New River Valley Regional Analysis

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Executive Summary

The paper analyzes the region of the New River Valley through multiple lenses. A GIS/data analysis approach is combined with field observations to assess the current conditions of the region. This knowledge, combined with details of specific codes and policies in the region, allows for a deeper understanding of the built environment and can support suggestions for better connectivity and development in the future. The New River Valley Region is located in southwest Virginia, consisting of Giles County, Pulaski County, Montgomery County, Floyd County, and the city of Radford (Map 1). Maps and additional photos are located in the Appendix.

Current Conditions

The region has mountainous terrain in the north, partially through Giles County, and along the southern edge of Floyd County. Cutting through the northern mountain terrain, creating a valley, is the New River, the primary body of water in the region. Along the river lies the city of Radford and the towns of Narrows, Pembroke, and Pearisburg. Much of the mountain terrain is protected, with a significant portion of Montgomery and Giles County land being protected. A lot of development is concentrated along or near the New River, and the mountain terrain prevents growth in that region (Map 2).

Interstate 81 is the major roadway in the region. US-11 runs parallel to the interstate running through Radford, the town of Pulaski, and the town of Dublin. US-460 and VA-100 run north-south, connecting Giles County to the rest of the region. A railway runs through Giles County along the New River before splitting in Christiansburg into an east and west route. Virginia Tech Montgomery Executive Airport and the New River Valley Airport-PSK are the two airports in the region (Map 4). Blacksburg and Christiansburg have very good bus coverage, followed by Radford and the town of Pulaski. Giles and Floyd do not have any bus transit at all (Map 5). The particular lack of a good intercity bus network forces many to rely solely on automobile transportation, which is not uncommon in rural areas like this.

Most of the major employers are concentrated in the major towns and cities, particularly the Blacksburg-Christiansburg area and Radford City. Some exceptions exist for factories and medical centers that exist adjacent but not in these more populated areas (Map 3). When analyzing building density, downtown Christiansburg has the greatest density in the region, but some areas, particularly north of downtown along US-460, show relatively low density. Low-density development follows along roadways between major populated areas, as seen in east Montgomery County and all along I-81. The terrain in Giles has forced most of the development around US-460 and the New River. Floyd County has low-density development, with no major regions dedicated to conservation (unlike Montgomery and Giles counties) and no dense towns. Due to the terrain, conservation lands, and road system, the less dense parts of Christiansburg and Blacksburg would likely have to become denser as these towns cannot easily expand further outwards (Map 6).

Analyzing population density from 1980, 2000, and 2020 shows that people are moving out of northern Pulaski County and that more people are locating in eastern Montgomery County, where there is more low-density housing today. Population distribution in Giles County has remained similar over the past 40 years (Map 7). The region has increased in population overall, particularly in Floyd County and Montgomery County. Pulaski and Giles counties have seen a slight decrease in population since 1980 (Table 1). Population growth in Radford City and Montgomery County is likely attributed to the growth of Virginia Tech and Radford University.

Categories of Built Environment

Urban Mixed-Use Walkable – Blacksburg

An urban, mixed-use, walkable area is defined by a place with substantial multimodal infrastructure, dense multi-story buildings, ample pedestrian/bike infrastructure, various uses, and zoning that allows for mixed-use. Blacksburg has a Walk Score of 92, a Transit Score of 55, and a Bike Score of 94 (Walkscore, 2025).

Downtown Blacksburg is the most built-up area of the New River Valley; it serves as one of the major employment hubs due to the presence of Virginia Tech. The university's presence has built up the surrounding town into the most densely populated area of the New River Valley with comprehensive multimodal transit (Map 5 & Map 7). The specific area of Blacksburg we use for our purposes is the corner of Draper and College Avenue (Figure 1). College Avenue serves as the best example of this in Blacksburg. Here we find a mixed-use building with offices, restaurants, shops, bars, apartments, and a theater, across the street from the art performance hall (Figure 2). This area is one of the oldest parts of Blacksburg and part of its original 16 squares (Tucker & Hicks, 2024). The lots are zoned in DC for downtown commercial use. The zoning allows for various uses, including retail, recreation, public, entertainment, residential, and more (Town of Blacksburg, VA., Code of Ordinances § 3141). Downtown Blacksburg is the New River Valley's most walkable, mixed-use urban environment.

Urban Automobile Oriented – Christiansburg

Urban automobile-oriented is delineated through its built-up nature, with a substantial dedication to vehicular transit and minimal pedestrian or bike traffic. The zoning can be differentiated, but is generally sole-use. Christiansburg has a Walk Score of 48, a Transit Score of 26, and a Bike Score of 26 (Walkscore, 2025).

Christiansburg is located near Blacksburg, with its boundaries only about a mile away. There is substantial automobile-centric traffic throughout Christiansburg, with notable examples being the commercial center (Figure 4). The commercial center is located at the crossroads of Peppers Ferry and Franklin Street. Here, two substantial streets connect, and in the quadrants appear immense parking lots, large separated lots, minimal pedestrian accommodations, and all zoned Business District – 3. This zoning limits residential to conditional use permits, but allows a large variety of commercial uses (Town of Christiansburg, VA., Code of Ordinances §42-336). Overall, the area is solely automobile-oriented with minimal pedestrian infrastructure.

Suburban Mixed-Use Walkable – Foxridge

Suburban mixed-use walkable areas are predominantly defined by various uses and zoning, in a walkable area. Ideally, these uses would be interspersed, but this is acceptable if they are within a walkable area. Additionally, these areas must be located outside of the population

center. Foxridge has a Walk Score of 31, a Transit Score of 30, and a Bike Score of 63 (Walkscore, 2025).

The Hethwood-Foxridge area is an excellent example of this development style. It is a large planned development outside of Blacksburg with multi-story apartments, townhouses, single-family homes, commercial, office, and school buildings connected by sidewalks. Bus routes and a bikeway connect these uses to Blacksburg/Virginia Tech. While these uses aren't thoroughly mixed, they are still colocated with accessible multimodal transportation. The zoning designation PR- Planned Residential allows various uses, from childcare to apartments to grocery stores (Town of Blacksburg, VA., Code of Ordinances § 3111). Foxridge serves as an excellent example of a multi-use suburban neighborhood.

Suburban Automobile Oriented – Dublin

Suburban automobile-oriented areas are marked by this lack of multimodal transit opportunity and location outside population centers. Uses are also siloed into separate areas with minimal mixing. Most of the New River Valley falls into this category. Dublin has a WalkScore of 29, a Transit Score of 0, and a Bike Score of 25 (Walkscore, 2025).

Dublin, in particular, is heavily automobile-oriented. There are minimal sidewalks, with the ones in disrepair (Figure 6). The central corridors of the town are B-1 and B-2, which are limited in their use to business or religious purposes. Interestingly, there are no setbacks, minimum lot size, and height up to 60 feet (Town of Dublin, VA., Zoning Ordinance Article IX). It is entirely automobile-centric, with each business away from the road and its own parking lot (Figure 7, Town of Dublin, VA., Zoning Ordinance Article XVIII). Residential homes are on fairly substantial lots separated from other uses. Beyond the central corridor, Dublin's location between the City of Radford and the Town of Pulaski allows it to serve both population centers.

Rural Mixed-Use Walkable – Floyd

This designation is for the outlying towns and communities in the rural areas of the New River Valley. These communities are walkable and have relatively compact development, allowing various uses in the centers. Several nearly fit this designation, but their lack of pedestrian accommodations keeps them from surpassing Floyd. The town has a Walk Score of 53, a Transit Score of 0, and a Bike Score of 27 (Walkscore, 2025).

Floyd fits this designation the best. The town lies on the periphery of the New River Valley. The county is predominantly rural, with Floyd being the largest population center in the county. The center of town is walkable, with a variety of one to three-story buildings (Figure 8). Within the town's core, the buildings are zoned Business-1 and Business-2. A wide variety of uses are allowed in these, including residential, commercial, and mixed-use. Setbacks are minimal, allowing structures to be close to the road and a denser and more pedestrian-friendly downtown (Town of Floyd, VA., Zoning Ordinance Article 6). The zoning ordinance's minimal setback requirements, shared drive prioritization, and pedestrian circulation show a clear and consistent push for pedestrian access and a dense urban fabric.

Rural Automobile Oriented – Narrows

The Rural Automobile-Oriented designation applies to any built-up area in a predominantly rural area where transportation is almost solely auto-based. Towns and villages in this category are typical of most small towns with consistent curb cuts, far setbacks with parking

lots in front of buildings, and minimal pedestrian accommodations. Narrows has a Walk Score of 31, a Transit Score of 0, and a Bike Score of 13 (Walkscore, 2025).

Narrows is one good example of this, although other towns fit into this designation. Narrows lies on the edge of the New River Valley, spanning both sides of the New River. Both banks of the river are zoned industrial and light industrial. The north side of the river turns towards low-density residential. The central and general business districts are located on the south side of the river, before transitioning to residential zoning. R-1 is specifically for large open lots and family life. R-2's predominant goal is stabilizing and encouraging neighborhoods by protecting them from encroachment (Town of Narrows, VA., Zoning Ordinance § 17-602 & § 17-603). The town has a minimal downtown with decaying pedestrian accommodations (Figure 9). Overall, the lots are large with no substantial density or multifamily developments. The built environment encourages driving over walking.

Sprawl

The New River Valley's relationship with sprawl is mixed. The region is predominantly rural, where concerns regarding sprawl are substantially minimized. Defining sprawl in these cases is difficult, as there is no central urban area to generate sprawl, as seen in most examples, and the type of sprawl here differs from typical urban sprawl conceptions. However, there are examples of sprawl within the area. These areas have what could be best considered sprawl: large planned developments built on greenfields outside the town (Figure 10).

Sprawl is usually driven by population growth and the need to put those people somewhere. Between the 2010 and 2020 censuses, every locality except Montgomery has had 1.5% or negative population growth (Table 1). Reducing the pressure and need for substantial new building stock has prevented sprawl in recent years. The natural features of the regions also inhibit large-scale planned suburban developments for the most part.

Christiansburg is the best example of sprawl. Its proximity to Blacksburg, I-81, and local industry has encouraged sprawling single-family home subdivisions, several typical McMansion-style developments (Figure 11). The difference between building density and population density shows this most clearly. The population density in Blacksburg is much higher than in Christiansburg, while the building density in Christiansburg is much higher (Map 6 & Map 7). This indicates that more people live in smaller areas in larger buildings in Blacksburg. Compared to Christiansburg, where fewer people live in more buildings, indicating that sprawl is occurring.

Policy Recommendations

Regional Transportation

Investment in various regional transportation systems would be an effective way to tie together the region. There are three levels to consider for transportation: state, regional, and local. State transportation is focused on the Amtrak Extension to Christiansburg. A refreshed and extended New River Express would best serve regional transportation. Lastly, the ideal local solution would be micro transit. Each of these recommendations would not only work together but also solve issues at each level.

The Amtrak Extension into Christiansburg links the New River Valley to Northern Virginia and the rest of the state. The distance is ideal for serving the large student population along the corridor, connecting the Virginia Tech Blacksburg and Northern Virginia Campus, commuters, and more. The New River Express does not connect to Blacksburg; the current line

ends in Christiansburg. If you lived in Pulaski and wanted to reach your job at Virginia Tech using public transportation, it would take over 3 hours (45 minutes driving). An extension to Blacksburg would substantially interconnect the Region with Virginia Tech, and beyond to Roanoke. Additionally, a connection from Narrows through to Floyd, with minimal ridership, would fully connect the region with reliable public transportation. Lastly, microtransit in Giles, Floyd, and Pulaski would allow elderly people, non-drivers, and transit riders access to the region. Flexible services such as this would allow on-demand transportation. Overall, transportation is essential to building carless connectivity throughout the region.

Zoning Ordinance Modernization

Over time, zoning ordinances require a refresh. Refreshing the zoning codes of the locality would allow them to make the codes more user-friendly, modernize zones, and address changing circumstances. Specifically, localities should create more specific delineations between the types of rural uses to manage growth better. For instance, Montgomery County could create a new URT (Urban-Rural Transition) where increasing density and less emphasis on agricultural or industrial uses would be allowed. Additionally, a PA (Predominantly Agricultural) zone could be created that focuses more on land use policy for active farms. By refreshing the zoning code, localities could preserve their rural character while encouraging responsible growth.

Revitalization

Localities can ensure continued job opportunities and investment by encouraging regional economic development. Areas near the New River Valley have struggled due to the lack of opportunity. Currently, the region is leveraging its connection with Virginia Tech and location near I-81 to create an additive manufacturing and advanced materials tech hub. This initiative, paired with increased investment in workforce development programs, will allow people who live in the New River Valley to have the skills to stay here. Additionally, the region must invest heavily in capacity building to ensure the business and nonprofit community is well-trained to leverage opportunities. Lastly, investing in childcare is an incredibly important way for localities to reduce the cost-of-living burden on families and encourage them to stay in the area. Overall, a holistic approach to economic development is essential to encouraging people to stay in the region and invest in it.

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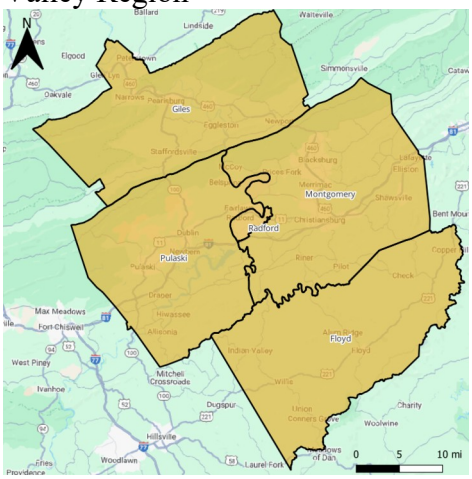
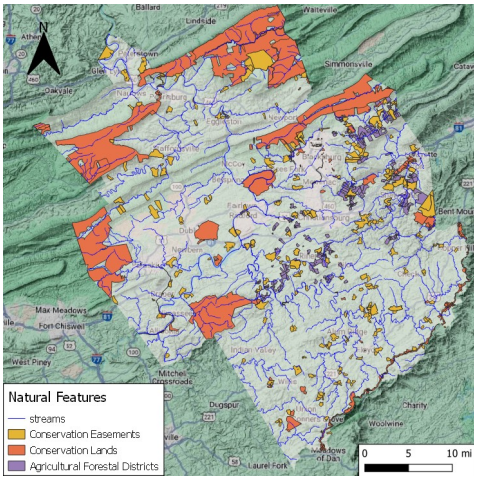
Appendix

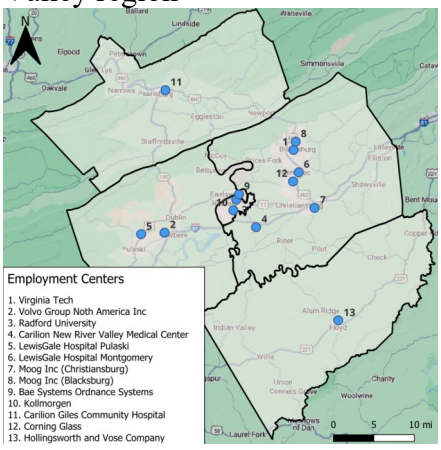
Map 1: Boundary Map of the New River Valley Region



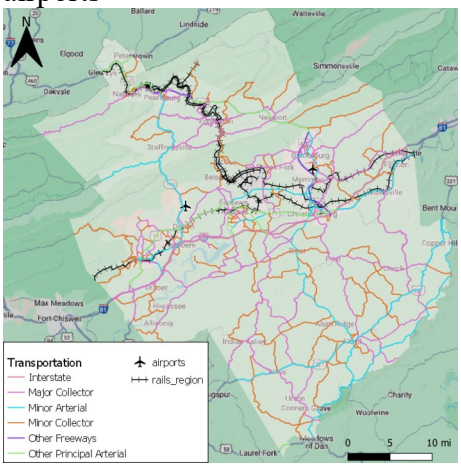
Map 2: Natural Features with an emphasis on rivers and conservation land



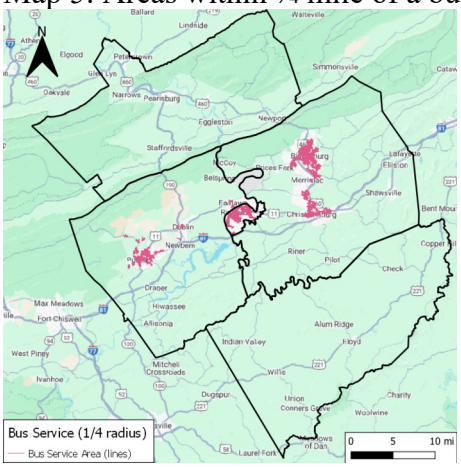
Map 3: Major Employers of the New River Valley region



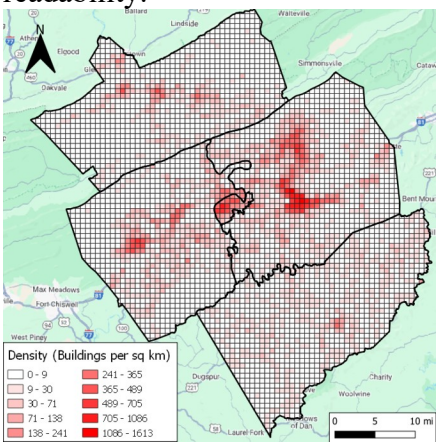
Map 4: Transportation Map of New River Valley including roads, railways, and airports



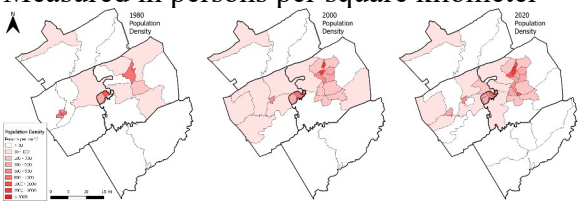
Map 5: Areas within ¼ mile of a bus stop.



Map 6: Building Density (Measured in Number of Buildings per sq km). Note: Multiple stories are not considered and the results are not fine-grained to allow for readability.



Map 7: Population Density from 1980-2020. Measured in persons per square kilometer



Map 8: Population Distribution 1980-2020

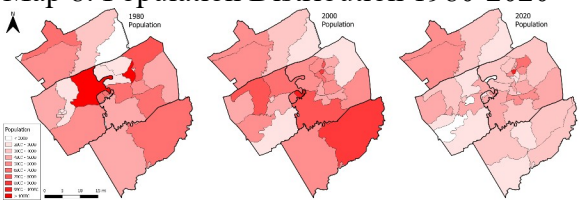


Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10

Figure 11

Table 1: Population of the region from 1980-2000 by county				
	1980 Population	2000 Population	2020 Population	Percent Change
Floyd County	11,563	13,874	15,476	+ 33.84%
Giles County	17,810	16,657	16,787	- 5.74%
Montgomery County	63,516	83,629	99,721	+ 57.00%
Pulaski County	35,229	35,127	33,800	- 4.06%
Radford City	13,225	15,859	16,070	+ 21.51%
Total	141,343	165,146	181,854	+ 28.66%