

Asheville Regional Cumulative Effects Study

North Carolina Department of Transportation
Human Environment Section



Final

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1. Executive Summary

Cumulative effects are the result of when the effects of an action, such as a proposed transportation project, or a group of similar actions such as transportation improvements proposed within a regional area, are added to or interact with other actions in an established spatial and temporal boundary. The disclosure of these effects, whether beneficial or adverse, is the focus of this study. The concept of cumulative effects assessment takes into account known actions having the potential to affect a resource over a specified timeframe. In addition, the term “effect” is primarily qualitative in nature, while “impact” is primarily quantitative in nature.

This assessment of cumulative effects builds off the documented potential indirect and direct impacts on resources for each proposed NCDOT project within the Asheville Regional Area. If a project will not cause indirect or direct impacts on a natural or community resource, then it will not contribute to a cumulative effect on the resource. Alternatively, should the potential exist for there to be indirect and direct impacts on a natural or community resource, then this assessment identifies the intensity of these impacts on a resource when considered cumulatively with other past, present, or reasonably-foreseeable future actions, both public and private.

The information included within this executive summary is not intended to convey all the details with which the conclusions of this report were based on, but rather provides an overall synopsis of the cumulative effects in the region. For the expanded analysis, please refer to the main narrative in the report below.

1.1. Projects Included

For the purposes of the Cumulative Effects Study (CES), the following five transportation projects were determined to have the highest potential for contributing to regional cumulative effects and as such, are further evaluated in this study. The projects are displayed on Figure 1.

A-0010A

A-0010A, or the US 19-23 Improvements project, proposes to improve approximately 12 miles of US 19/23 from north of I-240 in Asheville to just south of Exit 13 (Forks of Ivy – Stockton Road) near Mars Hill in Buncombe County. The project will bring the roadway to interstate standards by adding lanes, reconfiguring interchanges, rehabilitating or replacing several bridges, and other roadway design improvements. The purpose of this project is to reduce congestion, address geometric deficiencies, and address physical condition deficiencies. This project is needed as the corridor is currently experiencing increasing congestion which is anticipated to worsen towards the design year. In addition, there are a number of structures with inadequate vertical and horizontal clearances including functionally-obsolete and structurally-deficient bridges.

I-2513

I-2513, or the I-26 Connector project, is a multi-lane freeway (part on new location), from I-26 to US 19-23-70, including the I-26/I-40/I-240 interchange. The purpose of this project is to provide a freeway-to-freeway connection, complete the link between Charleston, SC and Kingsport, TN, improve capacity, reduce traffic delays and congestion, and to increase the remaining useful life of the Smoky Park Bridge. This project is needed, as congestion levels have been steadily increasing, crash rates are higher than the statewide average, and current I-26/I-240 does not meet interstate standards.

I-4400/I-4700

I-4400/I-4700 proposes to widen I-26 from four lanes to six or eight lanes, or a combination, for an approximately 22 mile section. The purpose of this project is to reduce congestion, with a goal of level of service D in the design year of 2040, and to improve existing and projected roadway capacity deficiencies. This is needed as I-26 is reaching capacity and the pavement structure is currently insufficient with deteriorating road surface conditions.

I-4759

I-4759, or the Liberty Road interchange, proposes to add an interchange at I-40 and SR 1228 (Liberty Road). This project primarily involves the construction of a new location facility, while realigning the existing grade separation. The purpose of this project is to improve connectivity in western Buncombe County, linking I-40 to a number of other transportation facilities in the area. This will in turn reduce pressure on existing facilities currently experiencing pressure due to increased growth as well as provide a connection to the communities of Enka and Candler. This project has a study time horizon of 2030.

I-5504

I-5504, or the Brevard Road interchange, proposes to modify an existing partial cloverleaf interchange. The project may include the widening of the NC 191 (Brevard Road) bridge over I-26. The primary purpose of this project is to alleviate increased congestion by increasing the efficiency of the interchange.

In addition to these five projects, the 2012-2020 State Transportation Improvement Program identifies several other major transportation projects in the study area. As there are a number of projects that extend to the 2035 time horizon, EPA guidance on what constitutes “reasonably foreseeable” states that projects in the 10-25 year timeframe may be “less likely and even speculative”. Details on these projects can be found in section 6.1.

1.2. Four Resource Types

Cumulative impacts can be expected for notable cultural, community, water quality, and natural habitat features. This is due to features having minimal incorporation in local planning protections and/or policies. It appears that notable cultural features are prevalent in planning regulations, whereas water quality and natural habitat features are unique resources that are both under-protected and under-recognized. For community, water

quality, and natural habitat features, present and future policies do indicate shifts in including these attributes but they have historically not been prioritized for protection. The following provides a brief description of these resources.



Cultural resources can include both the presence of archaeological resources as well as historical architecture, including those on the National Register, Study Listed, and those resources that are Determined Eligible.

Community resources can include a number of resources including churches, cemeteries, recreational facilities, parks, community centers, and points of significance to the community. These are often determined through close coordination with stakeholders and upon site visits.

Water quality resources can include, but are not limited to streams, lakes, and rivers, as well as 303(d) impaired waters, trout waters, High Quality and Outstanding Resource Waters, wetlands, and surface drinking water areas.

Natural habitat features can include, but are not limited to Significant Natural Heritage Areas, National and State Forests, agricultural farmland, and habitat for Threatened and Endangered Species.

1.3. Notable Impacts

1.3.1. Community Resources

The original construction of both I-26 and I-40 severed a number of communities within the greater Asheville area. Currently, some of the most economically-depressed and highest percentage minority populations live along these corridors. Relocations and other direct impacts may result in additional stress to these low income and minority communities and constitute a recurring impact. These areas are located along the corridors through Weaverville and Woodfin, near Swannanoa,

within Asheville, and in Henderson County. Although individually the projects may not have notable effects on these communities, cumulatively, the projects could result in additional stress to regional low-income and minority populations.

Potential effects to the Montford community and the Biltmore Estate in Asheville should be closely coordinated as these are two specific community resources that are of note in the region and have the potential to be impacted by multiple projects. The Biltmore Estate draws millions of tourist per year and is an important economic driver in the region, while the Montford community is one of the oldest known neighborhoods in Asheville, originally having been constructed between 1890 and 1920.

1.3.2. Water Resources

The French Broad River is a major feature in the region, bisecting Buncombe County, while providing a water source for a large portion of the study area. Due to the topography of the region, most other rivers, streams, and creeks flow into the French Broad River. In addition, the Forks of Ivy watershed is located along the border of Buncombe and Madison counties. This watershed is the primary surface water source for a large portion of northern Buncombe County and southern Madison County. The Hominy Creek watershed is located in southern Asheville and contains Hominy Creek and South Hominy Creek. Hominy Creek, the French Broad River, Clear Creek, Devils Fork, Bat Fork, Ivy Creek, Mills River, Mud Creek, and Cane Creek are listed on both the approved 2012 303(d) listed impaired waters, as well as the draft 2014 303(d) list, according to the North Carolina Division of Water Resources. Buncombe County currently does not afford streams any additional protection outside of state standards, while Henderson County requires a 30-foot riparian buffer around all perennial streams. Buncombe County is currently considering expanding its ordinances to afford these resources extra protection.

All of the projects will address increases in impervious surfaces and associated stormwater runoff in the individual project design through the use of best management practices (BMP). It is possible that these projects could have cumulative impacts when combined with the on-going urbanization and suburbanization of the region due to private development actions. The increases in impervious surfaces associated with the construction of buildings, homes, and parking areas could lead to a deterioration of water quality in the absence of BMP's.

1.3.3. Natural Resources

Many of the natural resources are located within areas already designated for protection such as National and State Parks, areas of steep slope, or areas designated for conservation. Through the creation of a Land Conservation Advisory Board as well as cooperation with the Southern Appalachian Highlands Conservancy Land Trust, Buncombe County is promoting the use of voluntary land conservation easements, identifying high priority focus areas, and generating financial resources to slowly increase their holdings of lands for conservation; however, the county has

indicated that future additions to these holdings will be difficult due to increasing prices, loss of funding, and lack of large, contiguous parcels.

Local planners indicated that there are still active agricultural areas in close proximity to the transportation corridors. As such, Voluntary Agricultural Districts (VAD), Enhanced Voluntary Agricultural Districts (EVAD) are included, as they demonstrate local commitment to preserving agricultural lands, while prime farmland soils and other agricultural lands are protected under the Farmland Protection Policy Act (FPPA) and impacts to these should be considered. Christmas tree and berry farming are two large agricultural industries in the western region of North Carolina.

1.3.4. Travel Demand

The widening along the length of I-26, when considered as individual State Transportation Improvement Program (STIP) projects, are not likely to change travel times by more than five minutes outside of peak hours; however, when viewed cumulatively, travel time savings could result along the length of the corridor. This could potentially lead to increased traffic volumes as travelers, currently traveling along parallel arterial routes, would be inclined to use the less congested interstate routes. A regional traffic model is currently being developed to help determine the relative impact that a potential project, as well as multiple projects, could have on the overall transportation network. This model is expected to be adopted by the French Broad River (FBR) Metropolitan Planning Organization (MPO) in 2015.

1.4. Findings/Next Steps

The Cumulative Effects Tool indicated that cumulative effects were rated as a medium level of concern as a result of the reasonably-foreseeable transportation projects in the region. When analyzing and evaluating the overall impacts and how those impacts contribute to cumulative effects; plans, policies, practices, and trends in the region indicate that the nature of the projects listed previously are such that growth and development and their associated impacts on the four major resource categories in the region are likely to continue independent of the projects. There are, however, a number of external influences and recommendations that have the potential to influence both trends in the area and the results of this study. They are listed below.

The Strategic Transportation Investments (STI) prioritization process currently being undertaken by NCDOT will result in a ranking of the individual projects across the region. As the metrics that influence rankings have changed and are still being calculated, the results from this process could potentially influence the cumulative effects analysis. Scoring could elevate or demote the previously mentioned projects, changing what could be considered “reasonably-foreseeable”. Relative rankings of projects to advance forward will influence relative development patterns, as pressures will focus on those areas being improved or constructed. It is expected that the relative impacts each project will have on the resource categories and the region will be re-evaluated once this list is released, with changes reflecting the new priorities.

Recommendations include the following:

Update Schedule: It is recommended that on a regular basis, this document be updated to incorporate and reference, where applicable, major milestones in the project development and NEPA process for the aforementioned projects. The document is intended to be a “living document” and should be updated accordingly.

Coordination:

- It is recommended that coordination between state, regional, and local agencies, municipalities, and public/private organizations continue to occur to plan for and subsequently help develop the region in a way to minimize impacts to the four resource categories evaluated in this CES, in addition to Low-Income and Minority populations, Limited English Proficient populations, and future economic growth.
- When considering potential mitigation strategies and avoidance alternatives, consideration of the recurring impacts to minority and low-income communities that have been previously impacted by the construction of I-26 and I-240 should be prioritized.
- Close coordination for potential effects should occur with the Montford community and the Biltmore Estate in Asheville as a result of these projects and as the design options and environmental documents are completed.

Boundaries: The regional effects study area should be periodically reviewed and if necessary, revised based on local input, new/updated planning documents and studies, revised environmental, cultural, and community studies, and as a result of coordination.

Plans and Policies: It is recommended that rules and regulations at the city, county or other governmental levels address such impacts and manage future growth. Plans and policies can often guide smart development and afford a number of resources the necessary protection.

2. Introduction

This report summarizes potential cumulative effects that could occur as a result of the proposed interstate highway improvement projects in combination with other public and private actions within the Asheville Regional Area, which for the purposes of this assessment, has been identified as located within Buncombe, Henderson, and Madison Counties in North Carolina (see Figure 1). An assessment of cumulative effects is required by the National Environmental Policy Act of 1969 (NEPA) as amended, and defined in the Code of Federal Regulations (CFR) under 40 CFR 1508.7 for transportation projects. The NEPA assessment of cumulative effects follows the guidance of the Council of Environmental Quality's (CEQ) 1997 document, *Considering Cumulative Effects Under NEPA*. The CEQ regulations stipulate that cumulative effects assessment within a project-specific study should consider the potential environmental impacts resulting from the "incremental impacts of the action when added to other past, present and reasonably-foreseeable future actions, regardless of what agency or person undertakes such other actions," commonly referred to as "cumulative effects." The purpose of this cumulative effects study, referenced as the Asheville Regional Cumulative Effects Study (CES), is to consider the potential for cumulative effects on natural and community resources at a broader regional scale.

The complexities of the transportation system within the greater Asheville area are such that many of the actions are linked and/or influence one another and have the potential to cause effects on a regional level. Therefore, the effects and assessment criteria typically applied on a project-by-project basis have been assessed on a regional basis.

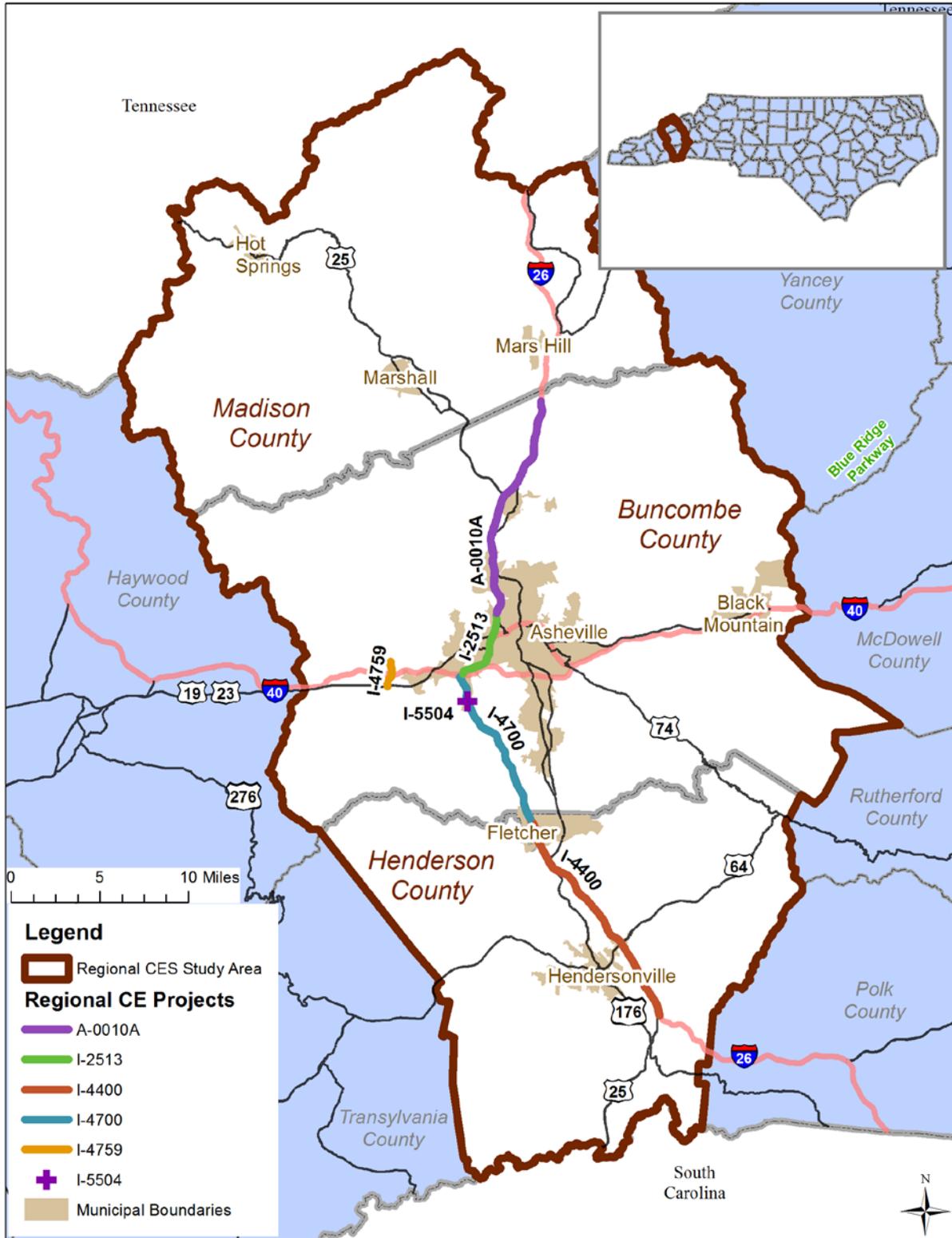
3. Methodology

This assessment of cumulative effects builds off of the documented potential indirect and direct impacts on resources for each proposed NCDOT project within the Asheville Regional Area. If a project will not cause indirect or direct impacts on a natural or community resource, then it will not contribute to a cumulative effect on the resource. Alternatively, should the potential exist for there to be indirect and direct impacts on a natural or community resource, then this assessment identifies the intensity of these impacts on a resource when considered cumulatively with other past, present, or reasonably-foreseeable actions.

CEQ guidance requires that the significance of project-related impacts be evaluated based on context and intensity. Context refers to an approach of assessing how sensitive the impacted resource is (i.e., is it of national, regional, state, or local significance). The intensity of an impact refers to severity of the impact, good or bad.

The CES was conducted using a four-step approach: scoping, establishment of study boundaries, disclosure of existing conditions, and a regionally-scaled impact assessment. Each of the steps is detailed below.

Figure 1 Study Area and projects



3.1. Scoping

The initial step in conducting this CES was a scoping process that identified important project issues that when considered at a regional scale had the potential to influence the transportation decision-making process.

Input from local municipalities, counties, regional planning entities, and private/public agencies provided past, present, and reasonably-foreseeable future actions proposed by both public and private entities including developers. Local planning officials were interviewed to provide information regarding public policy, infrastructure needs and land use trends, developing economic markets, as well as community based demographic information such as the presence of minority and low-income within the study area boundaries. A summary of study related interviews is presented in Appendix A of this report. These interviews were used to refine and verify the output of the GIS based analysis.

Additionally, comprehensive land use plans, zoning actions, local planning initiatives, census data trends, technical reports supporting the NEPA documentation and other sources not directly related to the proposed projects were considered for their contribution to cumulative impacts on the study area. Information pertaining to change is traffic flow modifications, accessibility, population change, and forecasted employment growth within the regional study area. In addition to gathering information on current and reasonably foreseeable future development, the incremental impacts of these actions were considered in the CES.

Information that supported the scoping process was also derived from previous technical reports and project data gathering.

3.2. Establishment of Study Boundaries

The study area boundary (shown in Figure 1) for this cumulative effects study was established using a two-step approach that first entailed establishing unique study areas for resource categories identified through the scoping process, then combining all of those individual resource category study areas to make one inclusive study area boundary. The advantage of this approach is that each unique study area broadly defines the limits of effects on a specific resource type when considering both the proposed transportation project in the region and other actions having the potential to affect that resource.

Geographic information system (GIS) analysis was implemented in documenting both direct and indirect effects and when layering these effects to determine the limits of potential cumulative effects. Data was derived from the North Carolina Department of Transportation (NCDOT), local municipalities, and the Land-of-Sky (LOS) Rural Planning Organization. In particular, the North Carolina Department of Environment and Natural Resources (NCDENR) Conservation Planning Tool and the Land Of Sky (LOS) Linking Lands Project provided the baseline information for natural and water resources.

The Cumulative Effects Study Area boundary is intended to serve as the starting point for data collection. It is not intended to imply that land use changes associated with these projects will be felt throughout this project area, but rather provides a large geographic area within which potential impacts can be assessed. Based on initial the projects that could likely impact the region, the existing transportation network, and the proximity to major municipal areas, the study area boundary encompasses Buncombe, Henderson, and Madison counties.

Through an initial evaluation of existing and short-term development, interviews with local stakeholders, and professional judgment, it was determined that Madison County would not likely experience any effects as a result of the transportation projects, as almost all of the main transportation projects in Madison County have already been constructed. In addition, planners indicated there is a lack of medium and high-density residential projects, limited commercial and retail development, and very little industrial growth both currently occurring as well as projected for the next several years. It is for these factors that Madison County has been eliminated from the proposed study area. Madison County will continue to be evaluated for impacts, new travel patterns, or new development in future revisions. Information regarding plans, policies, and current developments have been included.

In order to determine the full extent of cumulative effects, study areas must be established temporally as well as physically. The horizon year, or furthest future year for the time frame of this assessment was established using the FBR MPO fiscally-constrained LRTP (2035). The fiscally-constrained LRTP contains those projects that can be considered reasonable and prudent, and have a higher likelihood of being constructed than those on fiscally-unconstrained planning documents. The base year, or earliest year, was established based on plans or actions that have shaped the current or existing environmental conditions as well as when project initiation began for these projects. According to CEQ guidance, "review of past actions is required to the extent that it informs agency decision-making on the proposed action."

3.3. Existing Conditions

A "baseline" of existing conditions was established as a result of a site visit to the study area, existing GIS data and summation of research findings, and the documented potential indirect and direct impacts on a resource of each individual NCDOT proposed project. Each project baseline included a description of the baseline condition that considers "...how conditions have changed over time and how they are likely to change in the future without the proposed action" (CEQ, 1997). In cases where it was not possible to establish the "naturally-occurring" condition, a description of a modified, but ecologically-sustainable condition, was used in this assessment.

3.4. Regional Impact Assessment

Once the scoping process was complete, the other actions were assessed to determine the potential for cumulative impacts when considered in conjunction with the NCDOT proposed projects. This was done by first listing and summarizing the Community Characteristic Reports, Community Impact Assessments, and Indirect and Cumulative Effects (ICE)

studies previously conducted by NCDOT, and the potential impacts described therein. Then a determination was made as to whether there would be any interaction between the action and the proposed project, and if there was an interaction, whether there would be potentially significant impacts beyond what was identified when the action was considered alone. An ICE Alternative Screening Matrix for Cumulative Effects was utilized, which rated the magnitude of concern associated with potential cumulative effects.

Future growth potential within the Asheville Regional Area was discussed and Future Growth Potential Maps were developed using the local existing and future land use maps, zoning, and development plans. The maps targeted development areas in transition, or targeted for growth much later in the planning time horizon, and areas targeted for open space, agriculture, and conservation.

If the impacts appeared to be significant, the assessment determined what those impacts were, are, and are likely to be in an incremental fashion. If necessary, mitigation measures are being proposed to decrease or eliminate the cumulative impact.

3.4.1. Interviews with Local Planners

Interviews were conducted with local and regional transportation and planning staff as well as additional public and private entities/agencies to discuss a variety of issues including the following;

- Cumulative Effects Study Area boundaries
- Development growth and pressures within the Study Area, including residential, commercial, and industrial
- Water and sewer infrastructure (including potential expansion/capital projects)
- Impacts of transportation projects on four major topic categories; Historical/Cultural Resources, Community Features, Water Resources, and Natural Features.
- Presence/location of any minority or low-income populations.

The following agencies/municipalities were interviewed via telephone. Main discussion points are included throughout the report. A full record of conversations can be found in the Appendix.

- Buncombe County
- Henderson County
- Madison County
- City of Asheville
- Appalachian Regional Commission
- FBR MPO
- Advantage West Economic Development Group

4. Local Plans Assessment

Local plans and policies are some of the most important tools local, state, and regional entities have to influence growth and development. Furthermore, these plans can help inform, influence, and guide transportation projects. The following plans and policies detail

the steps, goals and objectives the region's entities have put into place to help guide development and set forth a plan for the future. These plans also provide key data and information for inclusion in this study.

4.1. North Carolina

State Transportation Improvement Program (STIP) (2012-2020)

The proposed projects evaluated in this CES are included in the NCDOT's approved 2012-2020 STIP. The STIP is a multi-year schedule that describes all of the State's transportation projects, provides a timeframe, location, work type and estimates costs. The I-26 corridor within the Regional CES Study Area is broken into various Interstate projects (A-0010, I-2513, I-4400, and I-4700) and are included as part of the Strategic Highway Corridor Project. The Strategic Highway Corridor Project identifies key multimodal transportation corridors based on system connectivity, mobility and access to state and regional activity centers. The B Section of STIP Project A-0010, located entirely in Madison County, has already been constructed. Both I-4759 and I-5504 are included in the 2012-2020 STIP as well.

4.2. Western North Carolina

Appalachian Regional Commission (ARC) Strategic Plan (2011-2016)

The ARC Strategic Plan details targeted and measureable actions towards bringing Appalachia (including Buncombe, Henderson, and Madison counties) into full economic parity with the rest of the United States. Goals, objectives and performance measures are established for annual evaluation to ensure the partnership is effective and accountable. While the plan is higher-level in nature, it does have specific recommendations including the following;

- Increasing job opportunities and per capita income
- Building the Appalachian Development Highway Systems to reduce isolation
- Developing and improving Appalachia's infrastructure to make the region economically competitive

French Broad River MPO Comprehensive Transportation Plan (2008)

The proposed projects are included in the Comprehensive Transportation Plan for the FBR MPO and Rural Areas of Buncombe and Haywood Counties (Comprehensive Transportation Plan) completed by the NCDOT Transportation Planning Branch and adopted by the FBR MPO on November 15, 2007 and by NCDOT on January 10, 2008. The Comprehensive Transportation Plan supersedes the Asheville Urban Area Thoroughfare Plan adopted in 1994, with the documentation being completed in April 1996.

French Broad River MPO Transportation 2035 (2010)

All of the previously identified projects are included in the FBR MPO's *2035 Long Range Transportation Plan* (2035 LRTP) adopted on September 23, 2010. The main goals of this

plan are to develop and maintain a safe and efficient system for transportation, as well as enhancing the environment and livability of the area by providing an optimum level of service, choice, mobility, convenience and energy efficiency. Specifically, the plan calls for the promotion of aesthetic treatments and improvements along the I-26 Corridor through Asheville. All projects are consistent with the long range transportation goals and objectives of the FBRMPO.

Land of Sky Regional Council (LOSRC) – Regional Vision 2010 (2002)

The LOSRC, a regional planning and development organization that serves Buncombe, Henderson, Madison, and Transylvania counties, developed the *Regional Vision 2010* document. *Regional Vision 2010* is a comprehensive economic development strategy that focuses on strategic issues that aim to address the needs of the region. In the fiscal year 2006-2007 annual update of the Regional Vision 2010 plan, nine regional priorities were identified and included the issue of transportation congestion. Under this priority, the plan identified congestion problems on I-26 and I-40 as a hindrance to economic growth. Concerns ranged from the potential relocation of existing businesses, the inability to attract new industries, and the potential negative impact on tourism.

LOSRC – 2013-2017 Comprehensive Economic Development Strategy (2012)

The LOSRC, as a lead planning organization, helped to develop the *Economic Development Strategy* for Buncombe, Henderson, Madison, and Transylvania counties. Three main strategic areas were identified: job creation, workforce development, and quality of place. The strategy specifically talks about plans, projects and other initiatives aimed at advancing and supporting the three main strategic areas.

4.3. Buncombe County and Municipalities

Asheville City Development Plan 2025

The *Asheville City Development Plan 2025*, adopted in 2002, aims to provide guidance for land use pattern development, transportation networks, and a system of infrastructure that reflects the community values, while still addressing the future growth of Asheville. The plan includes goals and strategies towards achieving the desires of the City. The plan further states that “due to the lack of connectivity and other limitations of Asheville’s existing local street system, interstate highways play a dominant role in handling local traffic.” The plan, being over a decade old, identified the US 19/23 (Future I-26) Improvements Project as being anticipated for completion in 2010. During interviews with local planners in fall 2013, it was indicated that this plan would be updated within the next two years and will have a 2050 time horizon.

Asheville Consolidated Strategic Housing & Community Development Plan (2010)

The City of Asheville receives annual federal grants under two programs: the Community Development Block Grant program (CDBG) and the HOME Investment Partnerships Act Program (HOME). Together, these programs bring about \$3,000,000 a year into the area

to provide affordable housing, economic opportunities and other benefits for low income residents in Asheville and the surrounding counties of Buncombe, Henderson, Madison and Transylvania. The City has developed plans for the use of these funds. The City of Asheville *Consolidated Strategic Housing and Community Development Plan* sets out a five year plan with the broad framework for using these funds starting July 2010. The plan outlines the need for affordable housing, homelessness, public infrastructure, public services, and economic development; it also sets goals for advancing these issues and meeting the needs of the community.

Asheville Downtown Master Plan Report (2009)

In 2009, the City of Asheville developed the *Asheville Downtown Master Plan* as means to respond to an unprecedented set of opportunities and challenges facing downtown Asheville. The plan includes the area adjacent to the I-2513 project study area along Patton Avenue on the east side of the French Broad River as the Patton/River Gateway section of Downtown Asheville. The plan calls for Patton Avenue to become the primary link between the traditional downtown district and the River Arts District and that this link will provide a walkable environment far to the west of Pritchard Park toward the River Arts District. The plan also states that this district has very high potential if the City is able to reclaim and reuse public rights-of-way along the I-240 interchange with I-26.

Asheville Unified Development Ordinance (1997, updated 2010)

The City of Asheville has adopted a *Unified Development Ordinance* (UDO) that includes environmental and development regulations (including zoning, floodplain protection, protected mountain ridges, hillside area development, soil erosion and sediment control, and stormwater management ordinances) to regulate the intensity of development and protect the environment while enhancing the quality of life for residents. The zoning ordinance controls the intensity and location of development within the city limits and the extra territorial jurisdiction (ETJ) of Asheville, which extends up to one mile beyond the existing city limits.

Brevard Road Corridor Study (2005)

The City of Asheville completed a corridor study along Brevard Road from the intersection with Pond Road southward to the intersection with Sardis Road. The plan has updated zoning in three areas along the corridor in anticipation of development pressures resulting from NCDOT STIP Project U-3601 (Brevard Road Widening).

Buncombe County Comprehensive Land Use Plan Update (2013)

The *Buncombe County Comprehensive Land Use Plan* was originally adopted in 1999 and has since undergone updates in 2006, 2009 (minor addition of Beaverdam Township), and most recently in April of 2013. According to the plan, the purpose of the latest update is to “account for the changes which have occurred within land use policies and patterns since the 2006 Plan Update.” This plan not only provides an assessment of Buncombe County currently, but further defines a vision for future land use patterns and key

strategies to help address the needs of the citizens. The plan identified the Future I-26 Project as “having the greatest potential for impact on transportation and land use patterns, as well as local communities.” The plan makes several recommendations including developing a resort district, redefining residential and commercial classes, and pursuing the creation of incentives for workforce.

Buncombe County Sustainability Plan

The Sustainability Plan for Buncombe County was adopted in 2012 and subsequently adopted as the County’s Strategic Plan. Details, goals and objectives cover three main categories: the economy, the environment, and the community. While the plan does not specifically mention the projects, it does provide direction and goals on topics such as affordable housing, increased preservation of green and open space, accessible and multi-modal transit opportunities, increased workforce development, and healthy environments.

Buncombe County Zoning Ordinance

Buncombe County has a Zoning Ordinance that it uses as a basis for land development. The zoning section has several categories of land uses including four classes of residential districts, commercial service, an employment district, public service district, neighborhood service district, and an open use district. There was recently an update to create the Beaverdam Residential District. 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.

East of the River Transportation Connections

The City of Asheville conducted the first phase of the East of the Riverway Sustainable Multi-Modal Neighborhood program. This grant will help the area grow in a sustainable, healthy way, with increased transit, bicycle and pedestrian networks and infrastructure. The projects that result from this grant will link and complement other City of Asheville initiatives and projects in the general vicinity. Specifically, the document calls for a network of greenways along the French Broad River, with connections through the River Arts District and into downtown. In addition, the document identified a number of recently developed areas and targeted specific areas for future development. The East of the Riverway neighborhood association is currently preparing a 5-10 year transportation plan to help focus improvements in the near to short-term.

Town of Weaverville Comprehensive Land Use Plan

The Town of Weaverville recently completed an update to the 2007 *Comprehensive Land Use Plan*. The intent of this document is to serve as a policy guide for future decision-making as well as for neighborhood and community enhancement. The plan covers land use, development and redevelopment, mobility, infrastructure, economic development, community facilities, and parks and recreation. The plan further defines five broad land use categories: downtown core, residential, commercial, industrial, and rural. The plan specifically makes recommendations for three “opportunity sites” for development: the

East Weaver Boulevard, North Weaverville, and West Weaverville priority redevelopment areas, all bordering US 19/23. The A-0010A project is discussed in a number of locations of the plan, and it is implied that the project could help alleviate traffic congestion and impediments to vehicular traffic, which would in turn, spur development. One of the key recommendations was to refine the existing ordinances and policies and incorporate them all into one Unified Development Ordinance. This process is currently underway by the Town of Weaverville.

Town of Woodfin Code of Ordinance

Land use planning for the Town of Woodfin is governed in large part by the Code of Ordinance. The Code of Ordinance designates land use and zoning for the town.

In 2006, the Town of Woodfin created a project development district, labeled the Woodfin Downtown Corridor Tax Increment Finance (TIF) District. This 205-acre tract within Woodfin encompasses a large portion of both the east and west sides of US 19/23. Development plans for this district involved three phases. The first two, east of US 19/23, will be primarily residential, retail, and office uses. Phase three, west of US 19/23 has been identified as being primarily residential. Development has since occurred along this corridor and according to Town officials, will continue to develop. The public improvements to this district include water and sewer extension, pedestrian walkways, and bike trails. It is anticipated that approximately \$230 million will be privately invested by 2015 in this area.

4.4. Henderson County and Municipalities

Henderson County Comprehensive Plan

The purpose of the Comprehensive Plan is to guide the development and management of growth, related public services and infrastructure for Henderson County. Recommendations and Action Strategies from this Plan are based upon the following Key Principles of Growth: High Quality of Life, Balanced Sustainable Growth, Sustaining Heritage, Culture and Traditions, Economic, Fiscal, and Environmental Sustainability, Accessibility and Equity in the Provision of Services and Resources, Regional Coordination, and Community-based Planning.

The plan specifically talks about population and employment trends, the status of land use changes, and factors influencing growth including: areas subject to flooding, slope, soils, agricultural districts, existing land use, sensitive natural areas, protected mountain ridges, publicly-owned land, availability of sewer and water services, the transportation network, and human features (churches, cemeteries, schools, etc.).

Recommendation E-04 (F): Take a leadership role in the development of the transportation and industrial corridor, proximate to the Asheville Regional Airport and northern Mills River area, as a regional center of economic activity.

In addition, a number of Community Plans were identified within the plan. These smaller plans address a number of goals related to the following areas: natural & cultural resources, agriculture, housing, community facilities, transportation, economic development, land use & development, and community character & design.

Dana Community Plan (March 2011)

The community of Dana, located in eastern Henderson County, along US 64, prepared a community plan in March of 2011. There were a number of key recommendations and action strategies which, according to the plan include the following:

- Promoting monitoring of Hungry River and Mud Creek
- Considering expanding ridge top protection regulations, requirements and other standards for preservation
- Supporting and promoting conservation easements within the planning area
- Encouraging the preservation and care of historic sites
- Coordinating with the Henderson County Partnership for Economic Development to encourage agricultural-related industries
- Expanding and diversifying housing options (including encouragement and regulations)
- Supporting extensions of public water and public sewer into certain areas
- Prioritizing projects according to the FBR MPO
- Improving intersections and traffic along Ridge Road, Academy Road, and Blue House Road
- Providing an additional I-26 interchange between the Upward Road and US 64E
- The Upward Road interchange along I-26 being developed to draw businesses, tourists, and residents (including encouraging high density residential)

Edneyville Community Plan (May 2010)

The community of Edneyville, located in eastern Henderson County, along the border with Rutherford and Polk Counties, prepared a community plan in May of 2010. There were a number of key recommendations and action strategies which, according to the plan include: restoring impaired streams (303d), implement stream buffer incentives, and consider identifying and incorporating stormwater management standards.

- Considering only permitting conservation subdivisions in the planning area
- Limiting cutting on ridges and slopes and minimize development on steep slopes
- Incentivizing historical and cultural preservation
- Reduce farmland loss in the planning area, including promoting development regulations
- Considering offering incentives for affordable housing
- Expanding and diversify housing options (including encouragement and regulations)
- Supporting extensions of public water and public sewer into certain areas
- Improving transportation network
- Prioritizing projects as per the FBR MPO

- Improving intersections and improve roadways that could provide bypass options for US 64 east
- Directing commercial and industrial growth toward existing public services
- Support the development of the industrial sector
- Amending current zoning to reflect new Industrial (I), Commercial (C), Office (O) and Residential One (R1) areas
- Considering the use of guidelines, standards, and regulations to preserve the community character

Etowah & Horse Shoe Communities Plan (September 2009)

The communities of Etowah and Horse Shoe, located in western Henderson County between the Town of Mills River and City of Hendersonville, prepared a community plan in September of 2009. There were a number of key recommendations and action strategies which, according to the plan, include the following:

- Developing an open space plan to protect wetlands and flood areas
- Supporting water quality protection and restoration programs, including adopting stormwater regulations and the prohibition of waterline extensions in Agricultural/Rural areas
- Limiting cutting on ridges and slopes and minimize development on steep slopes
- Incentivizing historical and cultural preservation
- Considering offering incentive for affordable housing Improve emergency services in the Planning area
- Improving transportation network within the Planning area, including: prioritize projects according to the French Broad River MPO
 - Widening Brickyard Road;
 - Improve a number of intersections along US 64 West;
 - Lowering the speed limit along US 64;
 - Consider a new connector road between Morgan Road and McKinney Road
- Improving intersections and improve roadways that could provide bypass options for US 64 east
- Promoting tourism along US 64 East (Scenic Byway)
- Continuing to support the development of local manufacturing operations
- Amending current zoning to reflect new Industrial, Commercial, Office and Residential One areas to encourage appropriate and targeted growth
- Considering the use of guidelines, standards, and regulations to preserve the community character

Draft Green River-Tuxedo-Zirconia Community Plan (September 2013)

The communities of Green River, Tuxedo, and Zirconia, located in southern Henderson County, prepared a community plan in September of 2013. There were a number of key recommendations and action strategies (note: these are still considered draft) which, according to the plan, include the following:

- Monitoring water quality within the Planning area
- Incentivizing historical and cultural preservation
- Reducing the loss of farmland within the Planning area
- Expanding and diversifying the housing options
- Considering offering incentive for affordable housing (including the expansion of utility services)
- Supporting and encouraging road and intersection improvements
- Promoting small business, Agribusiness and cottage industry growth (particularly those that do not require public utilities)
- Amending current zoning to reflect new Industrial, Commercial, Office and Residential One areas to encourage appropriate and targeted growth
- Amending the current Land Development Code to promote rural and local business
- Considering the use of guidelines, standards, and regulations to preserve the community character

Henderson County Land Development Code

As part of the Henderson County 2020 Comprehensive Plan, regulations were developed and adopted in 2007 to “promote the health, safety and general welfare of the community.” The Code has been updated and most recently adopted in February 2013. The Land Development Code guides development in unincorporated Henderson County and includes provisions for items such as general use zoning, conditional zoning, special mixed use, and overlay districts, subdivision regulations, and landscape design standards. The Code further discusses flood damage prevention, water quality, water resource buffers, protected mountain ridges, soil and sedimentation, as well as review processes and procedures.

Town of Fletcher Land Use Plan

The Land Use Plan (2013) is intended to serve as the next 20-year update for the Town of Fletcher. The original Land Use Plan was created in 1993, allowing for the creation of a Zoning Ordinance (1995), Land Development Code (2006), Heart of Fletcher Master Plan (2011), Strategic Plan (2004), Stormwater Master Plan (2007), and a Greenway Master Plan (2007).

Several key items, as described in the plan, include the following:

- The inability of the Town of Fletcher to annex any additional land to the north and west of the existing Town due to restrictions in the Town’s charter and the incorporation of Mills River in 2003.
- Population calculations show that Henderson County has increased 54% since 1990, while the Town of Fletcher has increased 158%. Additionally, while the growth rate is showing signs of decline in Henderson County, the growth rate in the Town is continuing to increase.
- Current zoning does allow for infill, with higher densities encouraged in the Town center.

- Topography does not impose any significant impediments to development.
- The Town has adopted a Flood Hazard Ordinance to regulate development.
- Much of the vacant land within Town limits is located in designated floodplain areas, which can severely limit development.
- Several completed projects including the widening of US 25, upgrade to Old Airport Road and the extension of Fanning Bridge Road have encouraged higher intensity of development. Two exits currently serve Fletcher along I-26.

4.5. Madison County and Municipalities

Madison County Comprehensive Plan

The Comprehensive Plan (2010) guides development and change for Madison County. It covers a range of items including land use, transportation, utilities, the local economy, recreation, and community character. The plan further identifies and projects key data such as population and employment, the amount of vacant and developable parcels, and identified environmental constraints (slope, ridge line, floodplain, public lands, etc.). Specific strategies, as described in the plan, to help preserve natural resources while accommodating growth include the following:

- Pre-development conferences and site-specific assessments for all developments
- Conservation-based designs for all developments
- The use of BMPs

Madison County Comprehensive Transportation Plan

A Comprehensive Transportation Plan was developed in 2011 for the greater Madison County area, including Hot Springs, Marshall, and Mars Hill for the purpose of evaluating highway, public transportation, rail, bicycle and pedestrian projects. This plan covers foreseeable needs through 2035. The report makes a number of recommendations, specific to highway projects including widening US 19 (R-2518A) from I-26 to Yancey County, widening US25/70 (MADI0003-H) from NC 251 to North Main Street, constructing a new NC 213 bypass, 2-lane major thoroughfare (MADI0005-H) from NC 213 to I-26, and the Spring Creek Connector (R-5117) which would upgrade existing Little Pine Road and construct a new connector. I-26 through Madison County has already been upgraded to interstate standards.

Madison County Land Use Ordinance

The Madison County Land Use Ordinance (last revised May 2010) helps guide zoning throughout the County. It specifically establishes a number of districts, addresses administration and enforcement, as well as describes and sets forth the powers and duties of the Planning Board. There are currently eight primary districts with three overlay districts.

Town of Marshall Comprehensive Land Use Plan

The Comprehensive Land Use Plan for the Town of Marshall (2009) sets forth a plan of action to guide and accomplish community desires for a 20-year vision. The purpose of this plan is to establish the groundwork for implementing the long-range development and

conservation objectives for the Town of Marshall. According to the plan several goals and actions include the following:

- Promoting sustainable land development patterns and practices
- Establishing a safe, diverse, and efficient transportation network
- Strengthening economic development and downtown revitalization opportunities while maintaining the character of the Town

Town of Marshall Unified Development Ordinance (UDO)

In 2011, the Town of Marshall established a UDO in order to promote the health, safety, morals, and general welfare of the community through facilitating the provision of transportation, water supply, sewage, and other public services, the conservation of buildings and historic integrity, and through establishing procedures and standards for the orderly growth and development of the Town. Specific items addressed include the establishment of zoning districts, special requirements, environmental protection and open space, infrastructure, as well as development plan requirements.

Town of Mars Hill Strategic Plan Update

A revised Strategic Plan was completed in 2009 as an update to the original, developed in 1996 as a result of the new construction of I-26 and the resultant development pressures. The plan provides updates to a number of objectives and topics including community appearance and character, economic and downtown development, transportation, housing/neighborhoods, I-26 development policies, public safety, open space, and environmental quality.

Town of Mars Hill Water and Sewer Master Plan

The Town of Mars Hill prepared a Water and Sewer Master Plan to evaluate existing conditions and make recommendations for the next 20 years of service. Projections have indicated that water and wastewater demands are anticipated to increase by approximately one percent per year through 2029, which is slightly higher than the current increase of 0.3 percent per year. This expanded growth is anticipated to be largely contingent on the completion of the I-26 project. Projected expansion has been identified to occur at the I-26/SR 213 interchange, along SR 1605, and along SR 1549 (both paralleling I-26).

5. Cumulative Effects Study Area Boundaries

The resource categories for which study areas were established are as follows:



These four resource categories helped define the areas which would be most likely to be impacted by the transportation projects. Local interviews and verification with various entities helped determine the full extent of the study area boundary. In addition, a number of supplemental materials were used to help define study areas for the specific resource and feature categories.

North Carolina Conservation Planning Tool

The North Carolina Conservation Planning Tool, as developed by NCDENR, provides a valuable means for synthesizing and sharing the priorities of the State's conservation agencies and organizations with planners in government and the private sector to inform decisions and guide conservation efforts statewide. The Conservation Planning Tool consists of assessments and maps that identify, evaluate, and prioritize important natural resources required to maintain healthy and sustainable ecosystems statewide.

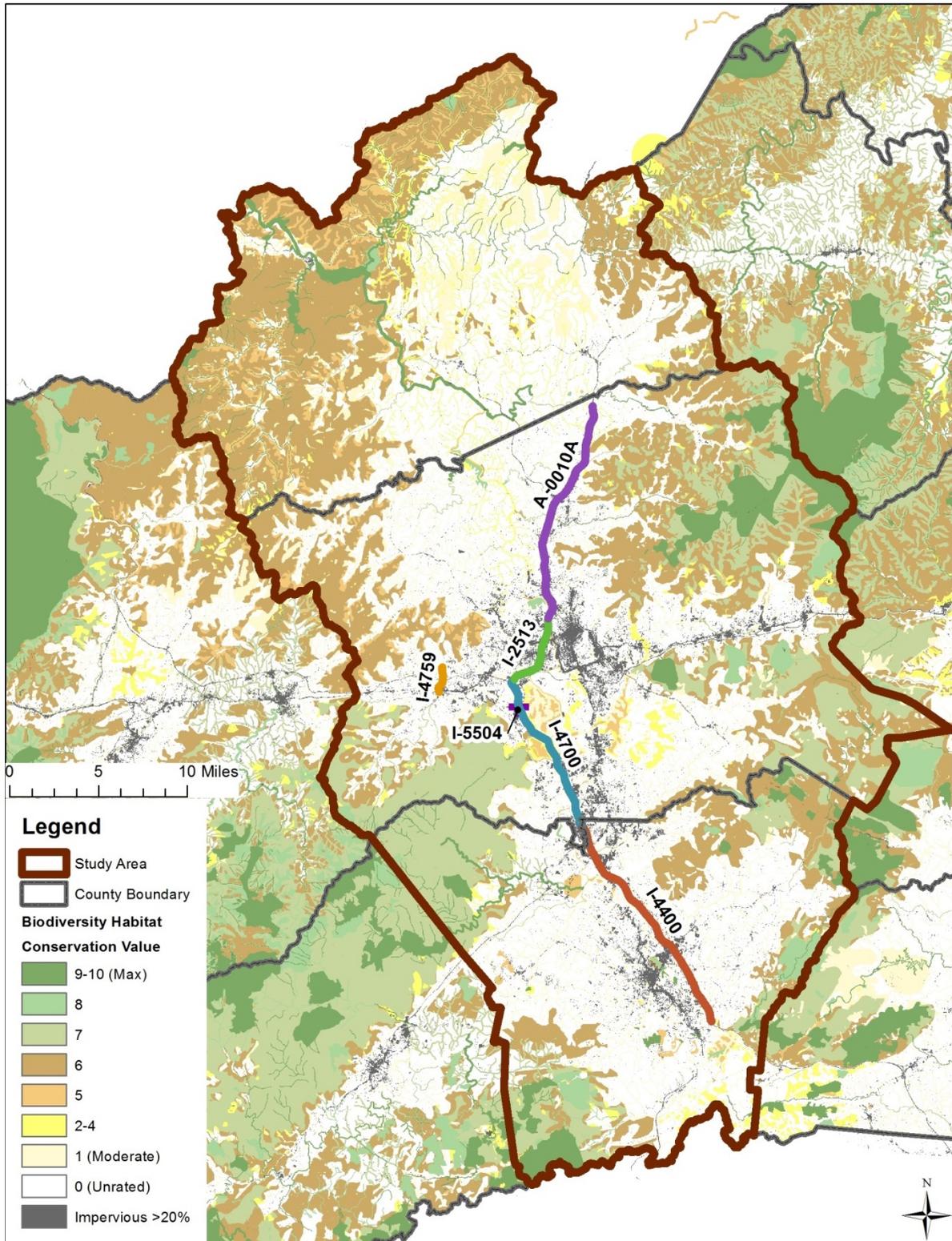
Assessments and maps include:

- Biodiversity/Wildlife Habitat
- Open Space and Conservation Lands
- Forestry Lands
- Farmland

This planning tool illustrates the locations and conservation values of significant natural resources throughout North Carolina, and has been applied by local governments, state agencies, regional councils, funding programs, and conservation organizations to support land use, conservation, planning, and decision-making. Conversely, this tool also shows those areas that are no longer considered to have high conservation value, or those areas that have already been heavily developed.

For the purposes of the Cumulative Effects Study, the Planning Tool will serve as the basis of data gathering to help determine potential overall impacts to natural resources. This analysis, in conjunction with project-specific analysis, GIS data review, local interviews and a site visit, will serve to both help address natural resource concerns from a cumulative effects standpoint. As can be seen in Figure 2, the more sensitive areas are located along the boundary of the study area, most notably within the National Parks. The areas along the transportation corridors primarily have a low-sensitive value, as well as a high concentration of existing impervious coverage.

Figure 2: Conservation Planning Tool



Linking Lands Project (Land of Sky Regional Planning Organization)

The Linking Lands and Communities Project, a five-county effort to gather information about the region's natural resources, helps identify opportunities to link these important natural systems via a *Regional Green Infrastructure Network*. Over 40 organizations and agencies from Buncombe, Madison, Henderson, and Transylvania counties have been involved and the project resulted in a series of maps and GIS data that can be used to support land conservation, land use planning and land management.

More than 45 data sets were combined to identify important *landscape hubs* and connecting *corridors* across the five-county region. Resource assessments were also conducted to identify lands that significantly contribute to the region's water quality, serve as important wildlife habitat, sustain biodiversity, and provide opportunities for sustainable agriculture (farming and forestry).

Maps and models for the Land-of-Sky Region were completed in July, 2010. In the spring of 2012, all maps and models were updated with most current available data and the addition of Haywood County. The current maps reflect data from all five counties.

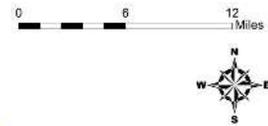
Project-specific impacts to water and natural resources can be found in the individual reports and will be considered on a project-by-project basis. This data, in conjunction with the NC Conservation Planning Tool, will help determine relative impacts to both natural and water resources across the broader study area. More specifically the data will assist in determining the areas that are particularly sensitive and at the highest risk of impacts from the potential impacts of the projects. The results, as shown in Figure 3, are similar to the output of the Conservation Planning Tool. The more sensitive areas are located on the edge of the boundary in protected areas, while the less sensitive areas are located along the I-26 and I-40 corridors, near the developed areas.

Figure 3: Green infrastructure map

**Green Infrastructure Network
(Combined Resource Hubs)**

**Linking Lands and Communities
in the Land-of-Sky Region**

Where are the region's highest quality hubs with multiple resources* present and the corridors that connect them?



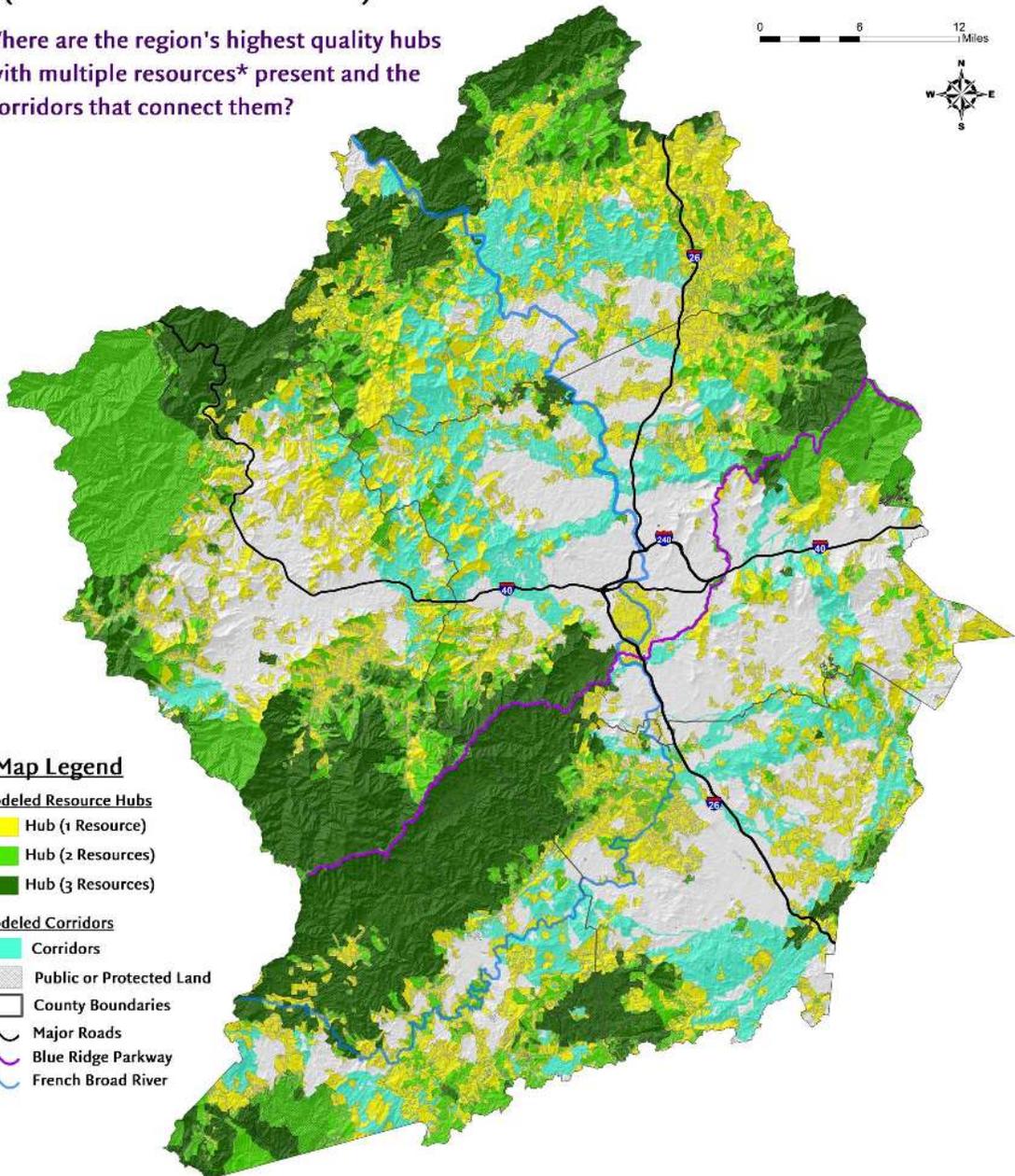
Map Legend

Modeled Resource Hubs

- Hub (1 Resource)
- Hub (2 Resources)
- Hub (3 Resources)

Modeled Corridors

- Corridors
- Public or Protected Land
- County Boundaries
- Major Roads
- Blue Ridge Parkway
- French Broad River



*Resources include wildlife habitat & biodiversity, water quality, farming & forestry

Important Information for Users of this Map:

This map contains modeled data created as part of Land-of-Sky Regional Council's Linking Lands and Communities project. Information on how this map was created, including data sources and input data layers, ranking scheme, and other considerations, is available on the project website: www.linkinglands.org. LOSRC, RENCi and A Carroll GIS consider all of this information to be an integral part of this map, and essential to understanding what this map represents and how to interpret it properly.

A Carroll GIS



Map Date: February 29, 2012

5.1. Study Area Timeframe

Construction of both I-40 and I-26 was initiated in the late 1950's and continued into the early 1960's. Revised planning, particularly for the I-26 corridor was reinitiated in 1989, which will serve as the base year for the purposes of this study. With the exception of recurring impacts to minority and low-income communities, effects prior to this date would likely be considered to be related to the previous construction. As stated before, the horizon year selected for the cumulative effects assessment is 2035, which corresponds with the fiscally-constrained Long-Range Transportation Plan prepared by the French Broad River MPO.

6. Past, Present, and Reasonably Foreseeable Future Actions

NCDOT initiated project level cumulative effects scoping in 2007 within the Asheville Regional Area. Agencies and local planning staff and other stakeholders were asked to provide a list of past, present, and reasonably foreseeable future actions within the Asheville Regional Area. Agencies included in the scoping process included the three counties, municipalities, MPO/Rural Planning Organization (RPO), and public and private sector entities. Projects included in this assessment included those from the City and County's Capital Improvement Plan (CIP), other projects from the MPO's Long-Range Transportation Plan, and major investments/projects planned by private businesses and institutional entities, including the University of North Carolina at Asheville and Asheville medical centers.

6.1. NCDOT Transportation Action

For the purposes of the Cumulative Effects Study, the following five transportation projects were determined to have the highest potential towards generating potential regional cumulative effects.

A-0010A

A-0010A, or the US 19-23 Improvements project, proposes to improve approximately 12 miles of US 19/23 from north of I-240 in Asheville to just south of Exit 13 (Forks of Ivy – Stockton Road) near Mars Hill in Buncombe County. The project will bring the roadway to interstate standards by adding lanes, reconfiguring interchanges, rehabilitating or replacing several bridges, and other roadway design improvements. The purpose of this project is to reduce congestion, address geometric deficiencies and address physical condition deficiencies. This project is needed as the corridor is currently experiencing increasing congestion which is anticipated to worsen towards the design year. In addition, there are a number of structures with inadequate vertical and horizontal clearances including functionally-obsolete and structurally-deficient bridges.

I-2513

I-2513, or the I-26 Connector project, is a multi-lane freeway, part on new location from I-26 to US 19-23-70, including the I-26/I-40/I-240 interchange. The purpose of

this project is to provide a freeway-to-freeway connection, complete the link between Charleston, SC to Kingsport, TN, improve capacity, reduce traffic delays and congestion, and to increase the remaining useful life of the Smoky Park Bridge. This project is needed, as congestion levels have been steadily increasing, crash rates are higher than the statewide average, and current I-26/I-240 does not meet interstate standards.

I-4400/I-4700

I-4400/I-4700, proposes to widen I-26 from four lanes to six or eight lanes, or a combination thereof for an approximately 22 mile section. The purpose of this project is to reduce congestion, with a goal of LOS D in the design year of 2040, and to improve existing and projected roadway capacity deficiencies. This is needed as current I-26 is reaching capacity and the pavement structure is currently insufficient with deteriorating road surface conditions.

I-4759

I-4759, or Liberty Road, proposes to add an interchange at I-40 and SR 1228 (Liberty Road). This project primarily involves the construction of a new location facility, while realigning the existing grade separation. The purpose of this project is to improve connectivity in west Buncombe County, linking I-40 to a number of other transportation facilities in the area. This will in turn reduce pressure on existing facilities currently experiencing pressure due to increased growth as well as provide a connection to the communities of Enka and Candler. This project has a study time horizon of 2030.

I-5504

I-5504, or the Brevard Road interchange, proposes to modify an existing partial cloverleaf interchange. The project may include the widening of the NC 191 (Brevard Road) bridge over I-26. The primary purpose of this project is to alleviate increased congestion by increasing the efficiency of the interchange.

Cumulative effects were assessed based on the results of previous NCDOT transportation-related studies and other public/private actions. The following table displays the reports that have, are currently, and will provide the basis for an effect determination. Studies include CCRs, ICEs, and CIAs. These projects were selected because they are the projects largest in scope, having the greatest potential to contribute to the intensity of impacts on resources when considered with other actions having similar effects.

Table 1 Regional transportation projects

Project	Community Characteristics Report	Indirect and Cumulative Effects	Community Impact Assessment
A-0010A	✓	◐	✗
I-2513	N/A	✓	✓*
I-4400/I-4700	✓	✓	◐
I-4759	✓*	✓*	✗
I-5504	N/A	◐	◐

- ✓ – Completed
- ◐ – Underway
- ✗ – Not Started
- * - Currently Being Revised

Other STIP Projects

In addition to these five projects, the 2012-2020 STIP identifies several other major transportation projects in the study area. As there are a number of projects that extend to the 2035 time horizon, EPA guidance on what constitutes “reasonably foreseeable” states that project in the 10-25 year timeframe may be “less likely and even speculative”.

Table 2: Other STIP projects in the vicinity

County	Route	STIP	Location/ Description	Action	Comment
Buncombe	US 19/ US23	R-4406	NC 215 in Canton to existing multi-lanes near NC 151.	Widen to multi-lanes	
Henderson	SR 1006 (Howard Gap Road)	R-5207	SR 1006, from SR 1539 to US 64.	Upgrade roadway.	Right-of way (ROW) in-progress
Buncombe Henderson	I-26	I-5501	I-26/NC 280 Interchange	Retrofit existing interchange	ROW in-progress
Buncombe	US 25A	U-2801	US 25A to Roberts Road in Asheville	Widen to multi-lanes	Section A – re-evaluation Section B - Completed
Buncombe	NC 63	U-3301	SR 1615 (Gilbert Road) to SR 1004 (Newfound Road)	Widen to multi-lanes, some relocation	Planning/design in-progress
Buncombe	NC 191	U-3601	NC 191, East of I-26 and I-40	Widen to multi-lanes	Planning/design in-progress

NCDOT Strategic Transportation Investments (STI) Prioritization

NCDOT uses a transparent, systematic, and data-driven process for prioritizing the major transportation projects in the state and making investment decisions. This process, developed in collaboration with key partners, evaluates projects based on their merit through an analysis of the existing and future conditions, the benefits the project is expected to provide, the project’s multi-modal characteristics and how the project fits in with local priorities.

The strategic prioritization process categorizes similar projects together into “prioritization buckets” where they are compared against each other using a data-driven methodology.

Highway mobility and modernization projects are scored based on a combination of quantitative data, local input, and multimodal characteristics. Quantitative data includes an analysis of current congestion, safety, and pavement conditions, while also evaluating the project benefits compared to its cost and the expected economic

impact. Local input comes from the priorities of the local MPOs, RPOs, and NCDOT Divisions.

The final step of the prioritization process is to apply financial and scheduling constraints to the recommended investment strategy. The result of this final step is the draft 2013-2023 STIP, which is included in the Policy to Projects document.

NCDOT is currently working on the third generation of the STI prioritization process, with the initial scoring being released as of May 2014. As a result of STI, the proposed projects analyzed as part of this study as well as the projects listed in the previous table are subject to change. It is anticipated that the list of final scores will be available in October of 2014, while the new STIP will be available in October of 2015.

6.2. Public/Municipal Actions

There are several universities in the project area, including the University of North Carolina (UNC)-Asheville and Mars Hill University. Transportation focused components of plans made by these universities, along with local municipal actions, can have a major influence on local and regional development and growth patterns.

Universities & Colleges

UNC-Asheville is currently in the process of updating its campus Master Plan. Major projects resulting from this Master Plan include a new park-and-ride surface lot at the intersection of future I-26 and Broadway/Riverside, as well as a robust way-finding system. In addition, UNC-Asheville is working with Buncombe County and the City of Asheville to provide connections to the proposed greenway system.

Asheville-Buncombe Technical College is currently expanding to include a new satellite campus along Riverside Drive. This campus is looking to provide a multi-modal connection to the surrounding areas. Regional planners did not indicate that they thought this would be a large facility, as it is a satellite campus, but could contribute to increased traffic levels in the vicinity. In addition, there are several active construction sites on the main AB Tech campus in downtown Asheville. This construction is in support of additional facilities to help accommodate a growing student population.

Mars Hill University is likely to develop at a steady pace over the long-term, which will in turn increase the overall population and development within the Town of Mars Hill, as most activities within the town are tied to the college. Mars Hill has no current infrastructure projects or plans.

FBRMPO Comprehensive Transportation Plan (2008): Project Recommendations

The following regional projects were recommended by the FBR MPO in the long range comprehensive transportation plan developed jointly with NCDOT.

Buncombe County:

TIP Project	Roadway	Description	Priority
R-4406	US 19 / 23	NC 151 to Williams St (in Haywood Co.)	High
R-2813A	Long Shoals Road (NC146)	I-26 to Brevard Road (NC 191)	High
U-2801A	US 25A (Sweeten Creek Road)	Rock Hill Road (SR 3081) to US 25 / NC 280	High
N/A	Long Shoals Road (NC146)	I-26 to Hendersonville Road (US 25)	High
N/A	Mills Gap Road (SR 3116)	US 25 to Concord Road (SR 3150)	High
U-3601	Brevard Road (NC 191)	I-40 to I-26	Medium
U-3301	NC 63	Newfound Road (SR1004) to Turkey Creek Road (SR 1380)	Medium
N/A	US 19 / 23 (Smokey Park Highway)	I-40 to NC 151	Medium
N/A	NC 112 (Sand Hill Road / Sardis Road)	Enka Lake Road (SR 3446) to NC 191	Medium
N/A	I-40	US 19 (Smokey Park Highway, Exit 44) to US 74 (Exit 27 in Haywood County)	Low
N/A	I-40	I-240 to Porter Cover Rd (SR 2838, Exit 55)	Low
N/A	US 25 / 70	US 19 / 23 / Future I-26 to Monticello Road (SR 1727)	Low

N/A	NC 63	US 19 / 23 (Patton Avenue) to Newfound Road (SR 1004)	Low
N/A	NC 280	I-26 to US 25	Low
N/A	Patton Cove Road (SR 3388)	I-40 to US 70	Low
N/A	Biltmore Avenue (US 25 / SR 3214)	I-40 to US 25 (Southside Ave. / Charlotte Street (SR 3284))	Low
N/A	US 25 (McDowell St.)	Biltmore Avenue (SR 3214) to US 25 (Southside Ave. / Phifer St.)	Low
N/A	US 25 (Merrimon Ave.)	I-240 to Beaverdam Road (SR 2230)	Low
N/A	US 25 (Merrimon Ave.)	Beaverdam Road (SR 2230) to Elkwood Avenue (SR 1674)	Low
N/A	Weaverville Hwy (US 19 / 23 Bus / US 25)	Elkwood Avenue (SR 1674) to Reems Creek Road (SR 1003)	Low

Henderson County:

TIP Project	Roadway	Description	Priority
	Balfour Parkway	NC 191 to US 64	High
	Howard Gap Road (SR 1006)	Upward Road (SR 1783) to US 25	High
	US 64	South Rugby Road (SR 1312) to Banner Farm Road (SR 1314)	High
	White Street	US 25 Bus to Kanuga Road (SR 1127)	High
	Kanuga Road (SR 1127)	US 25 Bus (Church Street) to Price Road (SR 1137)	High
U-3403A	NC 191	NC 280 to Balfour Parkway	Medium
U-3403B	NC 191	NC 280 to Blue Ridge Parkway (Buncombe County)	Medium
	US 64	Buncombe Street to Brickyard Road (SR 1424)	Medium
	US 176	NC 225 (Greenville Highway) to Shepherd Street (SR 1779)	Medium
	Old Airport Road / Mills Gap Road (SR 1547 / 1551)	US 25 to Hoopers Creek Road (SR 1553)	Medium
R-0505	US 25	I-26 to NC 225 (Greenville Highway)	Low
	NC 191	Balfour Parkway to US 25	Low
	Sugarloaf Road (SR 1734)	US 64 to Pace Road (SR 1726)	Low
	Fanning Bridge Road (SR 1358)	US 25 to NC 280	Low

6.3. Private Sector Actions

Local planners have indicated that there has been a recent upward trend in the number of permits and construction projects occurring within the region. According to the City of Asheville the number of new building permits (residential and commercial) has been steadily increasing over the past few years, from 670 issued in Q1 of 2010, to 741 in Q1 of 2013. Most of these are additions and alterations, however between 2011-2013 81 new construction projects were initiated.

In Henderson County, a similar trend exists, with 226 permits being issues in 2010, while slowly increasing to 444 issued in 2013. Several of the more recent permits include multi-unit residential. Henderson County planners also indicated that most commercial/retail growth in the County was as a result of the congestion getting to Asheville and that new development would likely slow down if congestion was relieved.

Representatives from Advantage West Economic Development Group indicated that current trends indicate the siting of new manufacturing and industrial sites are unlikely to be wide-spread as there is an abundance of infill sites left vacant by the economic downturn. Future development would likely occupy these sites first, before developing greenfield sites. In addition, Scott indicated that the region was unlikely to see the 800-1,000 person plants due to automation of processes, but that incoming jobs would be higher-skill and higher-paying.

Representatives from Duke Energy and the Biltmore Estate did not respond to requests for interviews.

6.4. Regional Development and Trends

According to the ARC, there are no active economic development, infrastructure, or transportation initiatives in the study area. The ARC recently completed a water infrastructure process for Madison County to help construct an emergency water pipe to assist in case of drought; that project was completed in 2013. In addition, their primary focus is to advance the Corridor K section of US 64/US 74. While they mentioned that some stakeholders suggested reprioritizing funds from the Appalachian Development Highway Systems for transportation projects in the Asheville area, the ARC indicated that this would be unlikely, as changes in funding require acts of Congress.

According to the FBR MPO, there are a few planned developments in the region. However development has only been tracked for the previous 3 years, so long-term trends are difficult to determine. They indicated that development was occurring and will continue to occur, in the near-term, near Weaverville, while Mars Hill is likely to develop in the 20-30 year time range. In addition, they indicated that infrastructure projects within the counties are being driven by private development, as no new connections outside of Hendersonville are being constructed by any municipality or county.

7. Potential Cumulative Effects

This section describes the regional cumulative effects that could result from the past, present, and reasonably foreseeable actions described in the previous sections of this CES. Based on the data gathered through a site visit, local planning interviews, and professional judgment, it was determined that for the purposes of impact analysis and cumulative effects, it was unlikely that the transportation projects would impact Madison County and as such, it was excluded from the remainder of the assessment.

7.1. Cultural Resources

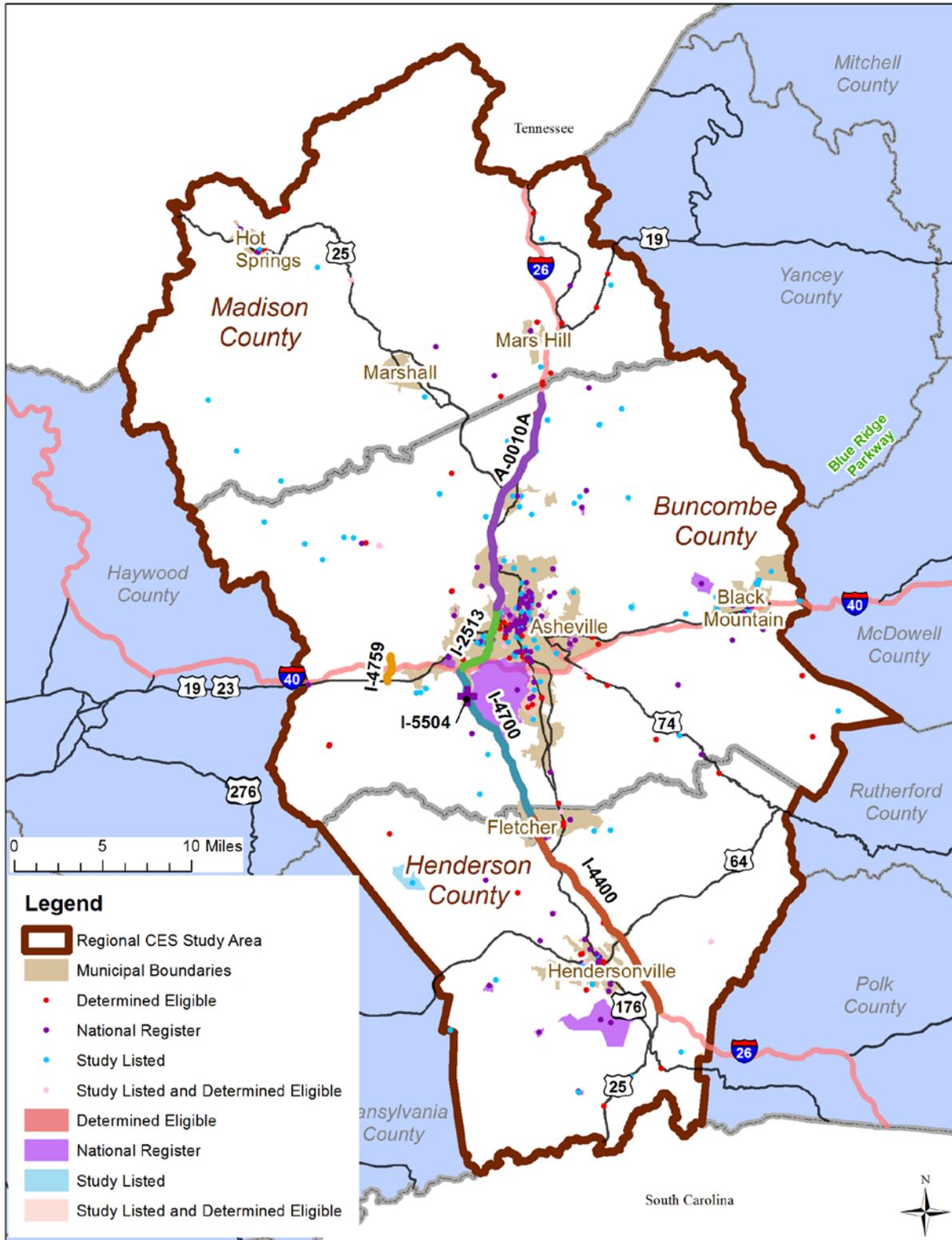
There are a number of historic resources and likely some archaeological resources located within the three county area; however, most are located outside of the existing transportation corridors. The highest density of historic resources is within the City of Asheville. There are several other resources within the study limits of each of the projects; however impacts to these will likely be avoided, minimized or mitigated on a project by project basis through coordination with the FHWA. As final designs and preferred alternatives have not yet been decided upon, impacts have yet to be determined. In addition, the locations of archaeological resources are not made public and will be addressed on a project by project basis as well. As such, there are no project specific impacts at this point with regard to archaeological resources.

Currently, Henderson, Buncombe and Madison do not afford Historic resources any additional preservation or protection outside of the National Register, while the City of Asheville has recently begun a Historic Resource Master Plan. County planners indicated they do not foresee any initiatives in the near-term. Figure 4 shows the historic resources within the project study area.

Project-Specific Impacts

- Based on the available design information, there are two historic resources within the A-0010A Community Characteristics Report study area. No impacts to these historic or cultural resources are anticipated as a result.
- Depending on the preferred alternative, I-2513 has the potential to impact a small portion of the Biltmore Estate and Montford Historic District, in addition to several individual resources located adjacent to the existing corridor.
- The northern section of the I-4400/I-4700 project has the potential to impact the Biltmore Estate property through the acquisition of portions of land to accommodate widening. These lands are primarily rural/agricultural in nature.
- There are currently no identified cultural or archaeological resources as part of the I-4759 project.

Figure 4: Historic resources



7.2. Community Resources

There are a number of Community Resources located within the project study area, including parks and recreation facilities, churches, schools, cemeteries, and several other notable features. Low-income and minority populations as well as recurring impacts are discussed in Section 7.5. Community resources within the study area are typically found in the more developed areas, in close proximity to the existing transportation network. Specifically, there are a few parks located close to the projects including the Pisgah View Park, Hominy Creek Park, and Buncombe County Sports Park near the I-4759 project study area and Rhododendron and Carrier Parks along Brevard Road and Amboy Road near the I-2513 project area. The Blue Ridge Parkway and Pisgah National Forest also provide recreational and park facilities. Buncombe County planners indicated that new parks and recreation facilities would not likely be constructed in the near-term as there is currently a lack of funding and any new funding is expected to be appropriated for deferred maintenance costs.

The Montford community and the Biltmore Estate in Asheville are two specific community resources that are of note in the region and have the potential to be impacted by multiple projects. The Biltmore Estate draws millions of tourist per year and is an important economic driver in the region, while the Montford community is one of the oldest known neighborhoods in Asheville, originally being constructed between 1890 and 1920.

Agriculture is an important part of the local economy with a number of community initiatives including the *WNC Growing Farm and Forest Economies Project*, which aims to build on existing infrastructure, marketing and branding efforts for agricultural products in the region. This project is part of a long-term strategy to develop clusters and attract regional economic drivers. There are several farmers and tail-gate markets located within the study area.

Figures 5-7 show the location of community resources by county within the project study area.

Figure 5: Community resources – Henderson County

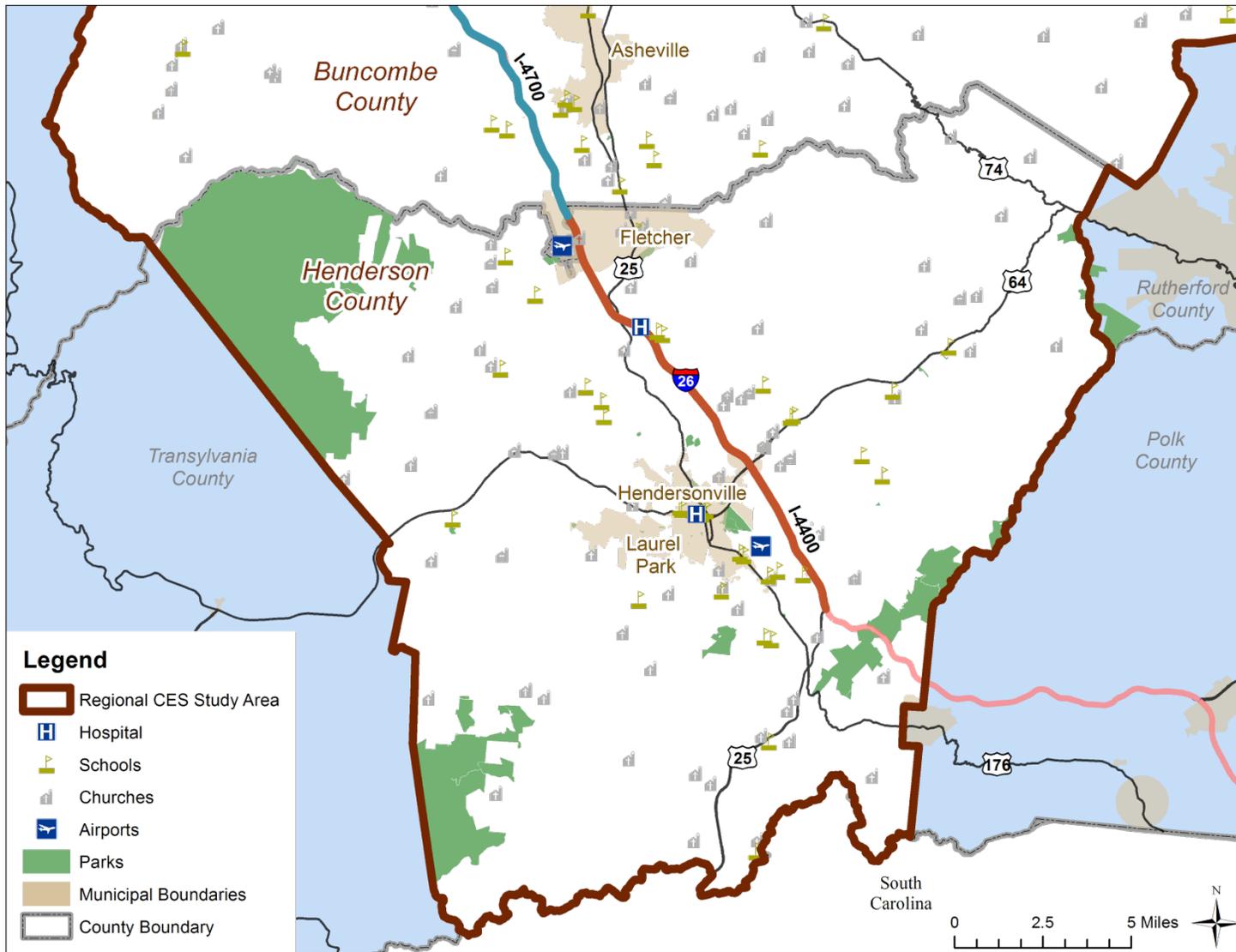


Figure 6 - Community resources - Buncombe County

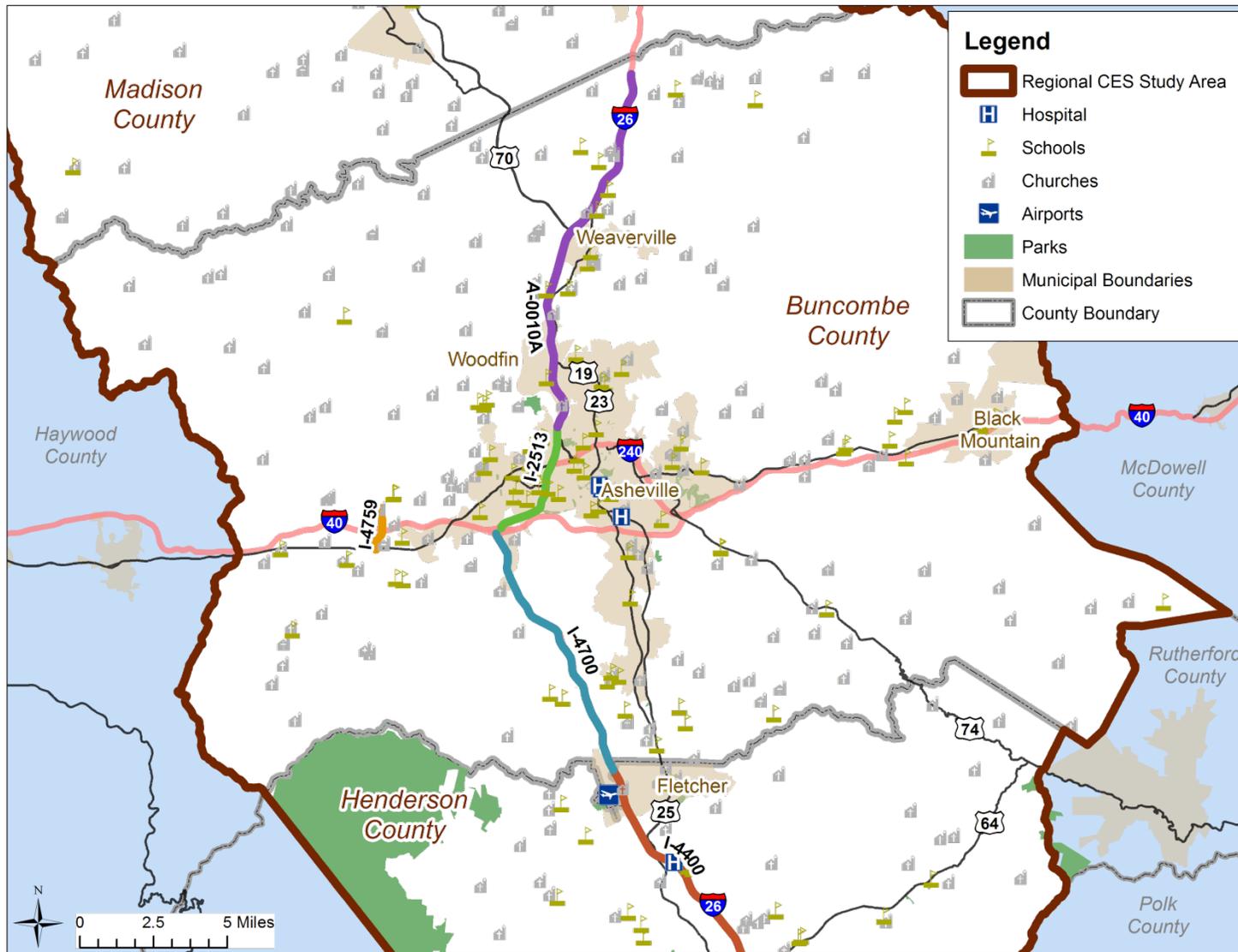
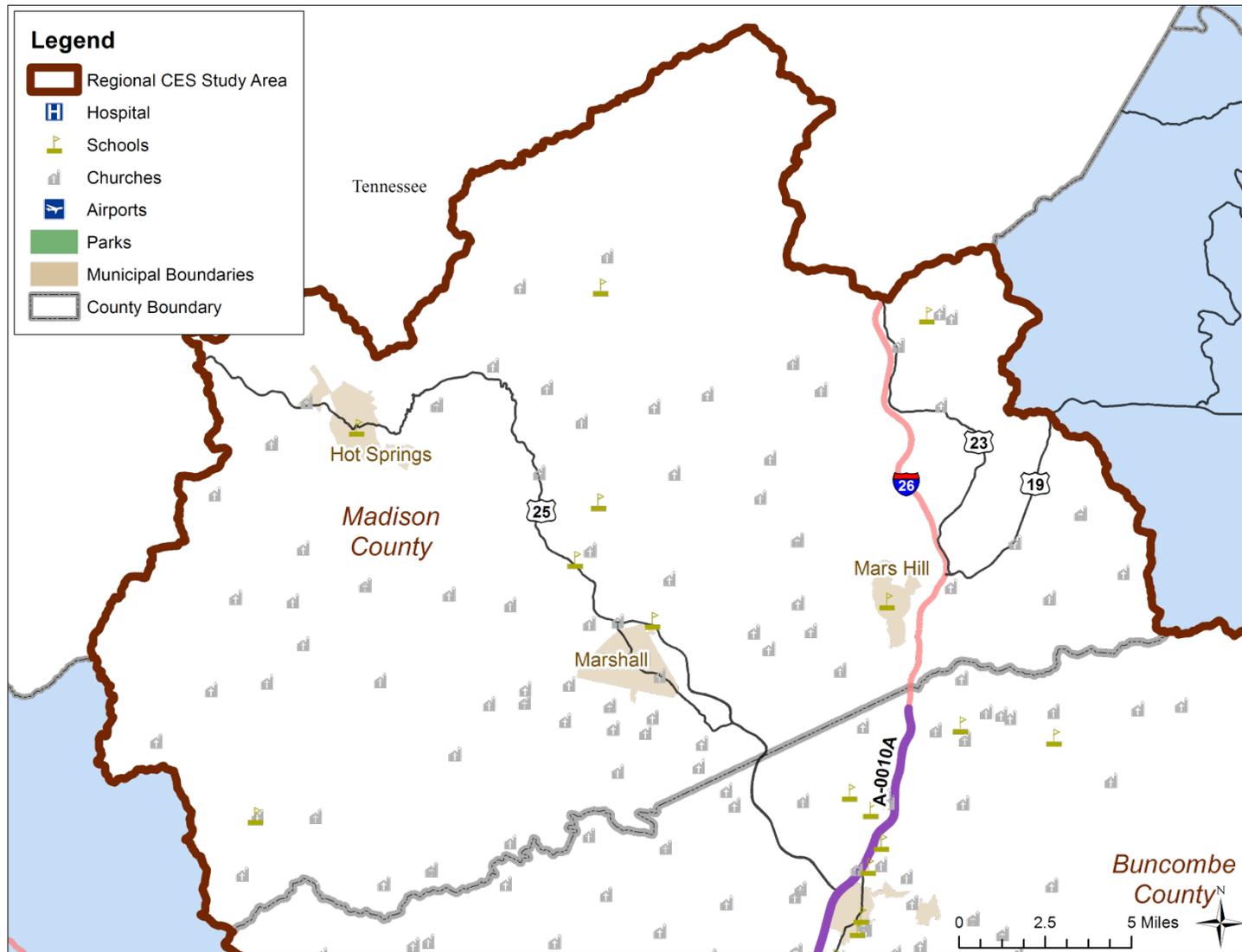


Figure 7: Community resources - Madison County



Project-Specific Impacts

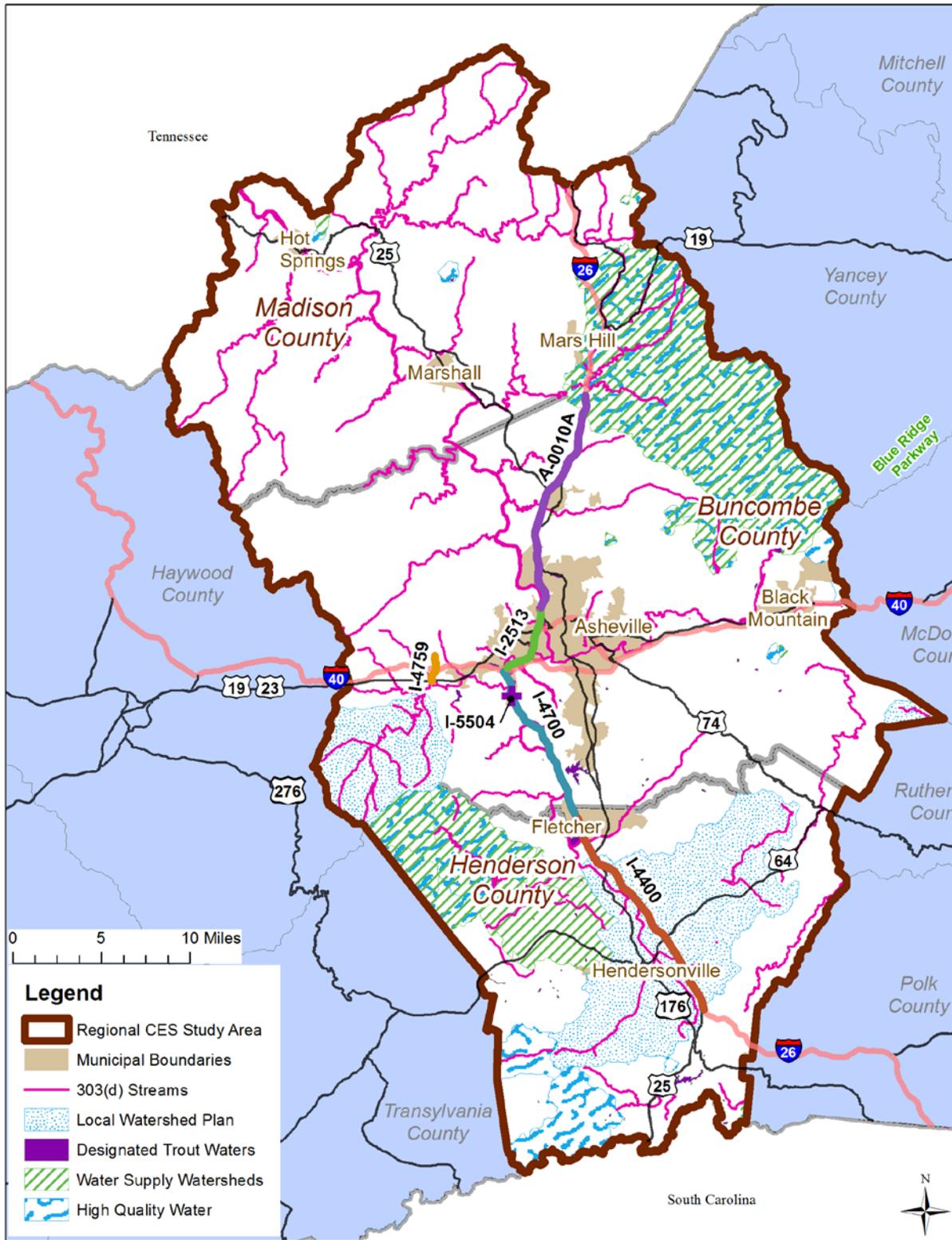
- The A-0010A project could potentially impact several publicly-owned parks and recreation areas and conservation properties. In addition, there are three schools (Woodfin and North Windy Ridge Elementary Schools, North Buncombe Middle School), and several churches located within the study area.
- TIP Project I-2513 has a low to moderate chance of influencing intraregional land development in specific areas due to the limited availability of developable land and the lack of public sewer. Development is also unlikely because of steep slopes and the use of access control along I-240.
- The I-2513 project could result in recurring impacts to a number of communities that were bisected as part of the original project, most notably the communities through west Asheville and the Montford neighborhood.
- According to NCDOT documentation for the I-2513 project, residents of neighborhoods adjacent to the I-240 (Section A of the project) corridor (and particularly Burton Street) feel that their neighborhoods are being encroached upon at the expense of riverfront development. Residents have the perception that they have been burdened in the past through the original construction of I-240, and this perception may not be helped by the widening of I-240 (Section A) and could constitute a recurring impact.
- I-2513 has the potential to affect a small portion of both the Biltmore Estate and the Montford community depending on which design is selected.
- The proposed widening as part of I-4400/I-4700 has the potential to impact a few notable community resources including Broadmoor Golf Course, the western NC Agricultural Center, and Park Ridge Hospital.
- Permanent negative impacts to community cohesion and stability are not anticipated as a result of STIP Project I-4400/I-4700. Since the project proposes to widen an existing interstate facility mostly within existing right-of-way using “best fit” widening, it would not bisect any existing communities or create any new barriers, and minimal residential relocations are anticipated as a result of the project.
- It was noted that Brickton, a local neighborhood located north of Butler Bridge Road, was previously split due to the original construction of the I-4400/4700 section of I-26. Hidden Creek Village was also impacted by the original construction and both are likely to be impacted by any future widening, which could potentially constitute a recurring impact. Brickton has also been identified as being a potential Environmental Justice community.
- The northern section of the I-4400/I-4700 project has the potential to impact the Biltmore Estate property through the acquisition of portions of land to accommodate widening. These lands are primarily rural/agricultural in nature.
- There are no known community resources within the study area of I-4400/I4700. However there are several resources located in the immediate

vicinity of the project including the Arboretum, Western NC Farmers Market, and the Biltmore Estate.

7.3. Water Quality Resources

There are a number of water quality resources, including trout waters, 303(d) listed waters, water supply watersheds, high quality waters and outstanding resource waters located within the project study area; however, these are primarily located outside of the major transportation corridors. In addition, many of these resources are located within areas already designated for protection such as national and state parks, areas of steep slope, or areas designated for conservation. The French Broad River is a major feature in the region, bisecting Buncombe County, while providing a water source for a large portion of the study area. Due to the topography of the region, most other rivers, streams, and creeks flow into the French Broad River. Potential cumulative effects could result due to the increased runoff across a number of these rivers, streams, and creeks. In addition, the Forks of Ivy watershed is located along the northern section of the A-0010A project. This watershed is the primary surface water source for a large portion of northern Buncombe County and southern Madison County. Hominy Creek watershed is also located in southern Asheville and contains Hominy Creek and South Hominy Creek. Hominy Creek, the French Broad River, Clear Creek, Devils Fork, Bat Fork, Mud Creek, and Cane Creek are 303 (d) listed impaired waters according to the North Carolina Division of Water Resources. Buncombe County currently does not afford streams any additional protection outside of state standards, while Henderson County requires a 30-foot vegetative buffer around all perennial streams. Buncombe County is currently considering expanding their ordinances to afford these resources extra protection. Water resources in the project study area can be seen on Figure 8.

Figure 8: Water resources



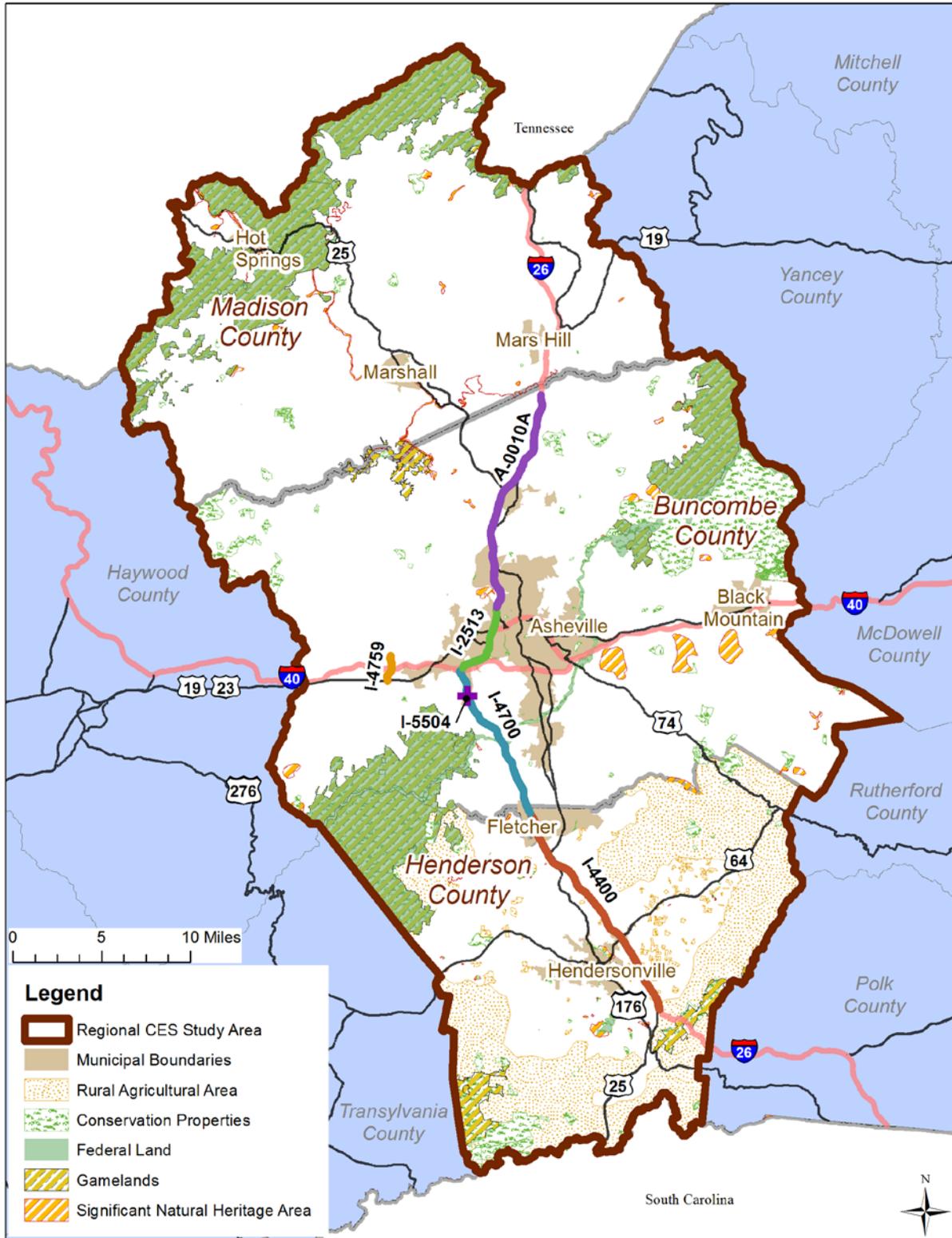
Project-Specific Impacts

- The primary surface water intake for a number of persons in northern Buncombe County/southern Madison County is located adjacent to the A-0010A project, near the Forks of Ivy Township, along the Buncombe/Madison County line. In addition, the project crosses 11 named streams including; Reed, Beaverdam, Reems, Flat, and Little Flat Creeks, Gill, Wagner, Stanley, Adkins, Gentry, and Blackstock Branches. In the absence of BMP's, the increase in impervious coverage and potential increase in development could negatively impact a number of these resources, including increased runoff into a public drinking water supply source as well as into the already impaired French Broad River.
- The French Broad River, Ragsdale, Reed, Hominy and Smith Mill Creeks, and Trent and Moore Branch are the only named streams located within the I-2513 project study area. Only Hominy Creek is 303(d) listed. Increases to impervious surface as a result of the project, in absence of any BMP's could potential increase the amount of pollutants and runoff entering these streams, including the already impaired Hominy Creek.
- According to the I-4400/I-4700 Natural Resources Technical Report (NRTR), 172 Streams, 149 jurisdictional wetlands, 12 Ponds (1.6 acres) were identified in the study area of I-4400/I-4700. The indirect screening report however identified 16 total rivers and streams. Of these, seven are 303(d) listed (Hominy Creek, French Broad River, Clear Creek, Devils Fork, Bat Fork, Mud Creek, and Cane Creek).
- I-4400/I-4700 crosses through two high quality water zones and one outstanding resource water zone. Increases to impervious surface as a result of the project, in absence of any BMP's could potentially increase the amount of pollutants and runoff entering these streams, including all seven of the already listed 303(d) listed streams.
- Water resources that could be threatened by increased development and a potential of increased impervious coverage in the vicinity of I-4759 include Hominy Creek and its tributaries, the Hominy Creek watershed, South Hominy Creek (classified as a trout stream and on the State's 303(d) list of Impaired waterways due to exceeded biological criteria) and its tributaries, the South Hominy Creek watershed, Pole Creek and Little Pole Creek, and relatively steep ridgelines (with slopes ranging from 20 to 40 degrees). Additional development would likely accelerate runoff and potentially lead to increased pollutants. Furthermore, there is a higher likelihood of ephemeral channels and intermittent streams along areas of steep slope, further contributing to increased runoff (both flow and pollutants) into the existing waterways.

7.4. Natural Resources

There are a number of natural resources, including national and state parks, conservation lands, significant natural heritage areas, agricultural land and potential endangered species habitat located within the project study area. These areas are primarily located outside of the major transportation corridors. In addition, many of these resources are already designated for protection including areas along the Blue Ridge Parkway, within the Pisgah National Forest, within areas of steep slope, or other areas designated for conservation. Buncombe County has had a plan in place to slowly increase their holdings of lands for conservation. However, local planners have indicated that future addition to these holdings will be difficult due to increasing land prices, loss of funding and lack of large, contiguous parcels. Local planners indicated that there are still active agricultural areas in close proximity to the transportation corridors. As such, Voluntary Agricultural Districts (VAD), Enhanced Voluntary Agricultural Districts (EVAD) are included, as they demonstrate local commitment to preserving agricultural lands, while prime farmland soils and other agricultural lands are protected under the FPPA and impacts to these should be considered. Natural resources in the study area can be seen on Figure 9.

Figure 9: Natural resources



Project-Specific Impacts

- There are three VADs located near the A-0010A project area. VADs/EVADs are valued locally due to their importance for agriculture, economic, and social value to the region and to a larger extent, North Carolina. While not specifically protected, impacts to these resources would directly and indirectly effect the community which relies on these areas for goods, services, and employment.
- Three broad, natural communities were identified within the I-2513 project study area: mesic mixed forest, alluvial hardwood forest, and urban/disturbed. According to the analysis, the dominant land use was the urban/disturbed. In addition, the presence of mesic mixed and alluvial hardwood forests were located away from the existing transportation corridors. As such, the 2008 Natural Resource Technical Report indicated that development had already occurred in most of the environmentally sensitive areas and that additional development would occur mostly within this urban/disturbed area.
- Planners indicate that several large areas of land are currently being cultivated for agricultural purposes on both sides of I-26 between Upward Road and Dana Road along the I-4400/I-4700 corridor. In addition, the project study area is bounded by the Pisgah National Forest on the western side.
- There are several areas of active agriculture located in the vicinity of the Liberty Road interchange. However, with no design plans, specific impacts cannot be determined at this time.

7.5. Recurring Impacts, Low-Income and Minority Populations

The original construction of both I-26 and I-40 severed a number of communities within the greater Asheville area and some of the most economically-depressed and highest percentage minority populations live along the corridors currently. Local planners indicated that several mobile home parks and housing-development projects are located adjacent to the corridors through Weaverville and Woodfin, near Swannanoa, several neighborhoods (including Burton Street and the Hillcrest Community) within Asheville, and the Brickton community in Henderson County. Additionally, planners indicated that many of these communities are small in numbers and don't often show in a typical U.S. Census Bureau/American Community Survey analysis (which includes specific thresholds for Minority, Low-Income, and Limited-English Proficient (LEP) populations) and that local knowledge should be used in conjunction with traditional mapping/demographic analysis. Given that a majority of these communities exist along the transportation corridors currently, the potential of recurring impacts to these communities are higher when compared with other communities in the region. When considering potential mitigation strategies and avoidance alternatives, consideration to the additive effects to these communities should be prioritized. The following figures depict the minority and low-

income areas relative to the regional averages. Figures 10 and 11 show the location of minority and low-income populations, respectively.

Figure 10: Minority populations

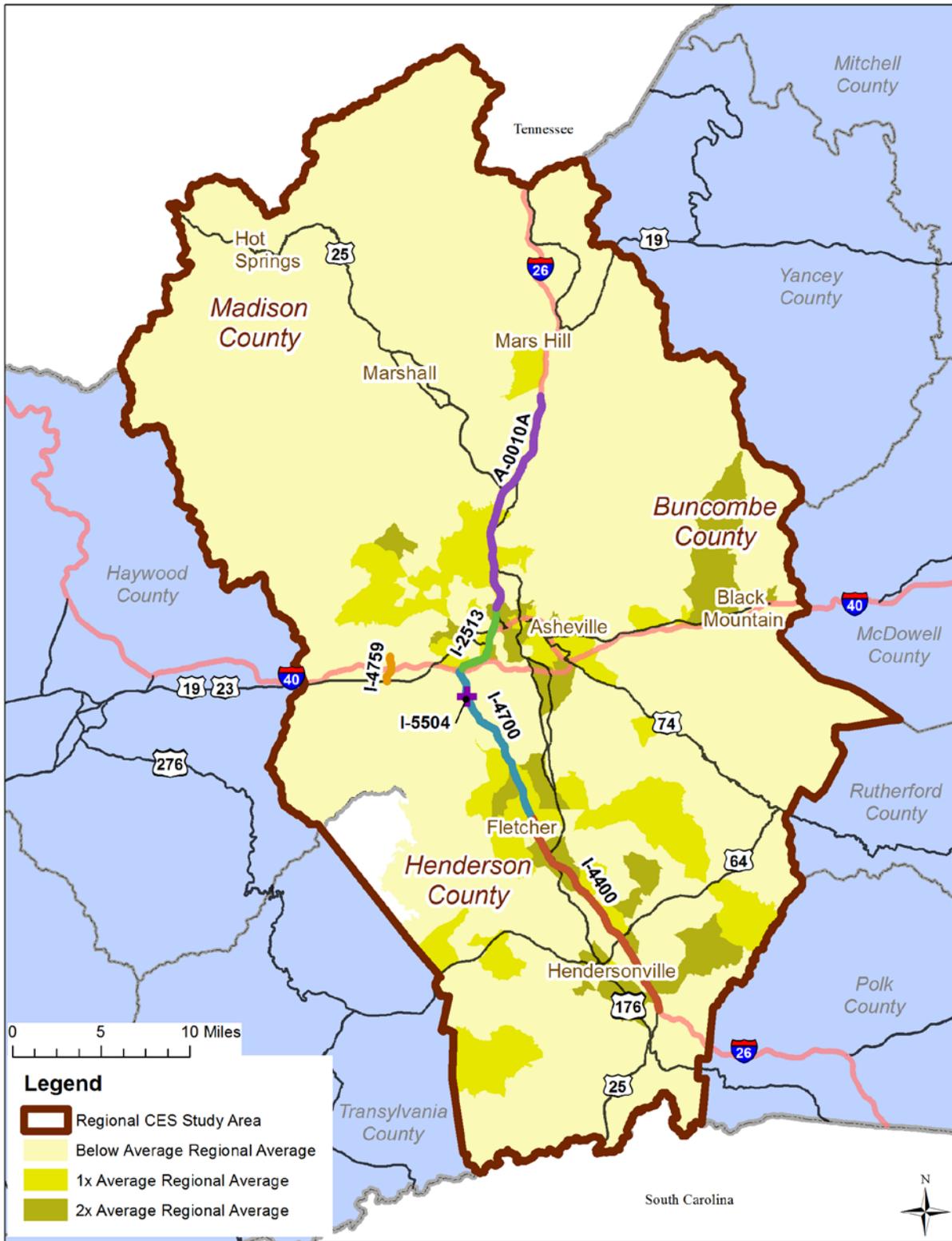
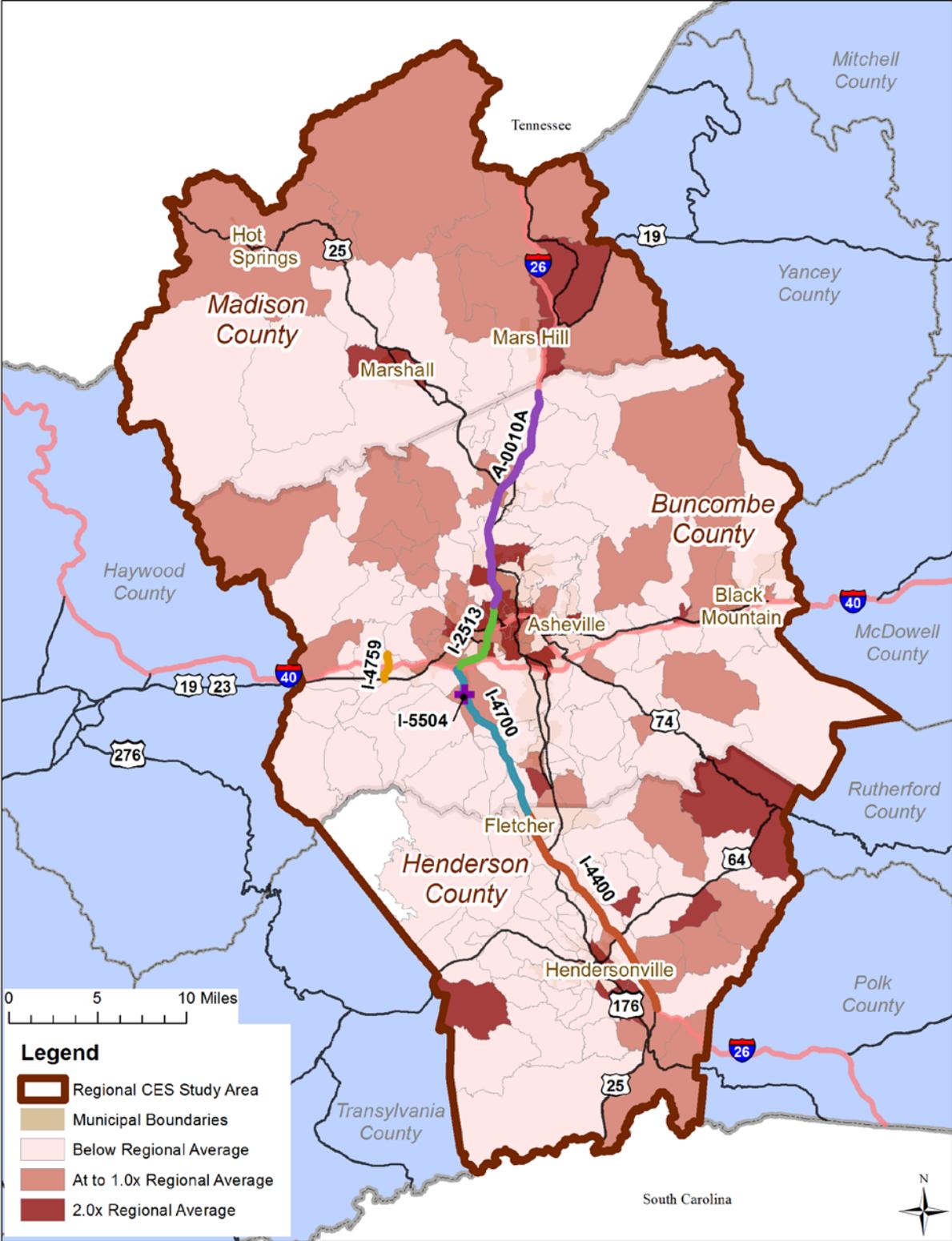


Figure 11: Low-income population



8. Future Growth Potential Assessment

Future growth potential in the region was determined through analyzing a number of different sources. Data collection of population and employment projections, examination of local development plans and existing and planned permits, availability of water and sewer services, presence of steep slopes and the availability of land figure heavily into the creation of a growth map. Interviews with local planners, regional entities and other public and private entities help supplement this information to create a robust growth potential area. The following presents the details of a number of these data.

Region

Growth in the region is largely limited by natural constraints (steep slopes, floodplains, and conservation areas). Furthermore, most counties and municipalities have enacted various regulations to promote growth in certain areas, while discouraging growth in others. Local planners indicated they are noticing a shift in industrial development returning to Asheville. This reverses a trend of industry leaving the region for cheaper and less environmentally challenging development areas in South Carolina. Business operations including Sierra Nevada and Oskar Blues Breweries in Henderson County, New Belgium Brewery (along the I-2513 corridor), Jacob Homes manufacturers and a Buncombe County Distribution Center near the I-4759 project, along US 19/23/25, (all 90,000+ square feet) have anchored the increase in development and helped attract additional industry. In addition, as the economy rebounds, local planners indicated that many industries are relocating to existing industrial sites that were abandoned and still for sale as a result of the economic crisis. These areas already have access to the transportation network, are located in flat areas, and are relatively cheap to retrofit.

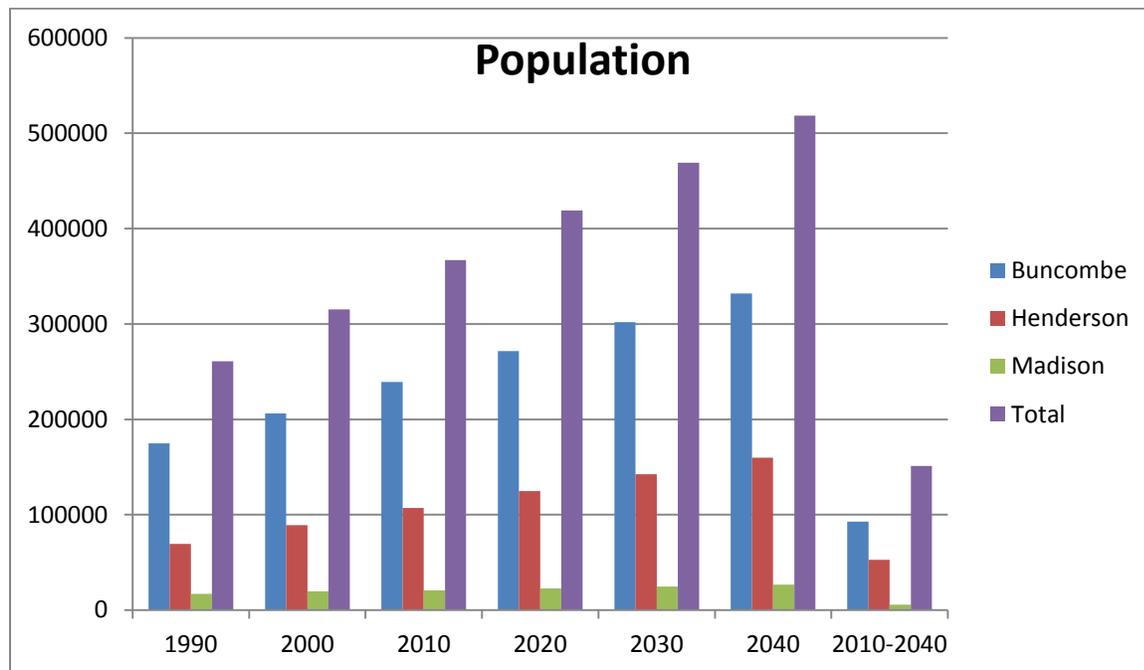
The strong growth areas shown in Figure 14 are identified as areas of more intense growth potential, which is anticipated to include regional and community shopping centers, major employment centers, and large residential developments. Moderate growth areas are expected to be more modest in terms of intensity and scale, and weak growth areas have notable challenges to development, such as steep slopes or limited access. Specific areas of expected or anticipated growth include development pressures along Upward Road, Howard Gap Road and the proposed Balfour Parkway in Henderson County. Buncombe County has designated a substantial portion of its land for the purposes of open use, in which all uses are allowed by right. Buncombe County planners indicated that they are trying to concentrate development along existing transportation corridors and focus development on infill by limiting and prohibiting development on certain percentage slopes, through the creation of zoning ordinances, and not actively expanding public water and sewer services. Buncombe County now requires developers to present plans that address slope percentages, conform to existing zoning (or make clear why a rezoning is necessary), and include provisions for water/sewer service during the development review process. They further indicated the fastest growing areas within the county were in the communities of Arden and Candler, notably between Exits 37 and 40 along I-40, while areas such as Leicester, Cane Creek, and Fairview areas did not experience the growth that was anticipated several years ago.

All of these projects fall within Buncombe County's Public Storm Sewer System and are governed by a National Pollutant Discharge Elimination System (NPDES) Phase II Stormwater Permit. In addition, the City of Asheville is governed by as Phase I Stormwater Permit, required for those municipalities with populations over 100,000 or more that owned and operated a municipal separate stormwater sewer system. All construction activities must comply with these permits. The City of Asheville, the Town of Woodfin, and Buncombe County each have an associated Stormwater Management Program that also requires compliance with their respective ordinances.

Population and Employment

The FBRMPO has recently (November 2012) completed both population and employment projections for 2040. Population and employment projections were based off the NC Office of State Budget and Management projections (April 2012) that were extrapolated to 2040. In all cases, population is expected to increase, independent of any transportation improvements. Henderson County has the highest growth rate for both population and employment, while Buncombe County retains a high percentage of the overall population and employment due to the presence of the Asheville urban area. Madison County is expected to grow at just under 1% per year, but experience a notably higher increase in employment. Local planners in Madison County did not indicate any particular areas where employment would be concentrated, while Buncombe and Henderson counties indicated that employment would be concentrated in the urban centers of Asheville, Hendersonville and Fletcher. Charts 3 and 4 display the results of these projections.

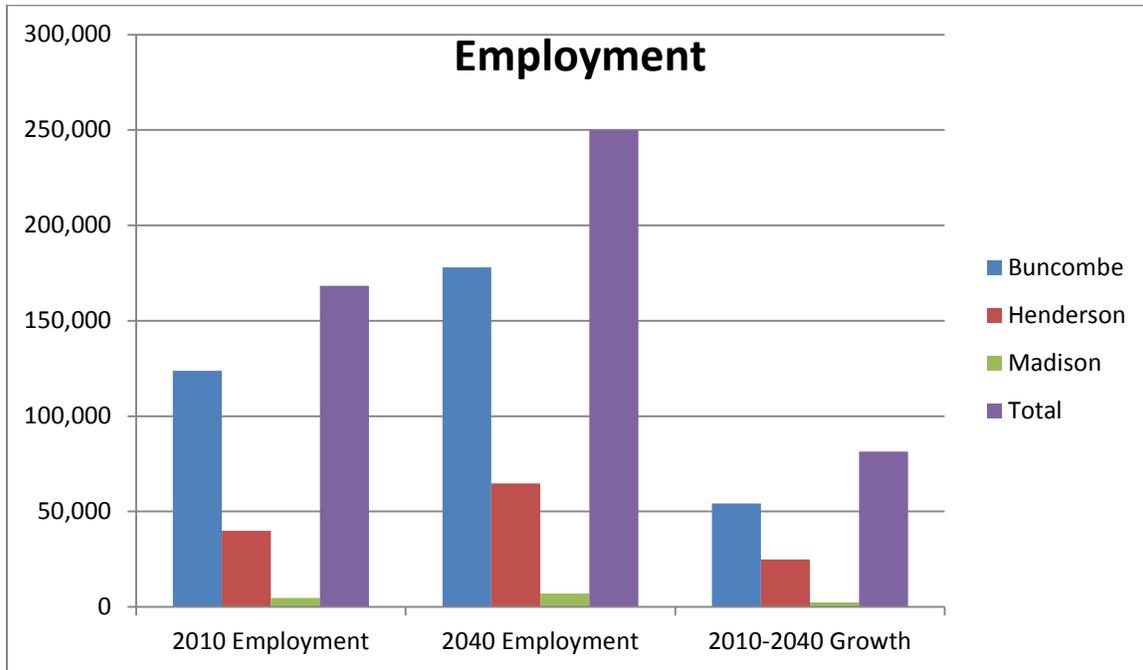
Chart 3: FBRMPO TAZ population projections*



* Data from NC State Office of Budget and Management, extrapolated by FBRMPO

Figure 12 shows the concentration of employment within the CES study area based on 2011 Longitudinal Employer-Household Dynamics (LEHD) data obtained from the US Census. This data is compiled from state-level employment and wage data and combined with additional data from censuses and surveys to create, among other things, place of work data for counties. Data can be broken down into employment type, employee socio-economic characteristics, and income. Figure 12 shows the LEHD data represented as a density pattern across the three county study area, and is based on total employment.

Chart 4: FBRMPO employment projections*



* Data from NC State Office of Budget and Management, extrapolated by FBRMPO

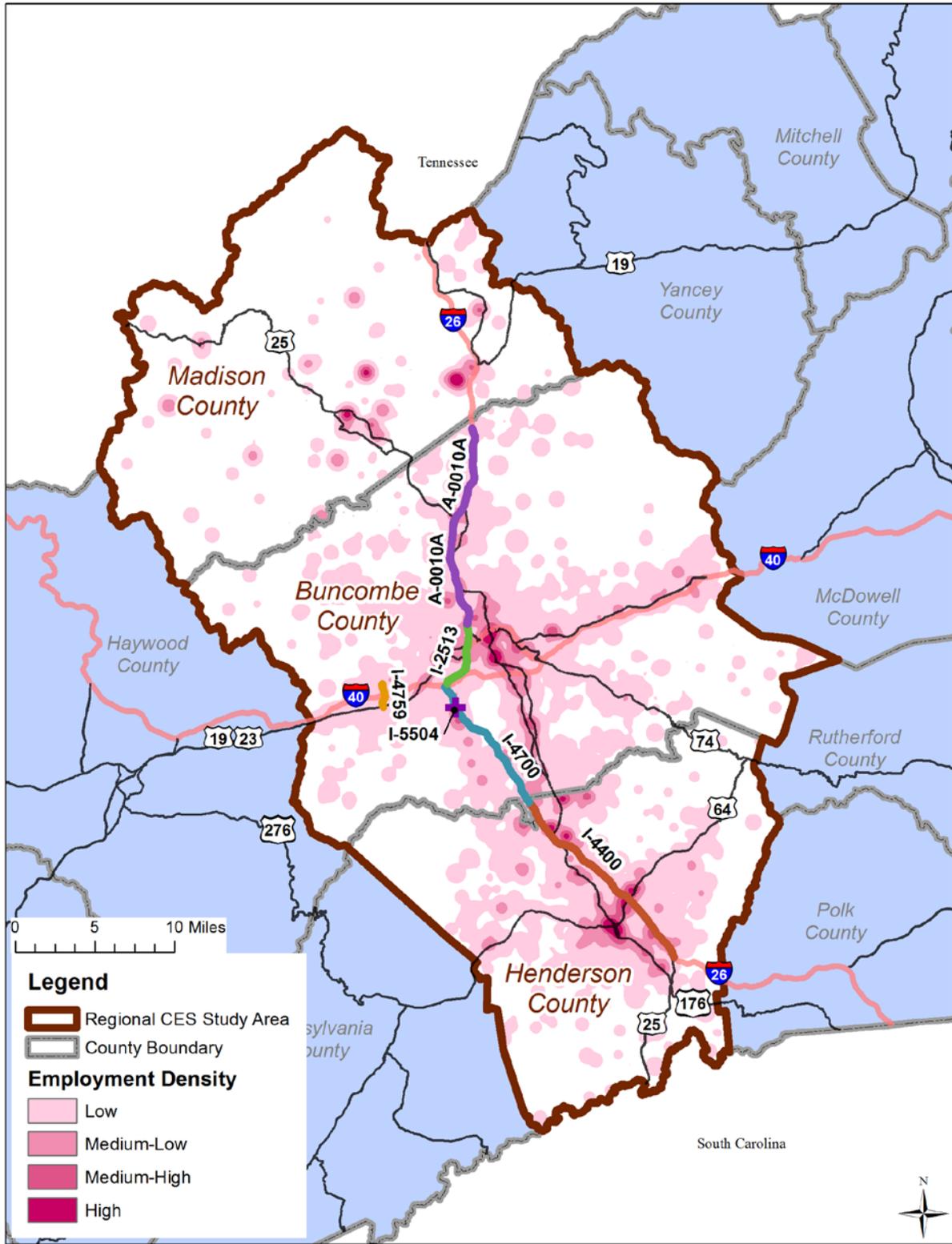
As noted in interviews with FBRMPO, the regional employment concentrations are largely in the Hendersonville, Asheville, and Fletcher areas. In Henderson County, downtown Hendersonville and adjacent areas around the I-26 interchange with US 64 have employment concentrations, likely due to the concentration of downtown businesses. The area around Asheville Regional Airport also is heavily concentrated with employment centers. There are several major industrial employers in the vicinity of the airport, including Meritor Heavy Vehicle Systems and Continental Tire Solutions – two of the largest employers in Henderson County.

In Buncombe County, employment is concentrated in downtown Asheville and southern Asheville, along US 25. Asheville is home to several of Buncombe County’s largest employers, including Mission Health and the Biltmore Company. Additional employment concentrations are located along interstates 40 and 26. As healthcare constitutes

approximately 20% of the total employment and is continuing to grow, it will likely continue to anchor employment in the region.

Fewer employment concentrations are found in Madison County. The two main concentrations, one in the Town of Marshall and one in the Town of Mars Hill, are associated with county government and Mars Hill University, respectively.

Figure 12: Employment density



Water and Sewer Service

Figure 13 depicts the existing service density in the region. As with much of the region, existing water and sewer service is concentrated in the larger municipalities and decreases into the more rural portions of the counties. As detailed below, almost all of the expansion plans in the region are contingent upon approved construction projects, with no new water or sewer lines being pursued.

The Metropolitan Sewer District (MSD) is an independent municipality formed in 1962. The MSD serves much of Buncombe County including Woodfin, Asheville, Biltmore Forest, Black Mountain, Montreat and Weaverville. They also serve a small part of northern Henderson County. The MSD will extend sewer service for development purposes and will do condemnation for projects. There are no known major expansion projects currently.

The Weaverville Water System which is owned and operated by the Town, supplies drinking water to all developed areas within the corporate limits of the Town of Weaverville. In addition, the system serves customers in Buncombe County in areas adjacent to the town limits, in Reems Creek Valley, and in areas along US Highway 19/23 north toward Madison County. Current expansion is tied to development plans.

The Woodfin Sanitary Water & Sewer District provides drinking water and sanitation services to the area of North Buncombe County between the City of Asheville and the Town of Weaverville. In 1991, the District's sanitation lines were turned over to Metropolitan Sewer District of Buncombe County for operation and maintenance. Today, the Service areas within the District include parts of the City of Asheville, Woodfin, Weaverville, and unincorporated areas of Buncombe County. The Woodfin Water District is a separate entity from the Town and expansion is tied to new development.

Mars Hill and Weaverville provide their own water and sewer services. Mars Hill just completed a major upgrade which connected them to Weaverville for back-up water needs. Woodfin gets water from three sources: the Woodfin Water District, the Asheville Water District, and the Weaverville Water District. The Asheville Water District currently provides water to Asheville, and sewer services are supplied by MSD.

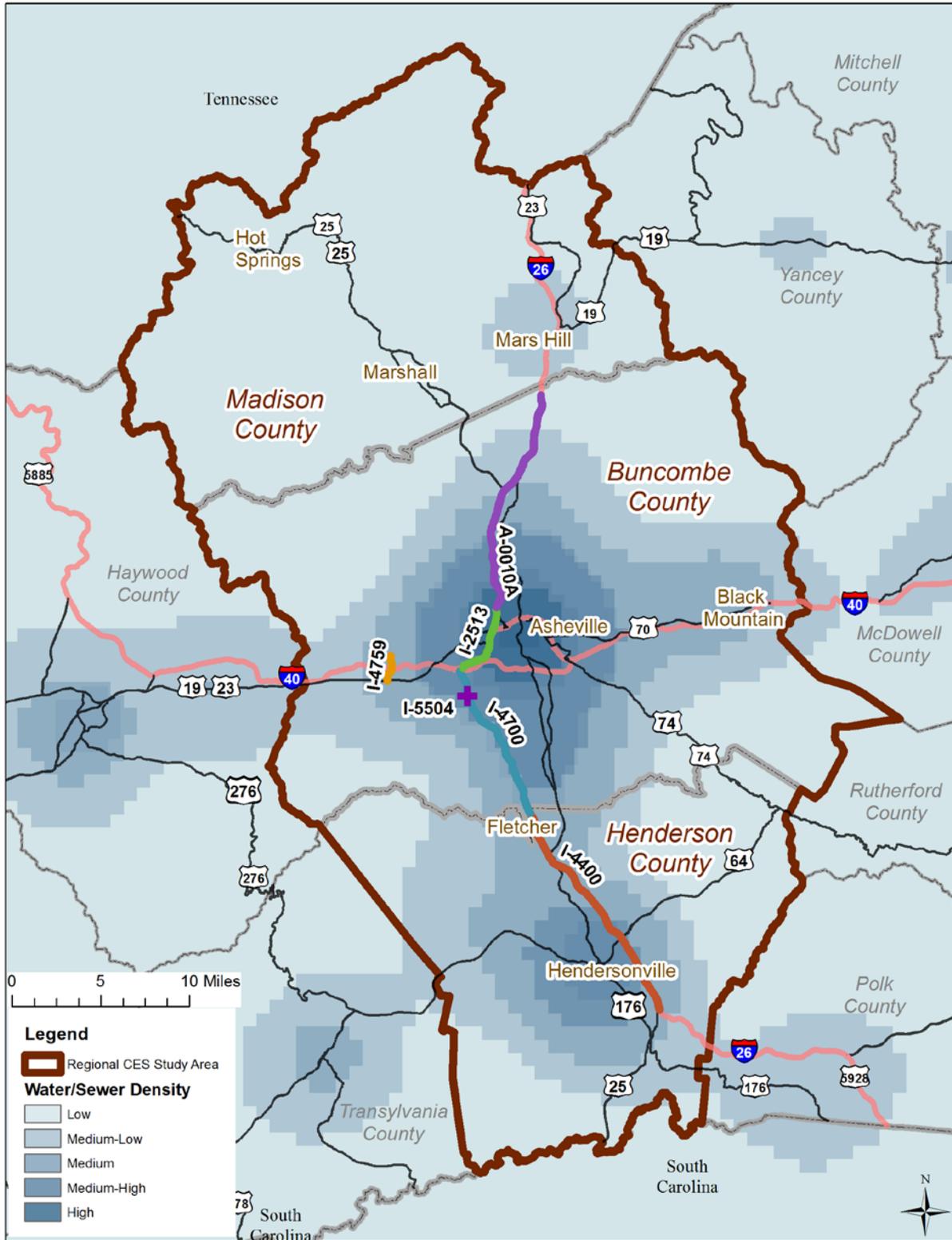
According to planners from Buncombe County, the southern portion of Buncombe County is lacking sewer service. Expansion in the southern part of the County is difficult due to the topography and cost constraints which would require pumping sewerage to upstream areas for treatment or construction of new wastewater treatment plants. Currently the population density in this area as well as lack of funding from the MSD will not support construction of a new treatment plant to allow for expansion. Current plans for expansion are on a project by project basis and tied heavily to development plans.

Fletcher obtains potable water from Hendersonville and sewer from the Cane Creek Water & Sewer District (CCWSD). Mills River is serviced by Hendersonville for water and Henderson County for sewer. Hendersonville provides its own services, as well as both water and sewer services to Laurel Park and Flat Rock. Hendersonville is the only local

government that is actively extending water/sewer service, but is in direct relation to construction of new industry.

New legislation (House Bill 488) introduced and subsequently passed in 2013 proposes to consolidate water and sewer services in the region through the creation of a new authority. This authority will be composed of the MSD, Public Water Utility System (current managed by the City of Asheville), and the Cane Creek Water and Sewer District. This authority would be governed by a board of 15 member governments. The legislation is currently in court, with a hearing on the litigation scheduled for May 23rd, 2014, with a court decision coming in late June.

Figure 13: Water and sewer service



Project-Specific Growth Potential

This section discusses the growth potential for each of the individual projects being analyzed. The cumulative growth potential of these projects is discussed in section 10.

A-0010A

The US19/23 improvements project would continue to be a controlled access facility with no new interchanges. As this project is primarily a project that upgrades the existing highway and given the on-going current development, it is not likely to induce large-scale development. As Woodfin, Weaverville and Buncombe County all have plans in place to direct growth along the corridor, the widening could accelerate growth, but is unlikely to influence the scope and nature of the development. Recent site visits observed active and recent construction occurring throughout the corridor with a variety of uses. Local planners indicated they expect this trend to continue.



Reynolds Mountain Development

I-2513

The I-2513 project is located in a fairly low growth area with limited amount of developable land. Additionally, the project would be a controlled access facility with no new interchanges. Because of these reasons, the project is not likely to induce large-scale development or contribute any growth pressure on the surrounding area. Local planners have indicated that redevelopment within the project limits would likely be infill development (see Photos below), similar to that already occurring in the west Asheville and downtown areas. City of Asheville planners did say that the project could potentially accelerate growth and redirect it from elsewhere in the region, but as development is already occurring, it is not likely to change the scope or nature of development.

Westgate Shopping Center (Infill, Out Parcel)



Infill Housing



Existing land use planning, development regulations, incomplete water/sewer coverage, and large tracts of land protected within the Biltmore Estate should minimize the potential for residential, commercial, and industrial growth, and the potential to further degrade water quality.

STIP Project I-2513 is a high capacity facility, in close proximity to a major urbanized area (Asheville), and is located in an area with access to public utilities. Therefore, STIP Project I-2513 has some potential to stimulate land development (gas stations, hotels, restaurants) having complementary functions.

According to local planners, the project does have the potential to induce growth and redevelopment in a few areas, including the following:

- Brevard Road corridor (mix of commercial, office, and residential uses),
- Haywood Road and Patton Avenue area (a multi-level mix of commercial, office, and residential),
- Sand Hill Road/Oakview Road/Sardis Road area (a mix of residential, commercial, and industrial uses),
- RiverLink area,
- US 19-23 interchange at I-40 (commercial uses), and
- infill development near the I-26/Broadway interchange.

I-4400/I-4700

Due to some expansion of sewer service throughout Hendersonville, relatively economical housing prices, anticipated growth of local jobs in the area, and expected moderate population growth, the local market for development is relatively robust at present. Land use along the I-4400/I-4700 corridor is mixed, consisting of large sections of residential areas, commercial and industrial stretches, and agricultural tracts. Commercial

development is largely concentrated near the I-26 interchanges with US 64, NC 280 (Airport Road), NC 146 (Long Shoals Road), and NC 191 (Brevard Road). The Buncombe and Henderson County planners expect the I-26 corridor to largely maintain its mix of residential and commercial characteristics, with the exception of changes to land uses at the projects involving Upward Road, Howard Gap Road, and the proposed Balfour Parkway. Planners anticipate the improvements to these facilities will entice more use by local travelers and therefore lead to development pressures along these existing facilities, which in turn could lead to more traffic utilizing I-26 in the project corridor.

Despite all these factors, based on the assessment of project alternatives, the project is not expected to have a notable indirect impact on land use along the corridor.

While there is some available land adjacent to the project, it is not anticipated that growth patterns will change, as no new interchanges or connections are proposed. In addition, local planners have indicated that although population growth is anticipated in the project study area, the advancement of the project is unlikely to affect growth. Based on the results of the Indirect Effects Screening Matrix, the need for a Land Use Scenario Assessment is “not likely”, and there is a low to moderate concern for indirect and cumulative impacts as a result of STIP Project I-4400/I-4700.

I-4759

Approximately 43.1% (5,557 out of 12,923 acres) of the total acreage of the project study area is considered available. In addition, there are two large land holdings that have recently been targeted by resort developers. Buncombe County planners indicated they have recently completed development standards for resorts, but that no developers have had comments regarding the new regulations. In addition, no detailed examination of land use and transportation scenarios has been conducted as part of an LRTP, as part of an ICE analysis, the CTP, or as part of any Asheville or Buncombe County Plan. As a result, the degree to which land use will be impacted remains unknown.

As noted in the Buncombe County Comprehensive Land Use Plan Update (2013), the County is currently looking to concentrate future development along existing sewer lines, as well as establish mechanisms that encourage and support a more regional approach to sewer services. Pending action steps indicated in Plan Update include limiting public water and sewer to elevations no greater than 2,500 feet and 40 percent slope. However, Buncombe County’s recent land use approvals indicate their willingness to accommodate demand for the low-density urbanization of unincorporated areas.

Planners have indicated that the Enka-Candler area, which is close in proximity to Liberty Road, will continue to be a primary focal point of residential development due to its close proximity to downtown Asheville and relatively low land/housing prices. Employment is also anticipated to grow along the US 19/23 corridor and planners indicated additional growth would result from the construction of the new interchange due to the creation of a new land use node.

The indirect screening tool has noted that land use and development decisions in this area could be altered by the construction of the project; hence a Land Use Scenario Assessment (LUSA) is recommended to examine the changes that could occur with or without project construction (an examination of the build and no-build scenarios).

The Enka-Candler area of Buncombe County has experienced periods of growth and decline over the last century as manufacturing, and the turnover of related facilities, has been a major economic driver. The area continues to be a hub of manufacturing for the region, particularly in the NC 112 (Sand Hill Road) corridor. The onset of urban growth patterns, primarily in the form of suburban single family residential subdivisions, over the past 15 years has changed the character of the area and has increased travel congestion, impervious surfaces and demand for commercial land uses and urban utilities.

There has been limited investment in transportation systems in the area over the past two decades, as most of the transportation improvements have been operational in nature or focused on sections of I-40 east of the Enka/Candler areas. The combination of growth and limited transportation investment has led to congestion at Exit 44 and along the US 19-23 corridor to NC 151. The presence of the Norfolk Southern railroad limits the ability of NCDOT to greatly expand the US 19-23 corridor or some signalized intersections, which are the current focus of most of the congestion along the corridor and within the FLUSA. The development patterns and lack of site-specific requirements for transportation improvements have also led to offset signalized intersections along the US 19-23 corridor, resulting in greater delays in travel times as traffic has increased. Collectively, these factors have created demand for better transportation options in this part of the Asheville metropolitan area. Once constructed, the I-4759 project will help serve this demand.

I-5504

Three of the four quadrants located adjacent to the interchange have already been developed or are slated for redevelopment. The northern quadrants are occupied currently by several hotels, large box stores and a car dealership. The southwestern quadrant was once the Biltmore Mall, and is currently planned to re-open as an Outlet Mall in 2015. Construction is currently occurring at this site. The Biltmore Estate is located immediately to the east of the interchange. While unavailable to outside development, local planners indicated that Biltmore is considering adding an access point to the property at this interchange that could influence traffic patterns. It has been estimated that a new access point to the Estate at this location would draw approximately 40% of all visiting traffic, which would require the upgrade of Estate roads and could allow for additional retail/commercial development on the Estate. Growth outside of the immediate vicinity is unlikely to occur as well due to steep slopes, lack of available infrastructure and the presence of Pisgah National Forest and the Blue Ridge Parkway.

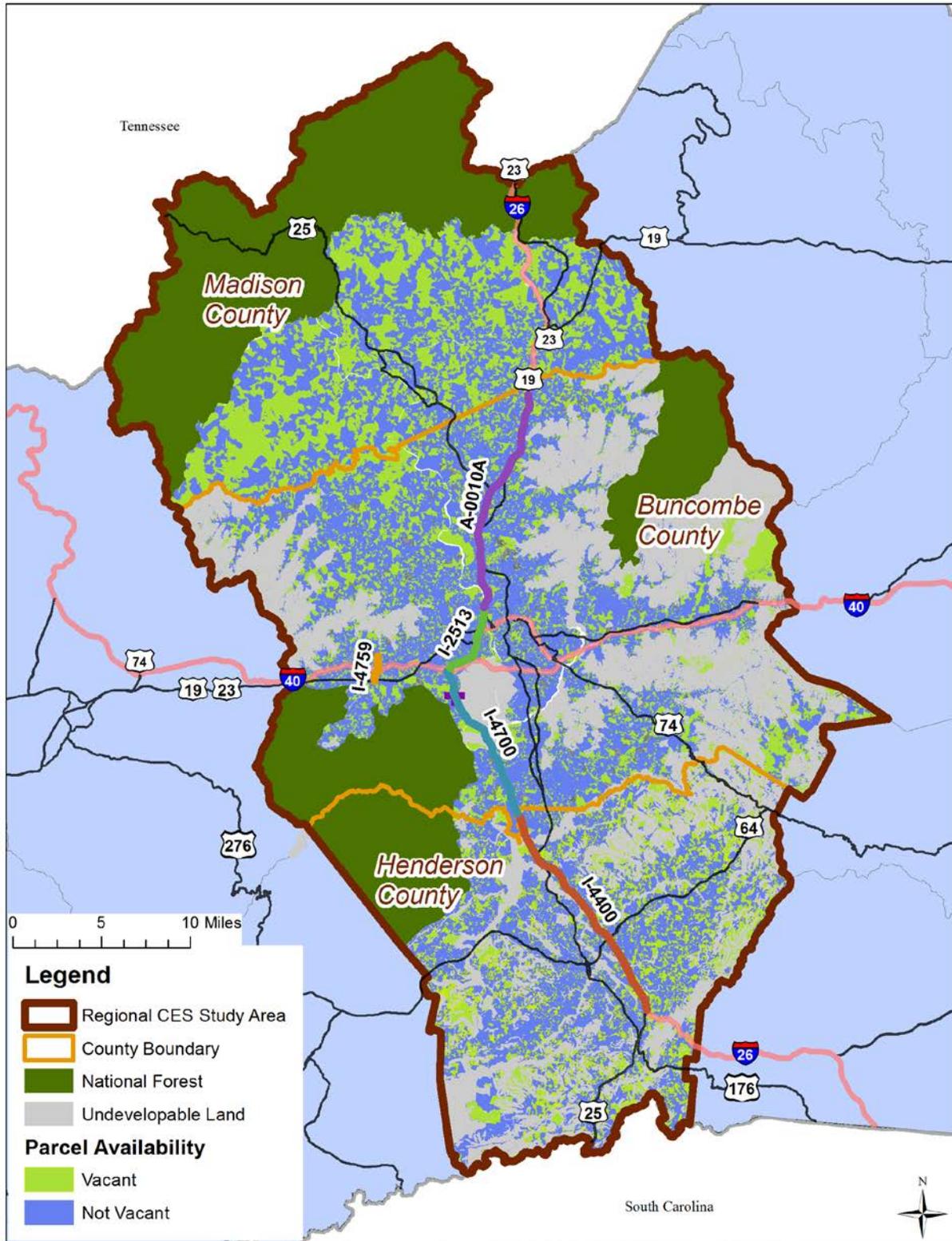
Regional Future Growth Potential

Figure 14 shows the available land within the three county region where future development may occur. The amount of available land was calculated by using GIS parcel data obtained from the respective counties and identifying attributes within the GIS data

which indicated if the parcel had been developed or not. Additionally, Henderson and Buncombe Counties were able to provide GIS data which showed areas of the county that were undevelopable due to environmental constraints (i.e. steep slopes, or ridges protected by County ordinances) or development restrictions (i.e. floodplains). This data was unavailable from Madison County, and Madison County does not have a steep slope or a ridge protection ordinance. Developmental constraints (floodplains, lands within a conservation trust) were removed from the parcel layer for Madison County, but this amounted to a very small amount of land for the county. Land within the three county region was considered developable if it was classified as vacant, or if the value of the structure was small enough (less than \$1,000) that the structure value represented a shed or some other non-habitable structure.

Due to environmental constraints and boundaries of protected lands, including the various national forests in the study area, undeveloped land is limited, and there are very few large tracts of developable land. There is more vacant land in Madison County compared to Buncombe and Henderson Counties. However, for the most part, undeveloped land is not concentrated, and instead is dispersed among parcels that have already been developed. Much of the concentrated areas of undeveloped land in the three county area that is not environmentally constrained is located in more remote areas of the three county region, such as the northeastern part of Buncombe County along the French Broad River and in the western part of Madison County. While none of the five projects will provide additional access to these areas, local planners indicated that areas in northern Buncombe County and southern Madison County, while not developing as much in the next 5-10 years, may begin to develop in the 15-20 year range due to the decrease in congestion and more reliable travel times.

Figure 14 Future growth potential



9. Travel Demand

New location and widening projects can often result in higher than expected traffic volumes as travelers will seek routes that have lower amounts of congestion. In addition, lower amounts of congestion have been shown to contribute to urban sprawl as commuters choose to live where land values are cheaper, but are still within a comfortable commute to their place of employment.

The widening along the length of I-26, when considered by individual STIP projects, are not likely to change travel times by more than five minutes outside of peak hours; however, when viewed cumulatively, travel time savings could result along the length of the corridor. This could potentially lead to increased traffic volumes as travelers, currently traveling along parallel arterial routes, would be inclined to use the less congested interstate routes. A regional traffic model is currently being developed to help determine the relative impact that a potential project, as well as multiple projects, could have on the overall transportation network. This model is expected to be adopted by the FBR MPO in 2015.

The new interchange, as proposed for STIP I-4759, will provide new access points to the Enka-Candler community and likely result in the re-routing of traffic in the area for residents and commuters who currently use either Exit 44 or Exit 37 from I-40. Westbound left turn movements on US 19-23 at the intersections with NC 151 and NC 112 are heavy during the peak periods and would likely be alleviated by the addition of the Liberty Road interchange. Growth will likely accelerate with the creation of a new land-use node, causing additional traffic volumes and potentially cause shifts in traffic patterns. Local planners have indicated that no development plans, small-area plans, or construction permits have been created or submitted in the vicinity of Liberty Road. They further suggested that developers were waiting to determine the scope and design of the project prior to submitting any development plans. The current primary zoning classifications in the vicinity are Open-Use (OU), Residential One (R1), and Residential Two (R2) The City of Asheville does have plans to develop a 192-acre site as part of Enka Village, however this is located to the east of the proposed interchange. As specific plans and policies have not been fully developed for this area, specific traffic volumes and potential impacts cannot be determined at this time.

In interviews conducted associated with the various I-5504 project representatives, the Biltmore Estate has previously mentioned the potential of creating a new access point as part of the I-5504 interchange redesign, which would in turn shift traffic patterns for those visiting the Estate. Currently, there are no concrete plans for this access point.

Local planners have expressed varying opinions regarding the projects potential to induce demand. Traffic models currently suggest that along the I-26 and I-40 corridors, additional capacity is necessary to accommodate future demand. However, planners differ when considering the effect extra lanes would have on traffic patterns. Some planners suggest that the additional projects will induce demand and contribute to increased congestion, while others suggest that traffic will continue to take arterial routes to reach destinations.

10. Summary of Regional Cumulative Effects

Regional cumulative effects can be expected for notable cultural, community, water quality, and natural habitat features. This is predominantly due to features having minimal incorporation in local planning protections and/or policies. For community, water quality, and natural habitat features, present and future policies do indicate shifts in including these attributes, but they have historically not been prioritized. Recently, NCDOT has produced a draft Indirect and Cumulative Effects Screening Tool aimed at evaluating study areas for the resources listed above. For the purposes of this report an initial analysis was completed using the tool. The results can be found in Table 8-1 below. A detailed explanation follows.

Table 5 Cumulative Impacts Table

Table 5: Alternatives screening matrix for cumulative effects													
Rating	Cultural Features			Community Features			Water Quality Features			Natural Habitat Features			Result
More Concern	Unique Resources Not Protected / Recognized			Unique Resources Not Protected / Recognized			Unique Resources Not Protected / Recognized			Unique Resources Not Protected / Recognized			
	Past Actions	Current Activities	Future Development	Past Actions	Current Activities	Future Development	Past Actions	Current Activities	Future Development	Past Actions	Current Activities	Future Development	
High													
Medium - High				X									
Medium							X	X		X			Possible Cumulative Effects
Medium - Low	X	X			X	X			X		X		
Low			X									X	
Less Concern	Features Incorporated in Local Planning and Protection			Features Incorporated in Local Planning and Protection			Features Incorporated in Local Planning and Protection			Features Incorporated in Local Planning and Protection			

10.1. Regional Cumulative Effects

Despite the large tracts of available land, local officials suggest there are a number of constraints to development in the region, notably natural environmental features and topography. See Section 9 for further discussion on regional development potential. Potential land use effects as a result of these projects are further tempered by the fact that the projects are not expected to provide a large number of new access points or opportunities for traffic exposure to properties along the major roadways and will generate marginal travel time savings. Local planners have indicated that commercial, industrial, and residential development is anticipated to occur regardless of whether or not the projects advance forward. The extent of potential indirect land use effects as a result of these projects will be largely dependent upon several key variables, including the future local economy and market for development, public infrastructure projects (most notably water and sewer), and the limited supply of developable land.

10.1.1. Regional Cultural Resource Impacts

Impacts and effects on cultural resources are typically conducted on a project-by-project basis through coordination, as impacts are either typically direct or indirect (through viewshed or proximity). In addition, there are very few resources located within the individual project study areas or close to the transportation corridors. Potential impacts are addressed in three different ways: avoidance, minimization, and mitigation. Avoidance is the first strategy employed, selecting an alternative that avoids a resource. Minimization modifies the design alternatives to reduce the level of impact to a resource. Finally, if no reasonable or prudent alternative exists, mitigation is employed to offset the impact to a resource. Cumulative effects to these resources were determined to be Medium-Low to Low based on relative protection and lack of density along the corridors.

10.1.2. Regional Community Resource Impacts

As the proposed projects have been appropriately planned for and expected over the past several years, many of the updated plans, policies and local projects have incorporated elements of the projects. As such, many of the new parks and recreational facilities have been constructed outside of the immediate vicinity of the study areas and as such, are not expected to experience major impacts as a result of the projects. In addition, many of the churches, cemeteries, and schools have either relocated after the original construction, or are located at a sufficient distance from the projects to be avoided. The potential for recurring impacts to a number of communities and resources along both the I-26 and I-40 corridors, including some minority and low-income communities, exists. Close coordination with local, state, and federal agencies as well as potential avoidance, minimization, or mitigation should be considered in any such cases.

Potential cumulative effects to the Montford community and the Biltmore Estate in Asheville as a result of these projects should continue to be closely coordinated as the design options and environmental documents are completed, as these two resources are major features and establishments within the City of Asheville.

While the travel time savings for the individual projects are minimal, collectively the projects may benefit the region's community resources by increasing regional mobility and generally relieving congestion. Decreases in congestion could enhance some of the user benefit of community resources, depending on the type of resource. For regional community resources such as the national forests in the area, increases regional mobility

could result in an increase in usage as more residents of the area are willing to travel to the forests to recreate. Locally, community resources could be enhanced by the diversion of traffic away from the community resources (i.e. church or community center). This could enhance the user experience by decreasing noise and improving local air quality around the resource.

Benefits to regional mobility may extend beyond the community resources identified earlier in this report, to the regions agricultural industry which includes, among other types of farming, Christmas tree and berry farming. Increased regional mobility would allow farmers in the region to more easily access markets within the region, as well as outside the region such as Charlotte, the Triad and the Triangle.

Relocations and other direct impacts may result in additional stress to low income and minority communities that had been previously impacted by the original construction of the highways. Although individually the projects may not have notable effects on these communities, cumulatively the projects could result in additional stress to regional low-income and minority populations.

Cumulative effects to these resources were determined to be Medium-High to Medium-Low based on the previous impacts to communities and potential positive community benefit.

10.1.3. Regional Water Quality Resource Impacts

There are very few large areas of undeveloped land within the project study area. As noted in section 8, the few areas of large, undeveloped land that are available are located in rural areas, such as northwestern Buncombe County and western Madison County. The projects included in this study will not provide additional access to these areas and, given the distance of these areas from the projects, any increases in mobility associated with the projects will not influence development of these areas. All of the projects will address increases in impervious surfaces in the individual project design through the use of BMP's. It is possible that these projects could have cumulative impacts when combined with the on-going urbanization and suburbanization of the region. The increases in impervious surfaces associated with the construction of buildings, homes and parking areas could lead to a deterioration of water quality in the absence of BMP's.

Cumulative effects to these resources were determined to be Medium to Medium-Low due to the lack of comprehensive protection standards and ordinances, potential of urbanization and suburbanization, and presence of BMPs.

10.1.4. Regional Natural Resource Impacts

As shown on a number of the previous maps, including the Conservation Planning Tool, most of the study area in the vicinity of the projects has been previously developed and is located in the low sensitive areas of the region. Through county regulations, steep slopes and other natural features, conservation efforts and lack of development are located on the periphery of the study area. In addition, those sensitive areas located adjacent to the project are protected as part of the Pisgah National Forest, the Blue Ridge Parkway and under Conservation agreements. It is unlikely that the currently identified projects will have a cumulative impact on any of these resources.

There are several tracts and areas of agricultural lands located along and within the project study areas that do have the potential to be impacted/redeveloped as growth occurs along the corridors. These areas are afforded some level of protection through the VAD and EVAD system as well addressed as goals and objectives through comprehensive and small-area, community plans.

Cumulative effects to these resources were determined to be Medium to Low based on the previous impacts to natural areas and efforts to protect lands through steep slope ordinances, national/state park designations and efforts to purchase conservation lands.

11. Mitigation

Mitigation is not often addressed on the regional level, but rather on a project-by-project basis. Both local and state agencies have policies and plans in place to help guide mitigation actions for transportation projects. The below listed strategies represent potential mitigation measures as utilized and adopted by these local and state agencies.

11.1. Project-Specific Mitigation

Any direct natural environmental impacts by the project would be addressed through Programmatic Agreements with resource agencies during the Merger and Permitting processes. Developments will be required to follow local, state, and federal guidelines and permitting regulations.

11.2. State and Local BMPs

The North Carolina Department of Transportation's Natural Environment Section has produced a procedures manual that discusses a number of Mitigation topics including; Permits Required, Protected Species, On-Site Mitigation Planning, Indirect and Cumulative Impacts, Design/Construction, and the NCDENR Ecosystem Enhancement Program, among others. In addition, potential mitigation for historic resources will be done in accordance with applicable regulations and through the coordination with FHWA and the North Carolina State Historic Preservation Office.

When necessary, individual projects will be responsible for site-specific mitigation measures and permits.

In addition, the North Carolina Wildlife Resources Commission offers technical assistance through the use of a Green Growth Toolbox. This Toolbox provides GIS information, helps create natural resource maps, provides non-regulatory review of conservation plans and development designs, helps incorporate habitat conservation into development location, review and site design, and finally to help develop habitat management plans for parks and open space.

When necessary and where possible, elements of this Toolbox, including the creation of a "habitat conservation" section, should be integrated into future plans, policies, and reports.

11.3. Regional BMPs

In addition to NCDOT's Best Management Practices, local BMP's have been developed by the FBR MPO. These BMP's are based on federal legislation and apply to 15 different types of impacts encountered during the project development phase.

French Broad River MPO 2035 LRTP Mitigation Recommendations

Federal legislation requires a discussion of “potential environmental mitigation activities” as part of the FBR MPO LRTP. Because the LRTP is regional in scope, proposed mitigation activities are not identified for specific projects but are instead presented as a menu of options for consideration as projects are developed.

Federal regulations define mitigation as a sequence of potential options as follows:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments. (Source 40 CFR 1508.20)

Types of potential mitigation activities

The following details mitigation activities and measures that could be considered when dealing with environmental impacts during the project development phase.

Air Quality

- Designate pedestrian/Transit Oriented Development areas
- Develop energy efficient incentive programs
- Adopt air quality enhancing design guidelines

Archaeological

- Design modifications to avoid area
- Archaeological excavation
- Educational activities

Community Impacts

- Sidewalks, Bike lanes
- Develop recreational areas
- Traffic calming, Context sensitive design
- View corridors/sheds

Environmental Justice

- Property owners paid fair market value for property acquired
- Continuous public involvement
- Continuous systems level analysis of EJ populations

Communities

- Residential and commercial relocation
- Minimize noise impact with sound barriers

Farmland

- Protect one to one farmland acre for every acre converted

- Agricultural conservation easement on farmland
- Compensation

Fragmented Animal Habitats

- Construct overpasses with vegetation
- Construct underpasses, such as culverts/viaducts
- Other design measures to minimize potential fragmenting of animal habitats
- Minimize removal and/or selective cutting in forested areas except for what is needed to establish roadways and associated rights-of-way

Historic Sites

- Relocation of historic property or Design modification
- Landscaping to reduce visual impacts
- Photo documentation or Historic archival recording for public presentations
- View corridors/sheds

Light Impacts

- Direction of lighting, Low level lighting

Noise

- Depressed roads, Noise barriers, Planting trees
- Construct tunnels, Berms/vegetation

Park Impacts

- Construct bike/pedestrian pathways
- Dedicate land or Compensation for park dedication fees
- Replace impaired functions

Streams

- Stream restoration, Vegetative buffer zones
- Strict erosion and sedimentation control measures
- Best management practices for stormwater management, particularly with potential impact on 303(d) listed waters
- Ecosystem Enhancement Program (EEP)

Threatened & Endangered Species

- Preservation
- Enhancement or restoration of degraded habitat
- Creation of new habitats
- Establishment of buffer areas around existing habitats
- Modifications of land use practices, Restrictions on land access
- Construct wildlife bridges

View shed

- Vegetation and landscaping, Screening, Buffers
- Earthen berms, Camouflage
- Lighting

Wetlands Compensation

- Wetland restoration, Ecosystem Enhancement Program (EEP)
- Creation of new wetlands
- Strict erosion and sedimentation control measures
- Stream buffers
- Realign roadway corridors to avoid aquatic resources

12. Conclusions

The Cumulative Effects Tool indicated that cumulative effects were rated as a medium level of concern as a result of the reasonably-foreseeable transportation projects in the region. When analyzing and evaluating the overall impacts and how those impacts contribute to cumulative effects; plans, policies, practices, and trends in the region indicate that the nature of the projects listed previously are such that growth and development and their associated impacts on the four major resource categories in the region are likely to continue independent of the projects. There are, however, a number of external influences and recommendations that have the potential to influence both the trends in the area and the results of this study. They are listed below.

12.1. NCDOT Strategic Prioritization

As indicated previously, the Strategic Transportation Investments prioritization process will result in a ranking of the individual projects across the region. As the metrics that influence rankings have changed and are still being calculated, the results from this process could potentially influence the cumulative effects analysis. Scoring could elevate or demote the previously mentioned projects, changing what could be considered “reasonably-foreseeable”. Relative rankings of projects to advance forward will influence relative development patterns, as pressures will focus on those areas being improved or constructed. It is expected that a re-evaluation will occur once this list is released, with changes reflecting the new priorities.

12.2. Recommendations

Update Schedule: It is recommended that on a regular basis, this document be updated to incorporate and reference, where applicable, major milestones in the project development and NEPA process for the aforementioned projects. The document is intended to be a “living document” and should be updated accordingly.

Coordination

- It is recommended that coordination between state, regional and local agencies, municipalities, and public/private organizations continue to occur to plan for and subsequently help develop the region in a way to minimize impacts to the four resource categories evaluated in this CES, in addition to Low-Income and Minority populations, Limited English Proficient populations, and future economic growth.
- When considering potential mitigation strategies and avoidance alternatives, consideration of the recurring impacts to minority and low-income communities that have been previously impacted by the construction of I-26 and I-240 should be prioritized.

- Close coordination for potential effects should occur with the Montford community and the Biltmore Estate in Asheville as a result of these projects and as the design options and environmental documents are completed.

Boundaries: The regional effects study area should be periodically reviewed and if necessary, revised based on local input, new/updated planning documents and studies, revised environmental, cultural, and community studies, and as a result of coordination.

Plans and Policies: It is recommended that rules and regulations that are or are not in place at the city, county or other governmental levels address such impacts and manage future growth. Plans and policies can often guide smart development and afford a number of resources the necessary protection.

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Appendix A: Interviews

Date: July 2013
Time: 4:00 p.m.
To: Project Central File
From: Paul Humberger
Subject: Regional Cumulative Effects Summary

An interview was conducted between 4:00pm and 5:30 pm with Judy Daniels of the City of Asheville Planning Department. The following summarizes key points.

- There are no real LEP populations in the study area, but rather a large number of low-income communities, these were largely scattered around the City and County.
- Ukrainian was actually the largest ethnic community within the greater Asheville area and the French Broad River MPO was the primary organization that assisted with outreach.
- The Haywood Road Corridor update was beginning this summer, which would address new issues including; the transition to a commercial corridor and the New Belgium Brewery Site
- The River Arts district is continuing to experience a high level of redevelopment. The French Broad River MPO will be updating plans for that corridor shortly.
- West Asheville is currently undergoing a large demographic change
 - There is a broad-mix of person living in this area (low-income, high-income, minorities, younger generation, older generation)
- The Montford neighborhood is undergoing a period of redevelopment, as a number of multi-family houses are being converted into single-family homes. This trend is primarily concentrated in the northeastern section of the project, but is slowly migrating towards I-240.
- The Clingman Avenue neighborhood is repopulating, but experiencing a higher level of gentrification. Montford too is undergoing gentrification.

Judy explained that she did not have a large knowledge base for the projects located outside of the City other than most of that development would be infill. She did indicate there are a large number of new apartments being constructed just south of the study area, along the way to Hendersonville. She further expressed a desire from the City of Asheville to return Patton Avenue to a local street, removing the barrier to redevelopment.

Date: March 12th, 2014
Time: 10:00 a.m.
To: Project Central File
From: Paul Humberger
Subject: Regional Cumulative Effects Summary

A phone interview was conducted on Wednesday March 12th, 2014 at 10:00am with Olivia Collier, the North Carolina Appalachian Regional Commission State Director. The following summarizes key points.

- A regional study is currently being conducted for the Corridor K project. This is an east-west upgrade of existing US 64 with potential for new location.
- The ARC primarily provides funding for the rural counties, but relies heavily on the MPO/RPO and local economic development partnerships.
 - Advantage West (Scott Hamilton – Lead) is currently working on a regional economic development plan for the greater Asheville region and would be a good point of contact for additional information.
- The only major recent direct projects were providing assistance to increase water and sewer service in Madison County in part due to increasing drought conditions. Those grants were closed in 2013 however.
- I-26 north of I-40 is considered an ADHS Corridor, however the section south is not considered part of the ADHS Corridor.
- Olivia indicated that Ken Wester (the ADHS Program Manager) would be able to provide additional information related to transportation projects from an ARC perspective.
 - Next update for the current 2011-2016 Strategic Plan

A subsequent phone interview was conducted with Ken Wester. The following summarizes the key points.

- The ARC, from a transportation perspective in western NC, is primarily focused on the US 64/US 74 (Corridor K). This section is west of Asheville in the Swain/Cherokee county areas. Plans further west in North Carolina are evaluating economic impacts and creating strategic plans, however these are outside of the limits of the regional cumulative effects study area boundary.
- Ken indicated that various funding strategies had been suggested for the I-40/I-26 corridors, including using ADHS funds. Ken stated that this would not be feasible, as ADHS funds are earmarked only for ADHS projects and would require an act of Congress to change funding or incorporate these projects into the system.

Date: March 13th, 2014
Time: 2:00 p.m.
To: Project Central File
From: Paul Humberger
Subject: Regional Cumulative Effects Summary

A phone interview was conducted on Thursday March 13th, 2014 at 2:00pm with Vicki Eastland, Lyuba Zuyeva, and Paul Black of the French Broad River (FBR) MPO. The following summarizes key points.

- There are a number of new and planned development projects currently being undertaken FBR will provide the GIS data for those projects.
 - These are primarily multi-family residential and employment centers.
 - Development has only been tracked since 2010 by the MPO.
- Liberty Road; there is no planned development currently, but once the interchange is constructed it is likely to be developed quickly.
 - There are some farmlands located near the Liberty Road proposed interchange. No major other areas along the I-26 corridor.
- Induced Demand will be the most important point to discuss in a Regional Assessment. The overall impacts of the projects will not likely directly influence or adversely affect the environment, however the resultant development will.
 - Shorter and quicker trips (reduced congestion) will influence where development occurs. This will likely be a result of which project is constructed first.
- Local traffic models indicate that a high volume of traffic is travelling north along I-26, but then turning off a travelling west on I-40. Future volumes indicated that this movement is likely to increase, not as much traffic continuing north on I-26.
 - Recent discussion with Greer Inland Port in South Carolina have indicated a substantial increase in truck traffic (from 40 PAU's to 100 PAU's), a large percentage of which will utilize I-26 and I-40 through Asheville.
- New growth is occurring in Weaverville and points south (New Stock Road) and west of Weaverville and is likely to continue in the short term. Mars Hill is likely to grow in the longer term (20-30 years).
- There are likely not too many historic resources that will be impacted outside of Montford and Biltmore.
- Cumulative impacts are likely to impact the West Asheville neighborhood (a typical streetcar neighborhood) that was severely impacted by the original project.
- There are no known pockets of EJ communities, however the entire town of Woodfin could be considered some of the lowest income areas in the greater three-county area.
 - There is a pilot project from Land of Sky that is attempting to identify pockets of EJ communities. It is not far enough along yet to render a determination.

- Infrastructure project in the county are likely driven by private development, as no new connections outside of Hendersonville are being constructed by any municipality or county. Private developments are occurring throughout the corridor and constructing some new infrastructure.
 - There is now a regional sewer service for a large portion of the region, they are attempting to avoid the construction of additional pump stations.
- AB Tech is opening a new satellite campus along Riverside Drive in Buncombe County. The existing campus is looking into providing new multi-modal connections to assist with expansion operations. Mars Hill College will likely develop in the longer term, thus increasing development in the Town of Mars Hill.
- FBR indicated that the proposed upgrade of Amboy Road in the vicinity of Brevard will likely result in potential cumulative impacts, as this corridor is heavily traveled by bicyclist and pedestrians and provides access to a number of recreational opportunities.
- The TCC has recently approved the new land use model for existing (2010) and future (2040).
- City of Asheville and other local municipalities have integrated complete streets policies, some of which have the potential to influence the development of interchanges and the associated wye lines.
- As part of the prioritization process, the MPO is required to provide their prioritized projects by May/June 2014. A revised draft STIP is anticipated for October 2015.
- In looking at sheer traffic volume, the 4400/4700 is the highest priority project for initial improvements. The remaining projects are not as vital.

Date: March 24th, 2014
Time: 10:00 a.m.
To: Project Central File
From: Paul Humberger
Subject: Regional Cumulative Effects Summary

A phone interview was conducted on Monday March 24th, 2014 at 10:00 am with Josh O'Conner, a Planner and Zoning Administrator for Buncombe County. The following summarizes key points.

- Most of the development within the county is currently occurring in the southern portion of the county, between Exits 37 and 40 along I-40.
 - The availability of land and infrastructure typically drives development within the county.
 - Much of the growth in the southern section of the county (Apartments and Retail) is either currently under construction or has been recently approved and will begin construction shortly.
- The fastest growing areas within the county are:
 - Arden, Candler and potentially Swannanoa (Swannanoa currently does not give a good return on investment)
 - Arden is the area of highest growth currently, while Candler is primarily tied to the development of the Exit 44 area and the potential Liberty Road interchange.
 - Those areas previously identified (Fariview, Cane Creek/Avery Creek, and Leicester) did not accelerate in growth as previously anticipated.
 - Development in these areas is on the order of 1 unit/acre.
- Development along I-40 has largely been in the Candler area, near Exit 44.
 - There have been three recent large industrial developments (> 90,000 square feet) including; Jacobs Home fabric manufacturers, Buncombe Distribution Center, and an Ingles Supermarket.
 - Josh stated that he is starting to see an increase in the industrial development locating and relocating to the area and expects this trend to continue.
 - Josh indicated that the area just west towards Liberty Road is drastically underdevelopment for commercial currently and would likely develop rapidly should the interchange be constructed. He further indicated that residential development would likely follow the commercial.
- With the 2013 update to the County's Land Use Plan, between the Steep Slopes ordinance and other regulations, development in rural areas of the county's became unattractive and growth and development were focused along the existing transportation corridors.
 - The land use plan developed the future development potential based on land use, infrastructure and topography. All permit applications must demonstrate

- how their project adheres to these principles and minimizes impact to each of the three categories.
- Standards for Resort Developers were developed recently, however Josh indicated that no one has seemed interest in clarification or pursuing this style of development.
 - Planners indicated the next change will involve reducing/constricting the amount of “Open Space” the county designates. This is partially in response to the “Conservation-Oriented” focus from the county, but also in part due to the lack of availability and funds for purchase of specific conservation areas.
 - Buncombe County has recently uploaded their current Land Use Model to the GIS webpage. Josh indicated that this shows the constraints for development, future land use and the areas recommended for development by the county.
 - The only major historic resource within the area is the Biltmore Estate which is bounded by I-40 and I-26, with potential access to NC 191.
 - Josh indicated that Bruce Hazzard, landscape architect with Design Management would be the most appropriate person to speak with regarding impacts to the property.
 - He also indicated there would be no push to preserve resources from the County for at least several years as there is no funding or need currently. He indicated there were no districts or significant resources per se outside of Biltmore.
 - Water within the county is provided by the City of Asheville, while sewer service is provided by a consortium of providers.
 - He indicated that the consortium has currently maxed out the infrastructure within developable areas without adding pump stations due to the steep slopes. Expansion is typically driven by development.
 - Buncombe County does not have any stream ordinances or standards that are more stringent than those set by the State.
 - He did not think that the projects would cause induced demand. He indicated that I-40 and I-26 were duplicative routes (not the primary choice for more locals) but rather solely for through traffic, or perhaps county-to-county. Existing riders use thoroughfares to travel around the Asheville metro area.
 - He indicated that the development of greenways and other such accommodations have been relegated to only being part of NCDOT projects. However, he indicated that NCDOT seemed to provide ample opportunity to partner and realize the goals and objectives set forth in the Greenways Plan. The County is actively pursuing opportunities to incorporate these elements within existing projects.
 - He indicated that new Parks and Recreational facilities would not likely be constructed due to a lack of funding and need to appropriate existing funds towards deferred maintenance costs for existing Parks.
 - LEP, Minority and EJ populations are typically distributed throughout the county (mostly within the mobile home parks).

- Specific areas include along I-26 between Woodfin and Weaverville (within those jurisdictions) and between I-40 and US 70 east of Asheville. The populations further out in the county tend to be lower income.

Date: March 7th, 2014
Time: 9:00 a.m.
To: Project Central File
From: Paul Humberger
Subject: Regional Cumulative Effects Summary

A phone interview was conducted on Friday March 7th, 2014 at 9:00am with Ryan Cody, the Planning and Zoning Director for Madison County. The following summarizes key points.

- The biggest transportation project in the County currently is the US 19 project towards Tennessee. As I-26 is currently 6-lanes through the county, it is not expected to dramatically impact the existing community.
 - The increased traffic will have the potential to increase industry; however it is not anticipated to drastically change existing land use and zoning.
- There is one active construction project within the county currently (in Mars Hill); a 50-60 unit housing project which is anticipated to begin construction in spring 2014. Local staff did not indicate any other recently approved or upcoming large-scale projects.
- The county is primarily a rural, bedroom community. When the original project was constructed, there were a few displacements and a few neighborhood access points that were altered, but county staff does not think additional traffic would constitute a recurring impact. Additionally there are no known proposed direct impacts resulting from any project.
- There are no known concentrations of special populations within the county; however Mars Hill contains both several HUD projects and a facility for mentally-disabled patients.
- Mars Hill has been undergoing the highest growth with respect to development and is currently undergoing capacity increases for water infrastructure and is planning on accommodating future sewer infrastructure. At the moment, new connections are only provided after final approval of development plans.
- The largest concern from a water resources perspective was the Ivy River intake, located on the Buncombe/Madison County line. This watershed covers approximately 33,000 acres.
- Planners did not indicate any concern for Cultural, Natural or Community Resources in the area.

Date: April 25th, 2014
Time: 1:00 p.m.
To: Project Central File
From: Paul Humberger
Subject: Regional Cumulative Effects Summary

A phone interview was conducted on Friday April 25th, 2014 at 1:00 pm with Matt Cable, a Transportation Planner for Henderson County. Matt indicated he was most familiar with the I-4400/I-4700 projects, but was comfortable speaking about the topics for the County. The following summarizes key points.

- Most of the development within the county is currently occurring in the northern portion of the county, near the Towns of Fletcher, Mills River, and the City of Hendersonville.
 - The availability of land and infrastructure typically drives development within the county. Much of the county is constrained by steep slopes and lack of water and sewer infrastructure.
 - There is not a large amount of development occurring in the southern and western portions of the county. Most residents in the southern portions commute to the Greenville/Spartanburg area for work and shopping as the travel times are comparable with reaching Asheville.
 - Much of the heavy industrial and manufacturing jobs and industries are located in South Carolina. Matt indicated that this trend is slowly reversing, with new industry moving into North Carolina.
 - Anchored by Sierra Nevada, many of the existing manufacturing sites have been growing through expansion. Matt further indicated that this trend was also on the rise.
 - Commercial and retail development was created due to the inability of residents to efficiently travel to Asheville.
 - Matt suggested contacting Andrew Tate who works for the Partnership for Economic Development in the County and could provide more detailed information regarding new and recent development.
- Matt did not know of any large-scale residential projects in the area, but indicated that the local municipalities would have a better idea whether any were occurring within the municipal limits. He thought Hendersonville and Fletcher may have several multi-family, high-density units being constructed or recently constructed.
 - Most development within the county has currently been redevelopment and infill. Matt indicated this trend supports Henderson County's desire to increase density along the existing transportation corridors.
- The airport has begun expansion and redevelopment plans and has currently begun requiring the various municipalities and counties to adhere to the Airport Overlay District.

- Henderson County does not have any specific historical or archaeological preservation plans, but that historical elements and resources are addressed through the small community plans as identified in the Comprehensive Plan. Matt did indicate that the Town of Fletcher and Town of Mills River have an active Historical Society.
- Matt indicated that there were several watersheds within the area, but nothing located directly adjacent to the project. He further explained that this was true with respect to natural resources.
- Water within the county is provided partly by the City of Hendersonville, part Henderson County, and part Buncombe County, while sewer service is provided by a consortium of providers.
 - Matt indicated that only Hendersonville was actively expanding service and that extended to only water service, not sewer, and only to those areas that voluntarily agreed to be annexed by the City. All other expansions were only considered if new or redevelopment was occurring.
- There are a number of agricultural lands to the south and east of the I-4400/4700 project. The areas east of I-26 in the proximity of the community of Dana would be most likely to be redeveloped as the land here is generally flat, has some water/sewer service, and the community of Dana has indicated they would like to see a new interchange between Upward Road and US 64. There is no plan/project at this time for an interchange there. In addition, growth in the county is occurring more in the northern sections, not the southern.
- Outside of the community of Brickton, there are very few identifiable communities of either low-income or minority.
 - There is a transient population that would likely be considered LEP (migrant workers), however they are concentrated in smaller apartment complexes and mobile home parks. They would not likely show up during a demographic analysis.
 - All the HUD-approved and built housing are located within the municipal limits.
- Matt indicated that it is possible that the widening of I-26 along its entire length could induce some demand and alter land use patterns. Existing congestion occurs along both I-26 and US 25. As congestion lessens on I-26, traffic would likely be pulled off US 25. This would in turn lead to more residents travelling into Asheville for retail/commercial needs. Matt indicated that unless businesses along US 25 could adapt, it could result in a number of businesses closing. He also indicated due to the nature of development, it is unlikely that this corridor could return to primarily residential through infill and redevelopment.
 - Most commercial nodes arose from residents not wanting to travel into Buncombe County due to congestion.

Date: April 29th, 2014
Time: 2:30 p.m.
To: Project Central File
From: Paul Humberger
Subject: Regional Cumulative Effects Summary

A phone interview was conducted on Tuesday April 29th, 2014 at 2:30 pm with Scott Hamilton, President of Advantage West, an economic development firm located near Asheville, NC. Scott indicated he was most familiar with the economic development aspects of the region as the firm covers an area of approximately 23 counties, but did not have any knowledge regarding the four resource categories. The following summarizes key points.

- Scott confirmed that a majority of the development was occurring in the northern section of Henderson County around the airport where there is existing industry and relatively flat topography, in close proximity to the I-26/I-40 interchange (easy access to distribution for products), and in west Asheville, at the industrial park near the Asheville-Buncombe Technical College campus.
 - Industry is returning to the area in the form of new development and the expansion of existing facilities.
 - Lennar has taken over the old Volvo plant
 - The increase in new breweries is continuing to bring 80-100 person employment centers
 - Continental is expanding their current facility near the airport
 - The industry resurgence is continuing due to a number of factors including;
 - Wage pressures from China, increasing transportation costs, automation, and increasing competition
 - Scott indicated that they are not seeing the 800-1,000+ manufacturing plants returning, as much of the industry has automated processes. The jobs that are associated with these plants are however, higher skill and higher pay.
- Scott indicated that much of the future growth and direction of industry will be very market-dependent. While Scott explained that industry would continue to grow and expand in the region, but that the transportation projects themselves would not likely accelerate the development. As no new interchange access will be provided by these projects (with the exception of I-4759) growth will likely be concentrated in existing areas that have highway connectivity.
- Congestion was increasing from I-26/I-40 south prior to NCDOT's I-40 improvements, sometimes backing up to the airport (9 miles from the interchange). While congestion was reduced as a result, it is beginning to increase and traffic often backs up to Long Shoals Road (6 miles).
- He further indicated that reducing congestion would assist with the existing development, as there is a healthy mix of sites and industries in the region.

- Much of the economic downturn provided a number of facilities that are either abandoned or underutilized. These areas are prime for infill and redevelopment.
- Scott indicated that he did not think much of the agricultural land (particularly in the southern section of Henderson County) would be converted as a result of the projects, as Agri-business is a booming industry in the region and doesn't show signs of slowing. Agriculture is a large economic resource and provides jobs and wages to a large portion of the population. In addition, these areas are not as well-suited for industry (lack of sewer, water, workers).
- Scott did not seem to think that the increased capacity would lead to increased demand or would alter traffic patterns, but rather would simply serve to control expected growth.
 - Quality transportation is one of the most critical paths to economic development and growth in the region, and by solving congestion across the I-26 and I-40 corridors will help to strengthen the region.

Appendix B: Site Visit

Paul Humberger conducted several site visits to the Regional CES project study area and western North Carolina between the months of September 2013 and May 2014. This site visits primarily focused on developments and construction activities that were recently completed, under construction, or major areas that were available for development. In addition, information gleaned from local interviews and research were observed, verified, and documented. Specific project information, where relevant, is included in the main body of the report, while the following summarizes some of the areas of note discerned during the site visit.

Construction:

Pockets of construction were noted in various areas within the study area. Sites ranged from a number of infill housing units within the Cities of Asheville and Hendersonville, to larger sites, such as the New Belgium Distribution Center along the French Broad River and the Reynolds Mountain mixed-use development between the Towns of Woodfin and Weaverville. AB Tech's Main Campus in downtown Asheville had several sites actively under construction, supporting the increase in growth. Local planners indicated that a satellite campus was to be constructed shortly.

In addition, there were several medical centers that were under construction, including additions to the Mission Valley Medical Complex in downtown Asheville and several outparcel Emergency Care centers in Weaverville and Henderson County.

Development appeared to be occurring in close proximity to the major interstates and interchanges, as well as a large amount of infill development in the existing urban centers. Weaver Boulevard, located in the Town of Weaverville, has undergone tremendous growth in the past several years, including new restaurants, a grocery store, and a single-family residential neighborhood located immediately adjacent.

Environmental Justice and Low-Income Populations:

Specific attention was paid to the previously identified neighborhoods with respect to Environmental Justice, Minority/Hispanic populations, and several other demographic characteristics. The primary intent was to verify trends and previously-calculated demographic data.

There were several mobile home parks and housing authority complexes throughout the project area, most of which were located either immediately or in close proximity to the major transportation corridors. These areas corresponded with the output of the demographic analysis as well as were later confirmed by the local planners. Major established communities include the Burton Street Community (Asheville) and the Brickton Community (Henderson County), both located along I-26/future I-26. Community cohesion was noted within several areas, particularly within the City of Asheville, around areas such as Emma Road, Burton Street, Pisgah View apartments, and within the Montford community.

Resources:

There were several parks and community facilities noted throughout the study area and predominately were heavily utilized. It was determined during multiple site visits that these facilities were also used year-round.

In short proximity upon leaving the main transportation corridors, the surrounding areas quickly become rural in nature, single-family housing, with a lack of heavy industrial,

commercial, or retail development. In addition, many of the significant natural features including the Pisgah National Forest, Blue Ridge Parkway, French Broad River, and agricultural lands are located adjacent to several of the projects. The transportation network typically follows the larger water features as the areas surrounding are the lowest in slope.