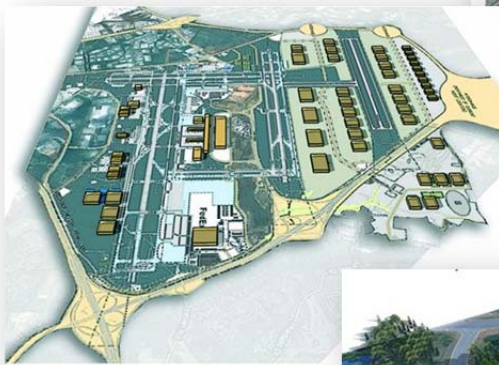


SEVEN PORTALS STUDY

*An Investigation of Economic Development in
North Carolina Through Logistics Villages*

Advantage West Region

Final Report



December 31, 2011

Cover illustrations by Sherman Architect, PLLC
Used with permission from the Piedmont Triad Partnership

TECHNICAL REPORT DOCUMENTATION PAGE

Report No. FHWA/NC/2010-34-7		Government Accession No.		Recipient's Catalog No.	
4. Title and Subtitle Seven Portals Study: An Investigation of Economic Development in North Carolina Through Logistics Villages – Advantage West Region Report				Report Date December 31, 2011	
				Performing Organization Code	
Author(s) Daniel J. Findley and John R. Stone				Performing Organization Report No.	
Performing Organization Name and Address North Carolina State University Institute for Transportation Research and Education Campus Box 8601 Raleigh, NC 27695-8601				Work Unit No. (TRAIS)	
				Contract or Grant No.	
Sponsoring Agency Name and Address North Carolina Department of Transportation Research and Analysis Unit 104 Fayetteville Street, Room 268 Raleigh, NC 27601				Type of Report and Period Covered Final Report July 1, 2010 – December 31, 2011	
				Sponsoring Agency Code 2010-34	
Supplementary Notes:					
<p>Abstract</p> <p>The goal of this study was investigating potential logistics villages within one of the seven economic development regions across the state, specifically the West Region. The initial focus was proximity for air, rail, and highway connectivity at potential sites, but the study discovered other possibilities for successful villages. Each village is evaluated for strengths, weaknesses, and needs, with emphasis on identifying what infrastructure improvements are needed to support such a village at that location. The study does not recommend specific sites above others. The major findings from this study are incorporated into a master report covering the entire state titled <i>Seven Portals Study – An Investigation of How Economic Development Can be Encouraged in North Carolina Through Infrastructure Investment</i>.</p> <p>Through research, data analyses, and outreach efforts to businesses, economic development offices, local officials, and planning offices, four potential logistics villages/areas were investigated for their strengths, weaknesses and needs in support of major shipment activity. The region is focusing business development in these areas: advanced manufacturing (automobile components, advanced materials and composites, chemicals and plastics, metalworking, optics), entrepreneurial development, agribusiness, advantage green (alternative energy technology initiatives), and tourism.</p>					
Key Words Logistics, Freight Shipments, Land Development, Cargo, Commodity, Infrastructure, Logistics Village, Distribution Center			Distribution Statement		
Security Classif. (of this report) Unclassified	Security Classif. (of this page) Unclassified	No. of Pages 67	Price		

Seven Portals Study

*An Investigation of Economic Development in North Carolina
Through Logistics Villages*

ADVANTAGE WEST REGION REPORT

By

Daniel J. Findley, P.E.
Senior Research Associate
Institute for Transportation Research and Education
North Carolina State University

John R. Stone, Ph.D.
Professor
North Carolina State University

For the

**Governor's Logistics Task Force
and
The North Carolina Department of Transportation**

Final Report

December 31, 2011

Disclaimer

The contents of this report reflect the views of the authors and not necessarily the views of the University. The authors are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the North Carolina Governor's Office, the North Carolina Department of Transportation, the North Carolina Department of Commerce, nor any other state agency or state authority at the time of publication. This report does not constitute a standard, specification, or regulation.

Acknowledgements

This regional study was accomplished through the dedicated efforts of a small study team which is part of a much larger study team looking at both statewide issues and other commerce regions. The study team members for this region included:

NCSU Team

Dr. John Stone - Western Region team member

ITRE Team

Mr. Daniel Findley, P.E. – Western Region team member

Outreach

The regional team would like to thank those individuals and organizations who provided input and feedback into the process. The team received valuable feedback from many individuals, these include:

Advantage West Economic Development Group – Scott Hamilton
Asheville Chamber of Commerce – Clark Duncan
Asheville Regional Airport – Lew Bleweis
Blue Ridge Design – Keven McCammon
Blue Ridge Mountain EMC – Erik Brinke
Cherokee County – David Badger
Cherokee County Chamber of Commerce – Phyllis Blackmon
Division 13 – James Swain
Division 14 – Joel Setzer, Brian Burch, and Reuben Moore
Greater Hickory MPO – John Tippet
Isothermal - Josh King
Industrial Opportunities, Inc – Tom O'Brien
Land of Sky – Natalie Murdock
North Carolina Department of Agriculture – Rob Hosford
Rutherford County Economic Development Commission – Thomas Johnson, Mary Taylor
Southwestern – Ryan Sherby
Rutherford County – John Condrey
Rutherford County Airport – Ed Robinson
Rutherford County Commission – Julius Owens
Volvo Logistics – John Franklin
Western Carolina Regional Airport – Jimmy Nix
Western Carolina University – Dr. Michael Smith
Western North Carolina Transportation Alliance
Wilkes County - John Yates
Wilkes County Airport Board - Lee Herring
Wilkes County Chamber of Commerce – Linda Cheek
Wilkes County Economic Development – Jeff Garstka

The study team greatly appreciates all the support given to the team from Mr. Charles Diehl and Mr. Roberto Canales, P.E., with the Department of Transportation, and Mr. Joseph “Jed” McMillan, DOT/Commerce Advisor. These individuals provided significant support and participation in meetings, visioning sessions, and presentations. Additionally, the team expresses appreciation to all individuals contacted for input and feedback on this study. The information shared with the study team members was critical to our understanding of the issues facing the state and possible actions for the state to address these issues. Lastly, the team appreciates the guidance and input from Dr. George List, Principal Investigator for the project, and Dr. Larry Goode, consultant and Steering Group member in helping shape the overall approach for data collection, analysis, and reporting results.

Table of Contents

<u>ACKNOWLEDGEMENTS</u>	<u>iii</u>
<u>TABLE OF CONTENTS</u>	<u>v</u>
<u>LIST OF FIGURES</u>	<u>vi</u>
<u>LIST OF TABLES</u>	<u>vi</u>
<u>EXECUTIVE SUMMARY – WESTERN REGION</u>	<u>1</u>
<u>1 INTRODUCTION.....</u>	<u>7</u>
1.1 OVERVIEW OF THE REGION	8
1.2 ADVANTAGE WEST - THE ECONOMIC DEVELOPMENT ORGANIZATION FOR WESTERN NORTH CAROLINA.....	23
1.2.1 INFRASTRUCTURE GOALS/OBJECTIVES OF THE WEST REGION.....	23
1.3 INLAND PORT FEASIBILITY	24
1.4 WNCTA – A VIRTUAL VILLAGE LOGISTICS ACTIVITY	26
<u>2 POTENTIAL LOGISTICS VILLAGES</u>	<u>28</u>
2.1 POTENTIAL LOGISTICS VILLAGE IN SOUTHWESTERN NORTH CAROLINA.....	28
2.2 POTENTIAL LOGISTICS VILLAGE IN MIDWESTERN NORTH CAROLINA I.....	36
2.3 POTENTIAL LOGISTICS VILLAGE IN MIDWESTERN NORTH CAROLINA II	42
2.4 POTENTIAL LOGISTICS VILLAGE IN NORTHWESTERN NORTH CAROLINA	49
<u>3 SUMMARY</u>	<u>56</u>
3.1 LOGISTICS VILLAGES COMPARED	56

List of Figures

FIGURE 1-1: WESTERN NORTH CAROLINA REGIONAL MAP	8
FIGURE 1-2: ADVANTAGE WEST REGION IN RELATION TO OTHER STATES	17
FIGURE 1-3: WESTERN NORTH CAROLINA HIGHWAY MAP	20
FIGURE 1-4: WESTERN NORTH CAROLINA RAILROAD MAP	21
FIGURE 2-1: REGIONAL LABOR SHED AND RETAIL MARKET SERVICE AREA “BOWL”	28
FIGURE 2-2: 10-MILE RADIUS FOR ANDREWS SITE	32
FIGURE 2-3: 60-MILE RADIUS FOR ANDREWS SITE	33
FIGURE 2-4: 30-MINUTE DRIVE TIME FROM ANDREWS	34
FIGURE 2-5: AERIAL VIEW OF WESTERN CAROLINA REGIONAL AIRPORT	35
FIGURE 2-6: 10-MILE RADIUS FOR ASHEVILLE SITE	38
FIGURE 2-7: 60-MILE RADIUS FOR ASHEVILLE SITE	39
FIGURE 2-8: 30-MINUTE DRIVE TIME FROM ASHEVILLE	40
FIGURE 2-9: AERIAL VIEW OF ASHEVILLE REGIONAL AIRPORT	41
FIGURE 2-10: REGIONAL LOCATION OF RUTHERFORD COUNTY	42
FIGURE 2-11: 10-MILE RADIUS FOR RUTHERFORDTON SITE	45
FIGURE 2-12: 60-MILE RADIUS FOR RUTHERFORDTON SITE	47
FIGURE 2-13: 30-MINUTE DRIVE TIME FROM RUTHERFORDTON	48
FIGURE 2-14: AERIAL VIEW OF RUTHERFORD COUNTY AIRPORT, MARCHMAN FIELD	49
FIGURE 2-15: 10-MILE RADIUS FOR WILKESBORO SITE	53
FIGURE 2-16: 60-MILE RADIUS FOR WILKESBORO SITE	54
FIGURE 2-17: 30-MINUTE DRIVE TIME FROM WILKESBORO	55
FIGURE 2-18: AERIAL VIEW OF WILKES COUNTY AIRPORT	56

List of Tables

TABLE 1-1: POPULATION TRENDS FOR WEST REGION COUNTIES	9
TABLE 1-2: REGIONAL LABOR STATISTICS FOR WEST REGION COUNTIES	10
TABLE 1-3: INDUSTRY OVERVIEW FOR THE SOUTHWESTERN NORTH CAROLINA	11
TABLE 1-4: INDUSTRY OVERVIEW FOR THE MIDWESTERN NORTH CAROLINA	12
TABLE 1-5: INDUSTRY OVERVIEW FOR THE NORTHWESTERN NORTH CAROLINA	13
TABLE 1-6: WORKER TRAVEL TIME FOR WESTERN NORTH CAROLINA	14
TABLE 3-1: WESTERN REGION SUMMARIES	59

Executive Summary – Western Region

The goal of this study was investigating potential logistics villages within one of the seven economic development regions across the state. The initial focus was proximity for air, rail, and highway connectivity at potential sites, but the study discovered other possibilities for successful villages. Each village is evaluated for strengths, weaknesses, and needs, with emphasis on identifying what infrastructure improvements are needed to support such a village at that location. The study does not recommend specific sites above others. The major findings from this study are incorporated into a master report covering the entire state titled *Seven Portals Study – An Investigation of How Economic Development Can be Encouraged in North Carolina Through Infrastructure Investment*.

This report presents an assessment of economic development strategies and identifies illustrative examples of logistics villages for the Advantage West Region of North Carolina.¹ In this report, the term logistics village could describe a relatively small geographic location that has a concentration of infrastructure for manufacturing and transportation assets to distribute products. For example, a logistics village could be a group of manufacturing facilities surrounding a regional airport that is proximate to interstate highways and rail lines. Or, a more virtual logistics village, following a hub and spoke layout, could be a dispersed group of manufacturing facilities in a region that ship their products to a regional distribution hub.

Western North Carolina

The Western Region includes 23 counties, and it is approximately the size of the state of Maryland (10,000 square miles). Eleven of the 23 counties qualify for Tier 1 support for economic development. The region has a population of 1.1 million, including 456,000 workers. The top five employment categories totaling 295,000 workers are: government, health care, retail trade, manufacturing and accommodations/food preparation. As home to the Eastern Band of the Cherokee Indians the region has a strong connection to American history, heritage and culture. The region includes three public universities, eleven community colleges, and eight private colleges. Recreation and tourism are vital components of local economies based on mountain resorts, summer and winter sports, arts, crafts, and folk music. There are 1,200 manufacturing companies and 300 technology companies. Advantage-West industrial development focuses on four core areas: advanced manufacturing, entrepreneurial development, agri-business, and AdvantageGreen, which is a network of green, environmentally sustainable businesses. Furthermore, Western North Carolina has hosted many major film productions.

Western North Carolina Sub-Regions

The Western Region can be seen as having three county sub-regions (and four potential villages in the context of this logistics village study): Southwestern, Midwestern, and Northwestern North Carolina. The size of the region (in terms of number of counties and square mileage) lends itself to sub-regions. The areas within these general sub-regions share commonalities and alternative villages within the region will likely share some of the same advantages and disadvantages.

¹ Logistics, originally a military term, is the efficient and effective planning, implementation, and control of the flow of goods, services, people, and related information between points of origin and points of consumption to meet customer requirements. (Paraphrased from the Council of Logistics Management Professionals)

Southwestern North Carolina Village – Valley River Valley

The Village in southwestern North Carolina is centered on Andrews and the US 74 corridor. The Valley River Valley is the most open and flat valley in Southwestern North Carolina and has land for development, existing industrial sites and buildings, an airport, water and power utilities, high-speed internet access, good roads, and a direct (although inactive) rail connection east and west. The Valley attracts labor, materials, and products from other North Carolina counties and also draws from counties bordering North Carolina including Polk County, Tennessee the Georgia counties of Fannin, Union, and Towns. The Village has trans-shipment destinations for its products (including car parts, tools, and textiles) in Asheville, Chattanooga and Atlanta.

Midwestern North Carolina Villages – Asheville and Isothermal Belt

Two potential villages are presented in this report for Midwestern North Carolina. One village includes the traditional logistics center of this region in Asheville, which is North Carolina's fourth largest metropolitan area. Its transportation facilities include I26, I40, the Asheville Regional Airport, and the Norfolk Southern Railroad, which connects with the CSX Railroad a short distance to the east of Asheville. As an example of attractiveness and strength of logistics in the area, Ingles Markets, Inc. plans to build a new 830,000 square foot warehouse and distribution center in Buncombe County. The new distribution center will nearly double Ingles distribution facilities in Buncombe County in order to support 202 Ingles supermarkets throughout the southeastern U.S.

The second village is Rutherford County which is developing extensive information technology (IT) facilities that represent contemporary broadband internet “logistics” and e-business. Furthermore, Rutherford County offers transportation assets including a general aviation airport and primary highways (US 64, US 74, and US 221). US 74 connects I-26 and I-85 and provides a link between Asheville and Charlotte. The expanding information technologies in Rutherford County include the North Carolina State Data Center and Facebook Data Center. Four and one half percent of the Rutherford County employment is in the IT sector (which is the highest county percentage in the state). Thus, the Transportation and Telecommunications Villages of the central counties in Western North Carolina have two potential logistics hubs - one centered in Buncombe County and one centered in Rutherford County.

Northwestern North Carolina Village – Wilkes County

This virtual village represents the northern tier of counties in Western North Carolina. This virtual logistics village is centered on Wilkes County. Transportation assets in the five county sub-region include Wilkes County Airport, Yadkin Valley Railroad (which serves Tyson Farms and which connects to the Norfolk and Southern in Winston-Salem), I-77 (about 20 miles east of Wilkesboro), US 21, US 221, US 321, and US 421. The manufacturing and agricultural products (including a significant number of the nation's Christmas trees) have ready access to North Carolina, Virginia, and Tennessee by way of I-40 and US 421 to I-77 to I-81.

Study Approach

The Western North Carolina team reviewed the transportation and manufacturing assets of Western North Carolina in order to define potential sites for economic development for industry, agriculture, and information technology. The common element is a good foundation for

transportation connections to points outside Western North Carolina including other counties in North Carolina, neighboring states, and the Global Economy. In concept a good transportation infrastructure including recommended improvements will attract new business and jobs for a traditionally economically depressed region. To identify potentially successful logistics villages the study team visited potential sites for logistics villages, spoke to local and regional economic development officials, coordinated with the Governor's Logistics Task Force, analyzed economic development databases prepared by the NC Department of Commerce, and reviewed reports prepared by other agencies and authors.

Findings

Western North Carolina has distinctly different geography, economic development, and transportation infrastructure compared to the rest of the State. The nationally recognized geography has beautiful mountains and valleys which attract tourists and sports enthusiasts. However, the geography represents a challenge to building transportation infrastructure and concentrated industrial sites. As a result, economic development is more dispersed in Western North Carolina than elsewhere in the State. Thus, the traditional concept of a centralized concentration of manufacturing and transportation facilities does not fit the Region. Consequently, the study team developed the concept of dispersed, virtual logistics villages about which economic development occurs over a 30 to 60 mile or more distance. At the centers of the virtual villages are transportation facilities ready to carry the regional products to North Carolina, US, and global markets. Each virtual village as described previously is centered on transportation facilities including regional airports, Interstate or US highways, and railroads. The telecommunications industry of Rutherford County and its concentration of Information Technology "logistics" for e-business represent a new paradigm for virtual logistics that does not entirely rely on "brick and mortar", rail and highway infrastructure. Instead the Rutherford County Village relies on the "information super highway" to transmit e-business data, services, product orders, etc. Continued improvement to the "information super highway" is as important to the economic development of Western North Carolina as improvements to traditional air, rail and highway infrastructure.

The mountainous region with its dispersed economic development and transportation infrastructure supports the concept of the non-traditional, virtual, dispersed logistics village. Similarly the dispersed need for logistics has prompted innovative and efficient cooperation regarding product shipments. The North Carolina Transportation Alliance located in Asheville provides opportunities for transportation, logistics, and supply chain professionals in the manufacturing and distribution sectors to meet and discuss common needs. Such informal discussions have led to more efficient shipments where, for example, one company will pay for products shipped from Western North Carolina to Florida and a second company will use the shipper to bring materials from Florida to Western North Carolina. Empty backhaul trips are thereby avoided.

Such "can do", "bootstrap" efforts to support Western North Carolina logistics and economic development are seen elsewhere. On a regional scale Advantage West promotes economic development for the entire region. On a local scale, for example, Wilkes County uses local public and private funds to attract prospective industry.

Overall, Western North Carolina presents attractive development opportunities. They will be enhanced by improvements to virtual and traditional logistics infrastructure.

Recommendations

Western North Carolina is an unfolding economic development story.

Its remarkable beauty supports world class tourism and recreational opportunities that in turn support local businesses. Building on traditional, sustainable values that started with Native American markets to trade goods with European settlers, the Eastern Band of the Cherokee own one casino and plan to build another gaming facility in Western North Carolina. The casino in Cherokee has the largest concentration of hotel rooms and conference facilities in North Carolina, they draw visitors from neighboring states, they create construction and casino jobs, and they support service and retail businesses in surrounding counties. These plans pave the way to for a sustainable future Cherokee and for many people in Western North Carolina. Such opportunities for sustainable growth in the region should be enabled by improved transportation infrastructure for visitors and freight.

Sustainable, green economic development, and alternative energy are themes that Advantage West promotes. To complement the excellent hydropower in the region, Western North Carolina is increasingly recognized as an alternative energy hub. In 2008, Vanir Energy acquired Appalachian Solar Energy and announced its world headquarters would be located near Asheville in the Fletcher Business Park, making it the largest installation of solar thermal heating and cooling technology in the world. Sundance Power Systems, Inc., one of the largest renewable energy firms in the Southeast is also located in the region. Such opportunities to support the emerging new economy dependent on alternative energy should be supported with improved public infrastructure and funding.

In turn, these new technologies will create new business opportunities for advanced manufacturing, telecommunications, and e-business, as well as the supporting network of community colleges, public education, health care, utilities, etc.

While future economic development will occur related to expanding tourism, gaming, and advanced technologies, traditional agri-businesses in Western North Carolina also need continued improvements to ship products. For example, North Carolina's Christmas tree industry is ranked second in the nation in the number of trees harvested. The Fraser fir is the most popular Christmas tree in North America, and it is grown throughout Western North Carolina counties. It is shipped into every state in the U.S. and to the Caribbean Islands, Mexico, Canada, Bermuda, Japan and other countries. Besides commercial harvesting and distribution, agritourism is generated by nearly 400 "choose and cut" tree farms.

Compared to other economic development regions, the emerging future for Western North Carolina will pay proportionately higher returns on public investments in infrastructure than in the other, more established regions in North Carolina.

The following list of infrastructure improvements results from discussions with regional officials and the study team's assessment of the region.

Interstate and Highway Improvements:

- Complete Corridor K of the Appalachian Development Highway System to provide four lane highway access to geographically insulated communities in the rural westernmost counties of the Advantage West region.
- Complete I-26 through Henderson and Buncombe Counties.
- Complete Hwy 19 through Avery, Madison, Mitchell, Watauga, and Yancey Counties to provide four lane highway access from I-26 in Madison County.
- Complete Hwy 221 widening from the South Carolina state line through Rutherford County and connecting to I-40 in McDowell County.
- Complete Hwy 321 through Watauga and Caldwell Counties to provide four lane access from Boone to Charlotte.

Rail Improvements:

- Develop an inland multi-modal port near Asheville to enhance the flow of products through and from the area, to create jobs associated with warehouse and distribution companies, and attract advanced manufacturing companies.
- Provide passenger rail service to Asheville to support tourism, alleviate seasonal congestion on I-40, and promote new businesses.

Telecommunications:

- Deploy fiber and high speed broadband Internet connectivity throughout the region to support the citizens and businesses, to provide improved healthcare through enhanced medical diagnostic and treatment, and to create jobs at data centers, advanced digital media design companies, and advanced manufacturing companies.

Transportation Alliances:

- Promote the concept of and participation in the Western North Carolina Transportation Alliance. The dispersed logistics needs of the virtual villages are well fitted to the “virtual” logistics management practices of the WNCTA.

Potential Logistics Villages:

Focus near term Western North Carolina economic development and transportation network improvements on four logistics villages:

- Southwestern North Carolina. The Village should be centered near Andrews on the Valley River Valley with its current and recommended improvements to transportation infrastructure, its available sites and buildings, and its traditional economic connections to nearby counties including those in Georgia and Tennessee.
- Midwestern North Carolina.
 - The Asheville-centered Village recognizes Asheville as the regional hub for highway, rail and air networks and much of the commerce in Western North Carolina.
 - The Rutherfordton-centered Village and extending into nearby counties underscores the growing importance of e-business and support activities in Western North Carolina. The Village has available traditional brick and mortar industrial sites to

- house Information Technology firms, as well as traditional transportation infrastructure for air, rail and highway networks. The Village recognizes the paradigm shift in that area from traditional manufacturing jobs to high tech and information technology employment. To maintain its momentum continued investments in telecommunications infrastructure will be needed.
- Northwestern North Carolina.
 - The center of the Village is Wilkes County with current agriculture processing and manufacturing companies. There are also available sites and industrial parks for future development. Regional rail and highway links provide quick access to nearby interstate highway and rail corridors. The excellent general aviation airport in Wilkes County is already the home to several businesses including “through the fence” aircraft assembly, testing and delivery.

Additional information regarding sites in Western North Carolina is available from the North Carolina Department of Commerce and its *Certified Sites Program*. Industrial sites in this inventory meet pre-qualification standards which reduce the risk to developers by providing information about price, availability, utilities, access, environmental concerns, and site development costs². There are currently 11 certified commercial sites in Western North Carolina. The largest site is the Wilkes County Industrial Park (522 acres) located in North Wilkesboro. The second largest site (262 acres) is adjacent to the Asheville Regional Airport. A total of 404 acres among six sites (ranging from 19 acres to 195 acres) are located in Rutherford County.

While these certified sites from the NC Department of Commerce tend to justify the independently determined findings of the Western Region Report, other sites in the region should not be overlooked. The certified sites and other potential sites will allow economic development to strengthen the Western Region of North Carolina and support dispersed logistics villages or concentrated hubs of economic and transportation activity.

² North Carolina Department of Commerce. Buildings and Sites.
<http://www.nccommerce.com/en/BusinessServices/LocateYourBusiness/BuildingsAndSites/>

1 Introduction

NCSU team members initially reviewed three possible sites for “logistics villages” in the Western Region of North Carolina. The review began with a focus on three airports in the region: Western North Carolina Regional Airport near Andrews and Murphy; Asheville Regional Airport; and Wilkes County General Aviation Airport. Each of the three airports has existing and potential sites for industrial parks for “through-the-fence” logistics much like those at larger airports. Plus, nearby city and county sites and transportation facilities could expand the logistics village concept from the three airports to the surrounding county and Western Region. As the Western North Carolina team conducted its interviews with regional planners and officials and as they conducted additional research it became apparent that the concept of airport or county-based logistics villages was too narrow in scope for the dispersed resources and assets in the Western Region. Instead, the team elected to define three sub-regions and four “virtual logistics villages” based on distinct characteristics of the sub-regions.

The Western Region can be seen as having three county sub-regions: Southwestern, Midwestern, and Northwestern North Carolina (Figure 1-1). Some of the communities in this part of the state are more isolated than others and might even be much more strongly associated with counties in neighboring states than those within the state. The effects of terrain and transportation linkages are important to the region and the vitality of local economies. The size of the region (in terms of number of counties and square mileage) lends itself to sub-regions. These sub-regions are primarily for discussion purposes in this report and the boundaries could be viewed as somewhat flexible, particularly the counties on the borders of the sub-regions. The areas within these general sub-regions share commonalities and alternative villages to those presented in this report within the region will likely share some of the same advantages and disadvantages as those presented here.

Regional councils/commissions provide support to counties with planning and administrative services for economic development and infrastructure. These regional councils/commission boundaries are reflected in the sub-regions designations presented in this report. The Southwestern sub-region is comprised of all of the Southwestern Commission’s area (Region A³) including: Cherokee, Clay, Graham, Haywood Jackson, Macon, and Swain. The Midwestern sub-region is comprised of two regional commissions, Land-of-Sky Regional Council (Region B⁴) and Isothermal Planning and Development Commission (Region C⁵), and includes the Western Region counties of Buncombe, Henderson, Madison, McDowell, Polk, Rutherford, Transylvania. The Northwestern sub-region also consists of two commissions, High Country Council of Governments (Region D⁶) and Region E Development Corporation⁷, which includes the Western Region counties of Alleghany, Ashe, Avery, Burke, Caldwell, Mitchell, Watauga, Wilkes, and Yancey.

³ Southwestern Commission. www.regiona.org

⁴ Land-of-Sky Regional Commission. www.landofsky.org

⁵ Isothermal Planning and Development Commission. www.regionc.org

⁶ High Country Council of Governments. www.regiond.org

⁷ Region E Development Corporation. www.regionecdc.org

Figure 1-1: Western North Carolina Regional Map



1.1 Overview of the Region

The Western Region of North Carolina is at the southern tip of Appalachia. Borrowing from the 1964 President’s Appalachian Regional Commission Report (PARC), “Appalachia is a region apart-geographically and statistically. It is a mountain land boldly up-thrust between the prosperous Eastern seaboard and the industrial Midwest – a highland region which sweeps diagonally from New York to Mississippi....” Similarly the Western Region is a “region apart geographically and statistically from the rest of North Carolina. The demarcation line is I-77 which runs north from Charlotte to Virginia. Fifty years after the PARC report there has been much progress in Western North Carolina as for Appalachia. Interstates have crossed the mountains and economic development has occurred in many areas. However, more improvements are necessary to ready Western North Carolina for the demands of the Global Economy.

The Western Region includes 23 counties (Figure 1-1), it is approximately the size of the state of Maryland (10,000 square miles), and it is larger than eight states. The region has a population of 1.1 million (Table 1-1), including 460,000 workers (Table 1-2). The regional unemployment is 12.4% (2009 -Table 1-2) and exceeds the State unemployment rate of about 10%. The top five employment categories in 2009 total over 210,000 employees. They are: health care and social assistance, manufacturing, retail trade, accommodations/food services, and public administration (Table 1-3, Table 1-4, and Table 1-5). The region includes three public universities, eleven community colleges, and eight private colleges. Recreation, tourism, and gaming are major attractions of the region, and they are vital components of local economies based on mountain resorts, summer and winter sports, arts, crafts, folk music, etc. Retail trade, accommodations,

and food services (which together represent a significant proportion of the employment in the Western Region) support recreation and tourism. The average worker's commute to work in 2000 was 24 minutes, which was a 24% increase from 1990 (Table 1-6).

North Carolina is the sixth most visited state behind California, Texas, Florida, New York, and Pennsylvania. In 2009 North Carolina's tourism industry supported 185,000 jobs for North Carolinians contributing more than \$4 billion to the state's payroll⁸. Expenditures related to tourism were \$15.6 billion. The economic impacts of the tourism industry should be addressed when considering infrastructure improvements needed to support economic development. By making areas more accessible, while considering improvements that are in context with the natural environment, an area can increase tourism. The Western Region attracted \$2.2 billion in tourism expenditures in 2009 and generated a \$476 million payroll through 26,000 jobs.

⁸ North Carolina Department of Commerce. North Carolina Division of Tourism, Film and Sports Development. Prepared by the US Travel Association . *The Economic Impact Of Travel On North Carolina Counties*
<http://www.nccommerce.com/tourism/research/economic-impact/teim>

Table 1-1: Population Trends for West Region Counties⁹

County	2000 Population	2000 Urban	2000 Rural	2009 Population	2014 Population
Cherokee County	24,298	-	24,298	27,733	29,487
Clay County	8,775	-	8,775	10,663	11,731
Graham County	7,993	-	7,993	8,212	8,247
Haywood County	54,033	28,162	25,871	57,825	59,316
Jackson County	33,121	7,163	25,958	38,337	40,446
Macon County	29,811	5,620	24,191	33,971	36,217
Swain County	12,968	-	12,968	13,984	14,422
Southwestern Sub-region Total	170,999	40,945	130,054	190,725	199,866
Buncombe County	206,330	146,506	59,824	233,364	248,546
Henderson County	89,173	47,057	42,116	105,512	114,597
McDowell County	42,151	9,819	32,332	44,713	45,776
Madison County	19,635	-	19,635	20,889	21,369
Polk County	18,324	1,709	16,615	19,469	19,798
Rutherford County	62,899	23,242	39,657	63,211	62,434
Transylvania County	29,334	10,880	18,454	30,961	31,596
Midwestern Sub-region Total	467,846	239,213	228,633	518,119	544,116
Alleghany County	10,677	-	10,677	11,222	11,426
Ashe County	24,384	-	24,384	26,413	27,200
Avery County	17,167	-	17,167	18,245	18,258
Burke County	89,148	48,462	40,686	89,751	89,110
Caldwell County	77,415	47,758	29,657	80,688	81,806
Mitchell County	15,687	-	15,687	15,942	15,886
Watauga County	42,695	17,089	25,606	45,100	45,639
Wilkes County	65,632	17,248	48,384	67,813	68,385
Yancey County	17,774	-	17,774	18,956	19,518
Northwestern Sub-region Total	360,579	130,557	230,022	374,130	377,228
Western Region Total	999,424	410,715	588,709	1,082,974	1,121,210

⁹ <https://edis.commerce.state.nc.us/EDIS/demographics.html>

Table 1-2: Regional Labor Statistics for West Region Counties

County	2011 County Tier Designation ¹⁰	2009 Unemployment ¹¹	2009 Employment	2009 Unemployment
Cherokee County	1	9,004	1,542	14.6%
Clay County	1	4,262	540	11.2%
Graham County	1	3,278	629	16.1%
Haywood County	2	24,319	2,657	9.8%
Jackson County	2	19,842	1,851	8.5%
Macon County	2	15,070	1,752	10.4%
Swain County	1	6,371	813	11.3%
Southwestern Sub-region Total	N/A	82,146	9,784	11.9%
Buncombe County	3	107,937	10,170	8.6%
Henderson County	3	43,720	4,397	9.1%
McDowell County	1	18,060	3,134	14.8%
Madison County	2	8,753	938	9.7%
Polk County	2	8,908	862	8.8%
Rutherford County	1	25,082	4,630	15.6%
Transylvania County	2	12,626	1,245	9.0%
Midwestern Sub-region Total	N/A	225,086	25,376	11.3%
Alleghany County	1	4,327	555	11.4%
Ashe County	2	11,739	1,508	11.4%
Avery County	2	8,685	837	8.8%
Burke County	1	33,186	5,637	14.5%
Caldwell County	1	31,553	5,724	15.4%
Mitchell County	1	6,685	898	11.8%
Watauga County	2	22,580	1,832	7.5%
Wilkes County	1	27,854	3,859	12.2%
Yancey County	2	7,132	945	11.7%
Northwestern Sub-region Total	N/A	153,741	21,795	14.2%
Western Region Total	N/A	460,973	56,955	12.4%

¹⁰<http://www.nccommerce.com/en/BusinessServices/SupportYourBusiness/Incentives/CountyTierDesignations2011.htm>

¹¹ <https://edis.commerce.state.nc.us/EDIS/business.html>

Table 1-3: Industry Overview for the Southwestern North Carolina¹²

2009 Employment	Cherokee County	Clay County	Graham County	Haywood County	Jackson County	Macon County	Swain County	Total
Total All Industries	7,585	1,949	2,043	16,503	12,627	10,766	7,848	59,321
Total Government	1,381	308	325	1,377	69	1,633	2,267	7,360
Total Private Industry	4,364	1,216	704	12,278	8,075	8,320	2,760	37,717
Agriculture Forestry Fishing & Hunting	0	0	0	0	0	38	8	46
Mining	0	0	0	0	0	10	0	10
Utilities	37	0	8	0	0	0	1	46
Construction	479	219	290	971	758	985	300	4,002
Manufacturing	733	0	0	1,937	368	680	247	3,965
Wholesale Trade	102	0	0	272	0	0	0	374
Retail Trade	1,397	420	195	2,739	1,499	1,730	626	8,606
Transportation and Warehousing	47	24	19	104	205	65	20	484
Information	104	17	12	130	97	121	23	504
Finance and Insurance	220	40	52	416	206	327	75	1,336
Real Estate and Rental and Leasing	105	13	4	186	144	111	22	585
Professional and Technical Services	132	32	35	662	0	776	121	1,758
Management of Companies and Enterprises	19	0	0	47	0	0	0	66
Administrative and Waste Services	100	25	57	427	601	0	27	1,237
Educational Services	657	235	247	47	62	799	326	2,373
Health Care and Social Assistance	0	250	0	1,700	1,804	1,395	0	5,149
Arts, Entertainment and Recreation	33	10	0	308	402	383	301	1,437
Accommodation and Food Services	819	166	0	2,000	1,695	1,220	919	6,819
Other Services Ex. Public Admin	101	18	49	418	255	458	115	1,414
Public Administration	640	49	58	1,264	12	820	1,892	4,735
Unclassified	20	6	3	27	36	35	4	131

¹² North Carolina West Regional Profile 2010

Table 1-4: Industry Overview for the Midwestern North Carolina¹³

2009 Employment	Buncombe County	Henderson County	McDowell County	Madison County	Polk County	Rutherford County	Transylvania County	Total
Total All Industries	109,798	33,576	14,364	4,104	4,852	19,075	8,921	194,690
Total Government	9,015	4,879	680	887	355	379	816	17,011
Total Private Industry	90,524	26,759	9,961	1,468	2,385	14,953	7,264	153,314
Agriculture Forestry Fishing & Hunting	199	0	49	4	121	0	0	373
Mining	106	0	56	0	0	0	0	162
Utilities	0	0	0	0	0	0	0	0
Construction	5,318	1,868	687	0	329	852	594	9,648
Manufacturing	11,028	5,114	4,976	380	364	2,814	445	25,121
Wholesale Trade	3,346	1,028	245	40	115	0	289	5,063
Retail Trade	14,637	4,687	1,621	341	394	2,290	1,563	25,533
Transportation and Warehousing	754	178	64	37	46	1,268	53	2,400
Information	1,550	394	45	9	47	855	115	3,015
Finance and Insurance	2,681	736	181	63	133	381	214	4,389
Real Estate and Rental and Leasing	1,224	233	72	27	46	113	94	1,809
Professional and Technical Services	4,298	849	0	0	154	236	186	5,723
Management of Companies and Enterprises	806	178	0	0	0	98	0	1,082
Administrative and Waste Services	5,677	1,543	352	57	82	475	274	8,460
Educational Services	1,690	2,416	0	510	0	142	961	5,719
Health Care and Social Assistance	20,961	6,137	0	0	0	3,256	1,601	31,955
Arts, Entertainment and Recreation	2,203	646	88	131	119	324	186	3,697
Accommodation and Food Services	13,301	3,206	1,217	325	356	1,637	1,162	21,204
Other Services Ex. Public Admin	3,135	876	356	83	103	291	237	5,081
Public Administration	6,411	1,477	616	340	316	276	84	9,520
Unclassified	214	72	16	8	15	24	22	371

¹³ North Carolina West Regional Profile 2010

Table 1-5: Industry Overview for the Northwestern North Carolina¹⁴

2009 Employment	Alleghany County	Ashe County	Avery County	Burke County	Caldwell County	Mitchell County	Watauga County	Wilkes County	Yancey County	Total
Total All Industries	3,432	7,583	8,177	28,647	24,746	5,151	20,491	21,161	3,794	123,182
Total Government	369	739	455	2,515	1,528	973	1,972	1,398	504	10,453
Total Private Industry	2,306	5,756	6,119	20,697	19,395	2,982	15,034	14,656	1,819	88,764
Agriculture Forestry Fishing & Hunting	0	0	0	0	86	0	18	0	0	104
Mining	0	0	0	0	11	0	33	0	0	44
Utilities	0	0	0	53	0	17	0	42	0	112
Construction	202	627	455	640	705	0	1,217	1,121	443	5,410
Manufacturing	520	1,307	179	7,022	5,974	280	608	3,742	354	19,986
Wholesale Trade	0	237	0	439	2,058	105	701	706	172	4,418
Retail Trade	295	1,069	851	2,396	2,861	708	3,270	2,483	503	14,436
Transportation and Warehousing	97	50	166	772	112	223	70	533	31	2,054
Information	18	89	81	117	190	17	257	281	50	1,100
Finance and Insurance	74	207	81	387	414	129	533	841	81	2,747
Real Estate and Rental and Leasing	16	80	170	163	148	40	377	177	43	1,214
Professional and Technical Services	48	77	0	437	372	82	632	12	88	1,748
Management of Companies and Enterprises	0	0	0	79	398	38	92	0	0	607
Administrative and Waste Services	0	0	131	680	625	287	560	551	0	2,834
Educational Services	268	639	230	76	58	572	946	168	458	3,415
Health Care and Social Assistance	581	1,259	2,145	4,960	3,338	844	2,144	2,031	0	17,302
Arts, Entertainment and Recreation	184	56	396	148	150	16	693	47	0	1,690
Accommodation and Food Services	281	622	970	1,991	1,534	0	3,503	1,553	0	10,454
Other Services Ex. Public Admin	75	153	300	456	446	106	434	479	76	2,525
Public Administration	9	5	408	2,369	1,416	483	882	1,271	15	6,858
Unclassified	7	18	11	27	27	8	36	16	9	159

¹⁴ North Carolina West Regional Profile 2010

Table 1-6: Worker Travel Time for Western North Carolina¹⁵

County	1990 Average Workers Travel Time (minutes)	2000 Average Workers Travel Time (minutes)	% Change 1990-2000
Cherokee County	19	24	26%
Clay County	22	26	18%
Graham County	18	28	56%
Jackson County	18	21	17%
Macon County	18	20	11%
Swain County	18	21	17%
Southwestern Sub-region Average	19	23	24%
Buncombe County	19	21	11%
Burke County	18	21	17%
Haywood County	20	23	15%
Henderson County	19	22	16%
McDowell County	20	25	25%
Madison County	27	30	11%
Mitchell County	23	25	9%
Polk County	21	26	24%
Rutherford County	18	22	22%
Transylvania County	19	22	16%
Yancey County	24	27	13%
Midwestern Sub-region Average	21	24	16%
Alleghany County	19	24	26%
Ashe County	23	27	17%
Avery County	20	23	15%
Caldwell County	19	22	16%
Watauga County	18	20	11%
Wilkes County	21	24	14%
Northwestern Sub-region Average	20	23	17%
Western Region Average	20	24	18%

¹⁵ <https://edis.commerce.state.nc.us/SASPublicStoredProcess/do>

Since 1995 the Eastern Band of the Cherokee Indians (EBCI) has operated a casino in Cherokee. Harrah's Casino with its gaming, 1100 room luxury hotel, conference center, entertainment area, and restaurants has been an economic engine for Western North Carolina. It attracts tourists, generates revenue, and creates jobs throughout the surrounding counties. Enhanced transportation infrastructure, highway and air, would help ensure success and would support tourism in the area. According to a 2007 study¹⁶ "...the estimated gross regional product attributable to the Cherokee enterprise for 2003 was \$268,207,468 with a concomitant employment impact on the region of 4,288 jobs." Such impacts are likely to be compounded as the EBCI improves and expands the original casino to 1,600 rooms and plans a new casino in the Andrews-Murphy area.

For growth related to casino construction and expansion, the main inbound logistics needs are for supplies and food. Those needs can be partly coupled with inbound commercial air service if the runway at Andrews/Murphy is lengthened and the air terminal improved. Such an investment would create low-cost backhaul opportunities for firms located in the region. Further commercial development in Cherokee County and surrounding areas would create a more significant economic engine. Another transportation improvement in this region might be a 7,000 ft runway at Andrews/Murphy airport, making it accessible to commercial jet aircraft. The EBCI has other visions as well – of making the Cherokee area into an art mecca, like Santa Fe, NM, which, outside of New York City, is the second most significant area for art enterprise in the US¹⁷. Another comparative location is Juneau, Alaska with its strong native culture, arts and crafts, and a vibrant tourism industry, situated in a picturesque natural environment. The arts and crafts industry thrives throughout in Cherokee with Qualla Arts¹⁸ and other local craft vendors, as well as throughout the region with the Penland School of Crafts¹⁹, blown glass studios in and around Asheville and Black Mountain, the Southern Highland Craft Guild at the Folk Art Center²⁰ in Asheville, and the John C. Campbell Folk School²¹ near Murphy to list a few of the arts and crafts producers and talent developers in the region. Commercial activity is envisioned for the production of intermediate products used in creating commercial art. Also envisioned are tourist activities like trout fishing that capitalize on the abundant natural resources in the area.

The regional industrial development group Advantage West focuses on four core areas: advanced manufacturing, entrepreneurial development, agri-business, and AdvantageGreen, which is a network of green, environmentally sustainable businesses. Furthermore, the Western North Carolina Film Commission hosts major film productions. There are about 1,200 manufacturing companies and 300 technology companies. Advantage West reports that major manufacturers include: Altec Industries, Blue Ridge Paper Company, Borg Warner Turbo Systems, Carriage House Doors, Charleston Forge, Cobia Boats, Continental Teves, Elkamet, Exelsior Packaging, Genesis Furniture Industries, Google, James Tool, Nypro, Raflatrac, Smiths Aerospace (GE Aircraft), Sonopress, Team Industries, Volvo Construction Equipment, and Zickgraf Industries.

¹⁶ Ha and Ullmer, Gambling Industry: Laws, Regulations and Rules)

¹⁷ McArdle, M. Santa Fe: An Art Mecca. www.examiner.com/getaways-in-san-francisco/santa-fe-an-art-mecca

¹⁸ Qualla Arts and Crafts. www.cherokee-nc.com/index.php?page=28

¹⁹ Penland School of Crafts. www.penland.org

²⁰ Southern Highland Craft Guild. Folk Art Center. www.southernhighlandguild.org

²¹ John C. Campbell Folk School. www.folkschool.org

Increasingly Western North Carolina is becoming a hub for alternative energy firms. In 2008 Vanir Energy acquired Appalachian Solar Energy and announced its world headquarters would be located near Asheville in the Fletcher Business Park, making it the largest installation of solar thermal heating and cooling technology in the world. Sundance Power Systems, Inc., one of the largest renewable energy firms in the Southeast is also located in the region.²²

The Western Region has a good network of Interstate and US highways. Interstate I-40 travels east to west through the region connecting North Carolina to Tennessee. I-26 runs north and south connecting North Carolina to South Carolina and Tennessee. I-40 and I-26 intersect in Asheville, the major transportation hub for the region. In the western tip of the region the US 19/74 corridor connects to Georgia and Tennessee, and completing it is the major highway need for the region. US74 provides access through the region from Asheville to Charlotte. US 441 also provides access to Georgia as well as Tennessee. US 221 crosses the region north to south connecting the northeastern tier of counties to Virginia. US 421 provides an east-west connection to the Triad. Figure 1-3 shows the intrastate highway system in Western North Carolina. Western North Carolina also has a network of rail lines (Figure 1-4) that connect Western North Carolina to South Carolina and Tennessee. These transportation assets link the residents of region to major population centers outside of the region as shown in Figure 1-2. The region is tied to cities outside the region including Knoxville, Chattanooga, Atlanta, Charlotte, Hickory, and Winston-Salem.

Transportation redundancy is an important concern of the region. Natural disasters and maintenance and rehabilitation of roadways can restrict the flow of goods and people throughout the region as roadways need to be closed and suitable alternate routes are scarce. A rock slide at mile marker 2.6 on I-40 in the North Carolina mountains closed that section of the interstate from October 25, 2009 until April 25, 2010²³. The road closure had an immense impact on travel and mobility for those traveling or transporting goods east and west, in addition to the \$13 million expense of removing the rock from the roadway, stabilizing the remaining rock, and rehabilitating the roadway. Two detour routes were recommended with one open to only passenger vehicles which added approximately 30 minutes to a trip and another route for any vehicles which added approximately 50 minutes to a trip. This six month closure and resulting detours effected tourism as well as commerce and re-enforced the vital importance of the transportation linkages into and out of the region. A study of the economic impact of the I-40 rockslide estimated an impact of almost \$175 million including vehicle operating costs, diversion travel time costs, emissions costs, congestion travel time costs, and pavement maintenance costs²⁴.

²² Scott, J., AdvantageWest, <http://www.advantagewest.com/uploads/File/Vanir-FinalRelease.pdf>

²³ North Carolina Department of Transportation. *I-40 Rock Slide Fact Sheet*. http://www.ncdot.org/travel/i40_rockslide/default.html

²⁴ HDR. *Economic Impact of Rockslides in Tennessee and North Carolina*. http://www.arc.gov/assets/research_reports/EconomicImpactofRockslidesinTNandNC.pdf



Figure 1-2: Advantage West Region in Relation to Other States²⁵

Based on the topography of the area and transportation infrastructure, the Western Region has strong ties to surrounding states as well as other areas within North Carolina. Information technology businesses are part of a common industry that the region shares with other nearby North Carolina counties. The Western Region and surrounding areas have become a targeted area for data centers and other information technology companies. Rutherford County has the highest portion of workers in the information section, which includes publishing, telecommunications, and other information services, at 4.5% of its workforce. Other counties within the region have a strong IT presence (including Caldwell and Buncombe County). Nearby Catawba County also has a strong presence of IT services with an Apple data center in Maiden. Rutherford County and surrounding counties have developed ideal locations for data centers. The Rutherford County Economic Development Commission has documented some of the reasons that area has been able to attract IT companies, such as affordable land prices, relatively low utility costs, reliable energy, and local governments who are eager to support

²⁵ Advantage West Economic Development Group. http://www.advantagewest.com/pdfs/regional_map.pdf

economic development²⁶. The relatively milder climate and access to water for air conditioners are also important for organizations operating a data center so that the temperature in server rooms can be maintained at an appropriate temperature. Also, the area has historically not been severely impacted by natural weather events. The data centers bring infrastructure investments to the local area that can serve other industries and citizens as well as the data centers. These locations have many of the attributes identified by the Global Strategic Management Institute as essential for recruiting data centers, which include: the cost, availability, and sustainability of energy; network presence for internet and server access; tax incentives; system latency; weather; land costs; operating costs; green technology; risks and disasters; and work force²⁷.

The North Carolina Department of Commerce developed a Certified Sites Program to inventory industrial sites that meet pre-qualification standards which reduce the risk to developers through information about price, availability, utilities, access, environmental concerns, and site development costs²⁸. There are currently 11 certified commercial sites in Western North Carolina. The largest site is the Wilkes Industrial Park, located in North Wilkesboro at 552 acres. The second largest site is adjacent to the Asheville Regional Airport and is 262 acres. A total of 404 acres among six sites are located in Rutherford County, ranging from 19 acres to 195 acres. Additional sites in the region include two locations in Burke County (33 and 83 acres) and a 78 acre site in Haywood County. These Certified Sites and other potential sites across the region will allow development to strengthen the region and grow as dispersed villages or concentrated villages.

However, to meet the needs of the Global Economy significant transportation improvements are necessary. According to the 2010 report *Network Appalachia: Access to Global Opportunity* the Appalachian Regional Commission made the following recommendations for Western North Carolina²⁹.

- Build a new inland port, trans-load and consolidation center to enhance rail and truck access to both domestic and international markets for western North Carolina.
- Restore the abandoned rail link near Murphy, NC to reconnect western North Carolina, northern Georgia, and eastern Tennessee rail corridors, enhancing rail access for western North Carolina, northern Georgia, and eastern Tennessee.
- In cooperation with the Norfolk Southern Crescent Corridor project, develop new intermodal container transfer facility to enhance access to both domestic and international markets for east Tennessee, southwest Virginia, and western North Carolina.
- Complete construction of the Corridor K highway (US 19/74) corridor linking eastern Tennessee with western North Carolina.
- Restore rail freight service along the Asheville, NC and Spartanburg, SC route to enhance western North Carolina access to both the Crescent Corridor and to the Port of Charleston, SC.

²⁶ Economic Development Commission. Rutherford County. *Data Centers Growing in North Carolina*. <http://www.rutherfordncdc.com/Data-Centers-Growing-in-North-Carolina.html>

²⁷ Global Strategic Management Institute. *Top 10 Criteria for Data Center Location*. <http://blog.gsmiweb.com/2010/11/top-10-criteria-for-data-center-location/>

²⁸ North Carolina Department of Commerce. *Buildings and Sites*. <http://www.nccommerce.com/en/BusinessServices/LocateYourBusiness/BuildingsAndSites/>

²⁹ Appalachian Regional Commission. *Network Appalachia: Access to Global Opportunity*. http://www.arc.gov/program_areas/NetworkAppalachia.asp

The need for economic development in this region and the transportation infrastructure to support that development can be measured by the Appalachian Regional Commission's county economic classification system³⁰. The system examines an area's unemployment rate, per capita income, and poverty rate to assign an economic classification to each census tract. Many of the Western Region counties contain census tracts which are economically distressed, ranking in the lowest ten percent of the nation's counties. Graham County is the only county which as a whole is identified as economically distressed. The other counties which include economically distressed tracts include: Alleghany, Ashe, Buncombe, Burke, Caldwell, Cherokee, Clay, Henderson, Jackson, McDowell, Mitchell, Rutherford, Transylvania, Wilkes, and Yancey. Additionally, counties can be defined as at-risk of becoming economically distressed if they rank between the worst 10 to 25 percent of the nation's counties, in the Western Region, these counties include: Alleghany, Burke, Caldwell, Cherokee, Clay, McDowell, Mitchell, Rutherford, Swain, and Yancey. The strategic plan goals of the Appalachian Regional Commission focus on the important connection between infrastructure and economic development with these specific goals³¹:

- Increase job opportunities and per capita income in Appalachia to reach parity with the nation.
- Strengthen the capacity of the people of Appalachia to compete in the global economy.
- Develop and improve Appalachia's infrastructure to make the Region economically competitive.
- Build the Appalachian Development Highway System to reduce Appalachia's isolation.

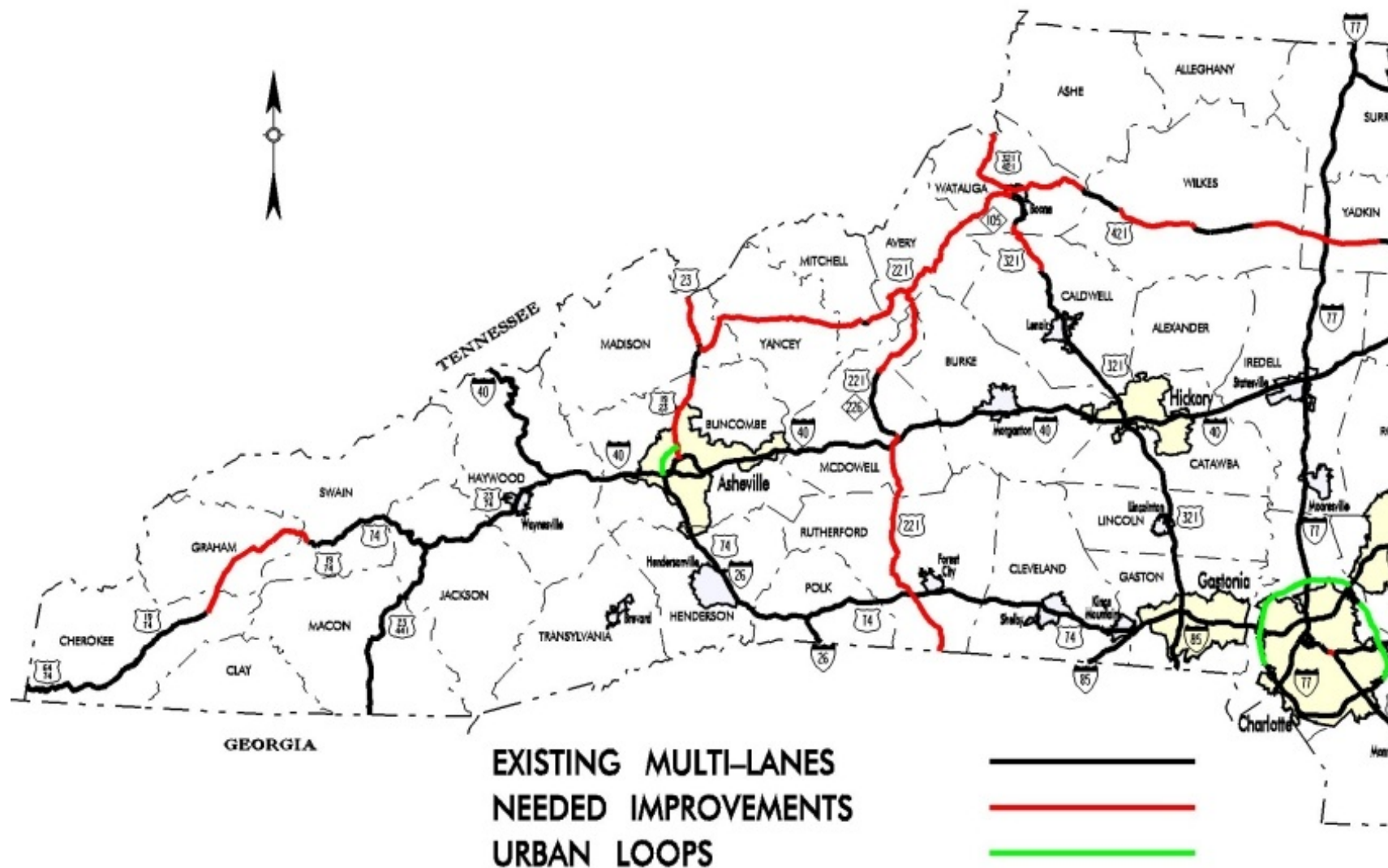
Infrastructure improvements in the Appalachian Region in the form a highway system was developed to bring economic development to the region. The Appalachian Development Highway System is a network of almost 3,600 miles along 31 corridors of near-interstate grade highway facilities through 13 Appalachian states³². The system is approximately 85 percent complete and was authorized for the purpose of economic development by the U.S. Congress. A study was commissioned by the Appalachian Regional Commission to estimate the economic impact of completing the system. Travel efficiency benefits (travel time, operating costs, and safety) of \$1.6 billion annually by 2020 would be realized by the completion of the system. Economic benefits derived from improvements in market accessibility for the region by completing the system would result in an estimated increase of 33,800 jobs, \$4.2 billion per year in business sales, and \$1.3 billion per year in wages.

³⁰ Appalachian Regional Commission. *County Economic Status and Distressed Areas in Appalachia*. http://www.arc.gov/appalachian_region/CountyEconomicStatusandDistressedAreasinAppalachia.asp

³¹ Appalachian Regional Commission. *Moving Appalachia Forward. Appalachian Regional Commission Strategic Plan 2011-2016*. <http://www.arc.gov/images/newsroom/publications/sp/ARCStrategicPlan2011-2016.pdf>

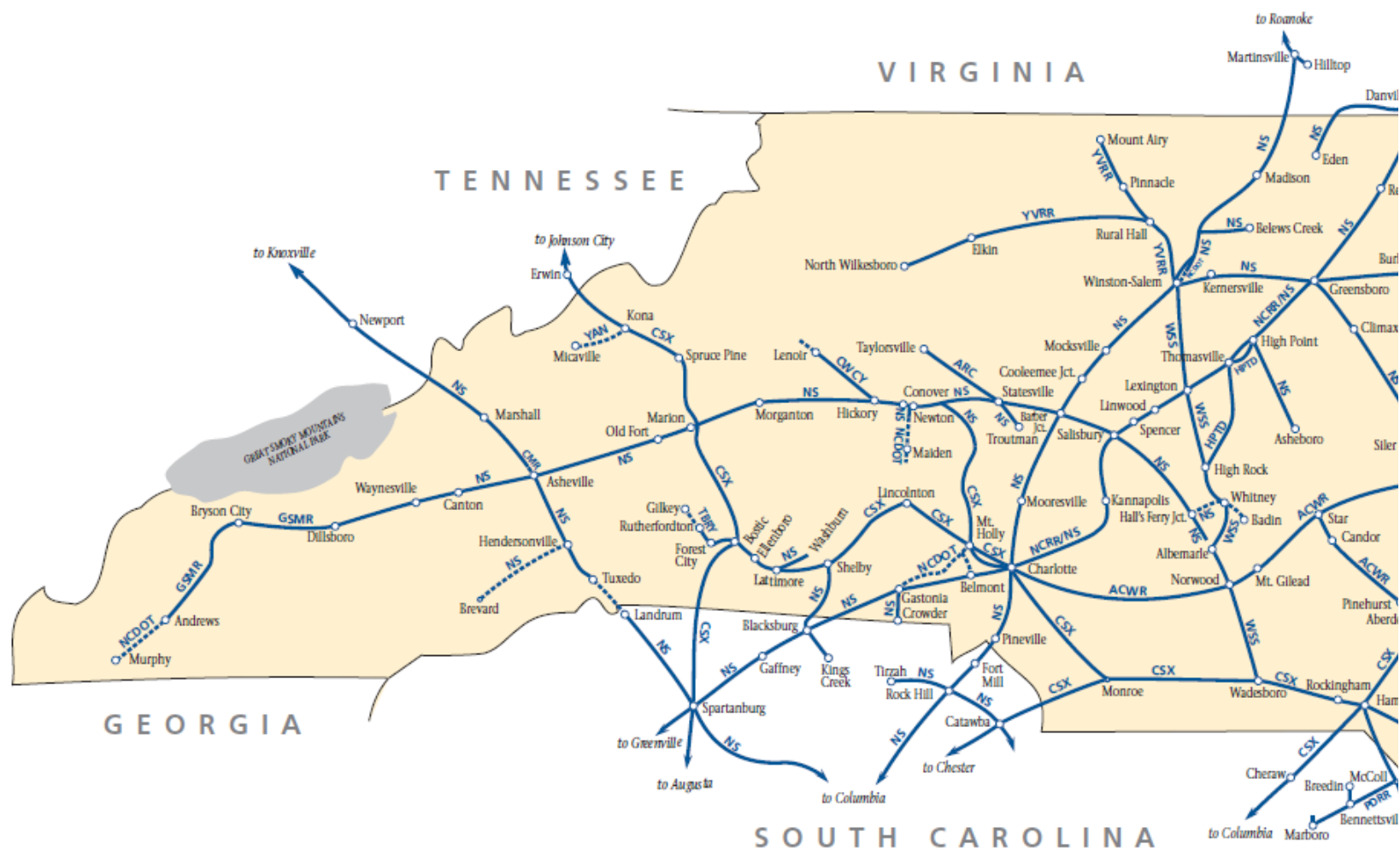
³² Cambridge Systematics. *Economic Impact Study of Completing the Appalachian Development Highway System*. http://www.arc.gov/assets/research_reports/EconomicImpactStudyofCompletingADHS.pdf

Figure 1-3: Western North Carolina Highway Map³³



³³ <http://www.ncdot.org/planning/development/tip/intrastate/intrastate.htm>

Figure 1-4: Western North Carolina Railroad Map³⁴



³⁴ http://www.bytrain.org/quicklinks/pdf/nc_railmap_10.pdf

1.2 **Advantage West - the Economic Development Organization for Western North Carolina**

Advantage West is the regional economic development group that serves the counties of Western North Carolina.

Advantage West has four core areas³⁵:

- Advanced Manufacturing including the production of automobile components, advanced materials and composites, chemicals and plastics, metalworking, optics, and related professional services.
- Entrepreneurial development to serve and support entrepreneurs in the region.
- Agribusiness to support businesses involved in agricultural production or support services.
- Advantage Green that supports the green economy. This core area can include promoting alternative energy technology initiatives.

1.2.1 **Infrastructure Goals/Objectives of the West Region**

Advantage West has identified the following highway, rail, telecommunication needs of Western North Carolina that would support economic development.

Interstate and Highway Improvements:

- Corridor K - The completion of Corridor K, a part of the Appalachian Development Highway System through North Carolina and Tennessee, will provide four lane highway access to geographically insulated communities in the rural westernmost counties of the Advantage West region, supplement the interstate system, connect communities to the interstate system, and provide access to regional, national, and global markets.
- I-26 – The completion of the I-26 project through Henderson and Buncombe Counties. I-26 begins at the Port of Charleston in South Carolina and travels through Polk, Henderson, Buncombe, and Madison Counties before intersecting with I-81 in Johnson City, Tennessee. Through Buncombe County, I-26 temporarily narrows down to one lane of traffic through downtown Asheville as an exit off of I-240, and is an impediment to the movement of people and goods from and through the Advantage West region.
- Hwy 19 – The completion of this project through Avery, Madison, Mitchell, Watauga, and Yancey Counties will provide four lane highway access from I-26 in Madison County to Boone.
- Hwy 221 – The completion of the widening project from the South Carolina state line through Rutherford County and connecting to I-40 in McDowell County will greatly improve the access of these rural communities and enhance the transportation infrastructure to the southeastern counties in the Advantage West region.
- Hwy 321 – Completion of this project through Watauga and Caldwell Counties will provide four lane access from Boone to Charlotte.

³⁵ Advantage West. Program of Work. http://www.advantagewest.com/content.cfm/content_id/221/section/regional

Rail Improvements:

- Inland Port – The closest Intermodal facility to the Advantage West region is in either Charlotte or Greensboro. The development of an Inland Port in the region would enhance the flow of products through and from the area and provide for job creation projects associated with warehouse and distribution companies along with advanced manufacturing companies that would benefit from the reduced transportation costs associated with the location of a facility next to an intermodal facility.
- Passenger Rail Service – Asheville is the #1 destination not served by Amtrak. Investment in passenger rail and high speed rail service to Asheville would alleviate congestion on the interstate road system and bring new business opportunities to the region through increased tourism and business travel.

Telecommunications and Alternative Energy Networks:

- Fiber and High Speed Broadband Deployment – Funding to secure middle and last mile fiber and high speed broadband connectivity throughout the Advantage West region will provide numerous advantages for citizens. Benefits include: improved healthcare through enhanced medical diagnostic and treatment; job creation through access to high speed broadband service that companies look for such as data centers, advanced digital media design companies, entrepreneurs, and advanced manufacturing companies.
- Solar Power Distribution – Develop public-private partnerships with alternative energy firms to route solar generated power to customers near the solar power and thermal generation plants (like the world class site near Asheville) and to the regional power grid for broader distribution.

1.3 ***Inland Port Feasibility***

A study by Dr. Michael Smith at Western Carolina University studied the feasibility of an inland port in Western North Carolina³⁶. The study found that the current export volumes in Western North Carolina do not meet the levels needed to justify a container facility. However, a tiered approach to develop an inland port would offer the flexibility needed to serve manufacturing as it evolves and to attract new businesses. The tiered approach has three levels which can be created in succession or simultaneously depending on the needs of the area. This tiered approach could be applied to any location throughout the state. The tiers are described below:

- Tier 1 (Regional Logistics Organization / Alliance) – Establishment of an organization or alliance that can support and assist manufacturers with logistics solutions. The organization could assist manufacturers with consolidating freight loads. In Western North Carolina, this activity is currently being undertaken through the Western North Carolina Transportation Alliance.
- Tier 2 (Network of Sub-Regional Freight Consolidation Facilities) – Development of a network of sub-regional freight facilities to assist with the activities described for a Tier 1 organization, consolidating freight and organizing shipments. The study identified three potential sites in Western North Carolina with capability to serve as sub-regional freight

³⁶ Michael Smith, Ph.D. Western Carolina University. *Western North Carolina Inland Port Feasibility Study*. http://www.wcu.edu/WebFiles/PDFs/WNC__Inland_Port_Feasibility_Study.pdf

consolidation facilities: an existing industrial park in Rutherford County, a location in Marion, and a location in Buncombe or Henderson County. The study found the Rutherford County site to be the highest priority because of energy, rail connectivity, and agency collaboration. This type of facility can be relatively inexpensive compared to other options, can provide advantages to manufacturers, and can be scaled up to a Tier 3 facility if the shipping demands require additional capacity.

- Tier 3 (Large-scale Intermodal Facility) – Development full-scale intermodal facility. As Tier 1 and Tier 2 activities attract shipping activity, a Tier 2 facility could be upgraded and expanded to become a large-scale intermodal facility. The study suggests that a Tier 3 facility would be justified when Tier 1 and Tier 2 activities result in more than 10,000 TEUs per year.

1.4 **WNCTA – A Virtual Village Logistics Activity**

The Western North Carolina Transportation Alliance (WNCTA) is an innovative example of the possibilities that exist for companies in a relatively small geographic area to coordinate their logistics activities for mutual benefit. The concept for the WNCTA was developed by John Franklin of Volvo Logistics Corporation and launched in 2007 by local partners.³⁷ The inaugural meeting of the alliance was held in the spring of 2008 for the purpose of utilizing local partnerships for more efficient transportation of goods (reducing fuel costs and deadhead miles) through better utilization of fleet and transportation assets. The alliance includes more than forty transportation, logistics, and supply chain professionals in the manufacturing and distribution sectors.

A study of the feasibility of an inland port in Western North Carolina recognized the value and importance of a regional logistics organization/alliance³⁸. The study recommended that the creation of a regional logistics organization/alliance, such as the WNCTA, can support and assist manufacturers with logistics solutions and is an important step to developing further logistics support infrastructure.

The primary activity of the alliance is to create a place for dialogue between companies who can benefit from each other's shipping activity by coordinating shipping to eliminate or reduce empty backhauls. For instance, assume that Company A and Company B are located in the same general area and Company A exports goods through the same port from which Company B imports goods. These two companies could reduce their transportation costs by coordinating their transportation activities and utilizing each other's previously empty backhauls. Similar pairings can exist for domestic transportation with matching shipments for various trade lanes across the US. In a situation similar to Companies A and B, collaborations between four members of the WNCTA developed annual transportation cost savings of over \$300,000 or approximately \$75,000 per company per year. These savings are the result of reduced travel times and labor costs with almost 300,000 empty miles eliminated and 42,000 gallons of diesel fuel saved. In addition to the direct savings for each of the companies, these transportation efficiencies have led to considerable vehicle emissions savings.

The WNCTA holds formal and informative semi-annual meetings to address current logistics issues common to all shippers and to facilitate communication between members of the alliance. The alliance has also conducted a survey of its membership to help match companies with potentially complementary shipping activities. In addition to the meetings, interactive workshops have been held by the alliance to focus on the survey and the responses to the survey. The survey includes questions on the type of freight (inbound and outbound), transport mode (ocean container, truckload, and less than truckload), destination/origin of freight, and willingness to share schedules and coordinate shipping with other companies. The WNCTA

³⁷ "Local Manufacturing Alliance Seeks Cost Savings and Reduced Emissions for WNC." Economic Development Coalition for Asheville-Buncombe County. May 20, 2009. URL: http://ashevillenc.wliinc3.com/economicdevelopment/documents/WNCTARelease_000.pdf

³⁸ Michael Smith, Ph.D. Western Carolina University. *Western North Carolina Inland Port Feasibility Study*. http://www.wcu.edu/WebFiles/PDFs/WNC__Inland_Port_Feasibility_Study.pdf

plans to launch a website that can supplement the current information exchanges with real time information.

Because of the variety of contracts between ships carrying containers and trucking companies, flexibility in shipping schedules is important to make a successful match between headhauls and backhauls along similar trade lanes of companies. Another important component of an alliance is the cooperation between public and private entities. Leadership from private industry and support from the economic development community are vital to a successful organization. Similar transportation alliances across the state could help attract new and retain existing companies by matching importers and exporters to reduce transportation costs. Such an alliance illustrates the potential for mutual benefits derived from manufacturing and distribution companies that are located near one another and are willing to work together for more efficient transportation systems.

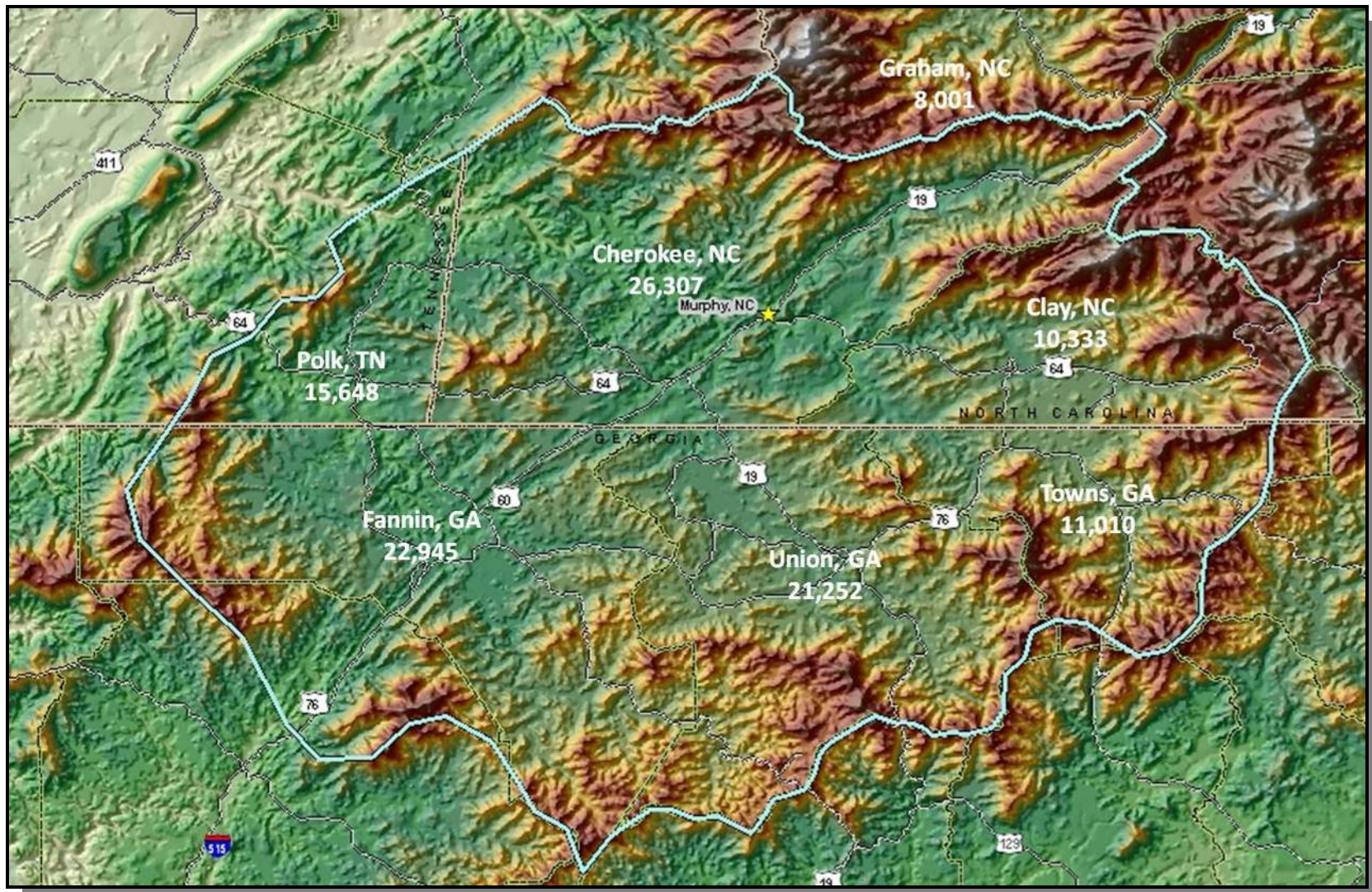
2 Potential Logistics Villages

2.1 *Potential Logistics Village in Southwestern North Carolina*

A potential village in Southwestern North Carolina is centered on the Valley River Valley along the US 74 corridor by Andrews and draws from nearby North Carolina counties as well as attracting labor, materials, and product from counties in bordering states including the Polk County, Tennessee and the Georgia counties of Fannin, Union, and Towns. This village has immediate destinations for its products in Western North Carolina as well as Chattanooga, TN and Atlanta, GA. Cherokee County and three nearby counties (Clay, Graham, and Swain) are Tier 1 counties with high unemployment rates. Cherokee County has attracted manufacturers with over one hundred employees including: Indian Head Industries, IOI Enterprises, Moog Components Group, and Sioux Tools. The county also has a strong tourism industry with natural and cultural resources. The Village is in proximity to a potential new gaming facility that is being investigated by the Eastern Band of Cherokee Indians, which could be an additional need for transportation infrastructure investments, including highway and air assets. Additionally, to support firefighting missions in the area, the Western Carolina Regional Airport could receive upgrades. The area is served by a short line railroad, the Great Smoky Mountain Railroad, which connects to Norfolk Southern rail lines to the east. NCDOT also maintains a preserved rail corridor from Andrews to Murphy. Western Carolina Regional Airport provides air access to the valley with a 5,500' runway.

The Valley River is surrounded by one of the most open and flat valleys in Southwestern North Carolina. For development, it has open land, existing industrial sites, an airport with additional capacity, water connectivity, high-speed internet access, good and improving roads, and a direct (although inactive) rail connection. The Valley is well positioned to serve destinations within North Carolina, as well as nearby locations in Tennessee and Georgia. Chattanooga, TN is approximately two hours from the area and Atlanta, GA is about 2.5 hours away. The terrain surrounding this area provides a natural workforce and customer shed which can draw people from many neighboring counties and adjacent states. Accessibility across state borders can provide North Carolina businesses with a larger market area for their goods and services. Figure 2-1 shows the terrain immediately surrounding the Andrew Valley and the natural “bowl” area that is created by the terrain which serves to focus the surrounding populations into the area. This same terrain requires costly infrastructure improvements to maximize the potential of the area. Air, rail, and highway improvements are expensive projects in this part of the state due to the severe topographical challenges. Currently, there is not a continuous four-lane road that connects the Valley River Valley with outside markets. However, projects are underway to widen and re-route existing roads for better access. The most needed and expensive project is Corridor K. The completion of Corridor K, a part of the Appalachian Development Highway System through North Carolina and Tennessee, will provide four lane highway access to geographically insulated communities in the rural westernmost counties of the region, supplement the interstate system, connect communities to the interstate system, and provide access to regional, national, and global markets. Although fiber internet access is available at many industrial locations, many residential areas are still in need of high speed internet access.

Figure 2-1: Regional Labor Shed and Retail Market Service Area “Bowl”³⁹



³⁹ Southwestern Commission - Region A, 2009 Population – Population Quick Facts US Census Bureau

The Southwestern North Carolina Planning and Economic Development Commission serves Cherokee, Clay, Graham, Haywood, Jackson, Macon, and Swain Counties with regional planning, project administration, support for acquiring funding, and intergovernmental cooperation⁴⁰. A 2008 update to the Comprehensive Economic Development Strategy provides information about the region⁴¹. Tourism is a vital industry to the region with water, nature, and heritage-based businesses, such as whitewater sports, mountain biking, gem mining, and crafts. Harrah's Casino in Cherokee is a top entertainment destination in the state. However, tourism jobs typically pay low wages and are seasonal. Advanced metal working, such as shop tools and transmission, is also an important industry in the area. Green infrastructure, in context with the natural environment, such as greenways, eco-tourism, and scenic waterways are part of the local and regional economic development strategies. Cherokee County was identified as the county in the region with the most developable land (land with less than 16% slope). As expected, the terrain creates additional site preparation and development costs not common in less mountainous terrain. In the region, the local property tax base is lower than similar sized counties in the state because 60% of the land is publicly-owned with the Nantahala National Forest, Pisgah National Forest, and the Great Smoky Mountains National Park. The commission identified the business clusters with the strongest growth as pharmaceuticals and medical technologies, information technology and instruments, communication services and software, and recreation and tourism. Other important business clusters in the area were: hospitals, labs and specialized medical services; business support services; arts, crafts, and design-related; and retirement-related.

Population demographics are another important consideration of economic development. The Southwestern part of the state has seen a decline in younger populations (with an expected 6% decline from 2005 to 2020 compared to a statewide increase of 8%) and an increase in older populations (39% increase expected from 2005 to 2020)⁴². By 2020, 43% of the area is expected to be over 55 years of age. These demographic statistics are a vital part of planning to serve and support the needs of various age groups from educational and workforce opportunities for younger people to health care and recreational activities for older people.

The report by the Southwestern Commission highlighted the following assets of the region: quality of life, education (primary schools, community colleges, and a university), state and local agency leadership in identifying and capitalizing on opportunities for local job creation and investment, moderate labor prices and taxes, competitive water/sewer and electricity rates and expanding natural gas system, local airports, and proximity to nearby metropolitan areas (including neighboring states). The report also addressed the need for improvements to infrastructure, including water/sewer, natural gas lines, telecommunications, broadband, support for land use management and zoning, four-lane highways, and inter-modal transportation systems. To improve economic development opportunities in the district, the commission continues to meet regularly with local economic developers for collaboration, supports development with funding and financing, identifies funding sources for infrastructure projects,

⁴⁰ Southwestern Commission. *Commission History*. <http://www.regiona.org/commission/history.htm>

⁴¹ Southwestern Commission. *Comprehensive Economic Development Strategy. 2008 Update*. <http://www.regiona.org/PDF%20Files/2008%20CEDS%20post.pdf>

⁴² Southwestern Commission. *Comprehensive Economic Development Strategy. 2008 Update*. <http://www.regiona.org/PDF%20Files/2008%20CEDS%20post.pdf>

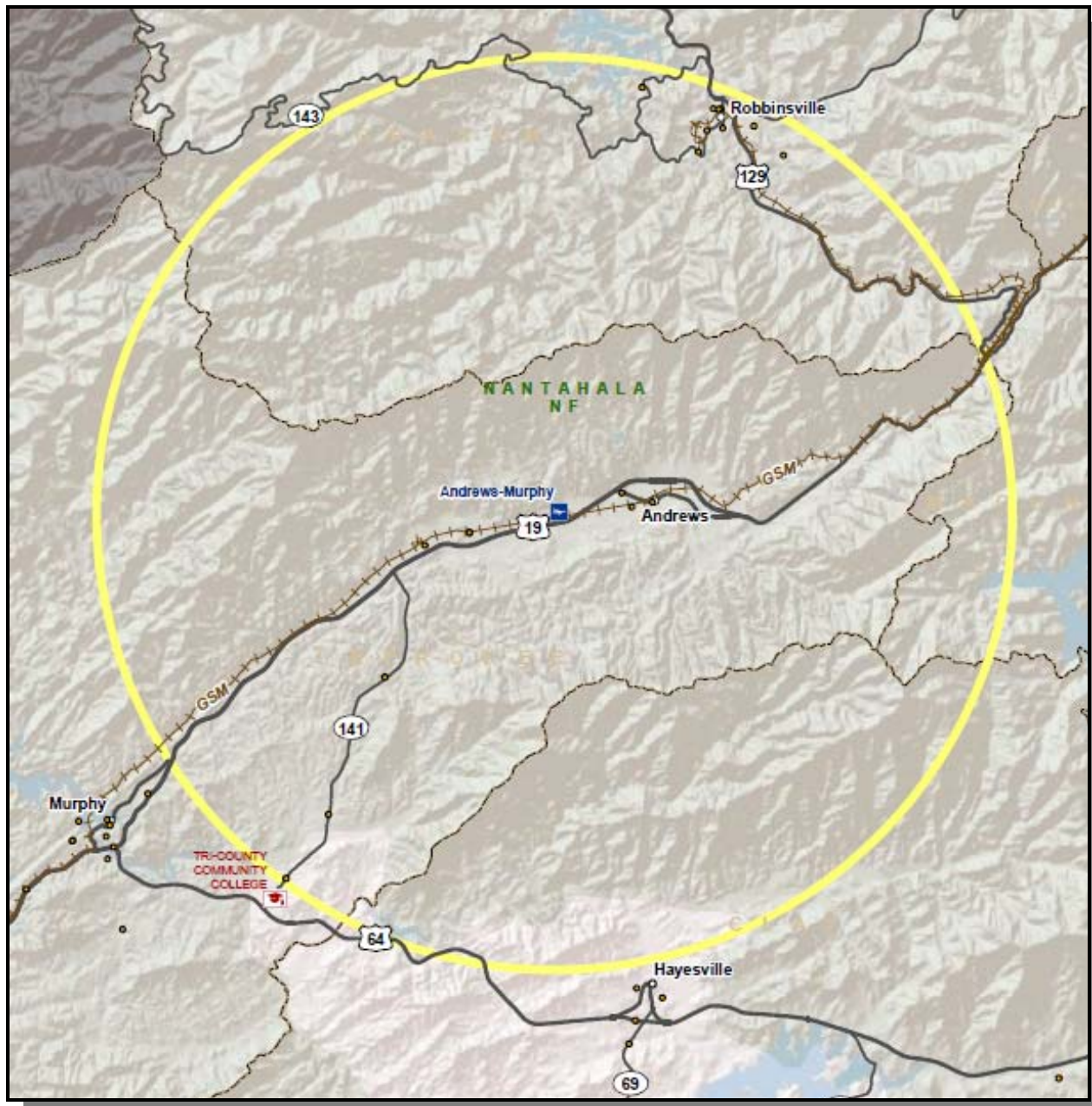
works to extend fiber optic internet access, continues to increase workforce competency, and coordinate with local, regional, and statewide public and private entities (Advantage West, National Blue Ridge Heritage Area, Hand Made in America, NC Department of Commerce).

The following economic development priorities were developed by the Comprehensive Economic Development Strategy Advisory Committee of the Southwestern Commission:

- Goal 1: Retain and/or expand existing area industries (manufacturing and non-manufacturing)
- Goal 2: Continue to develop the workforce improving education and training to better meet industry needs and implement a program to develop personal skills related to ethics, responsibility, and dependability
- Goal 3: Continue to expand high-speed internet services throughout the District
- Goal 4: Assess and improve existing business incubators and create new incubators where needed; encourage small business entrepreneurship within the district
- Goal 5: Increase availability and increase understanding of affordable housing issues throughout the District
- Goal 6: Create and implement a plan for future challenges regarding waste treatment, recycling, landfills, and preserving water and other natural resources
- Goal 7: Encourage food networks to market, process, sell and ship farm produce

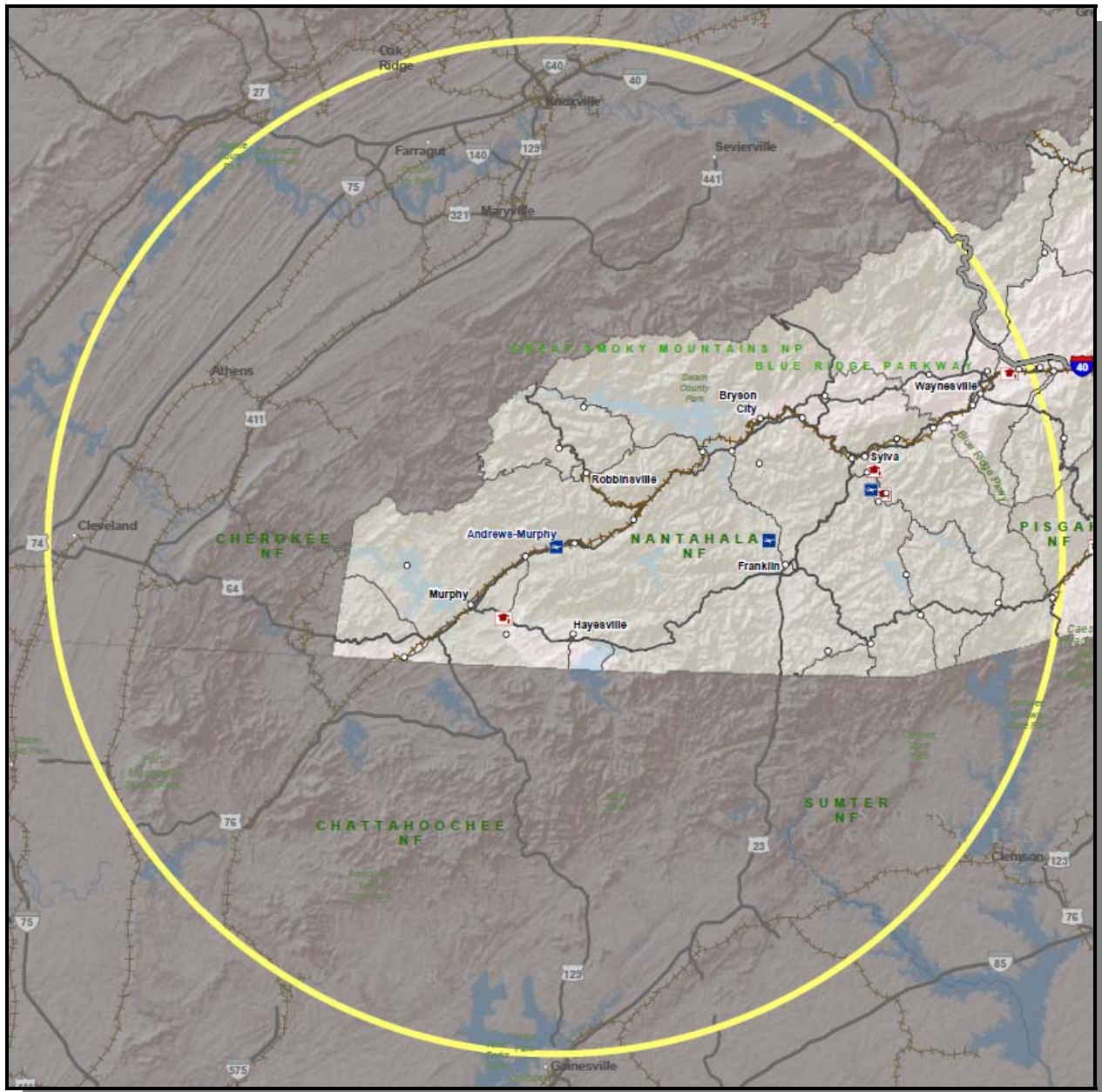
Figure 2-2 and Figure 2-3 provide an overview of this site's infrastructure including roads, airports, railroads, colleges and universities, etc. Figure 2-3 shows the site's location within the tri-state area (GA, NC, and TN) and emphasizes the importance of planning beyond the state boundaries and attracting labor and consumers from other states. Figure 2-4 is an overview of the 30 minute drive time to and from Andrews. Figure 2-5 shows an aerial view of Western Carolina Regional Airport.

Figure 2-2: 10 Mile Radius for Andrews Site⁴³



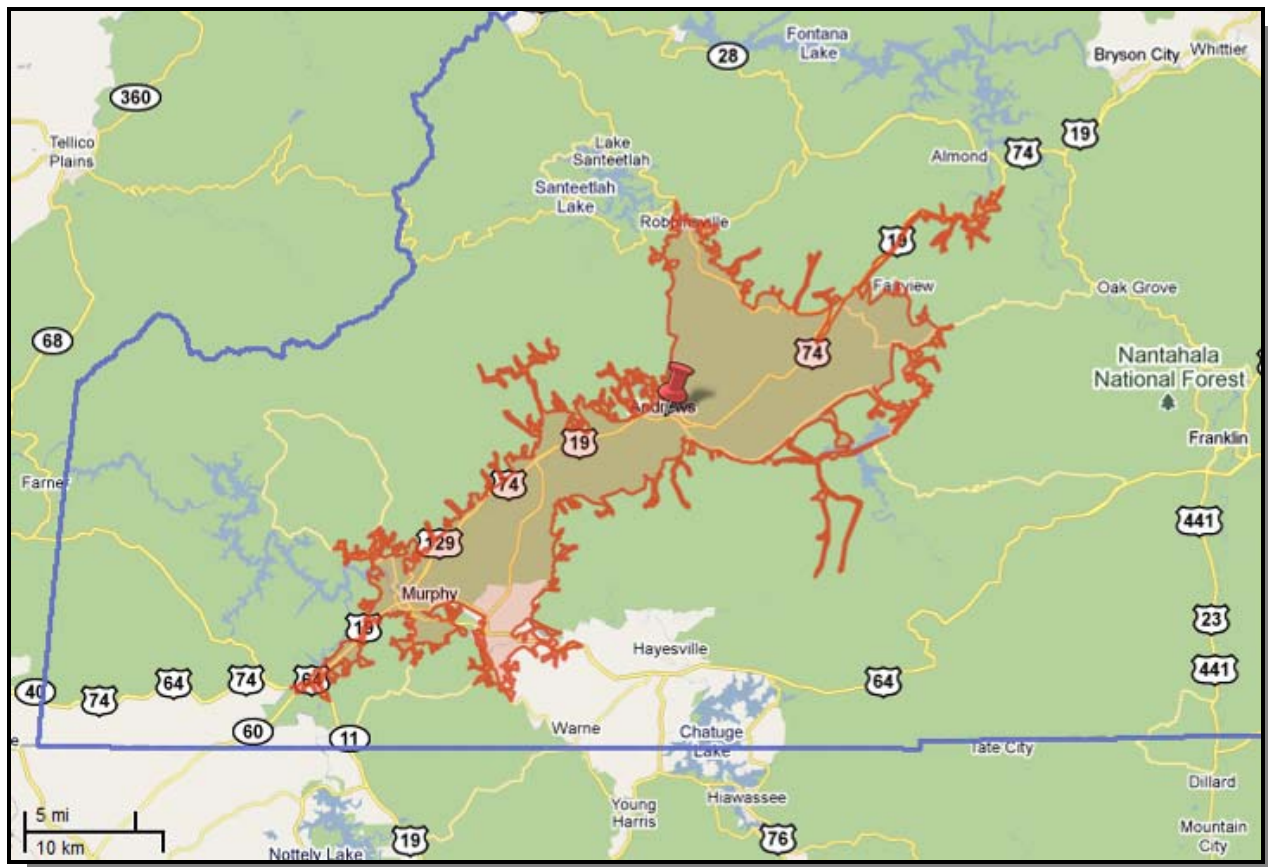
⁴³ Sources: Federal Railroad Administration, NCDOT, CGIA, NC Commerce Department, ESRI, FAA

Figure 2-3: 60-Mile Radius for Andrews Site⁴⁴



⁴⁴ Sources: Federal Railroad Administration, NCDOT, CGIA, ESRI, FAA

Figure 2-4: 30-Minute Drive Time from Andrews⁴⁵



⁴⁵ <https://edis.commerce.state.nc.us/EDIS/maps.html>

Figure 2-5: Aerial View of Western Carolina Regional Airport⁴⁶



⁴⁶ Google Maps

2.2 ***Potential Logistics Village in Midwestern North Carolina I***

This potential Asheville Village includes Buncombe, Burke, Haywood, Henderson, Madison, McDowell, Mitchell, Polk, Rutherford, Transylvania, and Yancey counties. Four of the counties in the sub-region are Tier 1 counties with high unemployment rates: Burke, McDowell, Mitchell, and Rutherford. The remaining counties are Tier 2 or 3 counties: Buncombe (3), Haywood (2), Henderson (3), Madison (2), Polk (2), Transylvania (2), and Yancey (2). Figure 2-6 and Figure 2-7 provide an overview of this dispersed village's infrastructure including roads, airports, railroads, colleges and universities, etc. Figure 2-8 is an overview of the 30 minute drive time to and from Asheville. Figure 2-9 shows an aerial view of Asheville Regional Airport. The sub-region has attracted trade and transportation companies including: Bi Lo, Bombardier Motor Corporation, Feldspar Trucking Company, Food Lion, Gaia Herbs, Ken Wilson Ford, Lowes Home Centers, Ingles Markets, Parker Hannifin Corporation, People's Choice Corporation, US Airways Express, US Postal Service, Underwood and Weld Company, Van Wingerden, Wal-Mart, etc.

The Midwestern Village has the potential for two villages with one centered in Buncombe County and one centered in Rutherford County, or it could operate as one large virtual village for the two counties and their neighbors. The transportation assets are primarily located in Buncombe County which could serve as the center for the transportation-based village, while Rutherford County could serve as the center of a telecommunication-based village for its telecommunications assets.

The Midwestern Village centered on Buncombe County would fall within the economic development purview of the Land-of-Sky Regional Council (LOSRC) serving Buncombe, Henderson, Madison, and Transylvania Counties. The overarching theme of LOSRC is regional coordination including public-private partnerships. According to a 2008 LOSRC survey one of the five highest ranked LORC goals is "Transportation and Air Quality" which preserves the environment while addressing community transportation needs including economic development (I-26 improvements). Another highly ranked goal is "Clean Energy Planning and Entrepreneurship". In particular, the goal translates as developing renewable energy sources for the region (Midwestern Village), supporting sustainable energy jobs, and improving energy efficiency in the regional economy⁴⁷. Development efforts to achieve this goal are paying off. In 2008 Vanir Energy acquired Appalachian Solar Energy and announced its world headquarters would be located near Asheville in the Fletcher Business Park, making it the largest installation of solar thermal heating and cooling technology in the world. Sundance Power Systems, Inc., one of the largest renewable energy firms in the Southeast is also located in the region. Such opportunities to support the emerging new economy dependent on alternative energy should be supported with improved public infrastructure and funding⁴⁸. Such entrepreneurial development, supported by public partnerships, supports the LOSRC goal of "creating a clean, secure, resilient energy future and a robust regional economy."

⁴⁷ LOSRC Comprehensive Economic Development Strategy, 2008.
www.firstcoastvision.com/Land_Of_Sky_CEDS.pdf

⁴⁸ NC Partnership for Economic Development, www.ncped.com/advantageWest.html

The Midwestern Village surrounding Buncombe and neighboring LOSRC counties offers strong transportation assets including a commercial service airport (Asheville Regional Airport), interstate highways (I-26 and I-40), and rail access (Norfolk Southern). This collection of counties also shares borders with Tennessee and South Carolina, with interstate access on I-26 south to Spartanburg, SC and north to Johnson City, TN, as well as western access to Knoxville, TN on I-40.

Improvements to the highway system can be made. I-26 begins at the Port of Charleston in South Carolina and travels through Polk, Henderson, Buncombe, and Madison Counties before intersecting with I-81 in Johnson City, Tennessee. Through Buncombe County, however, I-26 narrows to one lane through downtown Asheville on I-240. This is an impediment to the movement of people and goods from and through the Advantage West region.

Related to the highway system is the concept of an inland port. The Appalachian Regional Commission report called for an intermodal inland port in Western North Carolina⁴⁹. The closest Intermodal facility is in either Charlotte or Greensboro. The development of an inland Port in Western North Carolina would enhance the flow of products through and from the area and provide for job creation projects associated with warehouse, distribution, and advanced manufacturing companies that would benefit from the reduced transportation costs associated with the location of facilities near to an inland intermodal facility.

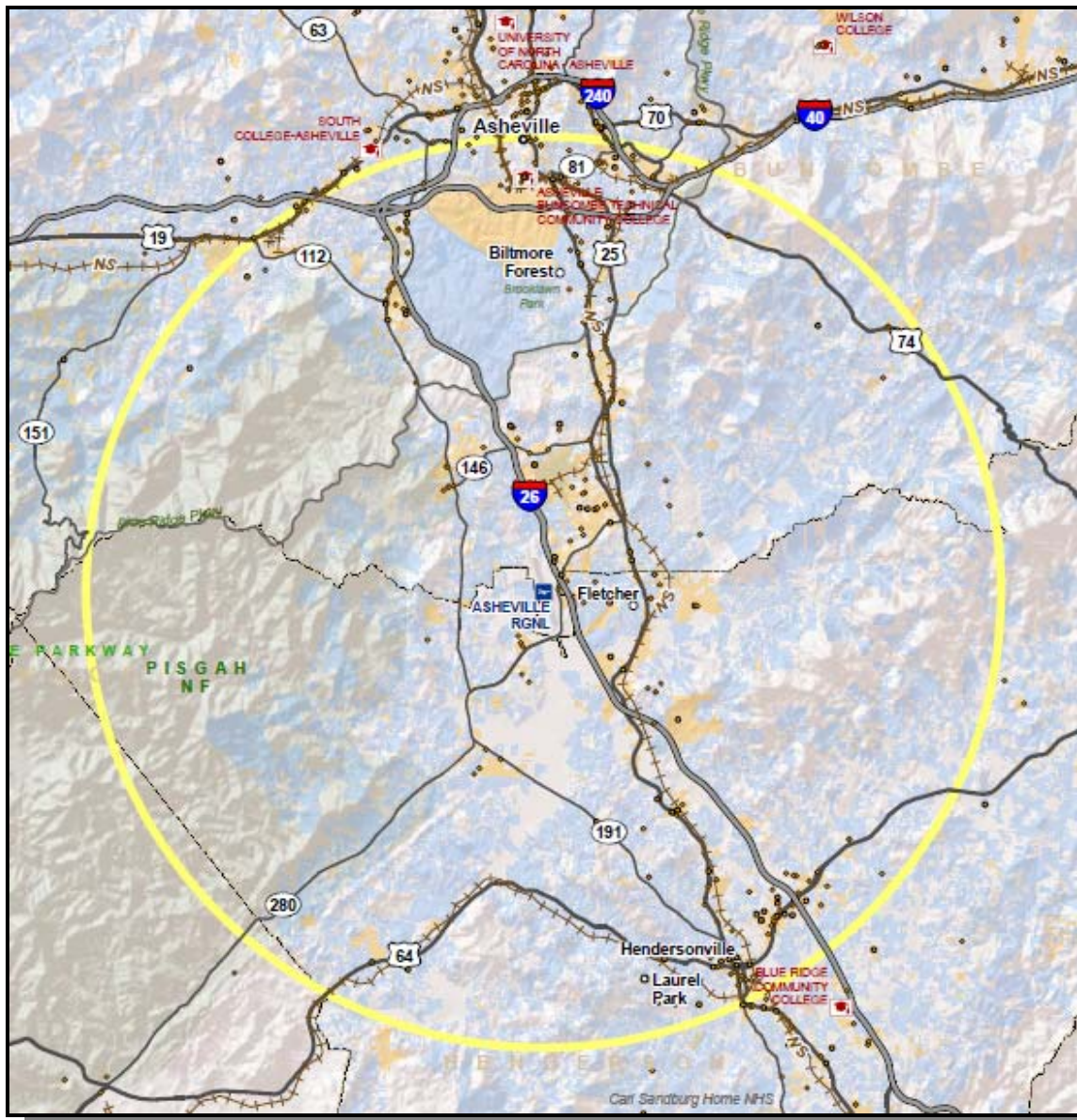
While Norfolk Southern service is present to support an inland port, the Norfolk Southern service could be augmented by restored rail freight service along the Asheville, NC and Spartanburg, SC routes to enhance western North Carolina access to both the Crescent Corridor through central North Carolina and to the port of Charleston, SC.

Furthermore, regarding rail improvements, Asheville is the #1 destination not served by Amtrak. Investment in passenger rail service to Asheville would help alleviate congestion on the interstate road system and bring new business opportunities to the region through increased tourism and business travel.

The following figures show the transportation infrastructure and available sites for development within 10 and 60 miles of Asheville. Two other figures show the drive time to the center of Asheville and an aerial view of the Asheville Regional Airport.

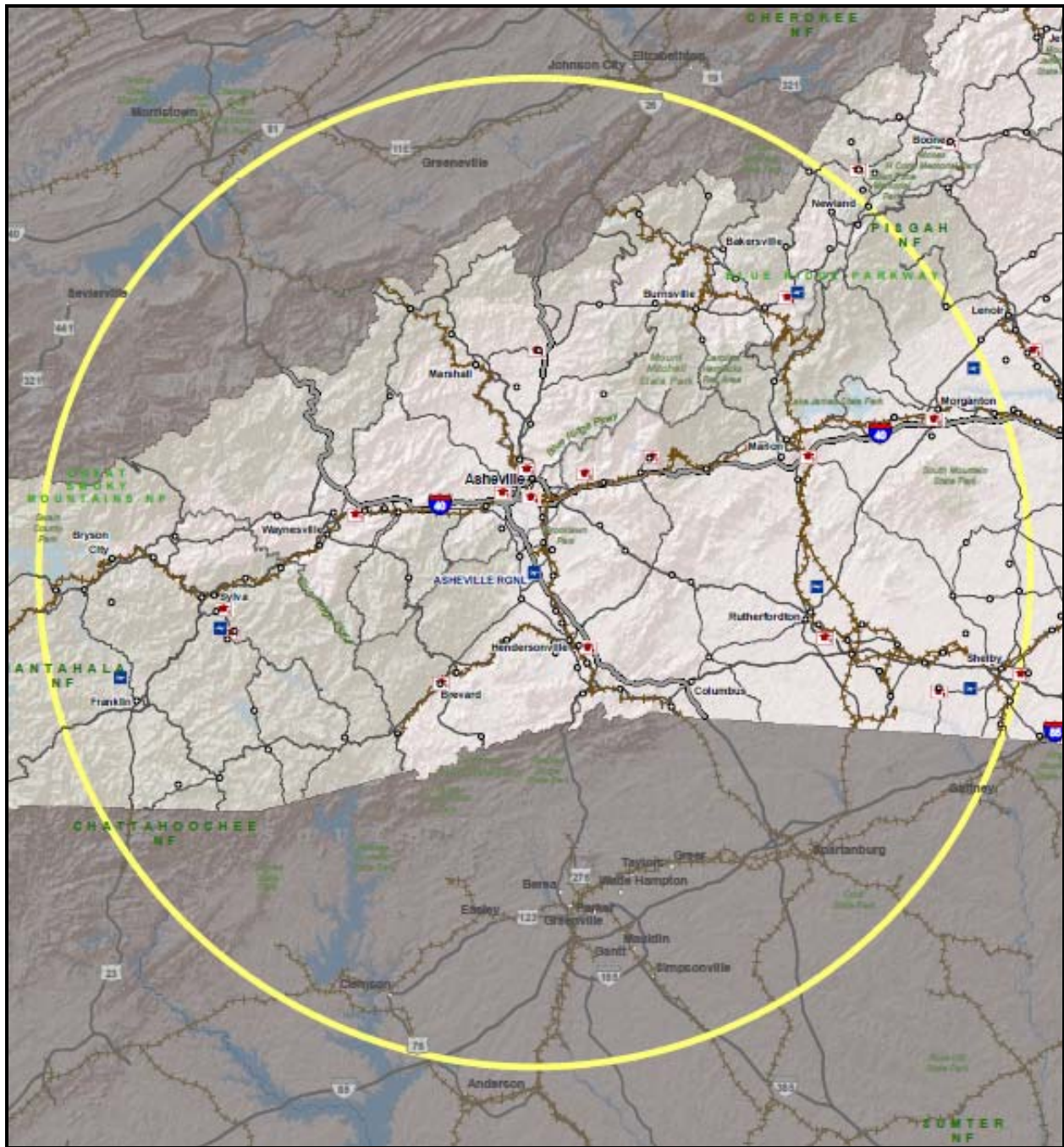
⁴⁹ Appalachian Regional Commission. *Network Appalachia: Access to Global Opportunity*. http://www.arc.gov/program_areas/NetworkAppalachia.asp

Figure 2-6: 10-Mile Radius for Asheville Site⁵⁰



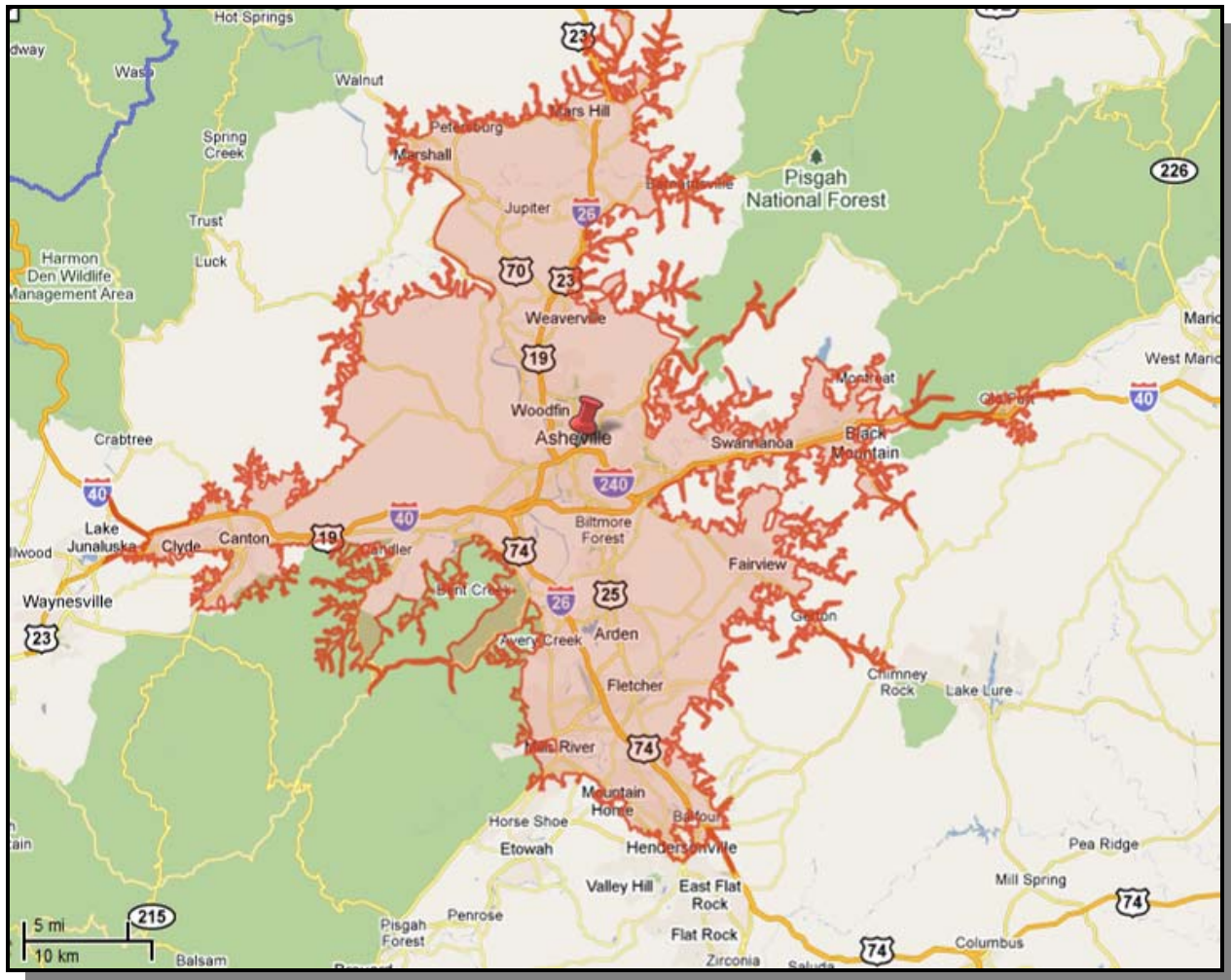
⁵⁰ Sources: Federal Railroad Administration, Buncombe County GIS, Henderson County GIS, NCDOT, CGIA, ESRI, FAA

Figure 2-7: 60-Mile Radius for Asheville Site⁵¹



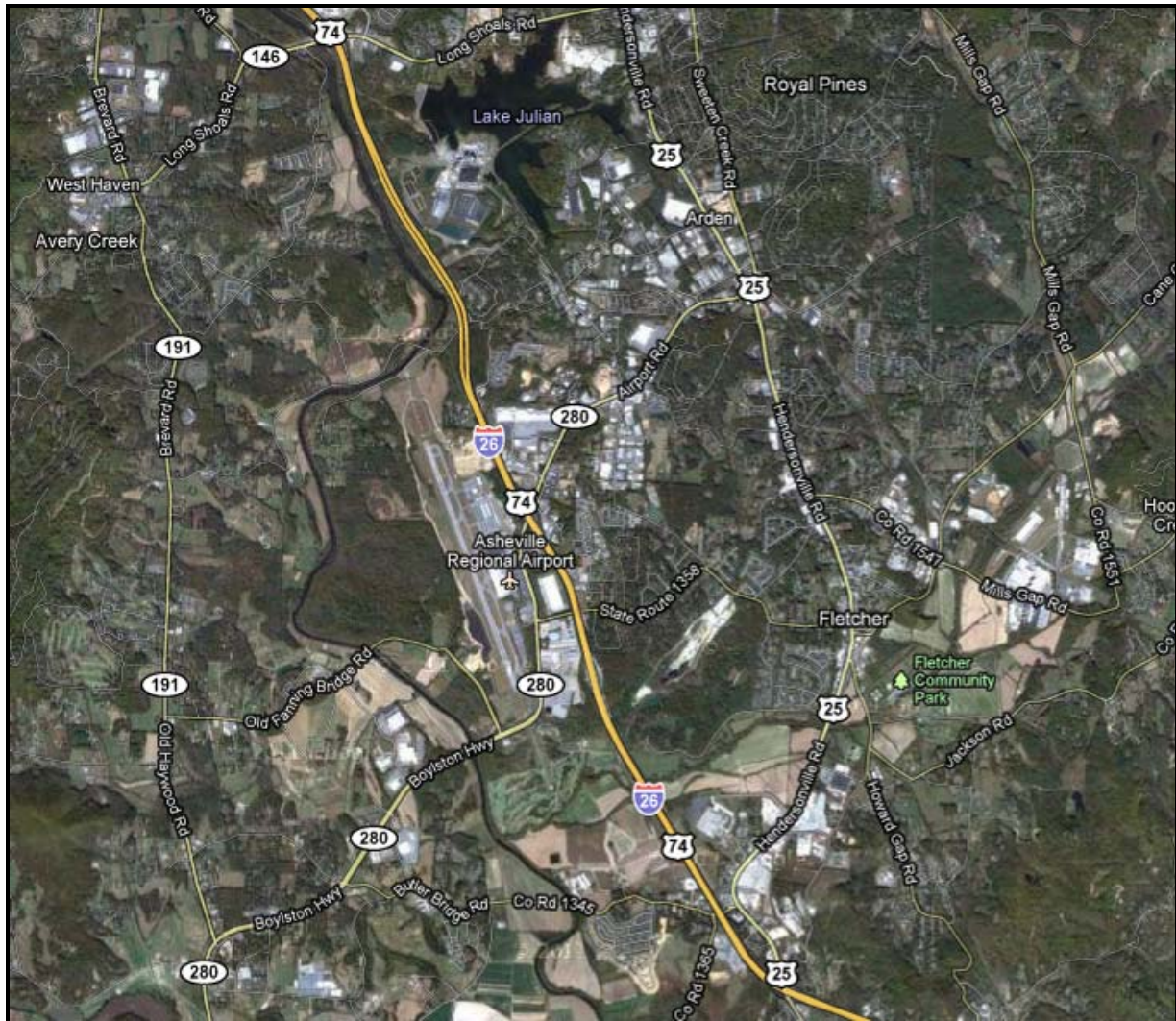
⁵¹ Sources: Federal Railroad Administration, NCDOT, CGIA, ESRI, FAA

Figure 2-8: 30-Minute Drive Time from Asheville⁵²



⁵² <https://edis.commerce.state.nc.us/EDIS/maps.html>

Figure 2-9: Aerial View of Asheville Regional Airport⁵³



⁵³ Google Maps

2.3 **Potential Logistics Village in Midwestern North Carolina II**

A potential Isothermal Belt Village exists in Midwestern North Carolina in Rutherford County. This village has the potential for to share resources with the other village located in Midwestern North Carolina in Asheville. Rutherford County an expanding Information Technology industry, as well as strong transportation assets including a general aviation airport, primary highways (US 64, US 74, and US 221), CSX and Thermal Belt Railway rail service. CSX operates a rail yard in Bostic which is also the connection of the Thermal Belt Railway to the CSX line from Rutherfordton and Forest City. The CSX line provides southern access to Spartanburg, SC, northern access to Johnson City, TN, and eastern access to Charlotte. The county is located in the middle of four metropolitan areas with less than one hour drives to Asheville, Charlotte, Hickory, and Greenville/Spartanburg, SC (Figure 2-10). Commercial aviation service is available in Asheville, Charlotte, and Greenville/Spartanburg, SC. In addition to the nearby metropolitan areas, Rutherford County is not directly served by any interstates, but has quick access to four interstates: I-26, I-40, I-77, and I-85, which form a box around the county. Rutherford County-Marchman Field Airport provides air access to the county with a 5,000' runway.



Figure 2-10: Regional Location of Rutherford County⁵⁴

⁵⁴ Economic Development Commission. Rutherford County. <http://www.rutherfordncedc.com/quality-of-life.html>

The Rutherford County Economic Development Commission has identified three target markets that fit within the topographical, labor, and demographic context of the area⁵⁵. These three target markets are data centers, call/contact centers, and renewable energies manufacturing. The economic development commission also identified advantages for companies wishing to locate in Rutherford County, including: large, non-union workforce; availability of suitable buildings; customized training available through Isothermal Community College; low weather risk from earthquakes, hurricanes, tornados, hail, ice, and snow; reliable power; redundant, high capacity fiber network; and qualification for grants. In addition to the markets targeted by the Rutherford County Economic Development Commission, several other industries might fit well within the context of the county or are existing industries with the potential for growth. These industries include: businesses that support the IT industry (software development, hardware development, and final assembly of IT equipment); agricultural based business supported by the existing timber industry (biomass, biofuels, wood pellets); advanced manufacturing (composites, plastics, textiles, assembly, and other technology); and support of businesses supplying goods for the automotive industry in South Carolina.

The sub-region has attracted data centers for well-known organizations as Facebook (Rutherford County), Google (Caldwell County), National Oceanic and Atmospheric Administration – NOAA (Buncombe County), and North Carolina State Government (Rutherford County). A data center for Apple is located in Catawba County, neighboring this sub-region. Four and one half percent of the Rutherford County employment is in the information sector (which is the highest percentage in the state). Rutherford County and surrounding counties have developed ideal locations for data centers. Affordable land prices, relatively low utility costs, reliable energy, and local governments who are eager to support economic development are some of the reasons this sub-region has seen growth in the IT sector⁵⁶. The relatively milder climate and access to water for cooling are also important for data centers so that the temperature in server rooms can be maintained at an appropriate temperature. The data centers bring infrastructure investment to the local area as well as employment to local residents. Some of the promising locations for redevelopment into IT sector sites are industrial sites in the area with existing infrastructure (acreage, buildings, water, sewer, electricity, and telecommunications) which have been abandoned in recent years by some of the industries which have seen declines throughout the state.

The Isothermal Planning and Development Commission serves Cleveland, McDowell, Polk, and Rutherford Counties with regional coordination and professional and technical expertise⁵⁷. The 2010 update to the Comprehensive Economic Development Strategy developed by the commission noted the decline of traditional industries and emergence of new opportunities in manufacturing, services, and agriculture⁵⁸. The report identified some population trends that

⁵⁵ Economic Development Commission. Rutherford County. *Target Markets*.
<http://www.rutherfordncedc.com/targeted-markets.html>

⁵⁶ Economic Development Commission. Rutherford County. *Data Centers Growing in North Carolina*.
<http://www.rutherfordncedc.com/Data-Centers-Growing-in-North-Carolina.html>

⁵⁷ Isothermal Planning and Development Commission. *About IPDC*.
<http://www.regionc.org/IPDC/web.cfm?CID=324>

⁵⁸ Isothermal Planning and Development Commission. *An Update to the Isothermal Planning Region's Comprehensive Economic Development Strategy*.
<http://www.regionc.org/IPDC/Docs/CEDS%20Update%2003042010.pdf>

need to be considered when making decisions, most notably the slow-growth of the working age groups (age 20 to 64 years old) and the more rapid growth in older populations (above 50 years old). By 2019, an estimated 40% of the population will be 50 or older. One new cluster of activity identified in the area involves marine boat building with Mako Marine (Rutherford), Cobia Boat (McDowell), and Chris-Craft (Cleveland). The report set a goal of developing regional infrastructure to promote regional growth and prosperity. Infrastructure investments should target multimodal connections to Charlotte, Spartanburg, Asheville, Hickory, and beyond. The region will also continue to improve broadband connectivity to support industry, entrepreneurs, and residents. Specific tactics to improve infrastructure recommended by the commission include:

- Advocate for the widening of US 221 (from I-85 in South Carolina through McDowell County)
- Advocate for the completion of US 74 (Shelby Bypass)
- Advocate for a corridor development for the section of I-26 from Asheville into South Carolina
- Advocate for the establishment of an Inland Port in the region

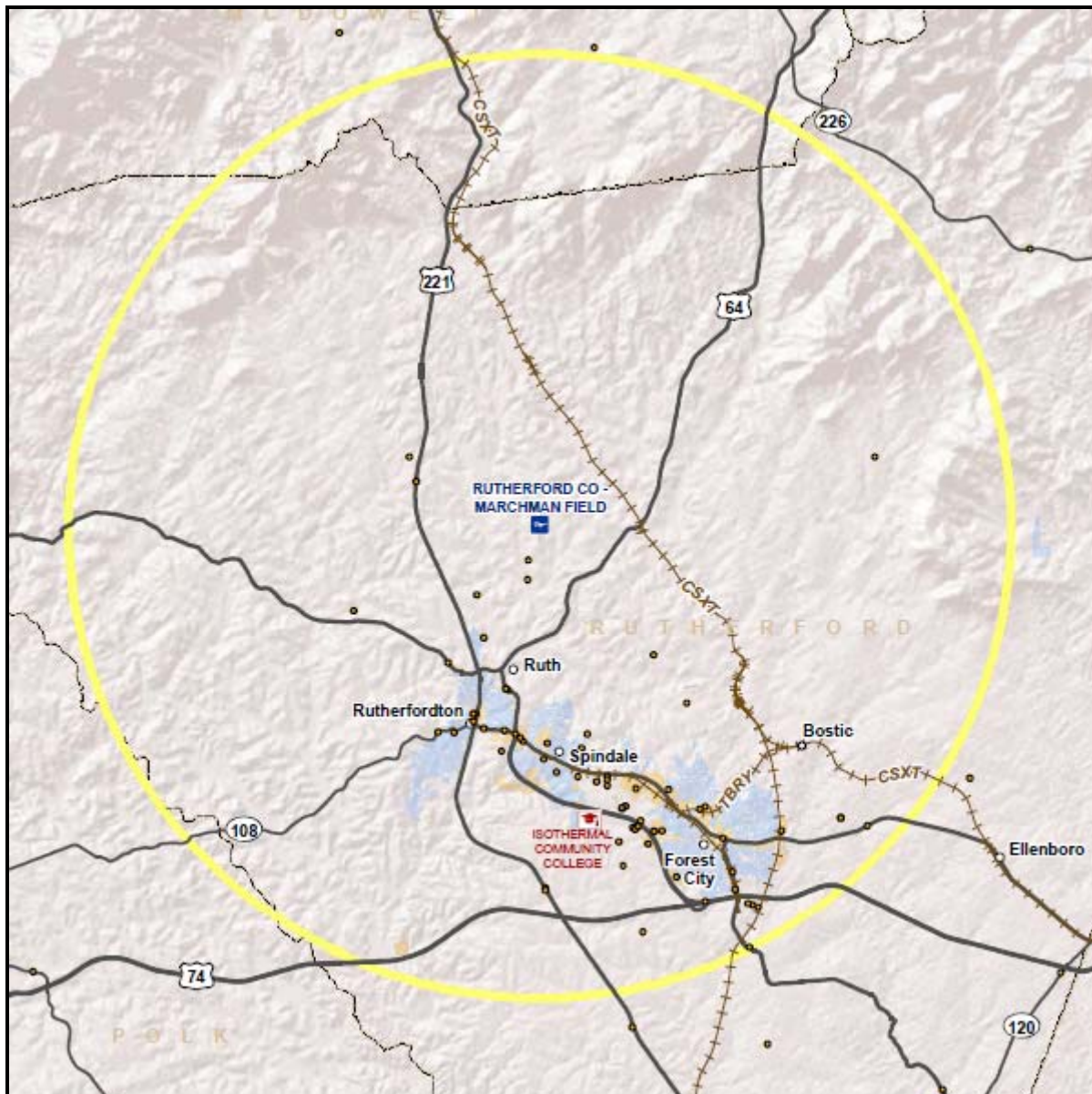
A study of the feasibility of an inland port in Western North Carolina considered a Rutherford County site as the highest priority for development⁵⁹. The site is located south of Rutherfordton near the North Carolina and South Carolina border. Transportation access to the site includes US 221 and CSX rail. Energy, rail connectivity, developable land, highway access, and agency collaboration were some of the reasons described as advantages of the Rutherford County site for an inland port.

Targeted infrastructure investments in the area could strengthen the ability of the area to attract and retain companies. Rutherford County has east to west access by traveling north or south along US 221 to reach I-40 and US 74. Improvements to US 221 would further facilitate this movement, including the completion of the widening of US 221 from the South Carolina state line through Rutherford County and connecting to I-40 in McDowell County. Additionally, improvements to US 221 in South Carolina would increase the accessibility of the area. Fiber connectivity is available at industrial sites, but some residential areas lack fiber or high speed broadband internet connectivity. Improvements to US 74, specifically a planned bypass around Shelby, linking Charlotte and Asheville through the county would improve regional access to citizens and businesses in the county. Investments in the deployment fiber and high speed broadband will support citizens, provide improved healthcare through enhanced medical diagnostic and treatment, and create jobs at data centers, advanced digital media design companies, and advanced manufacturing companies.

Figure 2-11 and Figure 2-12 provide an overview of the infrastructure available to the village centered on Rutherford County including roads, airports, railroads, colleges and universities, etc. Figure 2-13 is an overview of the 30 minute drive time to and from Rutherfordton. Figure 2-14 shows an aerial view of Rutherford County-Marchman Field Airport, the general aviation airport near Rutherfordton.

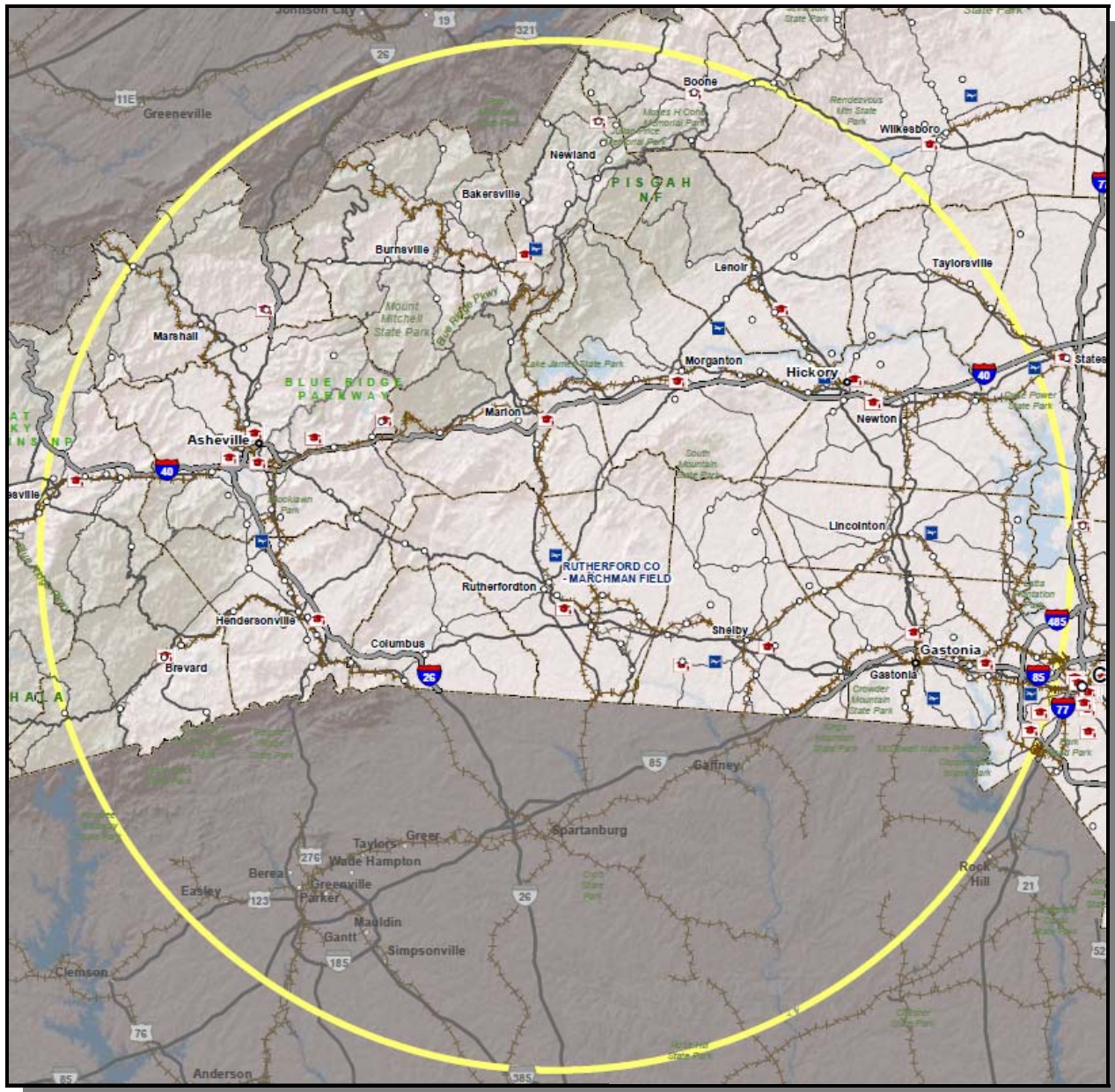
⁵⁹ Michael Smith, Ph.D. Western Carolina University. *Western North Carolina Inland Port Feasibility Study*. http://www.wcu.edu/WebFiles/PDFs/WNC__Inland_Port_Feasibility_Study.pdf

Figure 2-11: 10-Mile Radius for Rutherfordton Site⁶⁰



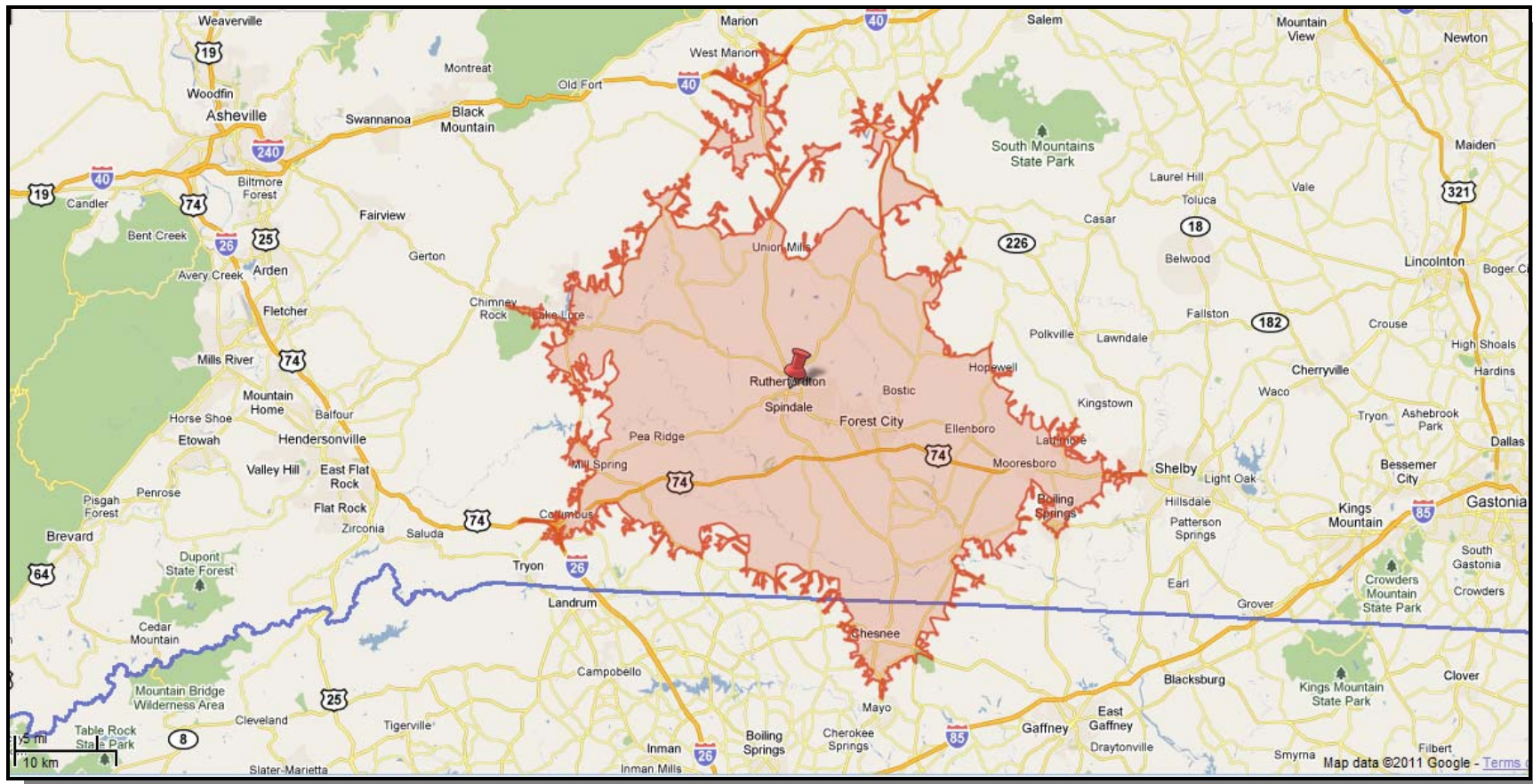
⁶⁰ Sources: Federal Railroad Administration, NCDOT, Town of Rutherfordton, Town of Spindale, Town of Forest City, CGIA, ESRI, FAA

Figure 2-12: 60-Mile Radius for Rutherfordton Site⁶¹



⁶¹ Sources: Federal Railroad Administration, NCDOT, CGIA, ESRI, FAA

Figure 2-13: 30-Minute Drive Time from Rutherfordton⁶²



⁶² <https://edis.commerce.state.nc.us/EDIS/maps.html>

Figure 2-14: Aerial View of Rutherford County Airport, Marchman Field⁶³



⁶³ Google Maps

2.4 **Potential Logistics Village in Northwestern North Carolina**

The Northwestern Village is centered on Wilkes County with its transportation infrastructure. It features manufacturing and agricultural activities. In addition to Wilkes County, the village also includes: Alleghany, Ashe, Avery, Caldwell, and Watauga counties. The potential village offers strong transportation assets including a general aviation airport, a primary highway (US 421), and a strong existing presence of agribusiness and manufacturing. This sub-region shares its border with Tennessee and Virginia, with which it has good interstate access from US 421 to I-77 and I-81.

Five of the counties in the sub-region are Tier 1 counties with high unemployment rates: Alleghany, Burke, Caldwell, Mitchell, and Wilkes. The remaining counties are Tier 2 counties: Ashe, Avery, Watauga, and Yancey. Figure 2-15 and Figure 2-16 provide an overview of this village's infrastructure including roads, airports, railroads, colleges and universities, etc. Figure 2-17 is an overview of the 30 minute drive time to and from Wilkesboro. Figure 2-18 shows an aerial view of the general aviation airport, Wilkes County Airport. This sub-region has attracted well-known agribusinesses and manufacturers including American Emergency Vehicles, Avery Dennison, Bernhardt Furniture Company, Broyhill Furniture Industries, Fairfield Chair Company, Gates Rubber Company, General Electric Corporation, Greer Laboratories, Hospitality Mints, IRC, Key City Furniture Company, Kincaid Furniture Company, La-Z-Boy, Leviton Manufacturing Company, Louisiana-Pacific Corporation, Neptco, Parkdale Mills, RPM Wood Finishes Group, Thomasville Furniture, Tyson Farms, Tyson Poultry, United Chemi-Con, etc.

Besides the major agribusinesses like Tyson Farms and Tyson Poultry, the northern counties in this area support vineyards and wineries, as well as the tourism associated with winery visits. Perhaps the best known agricultural product in the Northwestern Village is the Frazer fir Christmas tree which is shipped throughout North Carolina, the U.S., South America, Japan, and other countries. In addition there are about 400 "choose and cut" tree farms in western North Carolina, especially the northern counties.⁶⁴ North Carolina ranks second nationally in Christmas tree production behind Oregon.⁶⁵

The High Country Council of Governments serves the region including Yancey County which this report groups with the Midwestern Village. According to the 2008 High Country Council of Governments Comprehensive Economic Development Strategy⁶⁶:

- Wilkes County is the largest county and has the largest concentration of manufacturing in the region.
- Watauga County is the home of Appalachian State University and has an economy based on education, government, the service industry, and tourism.

⁶⁴ VisitNC Newslink, December 2010.

<http://www.nccommerce.com/LinkClick.aspx?fileticket=H1MWekJYa8A%3d&tabid=668&mid=2764>

⁶⁵ Agricultural Statistics. <http://www.ncagr.gov/stats/ncrank.htm>

⁶⁶ High Country COG CEDS, 2008.

http://www.regiond.org/planning/2008%20CEDS%20_Whole%20Document_.pdf

- Avery County has become a major year round tourist destination with winter ski resorts and many seasonal residents.
- Alleghany and Ashe Counties are typical of rural Appalachian counties where industrial growth has been slow to offset the decline in agricultural employment.
- Mitchell County originally developed around the mining industry in the early 20th century.
- Yancey County has diversified from an agricultural economy to one based on light manufacturing. (While Yancey County is in the High Country COG, for the purposes of this report it is grouped with the Midwestern Village.)

The High Country COG Comprehensive Economic Development Strategy goes on to say that the seven counties have similar obstacles to development. Land uses are limited due to mountainous conditions and most counties have few mineral resources. The transportation system has historically been considered to be the greatest barrier to large scale industrial development. Driving distances to the nearest commercial airports are one to three hours. The region is served by four major US highways and nine state highways, although many are two-lane. There is no Interstate highway in the region; however, there are connections to I-77 and I-40 via US 421. I-77 is about 20 miles east of Wilkesboro, and I-40 is 45 - 65 miles south depending on the route taken.

There are no commercial air services in the Northwestern Village. The region does have general aviation airports in Wilkes, Watauga, Avery and Ashe Counties. The Wilkes County airport with a 6,200 foot runway and instrument landing system is the most advanced and can handle the most air traffic. The Wilkes County airport is home to several businesses and air charter services. It has an aircraft assembly factory and it is developing a “through the fence” industrial park that will share the runway.

Yadkin Valley Railroad, which serves Tyson Farms and which connects to the Norfolk and Southern in Winston-Salem, provides rail service to Wilkesboro, which is the end of the line.

Information on business sites in the region is available from the North Carolina Department of Commerce and its *Certified Sites Program*. Industrial sites in this inventory meet pre-qualification standards which reduce the risk to developers by providing information about price, availability, utilities, access, environmental concerns, and site development costs⁶⁷. There are currently 11 certified commercial sites in Western North Carolina. The largest site is the Wilkes County Industrial Park (522 acres) located in North Wilkesboro.

As described above, factors such as steep terrain, distance to Interstates, and the relatively small labor pool have caused the Northwestern Village to historically trail much of North Carolina in manufacturing. In the past decade manufacturing has suffered steep declines in the traditional textile and furniture sectors. Recently, however, a significant number of new businesses have opened including some textile and furniture operations, as well as industries new to the Region:

- Parkdale Mills/Magnolia Manufacturing – textiles; Alleghany County
- Martin-Marietta Composites – composite materials; Alleghany County

⁶⁷ North Carolina Department of Commerce. Buildings and Sites.
<http://www.nccommerce.com/en/BusinessServices/LocateYourBusiness/BuildingsAndSites/>

- Smith Aerospace – airplane parts; Ashe County
- Genesis Furniture – upholstered furniture; Mitchell County
- Altec, Inc. – utility truck components; Yancey County

In addition to the new companies listed above, some existing manufacturing companies in the region have expanded including:

- Charleston Forge - metal furniture; Alleghany County
- TruLine Truss – wooden trusses; Alleghany County
- US Buildings – steel buildings; Wilkes County

According to the High Country COG CEDS tourism is becoming as significant as manufacturing in the region although tourism does not support the number of high paying jobs. Tourism in 2005 supported approximately 5,000 jobs with a payroll of \$90 million.

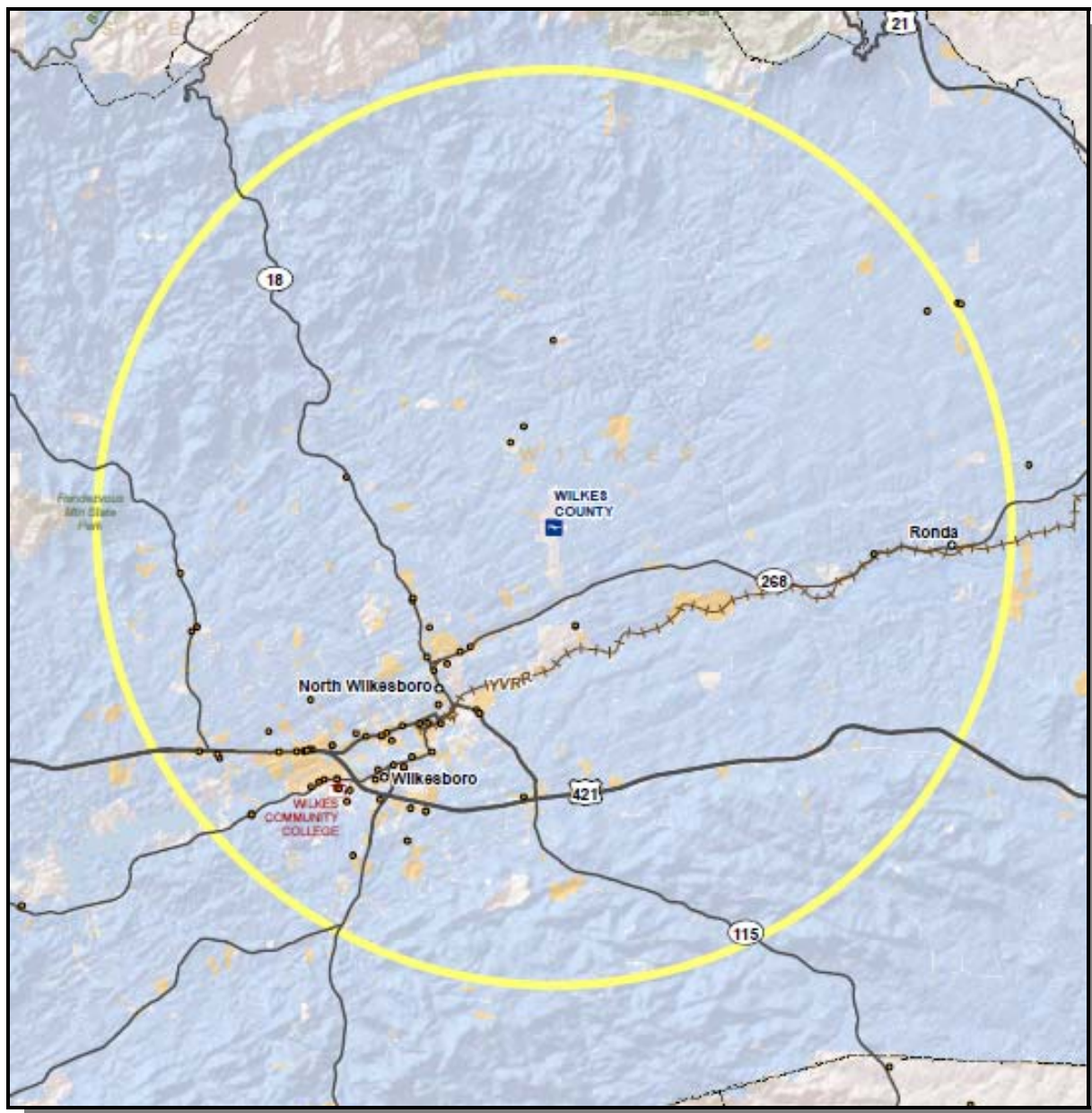
Comparatively speaking employment in the region has shifted away from agriculture and the total number of jobs in farming is relatively small. Yet, agriculture still has a significant economic impact on the region with receipts from products sold approaching \$465 Million in 2004 according to the High Country COG CEDS. The most prominent agricultural products are Christmas trees discussed previously and live stock. As a result of its livestock, poultry and dairy products, Wilkes County ranks fifth in agricultural cash receipts in North Carolina.

To enhance the upward trend in economic development, the High Country COG CEDS has a list of 20 vital infrastructure projects that are dominated by water supply projects. With regard to the logistics theme of this report there are three vital highway projects:

- Widening of US Highway 221 in Watauga and Ashe Counties,
- Improvement of US Highway 221 between US Highway 421 and the Town of Jefferson,
- Widening of US Highway 19E in Yancey, Mitchell, and Avery Counties, and
- Construction of the Sparta Western Loop (US Highway 21 Bypass).

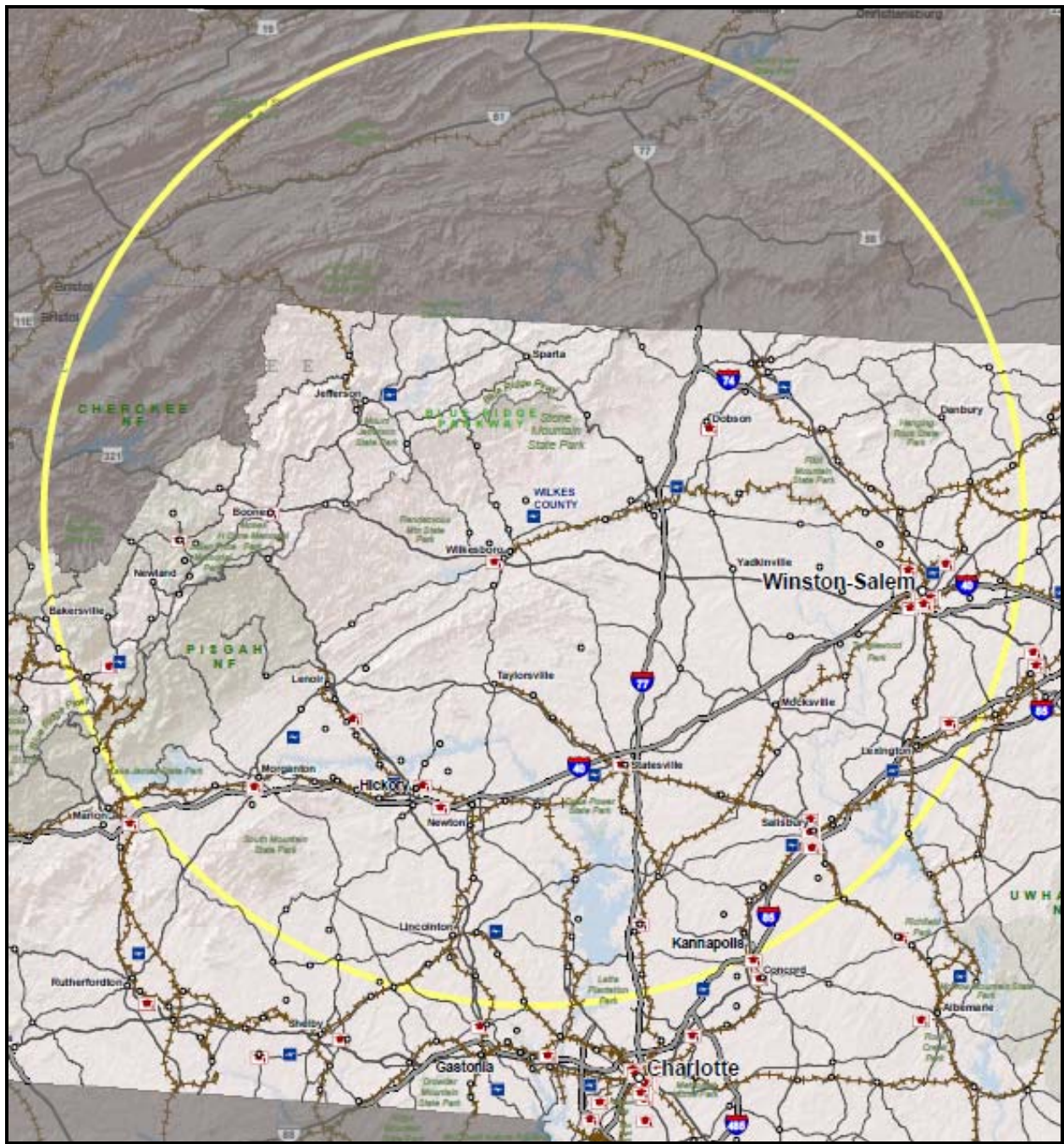
The following figures provide describe the 10-mile and 60-mile radius areas centered on Wilkesboro. In addition a figure describing the 30-minute drive time to Wilkesboro and an aerial view of the Wilkes County Airport are included.

Figure 2-15: 10-Mile Radius for Wilkesboro Site⁶⁸



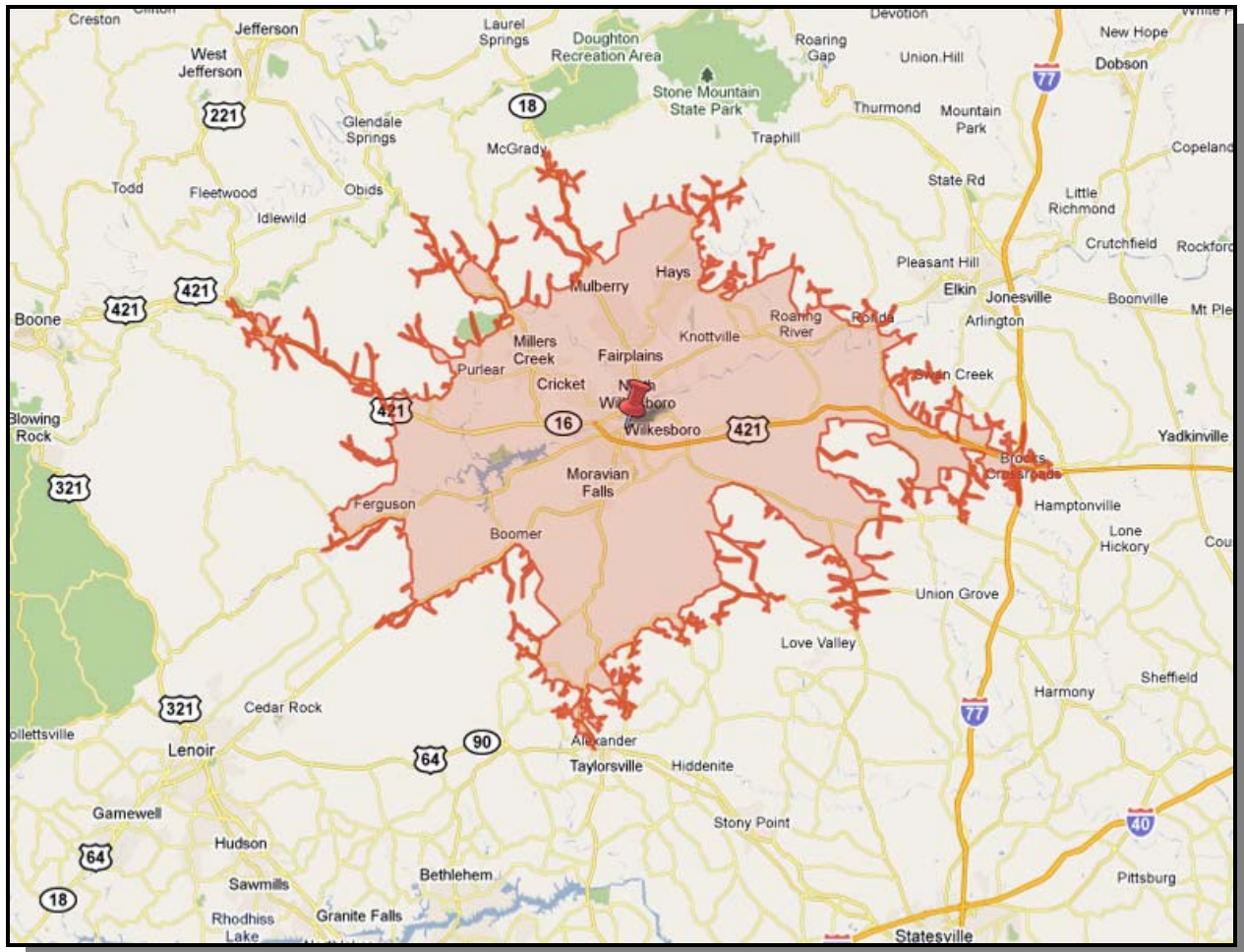
⁶⁸ Sources: Federal Railroad Administration, NCDOT, CGIA, Wilkes County GIS, NC Department of Commerce, ESRI, FAA

Figure 2-16: 60-Mile Radius for Wilkesboro Site⁶⁹



⁶⁹ Sources: Federal Railroad Administration, NCDOT, CGIA, ESRI, FAA

Figure 2-17: 30-Minute Drive Time from Wilkesboro⁷⁰



⁷⁰ <https://edis.commerce.state.nc.us/EDIS/maps.html>

Figure 2-18: Aerial View of Wilkes County Airport⁷¹



⁷¹ Google Maps

3 Summary

3.1 *Logistics Villages Compared*

All four “Logistics Village” sites that were studied in this report share some common characteristics:

- The West Region is strategically located near the center of the southeastern United States with access to serve the populations and economic activity along the growing mega-region connecting Birmingham, AL, Atlanta, GA, Greenville, SC, Charlotte, NC, and the Triad and Triangle in NC. Highway access is also available to serve the Midwestern United States.
- The Region features interstate highways that intersect in Asheville (I-26 and I-40) and that provide direct access to I-77 and then to I-85 and to I-81. This interstate network provides efficient logistics opportunities from the Western Region to destinations inside and outside of North Carolina.
- The area has a temperate climate, a reasonable cost of living, cultural activities in cities and towns, recreation (mountains, resorts, skiing, arts, crafts, music, etc.), and national heritage as the home of the Eastern Band of the Cherokee Indians.
- Eleven community colleges, three public universities, and eight private colleges are located in the region and stand ready to train workers for needed skills.
- While not equally distributed throughout the region, infrastructure requirements (water, gas, electrical power, sewage and septic facilities and communication needs) are generally available to support economic development. Improvements and upgrades for infrastructure requirements are needed at some sites but are nonetheless available.

Table 3-1 shows a summary of the Western Region sites discussed earlier in this report. This is not an all-inclusive list of characteristics; however, it demonstrates that the West Region is poised to support the global economy. While investments are needed at each site studied to maximize the opportunity, it is clear the region will continue to grow economically and provide unique assets to North Carolina. In order to compare the proposed “Logistics Village” sites in the Western Region, key criteria needed for a successful “Logistics Village” are reviewed with the data coming from the tables presented earlier in this report. These tables reveal the following points about infrastructure in the region:

- **Highways:** Midwestern North Carolina offers the best highway access in the region with a convergence of two interstates in Asheville. The proposed logistics village in Northwestern NC in Wilkesboro offers four-lane highway access along US 421 which connects to I-77. The proposed logistics village in the Valley River Valley near Andrews is the most constrained village with no four-lane roadway access to areas outside of subregion (due to terrain constraints). However, the planned Corridor K will provide four-lane highway access for the village. The Rutherford County site is not

directly served by any interstates, but has quick access to four interstates: I-26, I-40, I-77, and I-85, which form a box around the county.

- **Railroads:** Similar to the highway infrastructure, the rail access is strongest in Midwestern NC. Asheville has rail connectivity with a East-West and North-South Norfolk Southern line and Rutherfordton has access to a CSX line along the Thermal Belt Railway. Wilkesboro is connected to a Norfolk Southern line via the Yadkin Valley Railroad, which is currently active with regular shipments. Andrews is connected to Norfolk Southern via the Great Smoky Mountains Railroad, however, the line does not experience regular freight traffic currently. Clearly, the role of short line railroads is critical for the region as three of the sites are connected to Class I railroads via short lines. Aside from freight service, Asheville's place as the top destination not served by passenger rail is an opportunity to support travel and tourism in the area while alleviate highway congestion.
- **Air:** The Asheville Regional Airport offers the only commercial service in the Western Region and also has a strong general aviation presence. A commercial development adjacent to the runway is currently under construction which could attract aviation-related and non-aviation related businesses. The other areas contain general aviation airports with runway lengths of at least 5,000 feet.

Table 3-1: Western Region Summaries

	Southwestern NC (Valley River Valley)	Midwestern NC (Asheville)	Midwestern NC (Isothermal Belt)	Northwestern NC (Wilkes County)
Geographic Reach	Local, State, and Regional (into neighboring states)	Local, State, and Regional	Local, State, Regional, & International (IT)	Local, State, and Regional
Economic Sectors	Advanced manufacturing, tourism	Transportation hub, health care, tourism	Telecommunications and information technology	Transportation, agribusiness
Agriculture	Corn, vegetables, cattle	Grapes, green agriculture	Corn, vegetables, cattle, wheat, soybeans	Poultry, wine, swine, Christmas trees
Tourism	Many outdoor recreation activities and destinations	Arts, crafts, cultural and historic attractions	Many outdoor recreation activities and destinations	Ski resorts, wineries, traditional home of NASCAR, retirement communities
Health & Wellness	Wellness opportunities and medical centers	Wellness opportunities and medical centers	Wellness opportunities and medical centers	Wellness opportunities and medical centers
Military Support	N/A	N/A	N/A	N/A
Aerospace Manufacturing	N/A	Adjacent aviation- related development	Aerospace products and parts	MX Aircraft
Other Advanced Manufacturing	Advanced metal working	N/A	Renewable energy	Furniture, furnishings, electrical, chemicals
Retail	Retail center of the area	Retail center, arts, crafts	N/A	N/A
Preparedness				
Highway	US74/US19/US129, US64	I-26, I-40, US74, US23, US25, US19, US70	US221, US64, US74	US421, direct access to I-77
Rail	Great Smoky Mountain Railroad access to NS line	Norfolk Southern and connections to CSX	Thermal Belt Railway access to CSX line	Yadkin Valley line near airport
Air	5,500 feet long by 75' wide MIRL REIL	8,000 by 150 feet runway, commercial service, HIRL, MALSR	5,000 feet long by 100' wide MIRL REIL	6,200 by 100 feet runway, MIRL REIL
Maritime Support	N/A	N/A	N/A	N/A
Developable Land	Available buildings and land	Available buildings and land	Available buildings and land	Available buildings and land
Power/Gas	Adequate	Adequate	Adequate	Adequate
Information Technology/ Communication	Adequate	Adequate	Excellent	Adequate
Water/Sewer	Adequate	Adequate	Adequate	Adequate
Environmental Issues	Terrain may limit real estate development	Terrain may limit real estate development	Terrain may limit real estate development	Terrain may limit real estate development
Tax Incentives	Tier 1 County	Tier 3 County	Tier 1 County	Tier 1 County
Education and Research	Tri-County Community College	UNC Asheville, Asheville Buncombe Tech Community College	Isothermal Community College	Wilkes Community College
Inter- Institutional Organizations	Advantage West	Advantage West & Western NC Transportation Alliance	Advantage West	Advantage West
Labor Pool	Good	Good	Good	Good
Upfit Cost	Depends on the upfit needed for the industry/company			
Nearest Port	Charleston	Charleston	Charleston	Wilmington