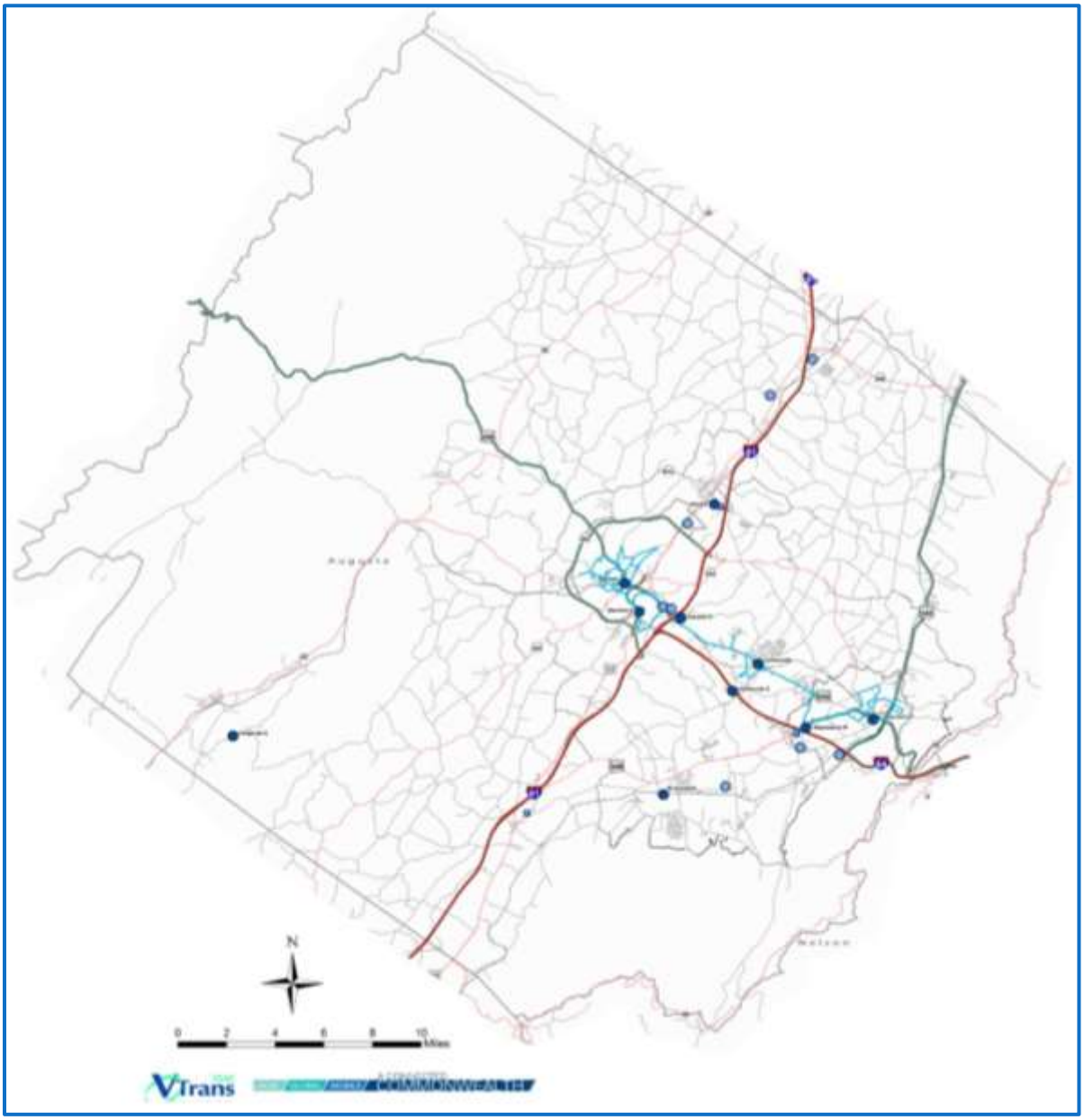
VMTP 2025 Needs Assessment

Regional Needs Profile



Staunton-Augusta-Waynesboro Region

December 2015

1. NEEDS ASSESSMENT PURPOSE

The VMTP 2025 Needs Assessment is an essential element of the overall VTrans2040 Statewide Transportation Plan for Virginia. Based on the VTrans 2040 Vision and policy directives from the Governor's office, the VMTP 2025 Needs Assessment is based on two principal objectives of transportation policy with the aim of enhancing economic competitiveness. These are 1) to attract and retain the 21st century workforce, and 2) to support goods movement for Virginia businesses.

This document is one portion of the overall Needs Assessment for regional Networks that deals with the Needs Assessment for the Staunton-Augusta-Waynesboro (SAW) Region. There is a separate document entitled "VMTP 2025 Needs Assessment: Regional Networks Introduction," that provides an overall introduction into the background and methodology of the Needs Assessments. In this document, details are provided on the 2025 Needs development process, as well as the economic factors shaping regional Transportation Needs. This introductory document provides a foundation for the regional needs described here. The focus of this Transportation Needs Assessment is to identify the Transportation Needs that are part of the SAW Regional Network, and that would support regional industries and workforces.

Defining Transportation Needs

Transportation Needs, as considered in the 2025 Needs Assessment, are defined as the gap between the transportation system in place currently that serves the current industries in a region, and the future transportation system needed to serve the desired future economy in the region. The gap between the Transportation Needs and economic conditions is the basis for the findings in this report. The following sections outline the SAW regional Economic Profile, regional Transportation Profile, and regional Transportation Needs.

Defining a Regional Network

This portion of the Needs Assessment deals with a Regional Network. For the purposes of the VMTP Needs Assessment, the final determination of each Regional Network has been developed as part of the outreach process in working with each region. Additional information about how the regional Networks were defined is referenced in the introductory document, "VMTP 2025 Needs Assessment: Regional Networks Introduction."

The SAW Region is defined as the City of Staunton, City of Waynesboro and Augusta County. However, economic generators, economic attractors and commuting corridors located outside of but adjacent to this region that influence the economy or travel market of the SAW region were considered in the Needs Assessment as well. These include:

- **Outside Economic Generators:** Lexington, Buena Vista, Monterey (Highland County), Bath County, Glasgow, and Rockbridge County
- **Outside Economic Attractors:** Lexington (Washington and Lee University, VMI, Virginia Horse Center, Devils Backbone), Glasgow (Mohawk Industries), Natural Bridge, Hot Springs in Bath County (The Homestead Resort), Buena Vista (Southern Virginia University), Bath County, and Wintergreen Resort in Nelson County
- **Regional Commuting Corridors:** US 250, VA 39, VA 42, US 60, US 501, and US 11

2. Economic Profile

A. Introduction

The Trends Analysis conducted as part of the VTrans2040 Vision Plan showed strong indications that future economic success for both states and regions will hinge on attracting and retaining increasingly scarce talented workers, particularly from among the well-educated Millennials. In addition, future goods movements will be critical to supporting Virginia's current and emerging businesses. A key part of analyzing emerging transportation needs statewide is understanding the current and future economic conditions in different parts of the state. The Needs Assessment therefore focuses on understanding the major economic dynamics of each region and using that understanding to shape Transportation Needs.

OIPI consultants used available data from state and national sources, as well as input from SAW Region stakeholders to identify an overall current economic profile for the region. The components of the current economic profiles layer together demographic and economic characteristics of the region. The Regional Profile incorporates the following baseline data for each region:

- Demographic Characteristics
- Top Industries by Employment, Output and Location Quotient
- Workforce Characteristics
- Top Employers
- Activity Centers, characteristics and travel markets (as defined by existing centers of employment as modified by input from stakeholders in each region)

B. Demographics

At a regional level, research regarding basic demographics was analyzed as a foundation for understanding regional economic dynamics. The economic and demographic data analyzed in this report support insights regarding which workforce and/or key age groups are currently present in the region. This information is important to inform potential types of investments to attract and retain the desired workforce.

Statewide Demographics

According to the Weldon Cooper Center, the current population in the state of Virginia is 8,185,867. By the year 2025, the Commonwealth of Virginia's population is projected to increase by between 1 million, to 1.5 million. Statewide per-capita incomes are expected to rise 21 percent from 44,765 to 54,226.

Table 1: Statewide Population Projections

Current Population – 2012	Weldon Cooper 2025 Projection	Woods &Poole 2025 Projection
8,185,867	**9,203,977**	**9,740,553**

Source: Weldon Cooper Center for Public Service, Demographic Research Group, Intercensal Estimates for Virginia, Counties and Cities: 2010-2012; and Woods and Poole Economics, Incorporated, 2014 State Profile District of Columbia, Maryland, and Virginia.

Regional Demographics

The SAW Region is forecasted to experience steady population growth over the next decade. Augusta County as a whole may experience an increase in population by almost 14 percent by 2025 (**Table 2**). The Cities of Staunton and Waynesboro however are projected to see slower population growth.

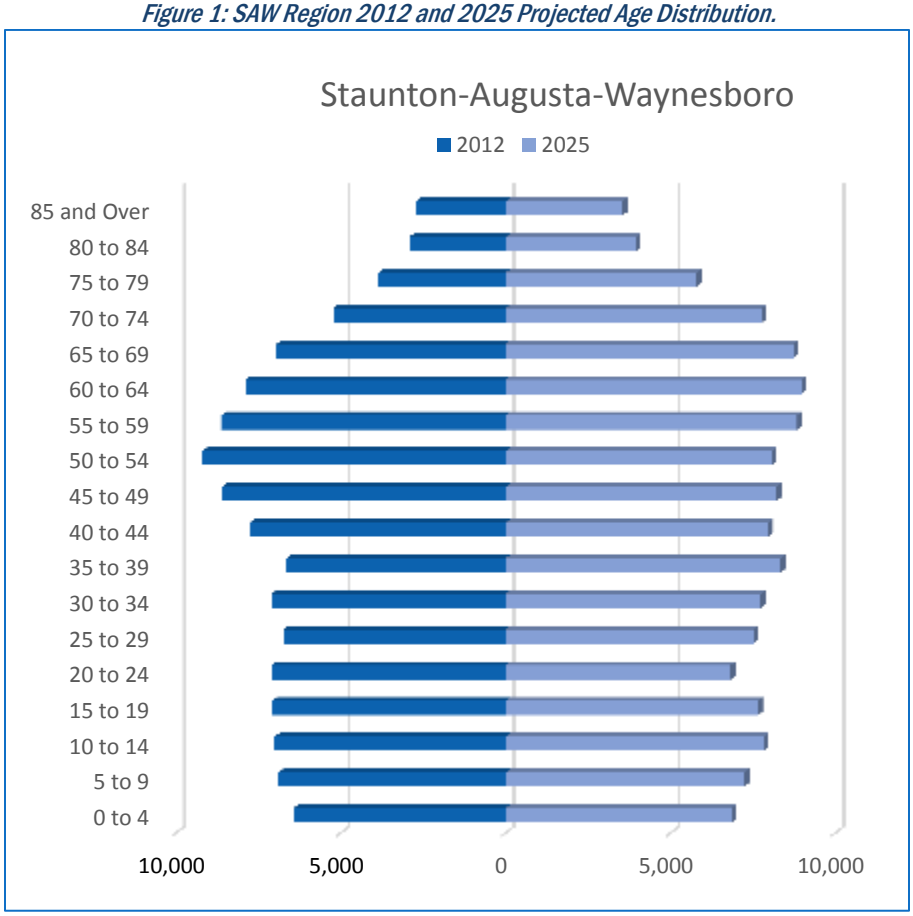
Table 2: SAW Region County and City Population Projections

Jurisdiction	2012	2025	% Change (2012-2025)
Augusta County	73,658	83,895	13.9%
City of Staunton	23,921	25,023	4.6%
City of Waynesboro	21,107	22,915	8.6%

Source: US Census Bureau. Weldon Cooper Center for Public Service, Demographics Research Group; Intercensal Estimates for Virginia, Counties, and Cities: 2010-2012, Charlottesville, Virginia, January 27, 2014, www.coopercenter.org; Accessed between January-August, 2014.

Figure 1 illustrates the age distribution for the SAW Region in 2012 and the projected age distribution for 2025. Population growth is projected to be accompanied by a demographic shift, with a higher percentage of the population over the age of 55.

Figure 1: SAW Region 2012 and 2025 Projected Age Distribution.



Source: Woods & Poole Economics, Incorporated. 2014 State Profile District of Columbia, Maryland, and Virginia. Washington DC. 2014. http://www.woodsandpoole.com. Accessed June 18, 2014.

C. Current Industry Strengths

Economic drivers in the region are predominantly centered on local-serving industries. These include health care, retail trade, public administration and other services (e.g. personal care services like barbershops and salons; and religious, grant making, civic, and professional organizations like churches and social advocacy groups). However, manufacturing – a freight-dependent industry – is a major employer in the region, as well as the most significant contributor to the region's output. The following economic measures were used to analyze the strength and characteristics of the current regional economy in the SAW Region.

Top Industries by Output

Manufacturing is the strongest industry by economic output (**Table 3**). The Retail Trade industry comes in a close second.

Table 3: SAW Region Current Industries by Output, 2012

Top 5 Industries	Output ($M)	% of Output
Manufacturing	$2,202	20%
Retail Trade	$1,725	16%
Wholesale Trade	$1,293	12%
Health Care	$950	9%
Public Administration	$836	8%

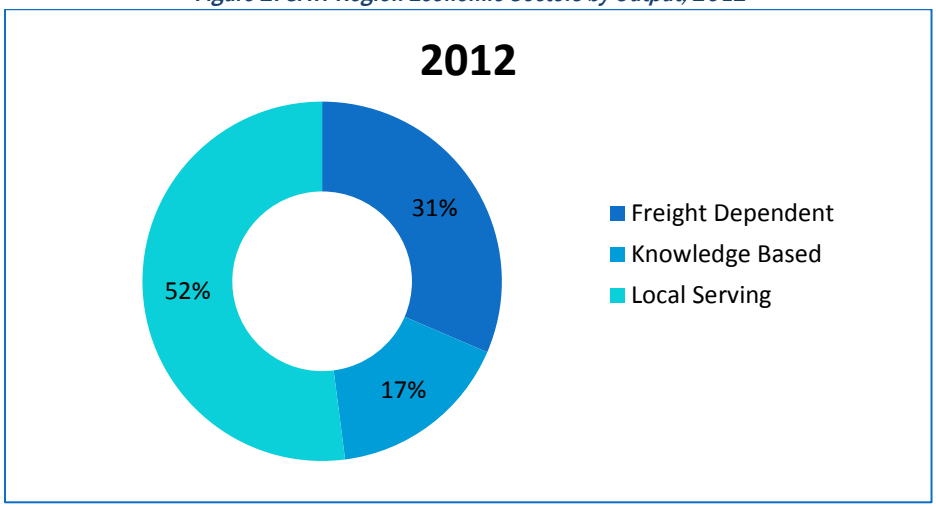
Source: IHS Global Insight Business Market Insights (BMI) Data & Forecasts, 2012.

Economic Sectors

The 20 industry sectors, as defined by The North American Industry Classification System (NAICS), have been grouped into three clusters – or broader economic groupings – based on the characteristics that support each industry's growth. These economic clusters are defined as Local Economic Sectors, Knowledge-based Economic Sectors, and Freight-based Economic Sectors. Each economic cluster has different characteristics in terms of land use, commuting patterns, and other aspects of regional accessibility that are essential to attracting and retaining these businesses and their workforce. These different characteristics and each region's mix of economic clusters combine to create unique needs, opportunities and constraints related to transportation and accessibility. For example, a region with greater economic emphasis on manufacturing or warehousing will have a greater focus on freight intermodal needs than a region with stronger knowledge-type service industries such as financial services, where passenger intermodal needs would be a greater concern.

In addition to the unique characteristics of each cluster, there are also underlying principles with respect to land use density that relate to the different economic sectors and also to the suitability of different transportation modes. These relationships work differently in different regions, and will be applied in context for all 15 of the regional networks. When considering the output of all industries present in the SAW Region, **Figure 2** provides a summary of the predominance of each economic cluster, as analyzed by a methodology developed by the OIPI consultants and used in all regional analyses throughout the State. In 2012, the local serving industries were the predominant industries by output in the region at over 50 percent. In terms of transportation characteristics and needs the Local Services economic cluster is typically characterized by different peak commute times; customer traffic; trip-chaining destinations; and truck deliveries.

Figure 2: SAW Region Economic Sectors by Output, 2012



Source: IHS Global Insight Business Market Insights (BMI) Data & Forecasts, 2012.

Top Industries by Employment

In the SAW Region, the top industries by employment are Public Administration, Health Care, Manufacturing, and Retail Trade (**Table 4**).

Table 4: SAW Region Top Industries by Employment, 2012

Top 5 Industries	Number of Jobs	% of Workforce
Public Administration	8,539	16%
Health Care	8,314	15%
Manufacturing	6,807	13%
Retail Trade	5,959	11%
Other Services	3,914	7%

Source: IHS Global Insight Business Market Insights (BMI) Data & Forecasts, 2012.

Table 5 lists the current top employers in the SAW Region. In the Health Care industry, Augusta Health and Western State Hospital combine to employ nearly 1,550 workers with Augusta Health as the largest employer in the SAW Region. Manufacturing industry employers round out the remaining top five employers with 2,250 workers.

Table 5: SAW Region Current Top Employers

Employers	Employees
Augusta Health	1,000
Hershey Foods of Virginia	750
McKee Foods	750
Target Corporation	750
Western State Hospital	550

Source: 2012 InfoUSA data, supplemented with 2014 SAW MPO data.

Top Industries by Location Quotient

Location quotient (LQ) is an economic measure, expressed as a ratio, which compares a region to a larger reference region according to some characteristic or asset. It is often used to quantify how concentrated a particular industry, cluster, occupation, or demographic group is in a region, as

compared to the nation, and can reveal what makes a particular region unique in comparison to the national average. The SAW Region's employment in Other Services is more than double the national average (**Table 6**). Examples of Other Services include automobile repair and maintenance, personal services, and religious and civic organizations.

Table 6: SAW Region Current Top Industries by Location Quotient, 2012

Top Industries	Location Quotient
Other Services	2.00
Transportation/Warehousing	1.47
Health Care	1.35
Agriculture	1.15
Information	1.10

Source: IHS Global Insight Business Market Insights (BMI) Data & Forecasts, 2012.

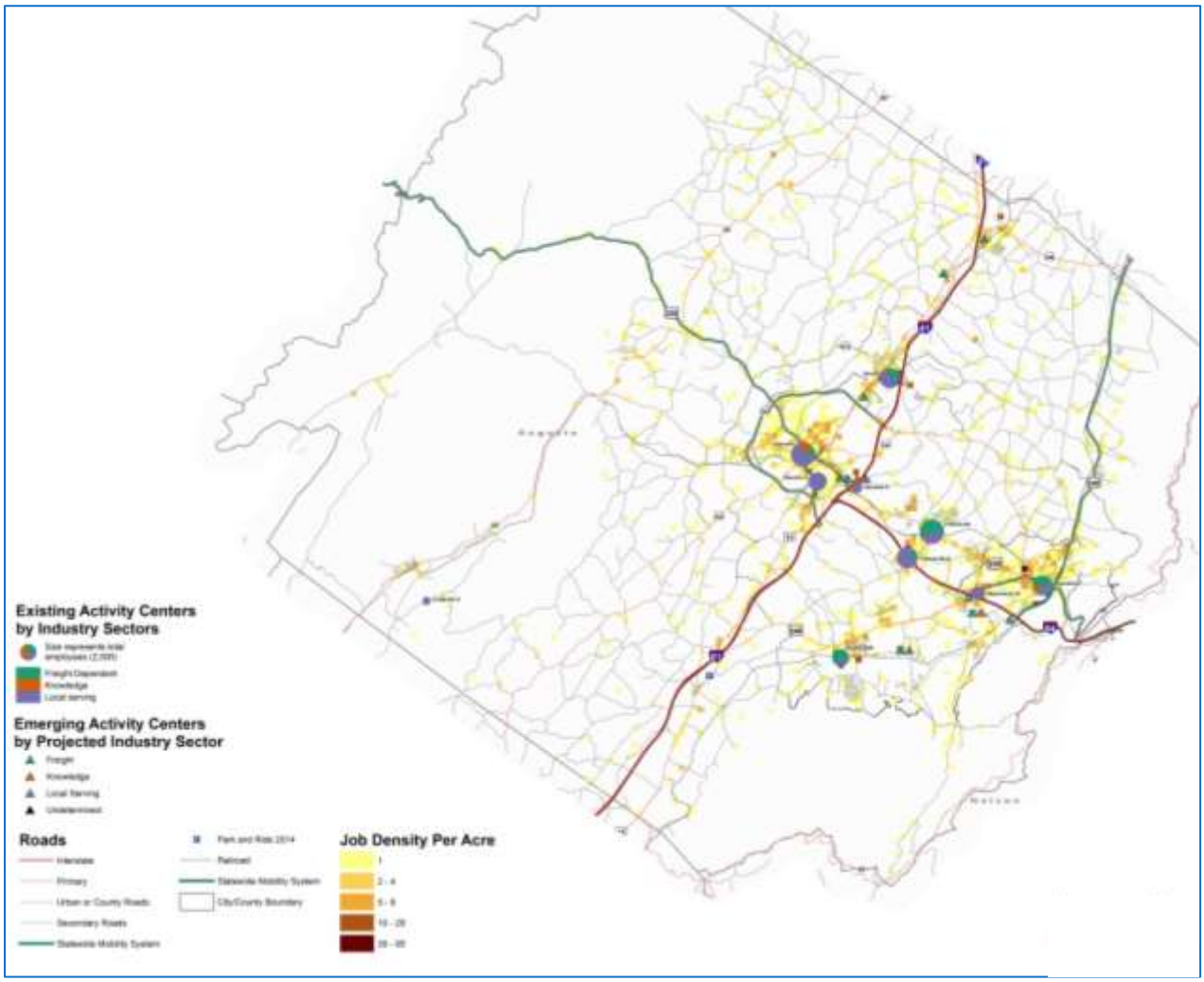
D. Activity Center Analysis

An important part of the Needs Assessment at the regional level has been the identification and evaluation of economic activity centers. For the purposes of this analysis, Activity Centers are defined as areas of regional importance that have a high density of economic and social activity. Activity Centers were first defined in draft form using employment location patterns. A GIS-based spatial analysis was conducted to determine which areas have the greatest relative density of jobs. Activity Centers, drawn with a 1-mile-radius, were then developed for these areas. The Activity Centers were then revised, refined, or amended after discussing economic conditions with regional stakeholders. **Figure 3** below shows the job density per acre in a color range from yellow to dark brown.

Once the Activity Centers were identified, the next step was to analyze the type and scale of economic activity that took place in those locations. Based on the categorization of jobs by NAICS code into the three economic clusters of Local Serving, Freight Dependent, and Knowledge-Based economies, analysts developed charts that represented the breakdown of employment by industry sector in each Activity Center, and scaled those charts based on the number of jobs in each center relative to the other centers in the region (**Figure 3**).

Regional stakeholders also identified locations where emerging activity centers are projected to develop over the next ten years and provided feedback on which economic cluster is anticipated. These are depicted on the **Figure 3** as triangles.

Figure 3: SAW Region Existing and Emerging Activity Center Employment by Industry Sector



Source: InfoUSA data, Regional Stakeholder Input

E. Forecasted 2025 Industry Strengths

Through a series of work sessions with the SAW Region stakeholders, OIPI consultants used economic forecasts for 2025 and got input from stakeholders to determine the future desired economic profiles for each region. 2025 economic forecasts for employment by industry from third party data sources were the primary source for the future economic profiles. However, the intent of this process was not to presuppose the SAW Region's economic future, but to allow input from stakeholders to affirm or modify these basic economic forecasts according to regional desires.

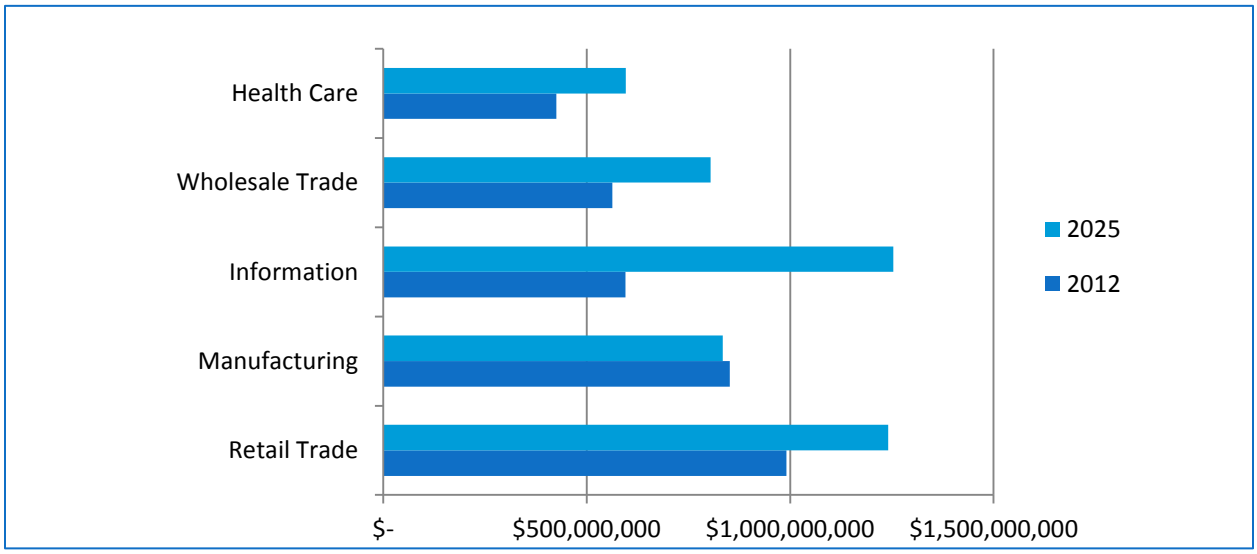
The future economic profiles were used as the basis for determining future transportation needs to support the future economic vision in the SAW Region. The basic economic datasets that were compiled include:

- Current Top Industries by Workforce, Output and Location Quotient
- Future Growth Industries
- Activity Center profiles

- Top Employers and Locations
- Economic Development Priorities

Figure 4 compares the top five industries by economic output in 2012 with forecasted growth by 2025. Most of the forecasted high-growth in economic output is in local serving and knowledge-based industries. The Information industry refers to producing and distributing information and cultural products (online newspapers, television programs), providing means to transit or distribute these products (book publishers, video distribution, video exhibition, radio networks, etc.). The Information industry is the top growth industry (by revenue generated) in the region, followed by Health Care and Educational Services. Though each of these industries are growing, only Health Care is a high revenue-generating industry within the region and is projected to remain so through 2025. Manufacturing and Retail Trade are expected to continue to dominate the region's economic output in the years to come.

Figure 4: SAW Region Top Industries by Output, 2012 and 2025

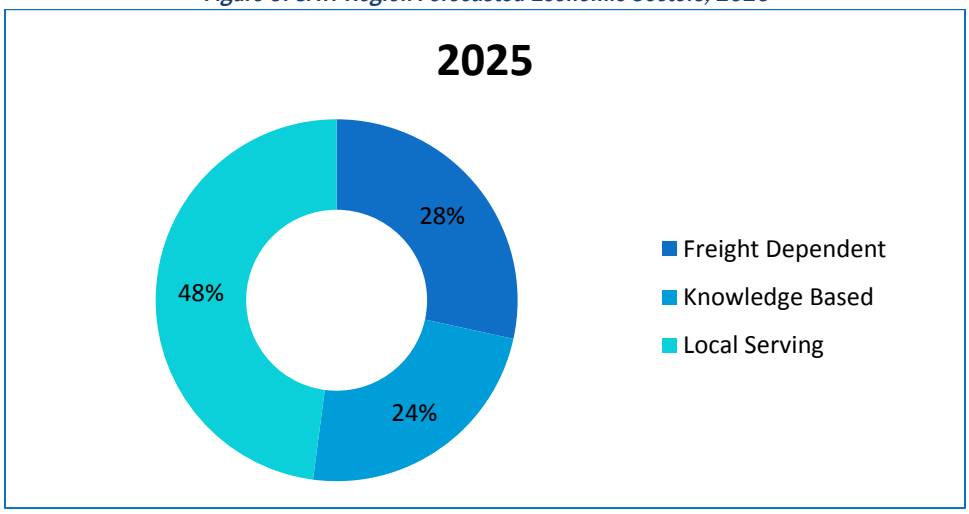


Source: IHS Global Insight Business Market Insights (BMI) Data & Forecasts, 2012.

Forecasted Economic Sectors

Figure 5 illustrates the summary of the forecasted economic clusters in the SAW Region for 2025. Local Serving industries will still be the predominant economic sector by output in the region at 48 percent.

Figure 5: SAW Region Forecasted Economic Sectors, 2025



Source: IHS Global Insight Business Market Insights (BMI) Data & Forecasts, 2012.

Forecasted Industries by Employment

Forecasted top industries by employment for the region are listed in **Table 7**. Health Care is expected to be the dominant industry with 21 percent of the workforce. Of the top five industries by employment, 46 percent of the workforce is local serving industries and 18 percent of the workforce is freight dependent industries.

Table 7: Forecasted Top Industries by Employment, 2025

Top 5 Industries	Number of Jobs	% of Workforce
Health Care	12,037	21%
Public Administration	9,085	16%
Manufacturing	6,651	11%
Retail Trade	5,199	9%
Agriculture	4,159	7%

Source: IHS Global Insight Business Market Insights (BMI) Data & Forecasts, 2012.

3. Transportation Profile

A. Introduction

The following section describes the transportation and accessibility measures that were developed to capture the workforce needs and the freight needs at a regional scale. This set of measures reflects regional transportation characteristics in the SAW Region such as typical commute times and overall travel reliability. The following categories of performance metrics that were used to create a regional transportation profile for SAW Region:

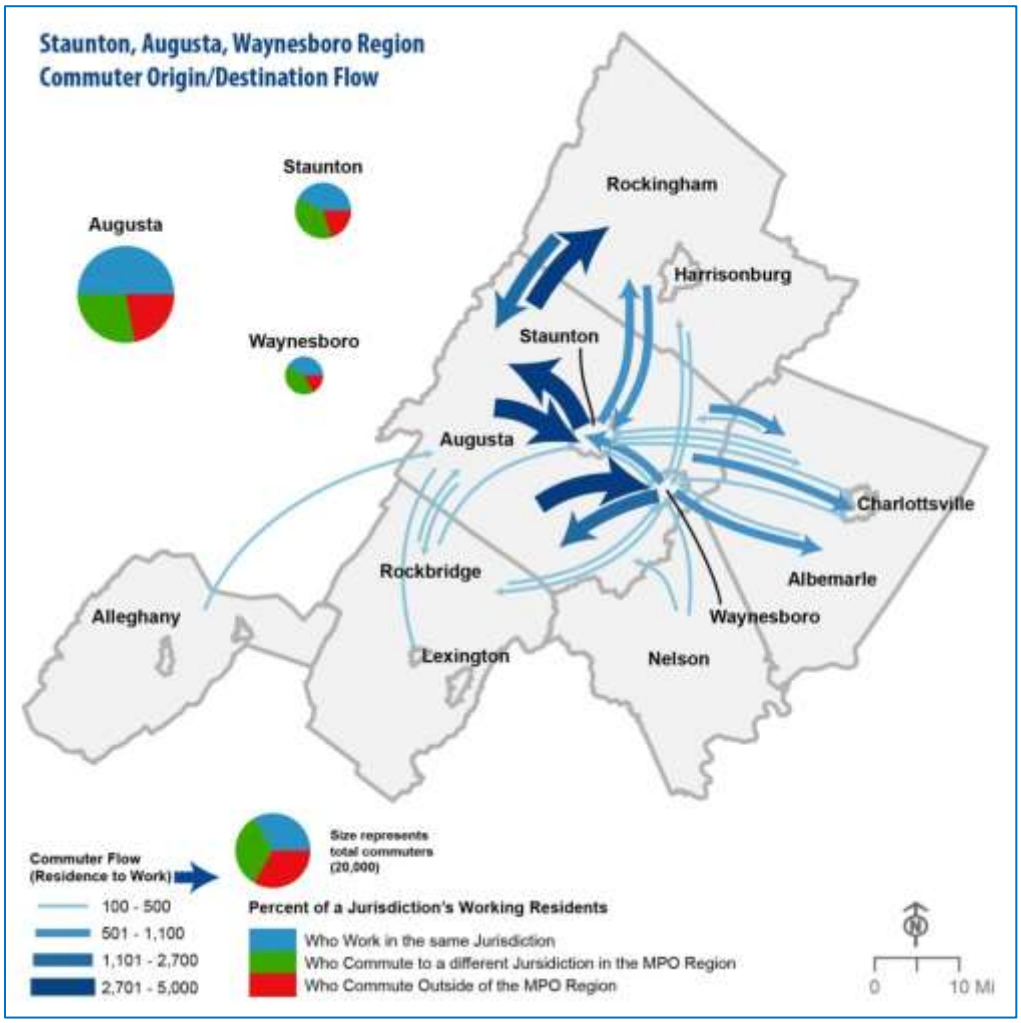
- Commuting Patterns
- Accessibility to Employment
- Roadway Measures
- Freight Measures

B. Commuting Patterns

Regional Commuting Patterns

Figure 6 illustrates the commuting patterns within and among the SAW Region localities between 2009 and 2013. A significant portion of Augusta County residents commute within the county, to the City of Staunton, or to the City of Waynesboro. For those commuting outside of the region, the majority are going to Rockingham County, Albermarle County or the City of Charlottesville. The pie charts indicate that almost half of each jurisdiction's working residents work in the same jurisdiction. Over 25 percent of each jurisdiction's working residents are commuting to jurisdictions within the SAW Region.

Figure 6: SAW Region Commuting Patterns



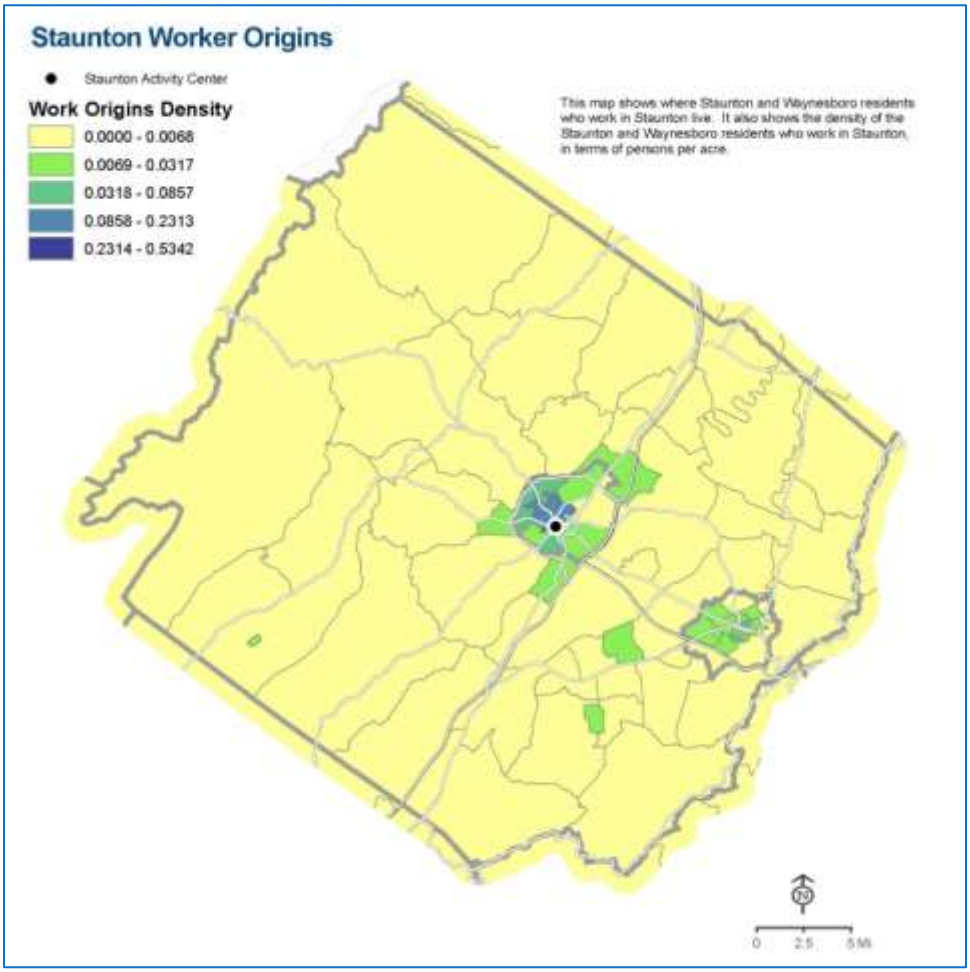
Source: American Community Survey: Residence County to Workplace County Flows for the United States and Puerto Rico Sorted by Residence Geography: 2006-2010.

Activity Center Commuting Patterns

Equally important to the formation of a regional transportation profile for the SAW Region was the analysis of commuting patterns between Activity Centers. **Figures 7, 8 and 9** below provide insights into the commuting patterns for three of the Activity Centers in the SAW Region. Block groups are symbolized on a color scale from dark to light blue, with the darker shades representing the block groups with the largest number of commuters to the Activity Center analyzed within that map.

As shown on **Figure 7**, Staunton receives commuters mostly from within the Cities of Staunton and Waynesboro.

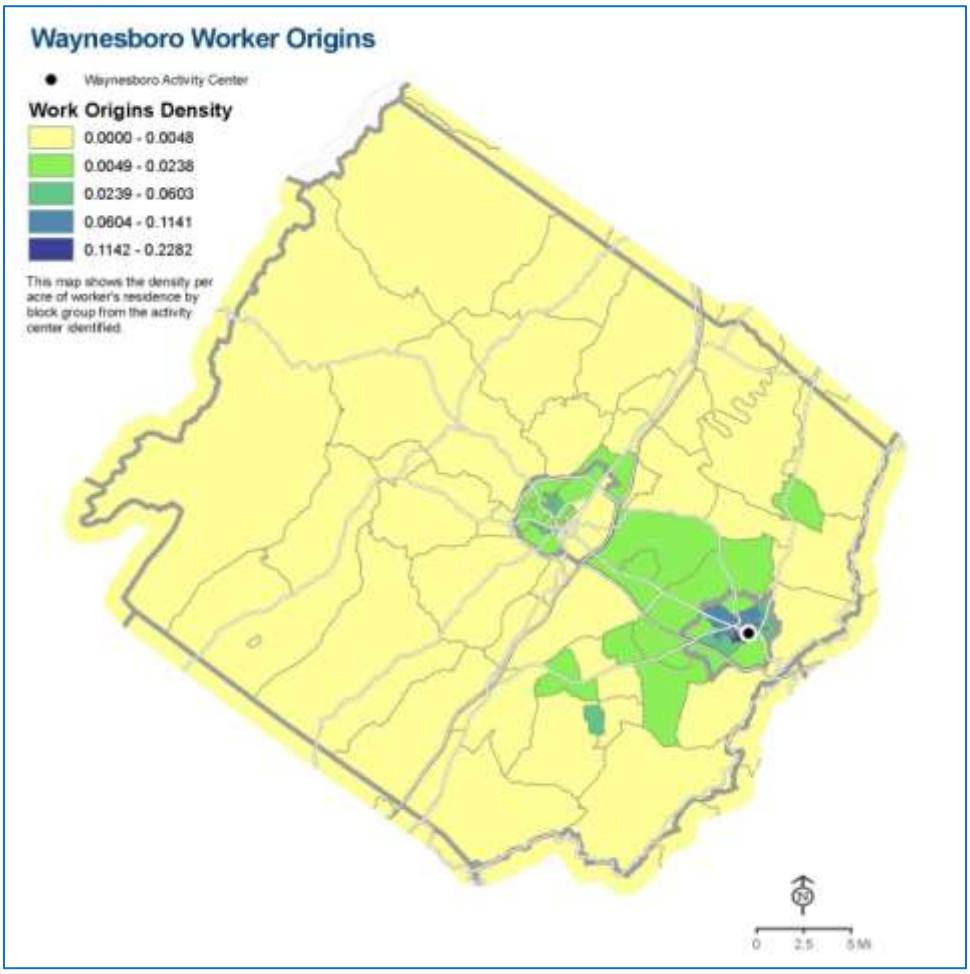
Figure 7: Commuting Patterns to Staunton Activity Center. Source: LEHD



Source: Longitudinal Employer-Household Dynamics (LEHD) program which uses Unemployment Insurance earnings data and the Quarterly Census of Employment and Wages (QCEW) data to create statistics on employment, earnings, and job flows at detailed levels of geography and industry and partially synthetic data on workers' residential patterns, http://lehd.ces.census.gov/.

The Waynesboro activity center receives most of its commuters from both the Cities of Waynesboro and City of Staunton as well as along US 250 between the two cities (**Figure 8**).

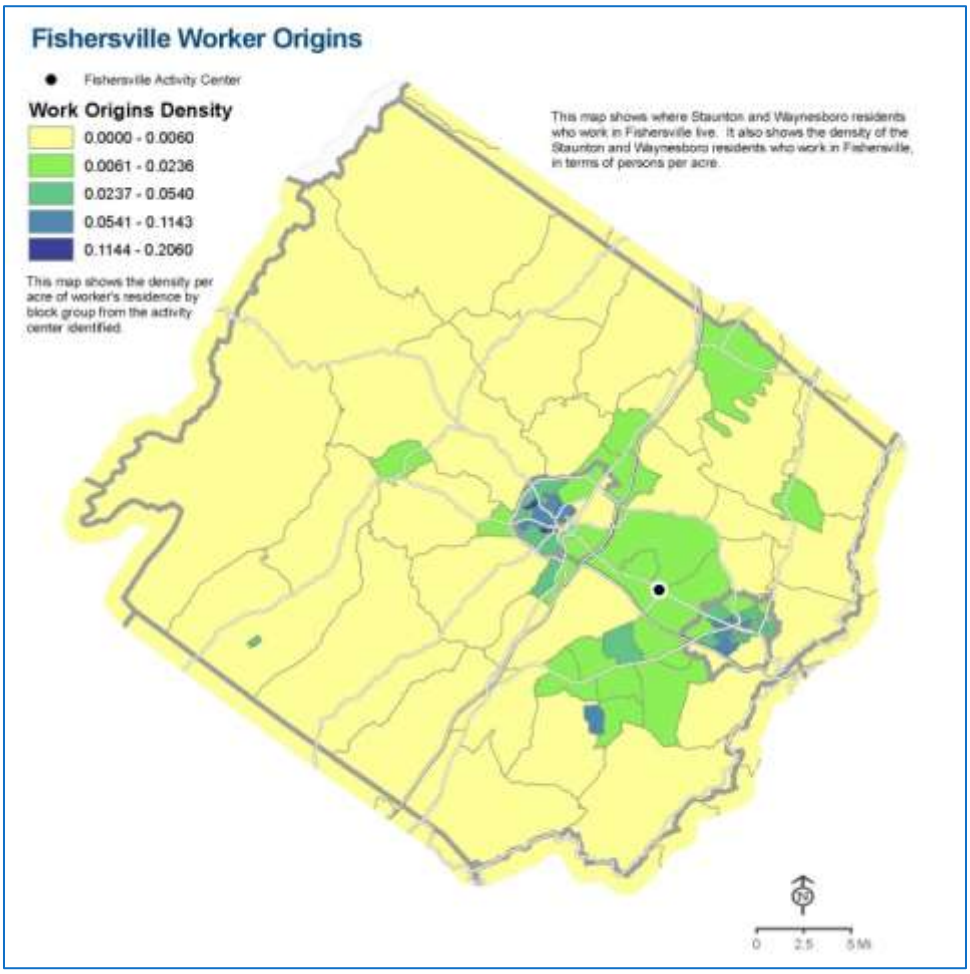
Figure 8: Commuting Patterns to Waynesboro Activity Center



Source: LEHD, http://lehd.ces.census.gov/.

Figure 9 shows that a majority of commuters to the Fishersville activity center originate from the Cities of Waynesboro and Staunton and along US 250 in between the two cities.

Figure 9: Commuting Patterns to Fishersville Activity Center

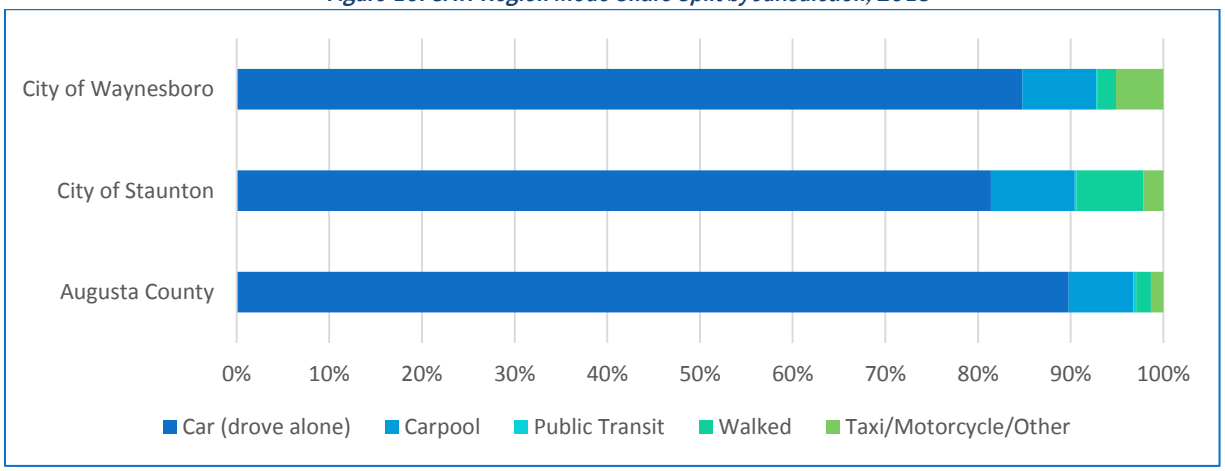


Source: LEHD, http://lehd.ces.census.gov./

Mode Choice

In the SAW Region, the majority of commuters drive alone to work. While there is some variation between jurisdictions, cars are used between 79 and 86 percent of the time. For all jurisdictions, carpooling is the second most popular option, accounting for 6 to 8 percent of the mode share. Walking is the highest in the City of Staunton at 7 percent (**Figure 10**).

Figure 10: SAW Region Mode Share Split by Jurisdiction, 2013



Source: US Census Bureau, 2009-2013 American Community Survey 5-Year Estimates.

Average Commute Times

The average commute time in the SAW Region ranges from 19 to 23 minutes among the three jurisdictions (**Table 8**).

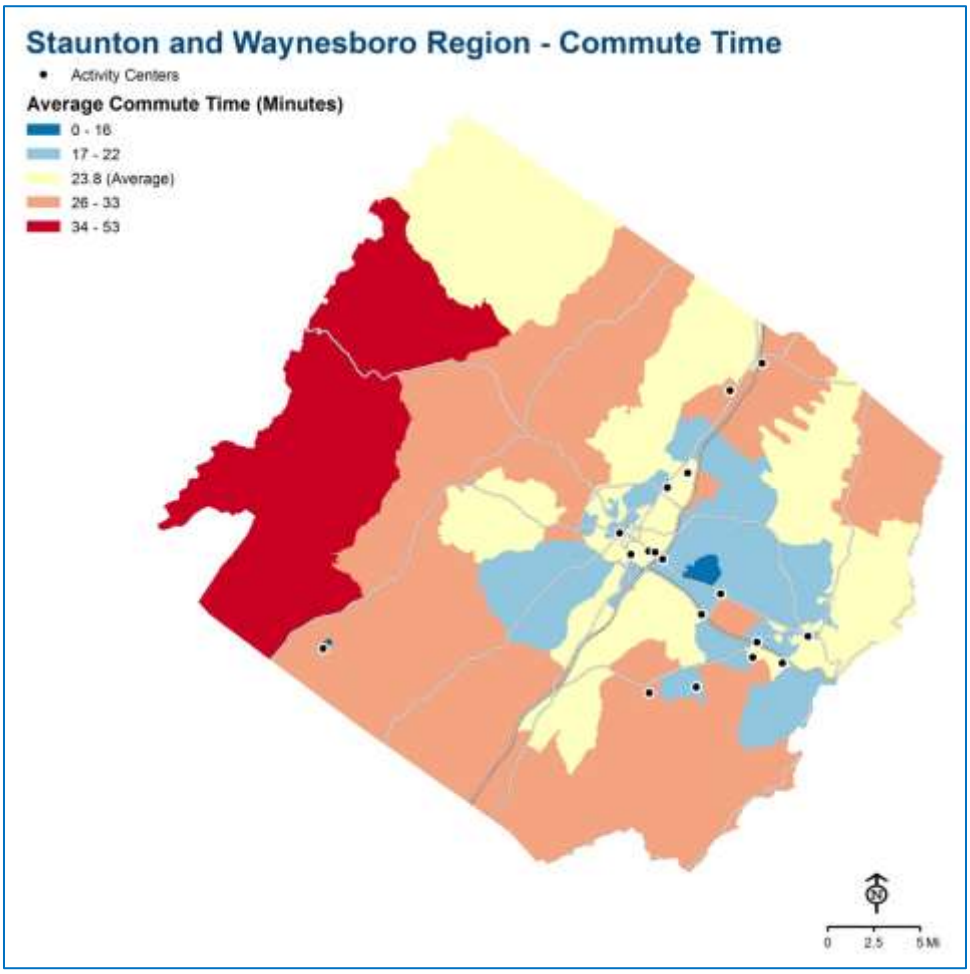
Table 8: SAW Region Mean Commute Time by Jurisdiction, 2013

Jurisdiction	Mean Commute Time (Minutes)
City of Waynesboro	19.5
City of Staunton	19.3
Augusta County	23.6

Source: US Census Bureau, 2009-2013 American Community Survey 5-Year Estimates.

Figure 11 provides a closer look at where longer commutes originate. In the areas outside the cities of Staunton and Waynesboro as well as the area between them, commute times are below average for the region as a whole. Block Groups in rural areas of Augusta County have commute times that are almost double the regional average, as these areas have fewer jobs in close proximity, and less access to transportation networks than more developed areas.

Figure 11: SAW Region Average Commute Times, 2013



Source: US Census Bureau, American Community Survey 2013, 5-Year Estimates.

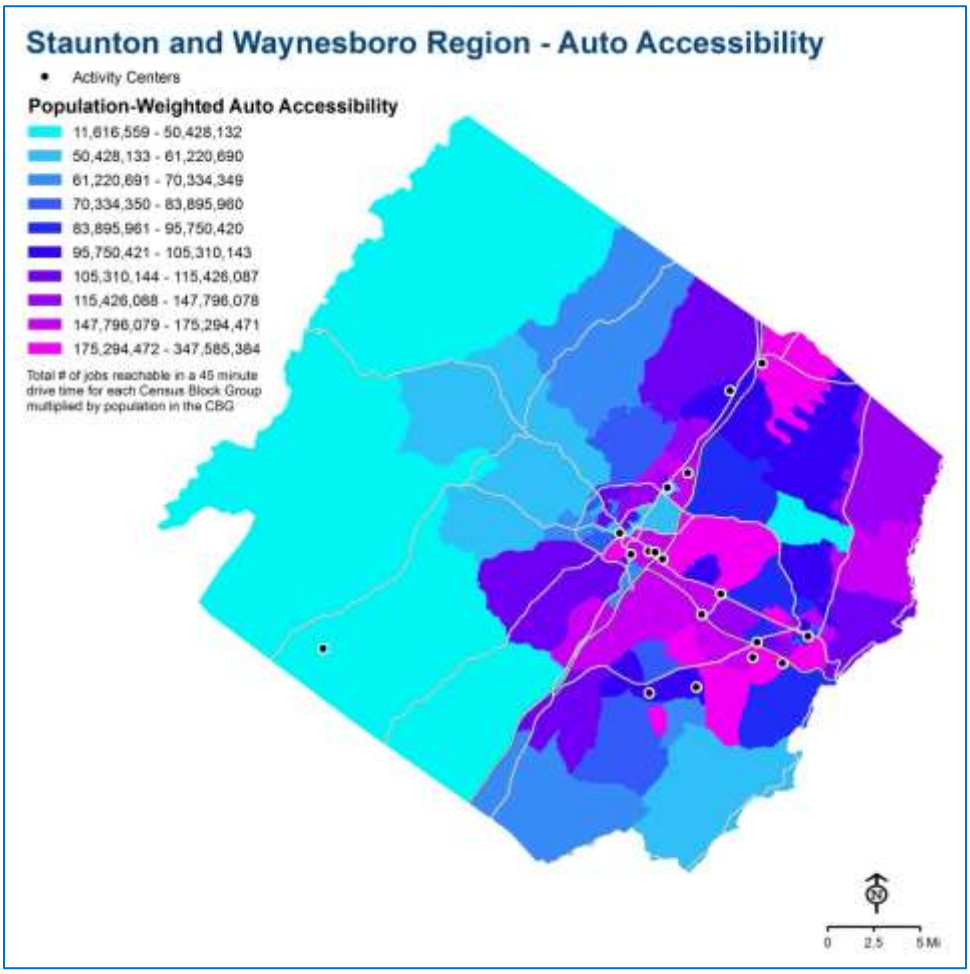
C. Accessibility to Employment

As part of the transportation conditions assessment, a set of accessibility performance measures and attributes were employed to address the workforce and freight needs at the general regional scale. This set of performance measures/attributes reflects regional characteristics such as commute times and the availability of multimodal transportation between Activity Centers.

Auto Accessibility

Auto Accessibility in the SAW Region is driven by two main factors: distance from activity centers, and distance from major arterial roadways. Accessibility for auto travel is measured as the number of jobs that can be reached within a 45 minute drive. Closer jobs and higher density census block groups are weighted more than jobs further away and less dense census block groups. The areas with the highest level of auto accessibility exist between the cities of Staunton and Waynesboro around the I-64 and US 250 corridors (**Figure 12**). Even the most rural areas of the region are within a 45-minute drive of jobs.

Figure 12: SAW Region Auto Accessibility

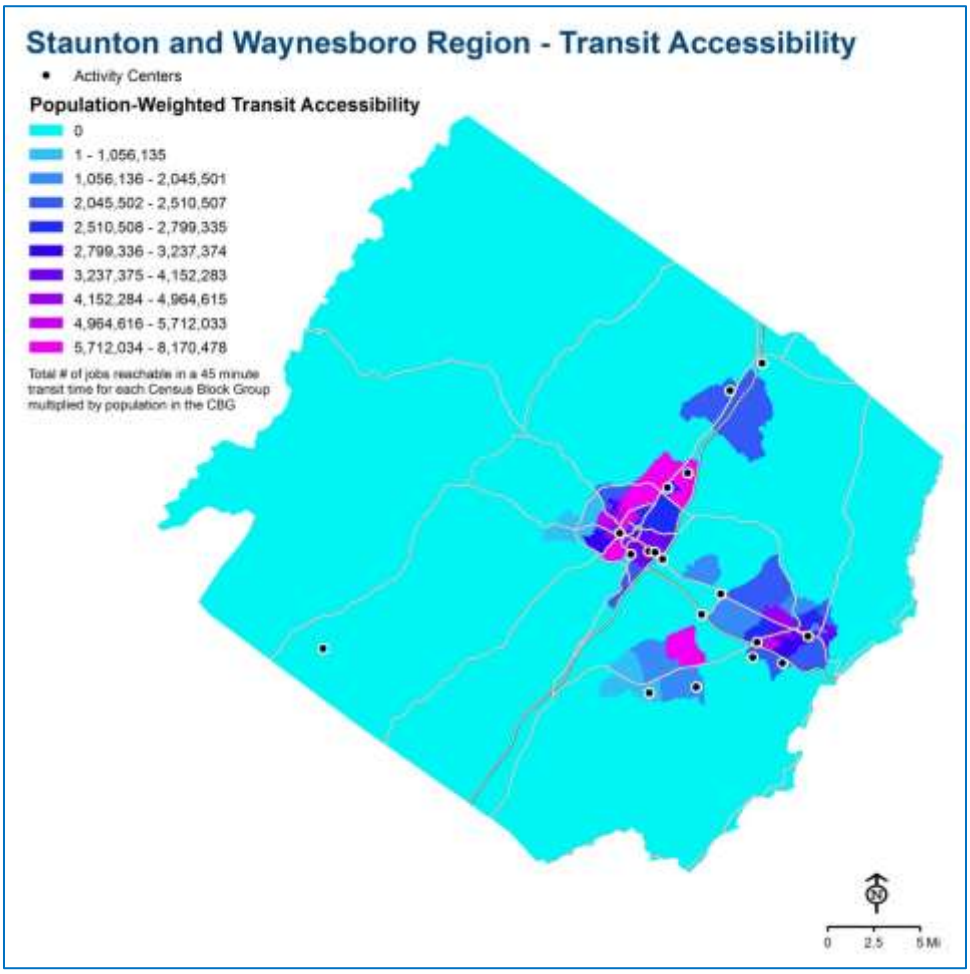


Source: GIS Network analysis of the distance-weighted employment accessible from each census block group along a Navteq roadway network using roadway speeds developed from FHWA HERE data. InfoUSA Business Data, 2012 was used to calculate employment locations.

Transit Accessibility

Figure 13 illustrates the total number of jobs reachable in a 45-minute transit time for each census block group multiplied by population within that census block group. The fixed-route transit options in the SAW Region are limited to within and between the cities of Staunton and Waynesboro. This is reflected not only in the low (fixed route) transit accessibility scores for large parts of the region, but also the low number of jobs accessible from the high scoring areas. Due to the lack of inter-city transit options in the region (other than demand response services), commuters using transit are restricted in their ability to reach regional jobs.

Figure 13: SAW Region Transit Accessibility

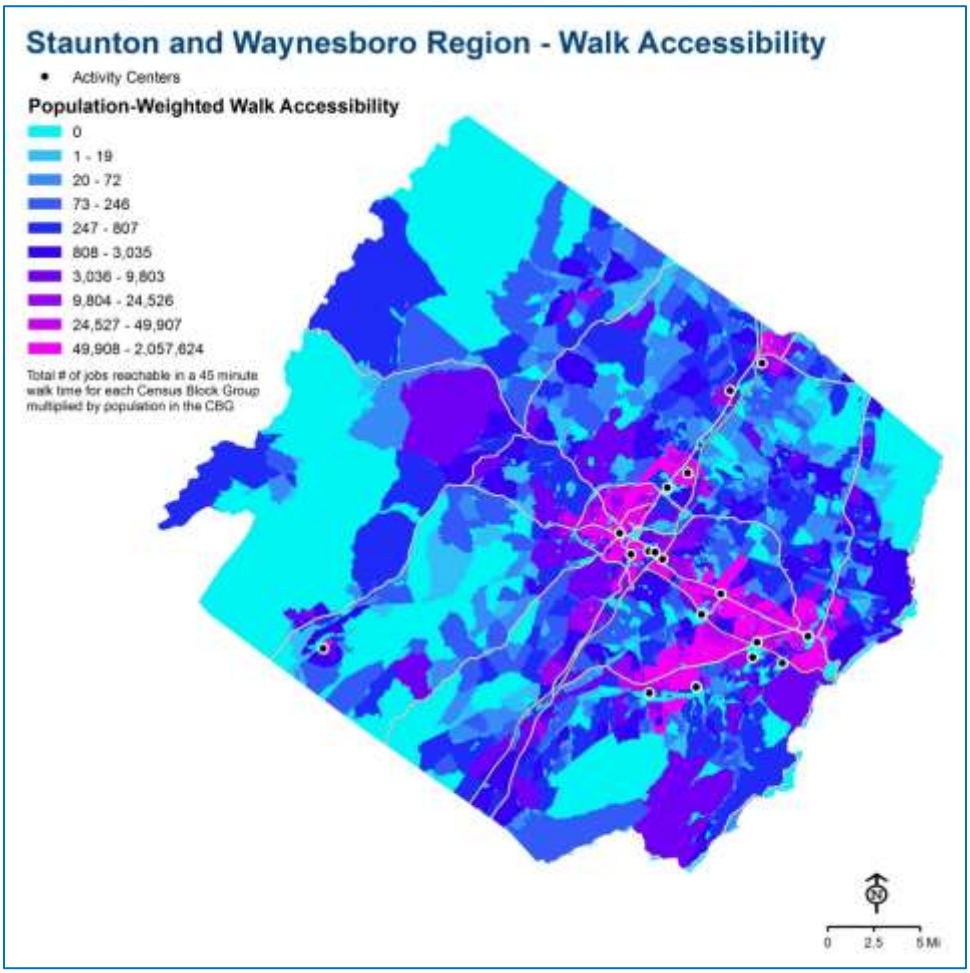


Source: GIS Network analysis of the distance-weighted employment accessible from each census block group along a Navteq roadway network using General Transit Feed Specification (GTFS) transit data and including walk time to and from stations. InfoUSA Business Data, 2012 was used to calculate employment locations.

Walk Accessibility

Figure 14 reveals a regional pattern of mixed use development in communities where residents live within walking distance of thousands of jobs and/or the services represented by those jobs. The cities of Staunton and Waynesboro as well as the corridors of US 250 and US 340 scored the highest, as was expected. The high variability within even the highest scoring areas reflects the significance of land use and job density in determining walk accessibility.

Figure 14: SAW Region Walk Accessibility

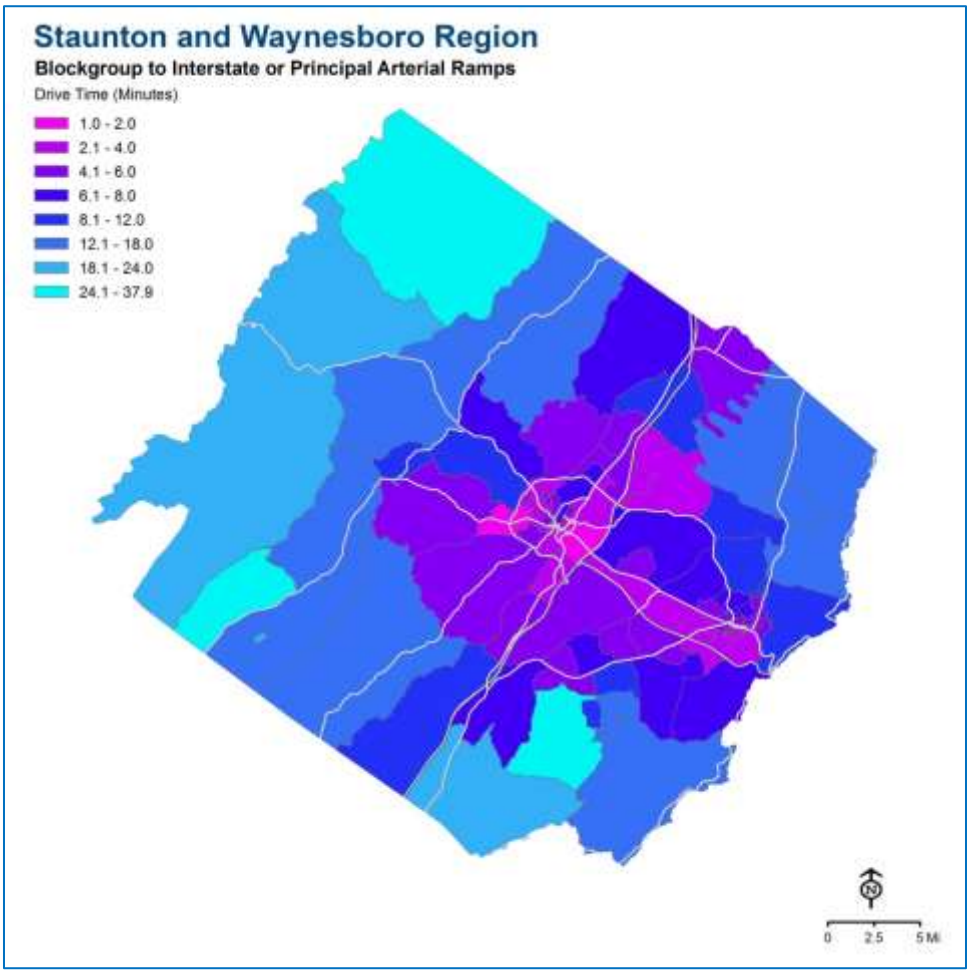


Source: GIS Network analysis of the distance-weighted employment accessible from each census block group along a Navteq roadway network using roadway characteristic data to interpolate walkability. InfoUSA was used to calculate employment locations.

Freight Accessibility

In addition to railways, I-81 and I-64 are the major corridors for freight movement throughout the region. Accessibility of freight origins to these roadways is dependent primarily on the proximity of the origin to highway access ramps. Most Activity Centers in the region are within an eight minute drive from a major arterial ramp (**Figure 15**).

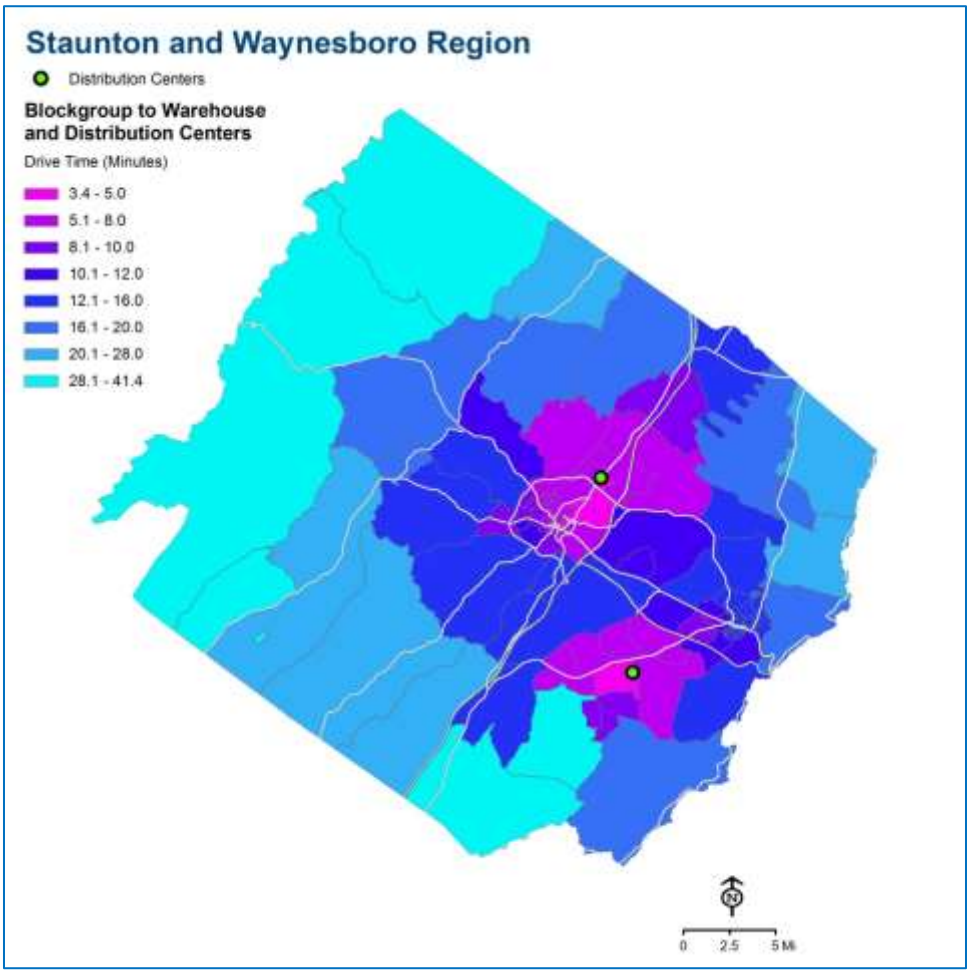
Figure 15: SAW Region Access to Interstate and Principal Arterial Ramps



Source: GIS analysis conducted using US Census Boundary Files, ramps from Navteq database.

The location of warehouses and distribution centers is another important factor in the level of freight accessibility for the region. The warehouses and distribution centers are located off of US 11 and US 340. About half of the region, specifically the areas near the cities of Staunton and Waynesboro, has access to a warehouse or distribution center within a 16 minute drive (**Figure 16**).

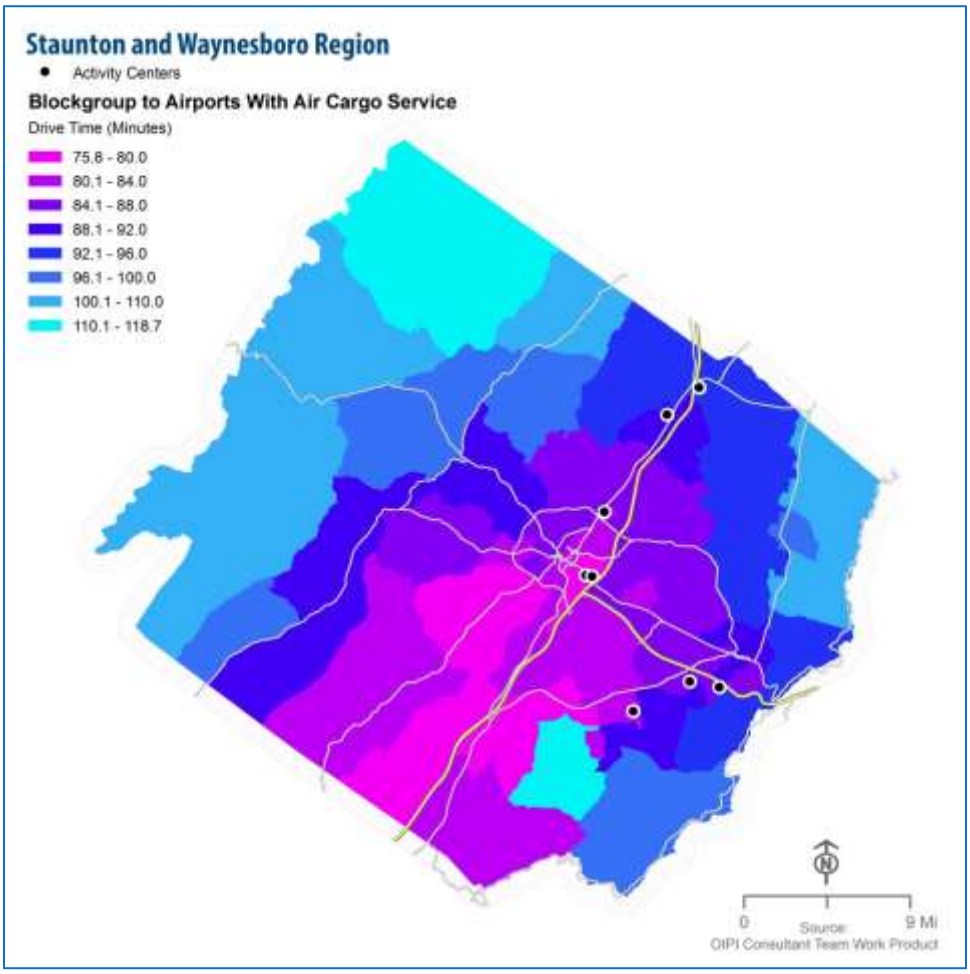
Figure 16: SAW Region Access to Warehouses & Distribution Centers



Source: GIS analysis conducted using US Census Boundary Files and Virginia Office of Intermodal Planning and Investment data on Warehouse and Distribution Center Locations.

Figure 17 displays proximity to commercial service airports that handle air cargo, which is important for some types of freight distribution. In general, the SAW Region is within a 75 minute to 2 hour drive to the closest airport that handles air cargo.

Figure 17: SAW Region Access to Airports with Air Cargo Service



Source: GIS analysis conducted using US Census Boundary Files and location of airports with air cargo service.

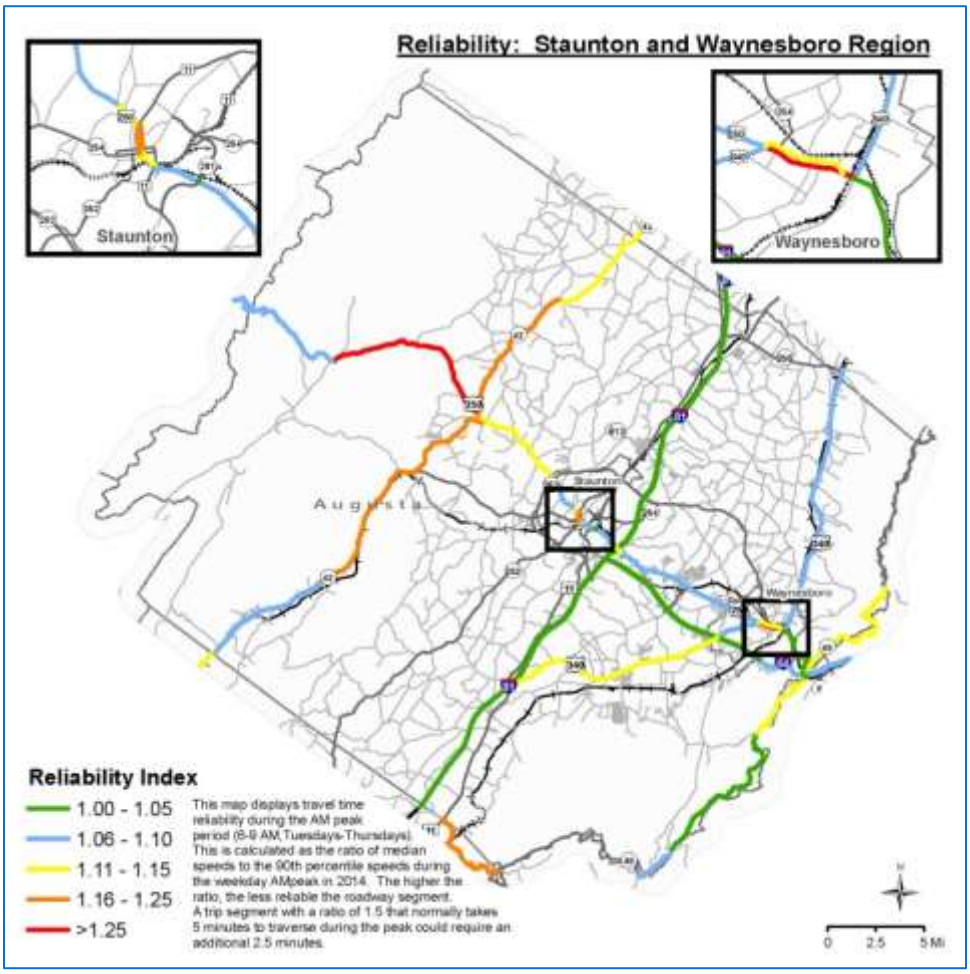
D. Roadway Measures

This assessment identified the transportation conditions in the SAW Region based on a series of quantitative roadway measures. The findings in this section reflect corridor-level measures that are critical to access and mobility for people and freight.

Travel Time Reliability

Travel time reliability measures the frequency by which trips along a specified corridor are significantly delayed. The Reliability Index, as shown in **Figure 18** below, is defined as the ratio of the 80th percentile travel time during the weekday AM peak period in 2014. Overall, scores indicate that travel time is very reliable for the corridors with available data. The US 250 corridor west of VA 42 has a slightly higher travel time reliability index compared with the other corridors analyzed, however, it equates to a few minutes of additional travel time.

Figure 18: SAW Region Travel Time Reliability

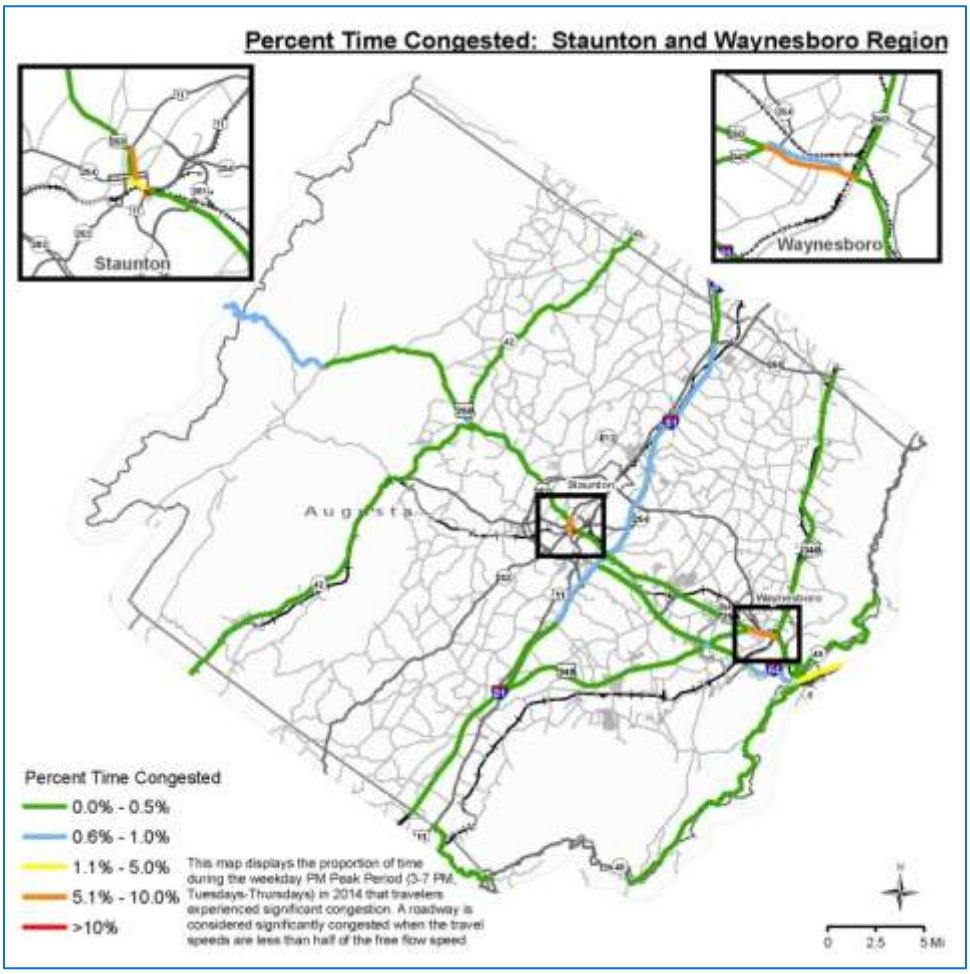


Source: INRIX Data and Virginia Department of Transportation
Note: the Reliability Index is based on a statewide scale which may skew the scores for the SAW Region based on the travel time reliability in other regions throughout the state.

Percent of Time Congested

Percent of time congested is an important determinant of roadway Level of Service. The percentage of time congested was calculated for evening peak times in 2014. According to the analysis, a majority of the corridors analyzed are congested less than 0.5 percent of the time (**Figure 19**). A few intersections on US 250 within the Cities of Staunton and Waynesboro experience slight congestion.

Figure 19: SAW Region Percent of Time Congested

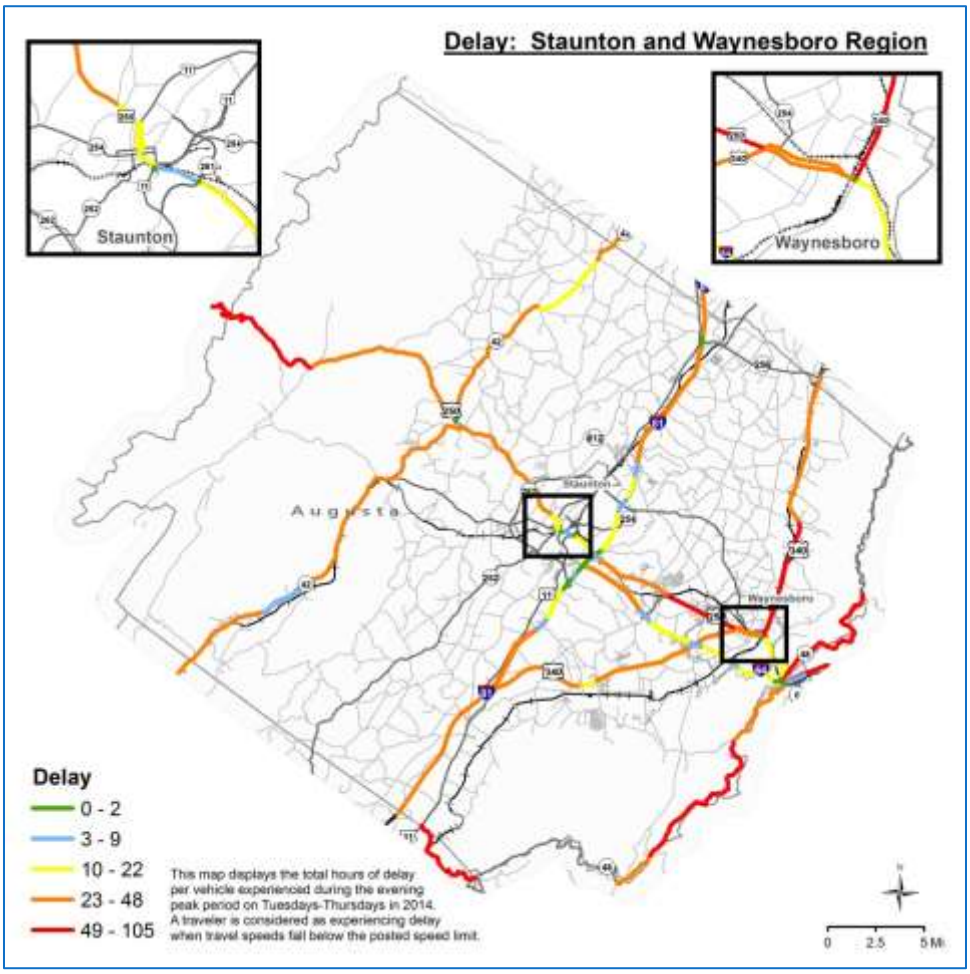


Source: INRIX Data and Virginia Department of Transportation

Travel Time Delay

Travel time delay is defined as the total hours of delay per vehicle during weekday evening peak times in 2014. If travel speeds fall below the posted speed limit, a trip is considered delayed. In the SAW Region, the most significant delays occurred along portions of US 250, US 340, and VA 48 (**Figure 20**).

Figure 20: SAW Region Travel Time Delay

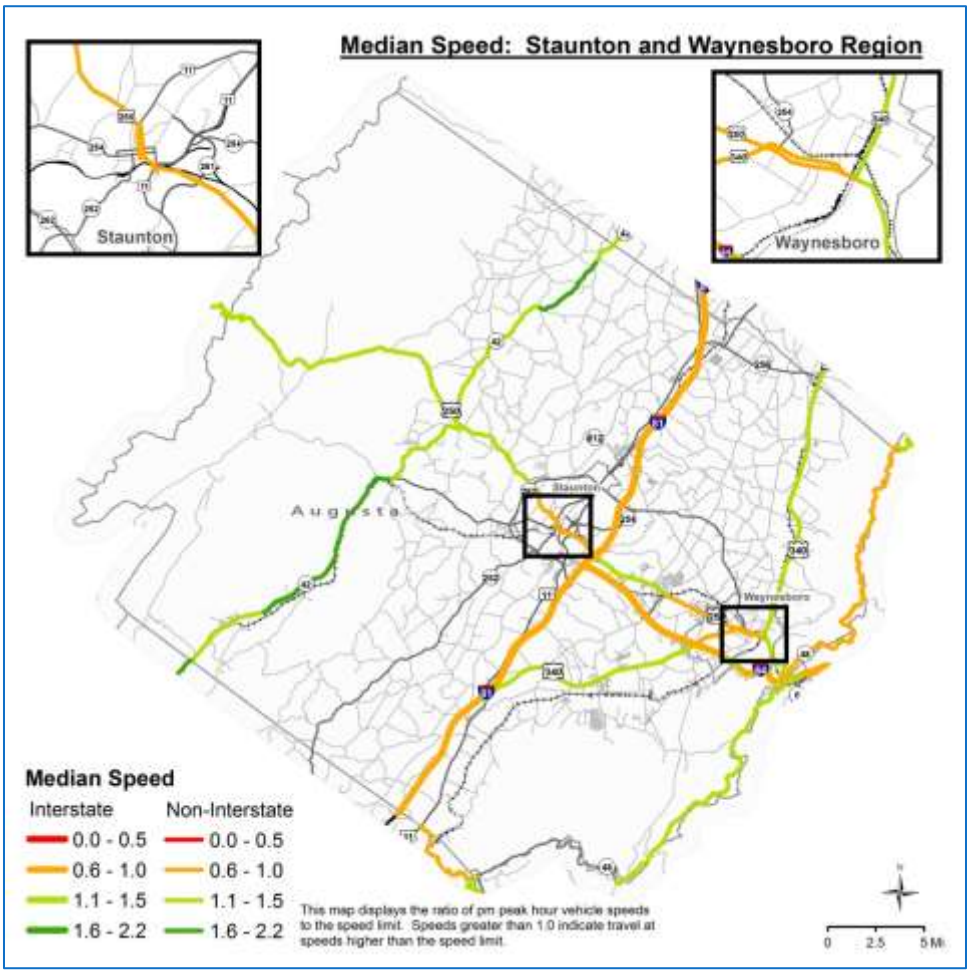


Source: INRIX Data and Virginia Department of Transportation.

Median Speeds

The median speed map (**Figure 21**) displays the ratio of pm peak hour vehicle speeds to the speed limit for both interstate and non-interstate corridors in 2014. Speeds greater than 1.0 indicate travel at speeds higher than the speed limit. The I-81 corridor and portions of the I-64 corridor, US 250 corridor, and VA 48 experience median speeds of less than 1.0.

Figure 21: SAW Region Median Speeds



Source: INRIX Data and Virginia Department of Transportation.

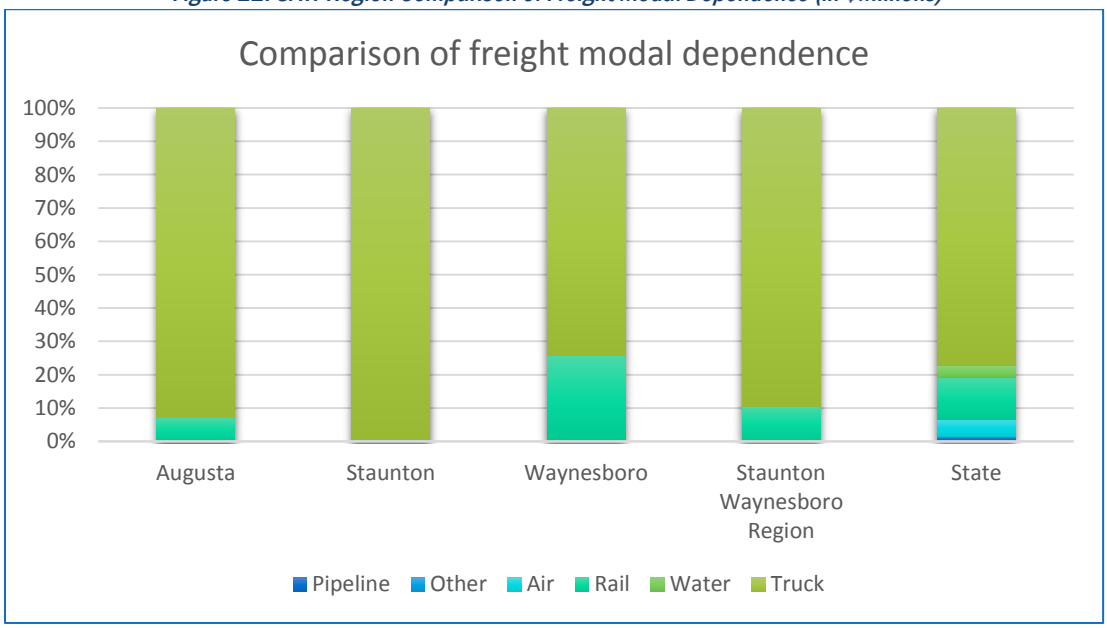
D. Regional & Local Commodity Flows

Another set of measures vital to the regional transportation profile are specific to the regional and local commodity flows via the various freight corridors in the region. The measures below discuss modal dependence of freight commodities, as well as the top commodities in the region by monetary value, geographic destination, and tonnage.

Modal Dependence

In the SAW Region, about 90 percent of the dollar value of all goods that are moved through the region are moved by truck (**Figure 22**). The region does not utilize pipeline, air, or water freight modes. In comparison to the other jurisdictions in the region, the City of Waynesboro has the largest dependence on rail service at nearly 25 percent, but the region as a whole is not nearly as dependent on rail service.

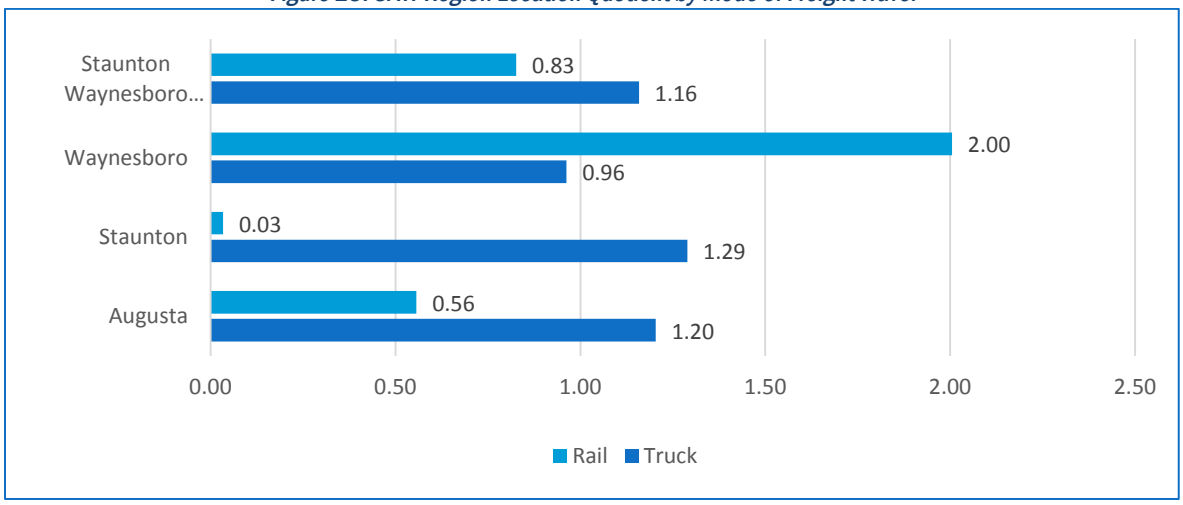
Figure 22: SAW Region Comparison of Freight Modal Dependence (in $Millions)



Source: TranSearch, 2012

Location Quotients are used to compare the prominence of freight modes between the SAW Region, and the State as a whole. The SAW Region relies on rail for freight movement only 0.83 times and on trucks for freight movement 1.16 times more than the State does as a whole. The City of Waynesboro however relies on trucks for freight movement 2.0 times more than the State does as a whole (**Figure 23**).

Figure 23: SAW Region Location Quotient by Mode of Freight Travel

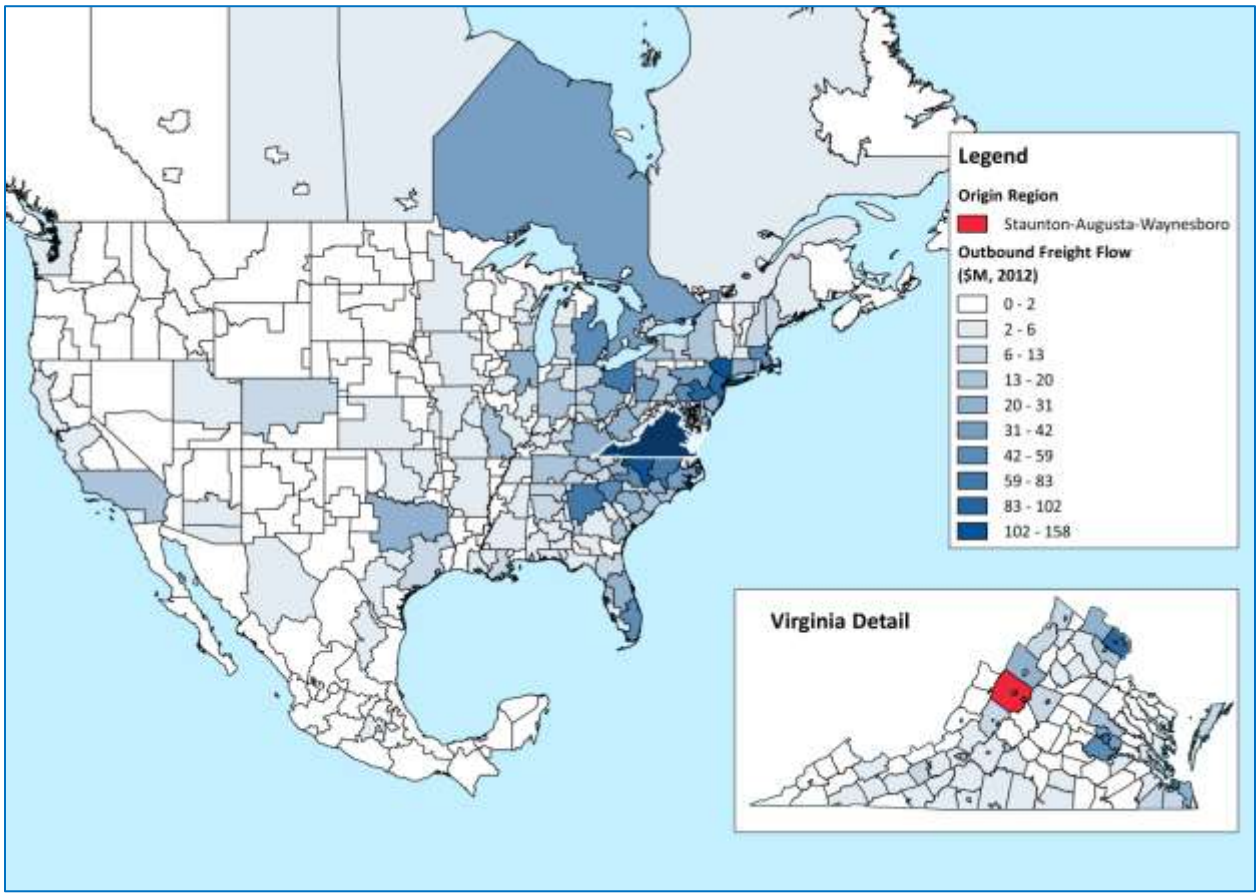


Source: TranSearch, 2012

Top Commodities

Outbound locations for freight by value from the SAW Region in 2012 are shown in **Figure 24**. A majority of the freight in terms of value originating in the region is destined for counties in Virginia and states along the eastern seaboard.

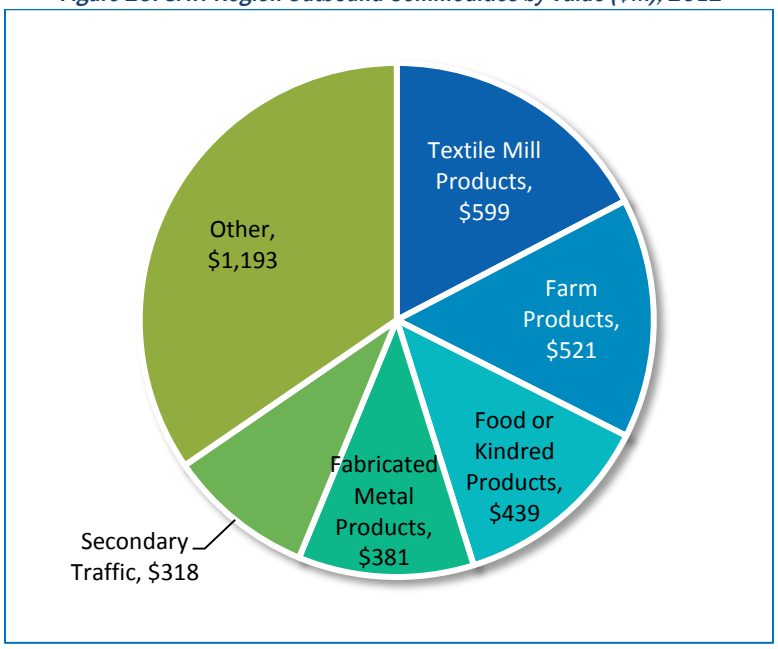
Figure 24: Outbound Freight Flow from the SAW Region, 2012



Source: TranSearch, 2012

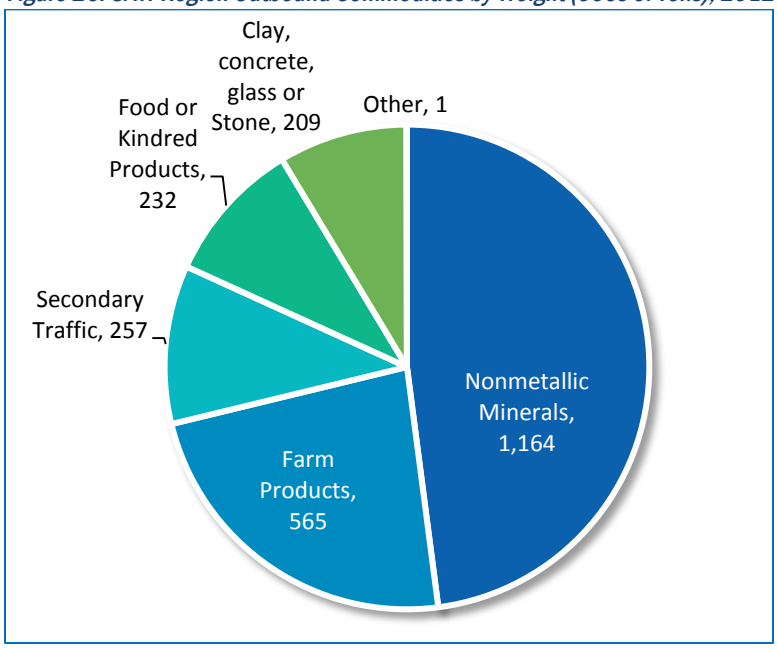
Figures 25 and 26 summarize the value and tonnage of commodities that originated in the SAW Region in 2012. The largest commodity in terms of value is textile mill products. The other category includes all the remaining commodities less than the top five shown in **Figure 25** so it does not accurately represent the largest commodity. The largest commodity by weight was nonmetallic minerals at almost 38 percent of the total commodities by weight.

Figure 25: SAW Region Outbound Commodities by Value ($M), 2012



Source: TranSearch, 2012

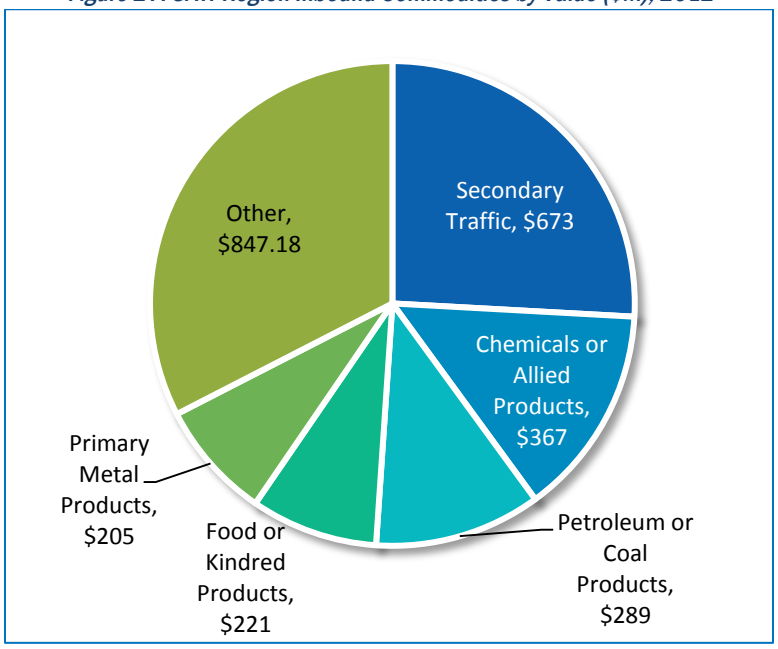
Figure 26: SAW Region Outbound Commodities by Weight (000s of Tons), 2012



Source: TranSearch, 2012

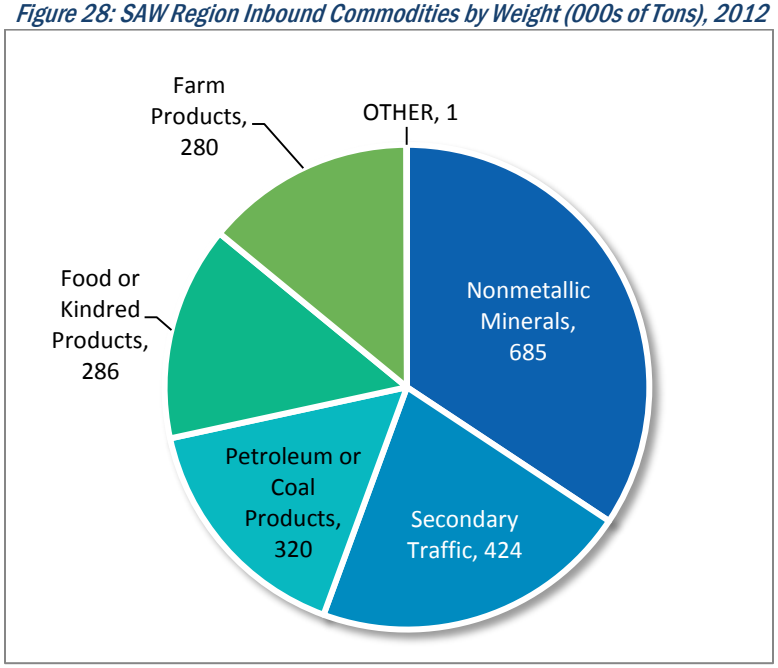
Figures 27 and 28 summarize the value and tonnage of commodities that were destined for the SAW Region in 2012. The largest commodity in terms of value is secondary traffic at over 25 percent. Secondary traffic includes warehouse and distribution center, rail intermodal drayage to and from ramp, and air freight drayage to and from airport. The largest commodity by weight was nonmetallic minerals.

Figure 27: SAW Region Inbound Commodities by Value ($M), 2012



Source: Transearch, 2012.

Figure 28: SAW Region Inbound Commodities by Weight (000s of Tons), 2012



Source: Transearch, 2012.

4. Needs Profile

A. Introduction

Based on the overall approach to the VMTP Needs Assessment, Transportation Needs will be identified as deficiencies or gaps in the transportation conditions that are most critical to each region's key future industries. The key economic and transportation conditions have been identified in the Economic and Transportation profiles above and key correlations have been described above as Economic and Transportation Linkages.

The Needs Assessment relates current transportation conditions and deficiencies to key future industries and economic profiles. The Needs Assessment, however, does not propose specific projects to address the Transportation Needs in each region, since this should be done by MPOs, localities and other nominating entities when they put forward projects for potential funding programs, including those subject to HB2 screening. Instead, the VMTP Transportation Needs Assessment is intended to identify a set of regional Transportation Needs in order to be able to compare proposed projects to Needs. The Needs Assessment also uses a spatial analysis for the SAW Region to provide observations about specific corridors, travel markets, and activity centers in addition to the regional profiles that will provide more detail regarding specific areas within the region around which some of the transportation needs are focused.

Needs have been identified based on both stakeholder input and on the analysis of economic and transportation conditions. In the first round of Regional Forums, held in May 2015, the transportation and economic conditions were presented to groups of regional stakeholders. Following this, a discussion was held with the stakeholders to connect the transportation conditions to desired economic futures and begin identifying potential Needs. These Needs were categorized into a series of five very broad types of capacity Needs (Passenger and Freight Reliability, Bottleneck Relief, Modal Choice and Walkability), as well as general Non-Capacity Needs (i.e. Safety, Operations and State of Good Repair Needs). The potential Needs identified in the first Forum were analyzed by the OIPI teams against the economic and transportation data that was assembled for each region and, where data was found to support the proposed Needs, these Needs were included and documented. In addition, the OIPI team analyzed all the overall assembled data for each region in order to identify additional Needs not identified in the Forum, to assemble a more complete picture of potential Transportation Needs in each region, with a particular focus on attracting and retaining the 21st century workforce needed for each region's 2025 economy.

B. Economic and Transportation Needs Correlation

The OIPI consultant team conducted a number of research efforts aimed at identifying key correlations between industries and their transportation needs. These included national research of industry trends in workforce needs and goods movement needs and a national survey of site selection professionals conducted by the Southeastern Institute of Research. Based on the findings of this research, the following table outlines the key correlations between three broad industry sectors (Local, Knowledge and Freight sectors) and their general transportation needs. It should be noted that the table does not reflect that these industry sectors always have these and only these transportation needs. Individual industry types and individual business needs for transportation will vary and **Table 9** only represents

where there were apparent correlations between industry sectors and basic categories of transportation needs.

Table 9: Economic and Transportation Correlation

Economic and Transportation Correlation Table			
	Local Sector	Knowledge Sector	Freight Sector
Highway Access	HIGH	HIGH	HIGH
Passenger Reliability	MED	HIGH	MED
Bottleneck Relief	MED	HIGH	HIGH
Freight Reliability	MED	MED	HIGH
Freight Accessibility	MED	LOW	HIGH
Network Connectivity	HIGH	HIGH	MED
Transportation Demand Management	LOW	MED	MED
Modal Choice	HIGH	HIGH	MED
Transit Access	MED	HIGH	MED
Active Transportation Options	MED	MED	LOW
Walkable Places	MED	HIGH	LOW

Source: Summary correlations based on national research and survey of national Industry Site Selection Professionals conducted by OIPI Consultant Team.

The above table of correlations was used to identify potential categories of Transportation Needs in the region by linking prominent regional economic sectors with anticipated Needs and comparing these to the general transportation conditions that currently exist, as described below.

C. General Regional Needs

As discussed in the Economic Profile above, when the 2025 Future Economic Profile was estimated for the SAW Region, it showed a predominance among the Local Serving economic sector at 48 percent with a relatively equal distribution among the Freight Dependent and Knowledge-Based economic sectors for the remainder (28 percent Freight Dependent and 24 percent Knowledge-Based). As outlined in the Economic and Transportation Correlation table above, the Local sector priority transportation needs include highway access, passenger reliability, network connectivity, access to transit and modal choice.

In addition, the local input received in the outreach to regional stakeholders and in local plans such as the Comprehensive Economic Development (CEDS) plan for the region indicate a strong desire to continue to support the dominant manufacturing sector, particularly with respect to goods movement

needs, but also to support the expected growth of the health care, high tech and tourism industries with the need for reliable commuting and additional modal travel options.

This translates into transportation needs such as freight and passenger reliability on the region's primary corridors, such as I-81 and I-64. It also indicates the need for addressing any bottlenecks along these corridors to further support reliable travel for both commuters and goods movement as well as provide improved modal choices and transportation demand management for commuters. In addition, key corridors US 250 and US 11 support multiple existing and emerging activity centers in the region as important commuter routes and serve economic growth in the Cities of Staunton and Waynesboro.

The forecasted growth in the Local Serving economic sector for this region brings the potential for additional transportation needs such as walking, bicycling and transit accessibility to support workforce access to these kinds of jobs. Therefore, transportation needs in the region should include expanding modal choices, both within the region's economic activity centers, and between the centers. Fixed route transit exists in the region within the Cities of Staunton and Waynesboro as well as along US 11 and US 250. However, the expansion of the local serving industries would benefit from both additional fixed route transit in the region and additional transportation demand management programs to provide better workforce access. Further support for the Local Serving sector would also come from enhanced walkable and bikeable places.

The above represent general transportation needs for the region based on an analysis of its economic sectors and projected growth. More specific needs from a more detailed spatial analysis of the economic and transportation conditions in the region are described below.

D. Spatial Analysis of Regional Network Needs

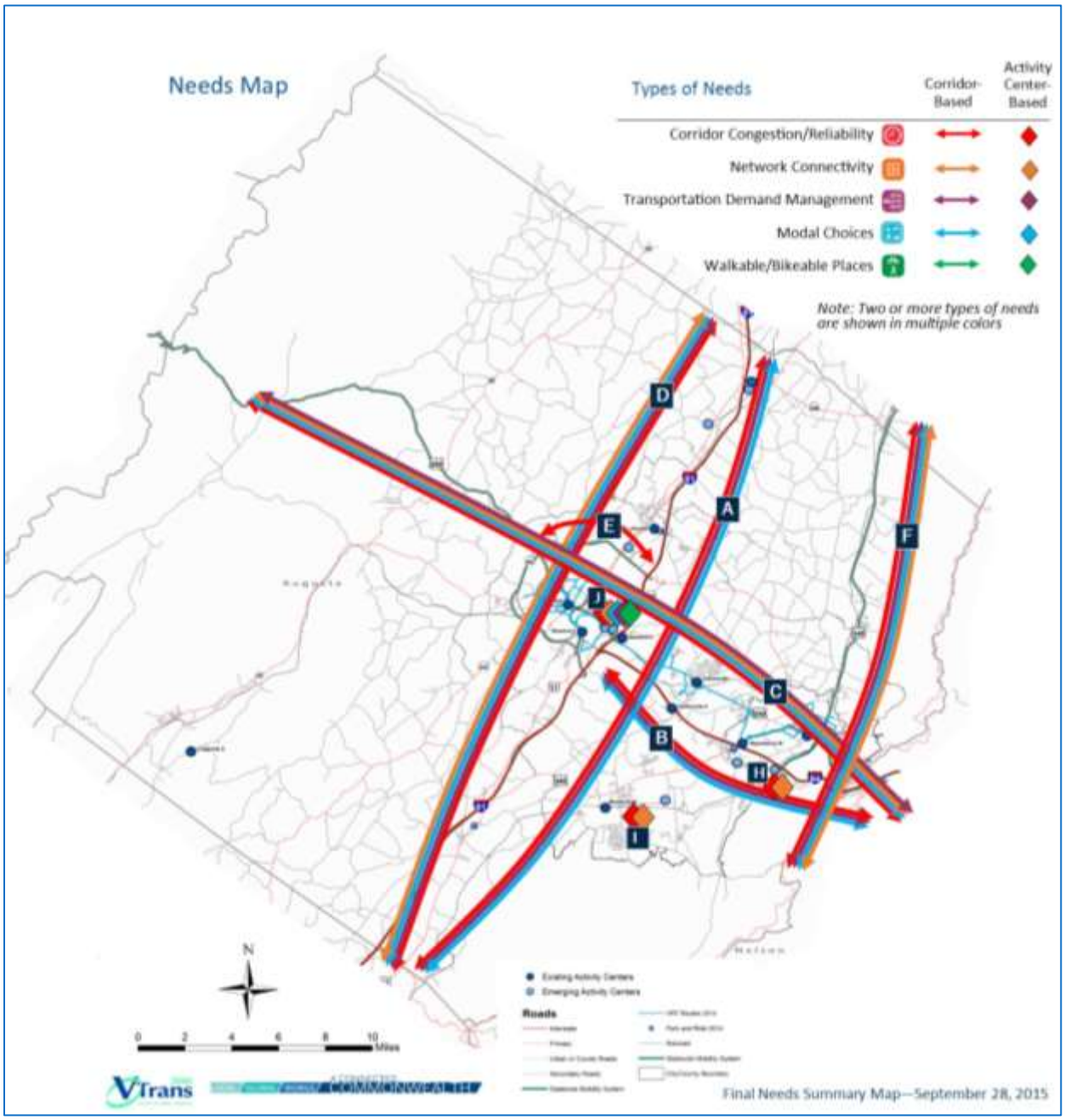
Summary of Needs

Potential Needs were also developed by analyzing the economic and transportation data in the region from a spatial standpoint. This analysis included the potential Needs identified by stakeholders in the first Regional Forums, as well as new Needs that emerged from the spatial analysis of the data. These Needs were categorized into a series of very broad types of capacity Needs as described above. The spatial analysis of Needs consists of a Map of Needs, a table of identified Needs, and a Findings of Needs that summarizes the economic and transportation findings to support each identified Need. Each of these is summarized below.

Map of Needs

The map below (**Figure 29**) summarizes the regional Transportation Needs according to Activity Centers and corridors. The Needs are summarized and color coded by general category. Each of the Needs is also numbered and keyed to the Finding of Needs table.

Figure 29: Summary Needs Map for the SAW Region



Findings of Needs

Table 10 below lists each of the identified Transportation Needs in the Region and describes the basis for each Need in terms of economic and transportation findings and data:

1. Category of Need
2. General Description of Need
3. Economic findings to support need
4. Transportation findings to support need

The findings to support the determination of need generally came from the statewide datasets of economic and transportation conditions summarized in the economic and transportation profiles. However, in cases where the statewide data is not of a fine enough grain or level of detail to accurately determine a Need, it was supplemented by locally obtained data from studies or plans. It is important to note that local plans and studies were not used to identify proposed projects as Needs, but only for supporting data to make an objective determination of need.

Figure 30: Transportation Icons for Needs Assessment

Table 10: Findings of Needs for the SAW Region

A.	**I-81 Corridor and Interchanges**	
Need		**The I-81 corridor serves as a major north/south artery in the region and the state handling both commuter and freight traffic and connects Augusta County to other parts of Virginia. There is a need to mitigate inconsistent travel times for passengers and freight. There is also a need for transportation demand management services and modal choices within the corridor to improve commutes and access to residential and tourist destinations.**
Economic		There are a number of existing and emerging activity centers along the I-81 corridor that serve local, freight dependent, and knowledge-based industries for both goods movement and commuter traffic. The corridor is an essential and high-priority corridor for freight movement. It connects activity centers of all types and supports tourism.
Transportation		I-81 has intermittent passenger and freight reliability and bottleneck issues at several interchanges in the region. The lack of reliability is due to frequent incidents, rather than persistent congestion. Additional modal choices for passenger service to inter-regional markets are vital to supporting the regional economy. Multimodal access to jobs is lacking. I-81 accommodates high volumes of through freight traffic. Studies from VDOT have identified the I-81/I-64 interchange to have safety concerns. Exit 235 is anticipated to experience future congestion/reliability concerns as the emerging Weyers Cave activity center develops in the future.

B.	**I-64 Corridor and Interchanges**	
Need		**The I-64 corridor is a major east/west artery in the region connecting I-81 to destinations to the east, and accommodates high volumes of commuter and freight traffic. There is a need to improve connections to work, recreational and tourism destinations outside of the region. There is also a need to address the acute congestion experienced near Waynesboro. Transportation demand management services, improved access to modal choice and spot capacity improvements can improve mobility on this corridor.**
Economic		There are a number of existing and emerging activity centers along the I-64 corridor that serve local, freight dependent, and knowledge-based industries for both goods movement and commuter traffic. The corridor is an essential and high-priority corridor for freight movement. It connects activity centers of all types and supports tourism.
Transportation		I-64 has intermittent passenger and freight reliability and bottleneck issues at multiple interchanges in the region. Additional modal choices for passenger service to inter-regional markets are vital to supporting the regional economy. Multimodal access to jobs is lacking. Studies from VDOT have identified the I-81/I-64 interchange to have safety concerns.

C. US 250 Corridor

Need

The US 250 corridor is an east/west artery in the region and is parallel to I-64 in the eastern part of the region. Multiple existing and emerging activity centers located along the corridor serve both passengers and freight traffic. There is a need for improved network connectivity, improved reliability for freight and passengers, transportation demand management services and additional modal choices in this corridor.

Economic

There are a number of existing and emerging activity centers along the US 250 corridor that serve local, freight dependent, and knowledge-based industries for both freight and commuter traffic.

Transportation

Major connector between several activity centers and an alternative travel corridor when there are incidents on I-64. US 250 also serves as a commuting corridor from West Virginia and Highland County into Augusta County. The corridor lacks multimodal access to jobs and handles some through freight traffic.

D. US 11 Corridor

Need

The US 11 corridor is a north/south artery, parallel to I-81, that serves as an alternative to I-81. Several existing and emerging passenger and freight activity centers are located along or near the corridor. There is a need for improved passenger and freight reliability, improved opportunities for alternative mode choices and improved transportation demand management.

Economic

There are a number of existing and emerging activity centers along the US 11 corridor that serve local, freight dependent, and knowledge-based industries for both freight and commuter traffic.

Transportation

Major connector between several activity centers and alternative travel corridor when I-81 is congested due to incidents. The corridor lacks multimodal access to jobs and handles some through freight traffic.

E. VA 262 Corridor

Need

The VA 262 corridor accommodates passenger and freight traffic in the Staunton area. There is a need to mitigate acute congestion points along the corridor from I-81 to US 250.

Economic

Provides access to the activity centers in Staunton as well as the Verona activity center.

Transportation

Incident reliability and bottleneck issues due to industrial growth and intersection safety at VA 613.

F. US 340 Corridor

Need

The US 340 corridor is a north/south connector in the eastern part of the region that serves commuters and freight traffic. There is a need for improved corridor reliability, transportation demand management services, modal choices and network connectivity as activity centers near the corridor continue to grow.

Economic

There are a number of existing and emerging activity centers along the US 340 corridor that serve local, freight dependent, and knowledge-based industries for both freight and commuter traffic.

Transportation

Regional connector between activity centers and commute destinations outside the region. The corridor lacks multimodal access to jobs and handles some through freight traffic.

G. Various Activity Centers in the Region

Need

There are bus transit services within the Cities of Staunton and Waynesboro and along US 250 between the two as well as along US 11 between the City of Harrisonburg and City of Staunton. However, multiple existing and emerging activity centers serving local industries as well as regional outdoor recreation destinations in the region lack connectivity to transit, pedestrian and bicycle facilities. Improved network connectivity is needed as these activity centers grow and expand.

G. Various Activity Centers in the Region

Economic

Supports local serving, freight-dependent, and knowledge-based industries in existing activity centers, including but not limited to, the Staunton, Staunton South, Fisherville, Fisherville South, Verona, Weyers Cave, and Waynesboro activity centers. It also supports the various emerging activity centers.

Transportation

Existing connections between and within activity centers lack efficient modal choices. Improved walkable and bikeable places would enhance existing communities. Transportation demand management services could also assist commuters with access to jobs.

H. Emerging Activity Centers at VA 340/Delphine

Need

Freight dependent and local serving activity centers are emerging near the intersection of VA 340 and Delphine. There is a potential need for improved freight access and network connectivity to accommodate anticipated growth in freight movement and passenger travel.

Economic

Supports freight dependent and knowledge-based emerging activity centers.

Transportation

The emerging activity centers will need efficient access for both passengers and freight to travel corridors.

I. Stuarts Draft Activity Centers

Need

The freight dependent Stuarts Draft activity center lacks network connectivity and would benefit from improved freight access to US 340. There is also a need for improved passenger reliability in the area.

Economic

Supports an existing freight dependent activity center.

Transportation

The freight dependent activity center lacks network connectivity for efficient freight access to US 340 which would improve freight and passenger reliability in the area.

J. Staunton Crossing Emerging Activity Center

Need

The Staunton Crossing activity center is expected to grow in the next 10 years in freight dependent, local serving and knowledge-based industries. There is a need for improved freight access with a railroad siding as well as improved passenger reliability. The emerging activity center would be enhanced by incorporating access to walking, biking and transit.

Economic

Supports an emerging freight dependent, local serving, and knowledge-based activity center.

Transportation

The emerging activity center is expected to be a major retail, freight and tourism destination for the region. Network connectivity in the area would benefit new freight and passenger traffic movements. Modal choices and supporting transportation demand management would benefit access to jobs in the activity center.