



Chapter 7: Land Use Evaluation





Townhomes under
construction near
Beaver Creek
(January 2009)

CHAPTER 7. LAND USE EVALUATION

The purpose of the land use evaluation presented in this chapter is to define a specific land use study area along the proposed corridor, analyze development trends, potential growth areas, and existing and future land use within the US 64 corridor. This evaluation will include the evaluation of land use compatibility with the proposed design concepts, and will identify long-term and short-term transportation and land development strategies for transitioning the corridor from its current state to the long-term solution.

7.1 LAND USE EVALUATION METHODOLOGY

The following section presents the methodology for completing the land use evaluation.

7.1.1 LAND USE STUDY AREA AND DATA COLLECTION

7.1.1.1 Land Use Study Area

A land use study area was defined along the study corridor based on an area within one half mile on either side of US 64 for the length of the project and increased in the vicinity of interchanges and intersections to include “catchment areas” around interchanges. The catchment area can generally be defined as an area around an interchange where land use decisions are influenced by the interchange.

7.1.1.2 Population and Development Trends

Population and development data were used to establish trends within the project study corridor. Population data was obtained from planning documents, the US Census Bureau, and State and county databases. The demographic area was defined and characterized using Traffic Analysis Zones (TAZ) that intersected the land use study area. Demographic characteristics were defined using GIS by jurisdictional boundaries and aggregated within the overall study corridor.

7.1.1.3 Land Use and Zoning

Available County and City planning documents were collected and reviewed. These documents included:

- Comprehensive Plans
- Land Use Plans
- Zoning Codes and Maps
- Development Controls
- Growth and Development Projections

The available local land use and zoning plans were identified and described based on these documents, as well as meetings with local officials.

7.1.1.4 Potential Growth/Development Area

Aerial photographs were used to review existing land use surrounding the project study area and to identify existing land use patterns. Analyses of existing land use, zoning, development trends, and population growth were conducted to identify where transportation is most likely to influence growth and development as well as where land use is likely to influence traffic and travel patterns. Likely areas of development and redevelopment were also identified.

7.1.1.5 Field Review, Meetings with Local Officials

Field reviews of the study area were conducted to observe the natural and physical environment and travel patterns, assess land use characteristics and development patterns, and identify major destinations such as employment and shopping centers and public facilities.

Meetings with local public officials, including MPO, county, and town planners, were conducted. These meetings helped to identify planning visions and goals for the study area and identify past, present, and planned development activities within the study area that should be considered in addressing growth and land use with respect to the US 64 corridor.

7.1.2 EXISTING LAND USE MAP

A corridor-wide existing land use map was prepared using existing land use and zoning data including local land use and comprehensive plans, aerial photography, and data collected from field reviews.

7.1.3 LAND USE ASSESSMENT FOR LONG-TERM SOLUTION

Existing land use data combined with population data and analysis of development trends along the corridor was used to prepare a future land use map that reflected current and projected land use trends. This land use assessment was used to evaluate land use compatibility with proposed US 64 design concepts for the design year 2035. This effort was a corridor-wide assessment but focused on future interchange catchment areas as land use nodes.

From this comparison, recommendations were developed for changes to land use and zoning plans, growth management areas, and access management. The recommendations were focused on an integrated approach to achieving both the transportation improvement and land use / growth management objectives.

7.1.4 LAND USE ASSESSMENT FOR SHORT-TERM SOLUTION

The data collected was used to assess the potential effects of the US 64 short-term solutions on future land use in an interim year of 2018. The data was also used to evaluate potential effects of proposed short-term improvements on land uses with a focus on developing consistency and compatibility between long-term improvements and future land use plans. Effects were assessed corridor-wide but the emphasis of the assessment was focused on catchment areas at interchange and intersection land use nodes.

7.2 LAND USE PLANS AND ORDINANCES

Land use patterns are shaped by numerous factors, such as local land use and zoning regulations, accessibility, and topography. With any change in transportation and access to an area, there is a possibility that land use patterns may be impacted. It is important to develop an understanding of not only the existing land uses, but of the land use plans. The project is within the planning jurisdiction of Wake and Chatham Counties, the Town of Pittsboro, the Town of Apex, and the Town of Cary. In addition, the USACE owns land adjacent to the B. Everett Jordan Reservoir. Plans in place in the Study Area are described in this section.

7.2.1 CHATHAM COUNTY LAND CONSERVATION AND DEVELOPMENT PLAN

The *Chatham County Land Conservation and Development Plan* (Chatham County, November 2001) was developed under the general goal of balancing growth, having an adequate and diverse housing supply, conserving and protecting natural resources, and pursuing commercial endeavors. As part of its transportation policy, the plan supports the completion of the current highway construction program in the county, resulting in 4-lane highways for US 64, US 15-501 between Pittsboro and the Orange County line, US 1 and US 421.

The plan states that Chatham County’s water supply watershed protection ordinance meets, and in some instances, exceeds the State’s minimum requirements. The County has adopted more stringent stream buffer standards than are required by the State. In addition, the County has established protected low density rural corridors in several areas, including the Haw River corridor that passes through the project study area. Within these areas, residential development densities are generally limited to one unit per five acres, and more extensive stream buffers are required.

7.2.2 CHATHAM COUNTY LAND USE STRATEGIC PLAN

The intent of the *Chatham County Land Use Strategic Plan* (Chatham County, December 1999) is to note specific goals for each of the eleven general goals stated in the Chatham County Land Conservation and Development Plan. Specific goals pertaining to land use include: encouraging more intensive land uses, such as commercial, high density residential, and industrial, concentrated in or near Chatham's existing towns; providing land use planning that emphasizes clustered, mixed use developments; preserving natural scenic areas; and increasing the proportion of land preserved as open space in areas under development.

7.2.3 WAKE COUNTY LAND USE PLAN

The *Wake County Land Use Plan* (Wake County, July 2007) sets forth policies intended to influence the timing, type, location, and quality of future development within Wake County's planning jurisdiction so as to efficiently accommodate the growth of urbanized areas within or adjoining Wake County in a manner consistent with the Plan's goals and strategies. This plan is divided into five area land use plans for more extensive individual analysis and the US 64 study corridor lies within the Southwest Wake Area Land Use Plan.

Southwest Wake Area Land Use Plan

The *Southwest Wake Area Land Use Plan* (Wake County, July 2007) incorporates the recommended policies and development standards adopted by the Towns of Apex, Cary, and Holly Springs for their Urban Services Areas. The plan recommends that Wake County supports plans to reserve right-of-way along the US 64 corridor. Additionally restricting access, constructing grade separations, developing frontage roads where necessary, and revising existing access points are recommended to support the conversion of US 64 to a freeway.

7.2.4 WAKE COUNTY GROWTH MANAGEMENT STRATEGY

The *Wake County Growth Management Strategy* (Wake County, December 2002) is a coordinated strategy to address and manage the growth in Wake County. It is a unified strategy that considers the unique characteristics of the communities within Wake County. The plan includes a transportation section that suggests increasing coordination at the county and regional level to accomplish transportation planning, design, and construction. The US 64 corridor has county-wide and regional importance and high levels of coordination will continue in order to keep the project in alignment with the Wake County Growth Management Strategy.

7.2.5 TOWN OF PITTSBORO LAND USE PLAN

The *Pittsboro Land Use Plan* (Town of Pittsboro, June 2002) describes the policies to direct new development in Pittsboro for the upcoming years. Transportation is identified as a key aspect to the Plan. Part of Pittsboro's vision for the future is interconnected transportation systems that promote safe access for vehicles, pedestrian, and bicycle and transit mobility to reduce congestion. The plan discusses the conversion of US 64 to a freeway as a means to reduce congestion.

7.2.6 TOWN OF APEX COMPREHENSIVE PLAN

The *Apex Comprehensive Plan* (Town of Apex, March 2004) identifies specific issues facing Apex in order to address them before they affect the quality of life for Apex residents. The vision in the Plan is intended to inform development decisions. As such, the Plan includes a transportation component. The Plan recommends freeway interchanges and grade separations that maximize vehicular access to and through Apex.

7.2.7 TOWN OF APEX - WESTERN AREA PLAN

The Town of Apex *Western Area Plan* (Town of Apex, June 2008) is the vision for the western part of Apex. The *Western Area Plan* builds off of the 2004 *Apex Comprehensive Plan* and focuses on land use. It notes the

importance of several transportation projects that play a role in the study area, including the NCDOT's plan to convert US 64 to a freeway and expressway.

7.2.8 TOWN OF APEX 2025 LAND USE PLAN

The *2025 Land Use Plan* (Town of Apex, August 2008) shows land use along the US 64 corridor will have varied uses. Multi-use development is proposed for areas along the corridor at the proposed Western Wake Freeway (NC 540) from US 64 to Jenks Road, just east of the NC 751 proposed interchange, and the Davis Drive interchange. Residential areas along the corridor are proposed as medium to high density.

7.2.9 TOWN OF CARY FUTURE LAND USE PLAN

The Town of Cary's *Future Land Use Plan* (Town of Cary, February 2008) shows the area at the intersection of US 1 (eastern end of study area) and US 64 as an area with high-density residential development, office/industrial, commercial areas, and parks.

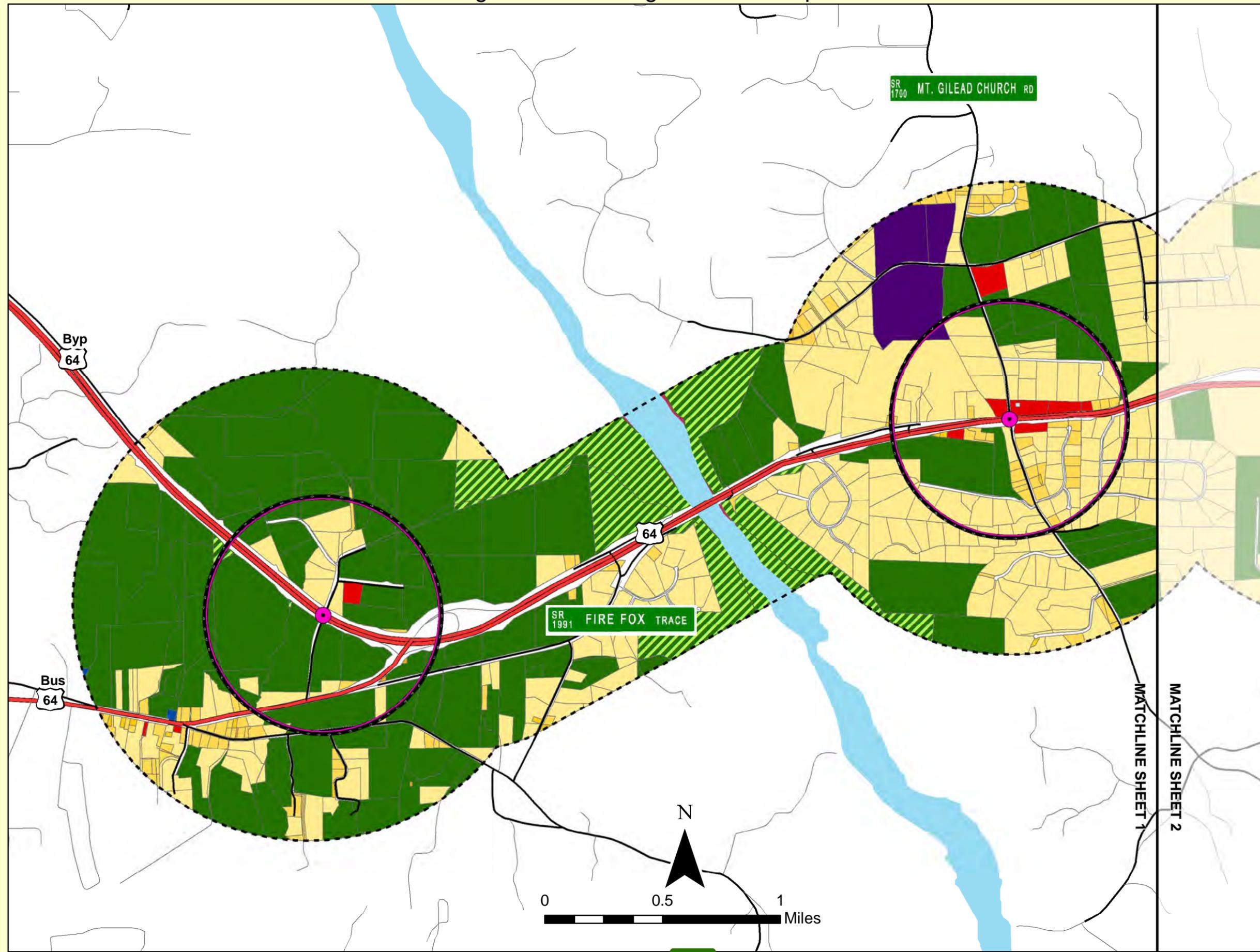
7.3 EXISTING LAND USE CHARACTERISTICS

The US 64 corridor is characterized by various existing land uses shown in Figure 7.1. A common set of land use categories was developed to compare existing, interim, and future uses within the study area. These land uses include varying degrees of residential development based on parcel size (low to high density), agricultural, commercial, industrial, institutional, recreational, and utilities. Development patterns range from rural, undeveloped areas to dense suburban conditions. The general pattern of existing land use includes low density residential and agricultural uses in outlying portions of the counties with a mix of commercial, institutional, industrial, and high-density residential located in town centers and along major corridors.

Differences in land use affect mobility throughout the corridor; rural areas typically experience unobstructed travel while more developed areas experience congestion. Rural areas of the US 64 corridor include the following land uses, as described in *Land Use Policy for Mobility Protection* (NCDOT, September 2005):

- Scenic/Protected – Flanked by tree-covered areas, lakes and other natural features, these sections of highways stand the best chance of maintaining their natural, rural character. Some of these segments are protected in their undeveloped state, while others are not. Scenic/Protected areas occur along the corridor almost exclusively in Chatham County.
- Rural: Vacant or Agricultural – Clusters of large tracts of land that have never been developed or have been farmed (and continue to be farmed) are typically found in many locations along highways. The patterns that should be examined include both those that exist along highways today and those that are emerging. Rural and/or agricultural areas along the corridor exist in Chatham County for the most part.
- Rural: Low-density Residential – Over time, single family homes have been constructed on large tracts of land. Many of these structures are not visible from highways, but the private driveways that provide access to them give an indication of the number that exist within areas that otherwise appear vacant. Low-density areas along the corridor are most common in Chatham County and in Wake County near the Chatham County line.

Figure 7.1: Existing Land Use Map



LEGEND

- Land Use Study Area
- Development Nodes
- Development Node Area
- Roads**
 - Minor Road
 - State Route
 - State Highway
 - US Highway
 - Interstate
- Land Use**
 - Agriculture
 - Commercial
 - Government-owned
 - Industrial
 - Institutional
 - Recreational
 - Utility
- Water**
 - Water
 - Large Lot Residential
 - High Residential
 - Medium-High Residential
 - Medium Residential
 - Low-Medium Residential
 - Low Residential

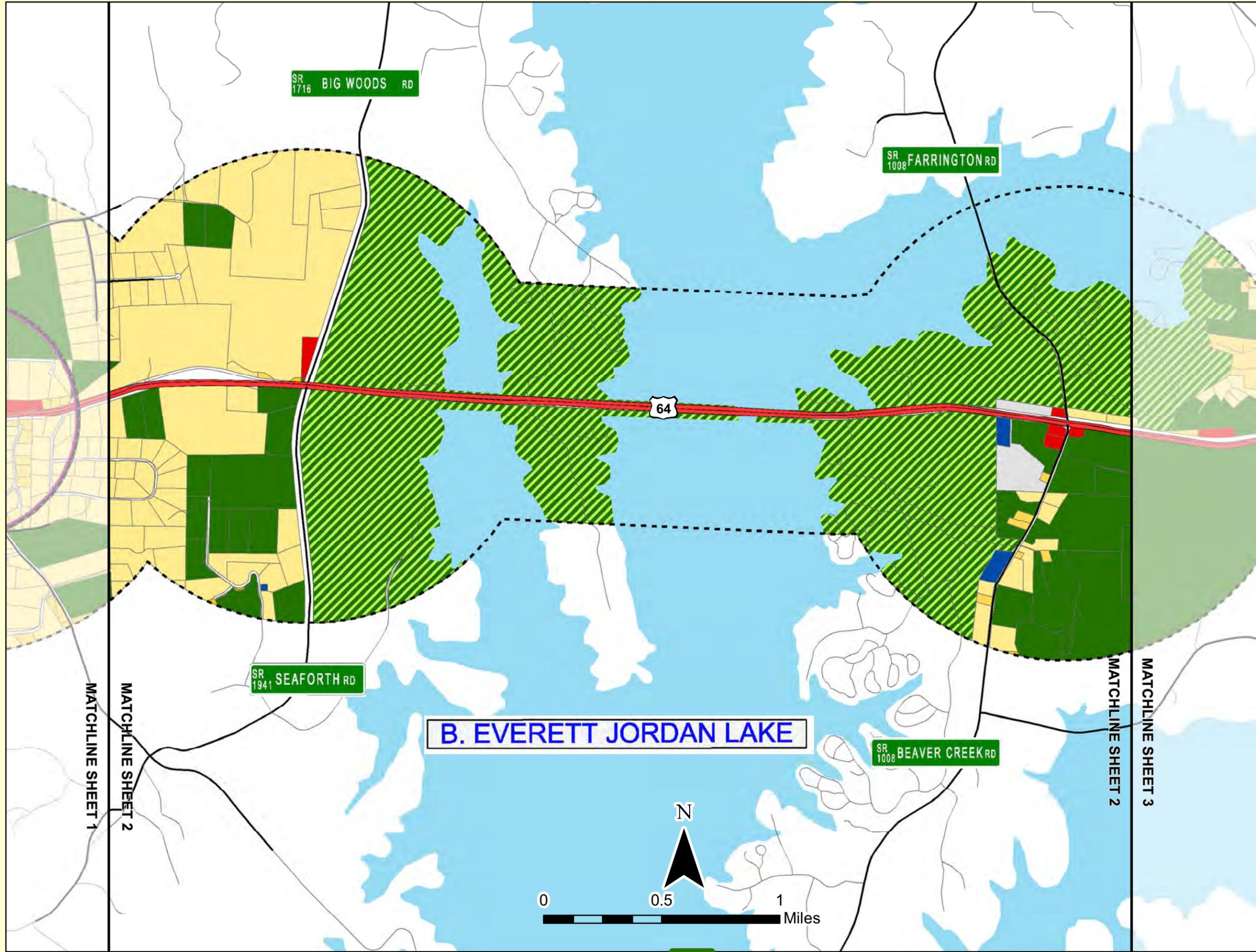
Existing Land Use Map

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Figure 7.1: Existing Land Use Map



LEGEND

Land Use Study Area	Roads	Agriculture	Land Use
Development Nodes	Minor Road	Commercial	Large Lot Residential
Development Node Area	State Route	Government-owned	High Residential
	State Highway	Industrial	Medium-High Residential
	US Highway	Institutional	Medium Residential
	Interstate	Recreational	Low-Medium Residential
		Utility	Low Residential

Existing Land Use Map

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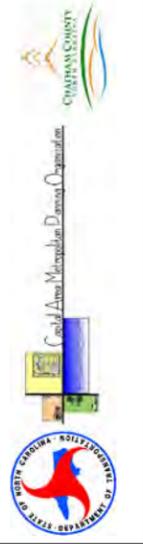
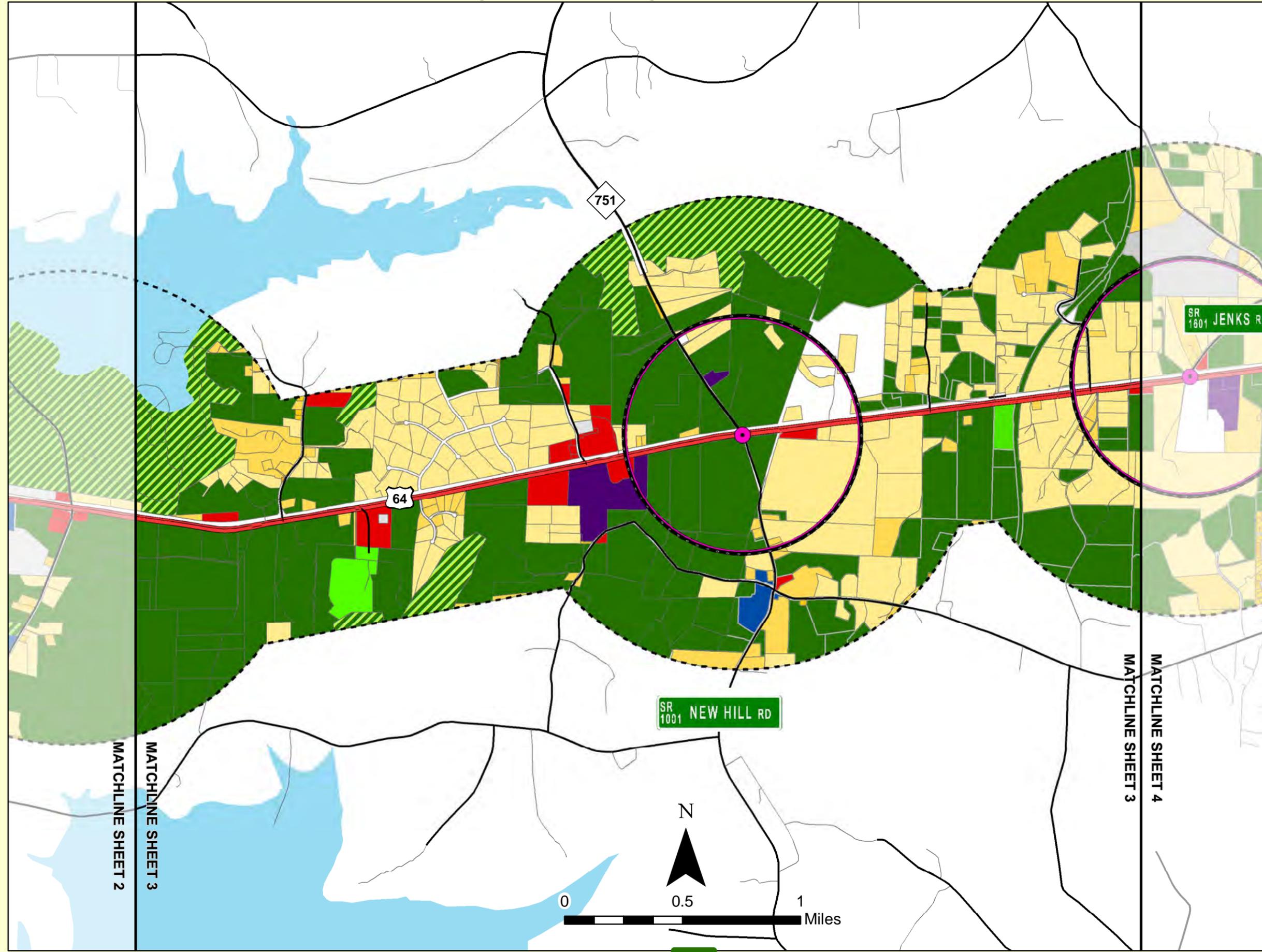


Figure 7.1: Existing Land Use Map



LEGEND

- Water
- Large Lot Residential
- High Residential
- Medium-High Residential
- Medium Residential
- Low-Medium Residential
- Low Residential
- Agriculture
- Commercial
- Government-owned
- Industrial
- Institutional
- Recreational
- Utility
- Minor Road
- State Route
- State Highway
- US Highway
- Interstate
- Land Use Study Area
- Development Nodes
- Development Node Area

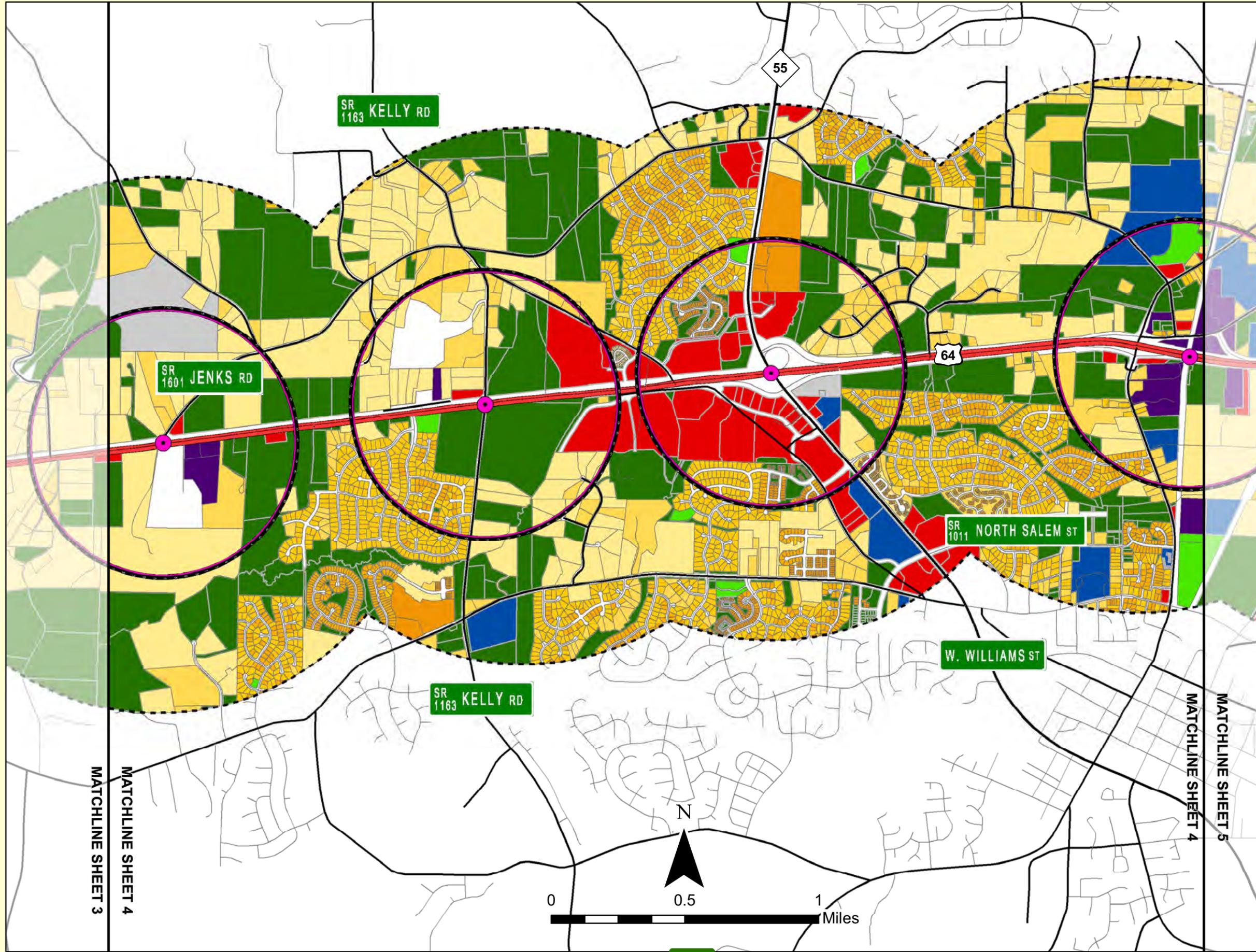
Existing Land Use Map

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Figure 7.1: Existing Land Use Map



LEGEND

Land Use Study Area	Roads	Agriculture	Land Use
Development Nodes	Minor Road	Commercial	Large Lot Residential
Development Node Area	State Route	Government-owned	High Residential
	State Highway	Industrial	Medium-High Residential
	US Highway	Institutional	Medium Residential
	Interstate	Recreational	Low-Medium Residential
		Utility	Low Residential

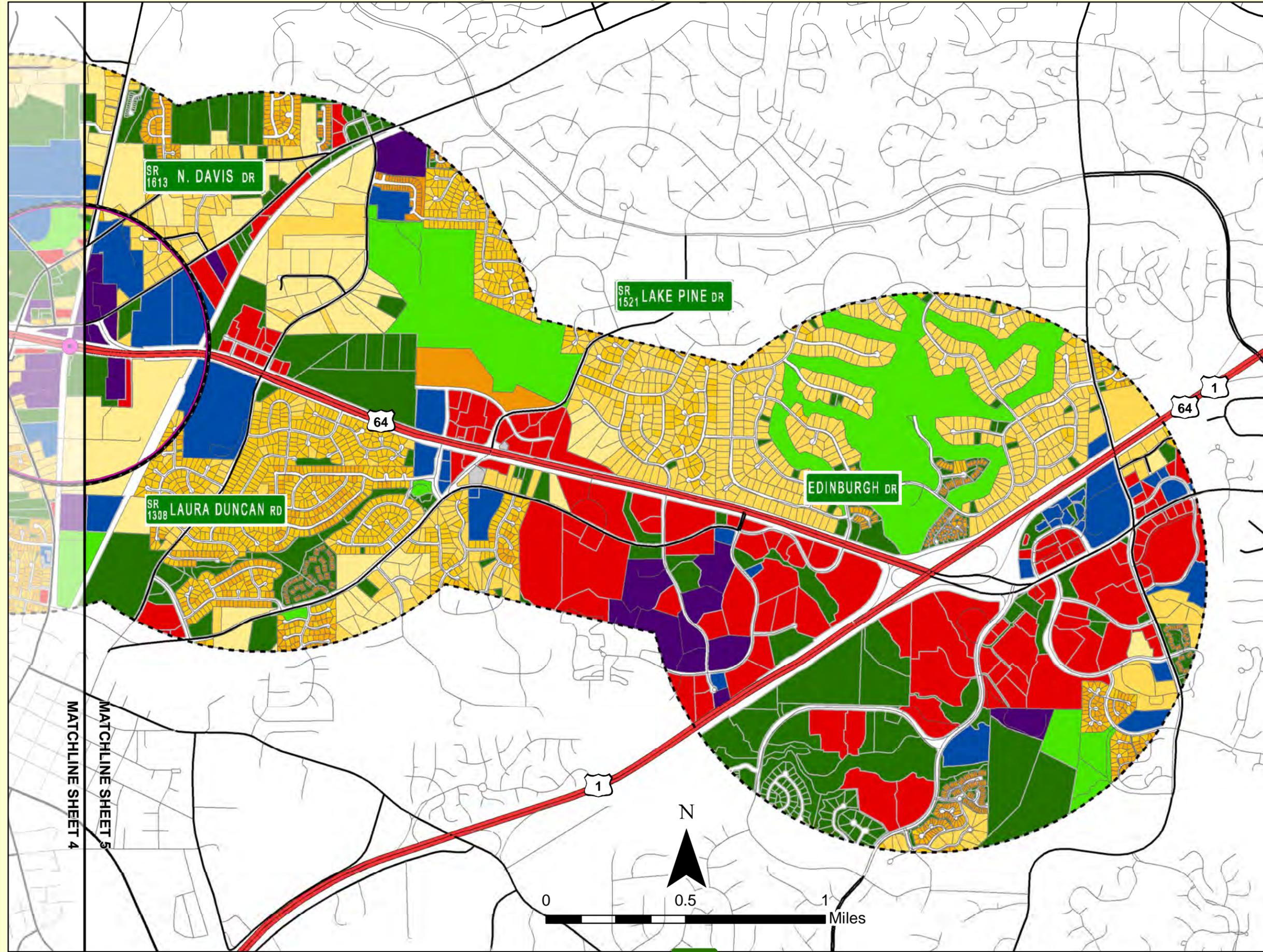
Existing Land Use Map

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Figure 7.1: Existing Land Use Map



Existing Land Use Map

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US 64 Corridor Study
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LEGEND

- Land Use Study Area
 - Development Nodes
 - Development Node Area
- Roads
 - Minor Road
 - State Route
 - State Highway
 - US Highway
 - Interstate
- Land Use
 - Agriculture
 - Commercial
 - Government-owned
 - Industrial
 - Institutional
 - Recreational
 - Utility
 - Water
 - Large Lot Residential
 - High Residential
 - Medium-High Residential
 - Medium Residential
 - Low-Medium Residential
 - Low Residential



Developed land that currently exists on the US 64 corridor, as well as areas emerging along the corridor are as follows:

- Conventional, Single-use Subdivisions – The subdivision of large tracts of land has occurred in multiple locations along many highways. Some have been developed for single family homes on lots of one acre or less, while others have been developed as business parks for business and/or industrial uses. Common to both are the single (or few) points of access that are directly related to traffic along highways. Also, these subdivisions rarely have direct, physical connections to adjacent development. These subdivisions are common along the Apex and Cary portions of the corridor.
- Commercial Strip – Taking advantage of the access from a highway, commercial development comprised mainly of large and small-scale retail, restaurants, gas stations, and other commercial development are common to roadways. Each commercial establishment is oriented toward the highway, and gains its access to the highway through at least one private driveway serving only that parcel. Such commercial development is typically continuous, stretching one parcel deep on each side of the highway for at least one-half mile where it occurs.
- Highway-oriented Business – An emerging development pattern is the highway-oriented business development, which is often comprised primarily of regional-scale retail, typically found at freeway interchanges. As highway improvements have been made, interchanges have been constructed that encourage a concentration of businesses that depend on the patronage of passing traffic. Such interchanges, like the Beaver Creek shopping center at NC 55 and US 64, are attracting large-scale retail and restaurant chains as well as gas stations, which are all being incorporated into conventional “power centers” (regional shopping centers of 300,000 or more square feet). While these businesses are typically not accessed by individual driveways, the centers in which they locate typically have a single point of entry near the interchange.

The most urbanized portions of the study area lie within the jurisdictions of the Towns of Apex and Cary. The largest commercial developments occur at the intersection of NC 55 and US 64 in Apex and US 1 and US 64 in Cary. At the western end of the Study Area, Chatham County remains largely rural/agricultural or undeveloped forestland, with some residential uses and small pockets of commercial development concentrated along US 64 Business as it approaches the center of Pittsboro. East of the Haw River in Chatham County, land use remains largely rural/agricultural or undeveloped forestland as well, with some commercial and low to medium-density residential land uses at the intersection of Mt. Gilead Church Road, and low-density residential areas just west of the NC 751 intersection.

7.4 FUTURE LAND USE CHARACTERISTICS

Land use changes are anticipated to occur due to increasing growth pressures from the metropolitan areas of Raleigh, Durham and Chapel Hill, as well as pressure from Research Triangle Park, the region’s largest employment center. According to population projections from CAMPO, it is estimated that population within the corridor study area will increase approximately 66.2% in the next two decades (2010-2030). As the area continues to grow, it is expected that many remaining vacant and under-developed parcels will develop according to their highest and best use to achieve the greatest value for the property.

Most town and county governments in the area have prepared plans for managing anticipated growth for the next 20 to 30 years. Each plan expresses a vision for future land use based on assumptions about future growth patterns informed by a wide range of data including projections for population, employment, and infrastructure availability. These local land use plans document anticipated land use changes. Brief land use descriptions along the corridor are provided as follows for each county.

7.4.1 CHATHAM COUNTY

The *Chatham County Land Conservation and Development Plan* recommends designating towns and economic centers as areas to provide future water and/or sewer service, while restricting or prohibiting extension to areas designated for low-density growth. According to planners from Chatham County, the areas of development along the US 64 corridor shall be directed towards the Town of Pittsboro with limited development along the US 64 corridor. According to the proposed Chatham County corridor overlay districts, a special-use designation is recommended for parcels adjacent to the NC 751 and US 64 proposed interchange. This designation includes primarily non-retail uses, e.g. a research campus or industrial use. Areas around Jordan Lake are owned by the USACE. There are also special water restrictions to land use due to the Jordan Lake Watershed, as shown in the *Chatham County Watershed Ordinance* (Chatham County, January 1994), that prohibit high-density development directly adjacent to the watershed. Most areas from east of the Haw River to the Jordan Lake watershed have been designated by the *Chatham County Zoning Ordinance* (Chatham County, December 2008), *Chatham County Watershed Ordinance*, and the *Chatham County Land Conservation and Development Plan* as low-density development, with higher-density development located within the Town of Pittsboro.

7.4.2 WAKE COUNTY

The Towns of Apex and Cary both have well-developed future land use plans that consider transportation as well. According to the Town of Apex’s *2025 Land Use Plan* and interviews with local planners, land along the US 64 corridor will have varied uses. Multi-use development is proposed for areas along the corridor at the proposed Western Wake Freeway from US 64 to Jenks Road, just east of the NC 751 proposed interchange, and the Davis Drive interchange. Residential areas along the corridor are proposed as medium to high density. The Town of Cary’s *Future Land Use Plan* (February 2008) and interviews with local planners indicate that the area at the intersection of US 1 (eastern end of study area) will remain an area with high-density residential development, office/industrial, commercial areas, and parks.

Based on information provided by local planners, several undeveloped sites near proposed interchanges are likely to see the infill of vacant parcels and the redevelopment of existing underutilized parcels with new commercial and office facilities.

7.5 LAND USE ASSESSMENT

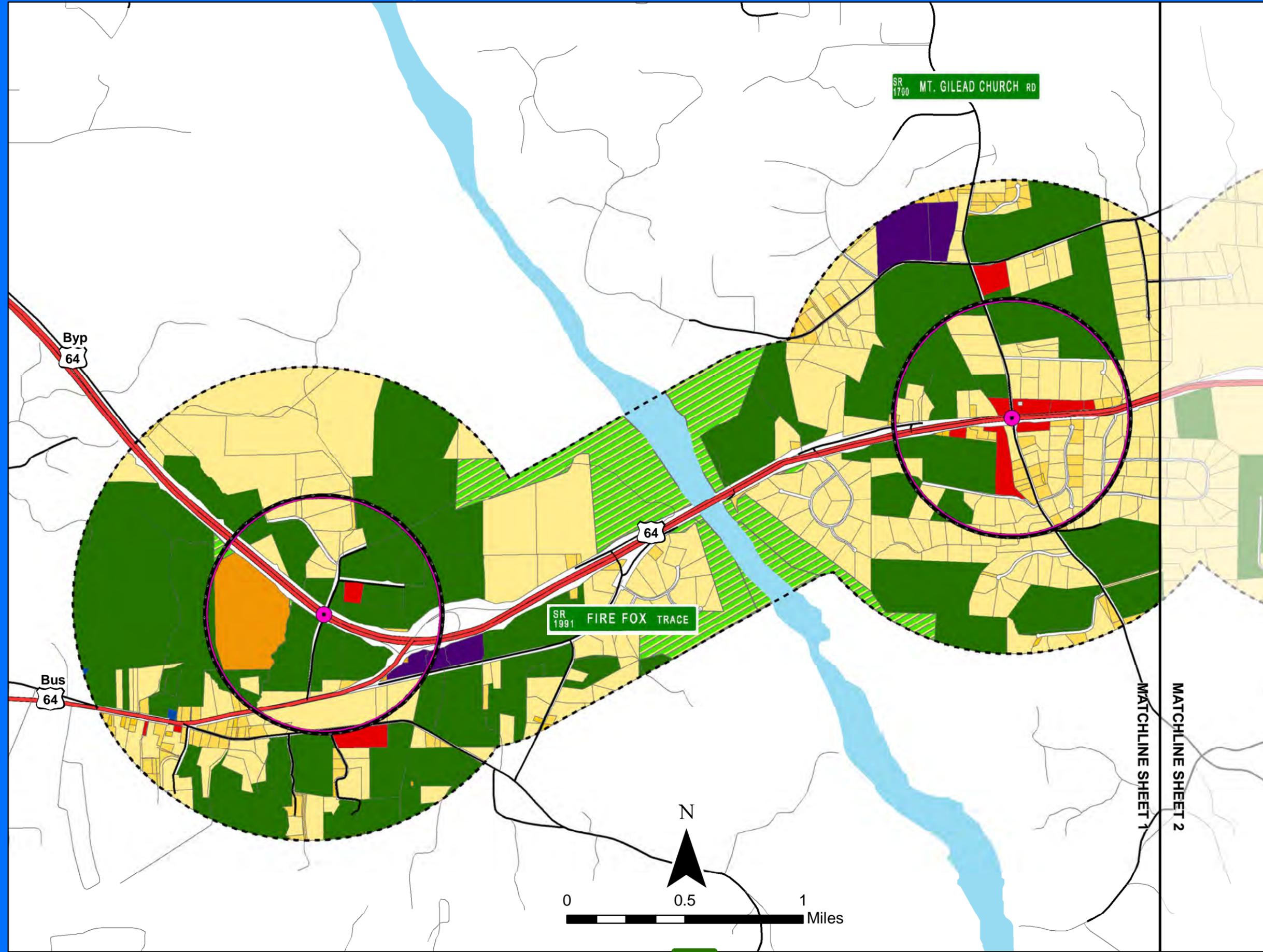
Not all counties and municipalities within the US 64 corridor study area have future land use plans available. In the absence of a formal plan, recommended future land use was determined using an examination of existing land use, watershed protection ordinances, and growth management plans. Meetings with local county and town planners were conducted to identify planning visions and goals for the study area and identify past, present, and planned development activities within the study area that should be considered in addressing growth and land use with respect to the US 64 corridor.

7.5.1 DEVELOPMENT AREAS

Analyses of existing land use, zoning, development trends, and population growth were conducted to identify where transportation is most likely to influence growth and development as well as where land use is likely to influence traffic and travel patterns. Likely areas of development and redevelopment were identified along the US 64 corridor as development nodes at the interchanges of US 64 and US 64 Business in Pittsboro, Mt. Gilead Church/Pea Ridge Road in Chatham County, NC 751, Jenks Road, NC 55, and Davis Drive.

The land use assessment for the short-term solution is shown in Figure 7.2 and in Figure 7.3 for the long-term solution.

Figure 7.2: Land Use Map - Short-term Solution



LEGEND

- Land Use Study Area
- Development Nodes
- Development Node Area
- Roads**
 - Minor Road
 - State Route
 - State Highway
 - US Highway
 - Interstate
- Land Use**
 - Agriculture
 - Commercial
 - Government-owned
 - Industrial
 - Institutional
 - Recreational
 - Utility
- Water**
 - Water
 - Large Lot Residential
 - High Residential
 - Medium-High Residential
 - Medium Residential
 - Low-Medium Residential
 - Low Residential

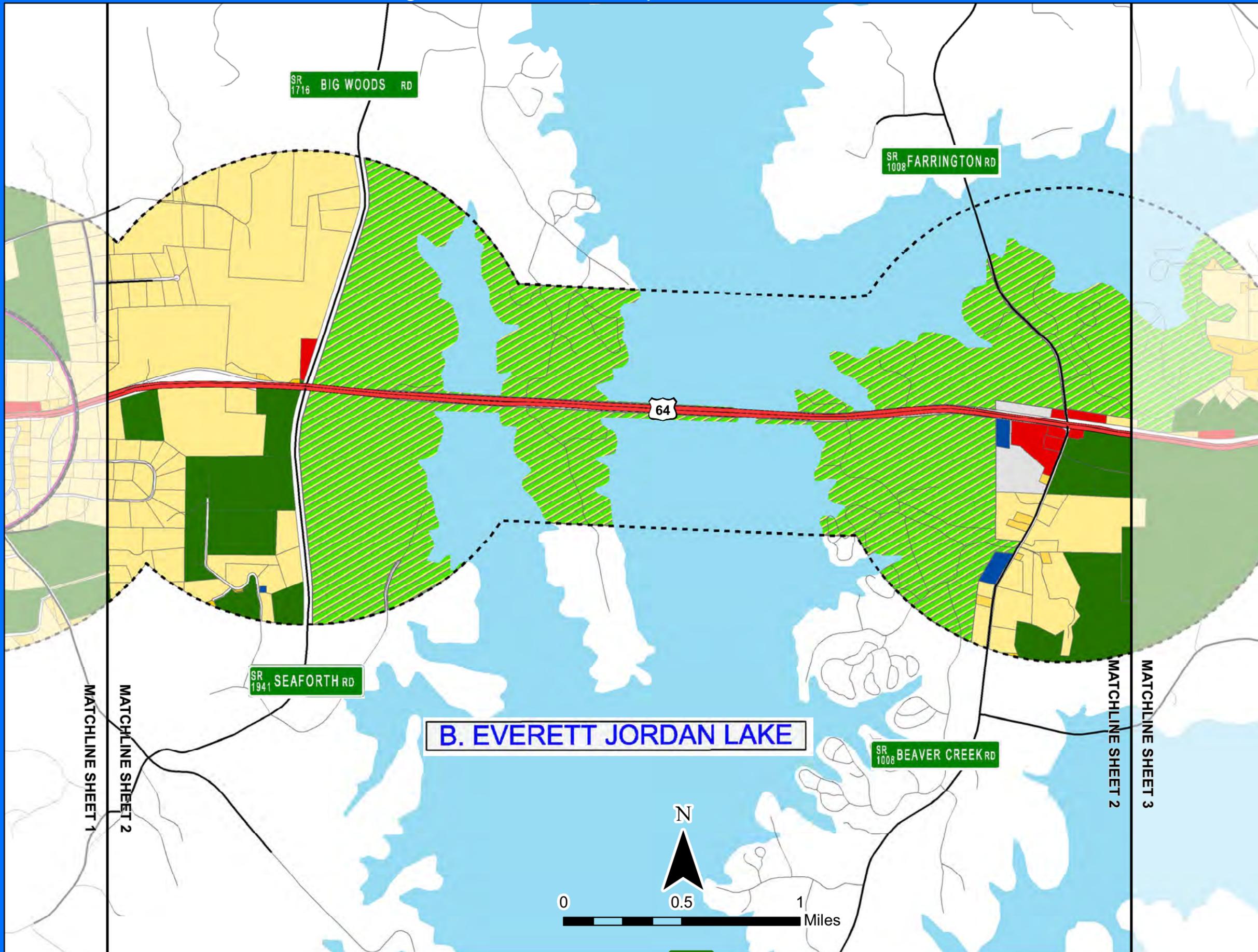
Land Use Map
Short-term Solution

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Figure 7.2: Land Use Map - Short-term Solution



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**Land Use Map
Short-term Solution**

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LEGEND

Land Use Study Area

- Development Nodes
- Development Node Area

Roads

- Minor Road
- State Route
- State Highway
- US Highway
- Interstate

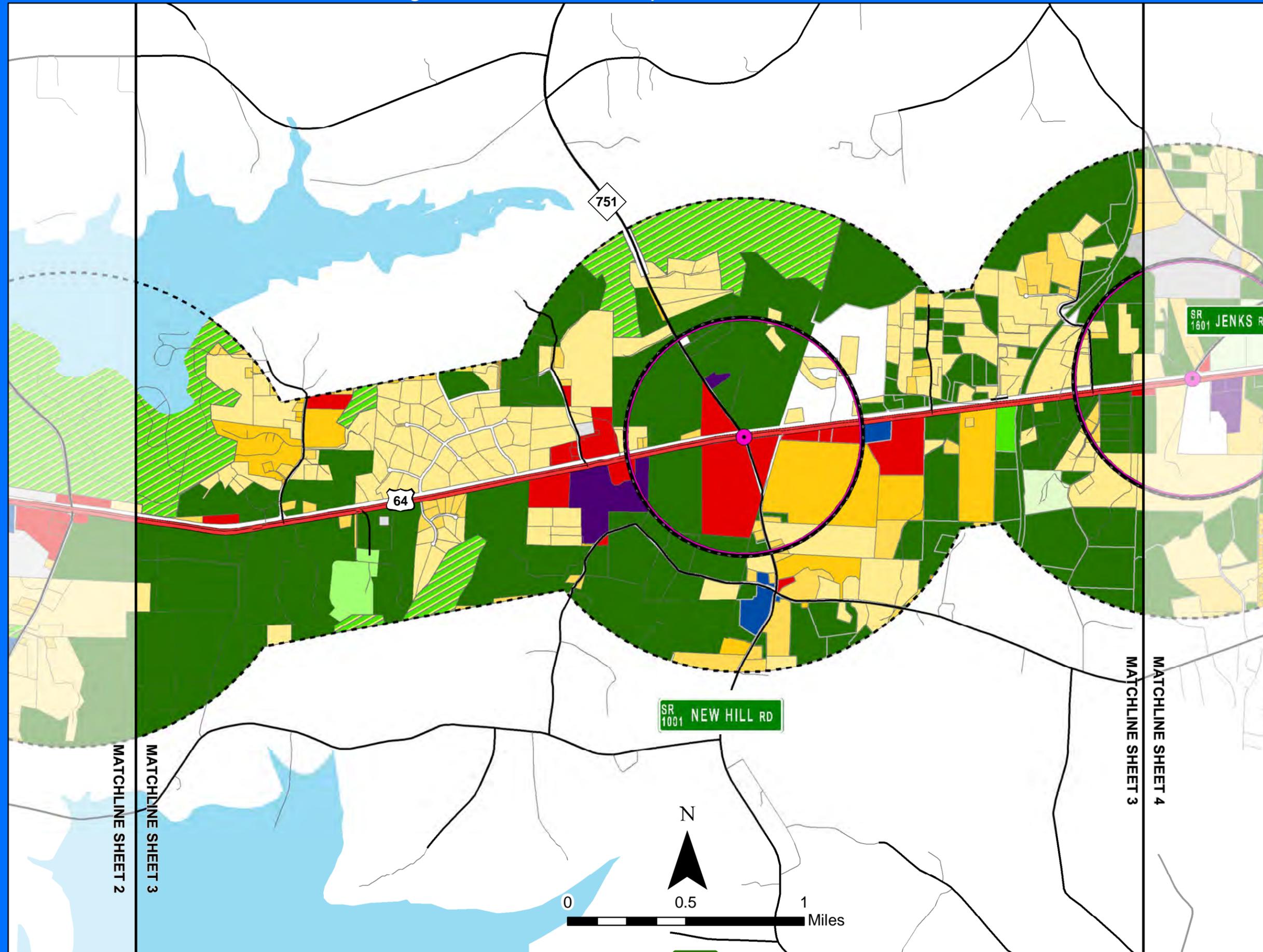
Land Use

- Agriculture
- Commercial
- Government-owned
- Industrial
- Institutional
- Recreational
- Utility

Water

- Large Lot Residential
- High Residential
- Medium-High Residential
- Medium Residential
- Low-Medium Residential
- Low Residential

Figure 7.2: Land Use Map - Short-term Solution



LEGEND

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- Utility
- Minor Road
- State Route
- State Highway
- US Highway
- Interstate
- Land Use Study Area
- Development Nodes
- Development Node Area

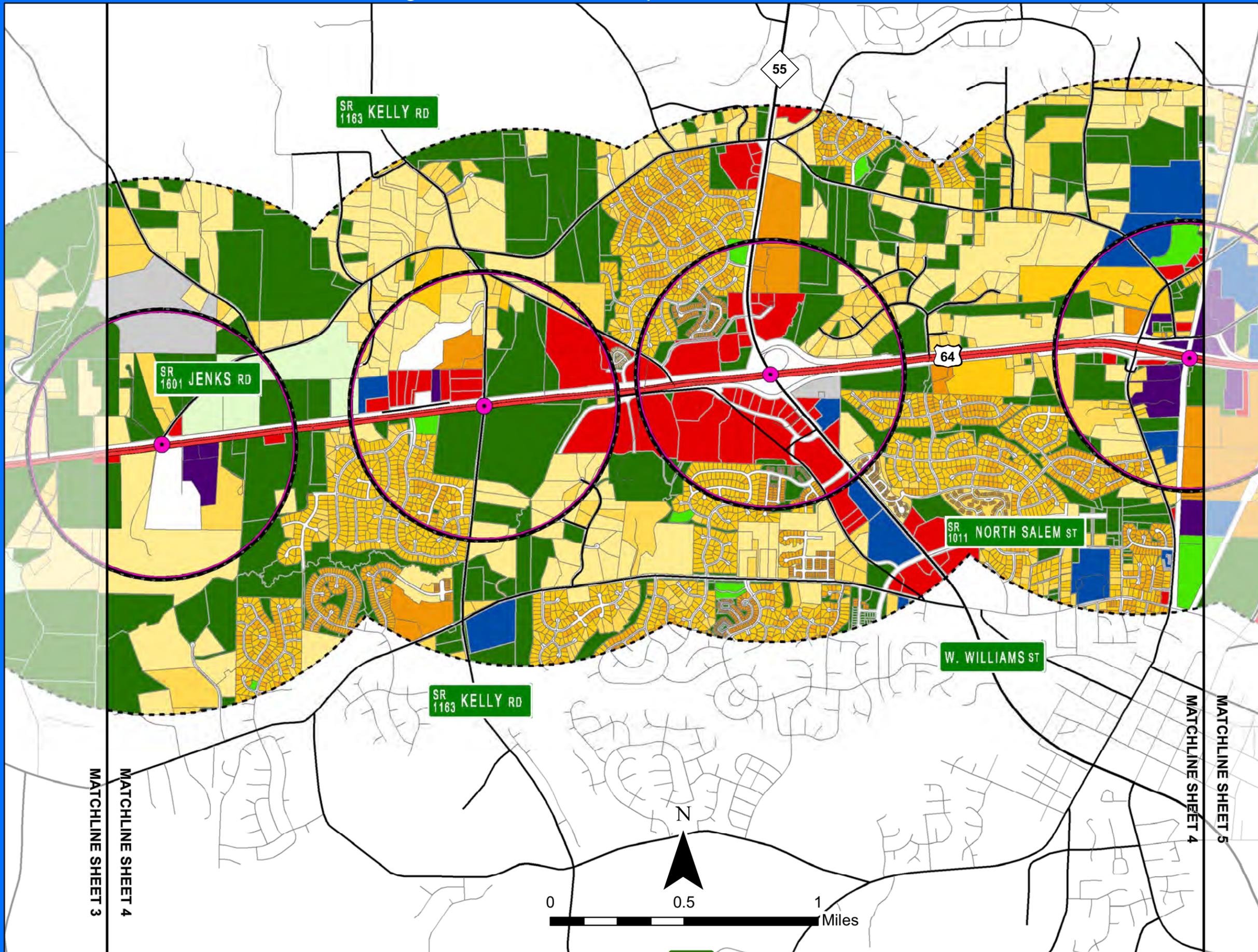
**Land Use Map
Short-term Solution**

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Figure 7.2: Land Use Map - Short-term Solution



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Land Use Map
Short-term Solution

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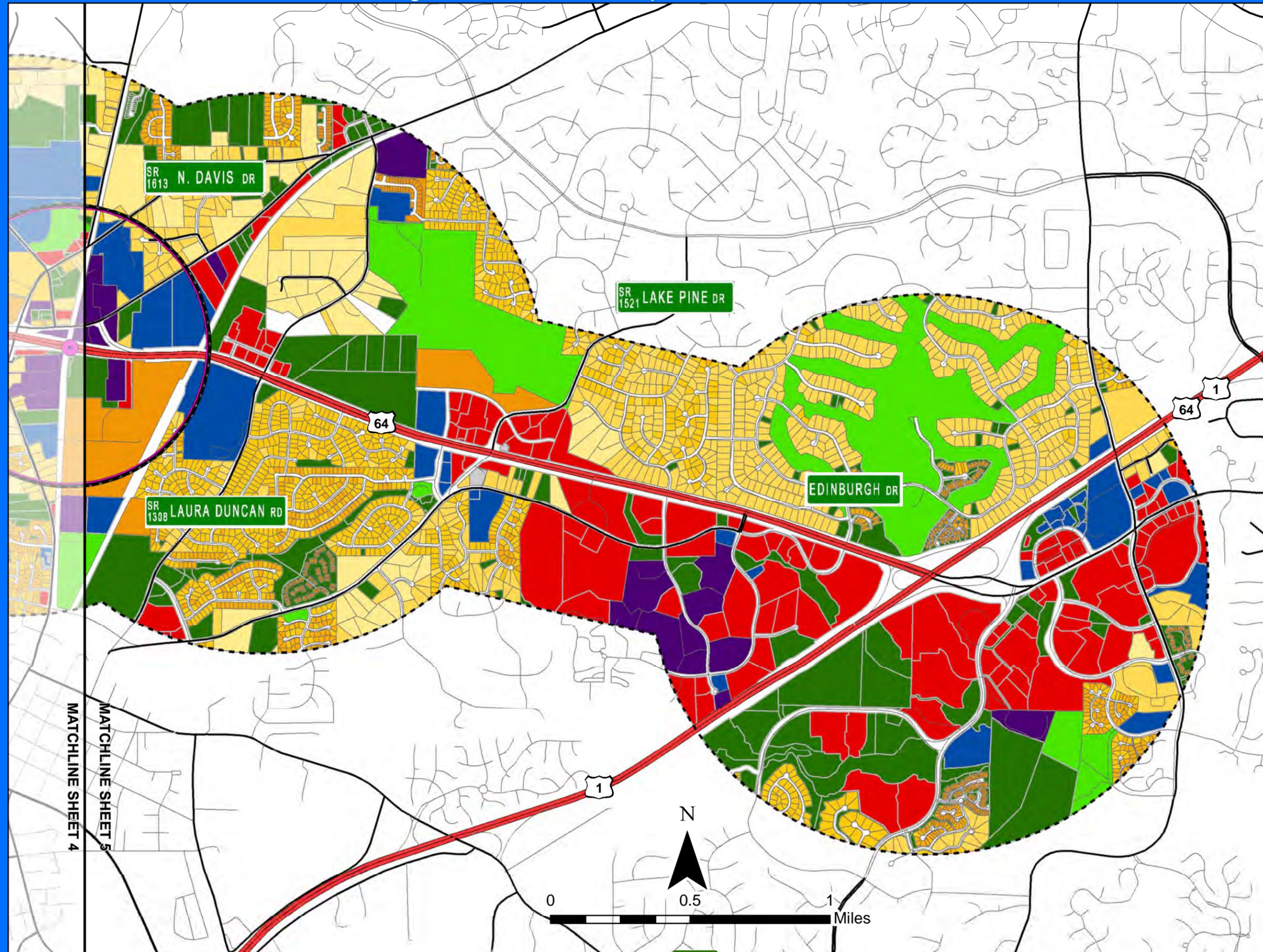





LEGEND

<p>Land Use Study Area</p> <ul style="list-style-type: none"> Development Nodes Development Node Area 	<p>Roads</p> <ul style="list-style-type: none"> Minor Road State Route State Highway US Highway Interstate 	<p>Land Use</p> <ul style="list-style-type: none"> Agriculture Commercial Government-owned Industrial Institutional Recreational Utility 	<ul style="list-style-type: none"> Water Large Lot Residential High Residential Medium-High Residential Medium Residential Low-Medium Residential Low Residential
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Figure 7.2: Land Use Map - Short-term Solution



LEGEND

- | | | | |
|-----------------------|---------------|------------------|-------------------------|
| Land Use Study Area | Minor Road | Agriculture | Water |
| Development Nodes | State Route | Commercial | Large Lot Residential |
| Development Node Area | State Highway | Government-owned | High Residential |
| | US Highway | Institutional | Medium-High Residential |
| | Interstate | Industrial | Medium Residential |
| | | Institutional | Low-Medium Residential |
| | | Recreational | Low Residential |
| | | Utility | |

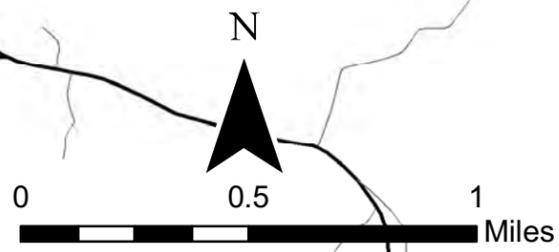
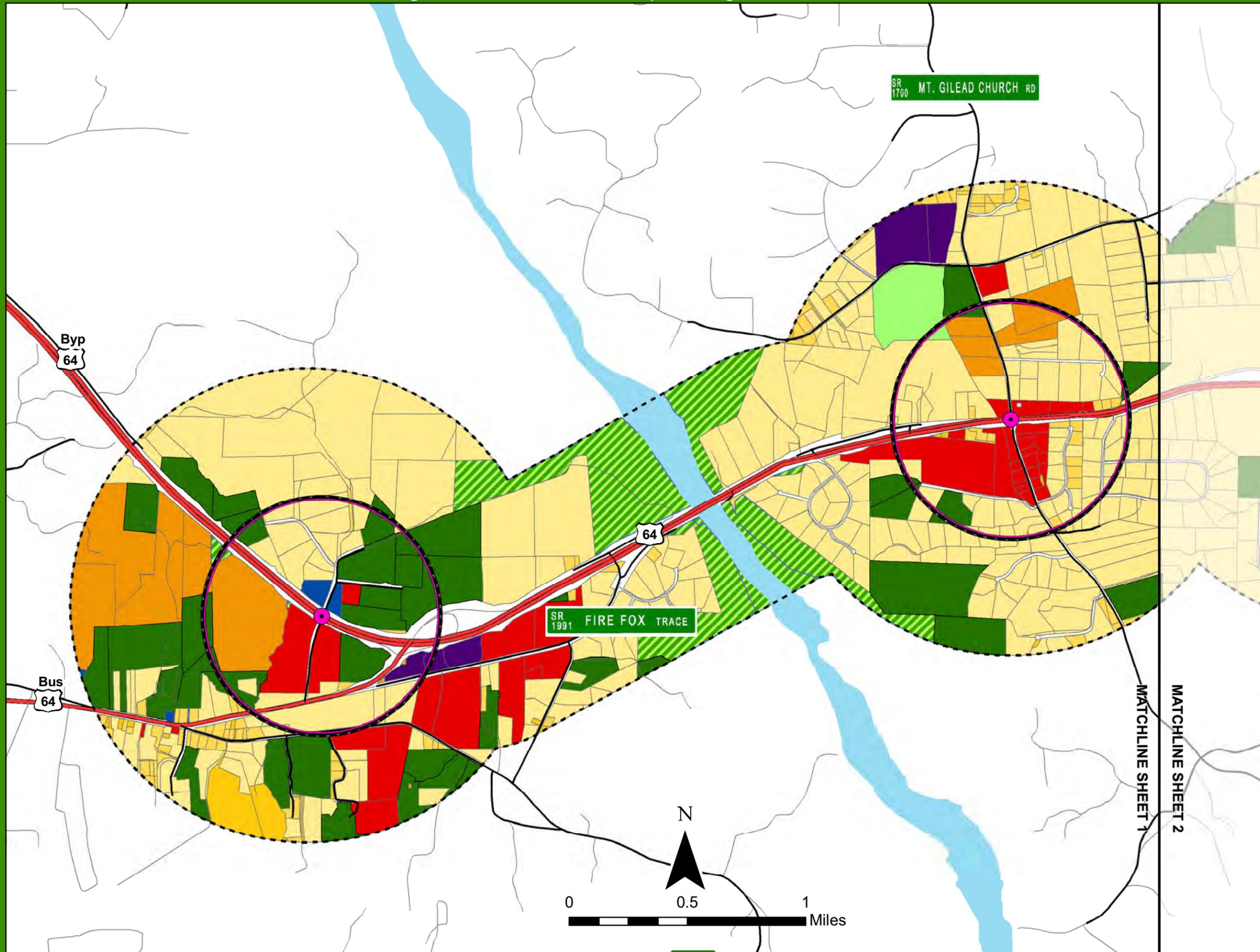
Land Use Map
Short-term Solution

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Figure 7.3: Land Use Map - Long-term Solution



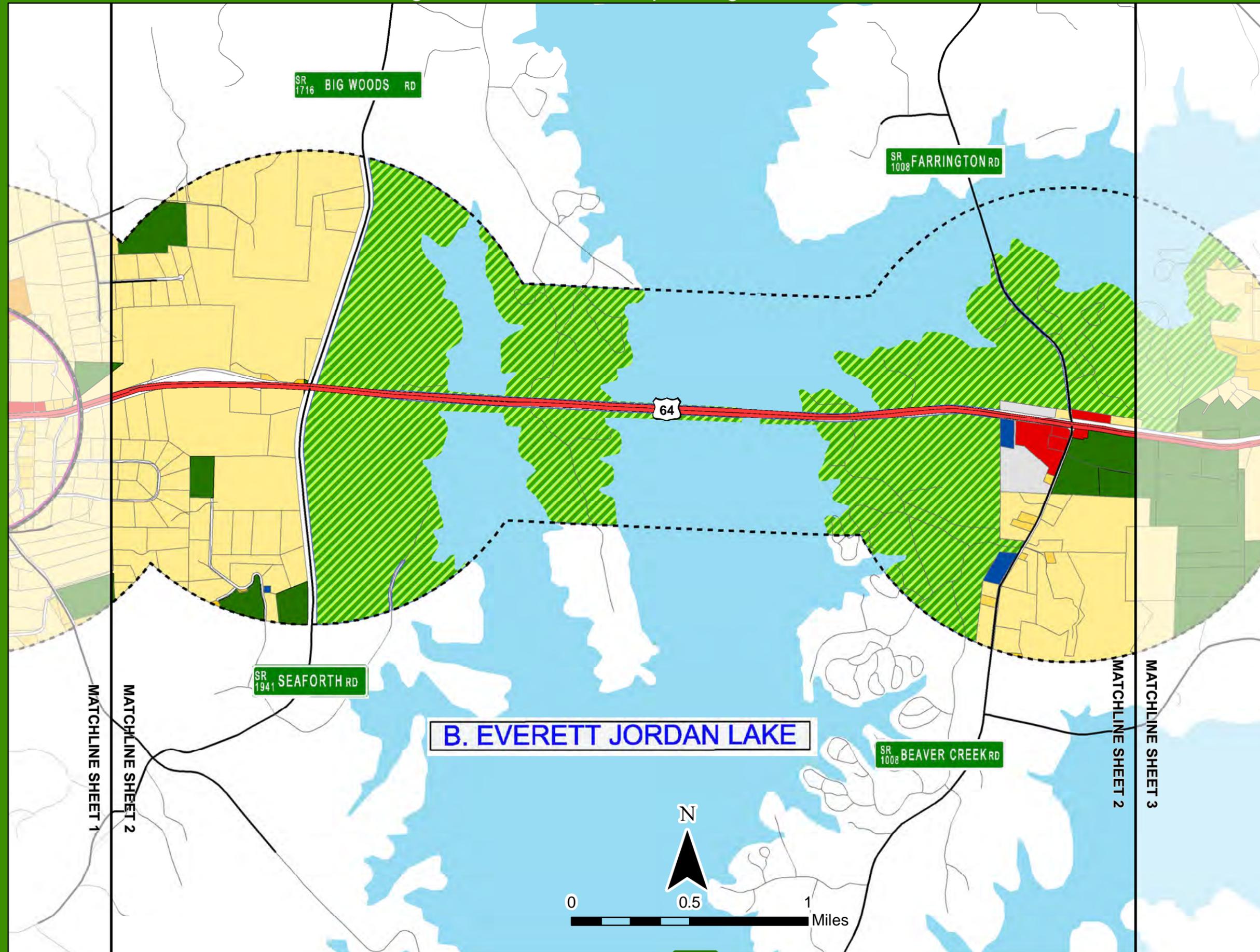
LEGEND

Land Use Study Area	Roads	Water
Development Nodes	Minor Road	Large Lot Residential
Development Node Area	State Route	High Residential
	State Highway	Medium-High Residential
	US Highway	Medium Residential
	Interstate	Low-Medium Residential
		Low Residential
	Land Use	
	Agriculture	
	Commercial	
	Government-owned	
	Industrial	
	Institutional	
	Recreational	
	Utility	

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Land Use Map
Long-term Solution
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Figure 7.3: Land Use Map - Long-term Solution



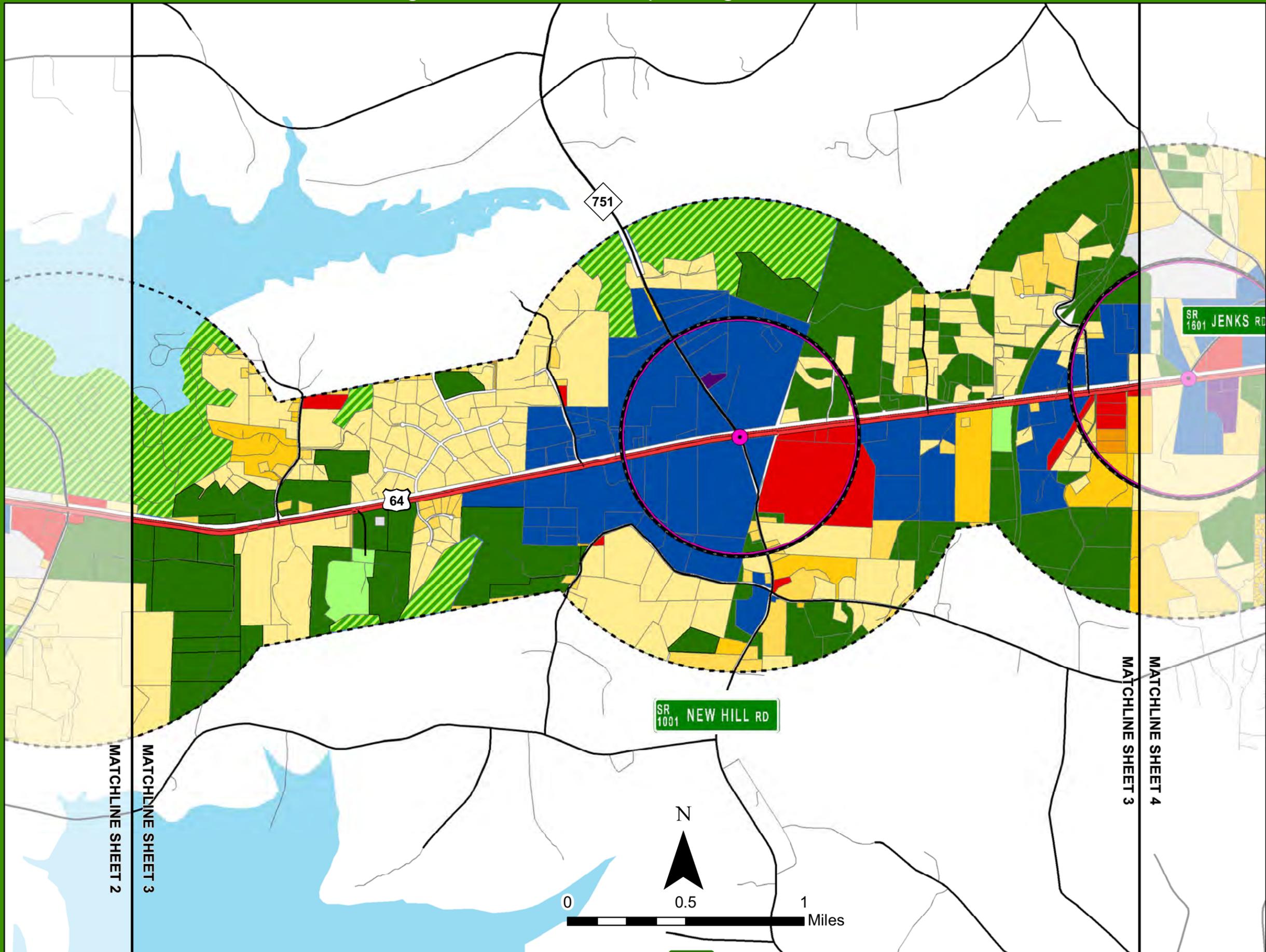
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Land Use Study Area	Roads	Agriculture	Land Use
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Development Node Area	State Route	Government-owned	High Residential
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	Interstate	Recreational	Low-Medium Residential
		Utility	Low Residential

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Long-term Solution
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Figure 7.3: Land Use Map - Long-term Solution



LEGEND

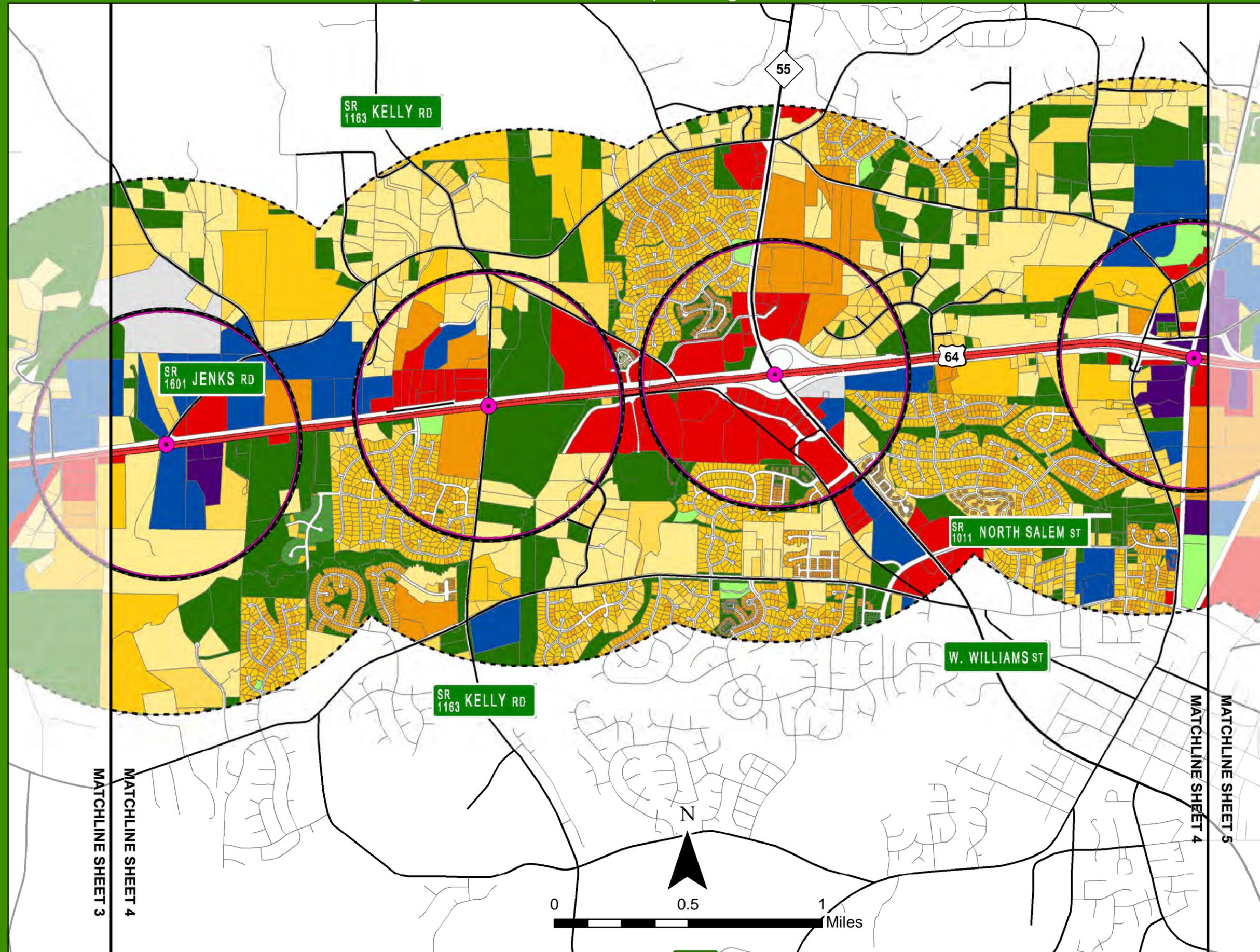
Water	Large Lot Residential	Agriculture
High Residential	Commercial	Minor Road
Medium-High Residential	Government-owned	State Route
Medium Residential	Industrial	State Highway
Low-Medium Residential	Institutional	US Highway
Low Residential	Recreational	Interstate
	Utility	

Land Use Study Area
 Development Nodes
 Development Node Area

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Long-term Solution
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Figure 7.3: Land Use Map - Long-term Solution



LEGEND

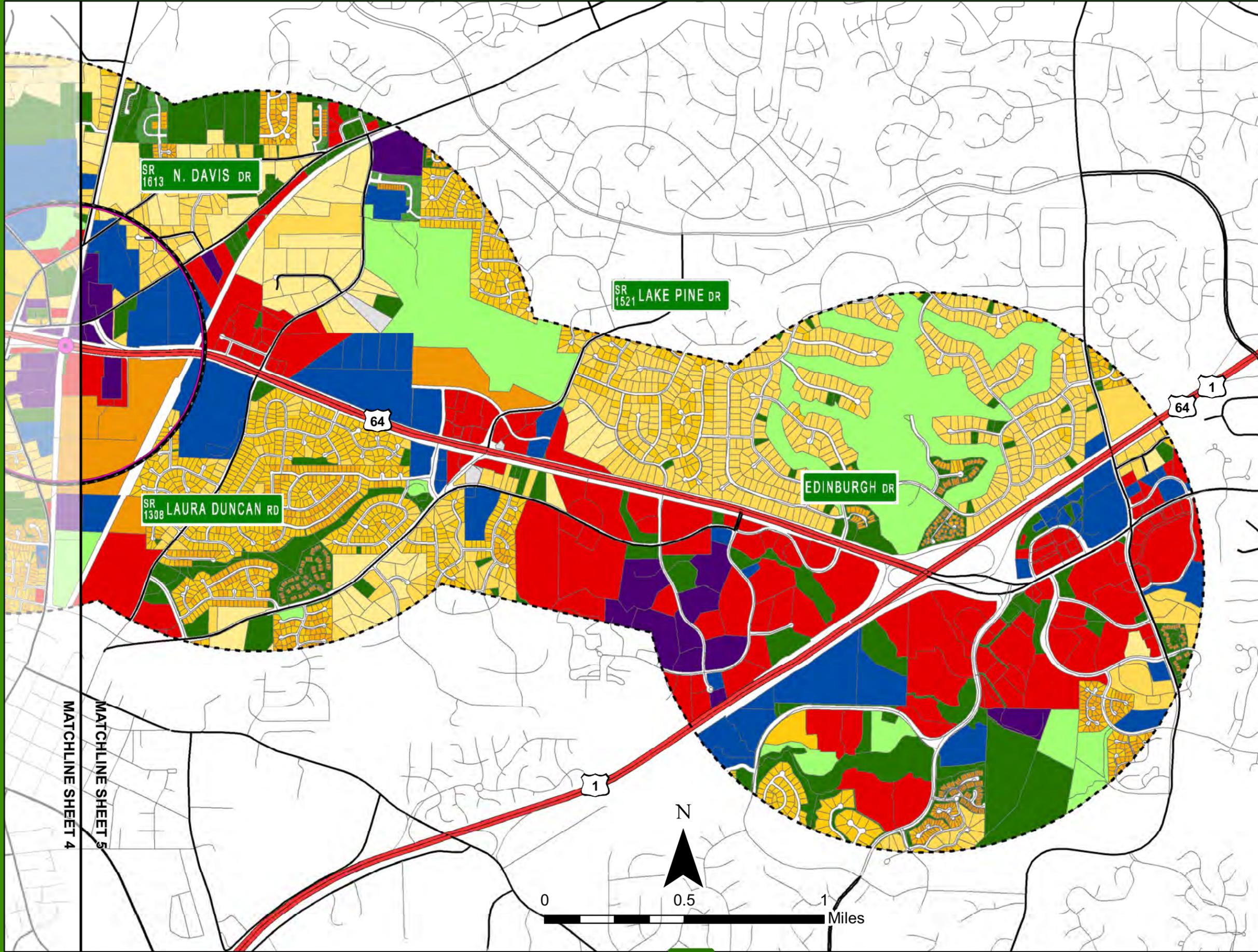
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	State Highway	Industrial	Medium-High Residential
	US Highway	Institutional	Medium Residential
	Interstate	Recreational	Low-Medium Residential
		Utility	Low Residential

US 64 Corridor Study
Wake & Chatham Counties

Land Use Map
Long-term Solution

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Figure 7.3: Land Use Map - Long-term Solution



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Land Use Map
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LEGEND

<p>Land Use Study Area</p> <ul style="list-style-type: none"> Land Use Study Area Development Nodes Development Node Area 	<p>Roads</p> <ul style="list-style-type: none"> Minor Road State Route State Highway US Highway Interstate 	<p>Land Use</p> <ul style="list-style-type: none"> Agriculture Commercial Government-owned Industrial Institutional Recreational Utility 	<p>Water</p> <ul style="list-style-type: none"> Large Lot Residential High Residential Medium-High Residential Medium Residential Low-Medium Residential Low Residential
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7.6 LAND USE RECOMMENDATIONS

Recommended land use for the short-term and long-term US 64 corridor improvements are shown on Figures 7.2 and 7.3, respectively. Overall, the recommended land use maps reflect development patterns typical of highway corridors in growing regions, are consistent with local plans, and include visions and goals for the study area as guided by local planners.

The *Land Use Guidelines for Mobility Protection* document, prepared by NCDOT in September 2005, outlines solutions to protect mobility of improved roadway facilities along corridors where there is a continuing cycle of increased development and increased congestion, as is expected along the US 64 corridor in the future. Among these is the adoption of effective land use policies that are aimed at protecting mobility on these roads. It is important for municipalities to have specific growth management techniques to control the direction, pace, and timing of development. It is also important to have effective land use plans that describe the nature of development – its density and intensity, mixture of uses, site layout, building orientation, street patterns, and access/connectivity.

No particular land use can be described as suitable or unsuitable for areas adjacent to highways; instead, it is the mixture of uses, the relationship between them, and the way each use is accessed that determines whether development will have a positive or negative impact on the highway (NCDOT, September 2005). It is evident from existing and future traffic studies along the corridor, as well as interviews with local officials, that development has had an impact on mobility on the US 64 corridor and will continue to do so if effective land use plans are not in place.

Land Use Guidelines for Mobility Protection outlines several precedents that exhibit characteristics believed to help achieve mobility along corridors that face development pressure due to increased development and increased congestion. These precedents include a description of the beneficial characteristics of the precedents, and recommended policy guidelines that should be adopted throughout the corridor in order to address the land use/mobility issue.

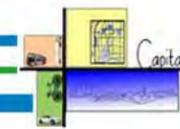
7.6.1 CHATHAM COUNTY

The development node at the proposed Mt. Gilead Church/Pea Ridge Road interchange would present an exception to the rest of the future land use map, in that it includes recommendations not consistent with local planning visions and goals for this portion of the study area. According to Chatham County planners, future development is to be directed to the Town of Pittsboro, with only low-density residential development permitted in this interchange area. Due to the fact that this will be a major interchange with US 64 within close proximity to high growth areas of the region, Figure 7.3 does not represent the low-density vision of Chatham County. Instead, the figure presents a cluster of commercial and residential development at the proposed interchange. Absent of detailed growth management regulations, this area will experience significant development pressure likely to result in a future land use scenario similar to the one shown in Figure 7.3 where essential services such as grocery and other retail is concentrated together with medium and high density housing.

7.6.2 WAKE COUNTY

Wake County has more detailed growth management and future land use plans available. Both the Towns of Apex and Cary have future land use plans with a detailed transportation element. These plans also consider the US 64 improvements, and are consistent with the vision for the corridor. It is recommended that these areas within the Wake County portion of the study area develop mixed-use areas that exhibit characteristics consistent with NCDOT's *Land Use Guidelines for Mobility Protection*.

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