

CHAPTER 7

Transportation

Improved transportation systems are vital to continued local and statewide economic growth and development. Providing effective, safe and efficient movement of people and goods is a basic goal of all transportation programs in the Commonwealth of Virginia. This guiding principle, together with consideration of environmental issues and local mobility needs, was the basis for the development of this portion of the Comprehensive Plan. The recommendations of this chapter may be used in the statewide transportation planning process so that the magnitude of local needs can be better quantified.

RELATIONSHIP TO OTHER PLAN ELEMENTS

Natural Resources. Transportation facilities have a significant impact on the natural environment. Transportation facilities, whether highways, streets, transit lines, railroads, or off-road trails, are intended to connect areas together. They allow people to access and enjoy natural resources we use as well as places of natural beauty, but these methods of access also impact the environment. Transportation infrastructure fragments habitats, adds impervious surface, and (literally) paves the way for additional land-disturbing activity.

Economy. The transportation network is how businesses access both their “inputs” and “outputs.” Businesses must be able to send and receive product and inventory, and their employees and customers need to be able to easily reach them.

Land Use. More intense land uses, whether higher permitted residential density or higher permitted commercial density, require more robust transportation infrastructure. This goes both ways—where higher intensity exists, better infrastructure needs to be provided; where better infrastructure is available or can be built, higher intensity can be permitted.

ELEMENTS OF THE TRANSPORTATION NETWORK AND EXISTING CONDITIONS

The transportation network is the system of roads, sidewalks, trails, rails, and even the air—all the ways the people and goods are moved from place to place. Just as important as this infrastructure system are the means of mobility: driving, walking, biking, carpooling, flying, and so on. For many years, transportation plans were concerned almost exclusively with roads and whether cars could move efficiently through an area, but more recently localities have realized the importance of incorporating active transportation modes such as cycling and walking. Localities have also realized the importance of mobility, considering all of an individual’s options for getting from A to B, rather than just asphalt and concrete projects.

This chapter addresses the primary transportation modes in Buena Vista and the existing conditions of infrastructure and mobility.

Roadways

Roadways are the most visible and most extensive element of the transportation network in Buena Vista. There are approximately 55 miles of public roads within the City, of which 95% are paved asphalt and 5% are gravel. Approximately 15 of these miles are within the Commonwealth of Virginia's functionally-classified urban thoroughfare system, and carry the majority of the traffic volume in the City. Buena Vista's thoroughfare system and functional classifications are shown in Map 7.1.

Buena Vista is located at the junction of U.S. Route 60 and U.S. Route 501 and is also located near two major interstates, Interstates 81 and 64. The northern terminus of Route 501 is in Buena Vista at its junction with Route 60. In the City, Route 501 (or 501 Business) is referred to as Magnolia Avenue, and Route 60 is referred to as both Lexington Avenue and 29th Street. Route 501A (Alternate), or 501 (Truck), is generally parallel to Route 501 one block to the west and is known as Beech Avenue and Sycamore Avenue before it merges back with 501 Business/Magnolia Avenue at 16th Street. Route 501 continues south along the Maury and James Rivers, but ultimately terminates in Myrtle Beach, South Carolina. Route 60 continues east to the Blue Ridge Parkway and then to Richmond, and continues west through Lexington to Covington.

The majority of Buena Vista's streets and avenues are residential roadways that see light traffic and are not included in the Commonwealth's urban thoroughfare system. As an independent City, Buena Vista is responsible for maintaining its road system, though it receives limited funding from the Virginia Department of Transportation based on road mileage.

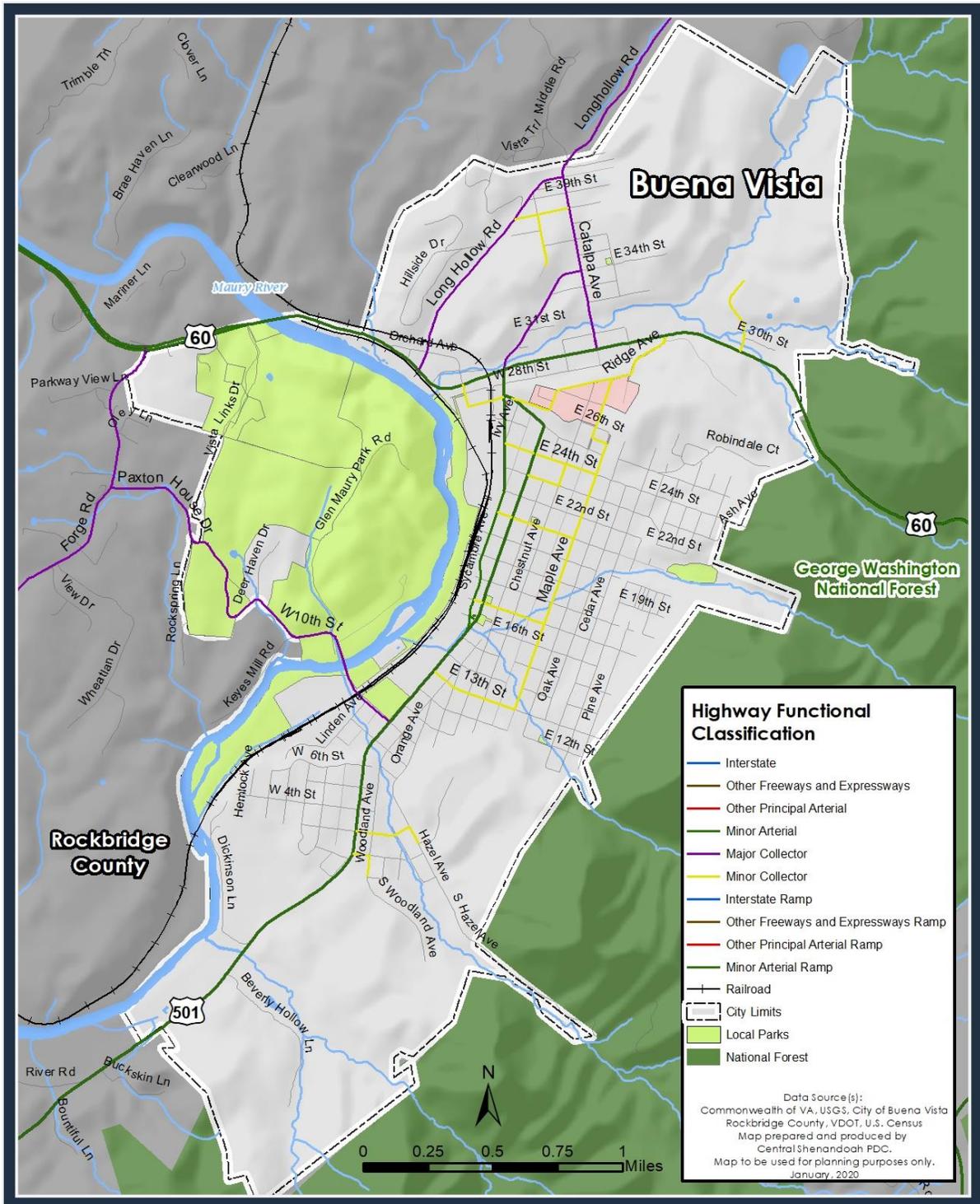
Functional classification is the process of grouping streets and highways into systems based on the character of services they provide. Functional class is used to determine Federal-aid funding eligibility, design standards, and funding formulas for jurisdictions that maintain their own roads. See below for more detail on the types of functionally classed roads in Buena Vista:

- Minor Arterials offer connectivity to the higher arterial system, link cities and large towns, along with other major traffic generators, and form an integrated network providing interstate and inter-county service.
- Major Collectors serve intra-county travel corridors and provide land access and traffic circulation within residential neighborhoods, commercial, and industrial areas.
- Minor Collectors serve the remaining smaller communities and link local traffic generators with their rural hinterland.

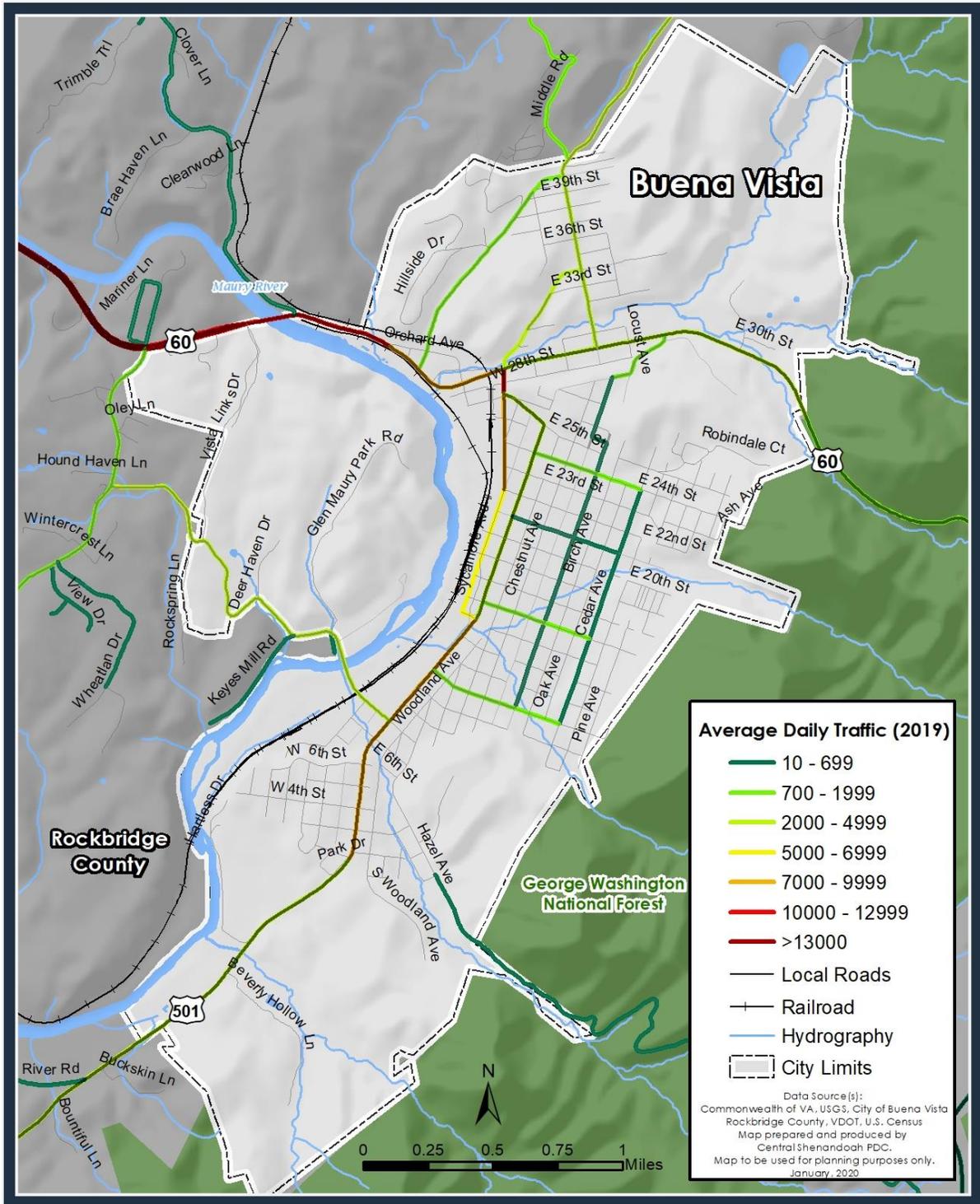
The Virginia Department of Transportation periodically measures vehicle counts on the road segments within the urban thoroughfare system. The City's estimated 2019 Annual Average Daily Traffic (AADT) volumes are shown in Map 7.2. Some local roads are not included due to a lack of data. The AADT map highlights the nature of travel in Buena Vista.

AADT is a useful tool for land use planning; for example, roads that see more traffic are generally better locations for businesses because of visibility and access, and they may be less optimal for housing because of safety and noise. AADT is also useful in prioritizing roadway maintenance.

Map 7.1
Functional Classification of Highways



Map 7.2
Average Annual Daily Traffic, Selected Road Segments



Bridge Structures and Rail Crossings

There are nine roadway bridge structures and eight culverts in the VDOT bridge and culvert inventory on the Buena Vista road system. All structures have a sufficiency rating higher than 50 percent. Sufficiency ratings were developed by the Federal Highway Administration to serve as a prioritization tool to allocate funds. The rating varies from 0 percent (poor) to 100 percent (very good). The formula considers structural adequacy, whether the bridge is functionally obsolete, and level of service provided to the public.

There are five railway crossings in Buena Vista (see Table 7.1).

Table 7.1
Railroad Crossings of Public Streets

Location of Crossing	Type of Crossing
10 th Street	At-grade
21 st Street	At-grade
26 th Street	Railway bridge
29 th Street	Railway bridge
Long Hollow Road	Railway bridge
Factory Street	At-grade

Road Condition

The City is responsible for maintaining its own road system, and at various times road maintenance has risen or fallen in budgeting priority, leading to significant deferred maintenance of the road system. In 2016, a comprehensive engineering study of pavement conditions on all 55 road miles was completed to strategically prioritize resurfacing projects as well as estimate costs and road segment lifecycles.

Goods Movement

The roadways are the primary means of goods movement in the City. Buena Vista has historically functioned as a manufacturing city that experiences significant truck traffic generated from industries in the City and in the general vicinity, as well as through trucks from outside the area. The City is located on Interstate 81, which is one of the primary north-south routes on the East Coast. Truck movement through the City generally follows either Route 60 west of the City or Route 501 south of the City. Additionally, there are notable volumes of truck traffic on Route 60 east of the City traveling from Buena Vista to locations east of the Blue Ridge Mountains.

Travel is anticipated to continue to increase on I-81, with truck traffic growing at a faster pace (1.7 percent per year) than passenger vehicle traffic. By 2040, it is expected that there will be nearly 20 million truck trips carrying three quarters of a trillion dollars' worth of goods every year, according to the I-81 Corridor Improvement Plan. The City is located less than four miles from I-81, and a major north-south Norfolk Southern rail line passes through the City along the river.

The proximity of two key freight modes of transport position Buena Vista well for businesses that require significant goods movement. Norfolk Southern operates the Crescent Corridor, its primary north-south rail route, which generally parallels I-81 and US 29. The corridor moves more than 70 million tons of freight annually on lines that parallel and complement the I-81 highway corridor—equal to approximately 3.4 million individual truck shipments.

Bicycle and Pedestrian Facilities

Planners and the public are recognizing more and more the importance of planning for active transportation modes, primarily cycling and walking. Cycling and walking offer a number of benefits:

- Healthy – they involve physical activity
- Less expensive – bicycles are far less expensive than automobiles, both initial cost and maintenance, and do not require insurance
- Environmentally friendly – no emissions or pollution
- Efficient use of infrastructure – cycling and walking take up less space to operate or park, and cause far less wear and tear on infrastructure than automobiles

Buena Vista is uniquely well-suited for these modes because the core of the city is flat, and most of the city is laid out as a grid with wide streets. However, like most cities in the United States, little attention has been paid over the years to building and maintaining optimal infrastructure for these modes. Societal attention in recent decades to the environment, physical activity, and active transportation may drive enhancement of pedestrian facilities in Buena Vista.

The key corridors roads of the City, Magnolia, Sycamore/Beech, and 29th Street, have concrete sidewalk on both sides.

Buena Vista has no bicycle lanes on its streets or pathways designed for bicycle use. Typically, families with children ride bicycles in Glen Maury Park, because of its parking lot and open space. Three principal pathways in Buena Vista are used for walking and hiking, summarized as follows:

1. The Chessie Trail. This historic pathway connects Lexington and Buena Vista and is a rail-to-trails designated pedestrian trail. The trail follows the Maury River and is 7 to 8 miles long. The trail is surfaced with crushed cinder, and after nearly 15 years without a bridge over the South River, a new bridge is in place as of Spring 2021. This new bridge eliminates a long detour on Stuartsburg Road.
2. Glen Maury Park Trail. This is an undesignated quarter-mile trail in Glen Maury Park, which traverses a wooded area. The park is within the City limits along the western bank of the Maury River.

3. Levee Trail. This trail is a gravel/macadam paved pathway, also undesignated, that runs along the top of a levee that was recently built along the Maury River in Buena Vista. This pathway runs the length of the levee and is approximately 2.5 miles long. The levee was completed in the late 1990s.

Rail

Buena Vista was founded because two railroads crossed here, lines that would ultimately become Norfolk Southern and Chesapeake and Ohio. The Chesapeake and Ohio was decommissioned in the 1960's and its local right-of-way is now the Chessie Trail but the Norfolk Southern line is a critical north/south rail route on the East Coast. Norfolk Southern has a track office immediately behind City Hall downtown.

Norfolk Southern operates a Class 1 rail through the City, with one industrial spur which serves Advanced Drainage Systems (ADS). The City's industrial park is adjacent to the rail line, and could accommodate a spur. Regionally and statewide, both I-81 and the Norfolk Southern rail line are part of the "Crescent Corridor" identified in the VTrans 2045 plan. The 2017 Virginia Rail Plan identifies the Crescent Corridor for a series of improvements throughout its length to expand passenger service to Roanoke, and further into southwest Virginia.

Buena Vista is not served directly by passenger rail, but several stations are located within an hour drive. Clifton Forge, about 35 miles to the west, and Staunton, about 35 miles to the north, are on Amtrak's Cardinal Line. The Cardinal Line runs from Chicago in the west down through Virginia then back up through Washington DC to New York City. Lynchburg, about 35 miles to the southeast and Roanoke, about 50 miles to the southwest, are served by the Northeast Regional Line. The Northeast Regional Line runs from Roanoke through Washington DC and New York City to Boston, Massachusetts, as well as looping down to serve the Hampton Roads area of Virginia. Lynchburg also serves the Crescent Line, running from New Orleans, Louisiana to New York City.

Air

While the Rockbridge area does not have its own major airport, air service is available from three regional airports within 50 miles. The closest airport to Buena Vista is Lynchburg Regional Airport (LYH), located about 35 miles to the southeast. It offers regional carrier service provided by American Eagle Airlines to Charlotte, North Carolina.

Shenandoah Valley Regional Airport (SHD), located about 50 miles to the north in Weyers Cave, offers jet service through United to Washington Dulles International airport and to Chicago O'Hare International airport. The Roanoke-Blacksburg Regional Airport (ROA), located about 50 miles to the southwest, offers jet service through multiple carriers to a number of major US destinations including Atlanta, Charlotte, Chicago, New York City, Philadelphia, and Washington DC.

There are no airports or landing strips located within the City of Buena Vista, however, there is a private helipad located at Southern Virginia University's athletic complex, The Fields.

Public Transportation and Taxi

There are two taxi companies based in the City of Buena Vista that serve the region, Rockbridge Taxi and H&M Transport. H&M Transport also provides non-emergency medical transport services.

Rockbridge Area Transportation System (RATS) is a demand-response, door-to-door, service available to the public. The mission is to provide safe, affordable transportation to residents of the Rockbridge area, especially those who are elderly, have special needs, or simply have no other transportation. A sliding scale is used to be sure that reduced fares are provided where most needed. RATS operates 14 vehicles (8 with wheelchair capability) during business hours five days per week. Evening and weekend service is available by arrangement. Transportation to regional medical centers in Roanoke, Fishersville, Charlottesville, etc., is part of the service.

The Maury Express is a deviated fixed route rural public transportation service that began service in March, 2011. Two buses circulate hourly using a route connecting the residential areas along primary roadway corridors of Buena Vista and the City of Lexington with necessary community services, such as commercial services, healthcare needs, schools, and employment centers. Fare is \$0.50 per ride as of 2018.

In addition to these public options, Southern Virginia University operates a private shuttle seasonally for student and staff use, stopping at off-campus housing and local shopping locations.

Parking and Rideshare

Most City streets are wide enough to allow street parking. Many businesses in the central business district rely on street parking for their customers, and current zoning regulations exempt most of the Magnolia/Sycamore/Beech Avenue corridor from off-street parking requirements. In addition to the parking lot for City Hall, the City owns a parking lot in the middle of the block bound by Magnolia Avenue, Forest Avenue, 21st Street, and 22nd Street.

Parking is also an emerging issue immediately surrounding SVU. Although new parking lots have been built in recent years in conjunction with new buildings, increases in enrollment have resulted in a high demand for parking spaces in the central campus. Progress continues on the university's Fields athletic complex, with the tennis center completed in 2017 and the football stadium completed in 2018, but completion of parking areas will be in a future phase.

There are no ridesharing programs or park-and-ride lots specific for the City of Buena Vista. However, a regional rideshare was started in 2009 by the Central Shenandoah Planning District Commission. The regional rideshare program services all of Rockbridge County and

matches commuters to any other destination within the five county Planning District Commission boundary.

KEY ASSUMPTIONS OF FUTURE TRANSPORTATION PLANNING

Identifying development patterns, trends, regulations, and future growth forecasts are essential to making sound transportation planning decisions and infrastructure investments. This section will highlight key land use and planning assumptions that are used to identify where the existing transportation network will need to be improved to meet demand generated by future growth and land use changes.

VTrans 2045

State and federal transportation dollars are allocated through VDOT, in part based on how well projects support the goals and objectives of VTrans 2045, the statewide transportation plan. This transportation chapter and recommendations have been developed to ensure consistency with VTrans 2045, which focuses on the needs of the Commonwealth's Corridors of Statewide Significance, multimodal regional networks that support travel within metropolitan regions, and improvements to promote Urban Development Areas (UDA). The state has significantly shifted mobility priorities from being primarily single-occupancy vehicle-oriented to a multimodal model that addresses a variety of transportation options.

UDA's and Traditional Neighborhood Design

Urban Development Areas (UDA) coordinate land use and transportation planning efforts at the local, state, and regional levels. UDAs embody the principles of Traditional Neighborhood Design (TND) and retain the classic characteristics of traditional communities such as:

- Walkable neighborhood centers
- Interconnected streets and blocks
- Diversity of land uses
- Easy access to jobs, housing and recreation by a variety of travel options (auto, bus, walk, bike, etc.)

Additional requirements for UDAs include specific minimum densities permitted by zoning and incorporation of elements of TND. Buena Vista's existing zoning meets both of these requirements. All of the City's residential zones permit at least four dwelling units per acre, and commercial and industrial zones permit high density or floor area ratios (FAR).

Traditional neighborhood design principles are woven into the City's comprehensive plan, its subdivision requirements, and many of its zoning districts. For example, the City requires new streets to connect to the existing grid, and the two mixed-use districts in the City allow "zero lot line" construction to facilitate a vibrant downtown. Further, the design guidelines that apply to the Seminary Hill Historic District and Hilltop districts add extensive TND guidelines for site configuration and building interaction with the street. The City designated its full geographic area as a UDA in 2018.

VTrans 2045 Mid-Term Assessment Needs

UDA #8 Transportation Needs

City of Buena Vista UDA

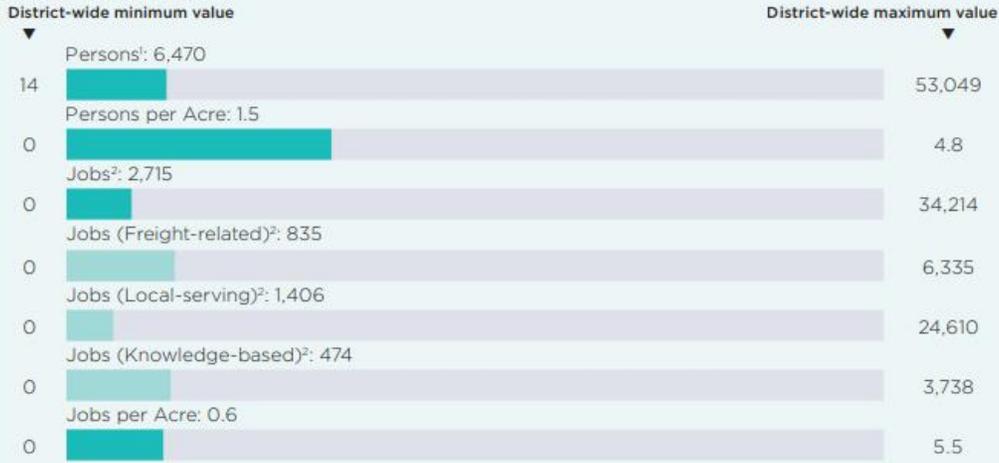
Jurisdiction: Buena Vista City

PDC: Central Shenandoah

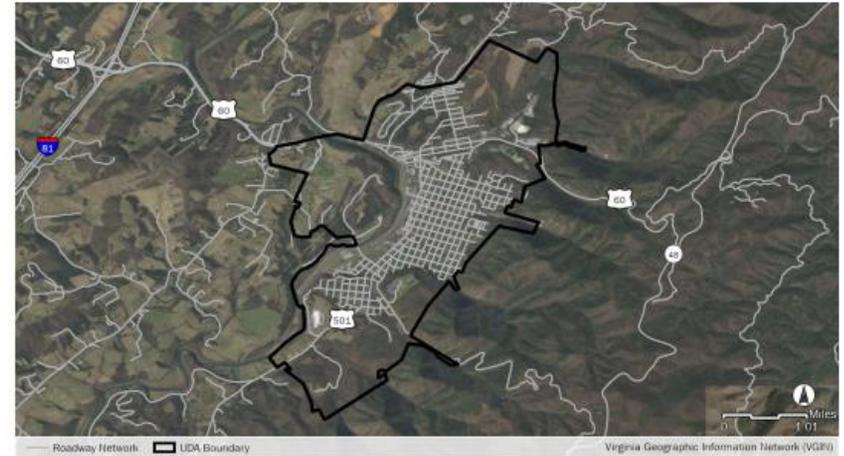
Acres: 4,195

Construction District: Staunton

Socio-economic Profile



Transportation Profile



Transportation Needs	UDA Needs	Needs Adjacent to UDA
Sidewalks	●	●
Other Pedestrian Infrastructure	●	●
Bicycle infrastructure	○	○
Other complete streets improvements	●	○
Traffic calming features	○	○
Intersection design or other Improvements	○	○
Street grid	○	○
Signage/wayfinding	●	○
Safety features	○	○
Transit capacity and access	○	○
Transit facilities and amenities	○	○
Transit operations	○	○
Transit frequency	○	○
On-street parking capacity	○	○
Off-street parking capacity	○	○
Roadway capacity and infrastructure improvements	○	○
Roadway operations	○	○
Improvements to the natural environment; storm water management; site design; or landscaping	○	○

Land Use

Future residential and commercial growth has the potential to impact vehicle traffic volumes and safety. The City has no planned land use changes or developments that are anticipated to impact future traffic volumes, and roadway capacity in Buena Vista is sufficient to meet current and future needs. The City does not anticipate any new large commercial, residential, or industrial developments in the near future.

Population and Demographic Trends

Buena Vista has a total population of 6,641 according to the 2020 Decennial Census. The 2020 census count is smaller than the 2010 population count of 6,650.

Southern Virginia University is one of the primary growth engines for the City. The University is expanding and continues hiring new faculty and staff as well as enrolling over 1,100 students in the 2018-2019 school year. The school's strategic plan calls for continued growth to reach 1,500 or more students over the course of the next five to ten years. The University's growth may have a tangible impact on overall vehicular and pedestrian traffic volumes in the vicinity of the campus. Traffic flow and congestion around the school's campus will need to be monitored and studied as growth continues.

Mode Choice

Mode choice refers to what means of transportation a person chooses to get from A to B. It could be driving a car, walking, biking, riding a bus, calling a taxicab, driving a golf cart, or other means. Many factors play a role in an individual's mode choice, but availability and perceived safety of a given mode are two of the most important. For example, a person may live half a mile from a store; but will choose to drive because there is no sidewalk available or walking feels dangerous. Greater mobility is achieved by offering better mode choices.

Active modes of transportation, especially walking, are critical elements of a healthy transportation network. Pedestrian facilities are particularly important in Buena Vista. The original layout of the City was orderly and compact, with a traditional downtown and streets designed for sidewalks. There is rich opportunity for land uses that feed off each other, for example apartments located near shops, restaurants, and services on a grid of well-maintained sidewalks. By building the sidewalks and implementing the right land use policies, businesses will locate near their customers, and pedestrians will generate foot traffic for these businesses.

Pedestrian and bike facilities are also important for Buena Vista to serve the student population, which may or may not have a car. The Riverwalk will remain a key recreational pedestrian/bike route, especially as it becomes better-connected to the Chessie Trail/Brushy Blue Greenway. Buena Vista is uniquely well-suited for these modes because the core of the city is flat, and the infrastructure is cheaper to build and maintain.

Buena Vista took a bold step in 2016 to authorize an alternative mode of transportation—golf carts. The City became officially golf cart friendly by permitting golf carts to operate on all City streets except Route 501 and Route 60, subject to certain rules and registration. One of the main purposes was to make it easier for visitors camping at Glen Maury Park to cross 10th street and venture to downtown restaurants and other businesses, but many locals have taken advantage of the new rules for a fun way to get about town. As of fall 2017, nearly 50 golf cart permits have been issued.

Commuter Characteristics

Commuter behavior gives planners more context in understanding the pattern, length, and types of work trips happening in an area. Commuter travel trends inform a variety of questions regarding future travel demand, peak period congestion management, and economic forces at play in the region. Fuel and housing costs dictate the ability to find work or move closer to a new or existing job.

The Longitudinal Employer-Household Dynamics (LEHD) program is part of the Center for Economic Studies at the U.S. Census Bureau. Using LEHD data, the city can be analyzed as both a labor source and destination. Approximately 30% (783) of workers in the City are residents, and 70% (1,793) of workers in Buena Vista live outside of the City, according to U.S. Census Bureau, OnTheMap, 2017.

In 2017, of the 2,966 working age people that live in the City, 73% (2,161) were employed outside of the Buena Vista. This data reveals nearly an equal amount of commuting traffic in both directions, into and out of the City, during the morning and evening peak periods. This is uncharacteristic of many smaller towns and cities in the Shenandoah Valley who typically have one-direction inflow and outflow commuter traffic in the mornings and evenings. Figure 7.1 estimates the number of external commuters entering the City, the number that live and work in the City, and the number of residents that work outside of the City.

Figure 7.1
2017 Commuter Travel Trends, Inflow and Outflow



Another source of commuter travel data is the American Community Survey (ACS). The 2013-2019 5-year estimates show that 85% (2,398) of City workers aged 16 and over drive alone

by automobile to work out of a total 2,818. Approximately 3.76% (106) carpool with one or more individuals, and 2% (57) work at home. About 6.7% (190) of workers walk to their place of employment. The average travel time to work is 18.3 minutes.

The commuter characteristics of Buena Vista indicate that most workers drive alone, and 70% of them work outside of the Buena Vista. Transportation Demand Management (TDM) strategies like vanpooling, rideshare, and park-and-ride lots may help offset City resident transportation costs from job market and housing swings or rising fuel costs in the future.

Technology

The last decade has seen the emergence of two key technologies that will shape the transportation network because they both shape mobility rather than directly altering infrastructure. The first is smart phone-enabled ridesharing such as Uber and Lyft, and the second is the development of autonomous vehicles. While major cities are already grappling with these developments, smaller towns are beginning to see their influence.

Ridesharing mobile apps such as Uber and Lyft are an alternative to traditional taxis, offering on-demand transportation in a passenger vehicle. Drivers are usually part-time and use their personal vehicles, ostensibly lowering the cost and making the service more widely available. Although more common in larger urban areas, both Uber and Lyft are available in the Rockbridge area, though their response time and rate may not be competitive with local taxi services. Although it is unlikely Buena Vista will see the level of service that major urban areas have because of its lower density and population, more widely available and potentially less-expensive on-demand, door-to-door transportation could improve mobility for people not able to drive their own vehicles.

Autonomous vehicles (AVs), or driverless cars, are vehicles equipped with sensors and computers able to drive without a person operating them. There are very few on the road because of the technical, legal, and safety challenges, but the potential benefits of AVs push their development forward. If AVs become common, they will fundamentally reshape how people use the road system, and it is essential that localities monitor this and adjust infrastructure projects. Potential of AVs in the Rockbridge area:

- Increase mobility of those who cannot now drive a car, such as youth (<18), seniors, and the disabled
- Make it less inconvenient to live far from employment—if you can read, watch movies, sleep, etc. while you commute you may be willing to live further out in the country
- Reduce need for downtown parking—cars can drop off and pick up passengers on demand and park elsewhere

Freight trucks will likely be the first to transition to AVs, changing traffic flow on I-81 and through Buena Vista on Route 60 and Route 501.

TRANSPORTATION NEEDS

The demands placed on the transportation network will change over time in response to gradual shifts in the local economy and demographics as well as emerging transportation technology. These demands will change how existing facilities are used as well as what new facilities are needed, with the ultimate measure of mobility--the ability to move easily. Are individuals in Buena Vista able to get to the places they need to go, regardless of means of transportation? These existing and future needs inform the basis for projects and recommendations.

UDA Needs

The Urban Development Area (UDA) is a designated growth area that meets the intent of the Code of Virginia, section §15.2-2223.1. The legislation directs that transportation needs in UDAs be consistent with the needs assessment contained in VTrans, as well as to be considered in the SMART SCALE statewide prioritization process for project selection. VTrans is Virginia's multimodal transportation plan developed by the Commonwealth Transportation Board (CTB) every four years. The plan is currently in the process of being updated as required by federal law. The Office of Intermodal Planning and Investment (OIPI) coordinates VTrans updates and works closely with partner transportation agencies.

VTrans Mid-term Needs are a companion to the long-range element of the VTrans 2045 update process, and provide direction toward achieving the plan's overarching vision and goals. They serve as important criteria for projects applying for SMART SCALE funding – a State grant funding program focused on addressing the most critical transportation needs in Virginia. The Mid-term needs identified for the Buena Vista UDA are as follows:

- Buena Vista Industrial Park - Need to connect or improve access to and from the nearest CoSS for Sites that have achieved readiness status of Tier 3 or higher in VEDP's Business Ready Site Program.
- Other transportation needs that Buena Vista UDA is eligible to apply for grant funding:

Roadway capacity and operations:

Transit frequency, operations,
capacity, facilities
Street Grid
Bicycle and Pedestrian
Infrastructure
Complete Streets
Safety features

On-street parking
Off-street parking
Intersection design
Signage/wayfinding
Traffic calming
Environmental

Year 2040 Traffic Volumes and Congestion

To assess transportation capacity needs for Buena Vista, traffic projections to the year 2040 were developed to analyze the performance of the transportation system. All major roadways in the City were anticipated to incur traffic growth between 0.5 percent and 2.0 percent per year, based on the land use planning assumptions. On roadways where there has been minimal to no traffic growth, a nominal growth rate of 0.5 percent was assumed to provide a conservative forecast of future conditions. The 2016 traffic volumes for each road segment were then multiplied by the respective growth factor to obtain the 2040 traffic projection for that segment of the roadway using simple linear growth. Growth rates were analyzed and checked against the land use and planning assumptions.

Projected 2040 traffic volumes are shown on Map 7.3 and were used to identify future deficient roadways in the City. The color ramp in the map legend is meant to show relative change, and it is not meant to convey deficiencies. Traffic growth is expected to grow slightly on the arterials of Route 60 and Route 501, predominantly as traffic flows westward, to and from I-81.

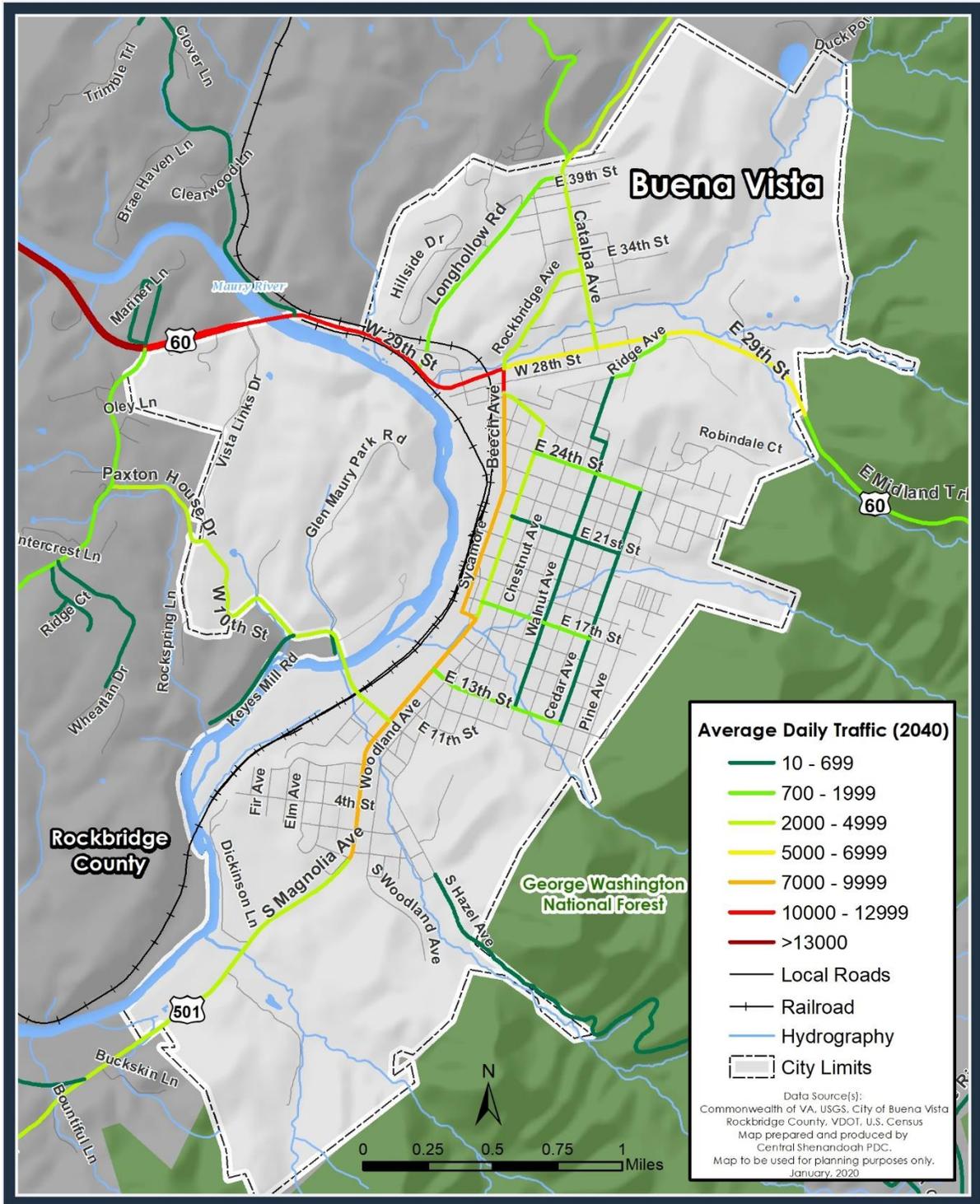
The volume-to-capacity ratio (V/C) is a relative measure of congestion. It compares roadway demand (vehicle volumes) with roadway supply (carrying capacity). For example, if there were 10 cars on a road segment, and that road segment's capacity could only hold 10 cars, the road would be considered at full capacity. The road would have a V/C ratio of 1:1, or for simplicity, a V/C ratio of 1. This measure can alert transportation planners to areas where capacity improvements can be targeted.

The following V/C ratio classifications may be used to relate the V/C ratio to a description of capacity:

- Free Flow Conditions (0 – 0.6)
- Mild Congestion (0.6 – 0.8)
- Congested (0.8 – 1)
- Over Capacity (>1)

Traffic performance data for Buena Vista's urban thoroughfare system is available in **Table X.X in Appendix X**. The City is projected to have ample capacity on the roadway system in the future.

Map 7.3
 Projected Annual Average Daily Traffic (AADT) Year 2040



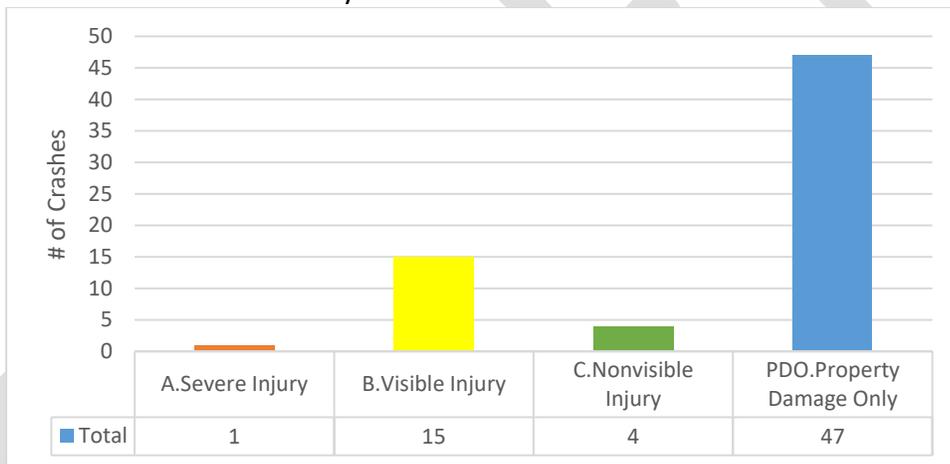
Roadway Safety and Crashes

A crash analysis was performed to review the City’s transportation safety needs. Map 7.4 displays the location of all crashes from 2013 - December 2020, the latest period of available data. There are 11 vehicle crashes that occur annually on average.

The greatest number of crashes occur along Route 501 and Route 60, which are the routes that handle the most traffic in the City. The majority of crashes within Buena Vista result in property damage. There were no fatal crashes, 1 severe injury crash, 15 visible injury crashes and 4 non-visible injury crashes.

The planning-level analysis used for this chapter included identifying potential hazardous locations as well as potential safety concerns that could be mitigated by short; mid; or long-term transportation improvements. This planning-level analysis does not replace detailed traffic engineering safety studies that may be required in the future at particular locations.

Table 7.2 Severity and Total Number of Vehicle Crashes



Map 7.4
Severity and Location of Crashes, 2013- October 2019

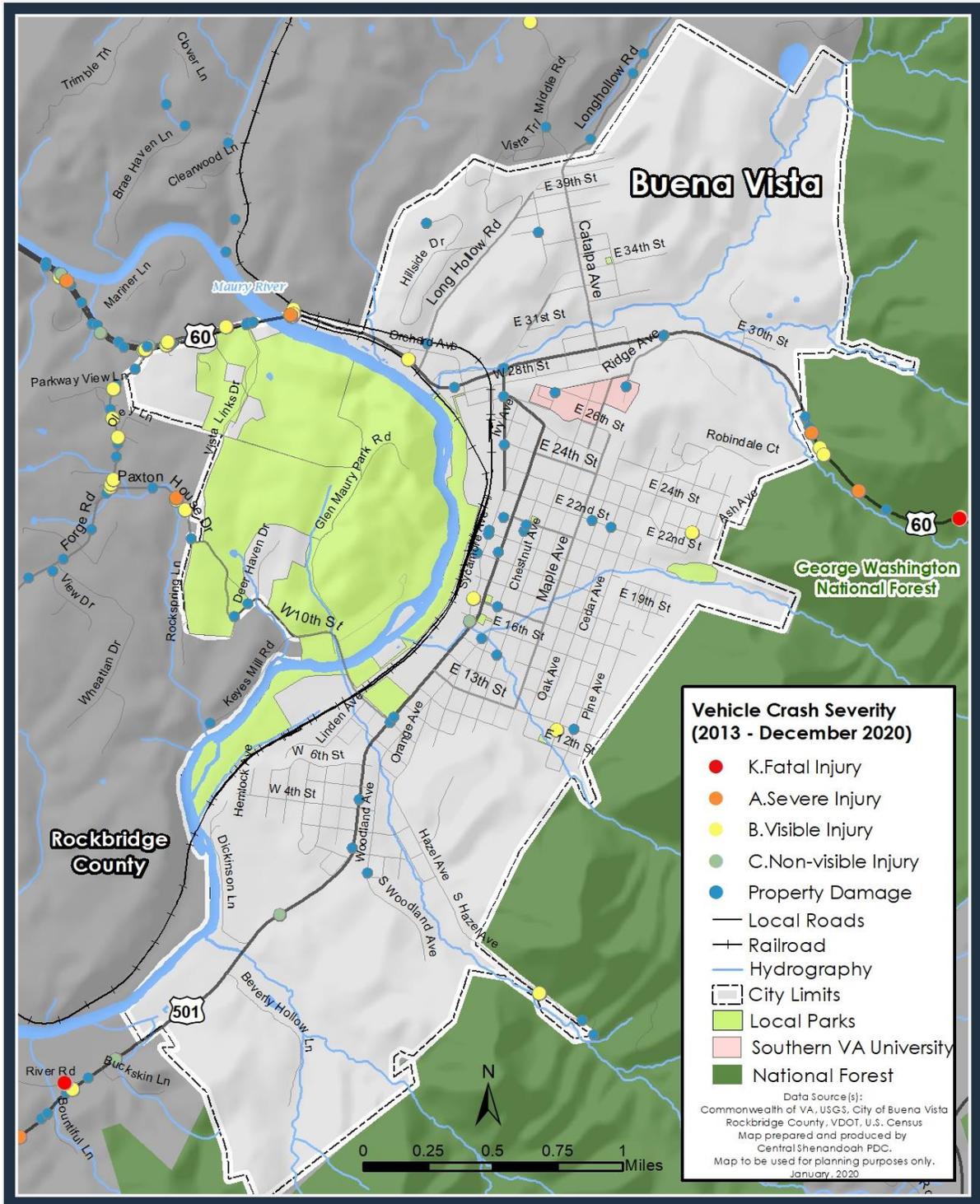


Table 7.3 summarizes transportation deficiencies based on the crash data. Parking could become an urgent issue around SVU’s campus without construction of additional facilities or institutional regulation of vehicle use. Pavement throughout the City is in poor condition, and multiple reconstruction/major repaving projects are needed.

Table 7.3: Summary of Transportation Deficiencies

Deficiency Type	Description	VDOT Crash Data (2013-2020)
Intersections – 2019	<ul style="list-style-type: none"> • U.S. 60 and VA 608/Forge Road/ Pathfinder Drive (partially in Rockbridge County), and the median crossover to the east at the Food Lion shopping Center (Safety) • U.S. 60/ West 29th Street and Vista Links Drive (Safety) • U.S. 60/ West 29th Street and VA 608/Stuartsburg Road(Safety) 	<ul style="list-style-type: none"> • 12 Crashes at Forge Rd/Pathfinder Dr: 10 angle and 2 rear-end. 5 crashes involved injuries. 4 angle crashes at CJ Morrison (Food Lion), 3 of which involved injuries. • 7 crashes: 1 angle, 5 rear-end, and 1 sideswipe. 2 crashes involved injuries. • 4 crashes: 1 angle, 1 rear-end, and 2 fixed-object off-road. All 4 crashes involved injuries.

DRAFT

NEEDS ASSESSMENT

The City of Buena Vista has adequate capacity on its road network, and does not anticipate growth in population or employment that will strain road capacity. Transportation system needs will focus on improving safety, maintenance of existing infrastructure, and improving multimodal connectivity for the residents.

Safety

Crash data indicates that the segments of the US 60 and US 501 corridors between Sycamore Ave and Chestnut Ave, and areas of downtown between 21st Street and 17th Street see the majority of crashes causing property damage. Measures to calm the traffic and improve pedestrian safety could be implemented to control the severity and frequency of crashes.

Multi-Modal Connectivity

The City can expand its network of sidewalks on the streets that connect residents to downtown. For example, constructing sidewalks on Rockbridge Avenue, between 29th street and East 32nd street vicinity will provide safe pedestrian connection between the apartments on Rockbridge Avenue and Southern Virginia University and downtown neighborhoods. Grant funding will play a vital role in building this pedestrian network in the City. As opportunities arise with paving or roadway reconstruction projects, the City could try to accommodate the creation of bike lanes or wider paved shoulders.

Pedestrian Bridges

Riverfront Park and River Walk along the Maury River are connected to the Downtown via 21st Street. The 2020 Downtown Revitalization Plan highlights the potential of 21st Street to include multiple connections through the Downtown area, its neighborhoods, and ultimately a gateway to the Glen Maury Park. The City can construct a pedestrian and golf cart bridge over the Maury River to connect the River Walk on the east to the Glen Maury Park on the west. This connection will expand the trail system to provide access to various short and longer loop walks, vistas, and park space to the residents.

The residents of the Gayle Smith Apartments on West 30th Street do not have a direct pedestrian connection to Downtown. The City can reconstruct the pedestrian bridge over Chalk Mine Run between West 30th street and Aspen Avenue. This bridge will provide safe walkable access to the residents of Gayle Smith Apartments to Southern Virginia University, downtown neighborhoods and their amenities.

Maintenance

The City will continue working with VDOT on general maintenance and upgrades to the current transportation system to meet VDOT standards. Improving the railroad crossings and constructing pedestrian bridges would benefit vehicular traffic, bicycles, and pedestrians.

PROGRAMMED PROJECTS

There are three active projects in the City that are funded through the VDOT Six-Year Improvement Plan:

State UPC	Project Name	Status
115104	#SGR20LP - SOUTH MAGNOLIA AVENUE Primary Extension Paving	Construction completed in 2020
115105	#SGR20LP - WEST 29th STREET - Primary Extension Paving	Construction completed in 2020
116974	#SGR21LP MAGNOLIA AVENUE PRIMARY EXTENSION PAVING	Construction scheduled for 2023-2024

TRANSPORTATION PROJECT RECOMMENDATIONS

General Future Project Recommendations

Most projects identified in the 2012 Plan were automobile-oriented, and intended to address current and anticipated automobile safety and operational concerns. Pedestrian and bicycle mobility and safety is also critical to Buena Vista. The 2021 Plan includes additional projects to address pedestrian mobility and safety, and emphasizes the following:

- Improve pedestrian connectivity by repairing or constructing sidewalks and other pedestrian walkways;
- Collaborate on planning and execution of road, sidewalk, and parking infrastructure in and around Southern Virginia University's campus; and
- Aggressively pursue reconstruction, resurfacing, and repaving projects throughout the City.

Highway Recommendations

1. Systemic Improvements for US 60 and US 501 Corridors

State Planning Alignment: UDA Intersection Design, Roadway Capacity and Infrastructure Need

Potential Funding Source: Rural Statewide Planning and Research (SPR) funding through CSPDC, Economic Development Access

- a. US 60 at Alleghany Avenue
Summary: Evaluation of intersection operations.
Description: Monitor and evaluate operational issues at the intersection if traffic volumes exceed the 2040 anticipated growth rate.
- b. US 60 at US 501 (Beech Avenue)

Summary: Evaluation of intersection operations.

Description: Monitor and evaluate operational issues and pedestrian access improvements at the intersection if traffic volumes exceed the 2040 anticipated growth rate.

c. US 501 at 20th Street

Summary: Evaluation of intersection operations.

Description: Monitor and evaluate this intersection for operational issues and potential safety improvements if traffic volumes exceed the 2040 anticipated growth rate.

d. Alleghany Avenue/Factory Street from US 60 to US 501

Summary: Roadway Reconstruction

Description: Reconstruct roadway to meet current VDOT standards, and level the railroad crossing on Factory Street. The railroad crossing improvements would provide an alternate route for large trucks from the City's industrial park to I-81/64.

Cost Estimate: \$2,00,000

2. US 60 Intersections

Summary: Evaluation of the intersections on US 60 near the H. Russell Robey Memorial Bridge to improve vehicle and pedestrian safety.

Description: US 60 on the western side of the City connects residents to Food Lion and the Dollar Tree. There have been 23 crashes near the three intersections on US 60 near the shopping center, and on either side of H. Russell Robey Memorial Bridge over the Maury River. Nine of these crashes involved injuries. The City can conduct a study to evaluate the three intersections to develop safety improvements.

State Planning Alignment: UDA Intersection Design and Safety Needs

Potential Study Funding Source: Rural SPR funds through CSPDC

a. US 60 and VA 608/Forge Road/Pathfinder Drive

Summary: Evaluate intersection operations to improve safety.

Description: Since 2013, there have been 12 total crashes near the median crossover that provides access to the shopping center. Ten of the crashes were angle crashes. The City can evaluate this intersection to improve safety and traffic operations.

b. US 60 and Vista Links Drive

Summary: Evaluate intersection operations to improve safety.

Description: Vista Link Drive connects to U.S. 60 near the west end of H. Russel Robey Memorial Bridge. This intersection has had seven crashes since 2013. Two of these crashes involved injuries. The City can evaluate visibility improvements for vehicles driving on U.S. 60 from Vista Link Drive.

c. US 60 and VA 608/Stuartsburg Road

Summary: Evaluate intersection operations to improve safety.

Description: The intersection on the east end of H. Russel Robey Memorial Bridge has had four crashes since 2013, and all four crashes have involved injuries. Two of these crashes involved fixed objects off-road. The City can evaluate vehicle turning movements near Stuartsburg Road to identify possible improvements to address vehicle and pedestrian safety.

3. 21st Street Pedestrian Bridge across the Maury River

Summary: Pedestrian bridge installation.

Description: Install a pedestrian and golf cart bridge over the Maury River to connect the River Walk to Glen Maury Park. The bridge would provide continuous pedestrian access from Downtown along 21st Street to the Glen Maury Park trails on the west side of the Maury River, and provide pedestrians with access the park trail network and park amenities, which includes trail loops and vistas.

State Planning Alignment: UDA Pedestrian Infrastructure Needs

Cost Estimate: \$6,00,000

Potential Funding Source: SMART SCALE, Revenue Sharing, CDBG Block Grant

4. Aspen Avenue Pedestrian Bridge

Summary: Reconstruct pedestrian bridge across Chalk Mine Run to connect 30th Street and 31st Street at Aspen Avenue.

Description: Construct an approximately 75' pedestrian bridge and approximately 75' of sidewalk/stairs to restore a former pedestrian bridge over Chalk Mine Run that once connected West 30th street with Aspen Avenue. This bridge would provide safe access to residents of the Gayle Smith apartment complex and other development north of Chalk Mine Run to SVU, the commercial downtown area, and adjacent neighborhoods.

State Planning Alignment: UDA pedestrian infrastructure needs

Cost Estimate: \$261,000

Potential Funding Source: TAP, Revenue Sharing.

5. Rockbridge Avenue Sidewalk

Summary: Construct a sidewalk on Rockbridge Avenue from 29th Street north to 32nd Street vicinity.

Description: Construct 1,250' of sidewalk on the east side of Rockbridge Avenue from the intersection of 29th Street to the Vista Apartments. The residents of multiple apartment complexes on Rockbridge Avenue have no safe way to walk downtown or to SVU.

State Planning Alignment: UDA pedestrian infrastructure.

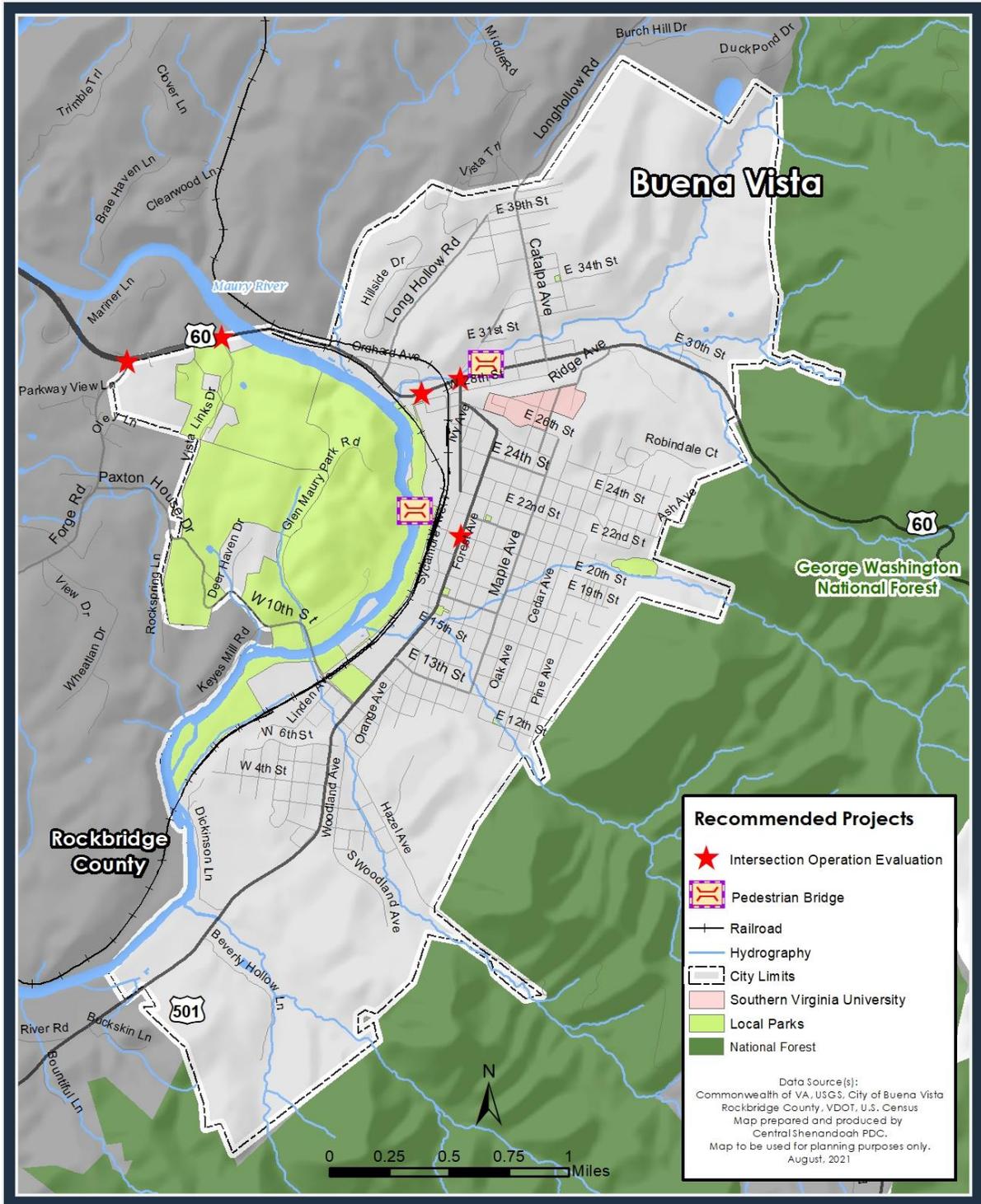
Cost Estimate: \$3,595,00

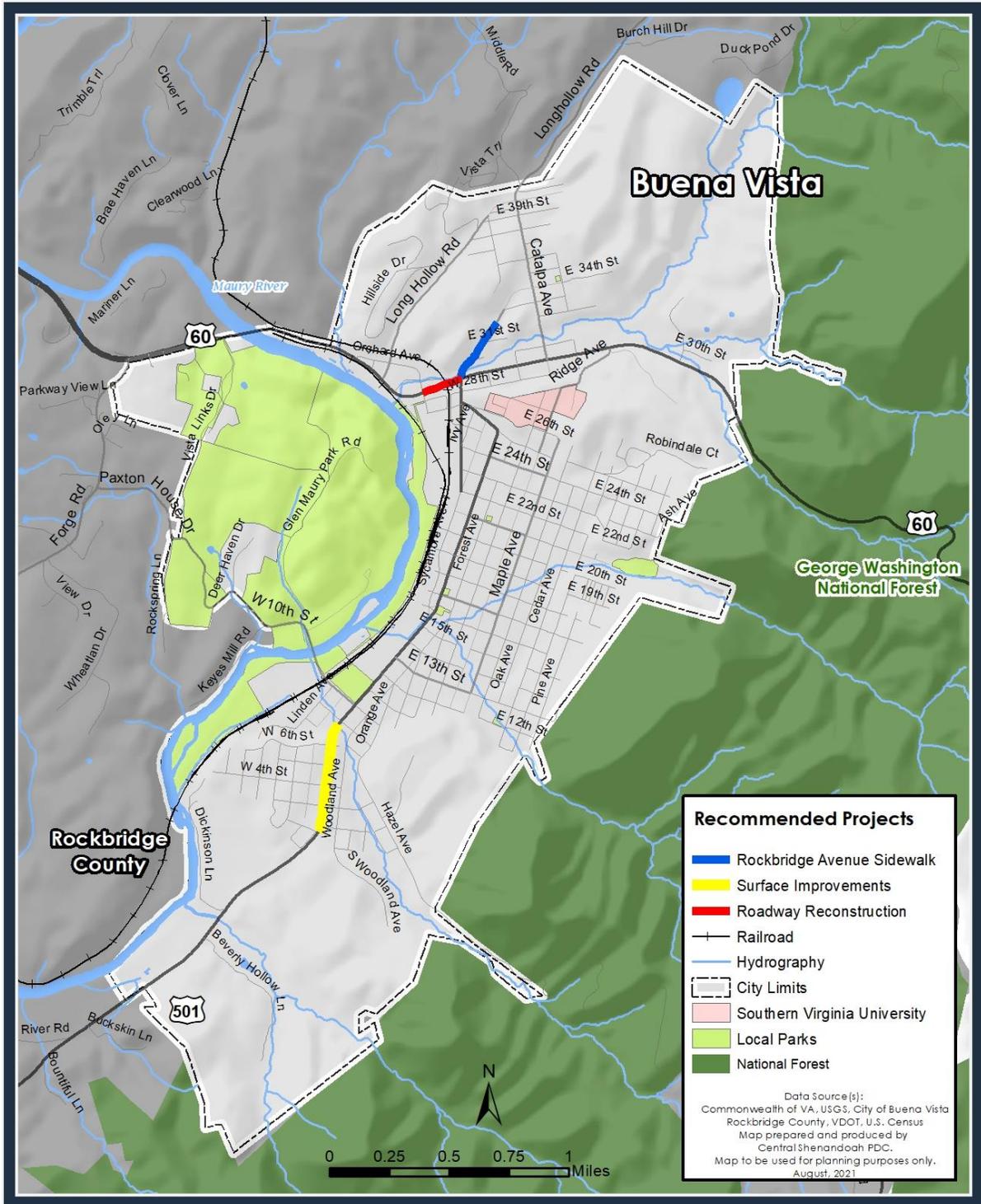
Potential Funding Source: Transportation Alternatives Program (TAP), Revenue Sharing, Smart Scale.

Further Study/Implementation Recommendations

For consideration in future transportation planning efforts, there are several recommended planning initiatives:

- Bicycle/Pedestrian Plan. A bike/pedestrian plan would identify existing connections and routes and map optimal routes through the City. It would identify projects throughout the City to improve sidewalk, bike lane, and off-road trail infrastructure.
- Parking Study for Downtown Buena Vista. The purpose of this study is to determine how to provide an adequate amount of parking to support the land uses in the downtown area and any future downtown economic development efforts.
- Parking Management Committee—SVU Campus. A committee comprised of City staff, University staff, Planning Commission members, and City Council members could focus on strategically addressing University-related parking issues before they become critical.
- On-street Parking Design Standards. Future transportation implementation policies should include, where appropriate, design standards for on-street parking to ensure adequate sight distance, particularly at intersections. All newly constructed curb ramps should be within ADA compliance standards.





TRANSPORTATION GOALS AND STRATEGIES

Transportation STRATEGIES FOR ACTION			
<p>Goal 1: Transportation Network</p> <p>The City of Buena Vista will maintain a safe and efficient transportation system that meets the local and regional access needs of residents, businesses, and visitors.</p>			
<p>To achieve this goal, the following critical success factors must be accomplished:</p> <ul style="list-style-type: none"> • Protect existing public investments in the transportation network. • Integrate transportation and land use planning. • Consider public roadways to be public spaces which serve multiple public purposes in addition to carrying motor vehicles. • Design a transportation network that accesses all modes of transportation easily and safely. 			
		Priority	Responsibility
7.1A	Coordinate land use commitments with transportation capacity.	On Going	Planning, Planning Commission
7.1B	Define and protect potential future road corridors for long term needs including evaluating undeveloped paper streets.	M	Planning, City Council
7.1C	Adopt standards for rezonings that include road and bridge capacities as criteria for approval.	On Going	Planning, City Council
7.1D	Require traffic impact studies for major development proposals that identify initial and long-term transportation impacts associated with the proposed development.	H	Community Development
7.1E	Encourage proposed employment centers to locate in close proximity to existing or planned major roads.	On Going	Planning, Planning Commission
7.1F	Control access to arterial roadways by directing the number and location of entrances.	On Going	Planning, Planning Commission
7.1G	Require building setbacks that reflect the right-of-way to ensure that the right-of-way is reserved for future transportation improvements.	On Going	Planning
7.1H	Continue to identify and address transportation mode/user conflicts with the transportation system.	On Going	Planning, Public Works
7.1I	Determine appropriate level of signage to enhance transportation safety conditions.	On Going	Public Works
7.1J	Increase safety awareness of users and providers of transportation systems.	On Going	Public Works

7.1K	Encourage the use of rail by industry, and deference to new industries, to use rail instead of solely trucks.	On Going	Planning, Economic Development
		Priority	Responsibility
7.1L	Balance needs of rail operation and access with other commercial and residential land uses along the rail corridor, and encourage maximum use of rail facilities when surrounding land uses are compatible.	On Going	Planning, Economic Development
7.1M	Use traffic calming measures at appropriate locations.	M, On Going	Planning, Public Works
7.1N	Design local streets to ensure safe and comfortable use by pedestrians and cyclists.	On Going	Planning, Public Works
7.1O	Promote improvements to the transportation network that are compatible with the aesthetic, historic, and physical characteristics of the City.	On Going	Community Development, Public Works
7.1P	Minimize transportation impacts to the City's historic, cultural, and environmental resources.	On Going	Community Development, Public Works
7.1Q	Develop a set of design criteria including landscaping, setbacks and buffers for the City's roadway that improve mobility and safety.	M	Planning, Public Works
7.1R	Formulate and adopt Context Sensitive Design criteria in transportation planning and project development.	M	Planning, Public Works
7.1S	Promote and establish attractive gateway/entrance corridors.	M	Community Development, Public Works, Community Organizations
7.1T	Coordinate planning and development with governmental transportation agencies at all levels and environmental land use plans and regulations.	On Going	Community Development

High (H) = Years 1-5

Medium (M) = Years 5-7

Low (L) = Years 7-10

On Going = Strategies with zero to minimal costs associated with implementation. These strategies may be completed at any time throughout the life of the plan.

**Transportation
STRATEGIES FOR ACTION**

Goal 2: Transportation Options

The City of Buena Vista will provide a variety of transportation options for residents, employers, workers, and visitors. The City of Buena Vista will improve connectivity and mobility to enhance its existing grid network of interconnected streets, sidewalks and trails.

To achieve this goal, the following critical success factors must be accomplished:

- Integrate transportation and land use planning.
- Support diverse transportation opportunities.
- Enhance the grid network of interconnected streets, sidewalks, and trails.
- Connect neighborhoods and destination points such as schools, job centers, retail centers, community facilities, and recreational activities.
- Expand the connectivity of the City’s transportation network across all modes for both people and freight.

		Priority	Responsibility
7.2A	Require new developments to design and construct transportation improvements to connect with existing and planned street grids and collector and transit systems.	On Going	Planning, Planning Commission, City Council
7.2B	Encourage that mixed use developments provide adequate internal circulation systems to minimize the length and number of vehicular trips and to optimize traffic flow.	On Going	Planning, Planning Commission
7.2C	Amend existing zoning ordinance to strengthen requirements for pedestrian and vehicular connections between and within proposed developments.	H	Planning, Planning Commission, City Council
7.2D	Map sidewalks and pedestrian pathways in the City to analyze connectivity...	H	Planning, Public Works
7.2E	Develop a program and seek funding to complete missing sidewalk connections throughout the City.	L	Planning, Public Works
7.2F	Develop a master bike and pedestrian plan to identify connections between neighborhoods, commercial developments and local destinations that can be safely implemented by both on-road bicycle lanes and off-road bicycle and pedestrian trails.	L	Planning, Parks & Rec
7.2G	Require new- or re-development to incorporate sidewalks or other provision for pedestrian access and circulation to connect with the existing sidewalk system and/or provide internal circulation.	H	Planning, Planning Commission, City Council

		Priority	Responsibility
7.2H	Encourage the use of bicycles in the design of new roads and developments.	On Going	Community Development, Public Works
7.2I	Develop individual bicycle and pedestrian trails within the City that have been identified as priorities for tourism and recreation.	L	Parks & Rec, Community Development, Community Groups
7.2J	Support the implementation of the Brushy Blue Greenways Plan.	On Going	Parks & Rec, Community Development, City Council, Community Groups
7.2K	Restore a pedestrian bridge across the Maury River to connect Glen Maury Park and the downtown area.	M	Economic Development, Planning, Parks & Rec, Public Works, VDOT
7.2L	Improve pedestrian facilities such as sidewalks and crosswalks in the downtown area.	M	Community Development, Public Works
7.2M	Implement the downtown corridor recommendations of the Blue Ridge Parkway Gateway Study for the City of Buena Vista.	M	Community Development, Public Works
7.2N	Invest in transit improvements that meet the needs of transit-dependent populations such as the elderly, low-income, and youth.	L	Community Development
7.2O	Emphasize commercial rail as an increasingly important means of goods movement.	On Going	Community Development

High (H) = Years 1-5

Medium (M) = Years 5-7

Low (L) = Years 7-10

On Going = Strategies with zero to minimal costs associated with implementation. These strategies may be completed at any time throughout the life of the plan.

**Transportation
STRATEGIES FOR ACTION**

Goal 3: Regional Transportation

The City of Buena Vista will be a community that works with local, state and federal officials to provide enhanced mobility through transportation projects with regional benefits.

To achieve this goal, the following critical success factors must be accomplished:

- Protect existing public investments in the transportation network.
- Develop a comprehensive funding strategy for maintenance and new capacity improvements.
- Design a transportation network that accesses all modes of transportation easily and safely.
- Provide alternatives to automobile travel.
- Design a flexible and responsive transportation system.
- Support and improve the economic vitality of the region by providing access to economic opportunities, such as industrial access or recreational travel and tourism.

		Priority	Responsibility
7.3A	Annually pursue state and federal funding programs to achieve the City’s capital improvements program goals.	H	Community Development, Public Works
7.3B	Encourage regional transportation planning, investment, and projects that support new and/or expanding economic development opportunities.	On Going	Economic Development, Public Works
7.3C	Encourage projects within all modes of transportation that improve the regional competitiveness.	On Going	Community Development
7.3D	Coordinate transportation planning between the City and neighboring jurisdictions to improve mobility.	On Going	Community Development, City Council
7.3E	Share planning and costs with other jurisdictions when City road improvements have mutual benefits.	On Going	City Council
7.3F	Solicit private financial participation in projects.	On Going	Community Development, City Council
7.3G	Work with neighboring localities to extend bus service where practical.	M	Community Development
7.3H	Encourage initiatives for public transportation and transit alternatives initiated by private sector or community groups, including public/private partnerships.	On Going	Community Development

Priority	Responsibility		
7.3I	Engage localities in the region to garner unified support for regionally significant roadway capacity projects.	On Going	City Council

High (H) = Years 1-5

Medium (M) = Years 5-7

Low (L) = Years 7-10

On Going = Strategies with zero to minimal costs associated with implementation. These strategies may be completed at any time throughout the life of the plan.

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Appendix X

Table X.X Buena Vista Traffic Performance Data Inventory

Roadway	From	To	2016 Volume	2016 V/C	2016 LOS	Growth Rate	2040 Volume	2040 V/C	2040 LOS
Cedar Avenue	13 Street	24 th Street	290	0.02	A	0.005	325	0.03	A
Lexington Avenue	WCL Buena Vista	Alleghany Avenue	9630	0.13	A	0.005	10,786	0.15	A
Rockbridge Avenue	29 th Street	Catalpa Avenue	2090	0.17	B	0.005	2,341	0.19	B
17 th Street	Magnolia Avenue	Forest Avenue	1380	0.05	B	0.005	1,546	0.06	B
Magnolia Avenue	15 th Street	20 th Street	2720	0.18	B	0.005	3,046	0.20	B
Ridge Road	Walnut Avenue	29 th Street	1080	0.10	B	0.005	1,210	0.11	B
Walnut Avenue	25 ½ Street	Ridge Road	640	0.04	A	0.005	717	0.05	A
25 ½ Street	Maple Avenue	Walnut Avenue	640	0.04	A	0.005	717	0.05	A
21 st Street	Maple Avenue	Cedar Avenue	600	0.04	A	0.005	672	0.05	A
21 st Street	Magnolia Avenue	Maple Avenue	600	0.04	A	0.005	672	0.04	A
Maple Avenue	25 th Street	25 ½ Street	640	0.04	A	0.005	717	0.05	A
24 th Street	Magnolia Avenue	Chestnut Avenue	1030	0.08	B	0.005	1,154	0.09	B
13 th Street	Magnolia Avenue	Cedar Avenue	1470	0.10	B	0.005	1,646	0.11	B
Maple Avenue	13 th Street	17 th Street	500	0.03	A	0.020	740	0.04	A
Sycamore Avenue	18 th Street	20 th Street	6630	0.32	C	0.005	7,426	0.35	C
17 th Street	Oak Avenue	Cedar Avenue	1380	0.10	B	0.005	1,546	0.11	B
24 th Street	Chestnut Avenue	Cedar Avenue	1025	0.08	B	0.005	1,148	0.09	B
Magnolia Avenue	20 th Street	25 th Street	2720	0.20	B	0.005	3,046	0.22	B
Maple Avenue	17 th Street	25 Street	500	0.03	A	0.020	740	0.04	A
29 th Street	Ridge Avenue	ECL Buena Vista	4590	0.23	C	0.005	5,141	0.26	C
10 th Street	C&O Railroad	Magnolia Avenue	3420	0.13	C	0.020	5,062	0.19	C
Catalpa Avenue	Rockbridge Avenue	Long Hollow Road	3010	0.19	C	0.005	3,371	0.21	C
29 th Street	Beech Avenue	Ridge Avenue	4590	0.23	A	0.005	5,141	0.25	B
Long Hollow Road	Lexington Avenue	NCL Buena Vista	1410	0.09	B	0.008	1,681	0.11	B
17 th Street	Forest Avenue	Oak Avenue	1380	0.10	B	0.005	1,546	0.11	B
Sycamore Avenue	20 th Street	22 nd Street	6630	0.32	C	0.005	7,426	0.35	C
Park Avenue	Magnolia Avenue	Beech Avenue	3660	0.21	B	0.005	4,099	0.23	B
10 th Street	WCL Buena Vista	Maury River Bridge	3420	0.25	C	0.010	4,241	0.25	C

Roadway	From	To	2016 Volume	2016 V/C	2016 LOS	Growth Rate	2040 Volume	2040 V/C	2040 LOS
Beech Avenue	22 nd Street	Park Avenue	7350	0.34	C	0.005	8,232	0.38	C
Magnolia Avenue	SCL Buena Vista	22 nd Street	3660	0.24	C	0.005	4,099	0.24	C
Lexington Avenue	Alleghany Avenue	Beech Avenue	9630	0.24	C	0.005	10,786	0.27	C
18 th Street	Magnolia Avenue	Sycamore Street	6200	0.23	C	0.005	6,944	0.23	C
Catalpa Avenue	29 th Street	Rockbridge Avenue	2080	0.17	B	0.005	2,330	0.19	C
10 th Street	Maury River Bridge	C&O Railroad	3420	0.25	C	0.010	4,241	0.25	C
Magnolia Avenue	2 nd Street	15 th Street	7,460	0.28	C	0.005	8,355	0.32	C
Beech Avenue	Park Avenue	29 th Street	10,620	0.54	C	0.005	11,894	0.60	C

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