPOSED MODIFICATIONS

Twelve detailed study alternatives (alternatives) are being evaluated for the proposed Kinston Bypass. Each design option is a four-lane, median-divided freeway that would accommodate speeds of 70 mph and have full control of access, meaning access to the roadway would be allowed only at interchanges. The 12 alternatives are comprised of upgrade existing roadway and/or new location corridor segments with connector segments that run between the corridors.

The 12 alternatives include the following:

- Upgrade Existing US 70 (Alternative 1UE)
- Upgrade Existing US 70 with Shallow Bypass (Alternative 1SB)
- Ten new location alternatives south of existing US 70 (Alternatives 11, 12, 31, 32, 35, 36, 51, 52, 63, and 65)

Functional designs for major project elements, including the location of interchanges with highways and other major roadways, have been developed. Design criteria developed for the study alternatives are shown in Table 1. The typical section is proposed as a four-lane, median-divided freeway with full control of access.

**Table 1: New location build alternative design criteria**

Factor	Classification
Roadway type/functional classification	Freeway
Terrain type	Level
Design speed	75 mph
Posted speed	70 mph
Right-of-way width	Varies 250 feet – 300 feet
Control of access	Full
Rumble strips (Y/N)	N
Ultimate typical section type	4-lane divided shoulder
Lane width	12 feet
Sidewalks (Y/N)	N
Bicycle lanes (Y/N)	N
Median width	46 feet
Shoulder width	10 feet
Horizontal alignment	8%
Cross slopes	2.5%



## 2. FUTURE LAND USE STUDY AREA

The future land use study area (FLUSA) is the area surrounding a construction project that could be indirectly affected by the actions of others as a result of the completion of the project and other combined projects. The FLUSA encompasses all of the areas examined for potential increases in development pressure as a result of project construction (Figure 1). The FLUSA has been revised since the *Indirect and Cumulative Effects Screening Report* was developed in August 2012, due to the elimination of the northern alternatives, which revised the study area to encompass the southern portion of Lenoir County. The FLUSA boundary was delineated to include all the project alternatives and is based on the 14-digit hydrologic unit code watersheds that encompass the 12 alternatives. Two exceptions were made. At the western end of the project, the FLUSA boundary follows Falling Creek to the north of US 70 and Bear Creek to the south of US 70. On the eastern end of the project the boundary of the FLUSA follows Core Creek to the north of US 70 before rejoining the boundary of the watersheds. The FLUSA is an area anticipated to include all properties that could be potentially indirectly affected by the proposed project.

The dominant natural features in the FLUSA are the Neuse River and its associated floodplains and wetland systems. The southern area of Lenoir County is rural with rural residential and agricultural land uses, with much of the land outside of the urban area of the City of Kinston being farmland.

The land use along existing US 70 near Kinston includes an industrialized area west of Kinston near the C.F. Harvey Parkway interchange and a commercial district that includes highway commercial businesses, service businesses, strip malls, and big box retail. The Global TransPark (GTP), outside of the FLUSA, is located to the north of the City of Kinston.

The western edge of the FLUSA is 9 miles west of Kinston where US 70 runs south of the Town of La Grange. Between La Grange and Kinston the land use is primarily agricultural, with some commercial and industrial areas mixed with scattered rural single-family residential.

The eastern edge of the FLUSA is about 16 miles east of Kinston near the Town of Cove City. US 70 is located south of Cove City, and is crossed by NC 41 with a controlled access interchange. Between Cove City and Kinston the land use is primarily agricultural. Between Cove City and Kinston is the Town of Dover, where Old US 70 (now Sunset Boulevard) runs parallel to the railroad tracks between Dover and Cove City, just north of current US 70.

Growth in the FLUSA is expected to be limited with or without the project. The rural residential and agricultural land uses are expected to continue. Improved highway accessibility would both enhance the GTP's ability to attract new business growth and may help support continued efforts for downtown Kinston's revitalization. While Lenoir County's future population is projected to remain relatively unchanged, future US 70 traffic growth can be expected to result in minor future retail growth of up to \$50 million in annual retail sales for highway market dependent retail businesses along US 70 and/or at future US 70 interchanges. The expected sales shift is estimated to result in potential net sales reductions of between \$6.7 million to \$19.1 million per year.



### 3. TIME HORIZON

The time horizon for this analysis is the year 2040. The census data and population projections cover 2000 to 2037. Adopted local and regional plans relevant to the project have future planning years ranging from 2015 to 2035. The *Kinston Comprehensive Transportation Plan (CTP)* addresses Kinston’s travel needs through 2030 (NCDOT 2011). The CTP addresses highway improvements and bicycle facilities, and an update to the CTP is currently underway. Traffic forecasts for the project extend to 2040. Therefore, a time horizon of 2040 encompasses all relevant plans and data.



## 4. OTHER TRANSPORTATION AND INFRASTRUCTURE PROJECTS

Other transportation projects in and around the proposed project may have the potential to contribute to cumulative effects related to land use, transportation, human demographics, and the environment. The STIP was reviewed to identify other transportation and infrastructure projects, which are listed in Table 2 and shown on Figure 2. STIP project R-5813 is the only planned transportation project located within the FLUSA; however, multiple STIP projects adjacent to the FLUSA are also identified in Table 2. STIP projects outside of the FLUSA are included in Table 2 and Figure 2 because their completion in tandem with the completion of Kinston Bypass may contribute cumulative effects within the FLUSA. Projects listed in the Kinston CTP were not included as it is not a fiscally constrained plan associated with any funding mechanisms. No other active infrastructure or development projects are in the FLUSA except three potential solar farms that currently are in an early planning phase and have not applied for permits.

**Table 2: Other transportation and infrastructure projects**

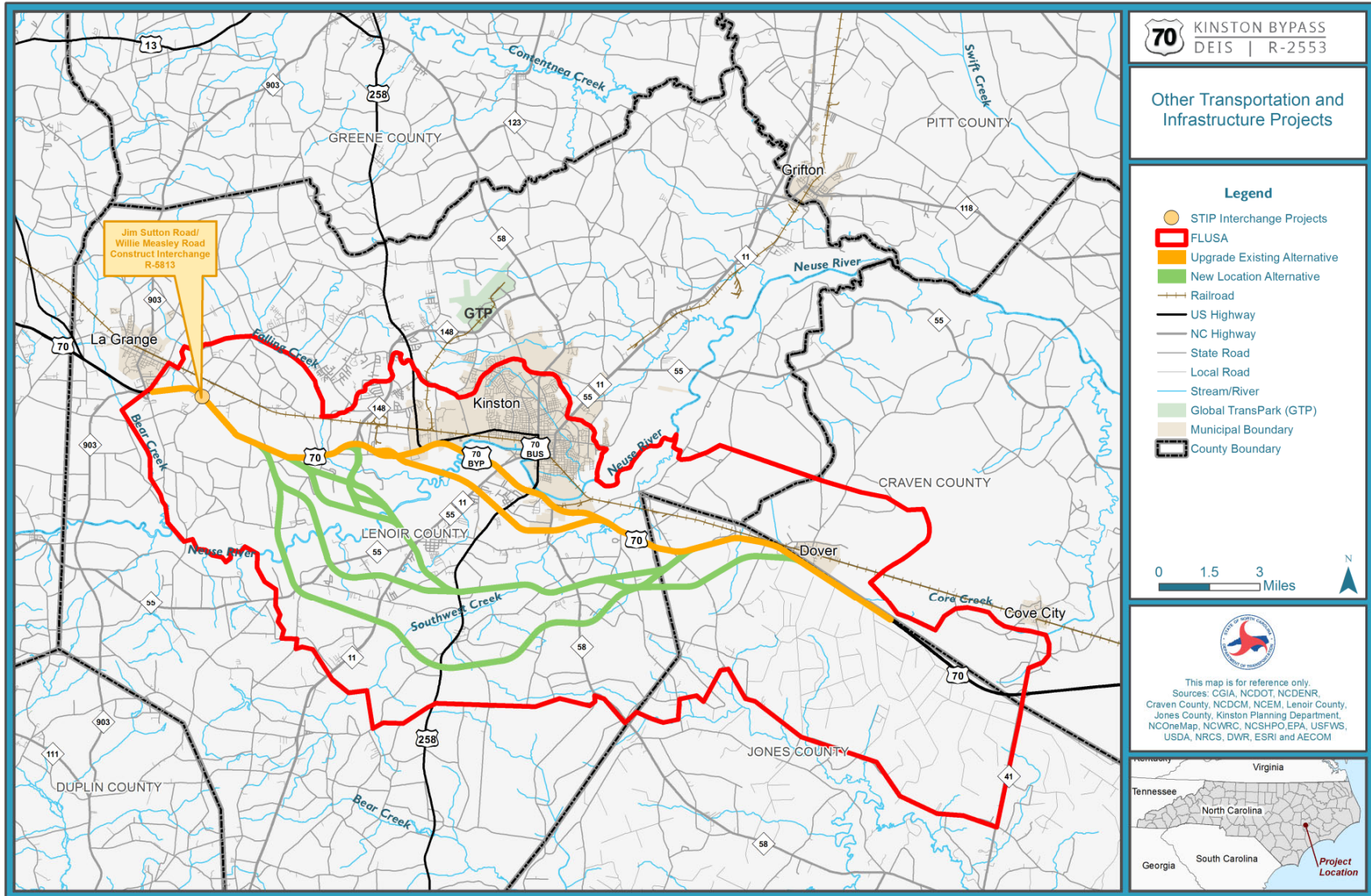
ID No.	Description	Schedule (Fiscal Years)
R-2554	US 70 Goldsboro Bypass, west of NC 581 in Wayne County to east of SR 1323 (Promise Land Road) in Lenoir County – four lane divided freeway on new location.	Completed in 2016
R-2719A	NC 148 (CF Harvey Parkway) in Kinston, from US 70 to US 58 – multi-lane freeway on new location (8.4 miles).	Completed in 2014
U-2928B	New railroad line from NC Railroad to GTP.	Completed in 2012
R-5703	NC 148 (CF Harvey Parkway Extension), NC 58 to NC 11 – Construct multi-lanes on new location (4.2 miles).	Construction – 2018
U-3618	SR 1569 (Carey Road Extension), SR 1569 (Rouse Road) to US 258 – Construct multi-lanes on new location (1.8 miles).	Right-of-way – 2022 Construction – 2024
R-5813	US 70 at SR 1227 (Jim Sutton Road)/SR 1252 (Willie Measley Road) – construct at-grade intersection to interchange	Right-of-way –2023 Construction – 2025
R-5814	US 258, SR 1101 (Browntown Road) to SR 2010 (C.F. Harvey Parkway) – widen to multi-lanes (4.8 miles).	Right-of-way –2023 Construction – 2025
R-5815	NC 11, proposed Greenville southwest bypass to proposed C.F. Harvey Parkway extension. Upgrade to interstate standards (10.5 miles).	Right-of-way – 2025 Construction – 2027

Sources: NCDOT 2018-2027 STIP. October 2017.

R – Rural Projects. U – Urban Projects.



**Figure 2: Project area STIP projects**





## 5. TRANSPORTATION IMPACT CAUSING ACTIVITIES

The proposed project would affect travel patterns, travel time, and property access in the FLUSA. Table 3 summarizes the likely changes. The location and extent of changes would vary depending on which project alternative is selected and built.

**Table 3: Summary of transportation impact causing activities**

Activity	Changes Likely?	Expected Changes
Travel time <sup>1</sup>	Yes	The project would provide a controlled-access freeway, which would reduce delays and increase capacity. Travel time reductions for through-traffic would be reduced by more than 10 minutes. <sup>1</sup> This would improve travel time in the FLUSA that surrounds Kinston.
Property access	Yes	Property access would be altered for properties along or adjacent to the project. Properties bisected by or adjacent to the project would have a new barrier that may limit their access. Other properties would experience improved access to the highway system if they are located near interchanges.
Travel patterns	Yes	Traffic patterns would be altered by a controlled access freeway. Through traffic would likely use the proposed project over the existing US 70 (assumes bypass). Traffic that avoids existing US 70 due to deficiencies, may now use the new roadway or choose the existing roadway. Other changes in travel patterns could occur on local roads due to barrier effects, reductions in connectivity, and road closures of local streets.
Transportation/land use nodes	Yes	New transportation/land use nodes would be created at the interchanges with existing roadways and the proposed project. These nodes would be most likely to experience some land use changes and support clusters of development that would cater to highway traffic (e.g., gas stations and restaurants).

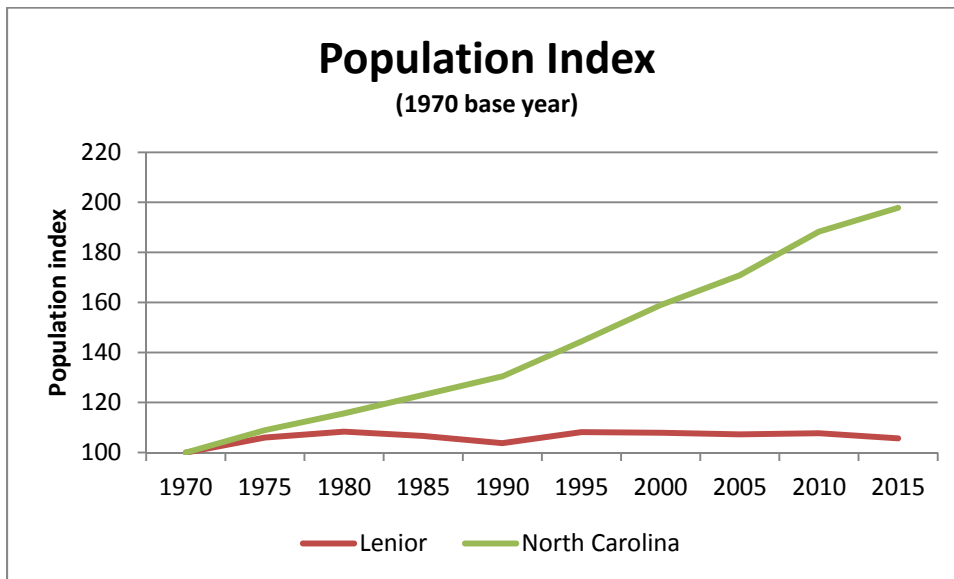
<sup>1</sup>Travel time savings estimate is based on the *Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study, TIP Project R-2553, Lenoir, Jones, and Craven Counties* (NCDOT 2016).

## 6. SOCIOECONOMIC TRENDS

According to the North Carolina Office of State Budget and Management (OSBM), Lenoir County’s 2016 population was projected to be 57,587 of which 20,672 are Kinston residents. Figure 3 shows the growth of the state of North Carolina compared to Lenoir County indexed to the population in 1970.

As shown on Figure 3, the populations and growth rates have been normalized, where 100 is the base total (or index value) for the comparison of growth rates between Lenoir County and North Carolina.

**Figure 3: Lenoir County population growth index (1970 – 2015)**



Source: North Carolina Office of State Budget and Management (OSBM) 2016.

Twenty-three percent of Lenoir County’s population is under the age of 18, which is equal to the statewide percentage (Table 4). However, 20 percent of the county’s population is over 65 years old, which is higher than the statewide proportion of 15 percent. Lenoir County’s smaller proportion of working age adults is likely a reflection of the county’s limited employment base, and high propensity of its working age population to migrate to other regions that offer better and more diverse employment opportunities.

**Table 4: Age of population in FLUSA (2016)**

Area	Under 18 Years	19 to 64 Years	65 Years and Older
Kinston	26%	54%	20%
Lenoir County	23%	58%	19%
Craven County	22%	60%	18%
Jones County	19%	60%	21%
North Carolina	23%	62%	15%

Source: American Community Survey 2017



The City of Kinston also lags behind its neighboring counties in terms of high school graduates with only 80 percent of its population being a high school graduate or higher, compared with 86 percent for the state (Table 5). Similarly, only 15 percent of Kinston’s population holds a bachelor’s degree or higher, while the state’s share is substantially higher (28 percent).

**Table 5: Educational attainment of population in the FLUSA**

Area	High School Graduate or Higher	Bachelor’s Degree or Higher
Kinston	80%	15%
Dover	78%	5.8%
Lenoir County	80%	13%
Craven County	87%	22%
Jones County	82%	13%
North Carolina	86%	28%

Source: American Community Survey Table S1501 (2011-2015)

Table 6 compares the per capita income and poverty rates from the American Community Survey in the City of Kinston and the Town of Dover with the counties in the FLUSA and the state. The current median income in Kinston is \$21,600 and \$23,900 for Lenoir County as a whole. In comparison, the median income for North Carolina is higher at \$29,300. Kinston has a 33 percent poverty rate, which is nearly double North Carolina’s 17 percent poverty rate. Per the US Census Bureau, poverty is measured following the North Carolina Office of Management and Budget’s (OSMB) Statistical Policy Directive 14. The US Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is in poverty. If a family’s total income is less than the family’s threshold, then that family and every individual in it is considered in poverty. The official poverty thresholds do not vary geographically, but they are updated for inflation using the Consumer Price Index. The official poverty definition uses money income before taxes and does not include capital gains or noncash benefits (such as public housing, Medicaid, and food stamps). Similar differences in income, the poverty rate, and other wealth indicators all reflect the trend that Kinston is economically lagging behind its neighboring counties and the state.

**Table 6: Median earnings and poverty in 2015 (2016 \$)**

Area	Median Earnings (per worker)	Population Below Poverty Level
Kinston	\$ 21,565	33%
Dover	N/A	30%
Lenoir County	\$ 23,859	23%
Craven County	\$ 26,635	16%
Jones County	\$ 25,817	22%
North Carolina	\$ 29,280	17%

Source: American Community Survey 2017 C.



The most recent unemployment numbers available are for March 2017, which showed the monthly unemployment rate was 4.6 percent for Lenoir County and 4.6 percent for North Carolina. Generally, the unemployment rates of the three counties mirror the unemployment rate of North Carolina. Historical unemployment numbers for Craven County, Jones County, Lenoir County, and North Carolina are shown in Table 7. The changes in unemployment numbers for the counties and North Carolina are similar to national trends.

**Table 7: Historical unemployment trends**

Date	Craven County	Jones County	Lenoir County	North Carolina
March 2000	4.1	4.5	5.2	3.7
March 2005	4.7	4.9	5.8	5.2
March 2010	10.7	11.2	11.9	10.8
March 2015	6.1	5.8	6.3	5.7
March 2017	4.7	4.5	4.6	4.6

Source: US Department of Labor, Bureau of Labor Statistics. “Local Area Unemployment Statistics.” <http://www.bls.gov/>

According to the US Bureau of Labor Statistics, in 2016 the annual employment for Lenoir County was 27,721; for Craven County was 28,007; and for Jones County was 835. A breakdown of top employment sectors in Lenoir County based on the 2016 US Census, County Business Patterns dataset are manufacturing (24.9 percent), health care and social assistance (18.3percent), and retail trade (12.1 percent).

The top employers in Lenoir County by number of employees are listed in Table 8. Ten of the businesses are manufacturing, showing that Lenoir County is still heavily dependent on its manufacturing industries.

**Table 8: Lenoir County top employers (by number of employees)**

Business Name	Industry
<b>Employers with 1,000 Jobs or more</b>	
Sanderson Farms Inc.	Manufacturing
State of NC Dept. of Health & Human Services	Public Administration
Lenoir County Public Schools	Education & Health Services
<b>Employers with 500 to 999 Jobs</b>	
Smithfield Foods Inc.	Manufacturing
Lenoir Memorial Hospital, Inc.	Education & Health Services
Spirit Aerosystems	Manufacturing
Aristofraft/Decora/Schrock	Manufacturing
County Administration	Public Administration
Electrolux Home Products Inc.	Manufacturing
<b>Employers with 250 to 499 Jobs</b>	



Business Name	Industry
City of Kinston	Public Administration
Lenoir Community College	Education & Health Services
West Pharmaceutical Services Inc.	Manufacturing
Crown Equipment Corporation	Manufacturing
Rha Health Services LLC	Education & Health Services
Pactiv LLC	Trade, Transportation, & Utilities
Wal-Mart Associates Inc.	Trade, Transportation, & Utilities
Personnel Outsource Solutions Inc.	Professional & Business Services
Advance Security	Professional & Business Services
Lenox Corporation	Manufacturing
<b>Employers with 100 to 249 Jobs</b>	
T & D Solutions LLC	Construction
Food Lion	Trade, Transportation, & Utilities
Principle Long Term Care Inc.	Education & Health Services
Associated Materials Inc.	Manufacturing
Exela Pharma Sciences LLC (Prior) G	Manufacturing
Bojangles Famous Chicken & Biscuits	Leisure & Hospitality

Source: <http://d4.ncommerce.com/QCEWLargestEmployers.aspx>

## 7. POPULATION AND EMPLOYMENT PROJECTIONS

The EIA for the Kinston Bypass project provides population and employment projections for Lenoir County (NCDOT 2018b). The EIA used demographic data from the OSBM. The OSBM forecasts are created under a legislative mandate for effective statewide budgeting, management, and planning. Future regional employment projections were obtained from the North Carolina Department of Commerce (NCDOC), which is the state's lead agency for economic, community, and workforce development.

Table 9 provides population forecasts for the state and the three counties (Craven, Jones, and Lenoir) between 2016 and 2036. Over this future time period, Lenoir's County's population is projected to decrease at a rate of -0.2 percent per year. Jones and Craven county's population estimate is projected to remain constant. Population projections for North Carolina, in comparison, forecast a 1.1 percent annual increase, resulting in a 23.6 percent increase in the state's population by 2037. A large portion of this future growth is expected to result from future in-migration.

While the OSBM projects that the Lenoir County population would decrease slowly over the next two decades, this could change if the GTP and/or Lenoir County are able to attract major new business development to the area. When it was first developed, the GTP was expected to stimulate economic development and population growth in Lenoir County due to an increase in local employment opportunities. Projections made in 2000 estimated that the population of Lenoir County would increase substantially by 2012. However, GTP's slower growth and restructuring of the manufacturing sector have also contributed to Kinston's and Lenoir County's stagnant population levels. This analysis assumes no growth.

**Table 9: Population growth forecasts**

Area	Population		Growth		
	2016	2037	Difference	Percent Change	Annualized Growth Rate
Kinston	20,672	-	-	-	-
Dover	385	-	-	-	-
Lenoir County	57,587	55,275	-2,312	-4.0%	-0.2%
Craven County	103,737	104,109	372	0.4%	0.0%
Jones County	10,354	10,355	1	0.0%	0.0%
North Carolina	10,155,942	12,553,271	2,397,329	23.6%	1.1%

Sources: OSBM 2017.B, OSBM 2017.C

## 8. MUNICIPAL UTILITIES

All of the FLUSA has water service, with the exception of the far western portion, north, and west of the Town of La Grange. The area in and around Kinston is served by the City of Kinston; the area south and southwest of Kinston in Lenoir County is served by Deep Run Water Corporation; the area north, northwest, and northeast of Kinston is served by North Lenoir Water Corporation; the area in Jones County is served by Jones County; and the area in Craven County is served by Craven County (Figure 4). Kinston and Lenoir County are a part of the Neuse Regional Water and Sewer Authority (WASA). The Neuse River WASA is a cooperative partnership of water and sewer providers that was formed in 2000 to develop regional solutions for meeting future needs.

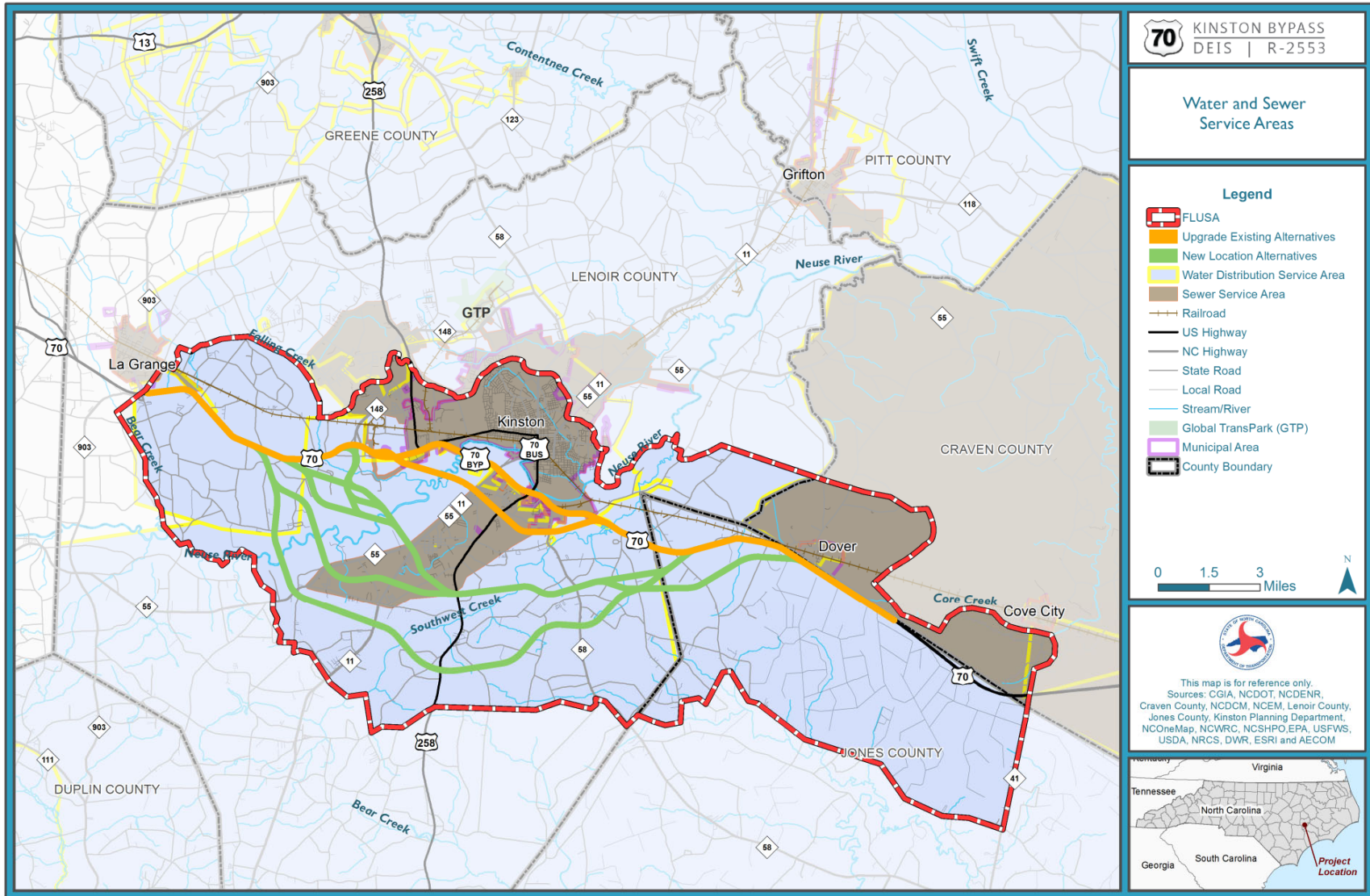
There is one water treatment plant in the FLUSA: the New Water Treatment Plant owned by Lenoir County and located about 0.6 mile south of US 70 off Kennedy Home Road. The water treatment plant is operated by the Neuse Regional WASA and began operation in 2008. The water plant increased the available water supply to Kinston by 3 million gallons per day and regionally by 15 million gallons per day. It is designed for expansion and has permitted capacity to withdraw 30 million gallons per day from the Neuse River. The current usage averages 7 million gallons per day. Through the use of its well field and its membership in Neuse Regional WASA, Kinston is projected to have the capacity to provide enough water service for the next 50 to 75 years. Neuse Regional WASA service extends to approximately 100,000 citizens and commercial users in the area, and they expect to meet the demands of existing and projected residents and industry in the FLUSA, as well as accommodate future growth and demand.

Sewer service is only available to the areas in and immediately outside of the municipal areas of Kinston/GTP and La Grange and all of Craven County. The other rural areas use septic tanks. New Bern's sewer service reaches just to the eastern edge of the FLUSA in Cove City. Future plans to extend sewer are somewhat limited, but include small strips on US 70 (west of Kinston), US 258 (south of Kinston), NC 58 (south of Kinston), and around the GTP (Figure 4).

There are six wastewater treatment plants in the FLUSA; with two serving the general region and the other four being site specific. The two serving the general region are in Kinston and La Grange. In Kinston, the Kinston Regional Water Reclamation Facility was built in 2007 by expanding the former Northside Wastewater Treatment Plant (WWTP). The Kinston Regional Water Reclamation Facility is a state-of-the-art facility built west of the Neuse River, south of NC 55 and has a daily operational capacity of 11.5 million gallons. The Kinston Regional Water Reclamation Facility also contains a 40 acre site used as a spray field, where sludge generated from the plant is "land applied" rather than being discharged directly into the Neuse River. The La Grange WWTP has a daily operational capacity of 75,000 gallons and is located along Mosely Creek. The three other facilities include locations at South Lenoir High School, Moss Hill Elementary School, and Sanderson Farms (Figure 4).



**Figure 4: Water and sewer service areas**



## 9. NOTABLE FEATURES

### 9.1 HUMAN ENVIRONMENT

The *Community Impact Assessment (CIA) Report* for STIP R-2553 notes the presence of – and impacts to – suburban and residential communities located in the direct community impact assessment (DCIA) area, which is encompassed by the FLUSA (NCDOT 2018a). A large cluster of single-family residences is located on the eastern side of NC 11/55 at Tyree Road. There are also several mobile home parks, one of which would be directly impacted by Alternatives 35 and 36. Other single-family residential clusters are located at Cedar Dell Lane, NC 11/NC 55, Howard Place Drive Neighborhood, the unincorporated communities of Albrittons, Woodington, Sandy Bottom, Bucklesberry, Crossroads Community at NC 58 and Elijah Loftin Road, Crossroads Community at Cobb Road and Silo Road, Murray Circle, and the Town of Dover.

The small group meetings held for the CIA report provided information from community members on community features and community cohesion. Some indicators of community cohesion include access and use of the community facilities and public spaces that are in the corridors. Crossroad communities and locations where community cohesion was noted by interviews and the small group meetings are described below and reported in detail in the CIA report:

- Little Baltimore contains a church and several small businesses and restaurants.
- Jackson Crossroads contains a church and the only full service grocery store in the southern portion of the FLUSA. At small group meetings for the project, several citizens noted that there was a cohesive community around Jackson Crossroads.
- Sandy Bottom community contains two facilities owned by the Sandy Bottom Volunteer Fire Department, two churches, and the Groom Meeting House. Citizens at the small group meetings for the project indicated that there was a high level of community cohesion in the Sandy Bottom community.
- Southwood Crossroads contains Southwood Elementary School, the Southwood Volunteer Fire Department, and a community store. At the small group meeting, citizens indicated that the Southwood area had strong community cohesion.
- Woodington community was identified by citizens at the small group meeting as having a high level of community cohesion among the neighbors in this area.
- Commercial node on US 70 contains the Kinston/Lenoir County Visitors Center, Lenoir Community College (LCC), and several commercial businesses that community members noted as community gathering spots. These include King’s Restaurant, Byrd’s Café, and the Neuse River Sports Shop.
- Wyse Fork contains the Wyse Fork Volunteer Fire Department and the Wyse Fork Emergency Medical Services. US 70 runs through the Wyse Fork Battlefield, which includes several important historical sites associated with the 1865 Battle of Wyse Fork, and was recently listed on the National Register of Historic Places. At the small group meetings for the project, it was noted that these historic sites carry special meaning for the Southwood and Wyse Forks communities located in this area.



- The Town of Dover contains the Dover Volunteer Fire Department, a Woodmen of the World Lodge, the town hall, a civic center, and a public library. All were identified in the small group meetings as having a high level of community cohesion.

The CIA also identified environmental justice populations within the DCIA and are described in the following section and shown on Figures 5 and 6.

- **Foss Farm Road.** The Foss Farm Road residential area, located on US 70 between Barwick Station Road and Albert Sugg Road, contains concentrations of minority and low-income populations.
- **Albert Baker Road.** The Albert Baker Road residential area, located on Albert Baker Road off of NC 58, contains concentrations of minority and low-income populations.
- **Fordham Lane.** The Fordham Lane residential area, located on Fordham Lane off of US 258, contains minority and low-income populations.
- **Johnson Road/NC 58.** The Johnson Road/NC 58 residential area contains a minority population.
- **British Road and Caswell Station Road.** A minority residential area is located in the British Road and Caswell Station Road area, located on the north side of US 70 between British Road and Caswell Station Road.
- **US 70/Tilghman Road.** A cluster of housing that contains potential minority and low-income populations is located on the southern side of US 70 just west of its junction with Tilghman Road.

Two freight carriers have rail lines that cross through the FLUSA. The North Carolina Railroad Company/Norfolk Southern Railroad has a line that runs east-west from the Port of Morehead City to Raleigh. CSX operates a north-south line from Greenville to northern Kinston. A rail spur to GTP was completed in 2012 and connects into the Norfolk Southern Railroad.

Over the years, Kinston and Lenoir County have been subjected to severe flooding along the Neuse River, including three severe flood events in 1996 and 1999 following Hurricanes Fran and Floyd, respectively, and Hurricane Mathew in 2016. Following the 500-year flood event in 1999, the community in conjunction with assistance from federal and state governments, embarked on a major relocation program utilizing the Hazard Mitigation Grant Program (HMGP), which is a federal buyout grant program, through the Federal Emergency Management Agency (FEMA), used to relocate businesses and residences from the floodplain. This project included the purchase of over 700 acres of land and 700 homes. Based on an average household size of 2.48 for the City of Kinston in the 2010 US Census, this would equate to the relocation of approximately 1,736 residents. Approximately 100 applications for buyouts from Hurricane Matthew are pending and county staff report that most of the pending applications are in the vicinity of the older buyout properties in the floodplain areas. Issues with flooding still plague the community and how the new roadway may impact flooding would remain a key community issue as the project moves forward. Small group meetings held for the CIA report indicate community concern for additional flooding and hurricane evacuation with Alternative 1UE and Alternative 1SB.

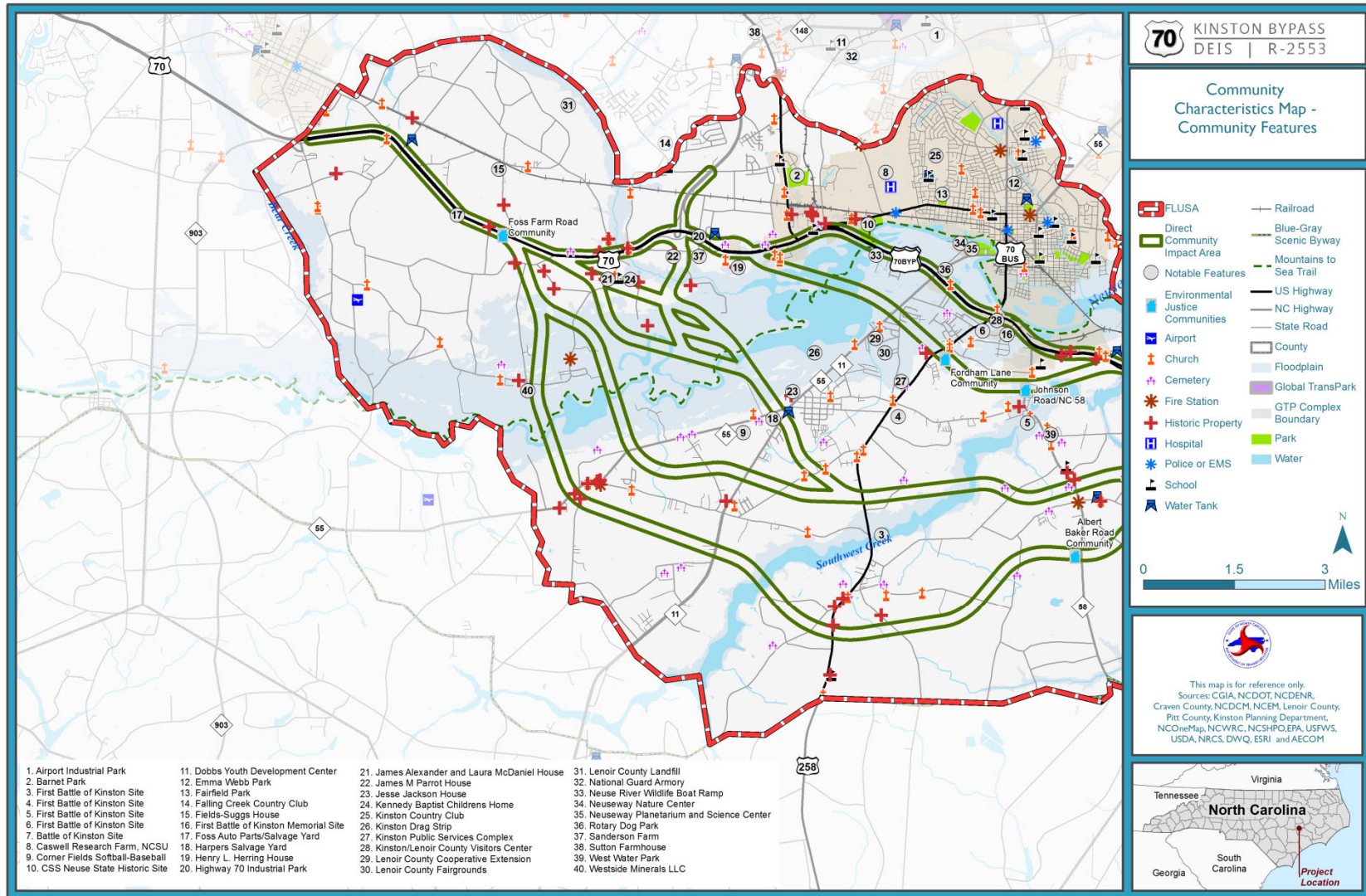
There are no state or national parks or forests in the FLUSA. The only designated parkland in the FLUSA are the park facilities operated by the Kinston/Lenoir County Parks and Recreation



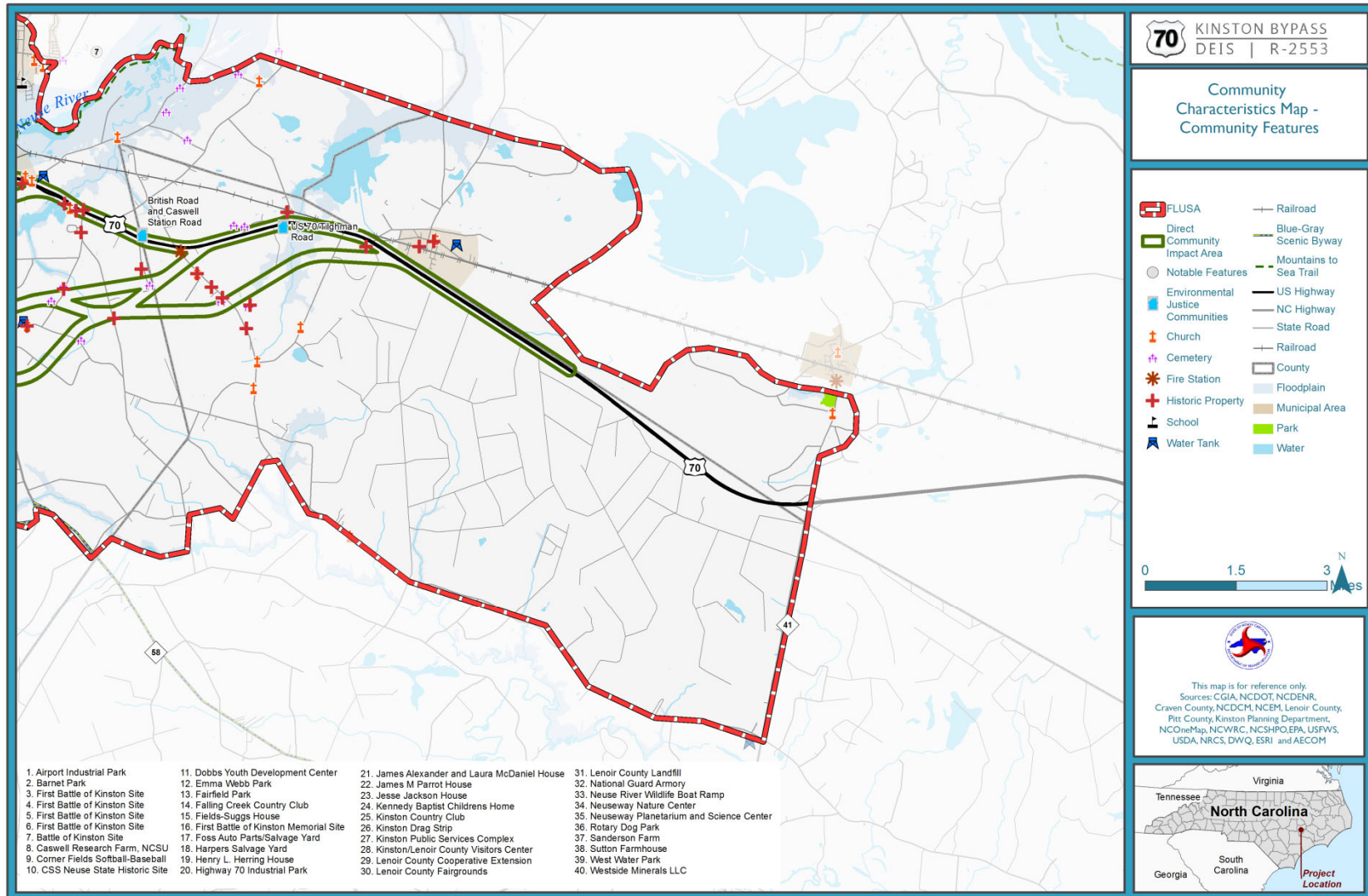
Department, which includes the Neuseway Nature Park and Campground in Kinston and the Rotary Dog Park that are located near existing US 70. Six bicycle routes have been designated by NCDOT in Lenoir County, though no roads have dedicated bicycle lanes. The Mountains to Sea Trail, a trail that runs through North Carolina from the Great Smoky Mountains to the Outer Banks, passes through the FLUSA. This trail is a part of the North Carolina State Trails Program.

In Lenoir County, one voluntary agricultural district (VAD), comprised of two parcels, has the potential to be impacted. The two properties, parcel identification numbers 450200425447 and 450200523932, are located in the vicinity of Alternatives 35 and 36 along Black Harper Road. This VAD may be impacted by right-of-way (ROW) acquisition and land in the VAD may be temporarily converted to non-agricultural use as part of a temporary construction easement. The CIA addresses VAD impacts in Section 2.4.

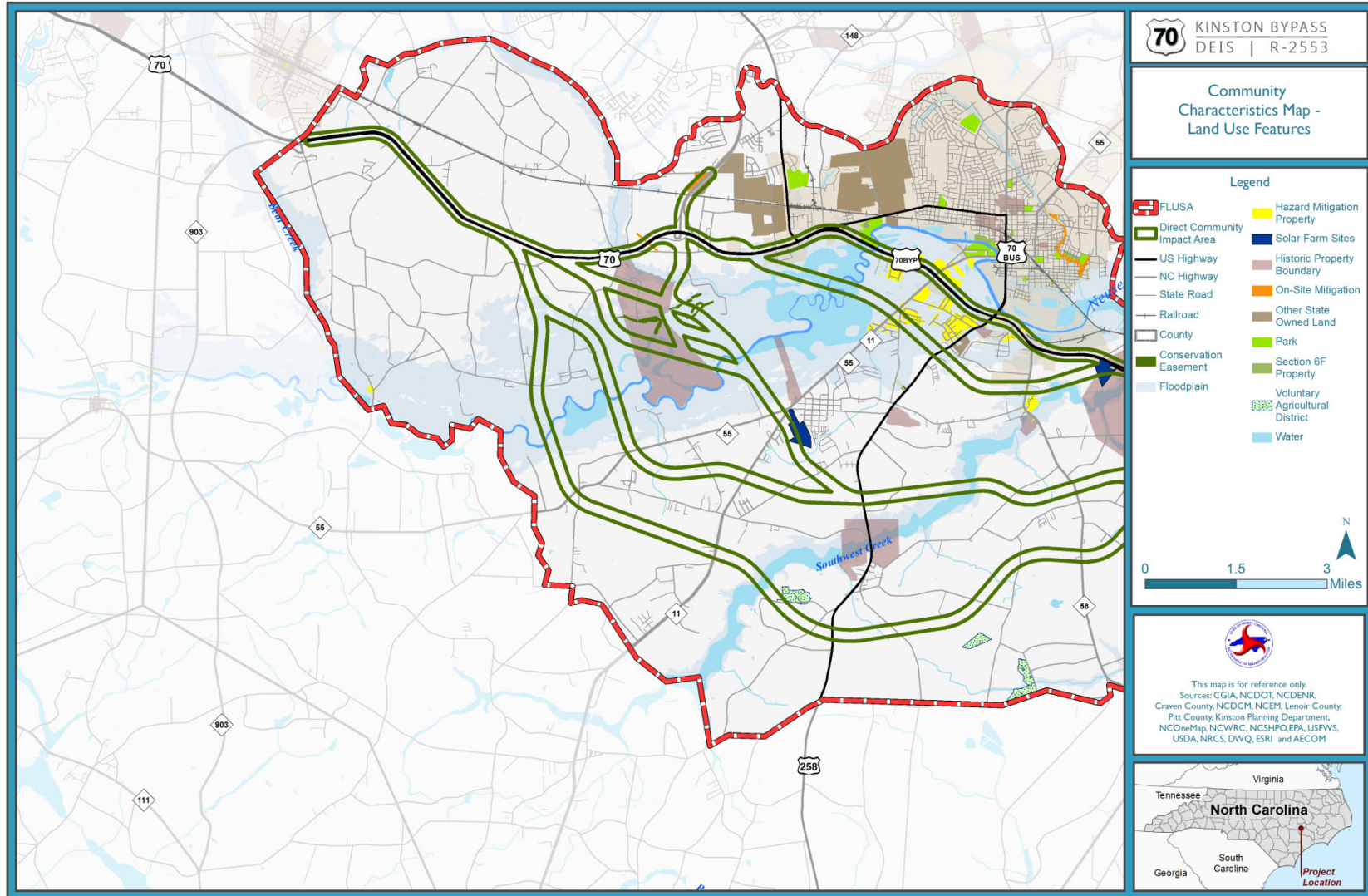
**Figure 5: Community features – western portion of LUSA**



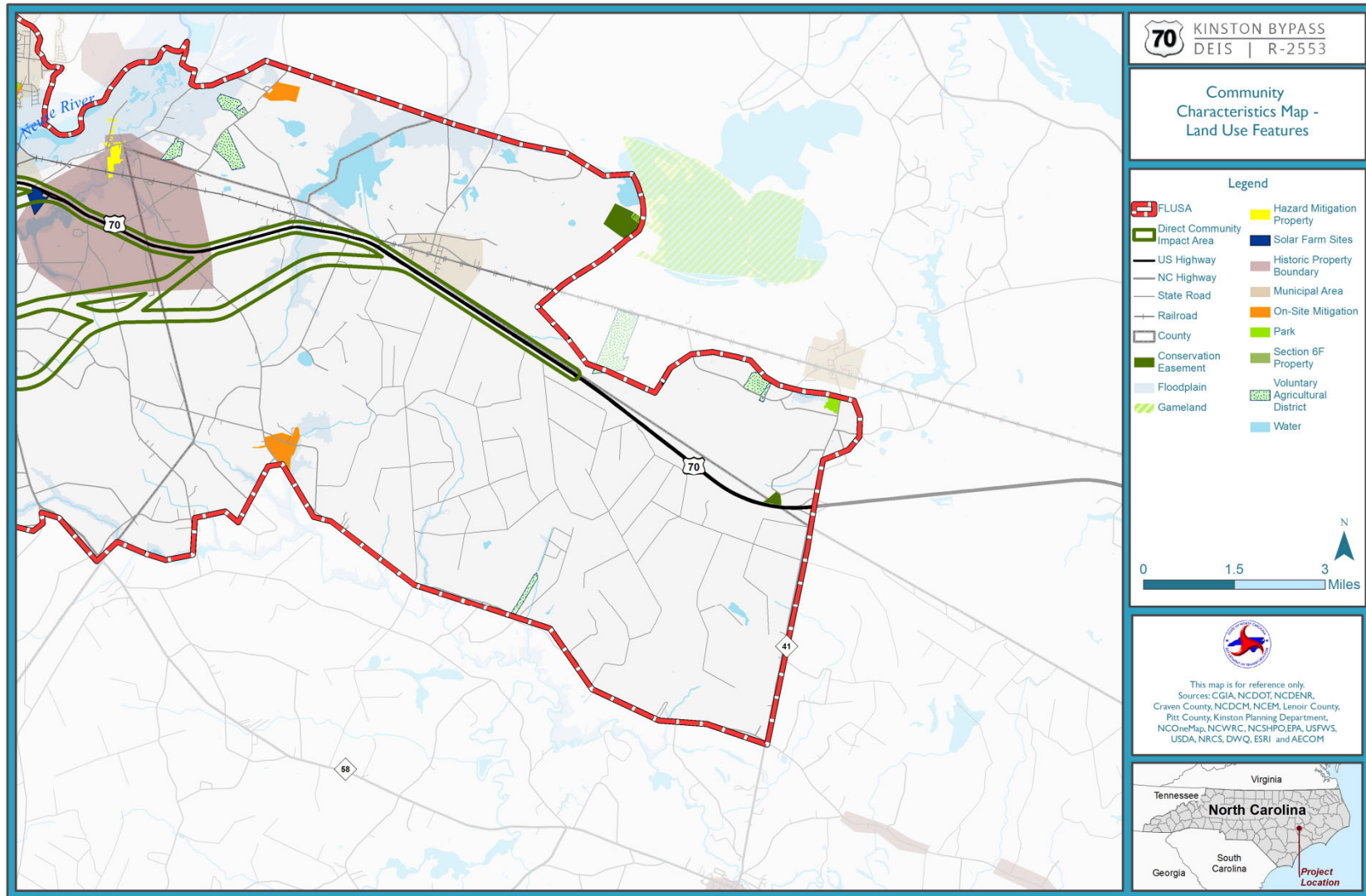
**Figure 6: Community features – eastern portion of LUSA**



**Figure 7: Land use features – western portion of LUSA**



**Figure 8: Land use features – eastern portion of LUSA**





## 9.2 NATURAL ENVIRONMENT

Several natural and conservation areas are located in the FLUSA. The Neuse River traverses the FLUSA from west to east, running just south of downtown Kinston. There are several hundreds of acres of floodplains and wetlands associated with the Neuse River and its larger tributaries. Larger tributaries include, but are not limited to, Southwest Creek, Falling Creek, and Strawberry Branch. Other tributaries in the FLUSA include Bear Creek, Mosely Creek, Walters Mill Pond, Whitley's Creek, Gum Swamp Creek, Peter Creek, Clarks Branch, Mill Branch, Tracey Swamp, and Core Creek. These tributaries often support floodplain and wetland systems along their channels and receive additional flow from other wetlands in the FLUSA.

The entirety of the river in the FLUSA is designated as an Anadromous Fish Spawning Area. The Neuse River was classified as nutrient sensitive water (NSW) in 1988 and efforts have been made at state and local levels to reduce the nutrient levels of the river. Pollution was particularly high in the aftermath of Hurricanes Fran and Floyd in the late 1990s. The dinoflagellate *Pfiesteria piscicida* is present in the river, and is affected by nutrient levels in the river. This organism may be connected to fish kills and adverse health effects in humans.

The North Carolina Environmental Management Commission (EMC) adopted a comprehensive set of permanent rules that became effective August 1, 1998, to implement the Neuse Nutrient Strategy. While individual implementation dates varied, all the rules were fully implemented by 2003 (<https://deq.nc.gov/about/divisions/water-resources/planning/basin-planning>). The Neuse River Compliance Association (NRCA) is a non-profit organization representing discharging permit holders located in the Neuse River basin that work together to control nitrogen discharge levels and monitor water quality in surface waters in the Neuse River basin. Since its establishment in 2002, the NRCA has been the primary vehicle for achievement in point source and nitrogen reductions through its innovative approach of allowing members to reduce nitrogen through incentives and trading in the organization (<http://www.lnba.net/about-us>).

Today, the majority of the freshwater stream miles in the Neuse River basin are impaired due to impaired biological integrity, low dissolved oxygen levels, and elevated turbidity. The majority of the fresh and saltwater acres are impaired as a result of elevated chlorophyll A and high pH (due to elevated nutrients), turbidity, and bacteria (fecal coliform and enterococci) levels (North Carolina Department of Environmental Quality [NCDEQ] 2009). In Lenoir County, the Neuse River basin is primarily in agriculture and forest/wetland, with a small portion covered by urbanization (City of Kinston). Streams in the FLUSA (mainly in sub-basin 03-04-05) have been affected by channelization and inadequate riparian buffers in agricultural areas. Many small tributaries in the 03-04-05 sub-basin are in agricultural land use areas. There are a number of municipal/industrial and animal waste land application fields in the area as well.

The NCDEQ Animal Feeding Operations Program regulates animal operations (swine, cattle, horses, and liquid waste treatment system poultry) and establishes siting requirements for application setbacks from property boundaries and perennial streams.

The state's permitting requirements for animal feeding operations in North Carolina are covered by the North Carolina Swine Waste Management System General Permit, which is valid for five years and was renewed in 2014 following extensive public involvement. The general permit contains the required performance standards, operation and maintenance requirements, monitoring and reporting requirements, policy for inspections and entry to the farms, general

conditions, and the penalty policy. All permitted animal operations are required to have a Certified Animal Waste Management Plan (CAWMP) that has been developed by a Certified Technical Specialist. The CAWMP is incorporated into the permit by reference and defines the fields to which the waste is applied, the crops to be grown, and other details of the operation.

The North Carolina Natural Heritage Program (NCNHP) maintains geographical information system (GIS) data on most of the conservation land in North Carolina. The NCNHP Managed Areas are a diverse collection of properties and easements that are managed in some degree for conservation of biodiversity and ecosystem function. In addition to areas actively managed for conservation, the data also include properties and easements that are not currently managed for conservation, but are of conservation interest. Conservation interest ranges from properties and easements that support rare species and intact, high-quality, natural communities to those that are simply open spaces in places where open space is scarce (North Carolina Department of Natural and Cultural Resources 2017). There are 16 NCNHP Managed Areas totaling more than 6,000 acres located entirely or partially in the FLUSA. These managed areas range in use and include several research stations (primarily agricultural), open space, historic sites, land trust properties, and a variety of conservation easements.

The NCNHP also maintains data on natural areas that have been identified as Natural Heritage Program Natural Areas (NHPNA). NHPNAs are designated based on presence of rare species, exemplary or unique natural communities, important animal assemblages, or other important ecological features (NCDNCR 2017). NHPNAs are not protected by law, but are recognized as being important for conservation of the state's biodiversity. Two NHPNAs are located entirely or partially in the FLUSA. The Dover Bay Pocosin Natural Area is located along the northeast corner of the FLUSA and extends beyond the FLUSA boundary. A small portion of the Dover Bay Pocosin Natural Area is located in the FLUSA. The Trent River Aquatic Habitat Natural Area represents important habitat in the Trent River. The Trent River forms a portion of the southeastern boundary of the FLUSA.

NCDOT maintains a GIS geodatabase of the NCDOT on-site mitigation projects throughout the state. These projects are used to offset stream and wetland impacts incurred through the construction of NCDOT road projects and are intended to take place within, or directly adjacent to, the footprint of the project for which they will generate mitigation credits. There are six NCDOT on-site mitigation properties located within 1 mile of the FLUSA. Three are wetland restoration sites, one is a stream restoration site, and two are wetland and stream restoration sites.

The project lies in the central portion of the Neuse River basin in the Coastal Plain. The FLUSA contains portions of three North Carolina Division of Water Resources (NCDWR) sub-basins, represented by six-digit sub-basin codes (Figure 9). These include 03-04-05, 03-04-08, and 03-04-11. The majority of the FLUSA is encompassed in sub-basin 03-04-05. Nineteen 14-digit hydrologic unit code watersheds are included in the FLUSA. There are more than 40 streams or portions of streams that fall within or partially within the FLUSA (Figure 9). The Neuse River is the main water source and defining feature in the FLUSA. Thirty-four other named streams and their tributaries are also present in the FLUSA. A small portion of the Neuse River is designated as WS-IV, NSW, CA from the intake to the New Water Treatment Plant for approximately one-half mile up-stream. However, the rest of the Neuse River within the FLUSA is designated C; NSW. The other notable waters are Bear Creek and Squirrel Creek, which are designated as WS-



IV; Sw, NSW for the portions in the water supply watershed. The rest of the creeks in the FLUSA are designated as C; Sw, NSW. Table 10 defines these stream classifications.

**Table 10: Definitions of stream classifications**

Stream Classification	Explanation
Class C	Waters protected for uses such as secondary recreation, fishing, wildlife, fish consumption, aquatic life including propagation, survival and maintenance of biological integrity, and agriculture. Secondary recreation includes wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner.
Sw (Swamp Waters)	Supplemental classification intended to recognize those waters that have low velocities and other natural characteristics that are different from adjacent streams.
Critical Area (CA)	A supplemental designation used to classify waters in close proximity to a water supply intake and/or the shoreline of the reservoir in which it is located.
Nutrient Sensitive Waters (NSW)	Supplemental classification intended for waters needing additional nutrient management due to being subject to excessive growth of microscopic or macroscopic vegetation.
Water Supply IV (WS-IV)	Waters used as sources of water supply for drinking, culinary, or food processing purposes where a WS-I, II or III classification is not feasible. These waters are also protected for Class C uses. WS-IV waters are generally in moderately to highly developed watersheds or protected areas.

Source: NCDEQ, Division of Water Resources. 2017.

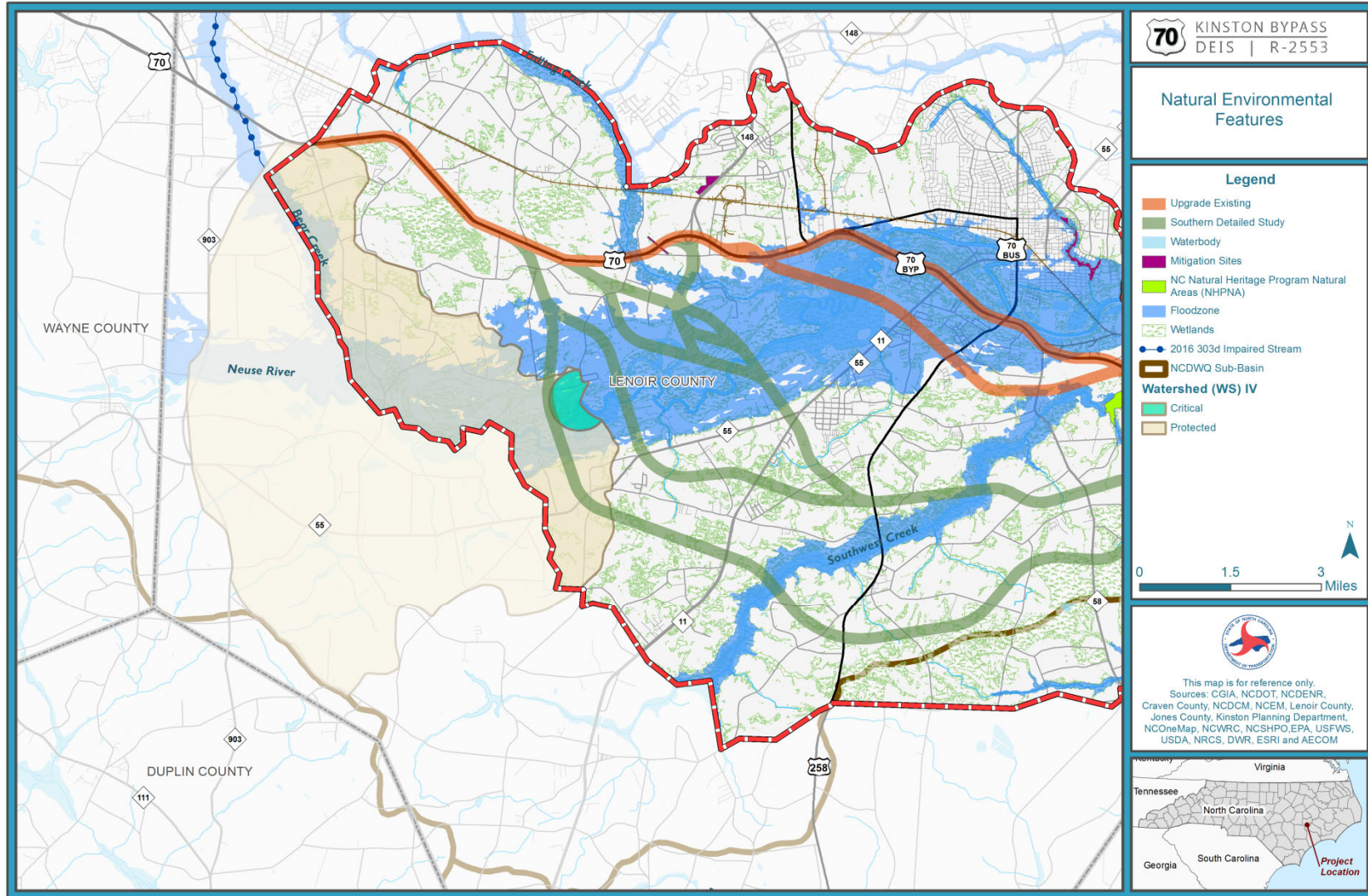
Three stream segments within or partially within the FLUSA are on the 2016 Integrated Report. The streams and a brief description of the impairment are listed in Table 11 and shown on Figure 9. No Outstanding Resource Waters (ORW), High Quality Waters, or Wild and Scenic Rivers exist in or within 1 mile of the FLUSA.

**Table 11: Streams listed as 303(d)**

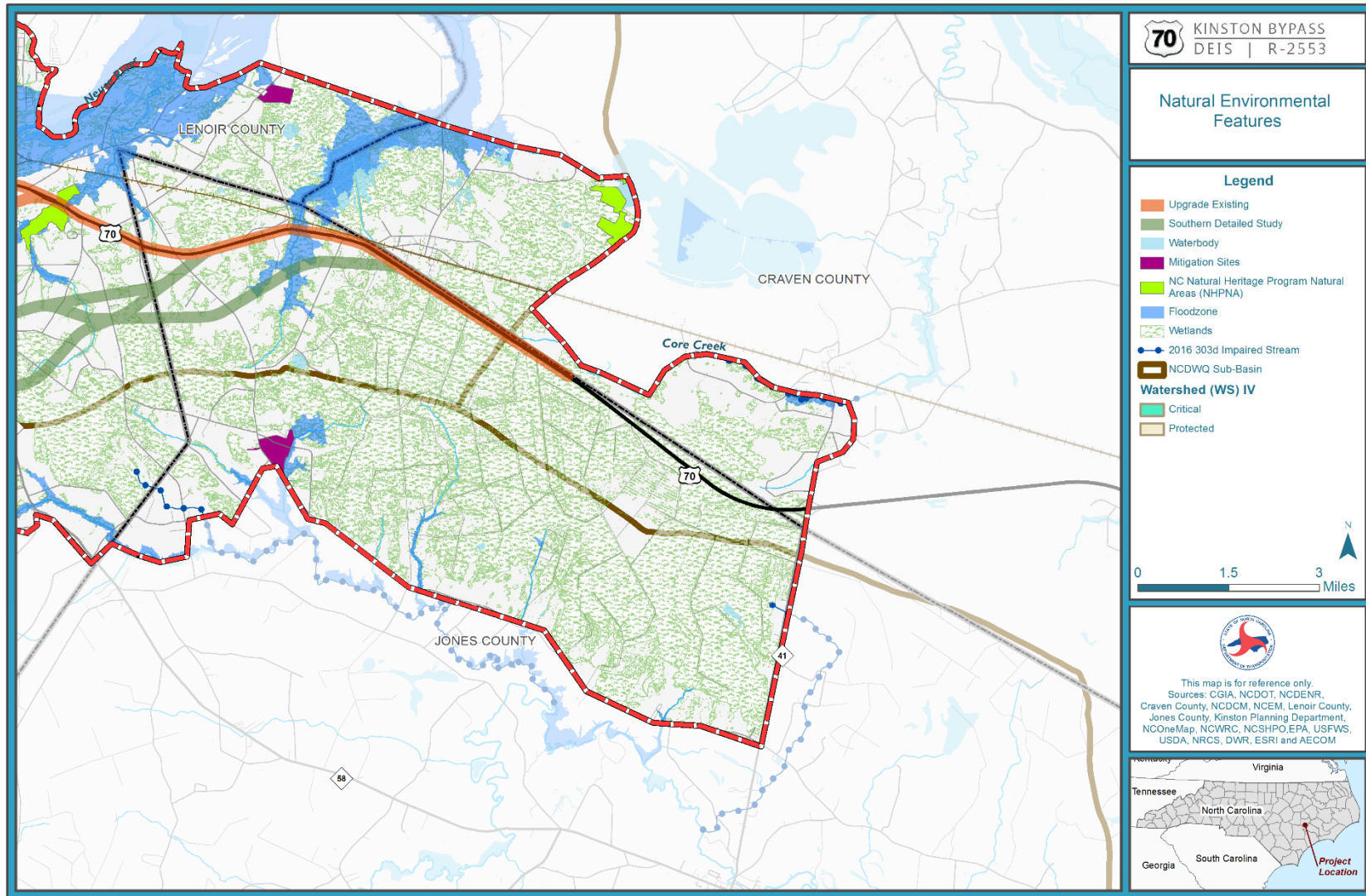
DWQ Stream Index Number	Stream Name	Description	Reason for Rating
27-101-15	Beaver Creek	From source to Trent River	Severe bio-classification
27-101-17	Musselshell Creek	From source to Trent River	Severe bio-classification
27-90a2	Core Creek	From upstream crossing of SR 1239 to Grape Creek	Severe bio-classification

Source: NCDEQ, Division of Water Resources. 2017. <https://deq.nc.gov/event/public-notice-availability-draft-2016-303d-list>

**Figure 9: Natural environmental features – western portion of LUSA**



**Figure 10: Natural environmental features – eastern portion of LUSA**





## 10. DEVELOPMENT REGULATIONS

### 10.1 NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

The EMC adopted the Neuse River Nutrient Management Strategy, which establishes minimum nutrient control requirements for point source discharges in the Neuse River basin in order to maintain or restore the water quality in the Neuse River Estuary and protect its designated uses. It sets nutrient limits through a total maximum daily load, and creates a buffer protection rule for the Neuse River basin. This rule requires a 50-foot riparian area be protected and maintained along waterways in the FLUSA. A buffer mitigation rule allows some activities with prescribed mitigation. The buffer rules are administered by the NCDWR.

### 10.2 CRAVEN COUNTY

Craven County does not implement countywide zoning. Separate ordinances regulate subdivisions, manufactured home parks, flood damage prevention, off-premise signs, and septic tanks. Craven County also enacted ordinances that address encroachment issues at the Cherry Point Marine Corps Air Station and the Coastal Carolina Regional Airport. Craven County adopted a Coastal Area Management Act (CAMA) *Core Land Use Plan* in 2009 that establishes land use policies to guide development in the CAMA major and minor permitting process. Policies also address the need to guide development along the US 70 Corridor by enacting a corridor zoning ordinance.

Craven County, the Town of Dover, and Cove City are subject to the stormwater management requirements for development in coastal counties under the State Stormwater Guidelines (15A NCAC 02H .1005). In these areas, (1) nonresidential development that adds more than 10,000 square feet of built-upon area (BUA) or that requires a sedimentation/erosion control plan or a CAMA Major Permit or (2) residential development that requires a sedimentation/erosion control plan or a CAMA Major Permit must manage runoff according to the rule. Low-density development is limited to a BUA of 12 percent in areas near ORW and within one-half mile of and draining to Class SA waters. Otherwise, low-density development is limited to 24 percent BUA. Areas of low-density development must manage stormwater runoff by the use of vegetated conveyance and are prohibited from using stormwater collection systems. High-density development (defined as BUA that exceeds the low-density BUA thresholds) must control runoff generated by the 1.5 inch storm event using specific stormwater best management practices. Development near ORWs and within one-half mile of and draining to Class SA waters also has the option to control stormwater runoff from the pre- and post-development conditions for the 1-year, 24-hour storm using specific stormwater best management practices. In Craven County, including the Town of Dover and Cove City, development activities are reviewed for compliance with the State Stormwater Program by the NCDWR Regional Office in Washington.

Craven County adopted the VAD Ordinance in January 2009. The Craven County Agricultural Advisory Board administers the VADs. There are currently six VADs in the FLUSA in Craven County. These properties would not be impacted by any of the alternatives under consideration.

### 10.3 LENOIR COUNTY

The *Lenoir County Land Use Plan* was adopted in 2001 and applies to areas of the FLUSA that are in Lenoir County and outside municipal limits. The mission of the county’s plan is to “foster economic development and the creation of jobs for the county’s residents and to place minimal constraints on individual and business decisions while enhancing the county’s environment and quality of life” (Lenoir County 2001). The land use plan references the plans for the Kinston Bypass project.

The Lenoir County *Zoning Ordinance* applies to areas of the FLUSA that are in Lenoir County and outside municipal limits (Lenoir County 2003b). The zoning ordinance contains three zoning districts: rural, commercial, and industrial. The zoning district standards apply to sites in the district and require minimum standards for the buildings, setbacks, driveways, and permitted and special uses. The county has separate ordinances, including flood damage and prevention ordinance, subdivision ordinance, watershed protection ordinance, and several others which regulate nuisance activities.

The Lenoir County *Flood Damage and Protection Ordinance* is intended to minimize both public and private losses due to flood conditions (Lenoir County 2013a). The ordinance includes standards for development in the floodway or floodway fringe. Major provisions of the ordinance include the following:

- Restrict or prohibit uses that are dangerous to health, safety, and property due to water or erosion hazards, or that result in damaging increases in erosion or floor heights or velocities.
- Require that uses vulnerable to floods, including facilities that serve such uses, be protected against flood damage at the time of initial construction.
- Regulate through a floodplain development permit the alteration of natural floodplains, stream channels, and natural protective barriers that are involved in the accommodation of flood waters.
- Control filling, grading, dredging, and other development that may increase erosion or flood damage.
- Prevent or regulate the construction and flood barriers that would unnaturally divert flood waters or that may increase flood hazards to other lands.

The Lenoir County *Watershed Protection Ordinance* applies to a portion of the southwest area of the FLUSA (Figure 9) that is located in the Neuse River Water Supply Watershed Protected Area (WS-IV PA) and Water Supply Watershed Critical Area (WS-IV CA) (Lenoir County 2003a). The WS-IV PA is located along the Neuse River, which encompasses Bear Creek (south of La Grange and US 70), Squirrel Creek, and Dailey’s Creek. The WS-IV CA is located in the area surrounding the New Water Treatment Plant that is located south of US 70 on Kennedy Home Road. Lenoir County has a local stormwater permitting authority over this area through the Local Watershed Protection Program.

The watershed ordinance establishes density and intensity standards for residential and nonresidential development in the WS IV-CA (critical areas) and WS IV-PA (protected areas) of the watershed. Critical areas are limited to two dwelling units/acre and have limits of 24 percent impervious surface for nonresidential development and other residential uses. Protected areas are



limited to three dwelling units/acre and have limits of 36 percent impervious surface for nonresidential development and other residential development that does not have a curb and gutter street system. All development is required to have 50-foot vegetative buffers along all perennial streams.

Development activities that disturb greater than 1 acre (requiring a Sedimentation/Erosion Control Plan per 15A NCAC 4) in the WS-IV PA are limited to certain low-density requirements including two dwelling units of single-family detached development per acre (or 24 percent BUA) or three dwelling units per acre (or 36 percent BUA) for projects without curb and gutter street systems. For low-density development, stormwater must be managed using vegetated conveyances. High-density development is any development that does not meet the low-density requirements up to an allowable development density of 70 percent BUA. High-density development must control and manage runoff from the first inch of rainfall using the appropriate stormwater best management practices (15A NCAC 02B .0216).

In the WS-IV CA, low-density development is defined as any development requiring a sedimentation/erosion control plan and limited to no more than two dwelling units of single-family detached development per acre (or 24 percent BUA) for all other residential and non-residential development. If development qualifies as low-density development, stormwater runoff is managed through vegetated conveyances. Otherwise all development not meeting the low-density requirement, up to an allowable density of 50 percent BUA, is required to use appropriate stormwater best management practices to control runoff from the first inch of rainfall (15A NCAC 02B .0216).

Lenoir County adopted a *Voluntary Agricultural District (VAD) Ordinance* in February 2013 (Lenoir County 2013b). Properties participating in the VAD program have a conservation agreement between the land owners and the county in which the properties reside that prohibits non-farm use or development for at least a 10-year period. In Lenoir County, eight VADs are located in the FLUSA; however, only one VAD made of two parcels has the potential to be impacted by a proposed alternative. The two parcels, PINs 450200425447 and 450200523932, are located in close proximity to Alternatives 35 and 36 along Black Harper Road. Three VADs are located south of the Alternative 36. These properties would not be impacted by any of the alternatives under consideration.

Lenoir County adopted the *North Carolina Resilient Redevelopment Plan (NCRR plan)* in May 2017, described in Section 10.7.

## 10.4 CITY OF KINSTON

In October 2015, Kinston adopted the *Kinston Comprehensive Land Use Plan*, which is used as the legal basis for land use regulations as well as a guide for city budgeting. The Future Land Use map provided in the document defines much of the land adjacent to major highways in the FLUSA as mixed use. Other prominent land uses in the corridor are rural-residential and industrial.

The map also illustrates where in Kinston's city limits and extraterritorial jurisdiction (ETJ) is considered a flood hazard or wetland; much of the land surrounding US 70 receives this classification. This overlay is not considered a future land use category but displays potential environmental constraints to development in certain areas. The plan calls for stringent





development standards, potential wetland mitigation, and compliance with the *Flood Damage Prevention Ordinance* in flood hazard and wetland areas.

Kinston also uses the *Unified Development Ordinance* as a basis for land development. This ordinance applies to areas within the municipal limits of Kinston and within Kinston's ETJ (Figure 11). The zoning section has three broad categories of land uses: residential, commercial, and industrial. Each category has several subcategories of land uses. The objectives of the zoning ordinance are to guide appropriate use and development of parcels in a manner in which land uses would be compatible to neighboring parcels, topographic features, natural habitat, and infrastructure. The City of Kinston *Unified Development Ordinance* was adopted in November 2013.

New development activities in the City of Kinston are required to meet nutrient reduction goals by implementing planning strategies and best management practices per the Neuse Stormwater Rule. Development activities cannot exceed certain nitrogen load loading rates. Secondly, there can be no net increase in peak flow leaving a development site compared to pre-development conditions for the 2-year, 24-hour storm event. Lastly, a 50-foot riparian buffer must be maintained on all sides of intermittent and perennial streams, ponds, lakes, and estuaries in the Neuse River basin. The City of Kinston has implemented a stormwater permitting program for areas in its municipal jurisdiction for compliance with the Neuse Stormwater Rule.

## 10.5 TOWN OF LA GRANGE

La Grange adopted its *Zoning Ordinance* in 2010 and it applies to land in the municipal boundary of La Grange and in its ETJ (Figure 11). The majority of the land along existing US 70 is located in the agriculture-residential and highway commercial zoning districts. The purpose of the agriculture-residential zone is to promote the rural character of the land and to provide open space. The purpose of the highway commercial zoning district is to provide and encourage the proper grouping and development of commercial uses and larger scale developments intended to cater to vehicular traffic.

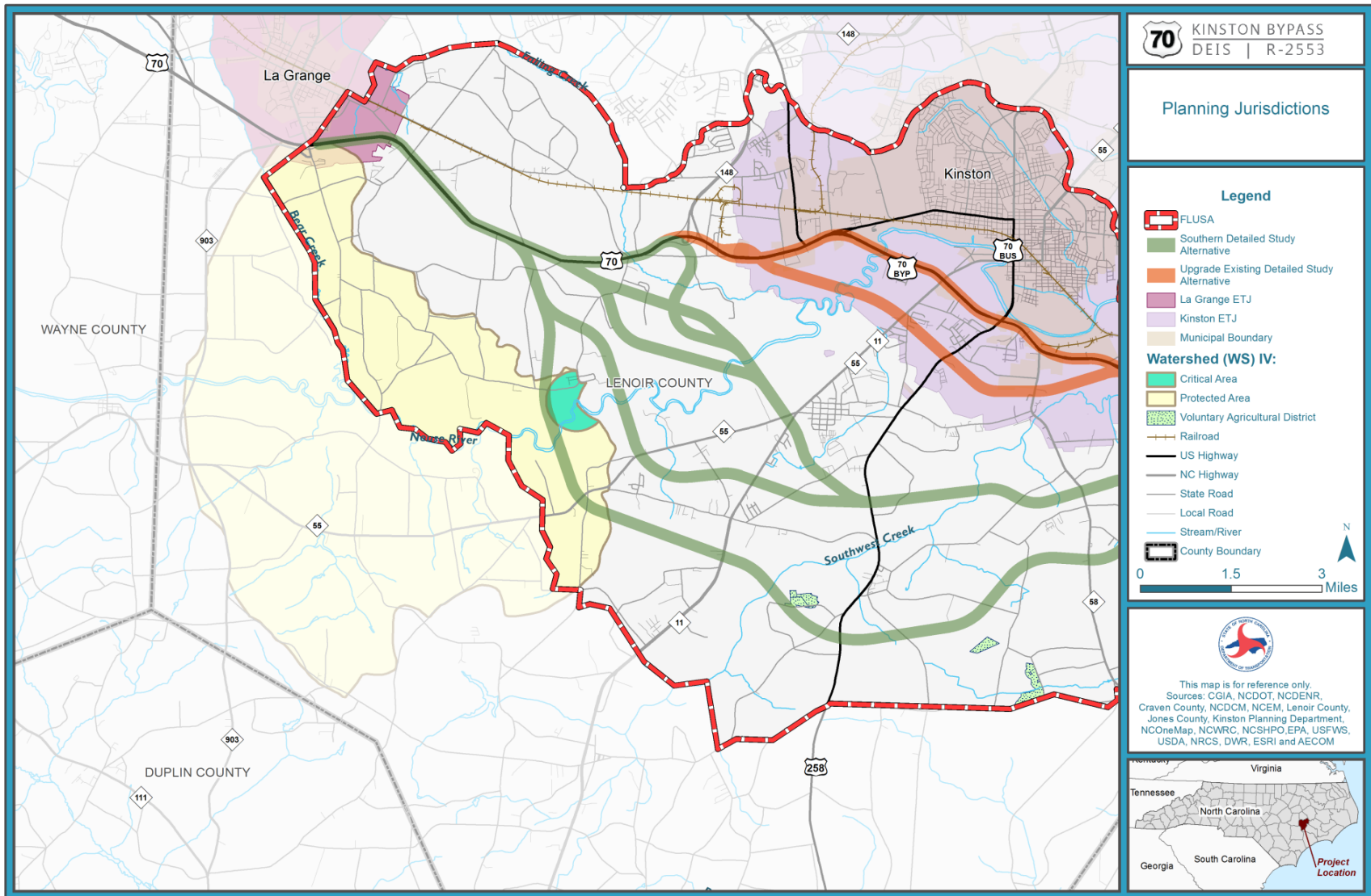
La Grange adopted its *Land Use Plan* in 2008 and it applies to land in the municipal boundary of La Grange and in its ETJ (Figure 11). The *Land Use Plan* complements the La Grange *Zoning Ordinance*. The area around Willie Measley Road is projected to support heavy industrial use in the future.

## 10.6 JONES COUNTY

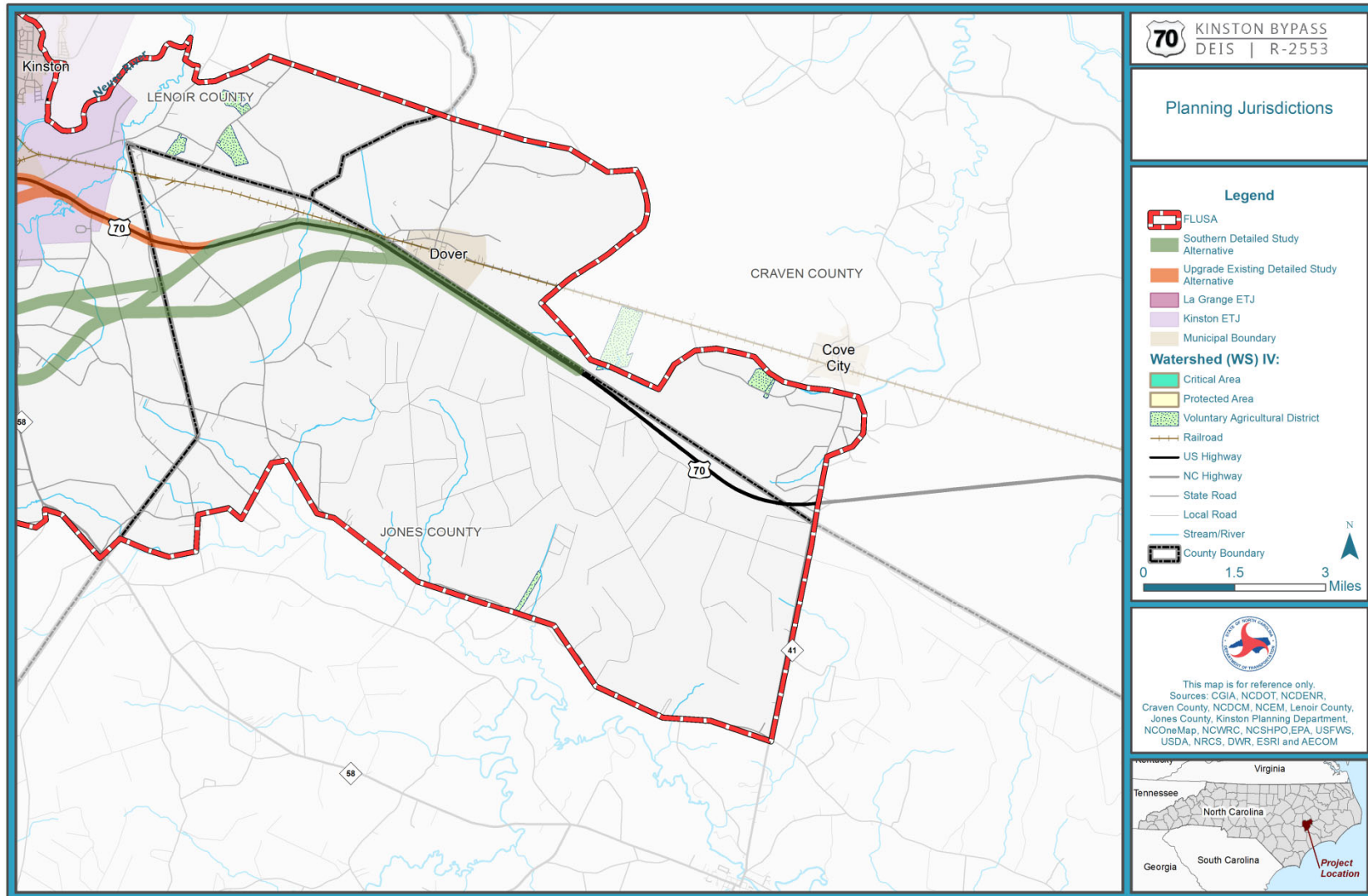
Jones County has a land use plan (2013), but does not implement a zoning ordinance. The county regulates manufactured homes and has a building code.

Jones County adopted the VAD ordinance in 2007. The Jones County Voluntary Agricultural District Board governs the VAD ordinance. There are two VADs in Jones County that are in the FLUSA. These properties would not be impacted by any of the alternatives under consideration.

**Figure 11: Local planning jurisdictions – western portion of LUSA**



**Figure 12: Local planning jurisdictions – eastern portion of LUSA**





## 10.7 RESILIENT REDEVELOPMENT PLANS

After Hurricane Matthew struck North Carolina in October 2016, the North Carolina General Assembly established the Resilient Redevelopment Program initiative as part of the 2016 Disaster Recovery Act (Session Law 2016-124). The plans for Lenoir, Craven, and Jones counties identify storm impacts, needs and opportunities, and strategies for rebuilding more resilient communities. The plans formulate approximately 25 projects for housing, infrastructure, economic development, and the environment for communities damaged by Hurricane Matthew. The plans address recovery and redevelopment projects and prioritize those for any supplemental funding received. Lenoir County’s plan includes five top ranked projects located in Kinston that focus on housing improvements. The top ranked project for Lenoir County is a housing study to determine gaps in housing needs and develop programs and policies to address unmet needs in the community. Increasing affordable housing is the second ranked project in Lenoir County. Constructing housing at previously prepped sites for development after Hurricane Floyd is the third ranked priority project. Infill housing development is the fourth priority project. Housing for seniors is the fifth priority project. The Kinston Bypass project is identified as a low priority infrastructure need.

Other projects identified in the plan are county or municipality-wide projects such as stormwater improvements in Kinston and La Grange, stream and drainage clean up, and a riparian buffer program. The plan also includes several site-specific projects. Those located within the FLUSA include: flood proofing the Lenoir County Sheriff’s Department in downtown Kinston, relocating the Lenoir County Center for the NC Cooperative (located on NC 11), and constructing phase two of the river walk. None of the proposed alternatives would impact the site-specific projects in the FLUSA. Funding for the identified projects had not been secured at the time of the plan’s completion.

## 10.8 FLOODPLAIN RESOLUTION

The City of Kinston, Town of La Grange, Lenoir County, and US 70 Corridor Commission presented a “Resolution Requesting Greater Efforts to Avoid Flooding Impacts within the Lower Neuse Basin.” The resolution cites the damage caused by Hurricane Matthew and requests the State of North Carolina as well as appropriate federal agencies “engage, develop and financially support greater efforts to avoid devastating damages to persons and property in the Lower Neuse Basin through the implementation of flood control measures.” The resolution also requests that specific consideration be given to, among other issues, additional mitigation by NCDOT to address significant stormwater impacts from highway construction.

## II. LAND SUITABILITY

The FLUSA includes 134,054.3 acres. Of this, 118,338 acres (88.3 percent) are considered available for development. Land available for development was determined to include undeveloped parcels of land (those without building structures) and underutilized parcels. Developable land does not include protected lands such as public parks, NCDOT on-site mitigation properties, or lands managed for conservation and open space. Other land that was not considered developable includes rights-of-way for roads and rail lines, utility easements, rivers and streams, floodways and land protected by the Neuse River buffer rules. Wetlands exist in the FLUSA and may be more difficult to develop; however, these have not been delineated and were not excluded from the land considered developable. Once identified, the amount of wetlands in the FLUSA could lessen the developable acres. In addition, underutilized parcels were identified by selecting parcels in which the total value of improvements (i.e., buildings/structures) is less than the value of the parcel (i.e., land) without improvements. Table 12 provides a summary of the acreages available for development and of underutilized parcels. Figure 13 and Figure 14 shows the land available for potential development.

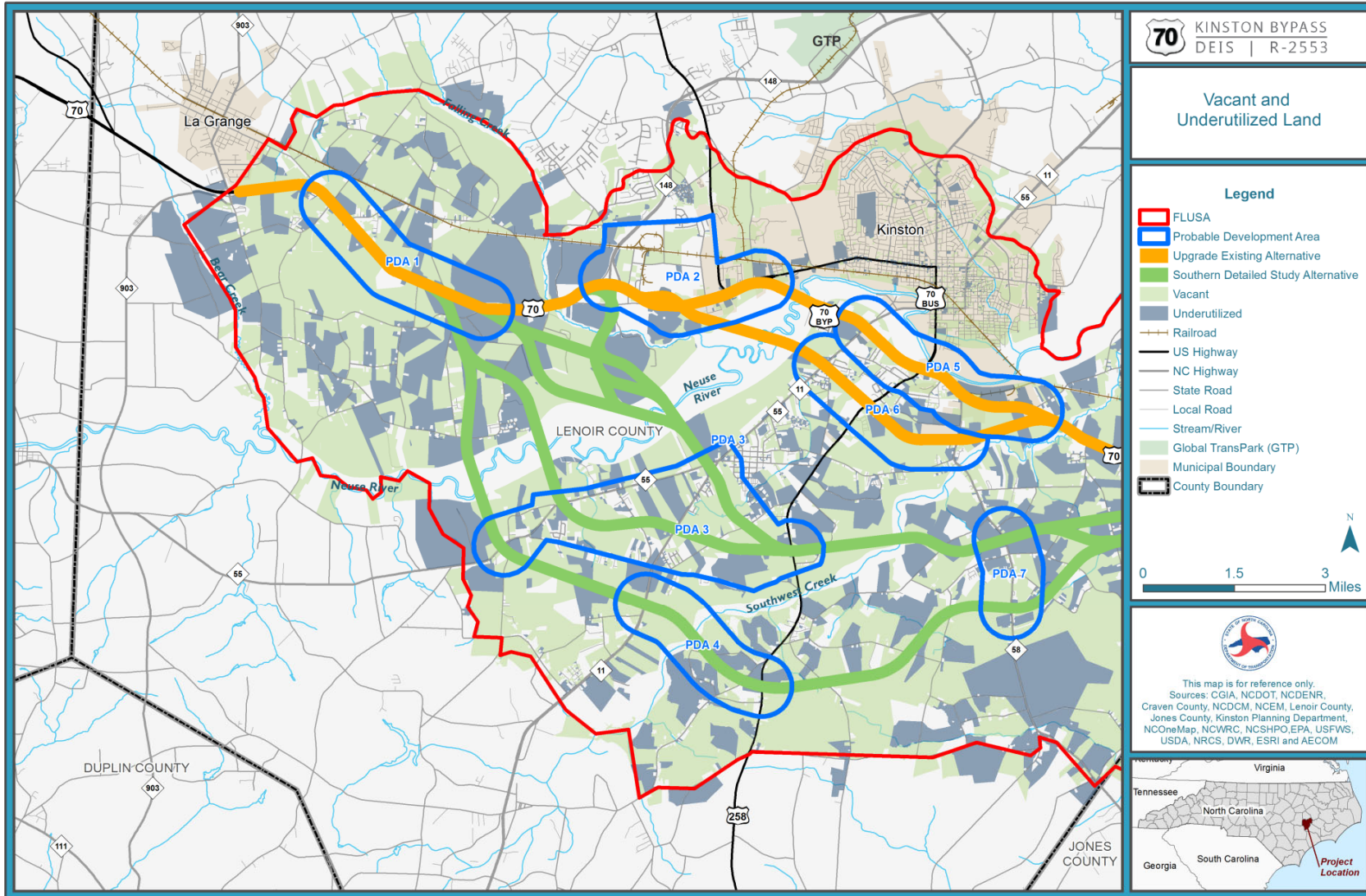
**Table 12: Land available for development**

	Acres	Percentage of FLUSA
FLUSA (total)	134,054	100.0%
Vacant and developable	76,572	57.1%
Underutilized	41,766	31.2%

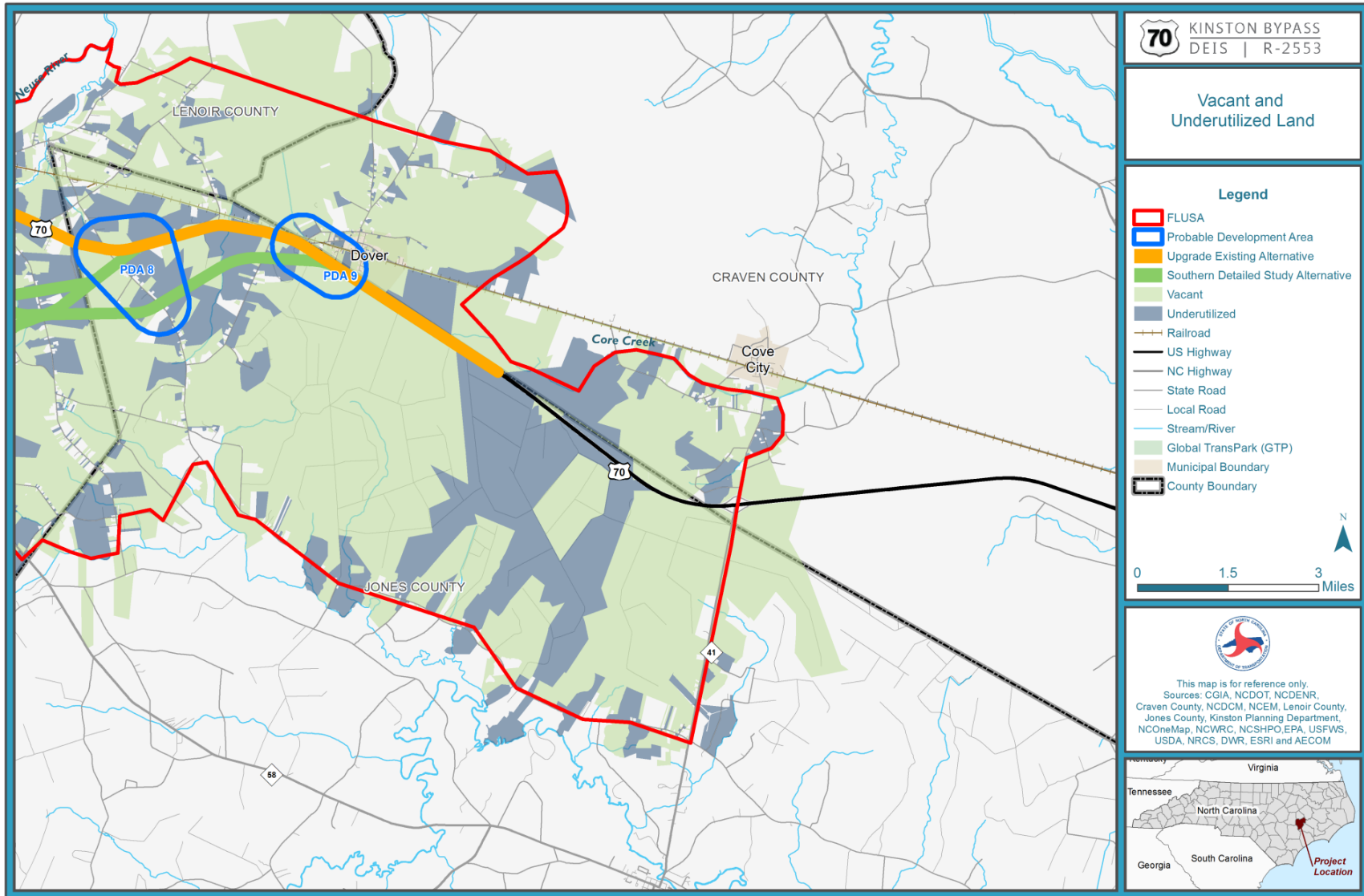
Note: Wetlands were not excluded from vacant or underutilized land.

The FLUSA was also screened and evaluated for environmental sensitivity. This was completed using NCDEQ’s Biodiversity and Wildlife Habitat Assessment tool, which combines different GIS data layers representing wildlife habitats and places with biological diversity. The index scores land based on its relative conservation value on a scale from 1 to 10, with areas rated 10 having the maximum conservation value and areas rated 1 having a moderate conservation value. Other values shown on this scale include (-1) for impervious surfaces and 0 for unrated areas. This assessment helps determine areas of high conservation value. Figure 15 and Figure 16 show the environmental sensitivity screening that was completed for the FLUSA.

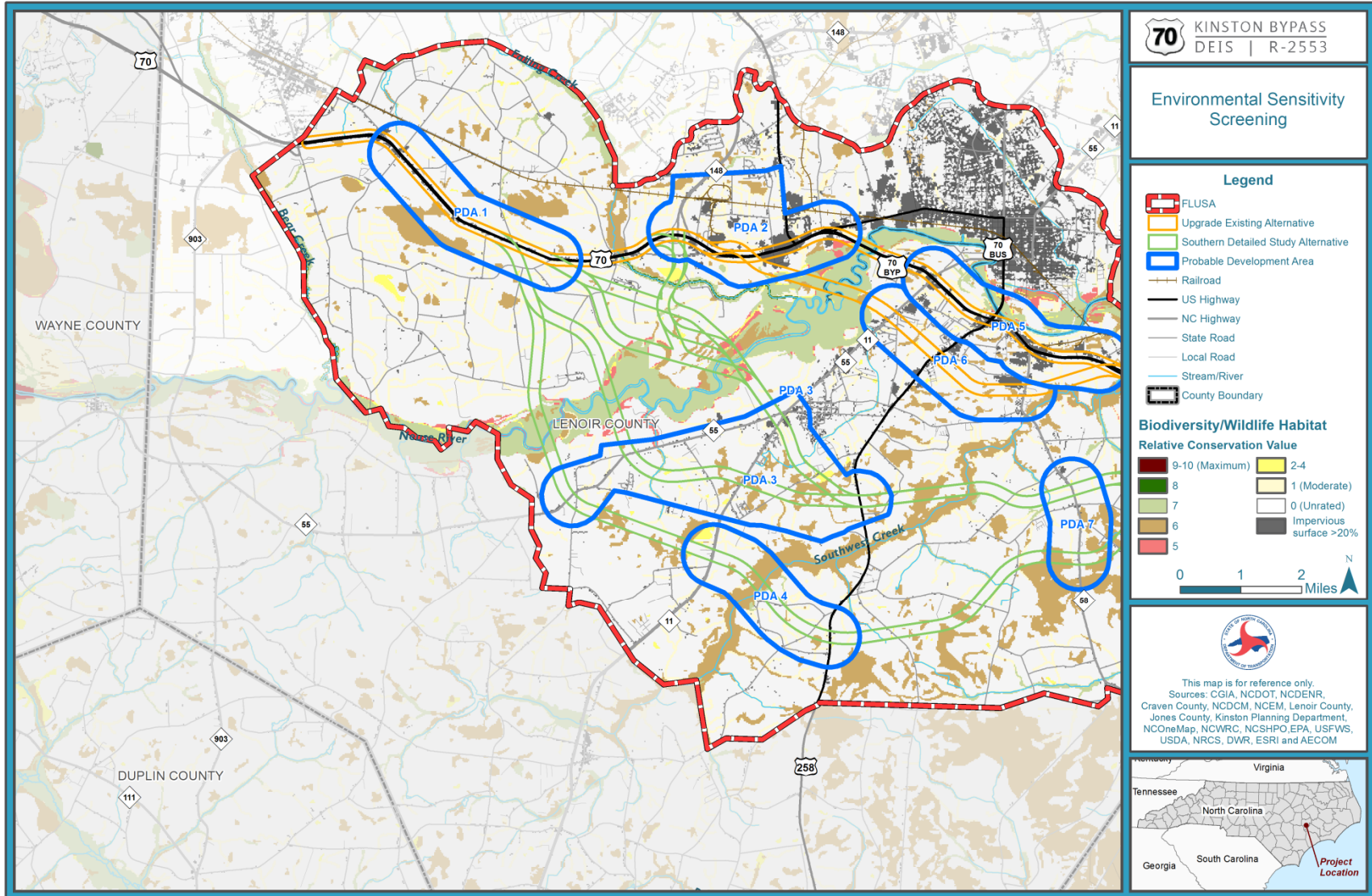
**Figure 13: Vacant and underutilized land – western portion of LUSA**



**Figure 14: Vacant and underutilized land – eastern portion of LUSA**

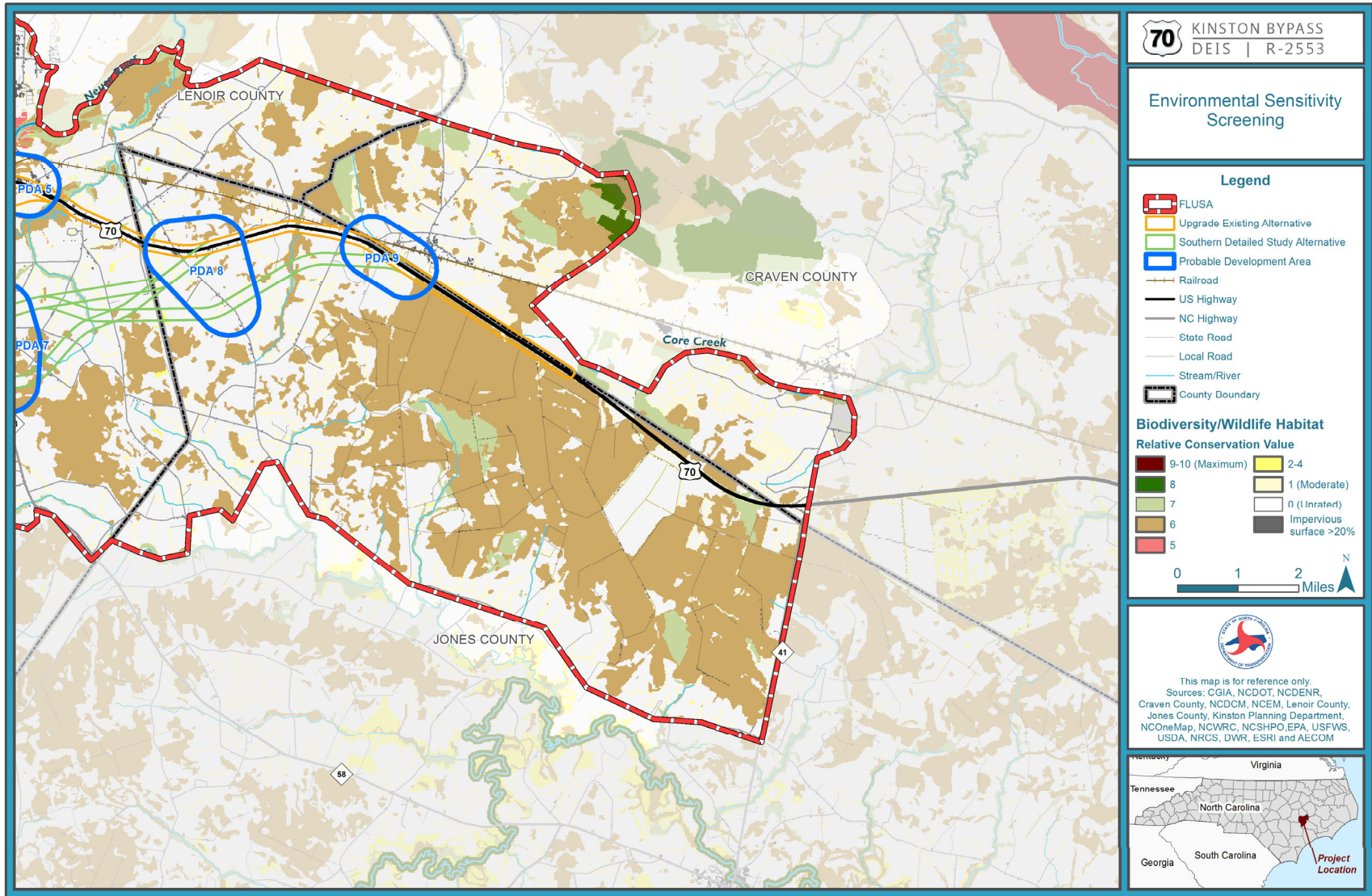


**Figure 15: Environmental sensitivity screening – western portion of LUSA**





**Figure 16: Environmental sensitivity screening – eastern portion of LUSA**





## **12. MARKET FOR DEVELOPMENT**

### **12.1 CURRENT DEVELOPMENT PRESSURES**

Future US 70 traffic growth is projected to be primarily from non-local, pass-through travelers. Population and employment forecasts indicate low to limited growth in the local markets. This is consistent with past historical trends and current demographic projections from the OSBM. The 2018 EIA reports that, in the absence of any increased highway traffic growth by local residents, future retail purchases by local residents are projected to remain unchanged over the future study period. Consequently, no local customer market expansion is expected and any retail sales growth for the region would primarily result from increases in future, non-local pass-through travelers along the US 70 corridor.

Local government officials including the Planning Director from the City of Kinston, Lenoir County Economic Development, and Lenoir County GIS staff have indicated in interviews conducted October 2017 that very little growth has occurred in the FLUSA since the previous EIA report was prepared, other than new and proposed solar farms. The only new developments in the FLUSA are one solar farm along NC 55/11 and several proposed over the next 3 to 5 years. One area with some development potential is west of Kinston along US 70 near the intersection with NC 148 (C.F. Harvey Parkway). This area is formally known as the US 70 Industrial Park and contains a number of industrial businesses.

The North Carolina Department of Commerce Labor and Statistics identifies the top employers in Lenoir County, which are listed in Table 8.

Lenoir County's economy has a large agricultural base, with crop farms and animal operations located throughout the FLUSA. LCC has a Small Business Center that creates partnerships with business and industry, and assists in small business startup and expansions. LCC offers job placement services through the Workforce Investment and Opportunities Act. Most of the commercial and retail businesses in the FLUSA are along existing US 70. Recently Dollar General Stores have located in Jackson Crossroads, Southwood community, and Pink Hill.

During the last 3 months, Lenoir County has issued 33 residential building permits, which are mostly renovations and a few for new construction, and 22 commercial/industrial permits. The residential permits have been scattered throughout the county and the commercial/industrial permits have mainly been at GTP and the US 70 Industrial Park. Most of the permitted development, except the US 70 Industrial Park, is outside of the FLUSA. In the same period, the City of Kinston has issued 2 new residential building permits, 15 residential renovation/repair permits, and 5 commercial permits. Two new commercial businesses were located along existing US 70, and US 70 and US 258 properties that are located in the FLUSA. The residential permits were scattered throughout town.

### **12.2 DEVELOPMENT MARKET ASSUMPTIONS**

In the short-term, which is defined as a 5 to 10 year period, there is little growth anticipated in the FLUSA outside of the existing US 70 corridor. Longer term growth, defined as 10 to 20 years, for Lenoir County is projected to occur mostly outside of the FLUSA, near the GTP (north of Kinston), in downtown Kinston in mixed use and commercial areas and in areas



located near transportation and utility infrastructure. This is particularly true for businesses and industry that depend on the logistical hubs of the GTP and the nearby Port of Morehead City and the interstate highway system.

The 2018 EIA reports that manufacturing and most other non-retail/service industries would not be dependent on the local residents for their sales and consequently would not be directly affected by a lack of local market expansion. However, these businesses depend on the local population to meet their labor needs. An aging local population without an increase in young workers would affect their productivity and discourage their business growth if they cannot easily obtain suitable employees. However, future improvement of US 70 would expand Lenoir County's labor pool by widening the catchment area from which potential employees would be willing to commute for jobs in Lenoir County. This factor is likely to become increasingly important as otherwise worsening US 70 travel conditions may discourage workers living outside Lenoir County from commuting daily for work in Kinston.

Residential development will be driven by job creation. In the recent past, residential development has been mostly scattered and has taken place on the northwest side of Kinston or in rural Lenoir County in this same general direction. Much of the future residential development in the FLUSA, as defined in land use plans and zoning codes, will be suburban residential development occurring in and near residential areas. Low-density, rural residential land uses are designated in rural and agricultural areas and surrounding woodlands for low-density residential uses, mostly in the Kinston ETJ and rural portions of Jones, Lenoir, and Craven counties that are served by septic systems.



## 13. PROBABLE DEVELOPMENT AREA SCENARIOS

To determine the type of development that could occur in the FLUSA, with and without the project, probable development areas (PDA) were defined. In October 2014, a meeting was held with the Human Environment Section of NCDOT (now referred to as the Public Involvement, Community Studies & Visualization Group) to determine where the PDAs would be located. It was determined that each proposed interchange should be included in a PDA. Interchanges that were close in proximity to each other were grouped together to form a total of nine PDAs. The nine PDAs were identified to evaluate induced growth potential and likely changes in development patterns. In instances where the potential buffers overlapped, they were merged to create elongated shapes. Additionally, some PDAs were modified to account for known development patterns in the FLUSA, such as the area north of Alternatives 1UE and 1SB in the vicinity of PDA 2. This area is formally known as the US 70 Industrial Park. Development pressures and regulations, proposed future land use, infrastructure, and proximity to proposed economic centers will regulate how areas in the FLUSA will develop. Predictions of the type of development in the PDAs will determine the degree of impacts to notable features and waterways in each PDA with and without the project. Figure 17 depicts the PDAs and their locations in the FLUSA.

### 13.1 PROPOSED CHANGES

This report analyzes how the study alternatives would change or influence development patterns in each PDA. Each study alternative would be a full control of access freeway, meaning that no direct access to the roadway would be permissible from individual parcels. As such, portions of each study alternative that encompass the existing US 70 would cause parcels that currently have direct access to US 70 to lose direct access and obtain new access through a service road or another roadway connection.

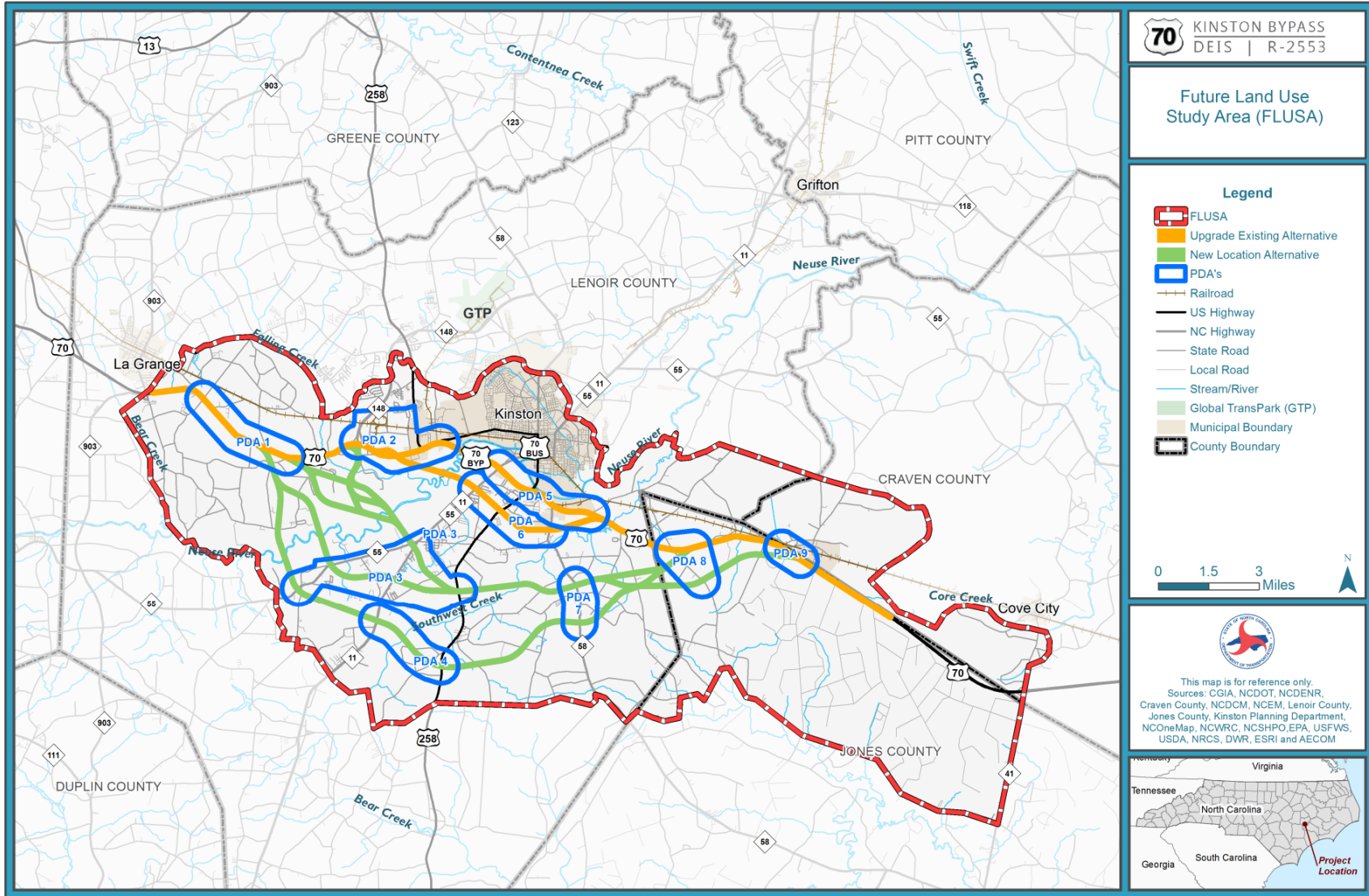
Given the size of the overall project study area and of the FLUSA, each PDA does not encompass every study alternative. Table 13 summarizes which study alternatives are located in each PDA.



**Table 13: Study alternatives in each PDA**

Study Alternative	Probable Development Area (PDA)								
	1	2	3	4	5	6	7	8	9
1 UE	X	X			X			X	X
1 SB	X	X			X	X		X	X
11	X	X	X				X	X	X
12	X	X	X				X	X	X
31	X	X	X				X	X	X
32	X	X	X				X	X	X
35	X		X	X			X	X	X
36	X		X	X			X	X	X
51	X		X				X	X	X
52	X		X				X	X	X
63	X	X	X				X	X	X
65	X	X	X				X	X	X

**Figure 17: Probable development areas in the FLUSA**





### 13.2 PDA ANALYSIS

In the following PDA analysis, a summary of existing conditions is provided that includes a description of the land uses, results of the land availability assessment, a description of notable features, the availability of water and sewer service, and a description of existing land use plans and plans for development. Only site-specific notable features, such as a park, are described. Other notable features, such as wetlands that can be found throughout the entire FLUSA are not referenced in the discussion of the PDAs.

Following the description of existing conditions, there is a discussion on projected changes and development. This includes a description of the physical changes from the project alternatives that are anticipated in the PDA and a projection of changes to land use and development patterns for the no-build and build scenarios. Note that this projection of changes is focused only on land use.

#### 13.2.1 PDA 1 – Little Baltimore, existing US 70 east of La Grange

##### Existing Conditions

PDA 1 is located along existing US 70; to the east of La Grange on the western side of the FLUSA (Figure 18). The PDA is in a rural area of Lenoir County with active farmland and vacant/open space being the most prevalent type of land use. Adjacent to existing US 70, there are scattered commercial and rural residential properties. The area from Washington Street to Willie Measley Road is fairly commercialized and contains multiple businesses that include light manufacturing and retail businesses. Several buildings are vacant. Table 14 provides an overall summary of the acreage, land availability, and breakdown of the land use in PDA 1.

**Table 14: Land use summary – PDA 1**

		Acreage
Total acreage of the PDA		2,496
Total acreage of parcels in or partially within the PDA		4,095
Land Availability	Acres	Percent <sup>c</sup>
Vacant and developable	2,535	61.9
Underutilized	971	23.7
Land Use Classification	Acres <sup>a</sup>	Percent <sup>b</sup>
Agriculture	3,245	79.2
Commercial	166	4.0
Community facilities	30	0.7
Industrial	59	1.4
Other	437	10.7
Residential	159	3.9



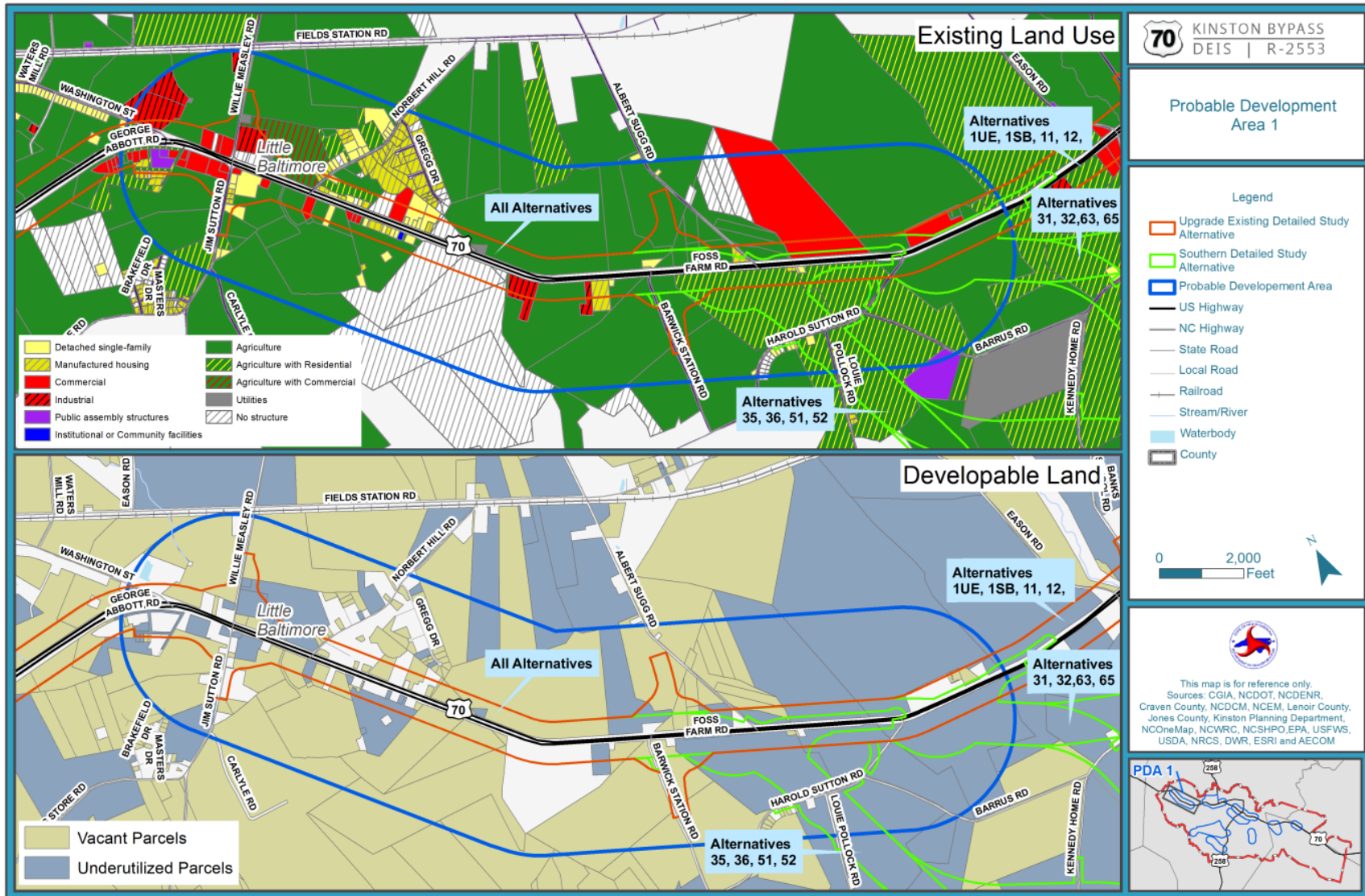
<sup>a</sup> The total acres of the land use classifications may not equal the total acreage of parcels in or partially within the PDA due to rounding.

<sup>b</sup> The total of the percent column may not equal 100 due to rounding.

<sup>c</sup> Percent acreage is based on total acreage of parcel in or partially within the PDA.



Figure 18: Probable development area (PDA) I





In PDA 1, an environmental justice population made up of minority and low-income populations is located in the Foss Farm Road residential area that is between Barwick Station Road and Albert Sugg Road.

Water is available in the entire PDA. While water service may not be in place within the entire PDA, local officials have indicated that it is a service that would be extended to a property owner in this PDA if water service is needed for any new development. The western portion of the PDA from the western edge through Norbert Hill Road has sewer service and/or is located within a half mile of an existing sewer line. The remaining portion of the PDA is on a septic system. While it would be feasible to extend sewer service in this area, no plans to extend sewer service to the rest of the PDA have been made. The lack of sewer service is a limiting factor to development in those corresponding areas.

Existing US 70, west of Washington Street, has full control of access, while beginning at the intersection of Willie Measley Road, it becomes partial control of access. In the PDA, Washington Street provides a connection into the Town of La Grange. In addition, several local roads intersect with US 70 in the PDA and primarily provide access to rural agricultural lands and scattered residential properties.

Nearly the entire PDA falls under the planning jurisdiction of Lenoir County, with the exception of the far western edge (east of Washington Street), which is in La Grange's ETJ. The *Lenoir County Land Use Plan* has land in PDA 1 designated as either community growth area or agriculture and rural housing area. The community growth area designation is for the planning area's most intensive future development. The area is also listed as a high development potential and as a potential regional commercial center. The *Land Use Plan* notes the proposed Kinston Bypass project in this PDA.

Lenoir County officials stated that they would be supportive of development activities in this PDA as long as it met their zoning requirements. The Town of La Grange indicated the area in La Grange's jurisdiction is zoned for highway commercial and that there were no plans to change this designation and that no new development or growth is anticipated or planned in this area.

## Projected Changes and Development

PDA 1 is the location of the western terminus of the project; as such, all of the study alternatives are included in this PDA and either stay on existing US 70 or tie back into existing US 70 in PDA 1. Access to the upgraded freeway would be limited to interchanges, which would likely include two locations – one at the intersection with Willie Measley Road and one near the intersections with Albert Sugg Road and Barwick Station Road. All other points of access would be closed off from US 70 and would be accessed through a service road and/or other side roads. PDA 1 is 1.5 miles west of PDA 2 along existing US 70 and 3 miles northwest of PDA 3.

No-Build Scenario: Under the no-build scenario, commercial and/or industrial development in this area would likely remain similar to its present condition. Under the No-Build Alternative, the 2018 EIA conservatively assumes that future highway market-dependent businesses would not be impacted by future increased congestion on US 70. Similarly, the EIA also assumed no major adverse impacts on highway-reliant (e.g., major manufacturers) or local-serving businesses would occur. Redevelopment of some of the vacant commercial structures and/or the



development of parcels with access to US 70 is likely at the present rate. The rural zoning classification is expected to continue through the time horizon, and all new industrial and commercial uses are required to obtain conditional use permits. While all single family residential uses in the rural district are permitted by right, multi-family uses require a conditional use permit.

Build Scenario: Access changes to US 70 would create more development opportunities for highway commercial uses near the location of interchanges at Willie Measley Road and Albert Sugg Road and Barwick Station Road. In particular, the potential interchange with Willie Measley Road is likely to attract more commercial development given that the area has sewer service and is fairly commercialized. Conversely, the Albert Suggs and Barwick Station Road area is undeveloped and would need sewer lines extended to facilitate any development. The areas outside of the interchange catchment areas of approximately a 1-mile radius would likely remain as farmland and rural open space in the rural zoning district with limited development of low-density, rural residential uses that rely on septic systems.



### 13.2.2 PDA 2 – US 70 Industrial Park, existing US 70, near C.F. Harvey Parkway and US 258

#### Existing Conditions

PDA 2 is located along existing US 70, including the C.F. Harvey Parkway interchange and the southernmost portion of this roadway and continuing east past US 258 near where Vernon Avenue (US 70 Business) splits off from US 70 (Figure 19). The PDA begins on the outskirts of the City of Kinston and transitions from rural farmland and scattered single-family housing to industrial and commercial development. The area surrounding C.F. Harvey Parkway is known as the US 70 Industrial Park and contains several large-scale manufacturers, farmland, and scattered single-family housing. In the vicinity of US 258, the land use is more commercialized with multiple big box retailers, strip malls, fast food restaurants, and gas stations that cater to pass-through traffic. Table 15 provides an overall summary of the acreage, land availability, and breakdown of the land use in the PDA. PDA 2 is 1.5 miles east of PDA 1, and 1 mile northwest of PDA 5 and PDA 6.

**Table 15: Land use summary – PDA 2**

		Acreage
Total acreage of PDA		2,910
Total acreage of parcels in or partially within PDA		4,355
Land Availability	Acres	Percent <sup>c</sup>
Vacant and developable	1,313	30.2
Underutilized	948	21.8
Land Use Classification	Acres <sup>a</sup>	Percent <sup>b</sup>
Agriculture	2,190	50.3
Commercial	237	5.4
Community facilities	173	4.0
Industrial	471	10.8
Other	1,158	26.6
Residential	126	2.9

<sup>a</sup> The total acres of the land use classification may not equal the total acreage of parcels in or partially within the PDA due to rounding.

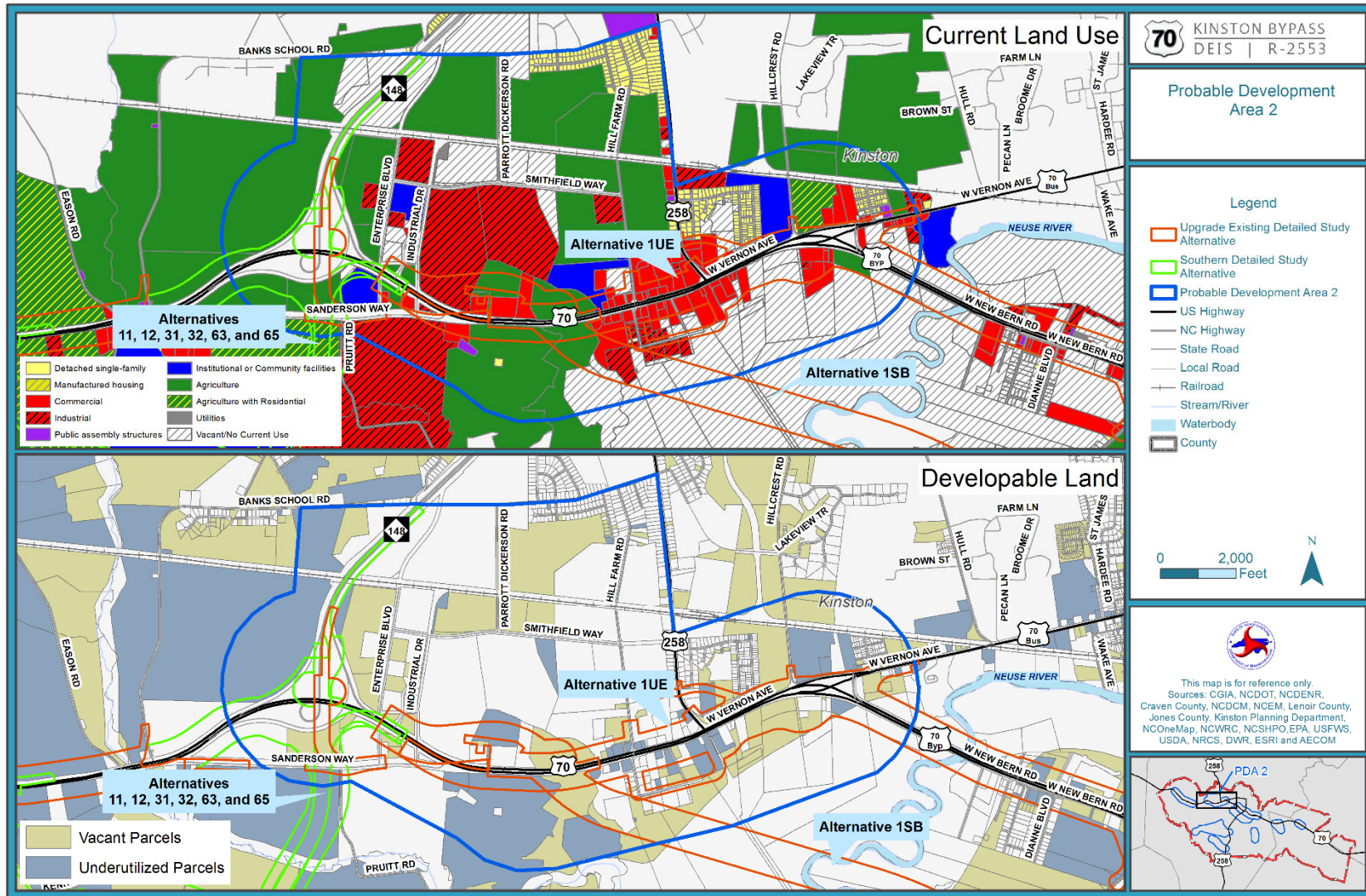
<sup>b</sup> The total of the percent column may not equal 100 due to rounding.

<sup>c</sup> Percent acreage is based on total acreage of parcel in or partially within the PDA.

The North Carolina Railroad traverses the northern portion of the PDA and connects into the GTP rail spur east of US 258. The Governor Caswell Memorial is located on the far eastern edge of the PDA, just south of US 70 near the Neuse River. And, as previously stated, PDA 2 is home to the US 70 Industrial Park.

Water and sewer is available in the entire PDA.

**Figure 19: Probable development area (PDA) 2**





Throughout the PDA, US 70 has partial control of access. The three main transportation nodes in the PDA are NC 148 (C.F. Harvey Parkway), US 258, and US 70 Business (Vernon Avenue). NC 148 is a full control of access freeway that provides a direct connection to the GTP. US 258 is a main thoroughfare on the west side of Kinston and runs north of Kinston to Snow Hill and then continues into northeastern North Carolina. US 70 Business (Vernon Avenue) provides direct access to downtown Kinston. In addition, several local roads intersect with US 70 in the PDA and primarily provide access to the areas adjacent to US 70.

The western portion of the PDA near NC 148 falls under the planning jurisdiction of Lenoir County. The eastern portion, which is more commercialized, is in the City of Kinston and/or the City of Kinston's ETJ. The *Lenoir County Land Use Plan* has land in PDA 2 that is north of US 70 designated as community growth area and the land south of US 70 designated as an agriculture and rural housing area. The area around NC 148 is identified as a regional commercial center and the land area along NC 148 is identified as an enterprise area. Enterprise areas are designed to accommodate the county's prime industrial locations. They are located in higher growth areas on land that has few environmental limitations. The area is also listed as a high development potential. The City of Kinston adopted the *Kinston Comprehensive Land Use Plan* in October 2015. The plan sets out land use policies to guide development and future land use. The plan documents recommendations for transportation improvements that include the US 70 Bypass project.

Kinston implements a Unified Development Ordinance that regulates land development. This ordinance applies to areas within the municipal limits of Kinston and within Kinston's ETJ. The ordinance regulates land uses and guides development throughout the city. The ordinance establishes a development review process and contains performance standards and provisions to regulate landscaping, building façade design, parking, subdivisions, signage, dedication of open space, flood damage, and historic district and row house districts.

Lenoir County officials stated that they would like to see further development of the US 70 Industrial Park from both new businesses and expansions from current businesses. The City of Kinston indicated that area within Kinston's jurisdiction is zoned for highway commercial and that they plan to continue to encourage commercial growth along this corridor. The US 70 Industrial Park is zoned for industrial uses.

## Projected Changes and Development

PDA 2 encompasses US 70 and portions of eight study alternatives. Aside from Alternative 1UE, which stays on existing US 70, six of the study alternatives divert from existing US 70 in this PDA. These seven study alternatives divert near the current interchange of US 70 with NC 148 and would only alter the control of access to US 70 to all points west of the diversion point. Conversely, Alternative 1UE would involve upgrading the entirety of US 70 in this PDA to full control of access. For the areas with full control of access, access would be limited to interchanges, which would include maintaining the existing interchange with NC 148 and the intersection with US 258. All other points of access would be closed off from US 70 and would be accessed through a service road and/or other side roads.

No-Build Scenario: Under the No-Build Alternative, the 2018 EIA conservatively assumes that future highway market-dependent businesses would not be impacted by future increased congestion on US 70. Similarly, the EIA also assumed no major adverse impacts on highway-



reliant (e.g., major manufacturers) or local-serving businesses would occur. Redevelopment of some of the vacant industrial and commercial structures and/or the development of parcels with access to US 70 is likely at the present rate. Further development of the US 70 Industrial Park is likely and redevelopment of vacant commercial structures and/or the development of parcels with access to US 70 are likely. Infill commercial development is expected in the vicinity of the intersection with US 258.

Build Scenario–Alternative 1UE: The Alternative 1UE would impact the commercial and industrial area in PDA 2 since its future ROW would be located in the current US 70 corridor. Further expansion of the US 70 Industrial Park is likely and redevelopment of vacant commercial structures and/or clustering of new developments with access to US 70 is likely. The commercial area near US 258 would be impacted by the change in access, particularly for the commercial businesses that rely on drive-by traffic. According to the EIA for the Kinston Bypass project, future highway access changes may result in some retail and service sales to be reallocated among local businesses or “leak” out of the county. Some land use changes and business relocation (or new development) can be expected as a result (e.g., at interchanges). No major residential development is anticipated as much of the area is zoned for commercial and industrial uses.

Build Scenario–Alternative 1SB: In this scenario, further expansion of the US 70 Industrial Park is likely. The retail businesses dependent on highway traffic would be impacted by a decrease in drive-by traffic that is anticipated to be lower than the No-Build Alternative or Alternative 1UE. The lower traffic volumes may result in the closing of highway-reliant businesses or those businesses choosing to relocate to an area with more highway traffic. Alternative 1UE is likely to make this PDA less desirable to new businesses that are highway reliant. Given that the area near the intersection with US 258 is a major commercial area, it would likely maintain similar development patterns as exist presently. Alternatives 11, 12, 31, 32, 63 and 65 cross PDA 2. Development and redevelopment of commercial and industrial development, especially near the interchange area, is likely. No major residential development is anticipated under the build scenario as much of the future development would be industrial and commercial development.



### 13.2.3 PDA 3 – Jackson Crossroads and Sandy Bottom

#### Existing Conditions

PDA 3 is located south of existing US 70 near the unincorporated areas of Jackson Crossroads and Sandy Bottom (Figure 20). The PDA parallels NC 55 from the intersection with NC 11 at Jackson Crossroads to Sandy Bottom. The PDA also extends over to US 258 in the east and stays north of Southwest Creek. PDA 3 is in a rural area of Lenoir County with active farmland and vacant/open space being the most common type of land use. The most densely developed area of the PDA is Jackson Crossroads, which has commercial development at the point where NC 11/NC 55 split and Tyree Road intersects. There is also a residential community to the east of this intersection. Table 16 provides an overall summary of the acreage, land availability, and breakdown of the land use in the PDA. PDA 3 is immediately north of PDA 4.

**Table 16: Land use summary – PDA 3**

		Acreage
Total acreage of PDA		4,718
Total acreage of parcels in or partially within PDA		7,552
Land Availability	Acres	Percent <sup>c</sup>
Vacant and Developable	3,673	48.6
Underutilized	1,593	21.1
Land Use Classification	Acres <sup>a</sup>	Percent <sup>b</sup>
Agriculture	5,212	69.0
Commercial	11	0.1
Community facilities	63	0.8
Industrial	33	0.4
Other	1,497	19.8
Residential	736	9.7

<sup>a</sup> The total acres of the land use classification may not equal the total acreage of parcels in or partially within the PDA due to rounding.

<sup>b</sup> The total of the percent column may not equal 100 due to rounding.

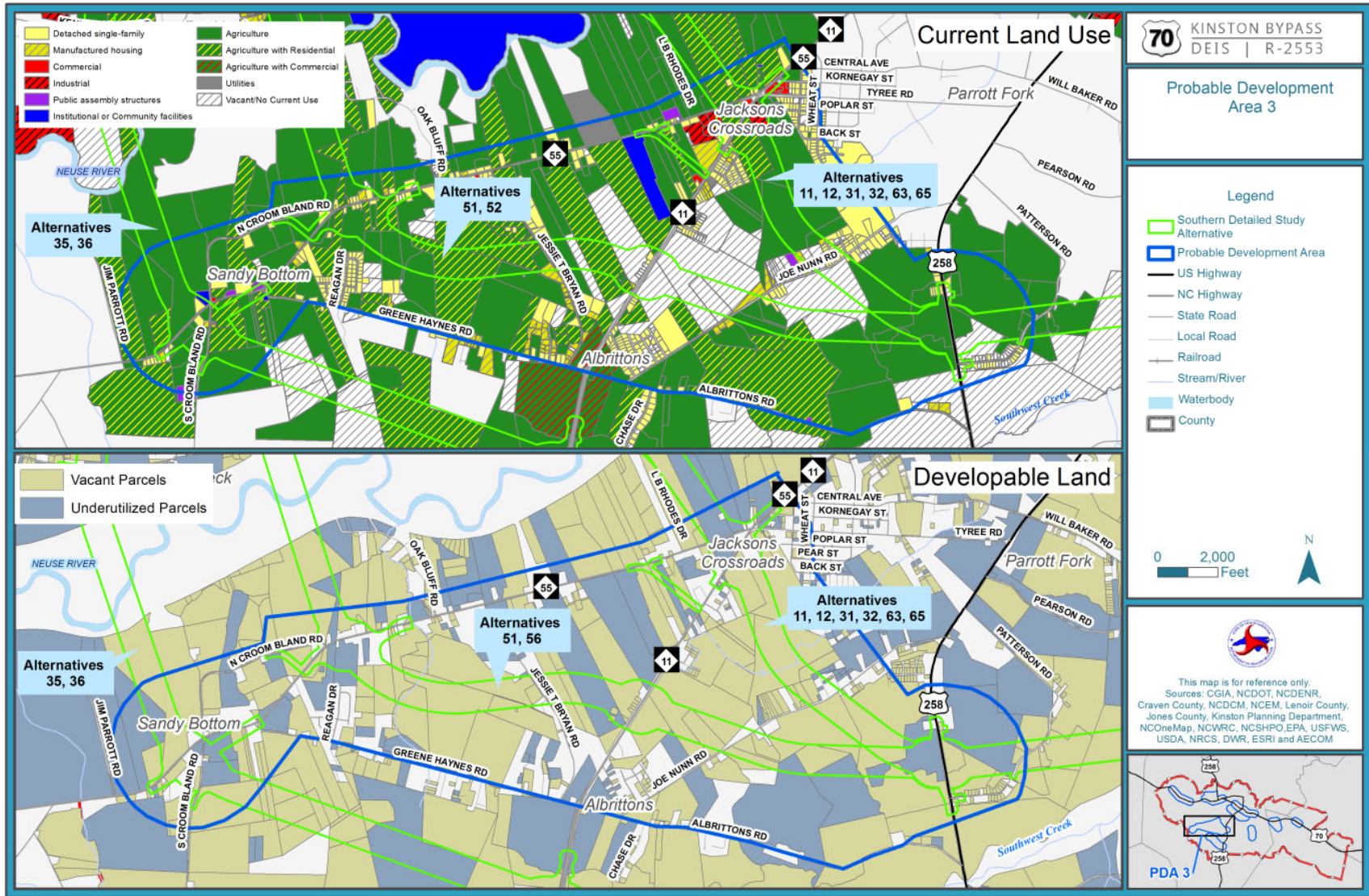
<sup>c</sup> Percent acreage is based on total acreage of parcel in or partially within the PDA.

In the unincorporated community of Sandy Bottom, there is a volunteer fire department. Near US 258 the PDA includes part of a historic site from the First Battle of Kinston that took place during the Civil War.

Water is available in the entire PDA. The PDA is also in a designated sewer service area, which indicates that the developed areas have sewer service and that it may be feasible to extend sewer service to those properties near existing sewer lines. However, no plans have been made to extend sewer service in this PDA.



**Figure 20: Probable development area (PDA) 3**





NC 11, NC 55, and US 258 are the main arterial roadways in this PDA and they provide a direct connection to US 70 and the City of Kinston. In addition, several local roads intersect with NC 11, NC 55, and US 258 in the PDA and primarily provide access to rural agricultural lands and residential properties.

The entire PDA falls under the planning jurisdiction of Lenoir County. The *Lenoir County Land Use Plan* has land in PDA 3 designated as a rural transition area. The area is also listed as having moderate development potential. The area near Jackson Crossroads at the NC 11/NC 55 split is identified as a regional commercial center. The *Land Use Plan* notes the proposed Kinston Bypass project and the potential of the project passing through the general area of Jackson Crossroads.

Lenoir County officials indicated that there are no current plans for new development in this area, but that they would be supportive of development if it were to occur.

### **Projected Changes and Development**

The southern bypass alternatives would cross this PDA. All 10 of the study alternatives would be on new location in this PDA and the crossing of NC 11/NC 55 or NC 55 by the study alternative would be the first potential interchange south of existing US 70, as motorists proceed eastward from the western terminus of the project. The study alternatives that also cross US 258 in this PDA would also have a potential interchange. Access to the highway would be limited to these two interchanges.

No-Build Scenario: Approximately 70 percent of PDA 3 is agricultural land. The rural development patterns would remain the same as today. With limited growth projected for this area, no major development would be expected. Any new commercial development would likely occur near the commercial development in Jackson Crossroads where sewer service is available. New residential development is possible, but no major expansion in residential properties is projected.

Build Scenario: Farmland accounts for approximately 70 percent of the land in PDA 3. The build alternatives would impact farmland purchased from land owners to compensate for their property losses.

However, in addition to this financial reimbursement, taking this agricultural land out of production could also result in lost economic activity for the local economy. The 2018 EIA indicates there would only be a net loss to the local economy if the displaced farming could not be relocated elsewhere in the county. Given the availability of other comparable farmland in the area, impacted farming businesses should be able to relocate and thereby avoid any future decrease in Lenoir County's farming activity and net earnings. The EIA nonetheless estimated the annual revenue losses under each alternative as a conservative estimate of the potential economic impact of the lost productivity associated with the displaced farmland.

The study alternatives would increase the volume of traffic passing through this PDA, which would increase pressure for development near proposed interchanges that caters to highway traffic (e.g., gas stations, fast food). The potential interchange location near Jackson Crossroads would offer the greatest development potential given that it would complement the retail outlets and that water and sewer service is already available in this area. The other potential interchange locations – one near Sandy Bottom, east of Jackson Crossroads on NC 55 or one south of



Jackson Crossroads on NC 11 – would be less likely to develop than the location at Jackson Crossroads. The area around the potential interchange at US 258 is a rural agricultural area and would be unlikely to experience major development with the project. If development would occur, it would likely be small and consist of a single gas station or other commercial uses that would cater to the highway users. No major expansion of residential development is expected under the build scenario as growth forecasts for this area are low, and much of the agricultural land use is expected to continue.



### 13.2.4 PDA 4 – Albrittons/Woodington near NC 11 and US 258

#### Existing Conditions

PDA 4 is located south of existing US 70 covering an area that includes the unincorporated areas of Albrittons and Woodington (Figure 21). The PDA runs from NC 11 to US 258 and crosses Southwest Creek. The PDA is in a rural area of Lenoir County with active farmland and vacant/open space being the most common type of land use. There are scattered residential properties along both NC 11 and US 258 near the locations where the study alternatives would cross. PDA 3 is located immediately north of PDA 4, and both of their eastern boundaries encompass a small segment of US 258. Table 17 provides an overall summary of the acreage, land availability, and breakdown of the land use in the PDA.

**Table 17: Land use summary – PDA 4**

		Acreage
Total acreage of PDA		2,038
Total acreage of parcels in or partially within PDA		3,777
Land Availability	Acres	Percent <sup>c</sup>
Vacant and developable	2,150	56.9
Underutilized	710	18.8
Land Use Classification	Acres <sup>a</sup>	Percent <sup>b</sup>
Agriculture	2,906	76.9
Commercial	0	0.0
Community facilities	0	0.0
Industrial	2	0.1
Other	743	19.7
Residential	126	3.3

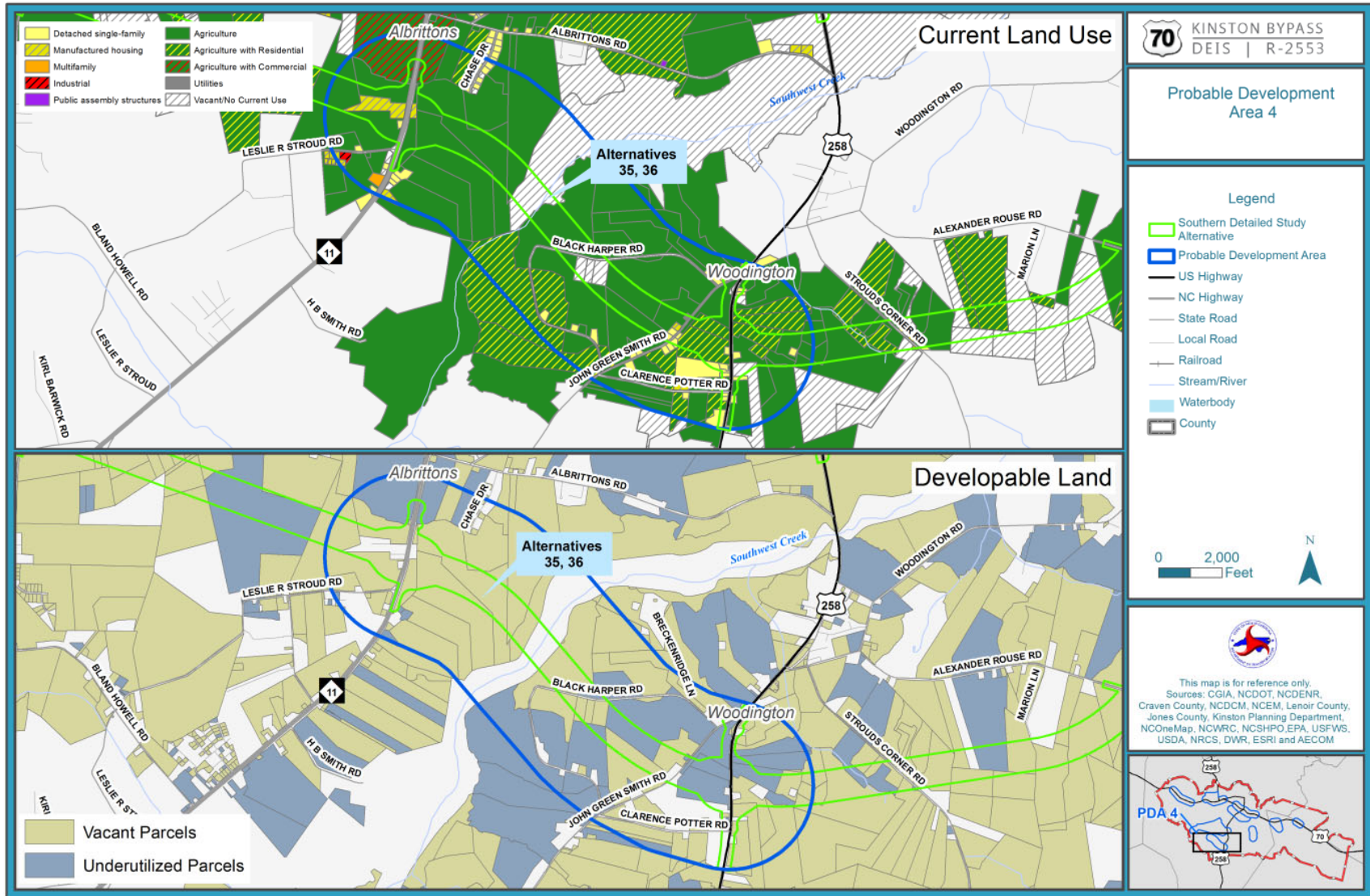
<sup>a</sup> The total acres of the land use classification may not equal the total acreage of parcels in or partially within the PDA due to rounding.

<sup>b</sup> The total of the percent column may not equal 100 due to rounding.

<sup>c</sup> Percent acreage is based on total acreage of parcel in or partially within the PDA.

No notable community resources or protected areas are located in this PDA. Woodington Middle School is located just south of PDA 4 along US 258. Water is available in the entire PDA. While water service is not in place in the entire PDA, local officials have indicated that it is a service that would be extended to a property in this PDA if water service is needed for any new development. No sewer service is provided in this PDA and all development is on a septic system. While it would be feasible to extend sewer service in this area, no plans to extend sewer service have been made, thus greatly limiting future commercial and industrial development.

**Figure 21: Probable development area (PDA) 4**





NC 11 and US 258 provide access to US 70 and Kinston to the north. South of the PDA, NC 11 connects to the communities of Deep Run and Pink Hill before connecting into I-40, while US 258 connects to Jacksonville.

The entire PDA falls under the planning jurisdiction of Lenoir County. The *Lenoir County Land Use Plan* has land in PDA 4 designated as rural transition area or agriculture and rural housing area. The area is also listed as a moderate development potential.

There are no plans for future development in this area.

## Projected Changes and Development

Alternatives 35 and 36 cross through PDA 4. Interchanges are planned at both NC 11 and US 258. As a full control of access freeway, the road would only be accessible at the potential interchanges. Other roads that intersect with the study alternatives would be closed off, or if traffic warrants it, the roadway would go either over or under the study alternative, and service or access roads and driveways would be provided to maintain access.

No-Build Scenario: Agricultural land comprises approximately 76 percent of PDA 4. Rural and agricultural development patterns would likely remain similar to its present condition. Given the distance from Kinston and the absence of sewer service, no development pressure in this PDA exists today or is expected to occur in the near future.

Build Scenario: Given the distance from the urban area of Kinston, even with a new highway through this area and increased traffic volumes, development pressure in this PDA is expected to remain low. Small-scale retail outlets to serve the highway users are possible, but would likely be limited given the lack of water and sewer service. Low-density rural residential development is possible, but growth projections indicate that development potential is limited.



### 13.2.5 PDA 5 – Skinner’s Bypass, existing US 70 near NC 11/NC 55, US 258, and NC 58

#### Existing Conditions

PDA 5 is located along existing US 70, in the City of Kinston and primarily south of the Neuse River (Figure 22). Despite being an urbanized area, the PDA still contains a fair amount of agricultural land and open space, due to the proximity of the Neuse River and the associated floodplains. Adjacent to existing US 70, there are a number of commercial and retail outlets with some vacancies. PDA 5 is immediately north, and parallel to PDA 6. PDA 5 is located along Alternative 1UE, and PDA 6 is located along Alternative 1SB. Table 18 provides an overall summary of the acreage, land availability, and breakdown of the land use in the PDA.

**Table 18: Land use summary – PDA 5**

		Acreage
Total acreage of PDA		2,572
Total acreage of parcels in or partially within PDA		3,623
Land Availability	Acres	Percent <sup>c</sup>
Vacant and developable	410	11.3
Underutilized	762	21.0
Land Use Classification	Acres <sup>a</sup>	Percent <sup>b</sup>
Agriculture	775	21.4
Commercial	163	4.5
Community facilities	234	6.5
Industrial	526	14.5
Other	1,834	50.6
Residential	92	2.5

<sup>a</sup> The total acres of the land use classification may not equal the total acreage of parcels in or partially within the PDA due to rounding.

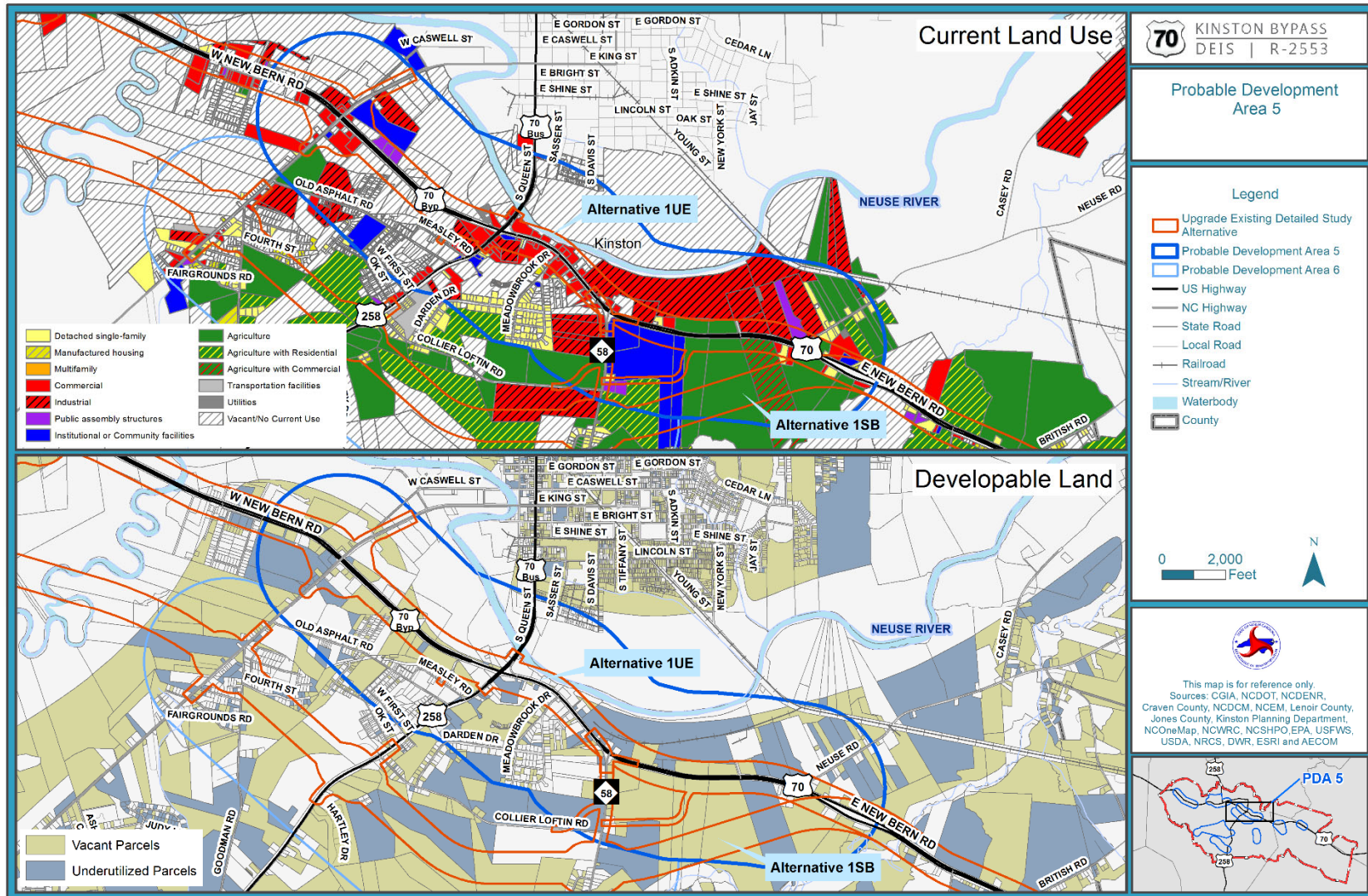
<sup>b</sup> The total of the percent column may not equal 100 due to rounding.

<sup>c</sup> Percent acreage is based on total acreage of parcel in or partially within the PDA.

Notable features present in the PDA include the Rotary Dog Park, the First Battle of Kinston Memorial Site, the Kinston - Lenoir County Visitor and Information Center, and the LCC. In addition, there are FEMA HMGP properties located throughout this PDA near the Neuse River.

Water and sewer service is available in the entire PDA.

Figure 22: Probable development area (PDA) 5







Existing US 70, from the intersection of NC 11/NC 55 to NC 58, has no control of access and west of NC 58 there is partial control of access. NC 11/NC 55 provides access into downtown Kinston north of US 70 and to the south connects to Jackson Crossroads, Deep Run, Pink Hill, and I-40. US 258 Business connects into downtown Kinston to the north and Jacksonville in the south. NC 58 provides a connection to the beaches of the Crystal Coast, including Emerald Isle. In addition, several local roads intersect with US 70 in the PDA and primarily provide access to rural agricultural lands and scattered residential properties.

The entire PDA falls under the planning jurisdiction of the City of Kinston. The *Kinston Comprehensive Land Use Plan*, adopted in 2015, categorizes the land adjacent to US 70, NC 11/NC 55, and US 258 in PDA 5 as mixed use. The land uses in the PDA are also categorized as industrial in the eastern portion of the PDA as well as rural-residential and residential. LCC is located in an area designated as office and institutional. The Future Land Use Map in the *Kinston Comprehensive Land Use Plan* also includes a flood hazard and wetlands overlay. Almost all of the land in PDA 5 is classified as flood hazard. Other land use planning constraints in this area include a number of properties that have been purchased for conservation purposes under the FEMA HMGP, which puts restrictive covenants on a property that prevents construction of buildings or other impervious surfaces.

## Projected Changes and Development

For Alternative 1UE, the entirety of US 70 in PDA 5 would be converted to a full control of access highway; meaning that the only points of access would be at proposed interchange locations. Interchange locations would likely be constructed at the current intersections of NC 11/NC 55, US 258, and NC 58. All other points of access would be closed off from US 70 and would be accessed through a service road and/or other side roads.

Alternative 1SB would tie back into existing US 70 at the western edge of this PDA, to the east of Neuse Road. In addition, for this alternative, existing US 70 in this PDA would only be altered at this tie-in and to the east.

The 10 new location alternatives would not involve changes to existing US 70 in this PDA.

No-Build Scenario: Under the No-Build Alternative, the 2018 EIA conservatively assumes that future highway market-dependent businesses would not be impacted by future increased congestion on US 70. Similarly, the EIA also assumed no major adverse impacts on highway-reliant (e.g., major manufacturers) or local-serving businesses would occur. Redevelopment of some of the vacant industrial and commercial structures and/or the development of parcels with access to US 70 is likely at the present rate. Development patterns in this area would likely remain similar to its present condition. Given an overall limited population growth and the presence of floodplains, new commercial development would likely be limited to the redevelopment of commercial properties with access to US 70. Infill commercial development is also expected for undeveloped parcels that are outside of the floodway.

Build Scenario—Alternative 1UE: Access changes to US 70 would create more development opportunities for highway commercial uses near proposed interchanges. The properties along US 70 would be impacted by the change in access, particularly for the commercial businesses that rely on drive-by traffic. According to the EIA, under this build scenario, there would be a decrease in highway market-dependent retail sales compared to the no-build scenario, which



would mean there would likely be less commercial development or redevelopment compared to the no-build scenario. Access changes to US 70 would create development opportunities for clustering of some new highway commercial uses near proposed interchanges.

Build Scenario—Alternative 1SB: In this scenario, the retail businesses along existing US 70 dependent on highway traffic would be impacted from a decrease in drive-by traffic that is higher than compared to the no-build or the other build alternatives. This also correlates to a lower capture rate of non-local travelers. The development patterns would likely remain similar to the existing pattern. However, with a bypass in place, the area may become less attractive to new development and/or see some businesses close. Regardless, it would likely remain as a commercial center for the greater Kinston community, and the ability of the area to attract drivers to stop when passing through the area is increased the closer the study alternative is to existing US 70. In other words, Alternative 1SB has a higher capture rate of non-local travelers compared to the other southern bypass alternatives. Residential development is expected to be limited as most new development would be anticipated to occur in interchange areas served by sewer service.



### 13.2.6 PDA 6 – Rivermont and Dupreeville, south of US 70 near NC 11/NC 55, US 258, and NC 58

#### Existing Conditions

PDA 6 is located immediately south of existing US 70 and encompasses what would be the new location portion of Alternative 1SB (Figure 23). The PDA is on the outskirts of the City of Kinston and is mostly located in the City of Kinston’s ETJ. The majority of the land is considered active farmland and vacant/open space with several existing residential enclaves. Table 19 provides an overall summary of the acreage, land availability, and breakdown of the land use in the PDA. PDA 5 is immediately north of PDA 6.

**Table 19: Land use summary – PDA 6**

		Acreage
Total acreage of PDA		1,954
Total acreage of parcels in or partially within PDA		2,809
Land Availability	Acres	Percent <sup>c</sup>
Vacant and developable	767	27.3
Underutilized	481	17.1
Land Use Classification	Acres <sup>a</sup>	Percent <sup>b</sup>
Agriculture	1,173	41.7
Commercial	21	0.7
Community facilities	144	5.1
Industrial	128	4.6
Other	1,121	39.9
Residential	222	7.9

<sup>a</sup> The total acres of the land use classification may not equal the total acreage of parcels in or partially within the PDA due to rounding.

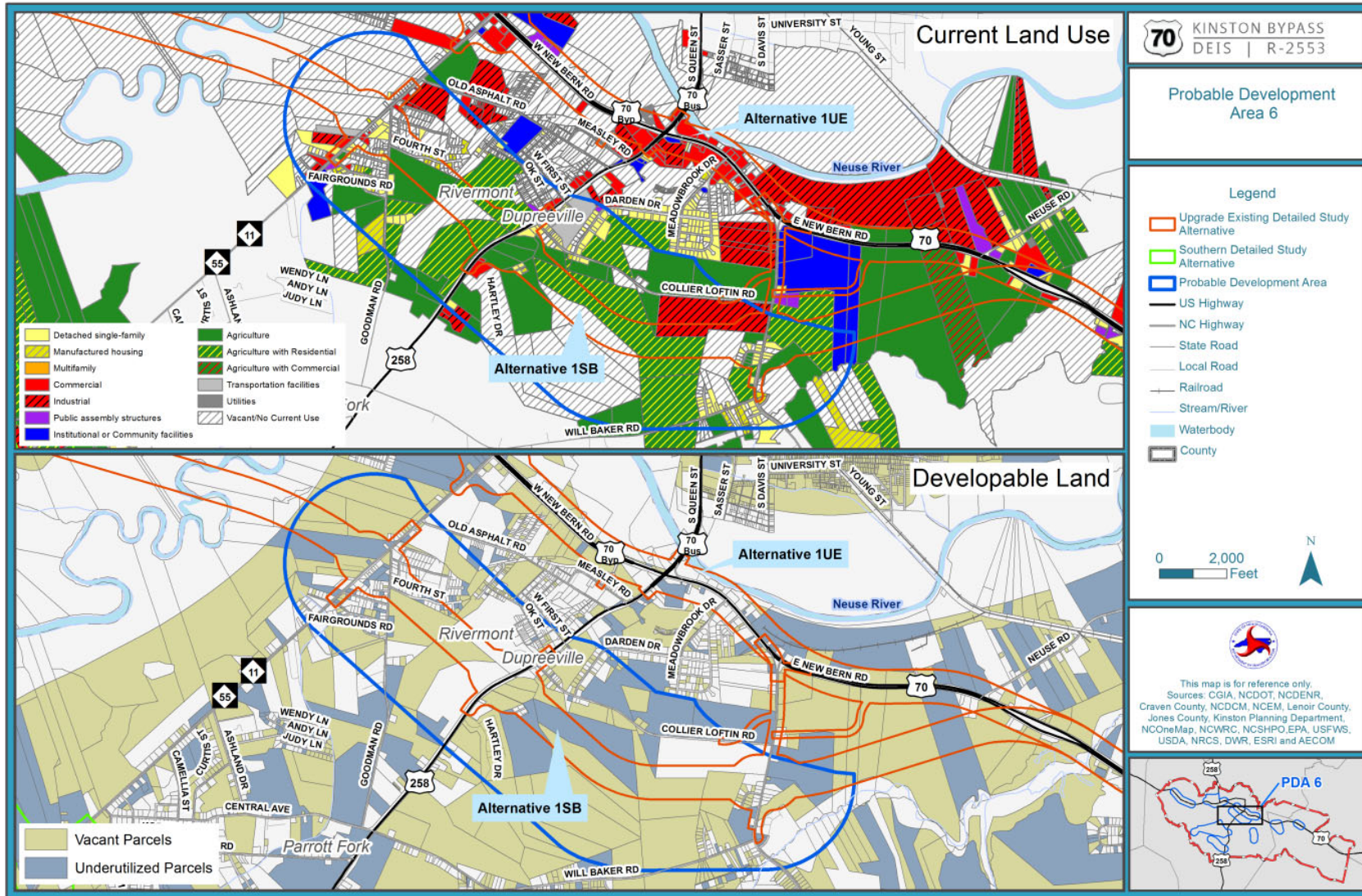
<sup>b</sup> The total of the percent column may not equal 100 due to rounding.

<sup>c</sup> Percent acreage is based on total acreage of parcel in or partially within the PDA.

The Lenoir County Cooperative Extension and the Lenoir County Fairgrounds are located in this PDA. Environmental justice populations are located in the Fordham Lane and Johnson Road/NC 58 residential areas. Multiple HMGP properties are also located within this PDA. Water and sewer service are available in the entire PDA.

This PDA is crossed by NC 11/NC 55, US 258, and NC 58. NC 11/NC 55 provides access into downtown Kinston north of US 70 and to the south connects to Jackson Crossroads, Deep Run, and Pink Hill, as well as I-40. US 258 Business connects into downtown Kinston to the north and Jacksonville in the south. NC 58 provides a connection to the beaches around Emerald Isle. In addition, Collier-Loftin Road provides an east-west connection between US 258 and NC 58, and multiple local roads in the PDA provide access to rural agricultural lands and residential properties.

**Figure 23: Probable development area (PDA) 6**



The entire PDA falls under the planning jurisdiction of the City of Kinston. The *Kinston Comprehensive Land Use Plan*, adopted in 2015, categorizes the land in PDA 6 that is directly adjacent to NC 11/NC 55 and US 258 as mixed use. The land uses in the PDA are also categorized as industrial in the eastern portion of the PDA as well as rural residential. LCC is located in an area designated as office and institutional. The Future Land Use Map in the *Land Use Plan* also includes a flood hazard and wetlands overlay. The land in the western portion of the PDA, including that along NC11/NC 55, is designated as a flood hazard zone. Other land use planning constraints in this area include a number of properties that have been purchased for conservation purposes under the FEMA HMGP, which puts restrictive covenants on a property that prevents construction of buildings or other impervious surfaces. The British Road and Caswell Station Road residential area was identified as an environmental justice area.

Local planners did not indicate that any major changes in land use are projected for this area.

### **Projected Changes and Development**

PDA 6 is crossed by the bypass portion of Alternative 1SB, just south of existing US 70. This study alternative ties back into US 70 just north and west of PDA 6 in PDA 5. Access to the upgraded highway would be limited to interchanges, which would likely include three locations: the intersection of NC 11/NC 55, US 258, and NC 58. All other roads would either be closed off or bridged over or under the proposed project.

No-Build Scenario: Development patterns would likely remain similar to its present condition. Redevelopment of vacant commercial structures and/or the development of parcels with access to NC 11/NC 55, US 258, and NC 58 would be likely. Development of other areas are possible, but are limited by the floodplain of the Neuse River and the HMGP buyout properties. The developable areas may see non-commercial uses, such as residential. However, limited growth is projected for the City of Kinston and Lenoir County.

Build Scenario: Approximately 44 percent of the land area in PDA 6 is available for development, with the area surrounding the proposed interchange with US 258 having the most available land area of the three proposed interchange areas. Land that is near the locations of interchanges and that is outside of the floodplain is likely to be developed with commercial businesses that cater to the highway users. The proximity to an existing nucleus of businesses along US 70 would increase the vitality and likelihood of development in this PDA. Farther away from the interchange locations, residential development is possible. Development would be limited by the development restrictions associated with the floodplain of the Neuse River and the HMGP buyout properties.



### 13.2.7 PDA 7 – Southwood and Loftin’s Crossroads, near NC 58 and Elijah Loftin Road and Southwood Road

#### Existing Conditions

PDA 7 is located along NC 58, south of existing US 70 near the unincorporated areas of Southwood and Loftin’s Crossroads (Figure 24). The PDA is in a rural area of Lenoir County with active farmland and vacant/open space being the most common type of land use. Adjacent to NC 58, there are clusters of rural residential properties. Table 20 provides an overall summary of the acreage, land availability, and breakdown of the land use in the PDA. PDA 6 is 1 mile north of PDA 7, and PDA 8 is 3 miles east.

**Table 20: Land use summary – PDA 7**

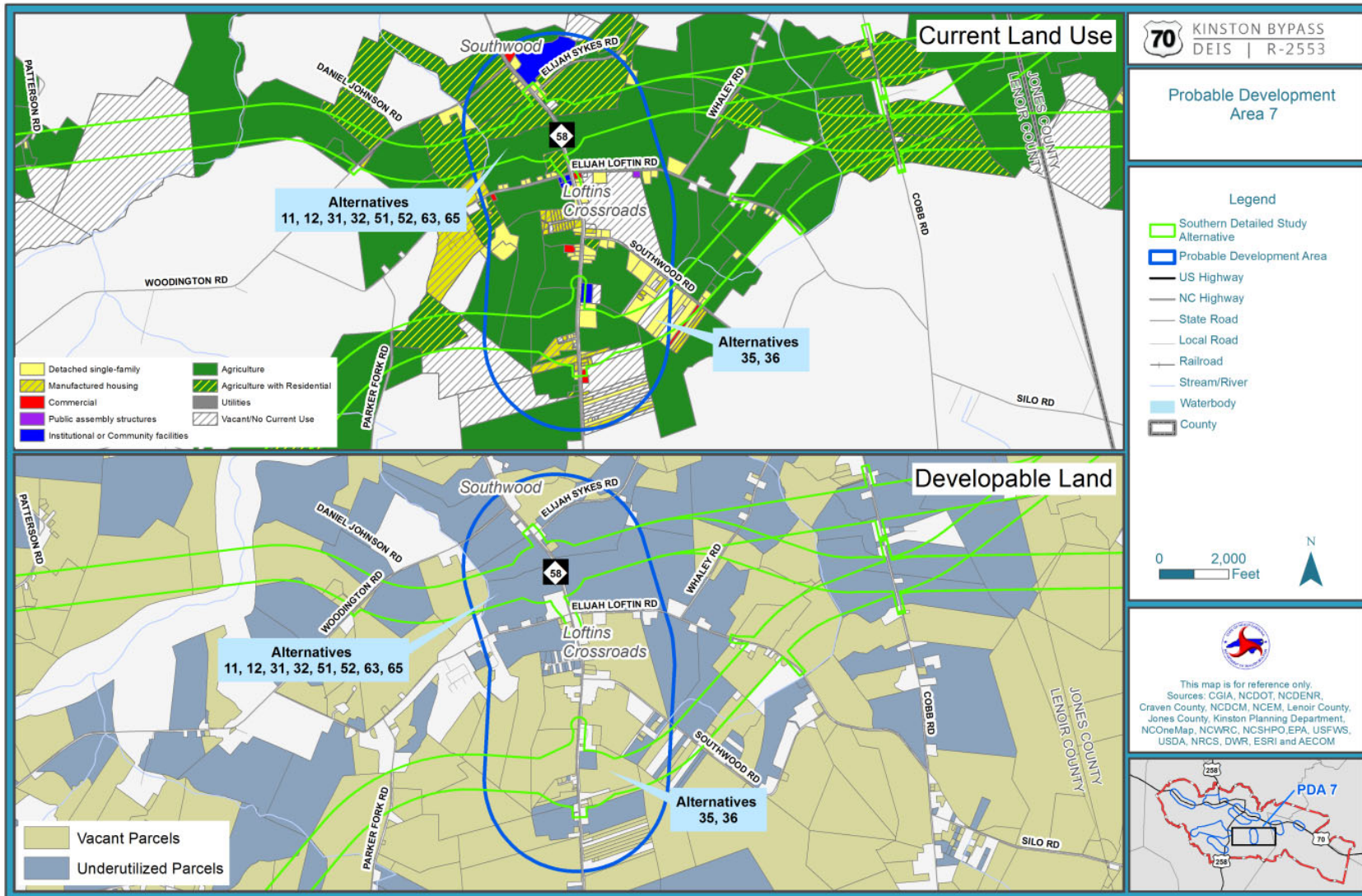
		Acreage
Total acreage of PDA		1,255
Total acreage of parcels in or partially within PDA		2,102
Land Availability	Acres	Percent <sup>c</sup>
Vacant and developable	1,183	56.3
Underutilized	645	30.7
Land Use Classification	Acres <sup>a</sup>	Percent <sup>b</sup>
Agriculture	1,471	70.0
Commercial	9	0.4
Community facilities	35	1.7
Industrial	0	0.0
Other	329	15.6
Residential	258	12.3

<sup>a</sup> The total acres of the land use classification may not equal the total acreage of parcels in or partially within the PDA due to rounding.

<sup>b</sup> The total of the percent column may not equal 100 due to rounding.

<sup>c</sup> Percent acreage is based on total acreage of parcel in or partially within the PDA.

**Figure 24: Probable development area (PDA) 7**





PDA 7 includes the Southwood Elementary School, the Southwood Volunteer Fire Department, and an environmental justice population located in the Albert Baker Road residential area.

Water is available in the entire PDA. While water service may not be in place in the entire PDA, this designation implies that it could be extended to these facilities if warranted for new development. This area is not designated as having sewer service, but the Lenoir County Planning Department indicated that Southwood Elementary School did have sewer service. The remaining properties in this PDA are on a septic system. While it would be feasible to extend sewer service to others in this area, no plans to extend sewer service to rest of the PDA have been made. A water tower is also located in this PDA.

NC 58 connects to US 70 and Kinston to the north of the PDA and to the beaches around Emerald Isle to the south of the PDA. Elijah Loftin Road provides an east-west connection through the area to other north-south routes, which includes US 258. In addition, several local roads intersect with US 70 in the PDA and provide access to rural agricultural lands and scattered residential properties.

The entire PDA falls under the planning jurisdiction of Lenoir County. The *Lenoir County Land Use Plan* has land in PDA 7 designated as agriculture and rural residential. The northeast section of the PDA is listed as having moderate development potential, while the remaining area is identified as a rural development area. The *Land Use Plan* notes the proposed Kinston Bypass project, but suggests that it would likely cross NC 58 north of where the crossing proposed by the study alternatives, which is likely due to assumptions about where the Kinston Bypass was proposed to be located at the time the plan was written. The Fordham Lane residential area and the Johnson Road/NC 58 residential area were identified as environmental justice areas.

Lenoir County officials indicated that there were no current plans for development in this area.

## Projected Changes and Development

The southern bypass alternatives would cross through PDA 7. Access to the proposed highway would be limited to interchanges, which would be expected to include interchanges at NC 58. All other points of access would be closed off from the study alternative and would be accessed through a service road and/or other side roads. Local roads crossed by a build alternative would be closed off or bridged over or under the build alternative.

No-Build Scenario: The development patterns in this area would likely remain similar to its present condition. The area would be expected to maintain its rural land development patterns, with no population or job growth projected for this area and no plans to extend sewer services. No major changes in land use patterns are expected.

Build Scenario: Although over 86 percent of the acreage in PDA 7 is available for development, the lack of available sewer service limits potential future commercial development. The study alternatives would increase the volume of traffic passing through this PDA, which would increase opportunities for development that caters to highway traffic (e.g., highway commercial uses such as a service station). The land surrounding the potential interchange locations would offer the greatest development potential. However, since sewer service is not available in the PDA, no induced land use changes are expected.





### 13.2.8 PDA 8 – Wyse Forks near US 70 and Wyse Fork Road

#### Existing Conditions

PDA 8 is located along US 70 around the intersection with Wyse Fork Road, to the east of Kinston on the eastern side of the FLUSA (Figure 25). The PDA is in a rural area of Jones County near the Lenoir County line. Active farmland is the most common type of land use in this area. Adjacent to US 70 and Wyse Fork Road there are scattered commercial and rural residential properties. Table 21 provides an overall summary of the acreage, land availability, and breakdown of the land use in the PDA. PDA 7 is 3 miles to the west, and PDA 9 is 1.5 miles to the east of PDA 8.

**Table 21: Land use summary – PDA 8**

		Acreage
Total acreage of PDA		1,636
Total acreage of parcels in or partially within PDA		3,346
Land Availability	Acres	Percent <sup>c</sup>
Vacant and developable	1,667	49.8
Underutilized	1,114	33.3
Land Use Classification	Acres <sup>a</sup>	Percent <sup>b</sup>
Agriculture	3,124	93.4
Commercial	10	0.3
Community facilities	2	0.1
Industrial	8	0.2
Other	163	4.9
Residential	38	1.1

<sup>a</sup> The total acres of the land use classification may not equal the total acreage of parcels in or partially within the PDA due to rounding.

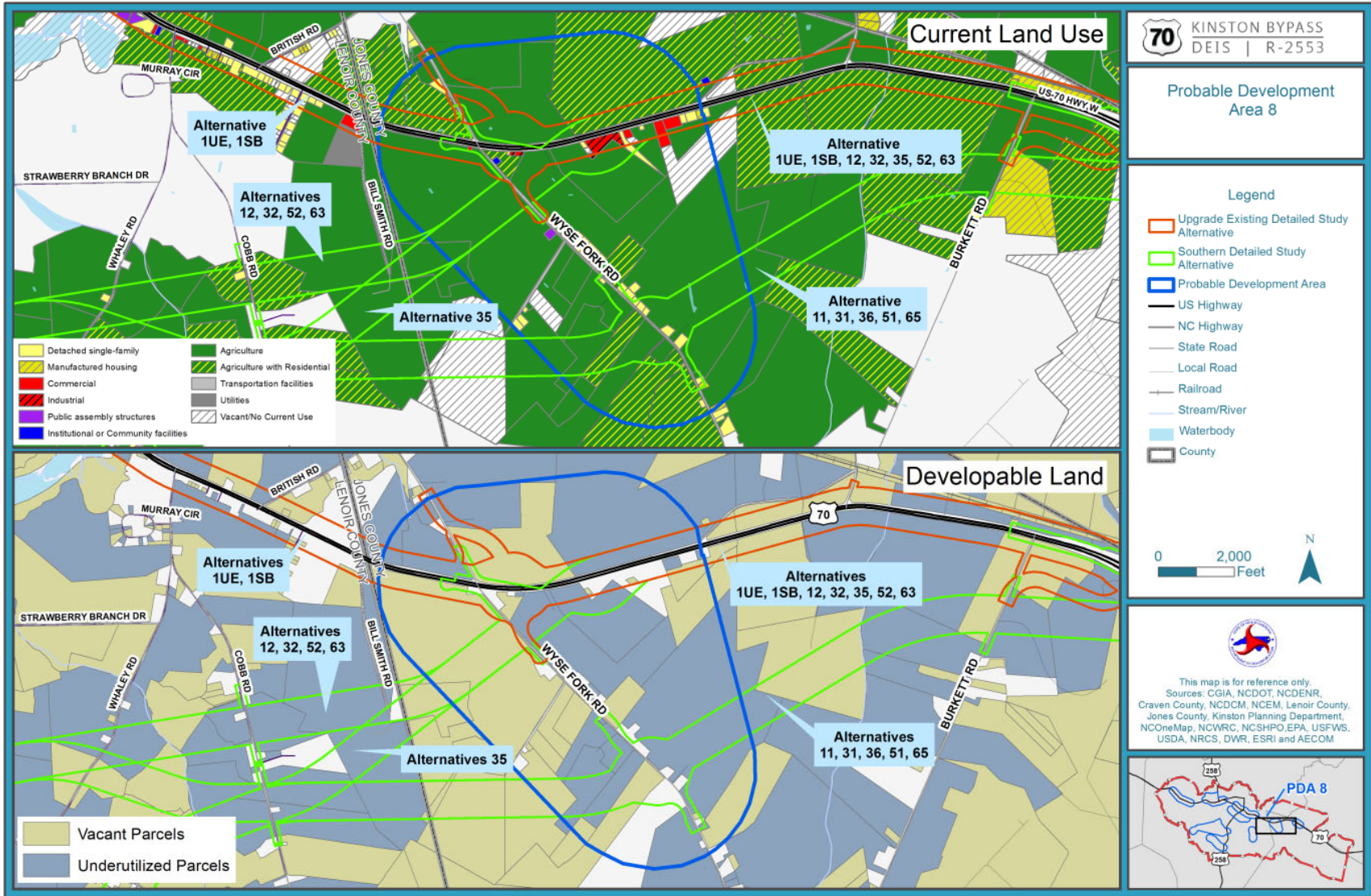
<sup>b</sup> The total of the percent column may not equal 100 due to rounding.

<sup>c</sup> Percent acreage is based on total acreage of parcel in or partially within the PDA.

The PDA includes portions of the Wyse Fork Battlefield. Community facilities found within the PDA include the Wyse Fork Volunteer Fire Department, the Wyse Fork Emergency Medical Services, and an environmental justice population located in the British Road and Caswell Station Road residential area.

Water is available in the entire PDA. While water service may not be in place in the entire PDA, this designation implies that it could be extended to these facilities if warranted for new development. Sewer service is not available in this area or planned.

**Figure 25: Probable development area (PDA) 8**





In PDA 8, US 70 has partial control of access. Wyse Fork Road parallels US 70 and heads east towards the coast. North of US 70, the road is named Caswell Station Road and provides a north-south connection to northern Lenoir County. In addition, several local roads intersect with US 70 and Wyse Fork Road/Caswell Station Road in the PDA and primarily provide access to rural agricultural lands and scattered residential properties.

The entire PDA falls under the planning jurisdiction of Jones County. Jones County has a land use plan in place and land is designated as agricultural.

### **Projected Changes and Development**

All of the study alternatives would cross through PDA 8. Two of the study alternatives would involve upgrading existing US 70 through the entire PDA. Five of the study alternatives would tie back into existing US 70 to the east of the intersection with Wyse Fork Road and Caswell Station Road. The remaining five study alternatives would pass to the south and parallel to existing US 70 and cross Wyse Fork Road. Access to the study alternatives would be limited to interchanges, which would likely include an interchange with Wyse Fork Road. All other points of access would be closed off from and accessed through a service road and/or other side roads.

No-Build Scenario: Development patterns in this area would likely remain similar to its present condition. Redevelopment of vacant commercial structures and/or the development of parcels with access to US 70 are possible; however, without sewer service, development would be limited to low-density residential uses that could function with a septic system. In addition, with the overall lack of population and employment growth expected for this area, major changes in development patterns are not expected.

Build Scenario: The future land use designation for this area is agricultural/low-density residential. Jones County has a land use plan in place, but no zoning ordinance. Jones County's future land use plan intends to keep agricultural and rural residential areas rural by not providing future sewer service. Low-density residential development would be limited based on projected growth rates.

Access changes to US 70 could create some development opportunities near the location of interchanges for more retail services that serve highway users, although the lack of sewer service would greatly limit future commercial development. Most of the PDA would likely remain as farmland and rural open space. Given the land agricultural land use designation, lack of sewer, the rural nature of this area, and the lack of expected growth, major changes in development patterns are not expected.



### 13.2.9 PDA 9 – Dover, near Old US 70 and Burkett Road

#### Existing Conditions

PDA 9 is located along existing US 70 along the Jones and Craven county line, near the community of Dover and the eastern terminus of the project (Figure 26). Vacant/open space and agricultural land are the most common types of land use, comprising approximately 68 percent of the town. The Town of Dover is located north of US 70 and contains residential land and a few commercial properties. Table 22 provides an overall summary of the acreage, land availability, and breakdown of the land use in the PDA. PDA 8 is 1.5 miles to the west of PDA 8.

**Table 22: Land use summary – PDA 9**

		Acreage
Total acreage of PDA		924
Total acreage of parcels in or partially within PDA		8,030
Land Availability	Acres	Percent
Vacant and developable	7,003	87.2
Underutilized	1,070	13.3
Land Use Classification	Acres <sup>a</sup>	Percent <sup>b</sup>
Agriculture	1,631	20.3
Commercial	5	0.1
Community facilities	11	0.1
Industrial	0	0.0
Other	6,218	77.4
Residential	164	2.0

<sup>a</sup> The total acres of the land use classification may not equal the total acreage of parcels in or partially within the PDA due to rounding.

<sup>b</sup> The total of the percent column may not equal 100 due to rounding.

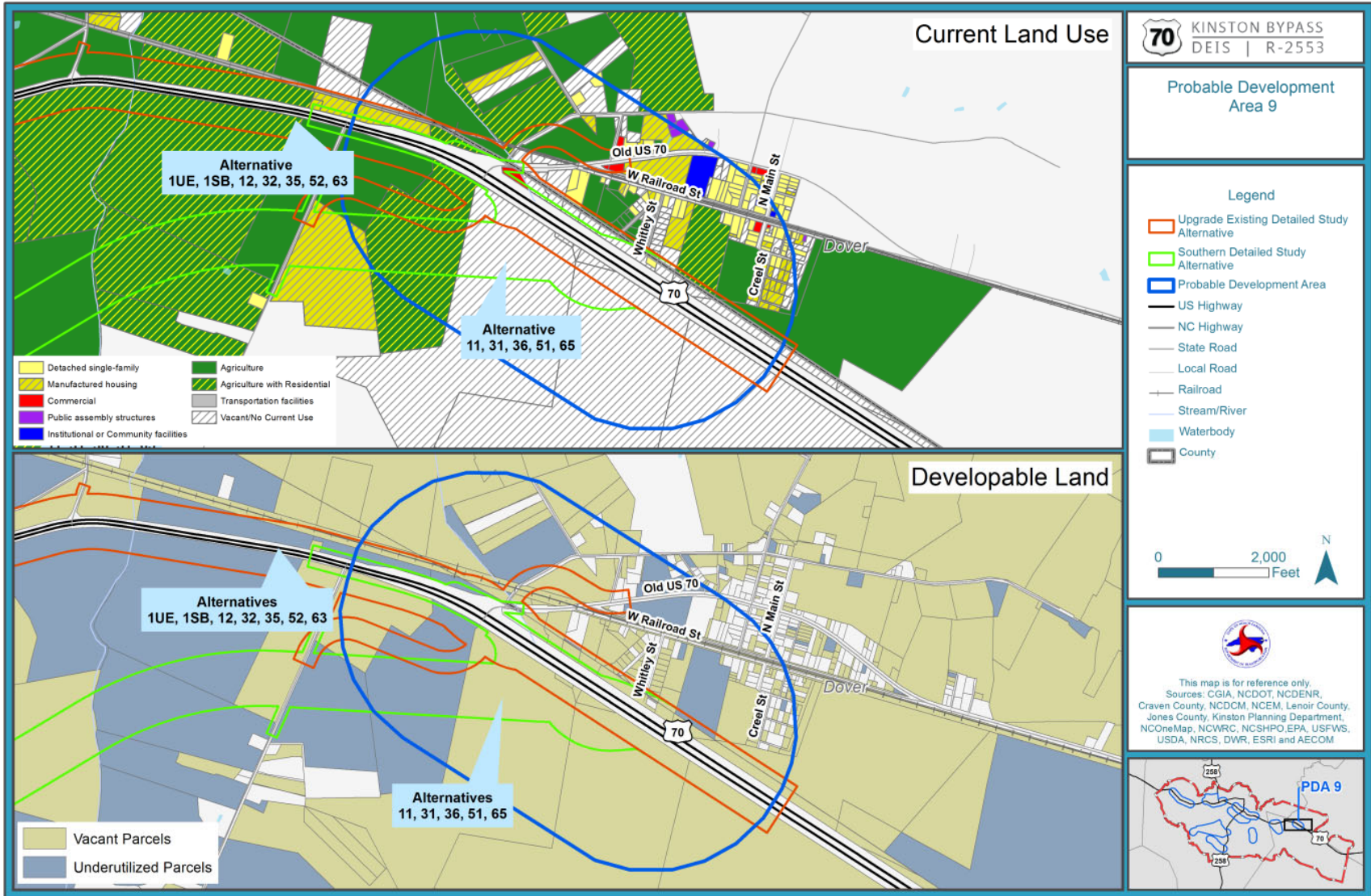
<sup>c</sup> Percent acreage is based on total acreage of parcel in or partially within the PDA.

The Dover Fire Department and Post Office are located in this PDA.

Water service is available in the entire PDA. The portion of the PDA in Craven County has sewer service; however, the Jones County portion does not have sewer service and is on a septic system.

Existing US 70, west of Old US 70, has partial control of access and turns to full control of access to the east of this intersection. In the PDA, Old US 70 provides a connection into the Town of Dover and the few commercial properties are located to the west and east of the town along this roadway. In addition, several local roads intersect with US 70 in the PDA and provide access to rural agricultural lands and scattered residential properties.

**Figure 26: Probable development area (PDA) 9**





Craven County and Jones County have planning jurisdiction over the portions of the PDA in their respective jurisdictions. Craven County has a CAMA Land Use Plan in place, but no zoning ordinance. The future land use designation for this area is agricultural/low-density residential. Jones County has a land use plan in place, but no zoning ordinance. Jones County's *Land Use Plan* designates this PDA as agriculture, and intends to keep agricultural and rural residential areas rural by not providing future sewer service.

### **Projected Changes and Development**

PDA 9 is the location of the eastern terminus of the project. Seven of the study alternatives would involve only the upgrade of the existing US 70 corridor. The other five study alternatives would tie back into existing US 70 in this PDA. Access to the proposed highway would be limited to interchanges, which would likely be in the vicinity of the intersection with Old US 70. All other points of access would be closed off and would be accessed through a service road and/or other side roads.

No-Build Scenario: Development patterns would be expected to remain the same. There are no signs of growth or development in this area. No new development or redevelopment of vacant commercial structures is likely for this PDA. Land use plans in this area designate much of the land area as rural agriculture and rural residential and future commercial development and sewer service is not planned.

Build Scenario: Approved land use plans designate much of the area as agriculture and rural residential but do not envision future commercial development as rural and agricultural areas are not planned to be served by sewers. The lack of population and employment in this area limits the development opportunities that would be associated with the project. Access changes to US 70 may create some potential development opportunity near the location of an interchange, but the lack of existing and planned sewer service limits development opportunities. The full control of access freeway would limit any potential development to areas clustered at interchanges along bypassed sections of existing US 70. The areas outside of the interchange catchment areas would likely remain as farmland and rural open space, or low-density residential served by septic systems.

### 13.3 PDA RESULTS SUMMARY

The nine PDAs examined surround major existing or potential interchanges. These areas were evaluated for potential changes in development patterns. Construction of the proposed project would likely influence growth in PDAs 1, 2, 3, 5, and 6. On the other hand, construction of the proposed project would not likely influence growth in PDAs 4, 7, 8, and 9. The following is a condensed summary of the results (Table 23).

- The project would provide a freeway with full control of access, which would result in travel time savings that exceeds 10 minutes based on the time savings an individual user of the highway would likely experience while driving on the built project in the 2040 build year as compared to the project travel time of an individual user would experience in the no-build scenario in 2040. The travel time savings estimate is based on the Traffic Forecast Technical Memorandum, Kinston Bypass Alternatives Study, TIP Project R-2553, Lenoir, Jones, and Craven counties (NCDOT 2016). Industrial development in PDA 2, in the vicinity of the interchange of US 70 with C.F. Harvey Parkway (NC 148), is expected to continue with or without the project. However, the project is expected to increase the likelihood and/or density of development in this area. Existing US 70 is a hub for commercial development in both PDA 2 and PDA 5. Changes in both traffic volumes and how properties are accessed would influence potential land use changes in these two PDAs. Study alternatives that divert traffic away from these commercial corridors and onto a new bypass would likely cause businesses that cater to highway users to be either replaced by businesses less dependent on highway users or to become vacant. Study alternatives that involve altering access to these commercial areas may cause a decrease in future development if it becomes more difficult to reach these businesses.
- All PDAs are likely to see some increase in development pressure for commercial businesses that cater to highway users near the location of interchanges. Development in PDA 6 would be limited by the floodplain and a large number of buyout properties. PDAs 4, 7, 8 and 9 are less suited for future development since they are outside the sewer service areas. PDA 3 is well suited for development given the proximity to other major highways, the availability of land suitable for development, and the availability of water and sewer.
- The project is not expected to influence the intensity or location of residential development, as PDAs without sewer service are expected to continue with low-density rural residential land use with or without the project. Some low-density rural residential development may occur in rural areas and would be served by septic systems. Some increase in residential development in PDA 3 and PDA 6 is possible given other community amenities near these PDAs, such as convenience stores, grocery stores, and public utilities. However, given the stagnant population projections for the area, overall pressure for new residential development in the FLUSA is expected to be low.

Potential impacts to applicable PDAs and mitigation measures to minimize those impacts will be further discussed in the Final Environmental Impact Statement once a preferred alternative is selected.

**Table 23: Summary of PDA build and no-build scenarios**

PDA	No-Build	Build
1	Redevelopment of vacant commercial structures and/or the development of parcels with access to US 70 are likely.	The project would create more development opportunities near interchange locations. Land outside of the interchange catchment areas would likely remain as farmland and rural open space.
2	Expansion of the US 70 Industrial Park is likely and redevelopment of vacant commercial structures and/or the development of parcels with access to US 70 are also likely. Infill commercial development is expected in the vicinity of the intersection with US 258.	<p>The project would be a positive influence on the expansion of the US 70 Industrial Park.</p> <p>Alternative 1UE would remove direct access from businesses to US 70, which may impact businesses that rely on highway customers.</p> <p>Study alternatives that involve a bypass would decrease traffic from existing US 70, which may make the area less desirable to new commercial development.</p>
3	No major changes in land use patterns or development pressure are expected in this area.	Development pressure near interchanges would increase for businesses that cater to highway users (i.e., gas stations, food service).
4	No major changes in land use patterns or development pressure are expected in this area.	No induced land use changes are expected from the project given the distance from population and employment centers, as well as a lack of sewer service.
5	New development would likely be limited to the redevelopment of commercial properties. Infill commercial development is also expected for undeveloped parcels that are outside of the floodway.	Build alternatives that remove traffic from existing US 70 may make the commercial areas less desirable, which would result in less development pressure and/or the possible closure of some businesses.
6	Development patterns would likely remain similar to its present condition. Redevelopment of vacant commercial structures and/or the development of parcels with access to NC 11/NC 55, US 258, and NC 58 would be likely.	<p>Development pressure near interchanges would increase for businesses that cater to highway users (e.g., gas stations, food service). The proximity to an existing nucleus of businesses along US 70 would increase the vitality and likelihood of development in this PDA. Residential development is also possible.</p> <p>Development would be limited to areas outside of the floodplain river buffers.</p>





PDA	No-Build	Build
7	No major changes in land use patterns or development pressure are expected in this area.	No induced land use changes are expected as there is no sewer service to this area.
8	No major changes in land use patterns or development pressure are expected in this area.	No induced land use changes are expected from the project given the distance from population and employment centers, as well as a lack of sewer service.
9	No major changes in land use patterns or development pressure are expected in this area.	No induced land use changes are expected from the project given the distance from population and employment centers, and its lack of sewer service.



## 14. LAND USE SCENARIO ASSESSMENT MATRIX METHODOLOGY AND RESULTS

Three land use scenarios were evaluated using the LUSA matrix for Alternative 1UE, Alternative 1SB, and 10 new location alternatives, called the southern bypass alternatives. The categories listed on the LUSA matrix have been shown to have a direct relationship to future quality of life and resource impacts. Each characteristic is assessed individually, for the build scenario and the no-build scenario, and the results represent a comprehensive determination as to whether greater quality of life or resource impacts are expected to result from the build or no-build scenario. In general, the more the build scenario and the no-build scenario diverge, the potential for future quality of life or resource impacts result from the project.

### 14.1 UPGRADE EXISTING US 70 SCENARIO (ALTERNATIVE 1UE)

#### **Pressure/Demand for Typically Higher Impact Development – MEDIUM HIGH**

This build scenario would likely encourage more industrial development in and near the US 70 Industrial Park compared to the no-build scenario as it would improve travel efficiencies in the FLUSA. Under the build scenario, highway-oriented commercial development would likely be concentrated near interchange locations.

#### **Future Shift of Regional Population Growth to the Project Area – MEDIUM LOW**

Population and employment growth for Lenoir County are projected to show a loss of population with an annualized growth rate of -0.2 percent. Both the build and no-build scenarios were rated the same because the same immediate corridor would be utilized, thus the build scenario is not expected to cause any major shifts in development patterns.

#### **Pressure for Land Development Outside Regulated Areas – LOW**

The land in the PDAs falls under a combination of regulations, which include the Neuse River Riparian Buffer Rules, a watershed protection ordinance, a flood damage protection ordinance, CAMA permits, NCNHP managed areas for conservation, NCDOT on-site mitigation sites, and the *Neuse River Basinwide Water Quality Plan*. Changes in access provided by the build scenario would reduce development pressure, and regulations would provide protections to the environment for the PDAs.

#### **Pressure for Land Development Outside of Planned Areas – LOW**

No new access to areas outside of planned areas would be provided in the build scenario. The only area that is outside of planned areas includes land that is in Jones County. Both the build and no-build scenarios had the same ranking as the area in Jones County has a low demand for future development in both the build and no-build scenarios.

#### **Development Patterns – MEDIUM HIGH**

The build scenario would be more likely to support clustered development in and near Kinston at interchange locations due to the project being full control of access. However, the minimal development expected would be a continuation of low-density, rural residential development patterns in the rural areas, given the availability of land, low population density, and the low growth projections for the FLUSA.

**Planned/managed land use and impacts – MEDIUM LOW**

Growth areas are consistent with land development and stormwater management goals for both the build and no-build scenarios. The low growth rates for the FLUSA further limit any impacts expected from this category. The Lenoir County *Flood Damage and Protection Ordinance* is intended to minimize both public and private losses due to flood conditions (Lenoir County 2013a). The ordinance includes standards for development in the floodway or floodway fringe and restricts or prohibits uses that are dangerous to health, safety, and property due to water or erosion hazards, or that result in damaging increases in erosion or velocities. Any alteration of floodplains, stream channels, and natural protective barriers that are involved in the accommodation of flood waters requires a permit. The Lenoir County *Watershed Protection Ordinance* applies to a portion of the southwest area of the FLUSA (Lenoir County 2003a). It establishes density and intensity standards for residential and nonresidential development in the WS IV-CA (critical areas) and WS IV-PA (protected areas) of the watershed. Table 24 provides a summary of the Alternative 1UE scenario.



**Table 24: LUSA matrix –Alternative IUE**

Rating	Pressure / Demand for Typically Higher Impact Development	Future Shift of Regional Population Growth to the Growth Area	Pressure for Land Development Outside Regulated Areas	Pressure for Land Development Outside Planned Areas	Development Pattern	Planned / Managed Land use and Impacts
More Concern	Commercial / Industrial Development with Large Parking Lots Likely	Strong Attraction of Development in this Area	A Large Number of Acres in the Probable Growth Areas are Outside a Regulated Area	A Large Number of Acres in the Probable Growth Areas are Outside a Planned Area	Strip or Sprawling Development Likely	Land Development and Storm Water Management Goals Not Set
↑						
↑	Build Scenario				Build Scenario No-Build Scenario	
↔	No-Build Scenario					
↓		Build Scenario No-Build Scenario				Build Scenario No-Build Scenario
↓			Build Scenario No-Build Scenario	Build Scenario No-Build Scenario		
Less Concern	Commercial Development and / or Large Residential Developments Not Likely	No Population Shift Likely	All Probable Growth Areas in a Regulated Area	All Probable Growth Areas in a Regulated Area	Likely to Support and Clustered Development	Growth Areas are Consistent with Land Development and Storm Water Management Goals



## 14.2 UPGRADE EXISTING US 70 WITH A SHALLOW BYPASS SCENARIO (ALTERNATIVE 1SB)

### **Pressure/Demand for Typically Higher Impact Development – MEDIUM HIGH**

This build scenario would likely encourage more industrial development in and near the US 70 Industrial Park compared to the no-build scenario as it would improve travel efficiencies in the FLUSA. Under the build scenario, highway-oriented commercial development would likely be concentrated near interchange locations, particularly along with the shallow southern bypass portion of the project.

### **Future Shift of Regional Population Growth to the Project Area – MEDIUM**

Population and employment growth for Lenoir County are projected to be low with an annualized growth rate of -0.2 percent. The build scenario would encourage development along the new location portion of the alternative at interchange locations. This development would likely be commercial near interchange areas outside of the floodplain. Residential development could occur but would be limited.

### **Pressure for Land Development outside Regulated Areas – LOW**

The land in the FLUSA falls under a combination of regulations, which include the Neuse River Buffer Rules, a watershed protection ordinance, a flood damage protection ordinance, CAMA permits, NCNHP managed areas for conservation, NCDOT on-site mitigation sites, and the *Neuse River Basinwide Water Quality Plan*. Collectively, these regulations provide protections to the environment for the PDAs and overall FLUSA. In the new location portion of this alternative, a large number of parcels have land use restrictions in place as they were repetitive loss properties that were purchased after flooding events under the HMGP.

### **Pressure for Land Development outside of Planned Areas – LOW**

Limited areas in the FLUSA are outside of planned areas. These areas are without water and sewer service. Most lands in the interchange areas are planned for future development with the exception of lands in the floodplain. These lands have a low demand for future development in both the build and no-build scenarios due to flood risk.

### **Development Patterns – MEDIUM HIGH**

The build scenario would encourage clustered development near interchange locations, particularly in the areas that are on new location. The portion of the build scenario that is along new location would likely be attractive to commercial, highway-oriented development as it would be a short distance from a current commercialized area along existing US 70. In addition, the presence of HMGP buyout properties in this area would limit the land that is available for development, thus putting greater pressure for higher density development on those parcels that are eligible for development.

### **Planned/Managed Land Use and Impacts – MEDIUM LOW**

Growth areas are consistent with land development and stormwater management goals for both the build and no-build scenarios. The low growth rates for the FLUSA further limit any impacts expected from this category. Development patterns under the no-build scenario support a



continuation of the current land use pattern in most of the FLUSA of low-density rural residential development with open space and agricultural land uses. Table 25 provides a summary of the Alternative 1SB scenario.

**Table 25: LUSA matrix –Alternative ISB**

Rating	Pressure / Demand for Typically Higher Impact Development	Future Shift of Regional Population Growth to the Growth Area	Pressure for Land Development Outside Regulated Areas	Pressure for Land Development Outside Planned Areas	Development Pattern	Planned / Managed Land use and Impacts
More Concern	Commercial / Industrial Development with Large Parking Lots Likely	Strong Attraction of Development in this Area	A Large Number of Acres in the Probable Growth Areas are Outside a Regulated Area	A Large Number of Acres in the Probable Growth Areas are Outside a Planned Area	Strip or Sprawling Development Likely	Land Development and Storm Water Management Goals Not Set
↑						
↑	Build Scenario				Build Scenario No-Build Scenario	
↔	No-Build Scenario	Build Scenario				
↓		No-Build Scenario				Build Scenario No-Build Scenario
↓			Build Scenario No-Build Scenario	Build Scenario No-Build Scenario		
Less Concern	Commercial Development and / or Large Residential Developments Not Likely	No Population Shift Likely	All Probable Growth Areas in a Regulated Area	All Probable Growth Areas in a Regulated Area	Likely to Support and Clustered Development	Growth Areas are Consistent with Land Development and Storm Water Management Goals

### 14.3 REPRESENTATIVE SOUTHERN BYPASS SCENARIO

#### **Pressure/Demand for Typically Higher Impact Development – MEDIUM HIGH**

This build scenario would likely encourage more highway-oriented commercial development near interchange locations on the new location portions of the build scenario.

#### **Future Shift of Regional Population Growth to the Project Area – MEDIUM HIGH**

Population and employment growth for Lenoir County are projected to be low with an annualized growth rate of -0.2 percent. The build scenario would open up access to new areas that are currently undeveloped and create new transportation nodes at interchange locations. This could encourage new development patterns.

#### **Pressure for Land Development outside Regulated Areas – LOW**

The land in the FLUSA falls under a combination of regulations, which include the Neuse River Buffer Rules, a watershed protection ordinance, a flood damage protection ordinance, CAMA permits, NCNHP managed areas for conservation, NCDOT on-site mitigation sites, and the *Neuse River Basinwide Water Quality Plan*.

#### **Pressure for Land Development outside of Planned Areas – MEDIUM LOW**

Only the Jones County portion of the FLUSA is located outside of a planned area. Since the southern bypass alternative has the potential to open up new access in this area without a zoning ordinance, the build scenario was ranked as medium-low.

#### **Development Patterns – MEDIUM HIGH**

The build scenario, which would open up access to vacant land outside of the urbanized area of Kinston, would likely encourage low-density, rural residential development. However, new development would likely be limited to areas surrounding interchange locations that have sewer service.

#### **Planned/Managed Land Use and Impacts – MEDIUM LOW**

Growth areas are consistent with land development and stormwater management goals for both the build and no-build scenarios. The low growth rates for the FLUSA further limit any impacts expected from this category. See Table 26 for a summary of the southern bypass scenario.



**Table 26: LUSA matrix – representative southern bypass scenario**

Rating	Pressure / Demand for Typically Higher Impact Development	Future Shift of Regional Population Growth to the Growth Area	Pressure for Land Development Outside Regulated Areas	Pressure for Land Development Outside Planned Areas	Development Pattern	Planned / Managed Land use and Impacts
More Concern	Commercial / Industrial Development with Large Parking Lots Likely	Strong Attraction of Development in this Area	A Large Number of Acres in the Probable Growth Areas are Outside a Regulated Area	A Large Number of Acres in the Probable Growth Areas are Outside a Planned Area	Strip or Sprawling Development Likely	Land Development and Storm Water Management Goals Not Set
↑						
↑	Build Scenario	Build Scenario			Build Scenario No-Build Scenario	
↔	No-Build Scenario					
↓		No-Build Scenario		Build Scenario		Build Scenario No-Build Scenario
↓			Build Scenario No-Build Scenario	No-Build Scenario		
Less Concern	Commercial Development and / or Large Residential Developments Not Likely	No Population Shift Likely	All Probable Growth Areas in a Regulated Area	All Probable Growth Areas in a Regulated Area	Likely to Support and Clustered Development	Growth Areas are Consistent with Land Development and Storm Water Management Goals



## 14.4 RESULTS OF LAND USE SCENARIO ASSESSMENT MATRIX

Separate land use scenario matrices were created for Alternative 1UE, Alternative 1SB, and alternatives 11, 12, 31, 32, 63, 65, 51, 52, 35, and 36 (southern bypass scenarios). The results of these matrices showed the following:

- The land use scenario matrices showed that when compared to the no-build scenario, all three build scenarios would create more pressure/demand for typically higher impact development. While the overall growth projections for the FLUSA are low, the construction of a new freeway and/or major improvements to the highway would likely have a slight increase in pressure/demand for new commercial/industrial development.
- The no-build scenario and the Upgrade Existing US 70 build scenario were both rated as medium-low concern for a shift in population growth. The Upgrade Existing US 70 with Shallow Bypass and the southern bypass build scenarios were more likely to shift future population growth areas with the concern being medium and medium-high, respectively. These rankings were based on the build scenario's distance from the existing commercial and population centers.
- The FLUSA is in regulated areas, which includes a combination of the Neuse River Riparian Buffer Rules, a watershed protection ordinance, a flood damage protection ordinance, CAMA permits (Craven County), NCNHP managed areas for conservation, NCDOT on-site mitigation sites, and the *Neuse River Basinwide Water Quality Plan*. Therefore, all three build scenarios and the no-build scenario were rated as low.
- With the exception of the southeast portion of the FLUSA located in Jones County, all of the land in the FLUSA is in planned areas that fall under the jurisdictions of local governments and their planning areas. Jones County does not implement zoning controls, but the remaining jurisdictions employ a combination of zoning ordinances, land use plans, a watershed protection ordinance, among others, that provide adequate protections to the human environment. The no-build scenario, Alternative 1UE, and Alternative 1SB were all rated as low, since they would maintain the existing roadway section through Jones County. However, the southern bypass build scenario would provide new access to land in Jones County; it was rated as medium-low.
- All build scenarios were rated as medium-high for development patterns, which is the same ranking as the no build scenario. This ranking signifies that the general low-density development patterns found in the LUSA are expected to remain the same both with and without the project.
- The areas that are projected for probable development are consistent with land development and stormwater management goals set in these respective areas; thus, there were no discernable differences between the no-build scenario and any of the build scenarios.

The LUSA matrix results show that there is some divergence between the build scenarios and the no-build scenario. These results were considered when evaluating indirect and cumulative effects in the next chapter.



## 15. INDIRECT AND CUMULATIVE EFFECTS SUMMARY

The time horizon for indirect and cumulative effects is to the year 2040. The following sections summarize the potential indirect and cumulative effects of the project alternatives.

### 15.1 INDIRECT LAND USE SUMMARY STATEMENT

Examination of the PDAs shows that the Kinston Bypass project, which includes an alternative to upgrade the existing freeway, an upgrade of existing with a shallow bypass, and new location alternatives, is expected to encourage growth targeted to highway users in certain areas and/or influence future growth and land use along the existing US 70 corridor. However, given the low growth projections for the FLUSA, pressure for development is expected to be limited. Federal, state, and local policies and regulations that include zoning ordinances and land use plans provide protections from development for human and natural environmental features in the FLUSA that include historic and cultural resources, protected populations, wetlands, natural resources, farmland, and other important features.

### 15.2 WATER QUALITY STATEMENT

Qualitative analyses of the probable development patterns in the FLUSA suggest that change in land use resulting from the project and subsequent private and public development actions could lead to an increase in impervious surface and could potentially have an effect on future stormwater runoff and water quality in the watersheds encompassed by the project.

However, there are adopted ordinances and regulations to help mitigate potential water quality effects due to increased impervious surface coverage and increased water runoff. The Lenoir County *Watershed Protection Ordinance* applies to the southwestern portion of the FLUSA and establishes density and intensity standards for development in the Neuse River Water Supply Watershed WS-IV Critical and Protected areas (Lenoir County 2003a). In addition, the Neuse River buffer rules apply to the entire FLUSA and require a 50-foot riparian buffer area to be protected and maintained along waterways in the river basin. Other stormwater permitting programs exist in the FLUSA, including the City of Kinston under the Neuse River Stormwater Program; Craven County, the Town of Dover, and Cove City under the Coastal State Permitting Program; and Pitt County and the Town of Grifton under the National Pollutant Discharge Elimination System Phase II Stormwater Permits.

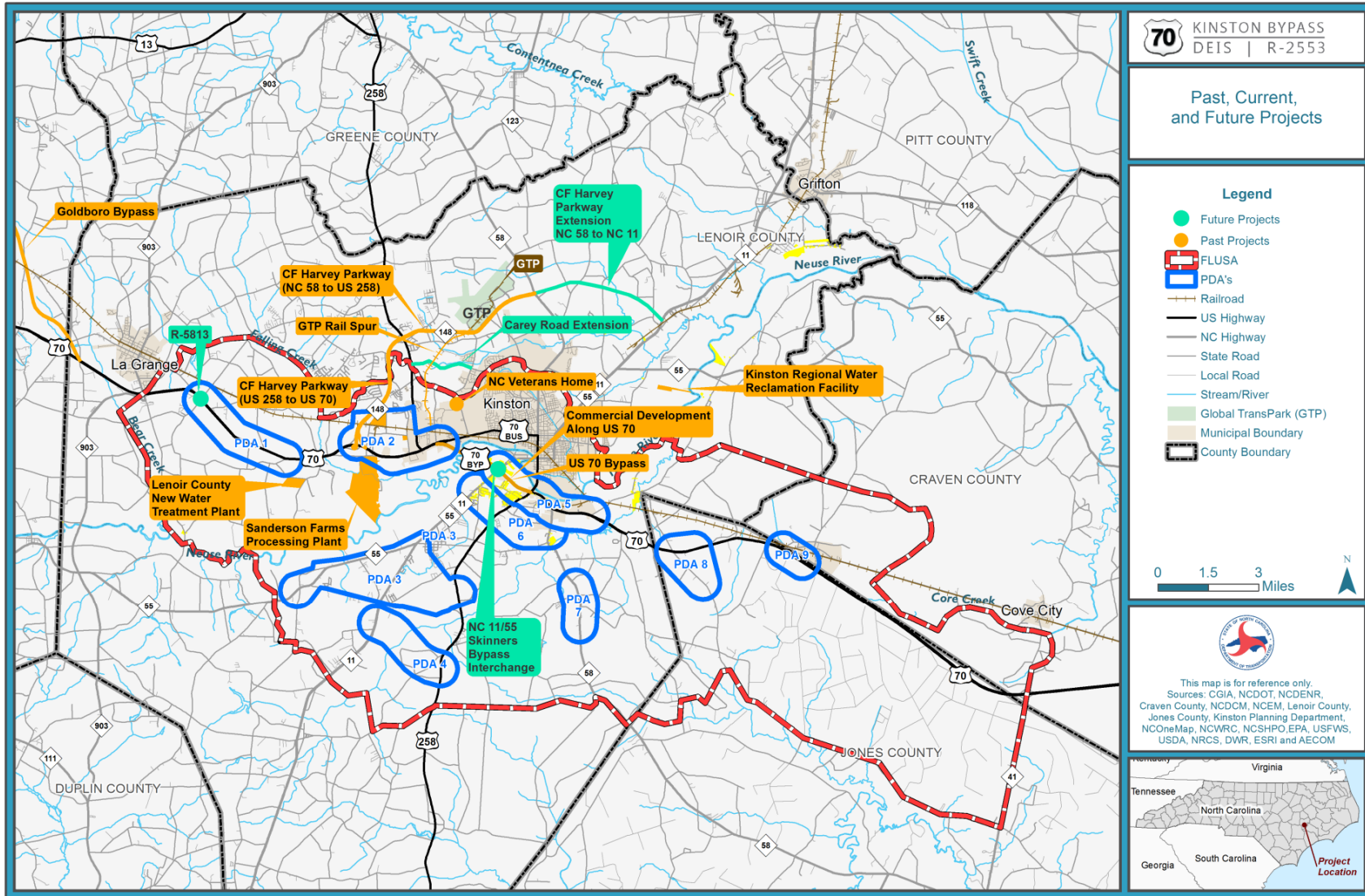
Water quality impacts will be avoided and/or mitigated through compliance with regulations covering watershed protection, floodplain protection, stream and river buffers, and stormwater management.

Water quality impacts by the project will be addressed by avoidance, minimization, and mitigation. Future development will be required to follow federal, state, and local regulations for the protection of water quality.

### 15.3 CUMULATIVE EFFECTS

The cumulative effects analysis includes an assessment of past, current, and future projects that are reasonably foreseeable to determine potential cumulative effects (see Figure 27).

**Figure 27: Past, current, and future projects**





### 15.3.1 Past Projects

Table 27 provides a list and brief description of the major past projects that have influenced growth and development in the FLUSA and Lenoir County.

**Table 27: Summary of past projects**

Past Projects	Description of Action
US 70 Bypass	US 70 Bypass from roughly Hillcrest Road, south of Kinston to South Queen Street.
GTP	A multi-modal industrial site that is funded by the state and aims to attract aerospace, defense, and logistics companies to the site in an effort to create a skilled labor and industrial manufacturing employment center.
C.F. Harvey Parkway	Construction of a four-lane divided freeway from NC 58 to US 258 to serve GTP.
FEMA’s HMGP buyout program	Following major flooding events after Hurricanes Fran and Floyd, the community participated in the federal buyout program for properties that were located in the Neuse River floodplain and most prone to repeated flooding. Properties that have been bought out must remain open space/parkland with no permanent structures or impervious surfaces to be built in perpetuity.
Lenoir County New Water Treatment Plant	A water treatment facility, which began operation in 2008, and has increased the available water supply for the region by 15 million gallons per day. It is located off of Kennedy Farm Road, south of US 70.
Kinston Regional Water Reclamation Facility	The former Northside Water Treatment Plan was expanded in 2007 to handle 11.5 million gallons per day. The plant is located on the east side of Kinston along the Neuse River.
Sanderson Farms Processing Plant	Constructed in 2010, south of US 70 to the west of the City of Kinston as a poultry processing center and major employer in the area.
Commercial Development along US 70	Big box retailers, general commercial strip development, and gas stations have developed along the US 70 Bypass over the last 25 years.
C.F. Harvey Parkway Extension	Extension of the road as a controlled access freeway from US 258 to US 70 on new location
NC Veterans Home	North Carolina Division of Veterans Affairs constructed a 100 bed facility in the City of Kinston.
GTP Rail Spur	A rail spur that connects GTP to the North Carolina Railroad line that runs east-west on the southern side of Kinston.



Past Projects	Description of Action
GTP	Spirit Aerosystems opened a 500,000 square foot manufacturing facility at GTP in 2010. Employment should reach over 1,000 persons over the next few years.
Goldsboro Bypass (STIP # R-2554)	US 70 Goldsboro Bypass, west of NC 581 in Wayne County to east of SR 1323 (Promise Land Road) in Lenoir County – four-lane divided freeway on new location (under construction).

### 15.3.2 Future Projects

Table 28 provides a list and brief description of future projects that are likely to influence growth and development in the FLUSA.

**Table 28: Summary of future projects**

Future Projects	Description of Action
Carey Road Extension (STIP # U-3618)	Carey Road Extension from SR 1572 (Rouse Road) to US 258 – multi-lanes on new location (1.7 miles).
R-5813	US 70 at SR 1227 (Jim Sutton Road)/SR 1252 ROW and Utilities: 2023; Construction: 2025 (Willie Measley Road) – construct at grade intersection to interchange
GTP	GTP has plans to further expand by adding more businesses and expanding businesses to become an aerospace manufacturing and logistics hub.
NC 11/55 Skinners Bypass Interchange	NCDOT proposes to bridge this intersection and construct a square loop intersection with NC 11/55 and US 70 in Kinston.
C.F. Harvey Parkway Extension	Extension of the road as a controlled access freeway from NC 58 to NC 11 on new location. Construction is planned for 2018.

### 15.3.3 Cumulative Effects Summary Statement

This project is expected to contribute to cumulative effects of future changes in the FLUSA. The project is expected to result in travel time savings of greater than 10 minutes and would change property access and exposure and create new land use/transportation nodes. Table 29 provides a summary of impaired and/or protected notable water quality, habitat, and community features that are in the FLUSA and highlights foreseeable cumulative impacts.

Direct environmental impacts by NCDOT projects are addressed by avoidance, minimization, or mitigation.



**Table 29: Summary of notable water quality, habitat, and community features and foreseeable impacts**

Notable Features	Description	Foreseeable Impacts
HMGP properties	Contains over 700 acres that was purchased under FEMA’s HMGP, which is a federal buyout grant program used to relocate businesses and residences from the floodplain. Restrictive covenants that prohibit construction of any permanent structures or impervious surfaces are in place. This program intends to mitigate future flood damage and property loss.	PDA 5 and PDA 6 contain properties that were purchased under the FEMA HMGP. In PDA 5, Alternative 1UE would directly impact some of these parcels, totaling 21.4 acres. In PDA 6, Alternative 1SB would impact 20.2 acres. Otherwise no impacts are expected, as regulations in place will continue to prohibit development or alterations to the HMGP properties. Overall beneficial effects include keeping floodplains and associated wetlands intact, helping innate functions for stormwater treatment, and preventing and mitigating flood damage.



Notable Features	Description	Foreseeable Impacts
<p>EJ populations</p>	<p>The CIA identified eleven EJ residential areas.</p> <p><b>Norbert Hill Road:</b> located between US 70 and Gregg Drive, contains low-income populations.</p> <p><b>Foss Farm Road:</b> located on US 70 between Barwick Station Road and Albert Sugg Road, contains concentrations of minority and low-income populations.</p> <p><b>Crooms Drive:</b> located off NC 55, contains low-income populations</p> <p><b>Jesse T. Bryan Road:</b> located near Barwick Road, contains low-income populations.</p> <p><b>Carrie Hill Drive and Howard Place Drive:</b> located off NC 11, contains low-income populations.</p> <p><b>Lonesome Pine Drive:</b> located between Joe Nunn Road and Randy Road, contains low-income populations.</p> <p><b>Albert Baker Road:</b> located off NC 58, contains minority and low-income populations.</p> <p><b>Fordham Lane:</b> located near US 258, contains a minority and low-income population.</p> <p><b>Johnson Road/NC 58:</b> This residential area contains a minority population.</p> <p><b>British Road and Caswell Station Road:</b> located on the north side of US 70, contains a minority population.</p> <p><b>US 70/Tilghman Road:</b> located on the southern side of US 70 just west of Tilghman Road, contains minority and low-income populations.</p>	<p><b>PDA 1:</b> The Norbert Hill Road residential area would be affected by all DSAs. The DSAs may displace some of these residences closest to US 70 and those that remain would experience a change in access to US 70.</p> <p>The Foss Farm Road residential area would be displaced by Alternatives 1UE, 1SB, 11, 12, 35, 36, 51, and 52. Access to this residential area would be affected by Alternatives 31, 32, 63, and 65 (from Willie Measley/Little Baltimore interchange), as these alternatives would provide a service road to this community. <b>PDA 3:</b> The Crooms Drive residential area would be impacted by Alternatives 51 and 52. Some of the residences would be displaced by the proposed interchange with NC 55 and those that remained would experience a change of access to NC 55.</p> <p>The Lonesome Pine Drive residential area would experience several displacements from Alternatives 63 and 65.</p> <p>The Jesse T. Bryan Road residential area would experience change in access to the local road network from Alternatives 51 and 52.</p> <p><b>PDA 4:</b> the Carrie Hill Drive and Howard Place Drive residential area, would have approximately 35 homes displaced by Alternatives 35 and 36.</p> <p><b>PDA 5:</b> the Albert Baker Road residential area would be displaced by Alternatives 35 and 36.</p>





Notable Features	Description	Foreseeable Impacts
EJ populations (continued)		<p><b>PDA 6:</b> the British Road and Caswell Station Road residential area would be impacted by Alternatives 1UE and 1SB. A new service road would be required in this area, which would directly impact several homes along existing US 70 in this area due to the need for additional ROW. Homes that would not be directly impacted would experience change in access to the US 70 corridor. The Johnson Road/NC 58 residential area would be displaced by Alternative 1SB due to the proposed interchange with NC 58.</p> <p><b>PDA 7:</b> the Fordham Lane residential area and the Johnson Road/NC 58 residential area would be displaced by Alternative 1SB.</p> <p><b>Other:</b> The US 70/Tilghman Road residential area is also an EJ residential area but is located outside of all PDAs.</p>
Wyse Fork Battlefield	The Wyse Fork Battlefield contains approximately 4,000 acres southeast of Kinston along US 70.	Wyse Fork Battlefield would be crossed by Alternatives 1UE, 1SB, 12, 32, 63, 52 and 35; however, little development pressure was projected.
VAD	All three counties in the FLUSA have VAD ordinances in place. Several farms in Lenoir County and Jones County that are in the FLUSA are protected as VADs. These properties have a conservation agreement between the landowner and the county that prohibits non-farm use or development for a period of at least 10 years.	There is one VAD consisting of two parcels within PDA 4. Parcel Identification Numbers 450200425447 and 450200523932 are located near Alternatives 35 and 36 along Black Harper Road. This VAD may be impacted by ROW acquisition, and land in the VAD may be temporarily converted to non-agricultural use as part of a temporary construction easement. Changes in access to agricultural fields could result in indirect effects.

Notable Features	Description	Foreseeable Impacts
Neuse River – NSW	The portion of the Neuse River in the FLUSA is classified as a NSW. The Neuse River Compliance Association has a watershed based permit from the NC DEQ and represents local governmental units to monitor water quality in the watershed.	While PDA 5 is the only PDA that contains portions of the Neuse River, the entire FLUSA is within the Neuse River Basin. Increased water runoff from induced growth could impact the water quality of the Neuse River.
Neuse River – Anadromous Fish Spawning Area	The portion of the Neuse River in the FLUSA is designated as an Anadromous Fish Spawning Area. Designated anadromous fish spawning areas have construction moratorium dates when construction cannot occur during spawning periods.	New culverts built over small streams can interrupt migration patterns of anadromous fish, which can lead to a decline in anadromous fish population and impact the number of fish in salt water environments.
Prime and Unique Farmland	Prime and unique farmland soils are present throughout the FLUSA and in all of the alternative corridors.	All PDAs contain some prime and unique farmlands. Impacts to prime farmland are the lowest for Alternative 1UE (282 acres) and the highest for Alternative 32 (434 acres). Alternative 1SB had 302 acres of prime farmland. Unique farmland impacts were similar among all DSAs, ranging from 47 acres (Alternatives 35 and 36) to 57 acres (Alternatives 11 and 12). Potential induced development could impact prime and unique farmland and changes in access to farm fields could result in indirect effects.



Notable Features	Description	Foreseeable Impacts
Public parks and open space	The Governor Caswell Memorial Park, First Battle of Kinston Memorial Site, and the Rotary Dog Park are located within the FLUSA.	PDA 2 contains the Governor Caswell Memorial site. No direct impacts are expected, but Alternative 1UE may involve changes in access (temporary or permanent). PDA 5 contains the First Battle of Kinston Memorial Site and the Rotary Dog Park. No direct impacts to the First Battle of Kinston Memorial Site are anticipated. Direct impacts, as well as changes in access (temporary or permanent), are expected from Alternative 1SB to the Rotary Dog Park. No impacts from induced growth are anticipated to the First Battle of Kinston Memorial Site or the Rotary Dog Park.
Conservation Easements	Several areas of land have been purchased as conservation easements in the FLUSA, which includes wetlands and croplands. These lands carry deed restrictions, which prohibit development activity.	No direct impacts are expected, as deed restrictions are in place that will prohibit changes in land use. Conservation easements limit or prohibit development, so little to no impacts from induced development or other reasonable foreseeable future projects are anticipated.
Natural Heritage Program Natural Areas (NHPNA)	Two NHPNAs exist in the FLUSA. NHPNAs contain one or more high-quality or rare natural communities, rare species, and/or special animal habitats.	No induced growth is projected in areas adjacent or near the NHPNAs as they are outside of the PDAs. Induced growth could create development pressure to develop NHPNAs for active land uses and/or habitat fragmentation could take place, which would limit the integrity of the NHPNA.
Section 303(d) Streams	Three streams/rivers in the FLUSA are listed as impaired for severe or fair bio-classification.	The 303(d) streams in the FLUSA are outside of the PDAs. Increased surface water runoff from induced growth and reasonably foreseeable future projects could further contribute to the stream bio-classification.



Notable Features	Description	Foreseeable Impacts
Surface Waters	A portion of the FLUSA includes a portion of a WS-IV water supply watershed, which has portions designated both as a protected area and a critical area. Residential and commercial densities are regulated in these areas.	The WS-IV portion of the water supply watershed is outside of the PDAs. Induced development and reasonably foreseeable future projects can affect water quality in the water supply watershed, but growth will be constrained by the density requirements of the watersheds.
Wetlands	Wetlands are located throughout the FLUSA and are protected under Section 404 of the Clean Water Act.	Wetlands exist in all PDAs. Induced development and reasonably foreseeable future projects, specifically around interchange areas, is likely to eliminate small wetlands, which may lead to a cumulative aggregate loss of wetlands.



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