Tertiary Workforce Services Analysis in Southwest Virginia

Transportation

There are many layers to a thriving workforce. According to the three-sector economic theory, there is a need for “primary sector” raw materials, “secondary sector” manufacturing and production of goods, and “tertiary sector” services such as transportation, distribution, and customer service (Fisher, 1939; Clark, 1940; Fourastie, 1954). The concept behind these three layers can be applied not only to the production of goods, but also to the workforce itself. On the primary level, workers need the basic raw materials, namely employment opportunities (businesses). On the secondary level, workers need the education, training, and professional development to prepare them for these jobs. On the tertiary level, workers need “wrap-around services” in their lives to enable them to remain employed. Regardless of the ways in which this concept is framed (in terms of goods or in terms of workforce), this tertiary layer forms the essential foundation of a healthy economy. This report is one of three reports that explore these critical tertiary services in Virginia’s Workforce Areas I, II, and III: childcare, transportation, and behavioral health facilities.
SUMMARY

Consensus among regional stakeholders in Southwest Virginia is that physical and financial access to transportation is one of the leading barriers that prevent workers from attaining and maintaining employment. This report analyzes the extent to which workers can access public transportation in three workforce development regions: Far Southwest Virginia, New River Mount Rogers, and Virginia’s Blue Ridge Works.

To assess the current status of public transit access and commuter trends in the regions of Southwest Virginia, the Virginia Tech Office of Economic Development created a digital database of bus stops and routes obtained from various transit websites in the region. These bus stop locations were combined with road networks to generate a database of bus routes. These bus routes were given a one-half to one-mile buffer and joined with block level population data to estimate the percentage of the population within a mile of a public transit route or bus stop. A similar process was used to create a digital database of bike trails. This information was paired with commuter trend data such as travel time, travel location, mode choice, and vehicle occupancy obtained through the U.S. Census. Estimated monthly gas expenditures were generated from US Energy Information Administration's regional averages of vehicle mileage capabilities and gas prices which were paired with each regions average commute time depending on the distance the resident lives from their place of work.

Based on the analysis of this inventory as it relates to larger population trends, key findings include:

- A clear disparity among workers who drive and those who choose an alternative mode of transportation. Only approximately 1 in 20 workers choose to commute to work by means of bus, bike, or walking. Of the 95% of workers choosing to drive, only 2 in 20 choose to ride together.

- A lack of public transit options available to residents living in the more rural areas of Southwest Virginia. Overall, the analysis suggested that approximately 23% of the people living in the combined workforce development areas have access to a public transit options within one mile. However, if Roanoke and Salem Cities are excluded, accessibility to public transit drops to about 12% of the total worker population.

- A gap in ride share options for those living outside of the Roanoke or New River Valleys. With a rise in the usage of internet and smart phones, as well as the limited infrastructure costs required, ride sharing apps can be a simple solution to help those in the region commute to and from work and increase the number of occupants per vehicle.

- An absence of public transit options for second and third shift workers as most bus services operate during regular business hours with a couple of buffer hours. Even the Valley Metro’s 6:15 am to 8:45 pm time slot is not suitable for workers needing to travel home from work or to work during the night.

The following pages break down key statistics for each of the three workforce regions.
FAR SOUTHWEST VIRGINIA
WORKFORCE DEVELOPMENT AREA I (WDA I)

96
% of those that drive to work
% of households that have one car per worker
$ spent on gas per worker per month on average

People per square mile
62
% of those in Cumberland Plateau PDC that do not live within a mile of a bus route

50%
Workers who live in the county in which they work
Workers who commute to or within Wise, Tazewell, or Buchanan Counties

1 of 6
People in WDA I who live within a mile of a bus route
Residents who commute out of Virginia

10%
Amount of work day spent driving for the average commuter
WDA I residents who choose to carpool

People with fixed transit route in LENOWISCO PDC
Ride share or carpool programs available
Bike trails for commuting to work
Commuter rail systems
Service options offered to 2nd and 3rd shift workers
Transit route connecting to Abington, Wytheville, and Christiansburg needed

Low Mileage
16 mpg

High Mileage
24 mpg

Low Speed
35 mph
$89.55
$59.70

High Speed
55 mph
$140.72
$93.82

Offered for those in the Cumberland Plateau PDC, where 38% live within a mile of a bus route. Rates and times vary

17% of all people in region have access to alternative modes of transportation like a fixed bus route

Over 50% of people who live in this region commute to Wise, Tazewell, or Buchanan

Mountain Empire Older Citizens, Inc. mainly offered for elderly or those with disabilities and only by request
Rate: $1.50 or $0.75 for elderly.

Commuter Conditions Line

96% of citizens choose to drive, while 4% choose an alternative mode

91% choose to drive alone, while 9% choose to carpool

Half of the people work in the county they live in

45,129; 31%
16,454; 19%
50%

Vehicle Occupancy

Fixed Transit Options

Four County Transit

Offered for those in the Cumberland Plateau PDC, where 38% live within a mile of a bus route. Rates and times vary

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Greenway

No biking trail system

Biking and walking not as likely due to topography

No carpool or ride share programs

5 in 6 people don’t have a public transit option in WDA I

Only 1 in 3 people have access to bus in Cumberland PDC

Transit route connecting to Abington, Wytheville, and Christiansburg needed

No LENOWISCO PDC Service that travels to most populated areas (pop. density map above)

No Uber/Lyft or similar service

Telework not suitable due to common industry needs in region

Bus times NOT suitable for second & third shift workers
New River Mount Rogers
Workforce Development Area II (WDA II)

87
$ spent on gas per worker per month on average
People per square mile

4 in 5
Workers who drive alone

50%
Residents in Blacksburg who live within a mile of the Huckleberry Trail
Workers who live in the county in which they work
Workers who commute to or within Montgomery, Washington, or Pulaski

10%
Workers who choose to carpool
Workers who use an alternative mode of transportation
Residents who live within a mile of a fixed bus route
Residents who commute out of Virginia
Amount of work day spent driving for the average commuter

2%
Workers who use Public Transportation

Ride share or carpool programs in the Mount Rogers Planning District
Public transit service to Floyd or Giles Counties
Connector routes between Mount Rogers and New River Valley
Commuter rail systems
Service options offered to 2\textsuperscript{nd} and 3\textsuperscript{rd} shift workers
SmartWay connects NRV to Roanoke

No bus connector between NRV and Mt. Rogers areas
No Amtrak service provided to NRV

To NRV
No bus connector between WDA I and WDA II

Need for expansion of Mountain Lynx Transit to reach more than a tenth of Mt. Rogers PDC area residents

Bus times not suitable for 2nd & 3rd shift workers

Need for Huckleberry expansion into Christiansburg and Radford

No ride-share/carpool program in Mt. Rogers PDC area (except Wytheville)

No service for Floyd or Giles residents

Public transportation options are offered for elderly and those with disabilities

Ride Share Meet Locations

New River Valley RC: 22% have access to a bus stop within a half mile (excludes Giles and Floyd Co.)
Blacksburg, Radford, and Pulaski Transits offer service
Times typically begin at 9 am & end at 7 pm
Costs hover around $1.00

Long Mileage:

16 mph $81.23
35 mph $127.63

High Mileage:

24 mph $54.15
55 mph $85.09

Public Trans. Line

Commuter Conditions

Percentage of people commute to Montgomery, Washington, or Pulaski
50%

Percentage of people who work in the county they live in
54%

Percentage of people who choose to drive alone, while 8% choose an alternative mode
89%

92% of citizens choose to drive, while 8% choose carpool

Virginia Creeper and New River trails are offered but primarily for recreational use

Mt. Rogers PDC:
3% within a half mile
7% within a mile of stop
Rate: $0.50 per boarding
Time: M-F, 9-5

Greenway:

Huckleberry Trail within 1-mile buffer

Estimated Gas Costs

Low Mileage:

16 mpg $81.23
35 mph $127.63

High Mileage:

24 mph $54.15
55 mph $85.09

New River Valley:

22% have access to a bus stop within a half mile
Blacksburg, Radford, and Pulaski Transits offer service

Times typically begin at 9 am & end at 7 pm
Costs hover around $1.00

Location:

Top 20 Commute Destinations

Number of Commuters

<table>
<thead>
<tr>
<th>Range</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>700 - 1,900</td>
<td></td>
</tr>
<tr>
<td>1,900 - 4,500</td>
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</tr>
<tr>
<td>4,500 - 8,000</td>
<td></td>
</tr>
<tr>
<td>8,000 - 18,600</td>
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<tr>
<td>18,600 - 46,700</td>
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</table>
Virginia’s Blue Ridge Works
Workforce Development Area III (WDA III)

142
People per square mile

94
% of those that drive to work
$ spent on gas per worker per month on average
% of residents that do not live near the Greenway

3 in 4
Workers who commute to or within Roanoke City/County, or Salem City

50%
Workers who live in the county in which they work
Residents who live within a mile to fixed bus route (excluding Botetourt & Craig Counties)

10%
Amount of the work day spent driving for the average commuter
Workers who choose to carpool

1
Connector route between WDA II & III (SmartWay)
Commuter Rail system
% of residents that do not have a ride share program offered in county of residence (Craig County)

0
Bus services offered to residents of Botetourt and Craig Counties
Service options offered to 2nd and 3rd shift workers
Top 20 Commute Destinations

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**Estimated Gas Costs**

<table>
<thead>
<tr>
<th>Mode</th>
<th>Mileage</th>
<th>Low Speed 35 mph</th>
<th>High Speed 55 mph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Mileage</td>
<td>16 mpg</td>
<td>$85.38</td>
<td>$134.17</td>
</tr>
<tr>
<td>High Mileage</td>
<td>24 mpg</td>
<td>$56.92</td>
<td>$89.45</td>
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</tbody>
</table>

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**Fixed Transit Options**

- Valley Metro/Trolley: <$1.50
  - 46% live within ½ mile
  - 66% live within 1 mile
  - Runs 6:15 am - 8:45 pm
  - Trolley runs from 7-7
- Mountain Express: $0.50
  - 8 am - 5 pm workdays
- Hollins/Ferrum Express: Free
  - Only to Roanoke on Saturdays
- S.T.A.R. in Roanoke City & Salem serves approximately 56% of elderly/handicap along route by request
- SmartWay connects Roanoke to NRV

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**Commuter Conditions**

- Mode: 94% of citizens choose to drive, while 6% choose an alternative mode
- Vehicle Occupancy: 90% choose to drive alone, while 10% choose to carpool
- Over 72% commute to Roanoke City, Roanoke Co., or Salem
- 55% work in the county they live in
- 2% leave Virginia
- 87% of households have one car per worker
- Avg. commute time is 25 min
- S.T.A.R. in Roanoke City & Salem serves approximately 56% of elderly/handicap along route by request
- Mountain Express serves approximately 62% of elderly/handicap individuals along route
- 55% work in the county they live in
- 2% leave Virginia
- 87% of households have one car per worker
- Avg. commute time is 25 min
- S.T.A.R. in Roanoke City & Salem serves approximately 56% of elderly/handicap along route by request
- Mountain Express serves approximately 62% of elderly/handicap individuals along route

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**Greenway**

- Zagster offers ten various bike stations in downtown Roanoke.
- Valley Metro Transit
- Star Line Trolley
- SmartWay (to NRV)
- Hollins/Ferrum Express
- Mountain Express

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**Gaps Line**

- No bus or transit services offered for Botetourt & Craig
- No ride share program for Craig County
- No connector between Roanoke area & Clifton Forge
- No service offered for Second & third shift workers
- Ferrum Express only available to Roanoke on Saturdays
- Hollins Express only offered to Hollins personnel
- Greenway only available in Roanoke area with multiple missing links
- No Megabus stop at exit 140 park-n-ride lot

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**Public Trans. Line**

- Ride Solutions offers a program for those in WDA III except Craig Co.
This research was made possible by the Virginia Board of Workforce Development in collaboration with the Virginia Community College System. Rapid Response is a Virginia resource operating under funding provided by the federal Workforce Innovation and Opportunity Act, that helps businesses with employee hiring, staff restructuring and training. Rapid Response is most noticeably front and center to Virginia’s workers when their place of employment is downsizing and a significant number of workers lose their jobs. As part of the current Rapid Response funding, the Virginia Tech Office of Economic Development was contracted to explore other factors inhibiting employment outside traditional skills gaps.

Virginia Tech Office of Economic Development is part of the Outreach division of Virginia Tech, meant to serve as one arm in advancing the university’s land-grant mission. The Office of Economic Development (OED) helps Virginia communities find their paths to prosperity by providing leadership in many areas of economic development, including technology, workforce, entrepreneurship, and community development. Sarah Lyon-Hill, Ross Hammes, Allison Homer, Faruk Hesenjan, Luis Camacho, Ronnie Stephenson, and Maeve Gould played key roles in the development of these reports.

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For more information, contact:

Scott Tate  
Associate Director  
Office of Economic Development  
Virginia Tech  
atate1@vt.edu  
540-231-2351

Sarah Lyon-Hill  
Senior Economic Development Specialist  
Virginia Tech  
sarahlh@vt.edu  
540-231-9940