



Mountain Lynx Transit Transit Development Plan

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Rockville, MD | Austin, TX

TABLE OF CONTENTS

Chapter 1: System Overview, Goals, Objectives, and Service Design Standards

Background.....	1-1
Purposes of a TDP	1-1
System Overview	1-2
Facilities	1-4
Services Provided and Areas Served	1-4
Service Overview.....	1-9
Current / Recent Initiatives	1-9
Other Regional Transportation Services.....	1-11
Public Transit Providers.....	1-11
Taxi and Private Transportation Providers	1-11
Human Services Transportation.....	1-11
Medicaid Transportation	1-12
Intercity Bus	1-12
Amtrak	1-12
Goals, Objectives, and Service Design Standards	1-12
Goals and Objectives.....	1-12
Public Outreach, Engagement, and Involvement.....	1-14
Service Design Standards	1-15
Agency Profile	1-16

Chapter 2: System Evaluation

Introduction.....	2-1
Performance Standards	2-1
Performance Evaluation.....	2-2
Operating Data.....	2-2

Performance-Based Opportunities for Improvement.....	2-5
Evaluation of Transit Market Demand and Underserved Areas.....	2-7
TDP Advisory Committee	2-7
Passenger Survey.....	2-7
Community Survey.....	2-18
Driver and Operations Staff Questionnaire	2-32
Demographic Analysis.....	2-33

Chapter 3: Planned Improvements and Modifications

Introduction.....	3-1
Proposed Improvements and Modifications.....	3-2
Service Improvements or Modifications	3-2
Maintain and Further Promote Scheduled Services	3-4
Organizational and Coordination Improvements or Modifications	3-5
Infrastructure Improvements or Modifications	3-8
Summary of Proposed Improvements and Modifications.....	3-12

Chapter 4: Implementation Plan

Background.....	4-1
Asset Management.....	4-1
Capital Implementation Plan.....	4-4

Chapter 5: Financial Plan

Background.....	5-1
Projected Operating Expenses and Funding Sources	5-1
Projected Capital Expenses and Funding Sources	5-4

Chapter 1

System Overview, Goals, Objectives, and Service Design Standards

Background

The Virginia Department of Rail and Public Transportation (DRPT) requires that any public transit operator receiving state funding complete either a Transit Strategic Plan (TSP) or a Transit Development Plan (TDP). Transit operators not subject to TSP requirements must complete a new TDP at least once every 10 years and develop a mid-cycle update at least every five years. The most recent TDP for Mountain Lynx Transit was completed in 2020, and this is an update to that plan.

Purposes of a TDP

DRPT provides a guidebook to support Virginia's transit providers in preparing and updating TDPs, and that guidebook was used in the development of the updated plan for Mountain Lynx Transit. Through this guidance, DRPT notes that the TDP is not an operations plan, and by its very nature must address strategic issues and offer opportunities to rethink the goals of transit operators and identify needs and strategies to achieve those goals. DRPT also notes that the TDP has a variety of purposes:

- Serves as a planning, management, and policy document for transit operators.
- Provides a review and assessment of route performance, route design standards, and schedule standards.
- Informs DRPT of transit operators' capital, operating, state-of-good-repair, and maintenance needs.
- Provides the basis for inclusion of an operator's capital and operating programs in planning and programming documents such as the Six Year Improvement Program (SYIP), Statewide Transportation Improvement Program (STIP), Transportation Improvement Program (TIP), and Constrained Long Range Plan (CLRP).
- Provides a clear understanding of unmet or unfunded needs.
- Develops and tracks the progress of short-, mid- and long-term goals for transit in the region.
- Continually aims to improve efficiency and effectiveness of public transportation services.
- Promotes transparency and accountable decision-making.

In accordance with the DRPT TDP guidelines, this chapter provides a high-level overview of Mountain Lynx Transit and discusses the agency's strategic priorities. **Appendix A** contains more detailed information on Mountain Lynx Transit through an agency profile.

System Overview

Mountain Lynx Transit is a division of the District Three Governmental Cooperative (DTGC), and provides public transit service in Abingdon, Galax, Marion, and Wytheville, and in the counties of Bland, Carroll, Grayson, Smyth, Washington, and Wythe. Mountain Lynx Transit also provides some transit service within the City of Bristol (Virginia), though Bristol Virginia Transit serves as the primary transit provider in the city.

Located in southwest Virginia, the area is largely characterized as a rural, mountainous region. Much of the Mountain Lynx Transit service area of 2,787 square miles lies within the Blue Ridge and Appalachian Mountain Range. The area is home to Mount Rogers, the highest point in the Commonwealth of Virginia at 5,729 feet above sea level. Outdoor recreation is a large draw for the area with the Jefferson National Forest, Mount Rogers National Recreation Area, Grayson Highlands State Park, Hungry Mother State Park, the Virginia Creeper Trail, and the New River Trail State Park. The Appalachian Trail also traverses the region. **Figure 1-1** displays a map of the overall region served by Mountain Lynx Transit, though it should be noted that while the system provides some transit service within the City of Bristol, the primary public transit provider is Bristol Virginia Transit.

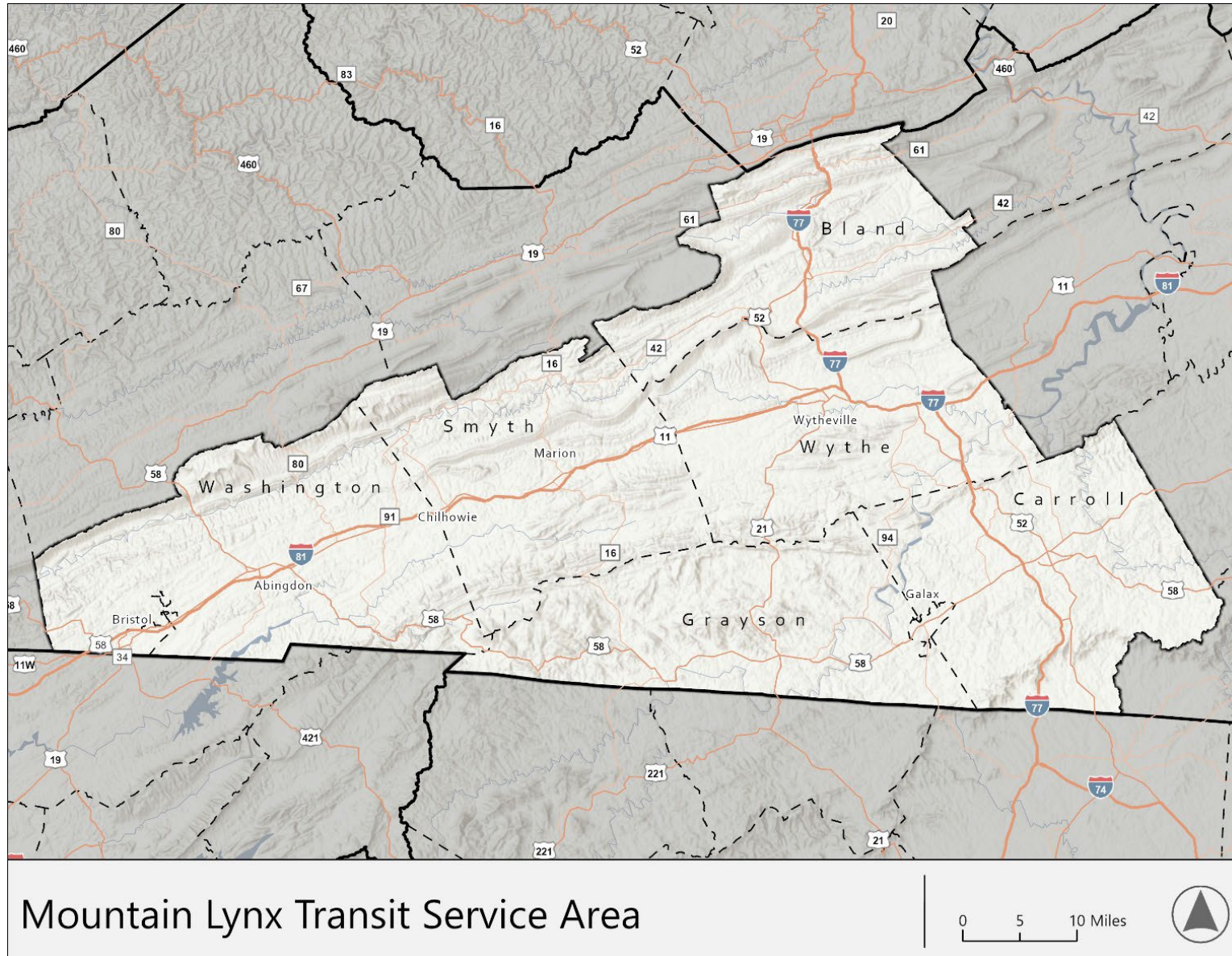
Interstate 81 is one of the leading trucking routes in the country. A portion of this route, as well as its intersection with I-77, is within the Mountain Lynx Transit service area. Other important commerce includes the manufacturing of furniture, clothing, and electronic components. There are four higher education institutions in the region:

- Emory and Henry University
- Southwest Virginia Higher Education Center
- Virginia Highlands Community College
- Wytheville Community College (with campuses in Wytheville and Galax)

The southern portion of the region borders both Tennessee and North Carolina, with a small portion of the area (Bristol) included as part of the Johnson City-Kingsport-Bristol Combined Statistical Area, while the northern part of the service area in Bland County borders West Virginia.

A detailed analysis of existing land use, employment, population, and demographics, as well as projected employment and population growth over the next 10 years, is provided in Chapter 2 of the TDP.

Figure 1-1: Mountain Lynx Transit Service Area



Facilities

Mountain Lynx Transit's main administrative and maintenance facility is located in Marion. Small satellite offices are located in Abingdon, Wytheville, and Galax:

- The Abingdon office is located at the Virginia Highlands Small Business Incubator on French Moore, Jr. Boulevard.
- The Wytheville office is located in the Mountain View Square Shopping Center on E. Main Street near Rural King.
- The Galax office is located in the Crossroads Institute on E. Stuart Drive.

Services Provided and Areas Served

City/Town Routes

Town of Abingdon

- The town of Abingdon is served by deviated fixed-route service and demand-response service.
- Two deviated-route loops, the Silver Loop and the Blue Loop, operate Monday through Friday from 8:00 a.m. to 5:00 p.m. on a one-hour headway. There are nine scheduled stops along the Silver Loop and eight stops along the Blue Loop. Riders may transfer from one loop to the other via a transfer stop, which occurs at Food City at the top of each hour. Customers may board the bus anywhere along the routes and may also call Mountain Lynx Transit to make arrangements for the bus to deviate up to two blocks off the route for a drop-off or pick-up.



- Two demand-response vehicles, referred to as "extra buses," serve areas within the town limits that are outside the loop deviation zone.
- Customers are encouraged to make arrangements at least 24 hours in advance for route deviations or for request-based service—same-day requests cannot be guaranteed.

City of Galax

- The city of Galax is served by deviated fixed-route service and demand-response service.
- Two deviated-route loops, the Blue Loop and the Red Loop, operate Monday through Friday from 8:00 a.m. to 4:00 p.m. Each route runs on a one-hour headway. There are six scheduled stops along the Blue Loop and six scheduled stops along the Red Loop. On Saturdays, the loops alternate, with the Red Loop running at 10:00 a.m., 12:00 p.m., and 2:00 p.m., and the Blue Loop running at 11:00 a.m., 1:00 p.m., and 3:00 p.m. Customers may board the bus anywhere along either route and may also call Mountain Lynx Transit to make arrangements for the bus to deviate up to two blocks off either route for a drop-off or pick-up.
- Two demand-response vehicles (extra buses) serve areas within the city limits that are outside the loop deviation zone Monday through Friday from 8:00 a.m. until 4:00 p.m.
- Customers are encouraged to make arrangements at least 24 hours in advance for route deviations or for request-based service, as same-day requests cannot be guaranteed. Customers may request deviations from the Saturday route, but those requests must be made prior to the next business day or earlier.



Town of Marion

- The town of Marion is served by deviated fixed-route service and demand-response service.
- The Marion Town Loop operates on a one-hour headway Monday through Friday from 8:00 a.m. to 6:00 p.m., and on Saturdays from 10:00 a.m. to 4:00 p.m. There are 10 scheduled stops along the Marion Town Loop. Customers may board the bus anywhere along the route and may also call Mountain Lynx Transit to make arrangements for the bus to deviate up to two blocks off the route for a drop-off or pick-up.
- One demand-response vehicle (extra bus) serves areas within the town limits that are outside the loop deviation zone Monday through Friday from 8:00 a.m. until 4:00 p.m.
- Mountain Lynx Transit serves the Highway 11 corridor of Marion, Atkins, and Groseclose with access to the Appalachian Trail Monday through Friday from approximately 8:00 a.m. until 4:00 p.m. by customer request only.
- The Summer Express Loop operates seasonally, beginning service the day after Memorial Day and continuing until mid-August. This route connects Marion with the Mt. Rogers National Recreation Area Headquarters, with access to Hungry Mother State Park. In season, this route is available

Monday through Friday from 8:00 a.m. to 6:00 p.m., and on Saturday from 10:00 a.m. to 4:00 p.m. During the Summer Express Loop's off-season, Mountain Lynx Transit serves the Highway 16 corridor between I-81 and the Mt. Rogers National Recreation Area Monday through Friday from approximately 8:00 a.m. until 4:00 p.m. by customer request only.

- Customers are encouraged to make arrangements at least 24 hours in advance for route deviations or for request-based service, as same-day requests cannot be guaranteed. Customers may request deviations from the Saturday route, but those requests must be made prior to the next business day or earlier.



Town of Wytheville

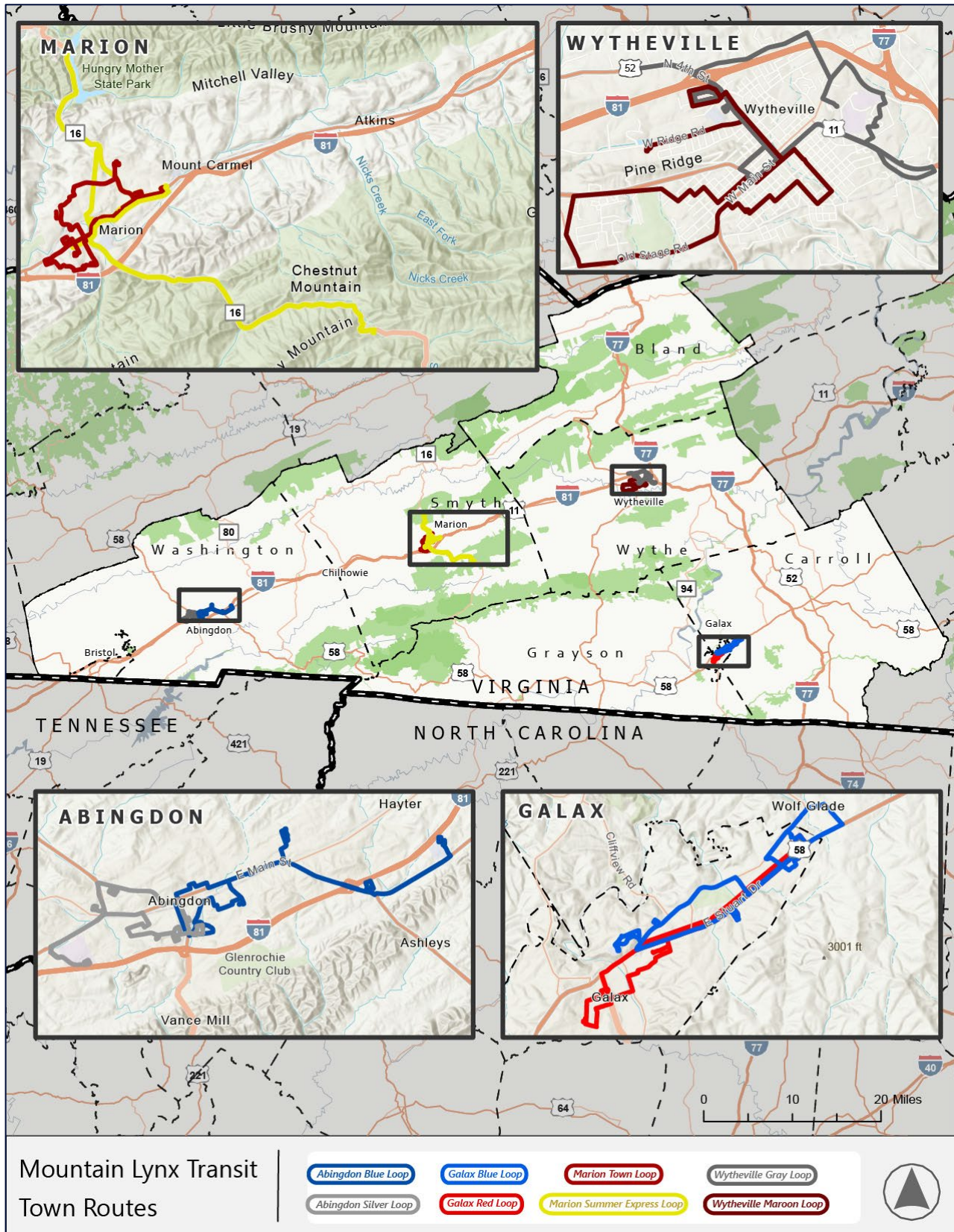
- The town of Wytheville is served by deviated fixed-route service and demand-response service.
- Two deviated-route loops, the Gray Loop and the Maroon Loop, operate Monday through Friday from 8:00 a.m. to 5:00 p.m. Each route runs on a one-hour headway. There are seven scheduled stops on the Gray Loop and six scheduled stops on the Maroon Loop. On Saturdays, the loops alternate, with the Gray Loop running at 8:00 a.m., 10:00 a.m., and 12:00 p.m., and the Maroon Loop running at 9:00 a.m., 11:00 a.m., and 1:00 p.m. Customers may board the bus anywhere along either route and may also call Mountain Lynx Transit to make arrangements for the bus to deviate up to two blocks off either route for a drop-off or pick-up.



- Two demand-response vehicles (extra buses) serve areas within the town limits that are outside the loop deviation zone, Monday through Friday from 7:00 a.m. until 5:00 p.m.
- Customers are encouraged to make arrangements at least 24 hours in advance for route deviations or for request-based service, as same-day requests cannot be guaranteed. Customers may request deviations from the Saturday route, but those requests must be made prior to the next business day or earlier.

Figure 1-2 provides a detailed map of Mountain Lynx Transit's town routes.

Figure 1-2: Mountain Lynx Transit – Town Routes



County Routes

Transportation to a commercial center is provided to different areas of each county on designated weekdays. Customers are eligible for service on the day of the week when a route is scheduled to serve the area in which they request to be picked up. Customers schedule their trips at least one day in advance, are picked up at or near their homes, and are transported to a designated commercial center. Multiple destinations are accommodated as needed and within time constraints. In-town customers may use county routes, but destinations and stops are determined by the driver, based on the convenience of county route riders. Mountain Lynx Transit strives to provide service to customers in each county at least once per week.

Bland County

- Mountain Lynx Transit operates in Bland County on Monday and Thursday. Riders are connected to Bluefield on Monday and to Wytheville on Thursday.

Carroll County

- Mountain Lynx Transit operates in Carroll County on Monday, Tuesday, Wednesday, Thursday, and Friday. Riders are connected to Galax on all Carroll County routes.

Grayson County

- Mountain Lynx Transit operates in Grayson County on Wednesday and Friday. Riders are typically connected to Galax, but one route connects riders to Marion one day per month.

Smyth County

- Mountain Lynx Transit operates in Smyth County on Monday, Wednesday, and Thursday. Riders are typically connected to Marion, but riders in some areas of the county are also regularly connected to Abingdon.

Washington County

- Mountain Lynx Transit operates in Washington County on Monday, Tuesday, Wednesday, Thursday, and Friday. Riders are typically connected to Abingdon, but one route regularly connects riders to Marion.

Wythe County

- Mountain Lynx Transit operates in Wythe County on Monday, Tuesday, Wednesday, Thursday, and Friday. Riders are connected to Wytheville.

Regional Services

Mountain Lynx Transit's College Express route connects customers in Bristol, VA to Virginia Highlands Community College (VHCC) Monday through Friday when school is in session. This route provides multiple connections daily between Abingdon, Bristol, and Smyth County, with pickups and drop-offs available in Bristol, VA, Abingdon, and Chilhowie each morning and afternoon per customer request.

Senior Nutrition Site Transportation

Mountain Lynx Transit provides demand-response transportation to congregate nutrition sites (Friendship Cafés) in each of the localities served by regular transit operations. Nutrition routes are open to any rider, although for each route the sole destination is the site at which the Friendship Café is held.

Senior Medical Transportation

Mountain Lynx Transit provides Senior Medical Transportation to individuals aged 60 and older who qualify for the program. Individuals must speak with a District Three Governmental Cooperative Care Manager to receive consideration for Senior Medical Transportation. Senior Medical Transportation provides eligible individuals with transportation to medical appointments, pharmacies, and other health-related activities. These trips are typically limited to round-trips that can be made in 10 hours or less.

Service Overview

Table 1-1 provides an overview of current loop and X-Bus services provided by Mountain Lynx Transit, showing areas served and operating days/hours. The county route information can be found in **Appendix B**, where the route brochures detail the services available for county residents outside the loop service areas.

Current / Recent Initiatives

The Mountain Lynx Transit TDP completed in 2020 noted that the organization was conducting a procurement process to obtain software that would assist in a variety of scheduling and dispatching functions to enable the system to provide more efficient and effective transit services. This software has been implemented and replaces an antiquated database and scheduling process.

Table 1-1: Mountain Lynx Transit Master Schedule

Route/Area Served	Days and Hours of Operation					
	M	Tu	W	Th	F	Sat
Abingdon						
Blue Loop East	8-5	8-5	8-5	8-5	8-5	
Silver Loop West	8-5	8-5	8-5	8-5	8-5	
X-Bus East	7:30-4:30	7:30-4:30	7:30-4:30	7:30-4:30	7:30-4:30	
X-Bus West	7:30-4:30	7:30-4:30	7:30-4:30	7:30-4:30	7:30-4:30	
Friendship Café	8-3					
Galax						
Blue Loop	8-4	8-4	8-4	8-4	8-4	
Red Loop	8-4	8-4	8-4	8-4	8-4	
Saturday Loops						10-4
X-Bus I	7-4	7-4	7-4	7-4	7-4	
X-Bus II	9-3	9-3	9-3	9-3	9-3	
Marion						
Town Loop	8-6	8-6	8-6	8-6	8-6	
Town Loop Saturday						10-4
Lake Loop (mid-June to mid-August)	8-6	8-6	8-6	8-6	8-6	
Lake Loop Saturday (mid-June to mid-August)						10-4
X-Bus	8-4	8-4	8-4	8-4		
Wytheville						
Gray Loop	8-5	8-5	8-5	8-5	8-5	
Maroon Loop	8-5	8-5	8-5	8-5	8-5	
Saturday Route						8-2
X-Bus I	7-5	7-5	7-5	7-5	7-5	
X-Bus II	7-5	7-5	7-5	7-5	7-5	

SOURCE: MOUNTAIN LYNX TRANSIT

Other Regional Transportation Services

Public Transit Providers

Bristol Virginia Transit and Bristol Tennessee Transit both serve the greater Bristol area, operating as separate entities on their own side of the state line and offering the following routes:

Bristol Virginia Transit Routes:

- East Bristol
- West Bristol
- Falls/Walmart

Bristol Tennessee Transit Routes:

- Hospital
- Penn-Hickory
- Southside

Routes operate primarily from 6:15 a.m. to 6:00 p.m., Monday through Friday. As noted earlier, Mountain Lynx Transit's College Express—when operating—provided access to these routes at Bristol Transit's State Street transfer center. There is no formal transfer between services, and while Mountain Lynx Transit services are fare-free, both Bristol Virginia Transit and Bristol Tennessee Transit have different fare structures, and customers pay separate fares for each service.

Taxi and Private Transportation Providers

- City Cab of Wytheville
- Eller Taxi Service LLC, Marion (Medical Transportation)
- Limited Uber and Lyft service

Human Services Transportation

Mount Rogers Community Services provides a wide array of services for individuals with mental health, intellectual and developmental disabilities, and substance use disorders. Their programs include Employment Support Services to assist individuals with disabilities in accessing work opportunities. The agency reports that they provide transportation on a regular basis between their location in Independence and Wytheville and mainly rely on outside transportation providers such as Mountain Lynx Transit.

Medicaid Transportation

Medicaid transportation is arranged by ModivCare (formerly LogistiCare) for this region of Virginia.

Intercity Bus

- Virginia Breeze is Virginia DRPT's intercity bus system connecting rural areas and cities throughout the Commonwealth. The Highlands Rhythm route operates between Bristol, VA and Washington, DC, with intermediate stops including Wytheville. The stop in Bristol is located at the Exit 5 Park & Ride located along Bristol Virginia Transit's Falls/Walmart Route, and the stop in Wytheville is at 1480 E. Main Street in the Rural King shopping center, near the Mountain Lynx Transit Wytheville satellite office and within travel distance from the Gray Loop.
- Greyhound provides service to the region through their Wytheville Bus Station, actually located at 926 Max Meadows Road in Fort Chiswell, approximately seven miles from downtown Wytheville, and therefore not located along the Maroon or Gray Loops. Two major Greyhound routes pass through the area—Detroit / Charlotte, and Nashville / Washington, DC.

Amtrak

There is no Amtrak service within the service area.

Goals, Objectives, and Service Design Standards

Goals and Objectives

The overall mission of Mountain Lynx Transit is to provide high-quality, safe, and friendly public transit services. The following goals from the previous TDP for the program were reconfirmed with Mountain Lynx Transit:

1. Treat customers with courtesy, dignity, and respect, without discrimination or partiality. This goal can be monitored through conducting regular customer surveys and reviewing and responding to any customer complaints.
2. Ensure that vehicles are clean, well-maintained, and safely operated. This goal can be assessed through daily monitoring of the fleet and continuing to maintain the fleet in accordance with the manufacturer's recommended maintenance schedules.
3. Ensure that the reservations, scheduling, and dispatch functions result in timely service within a reasonable pick-up window. This goal can be assessed through daily monitoring of operations and

on-time percentages.

4. Offer access to medical facilities, employment areas, shopping centers, schools, and community agencies. Mountain Lynx Transit can respond to this goal by monitoring current services, responding to customer requests for any locations not currently served, and working to implement service improvements included in this TDP.
5. Provide public transportation services in a cost-effective manner. This goal can be assessed by monitoring costs on a monthly basis to ensure they are kept within the annual operating budget, and monitoring productivity on a monthly basis to ensure that Mountain Lynx Transit is maintaining or improving upon the number of trips per revenue hour provided, and making adjustments as needed to maintain a cost-effective service.
6. Provide adequate mobility options to enable area residents to “age in place.” Mountain Lynx Transit can meet this goal by continuing to provide accessible, flexible services so that older adults with mobility limitations have access to key community destinations. In addition, Mountain Lynx Transit can continue to monitor areas in the region where there are concentrations of older adults and continue to ensure that information on available services is readily available to them within the community.
7. Promote mobility options that enable area residents to maintain personal independence and be engaged in civic and social life. Similar to the previous goal, Mountain Lynx Transit can continue to provide accessible, flexible services so that older adults with mobility limitations have access to key community destinations and continue to ensure that information on available services is readily available within the community.
8. Manage, maintain, and enhance the existing public transportation system. To meet this goal Mountain Lynx Transit can continue to maintain the fleet in accordance with the manufacturer’s recommended maintenance schedules, replace vehicles and equipment as recommended by DRPT’s useful life criteria, and monitor system safety, taking corrective actions as necessary.
9. Create a more diverse workforce relating to ethnicity, race, and gender. To respond to and achieve this goal, Mountain Lynx Transit can actively seek ways to attract and hire future employees by following tips and recommendations for developing a more diverse and inclusive workforce—such as fostering an organization where there is a culture of inclusion for employees to feel respected and appreciated.

Looking more broadly at the region, the Southwest Region section of DRPT’s 2022 Coordinated Human Service Mobility (CHSM) Plan includes the counties served by Mountain Lynx Transit. This section of the plan included the following high priority action items for improving mobility in the region that Mountain Lynx Transit can take into account when assessing the program’s mission and goals:

- Expand Service Availability:
 - Expand “after hours” transportation service hours
 - Increase the availability of long-distance trips
 - Expand trip types to better meet rider needs

Public Outreach, Engagement, and Involvement

Mountain Lynx Transit's outreach efforts include the following types of activities:

- The homepage of the DTGC website offers a link to Mountain Lynx Transit, where route and service information is available by specific jurisdiction.
- Attending community events such as Senior Days, resource fairs, and open houses, farmers markets, health fairs, presenting to groups, distributing brochures, and providing service information to community members.
- Staff, including the transportation director, attend various Local Emergency Planning Committee meetings across District 3.
- Marketing services to people with limited transportation options in the region who would not be able to participate in community activities without public transit.
- Providing information to the public and interacting with the public via social media, including posting updates through the DTGC Facebook page and sharing relevant posts to community Facebook groups (i.e., to inform residents of service interruptions due to inclement weather).
- Posting service information brochures for the public at local libraries.
- Contacting apartment complex managers on upcoming service changes to routes.
- Briefing DTGC Board of Commissioners members on all programs. The Board of Commissioners are the elected representation for all the local jurisdictions served by DTGC, as they are in a position to disseminate information and register concerns about DTGC's policies and programs.
- Scheduling briefings about DTGC services for various organizations and institutions such as apartment complexes, schools, churches, businesses, and civic organizations.
- Posting Title VI and other nondiscrimination policies, plans and programs at DTGC facilities, on the buses, and on the DTGC website.
- Making certain that all contracts and procurements contain the appropriate sections describing DTGC's policies, plans and programs relating to Title VI and other non-discrimination requirements.



Service Design Standards

Service design standards are benchmarks that reflect a transit program's goals in various service categories. Standards are typically developed for each type of service provided to reflect the most important service parameters, such as safety and service (service coverage, frequency, passenger convenience, and passenger comfort). The most effective service standards are straightforward and relatively easy to calculate and understand.

Service design standards from the previous TDP are provided in **Table 1-1**, and were confirmed with Mountain Lynx Transit to be appropriate to continue to serve as a basis for system evaluation.

Table 1-1: Service Design Standards

Category	Standard
Availability Service availability is a direct reflection of the level of financial resources available for the transit program. Service coverage, frequency, and span of service are considered under the category of Availability.	Service Coverage: <ul style="list-style-type: none"> • Major Activity Centers • Employers or employment concentrations • Health centers • Major shopping centers or retailers • Social services/government centers Frequency: Maintain current headways on existing routes and any new services. Span: Maintain current span of service.
Service Quality On-time performance	95% on-time service for scheduled routes (0-5 minutes late)
Safety	Safety incidents per 100,000 vehicle miles. This measure is currently calculated and tracked by Mountain Lynx Transit's insurance company.
Customer Amenities	Located at bus stops with highest boardings per day; incorporated into site plans for any future major developments. Bus stop signs located at scheduled stops and key destinations include system name, and contact information.
Marketing and Outreach	Timetable, maps, and website maintained and updated as needed to be accurate. Expanded outreach and social media campaigns. Percentage of stops with transit amenities

Agency Profile

As noted earlier in this chapter, a more detailed overview of Mountain Lynx Transit is included in **Appendix A**. This appendix includes the following system information:

1	• History
2	• Governance
3	• Organizational Structure
4	• Services Provided and Areas Served
5	• Fare Structures, Payments, and Purchasing
6	• Transit Asset Management
7	• Transit Security Program
8	• Intelligent Transportation Systems (ITS) Programs
9	• Data Collection and Ridership/Revenue Reporting Method
10	• Coordination with Other Transportation Service Providers

Chapter 2

System Evaluation

Introduction

This chapter begins with a discussion of performance measures for evaluating current Mountain Lynx Transit services, then provides an analysis of these services based on the measures. A second component of the analysis focuses on an evaluation of the transit demand market and underserved areas, and provides the results from customer and community surveys, a demographic and land use analysis, and a review of relevant recent studies and plans. Overall, the objectives of system evaluation are to identify opportunities for improvement and potential service modifications, which are then detailed in the following chapter of the TDP.

Overall, this chapter is presented in the following order:

- Performance Standards
- Performance Evaluation
- Evaluation of Transit Market Demand and Underserved Areas
 - Passenger Survey Results
 - Community Survey Results
 - Driver and Operations Staff Questionnaire
 - Demographic Analysis

Performance Standards

Developing and using performance standards specific to each type of transit service provided is an important way to measure how well the services are functioning and whether they meet the system's goals. Performance standards are typically organized in categories such as ridership, cost efficiency, safety, system accessibility, and service quality. The most effective performance standards are straightforward and relatively easy to calculate and understand.

Transit services are typically evaluated for both efficiency (doing things right) and effectiveness (doing the right things):

- Efficiency is usually analyzed by operating cost per hour, mile, and passenger trip.
- Effectiveness is usually analyzed by passenger trips per mile and hour. The most useful single measure is the passenger trips per hour, as it reflects usage concerning the amount of service provided. Generally speaking, the majority of transit operating costs are hourly (wages and benefits), so higher values of trips per hour reflect better use of resources.

Making Efficient and Responsible Investments in Transit (MERIT) is a statewide grants program that provides financial assistance to support public transportation services throughout Virginia. DRPT provides funding for operating expenses for eligible public transportation services and uses a performance-based methodology to determine the specific allocation of operating assistance funds to each operating transit agency. These five metrics are used by DRPT to allocate funding, as discussed in greater detail later in this chapter. Therefore, the same measures were used to evaluate the Mountain Lynx Transit data presented here:

- Passenger trips per revenue hour
- Passenger trips per revenue mile
- Cost per revenue hour
- Cost per revenue mile
- Cost per trip

Performance Evaluation

Operating Data

Table 2-1 provides overall operating statistics for Mountain Lynx Transit between FY2021 and FY2024. A review of this data reveals a positive trend that includes the following:

- Passenger trips gradually increased on the overall system as the impacts of the COVID-19 pandemic subsided.
- Revenue miles and hours show a continued increase through the five-year period.
- Passenger trips per mile increased slightly in the past two years, while passenger trips per hour increased significantly between FY2021 and FY2024.

As also shown in **Table 2-1**, overall operating costs increased throughout the period as a result of the increase in revenue miles and hours—as well as the impact of the pandemic on costs. However, with increases in ridership, the cost per passenger trip in FY2024 and FY2023 was lower than the preceding years. Operating costs per hour and mile increased only slightly over the period.

Table 2-1: System Performance Overview

Performance Category	FY2021	FY2022	FY2023	FY2024
Passenger Trips	131,454	143,169	167,558	179,682
Revenue Miles	426,305	458,335	499,903	527,512
Revenue Hours	44,094	45,866	47,025	49,075
Passenger Trips per Mile	0.31	0.31	0.34	0.34
Passenger Trips per Hour	2.98	3.12	3.56	3.66
Operating Costs	\$2,380,285	\$2,622,541	\$2,696,244	\$2,998,200
Operating Cost per Passenger Trip	\$18.11	\$18.32	\$16.09	\$16.69
Operating Cost per Revenue Hour	\$53.98	\$57.18	\$57.34	\$61.09
Operating Cost per Revenue Mile	\$5.58	\$5.72	\$5.39	\$5.68

SOURCE: MOUNTAIN LYNX TRANSIT

As discussed in Chapter 1, Mountain Lynx Transit operates various services in the region. **Table 2-2** provides overall ridership by city/town/county. Other than Wythe County, ridership has increased in each area of the region served by Mountain Lynx Transit throughout the FY2021-FY2024 period.

Table 2-2: Ridership by City/Town/County Routes

Route	FY2021	FY2022	FY2023	FY2024
Abingdon	21,816	24,882	28,958	31,579
Galax	26,994	26,773	31,007	36,161
Marion	23,686	25,941	33,052	36,142
Wytheville	33,085	34,791	38,609	38,165
Bland County	2,078	2,234	2,148	2,222
Carroll County	9,591	10,336	12,128	11,878
Grayson County	2,290	4,168	5,348	5,442
Smyth County	3,452	4,168	5,114	5,448
Washington County	5,118	6,337	7,358	8,218
Wythe County	3,005	2,801	2,518	2,623
College Express	339	738	1,318	1,804
Total	131,454	143,169	167,558	179,682

SOURCE: MOUNTAIN LYNX TRANSIT

Table 2-3 provides a further breakdown of the operating performance of the specific services provided by Mountain Lynx Transit in each city or town in FY2024.

Table 2-3: FY 2024 Operating Performance by City/Town Service

Route	Total Passenger Trips	Total Service Miles	Total Service Hours	Passenger Trips/Mile	Passenger Trips/Hour
Abingdon					
Blue Loop East	13,136	30,309	2,574	0.43	5.10
Silver Loop West	9,021	24,246	2,574	0.37	3.50
X-Bus East	4,172	19,487	2,434	0.21	1.71
X-Bus West	3,867	18,972	2,441	0.20	1.58
Friendship Café	1,383	5,180	513	0.27	2.70
Galax					
Blue Loop	15,062	22,897	2,228	0.66	6.76
Red Loop	10,278	23,849	2,243	0.43	4.58
Saturday Loops	1,385	3,834	373	0.36	3.71
X-Bus I	8,069	21,137	2,270	0.38	3.55
X-Bus II	1,006	2,661	234	0.38	4.30
Friendship Café	361	1,766	304	0.20	1.19
Marion					
Town Loop	23,696	32,379	3,016	0.73	7.86
Town Loop Saturday	1,024	1,779	178	0.58	5.75
Lake Loop	2,697	9,636	667	0.28	4.04
Lake Loop Saturday	229	842	63	0.27	3.63
X-Bus	6,385	22,607	2,257	0.28	2.83
Friendship Café East	1,092	3,203	374	0.34	2.92
Friendship Café West	1,019	3,829	392	0.27	2.60
Wytheville					
Gray Loop	16,382	28,192	2,472	0.58	6.63
Maroon Loop	13,176	27,241	2,495	0.48	5.28
Saturday Route	1,716	3,743	362	0.46	4.74
X-Bus I	4,750	18,177	2,476	0.26	1.92
X-Bus II	1,658	6,158	937	0.27	1.77
Friendship Café	483	1,755	308	0.28	1.57

SOURCE: MOUNTAIN LYNX TRANSIT

A review of the operating data in **Table 2-3** indicates the following takeaways:

- Scheduled rural transit services like the current loop routes operated by Mountain Lynx Transit typically provide five or more passenger trips per hour. The majority of the loop routes are meeting this threshold, with only the Abingdon Silver Loop and the Galax Red Loop short of the metric.
- Scheduled rural transit services like the current loop routes operated by Mountain Lynx Transit typically provide greater than .30 miles per passenger mile. All regular city/town loops are meeting this standard.
- Demand-response services like the X-Bus service provided by Mountain Lynx Transit typically provide 2.5-5.0 passenger trips per hour and .15-.30 passenger trips per mile. The majority of the X-Bus services are meeting this measure, with only the services in Abingdon and Wytheville just short of the trips per hour guideline.

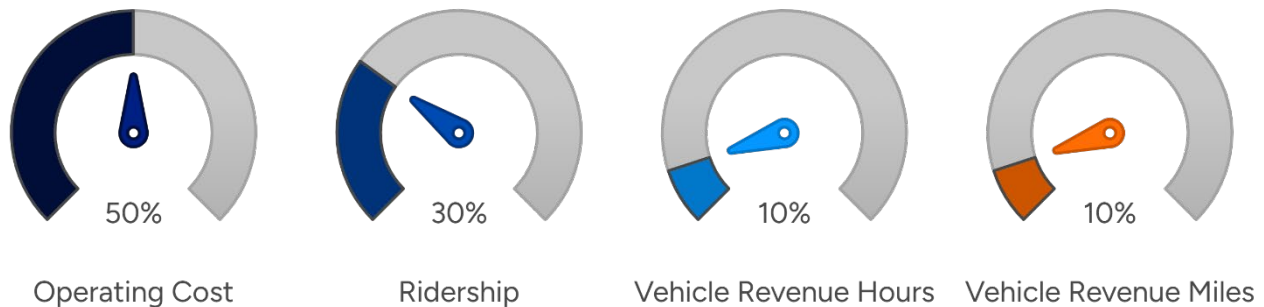
Performance-Based Opportunities for Improvement

As noted earlier, DRPT allocates funding for operating assistance to transit agencies across the Commonwealth through the MERIT program allocation process pursuant to the Code of Virginia and Commonwealth Transportation Board (CTB) policy. The methodology was developed through coordination with Virginia's Transit Service Delivery Advisory Committee (TSDAC) and the CTB in 2018, and is intended to balance the need for reliable annual funding, as well as the availability and reliability of performance data to support the six policy goals as identified by TSDAC:

1. Promote Fiscal Responsibility
2. Support Robust Transit Service
3. Improve Transit Patronage
4. Incentivize Efficient Operations
5. Promote Mobility
6. Support Social Safety Net

The performance-based operating allocation methodology distributes operating assistance based on a combination of an agency's sizing and performance factors. Sizing factors represent an agency's relative size to other agencies across the Commonwealth. Performance factors represent an agency's performance trend for a given metric relative to statewide trends for all agencies.

To correlate funding allocations with the relative size of each agency, a size-weight factor is calculated with a combination of sizing metrics, at specific percentage weights. The metrics and weights for the sizing formula are:



Once the normalized size-weight for each agency has been determined, the size-weight is adjusted by the following five performance metrics. For the TDP process these metrics are presented with analysis of Mountain Lynx Transit's recent operating performance data.

1. **Passengers per Vehicle Revenue Hour** have steadily increased since FY2021 and therefore indicate a positive trend.
2. **Passengers per Vehicle Revenue Mile** decreased slightly between FY2021 and FY2022 but have rebounded to previous levels.
3. **Operating Cost per Vehicle Revenue Hour** increased through the period, though not surprising due to rising costs resulting from the COVID-19 pandemic.
4. **Operating Cost per Vehicle Revenue Mile** reached a high point in FY2022 but has been lower the past two years.
5. **Operating Cost per Passenger Trip** decreased between FY2022 and FY2023, then increased slightly in FY2024, but is still below earlier years in the period.

Evaluation of Transit Market Demand and Underserved Areas

TDP Advisory Committee

Mountain Lynx Transit invited key community stakeholders to serve on a TDP Advisory Committee that provided input on transit needs in the region, as well as feedback at key milestones during the planning process. In addition to DRPT the committee included representatives from the following agencies and organizations:

- Appalachian Independence Center
- Bristol VA-TN MPO
- City of Galax District Three Governmental Cooperative, Aging and Disability Services
- Mount Rogers Health District
- Mount Rogers Planning District Commission
- Smyth County Community Foundation
- Town of Abingdon
- Virginia Career Works
- VA Department of Aging & Rehabilitative Services

Passenger Survey

An onboard survey of riders was conducted across Mountain Lynx Transit services between March 3, 2025, and March 31, 2025, yielding a total of 64 completed surveys. Most respondents (41) completed the survey while riding a Loop route, with fewer on county routes (7), X-Buses (2), or other routes (8). Six riders did not specify a route.

Mode Use

- **Frequency of Use:** The majority of riders (95%) use Mountain Lynx Transit at least once per week, with 44% riding five to six days per week and 40% using it one to four days per week. Only one in 20 (5%) are infrequent or first-time users. This can be found in **Figure 2-1**.
- **Duration of Use:** About six in 10 riders (61%) have used Mountain Lynx for more than one year, with 36% riding for over five years. About a quarter (28%) are relatively new riders, using the service for less than a year. Riders aged 65 and older (73%) are significantly more likely to have been using Mountain Lynx Transit for more than five years compared to younger riders under 65, where only 29% in both the under-35 and 35–64 age groups report the same. These findings can be seen below in **Figure 2-2**.

- **Alternative Mode:** If public transit were unavailable, about one-third (34%) of riders would walk or use a wheelchair, while about one-quarter (24%) would rely on someone else to drive them. One in five (20%) would be unable to make the trip at all, highlighting the essential role of Mountain Lynx transit for many riders.
- **Use of Other Services:** Almost two-thirds of riders (63%) do not use other services offered by Mountain Lynx Transit or District Three Governmental Cooperative. Care Management (13%) and the Senior Farmers Market Nutrition Program (10%) are the most commonly used (see **Figure 2-3**).
- **Main Reason for Using Mountain Lynx Transit:** Three out of four riders (75%) use Mountain Lynx Transit because they lack access to a car or driver's license, with 45% specifically saying they have no car. Cost savings (13%) and lack of ride availability (10%) are also notable reasons for using Mountain Lynx Transit, as seen in **Figure 2-4**.
- **Impact of Free Fares:** As shown in **Figure 2-5** nearly two-thirds of riders (63%) began using Mountain Lynx Transit after free fares were implemented in the Spring of 2020. Among these newer riders, 45% said free fares influenced their decision to start using the service.

Figure 2-1: Frequency of Use

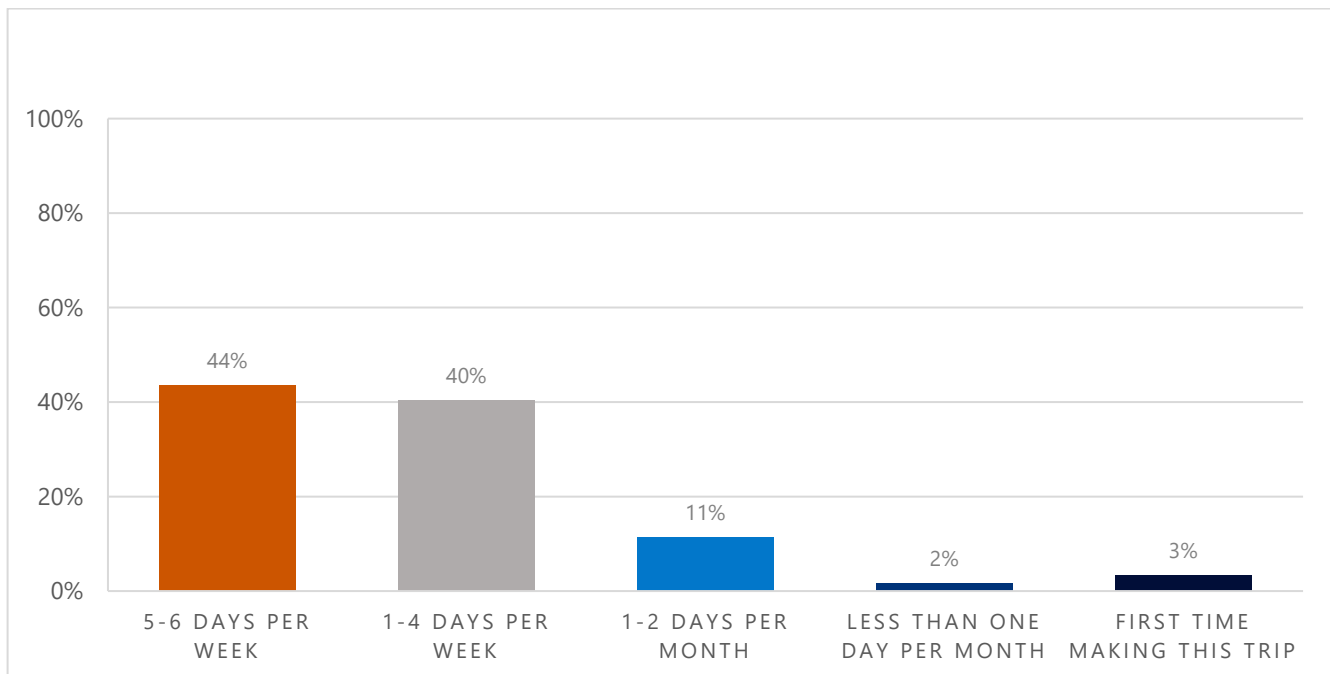


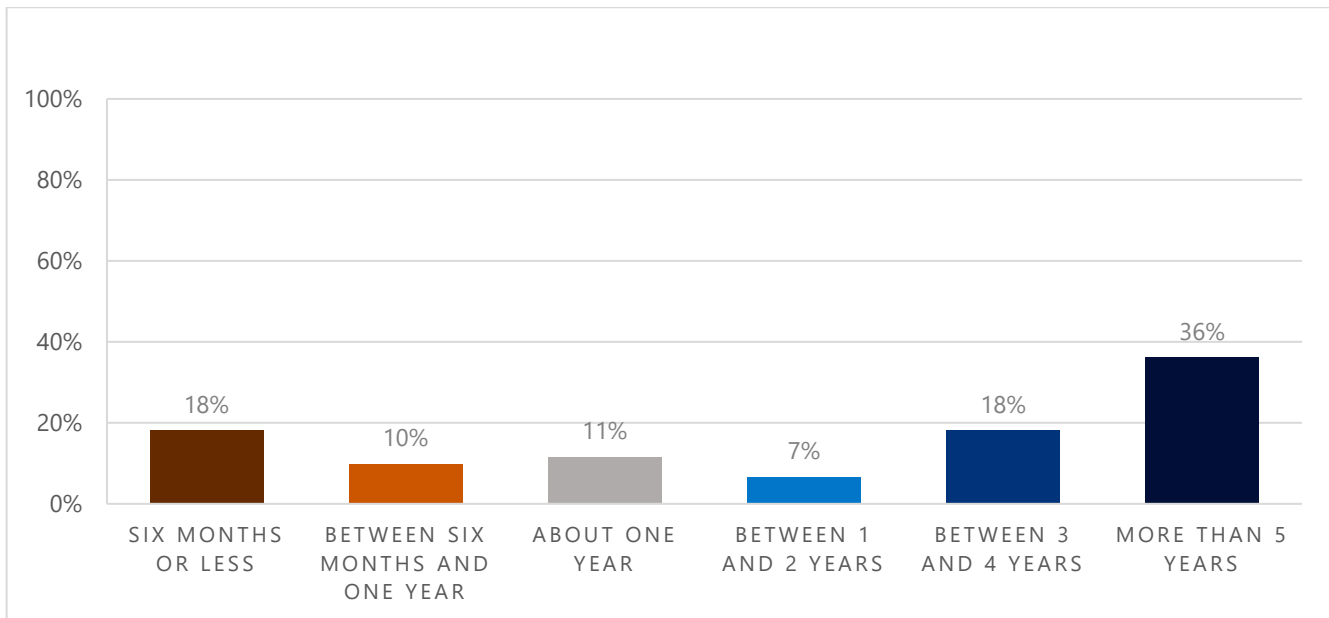
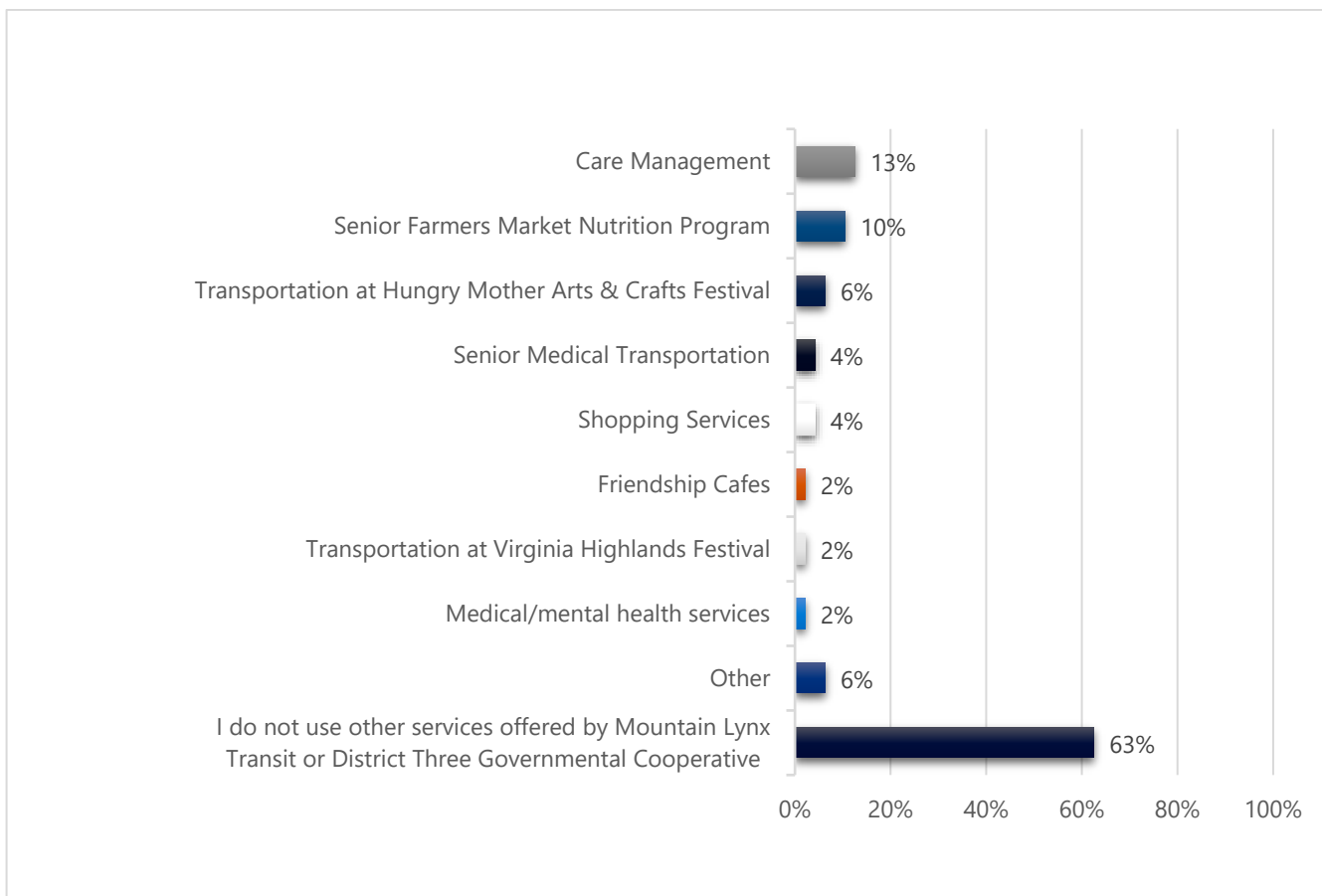
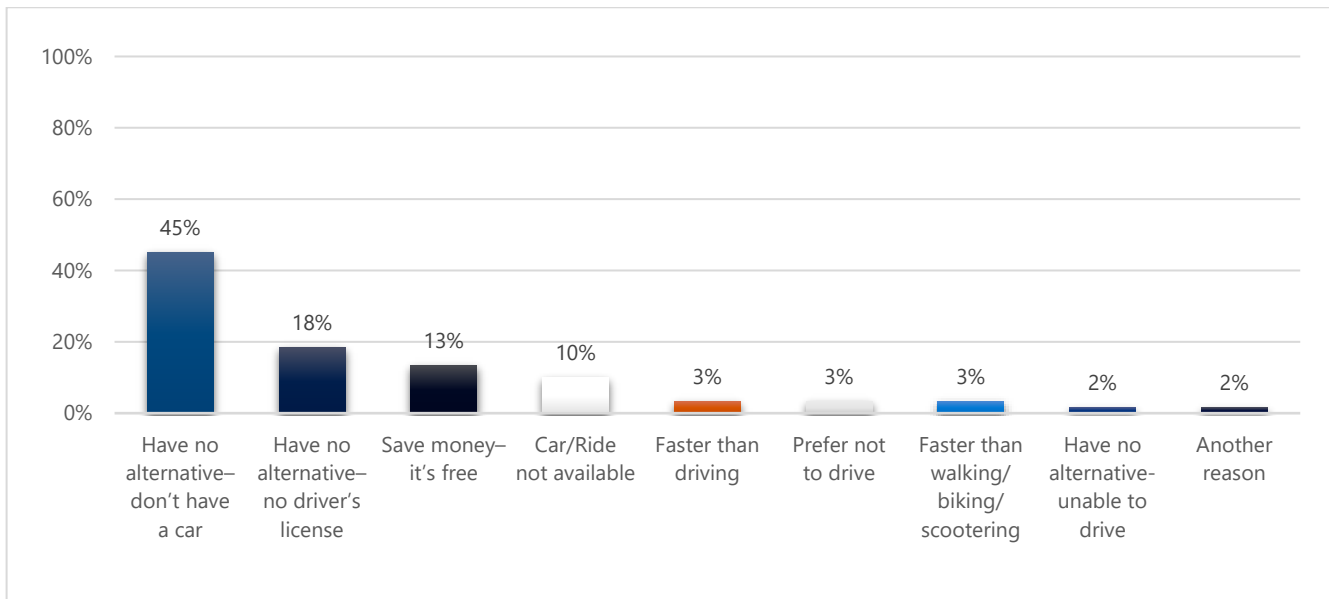
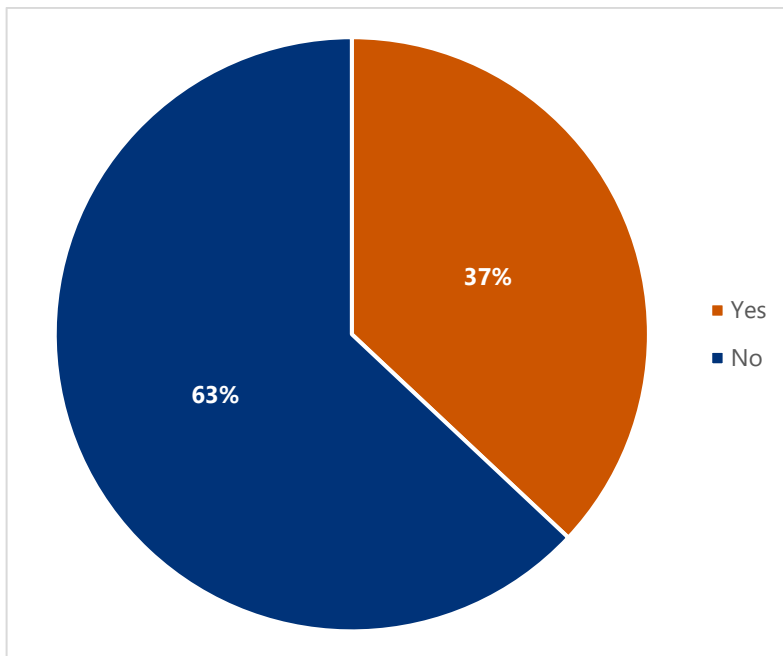
Figure 2-2: Duration of Use**Figure 2-3: Use of Other Services**

Figure 2-4: Main Reason for Using Mountain Lynx Transit**Figure 2-5: Rode Mountain Lynx Transit Before Free Fares**

Satisfaction

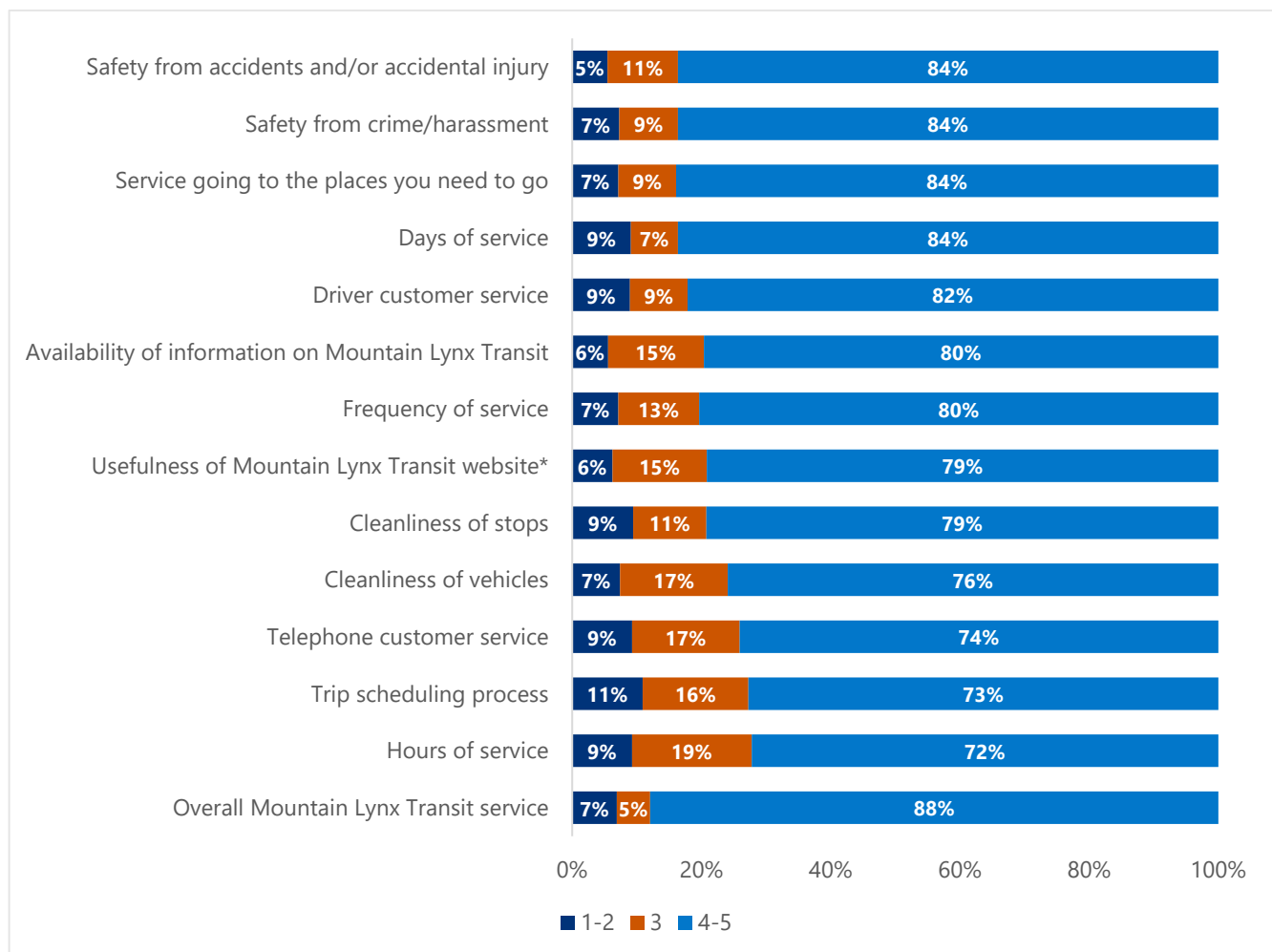
Overall Satisfaction

When asked to rate Mountain Lynx Transit overall, on a scale from one to five, the majority of riders rated their satisfaction as four or five (88%).

Satisfaction with Attributes of Transit

The majority of riders were satisfied with Mountain Lynx Transit across all measures (72% to 84% rating four or five on a five-point scale). Riders are especially satisfied with days of service, safety, and destination coverage (each at 84%). Other strong areas include driver customer service (82%), frequency of service, and information availability (80% each). Satisfaction is slightly lower, though still positive, for hours of service (72%) and trip scheduling (73%). Overall satisfaction with Mountain Lynx Transit can be found below in **Figure 2-6**.

Figure 2-6: Overall Satisfaction



Trip Purpose

Purposes for Surveyed Trip

About one-half of riders (53%) used Mountain Lynx Transit primarily for shopping, followed by recreational or personal trips (21%). Fewer riders used the service for commuting to work (13%) or accessing medical care (10%). Younger riders under the age of 35 (47%) are more likely than those aged 35–64 (12%) to be using Mountain Lynx Transit for recreational and personal trips.

Improvements

Potential Service Improvements

The most requested improvements are weekend service, with 35% of riders wanting Saturday service and 33% Sunday service. Riders also express interest in more frequent service (16%), extended hours (16%), and shorter wait or pickup times (15%). Additional suggestions include better amenities at stops and expanded coverage across areas and routes. The distribution of preferred service improvements can be found in **Figure 2-7**.

Preferred Access to Service and Schedule Information

Riders prefer accessing information via the website and paper schedules (30% each), with accessing info at bus stops also being a popular choice (25%). A mobile app is desired by 23%, while digital options like social media (7%) and online search (5%) are less favored. This can be seen in **Figure 2-8**.

Nearly seven in 10 riders (69%) said they would be likely to use an app or website for Mountain Lynx Transit that provides schedule information, alerts, and trip planning. Almost half (49%) said they would be very likely to use such a tool, while 27% were unlikely to use it. Riders under the age of 35 (87%) are significantly more likely to use an app or website for schedule information, alerts, and trip planning compared to riders aged 65 and older, where only 40% report being likely to use such a service. Customer's likelihood of using an app or website can be found in **Figure 2-9**.

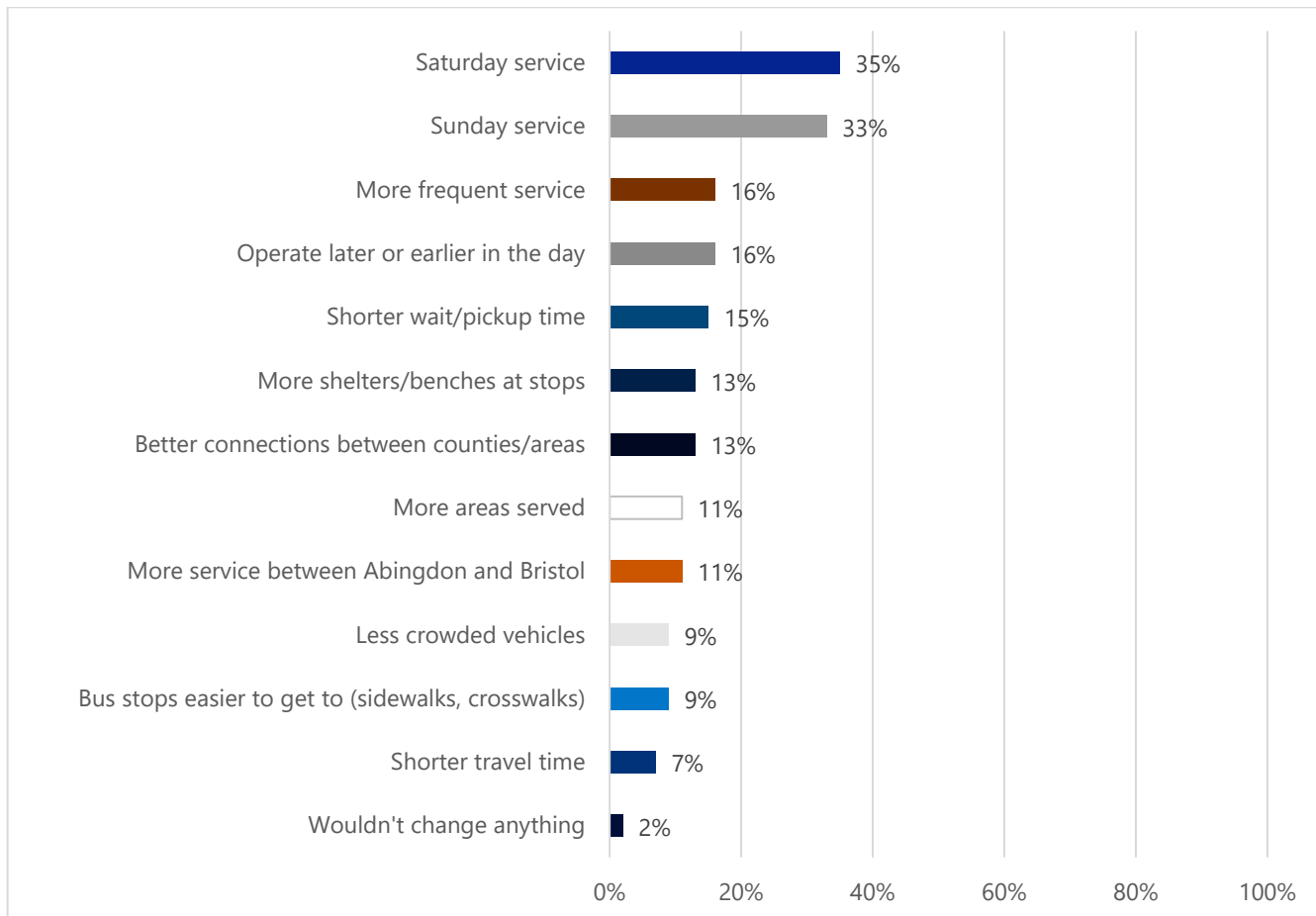
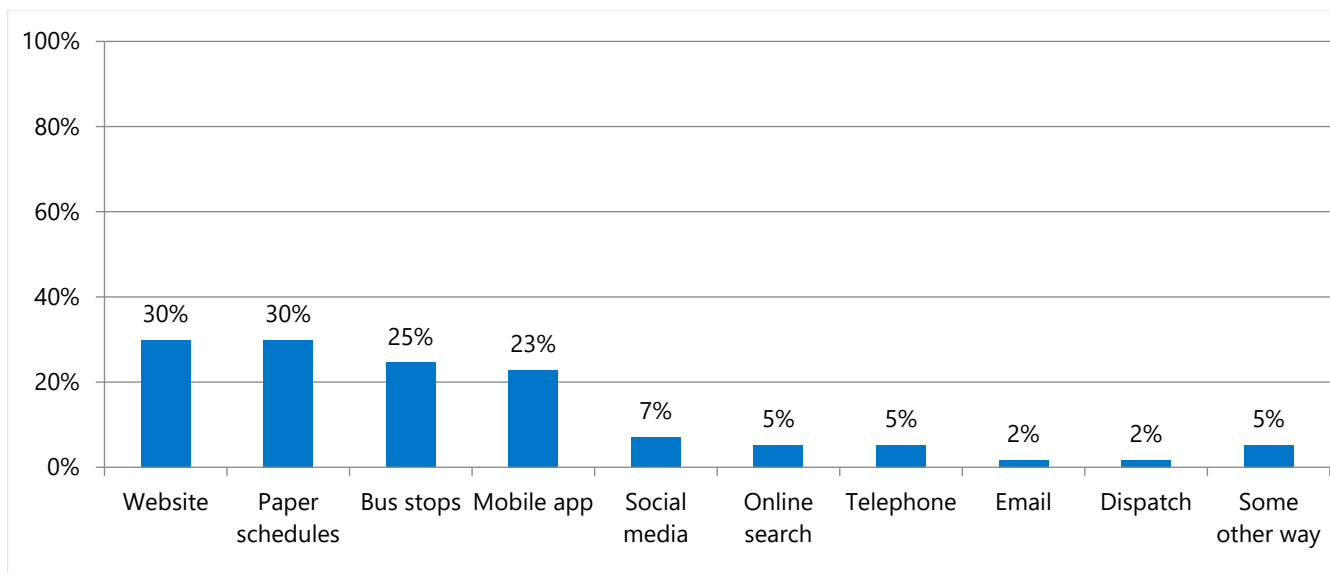
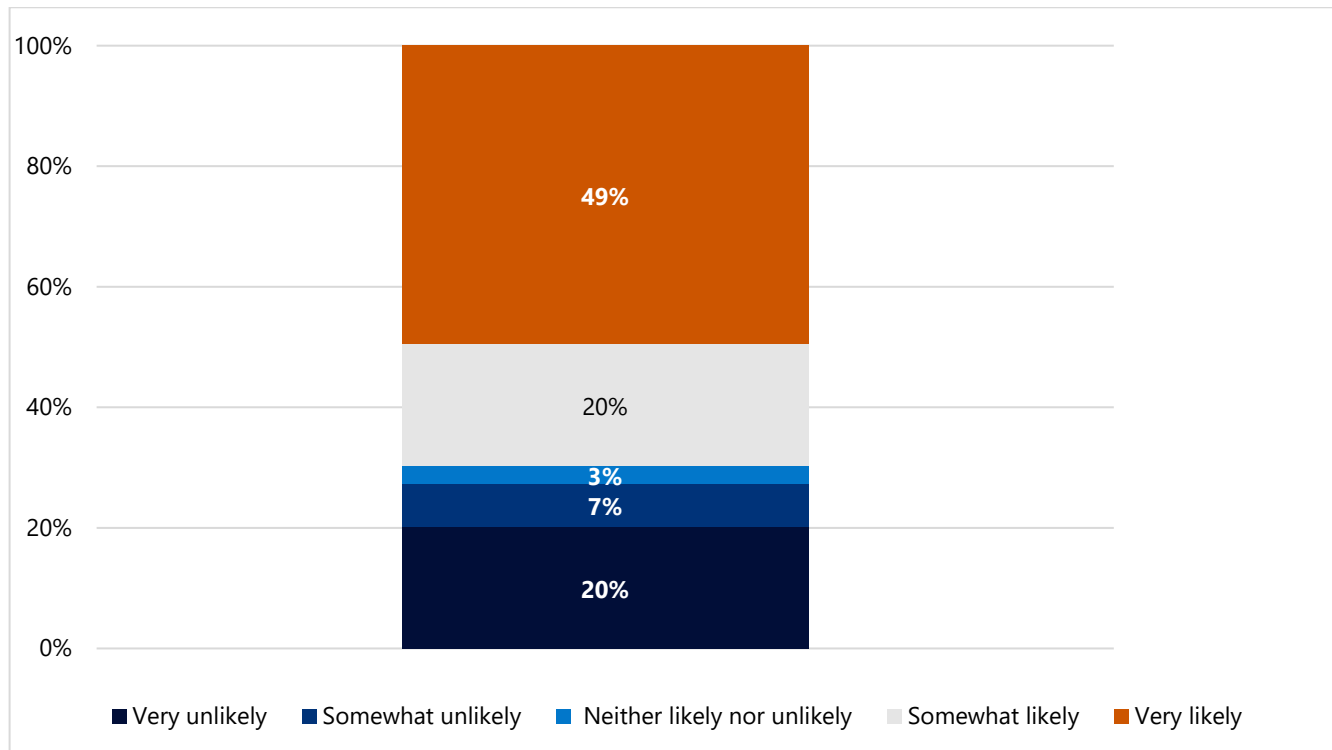
Figure 2-7: Potential Service Improvements**Figure 2-8: Preferred Access to Service and Schedule Information**

Figure 2-9: Likelihood of Using App or Website

Unserviced Destinations

Unserviced Destinations

While 44% of riders say there are no places they wish to access but cannot, others cited a desire for service to Atkins/Chilhowie (15%), Bristol (12%), and Marion (6%). In total, 24% want more service northward, and 15% would like better access to commercial centers such as shopping and dining.

Additional Comments

Slightly fewer than half (46%) of the respondents provided additional feedback. Positive remarks were most common (31%), while some emphasized the need for weekend service (8%) and concerns around passenger behavior and other distractions for drivers (8%). Some examples of the riders' comments include:

- "Ya'll do an excellent job!"
- "It's a blessing."
- "Bus driver is a very nice gentleman."
- "Dispatch needs major work on customer service."
- "Not all drivers are on time."

Passenger Survey Respondent Profile

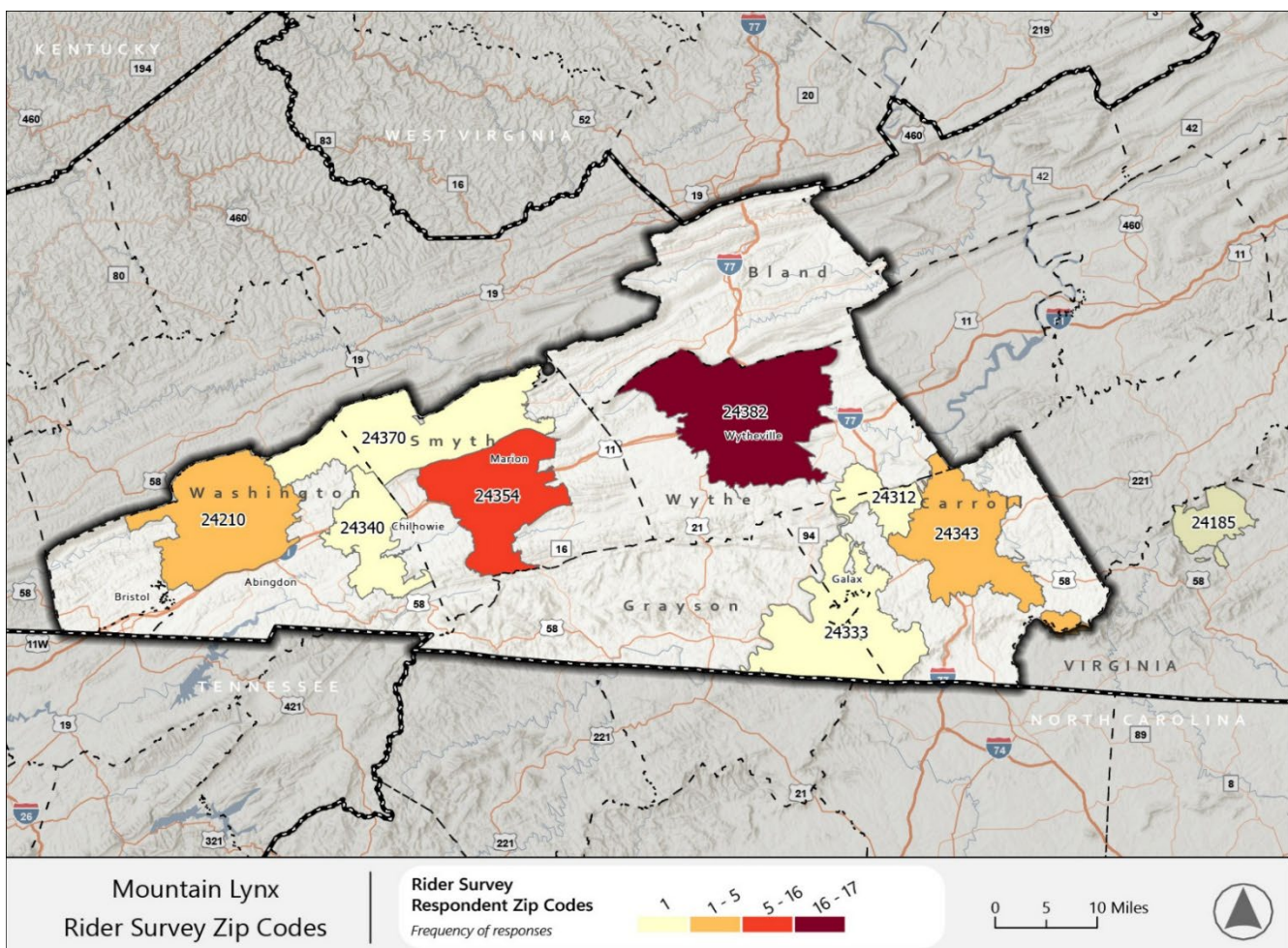
This section details the demographic characteristics of the passenger survey respondents, as information was collected on the following: residence ZIP Code, age, employment status, and annual household income.

ZIP Code

The majority of respondents reported living in the Wytheville and Marion areas, as well as other nearby ZIP Codes, as seen below. **Figure 2-10** shows the distribution of the passenger ZIP Codes and their frequencies.

- 24382 (Wytheville area): 30%
- 24354 (Marion area): 28%
- 24210 (Abingdon area): 9%
- 24343 (Hillsville area): 9%

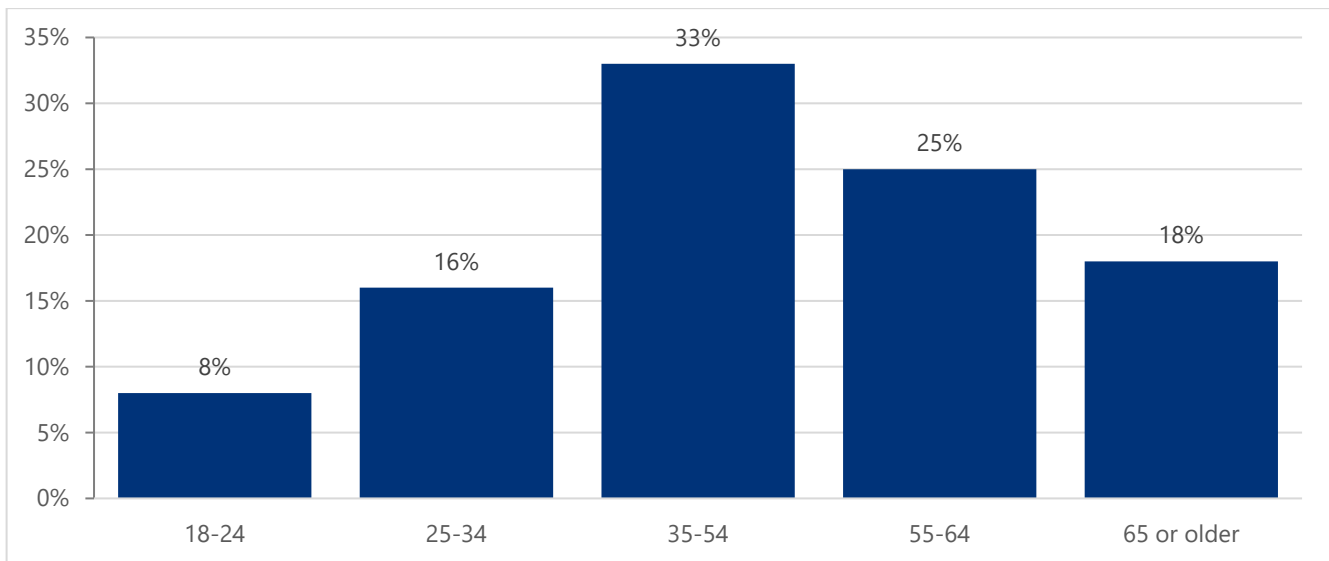
Figure 2-10: Passenger Survey Respondent ZIP Codes



Age

Figure 2-11 shows that the most common age group of the passenger survey respondents is 35 to 54 years old. A total of 61 respondents answered this question, and the average age of the respondents was 48 years old. Twenty-five percent of respondents are younger than 35, showing a smaller proportion of young riders, especially when compared to the 35 through 64-year-old age group, which represents 57% of respondents. This shows that a majority of respondents are middle-aged.

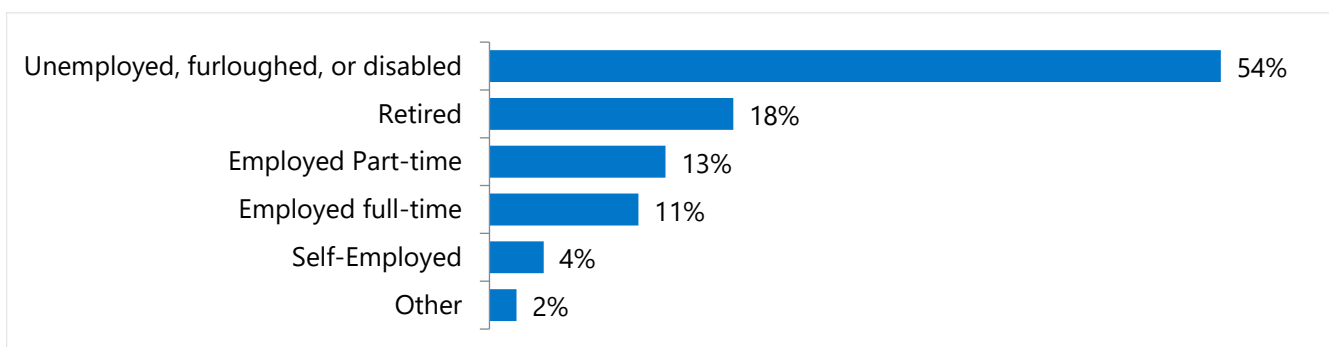
Figure 2-11: Passenger Survey Age



Employment Status

Figure 2-12 shows that a majority of passenger survey respondents are unemployed, furloughed, or disabled. Of the 56 respondents who answered this question, only a small percentage of people (27%) are employed in one form or another. Retired respondents represent a smaller, but significant percentage of the responses at 18%.

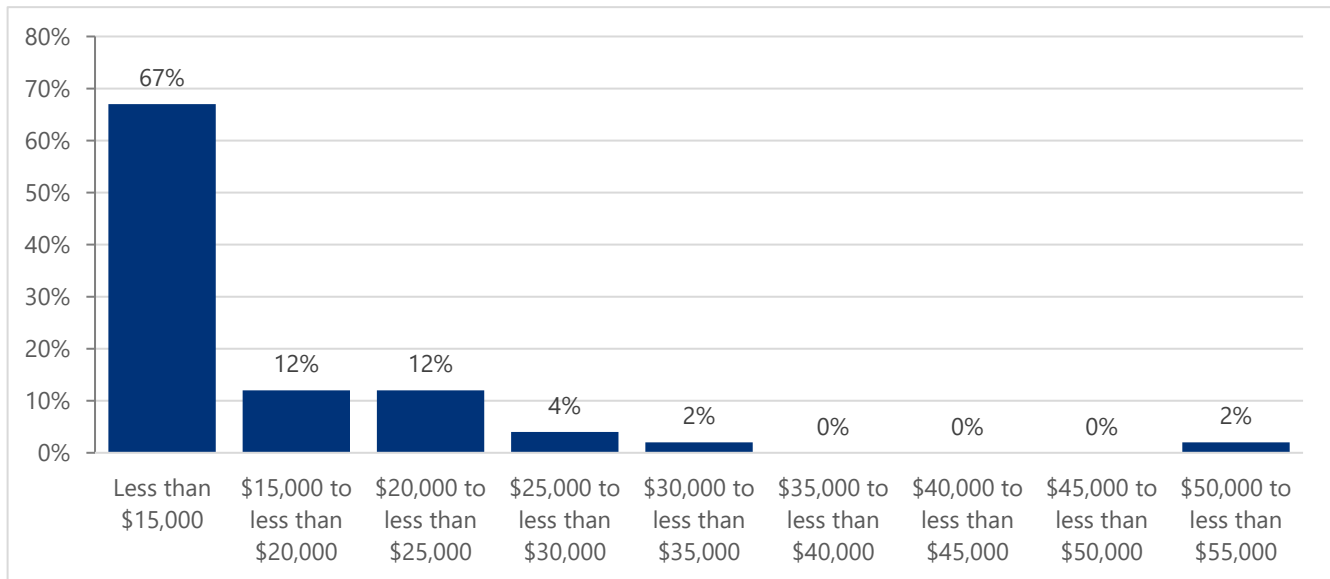
Figure 2-12: Passenger Survey Employment Status



Annual Household Income

Figure 2-13 shows the annual household income reported by the 49 respondents who answered this question. Roughly two-thirds of respondents make less than \$15,000 per year in their households. The highest income group reported was \$50,000 to \$54,999, with only two percent of respondents selecting this option. The average annual household income reported was \$14,490 and the median was \$14,850, placing the significantly below the 2023 national median of \$80,610. Ninety-eight percent of respondents reported an annual household income of less than \$35,000.

Figure 2-13: Passenger Survey Annual Household Income



Community Survey

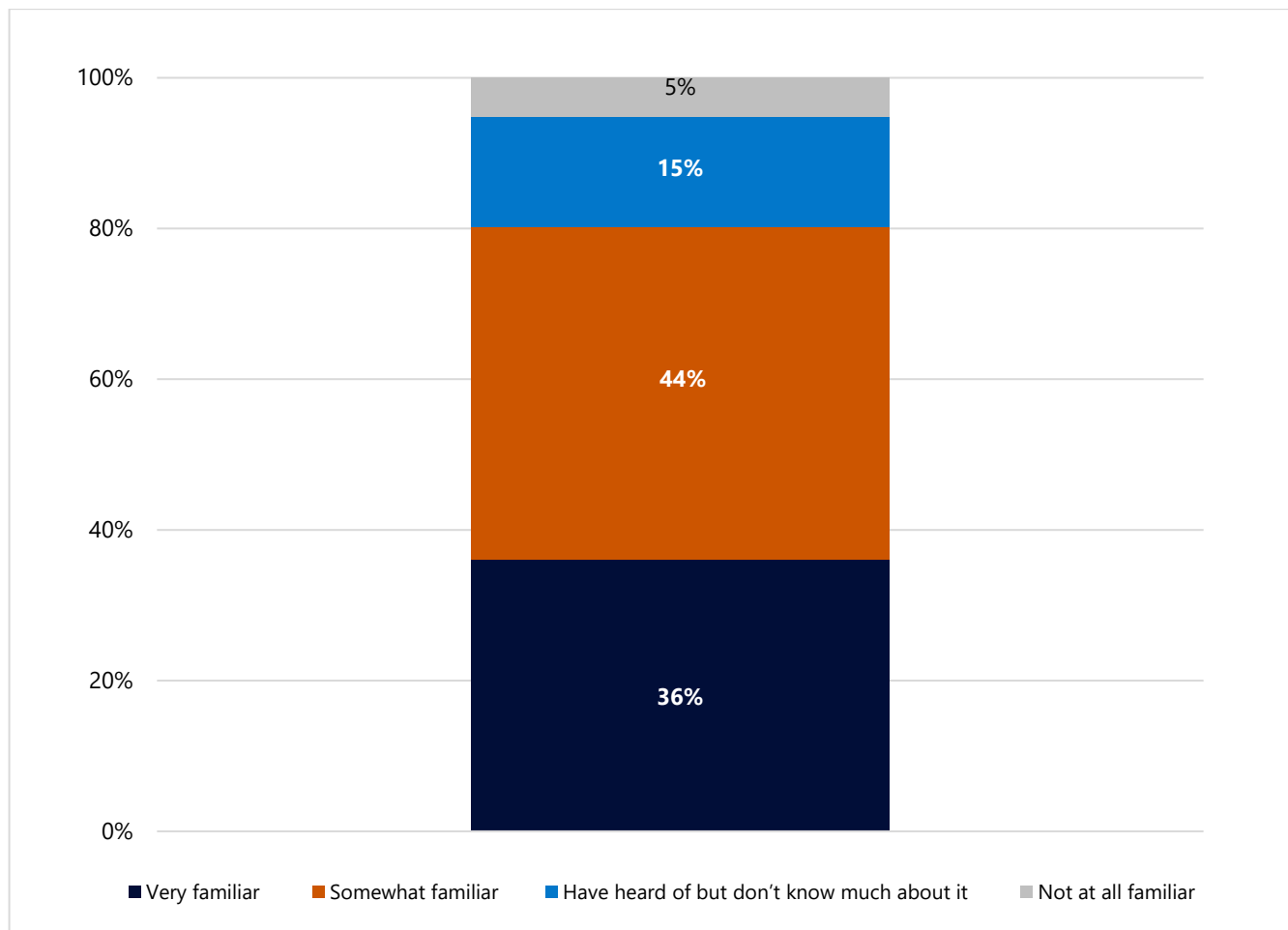
A community survey was conducted from February 26 to March 31, 2025, using both online and paper formats, yielding a total of 311 completed responses. What follows are topline results from this survey effort.

Familiarity

Familiarity with Mountain Lynx Transit

The majority of community respondents are familiar with Mountain Lynx Transit, with 80% reporting at least some familiarity and only 5% saying they are not familiar at all. Nearly all respondents (95%) have at least heard of the service. Respondents' familiarity can be seen below in **Figure 2-14**.

Figure 2-14: Familiarity with Mountain Lynx Transit

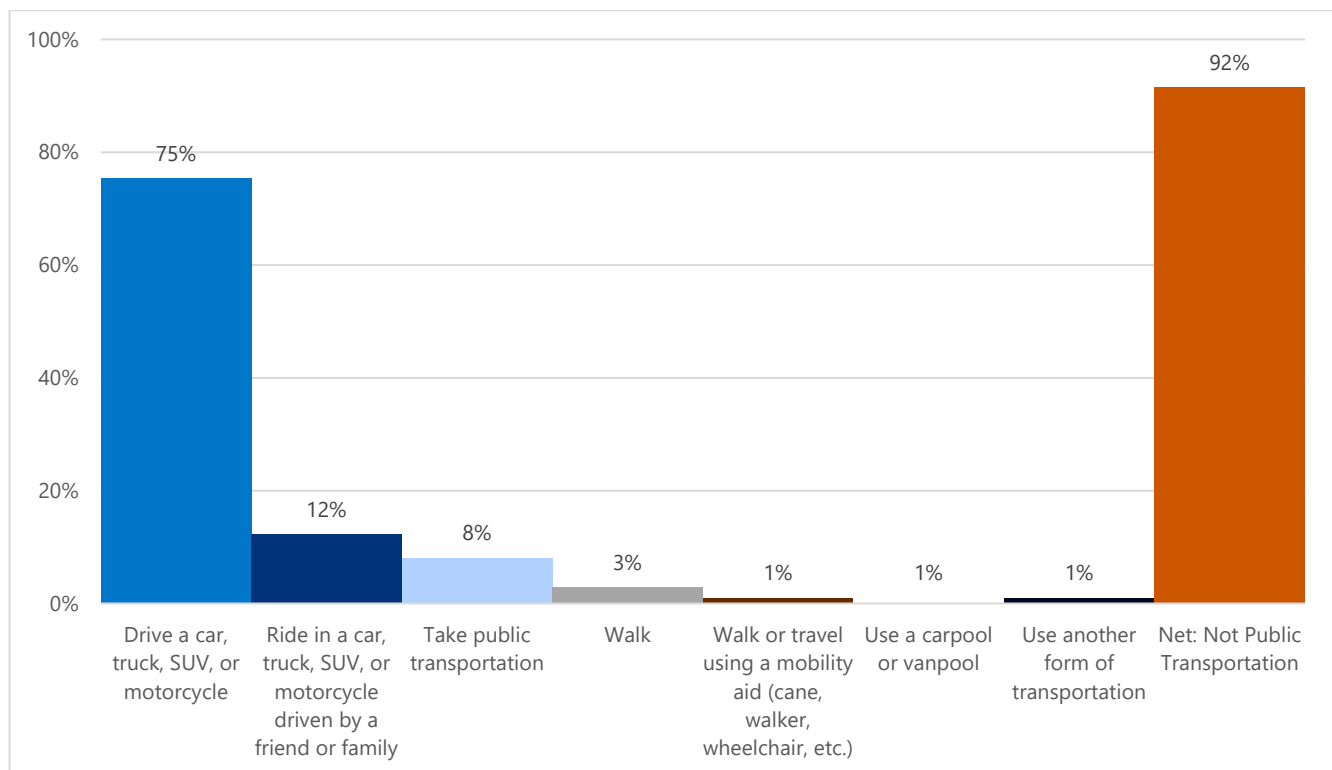


Mode Use

Primary Mode of Transportation

The majority of community respondents (92%) do not use public transportation, with 75% driving themselves and 12% riding with friends or family. The data shows differences in transportation modes among different demographic groups. For instance, driving is less common among low-income respondents, with only 64% reporting that they drive, compared to 94% of respondents who are not low income. About two in 10 (18%) of low-income respondents ride in a car driven by a friend or family member—more than the 4% of non-low-income respondents. These results can be found below in **Figure 2-15**.

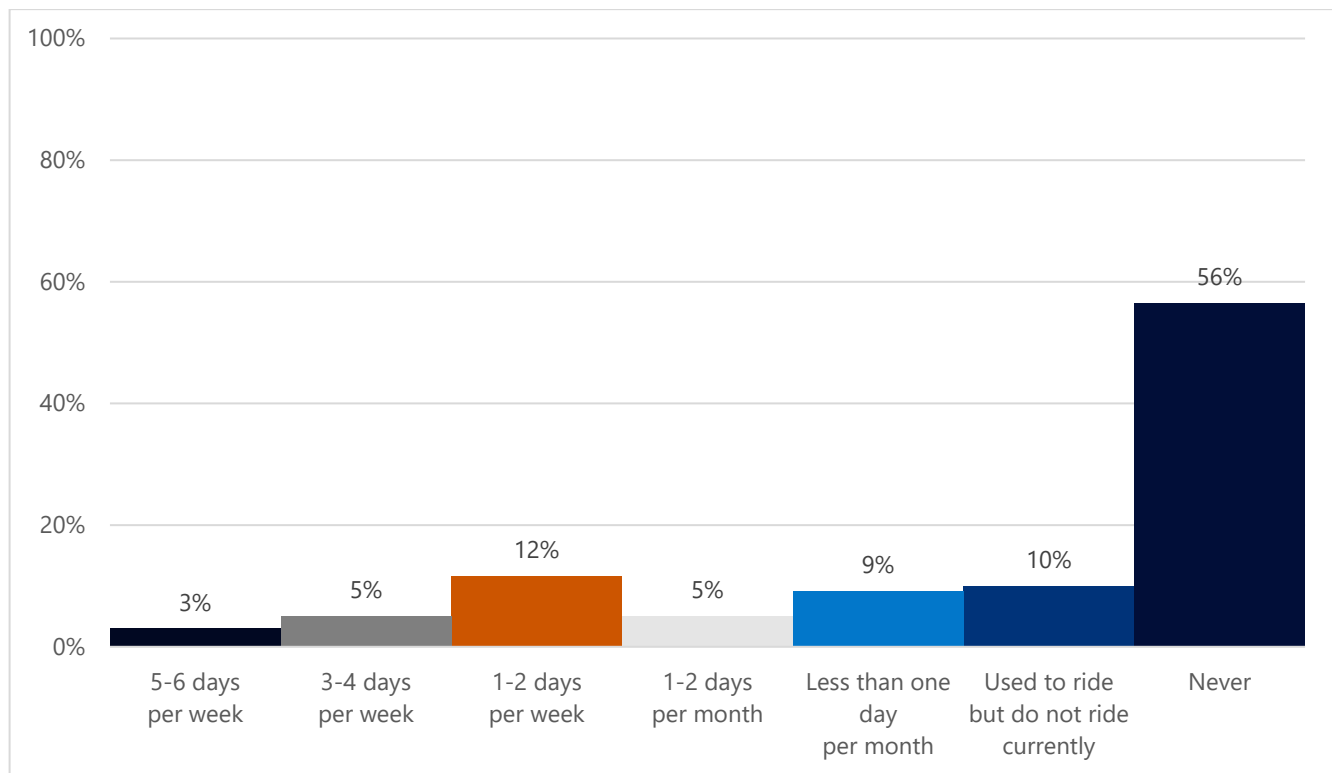
Figure 2-15: Primary Mode of Transportation



Frequency of Use

One-third (33%) of respondents have used the service, but only 20% ride regularly (one to six times per week). More than half (56%) have never used it, and another 10% report they used to ride but no longer do. Older adults (65+) and low-income individuals are more likely to use Mountain Lynx Transit compared to younger and higher-income groups. Specifically, 47% of older adults and 46% of low-income respondents reported using the service, versus just 17–23% of younger age groups and 10% of non-low-income respondents. This data can be found below in **Figure 2-16**.

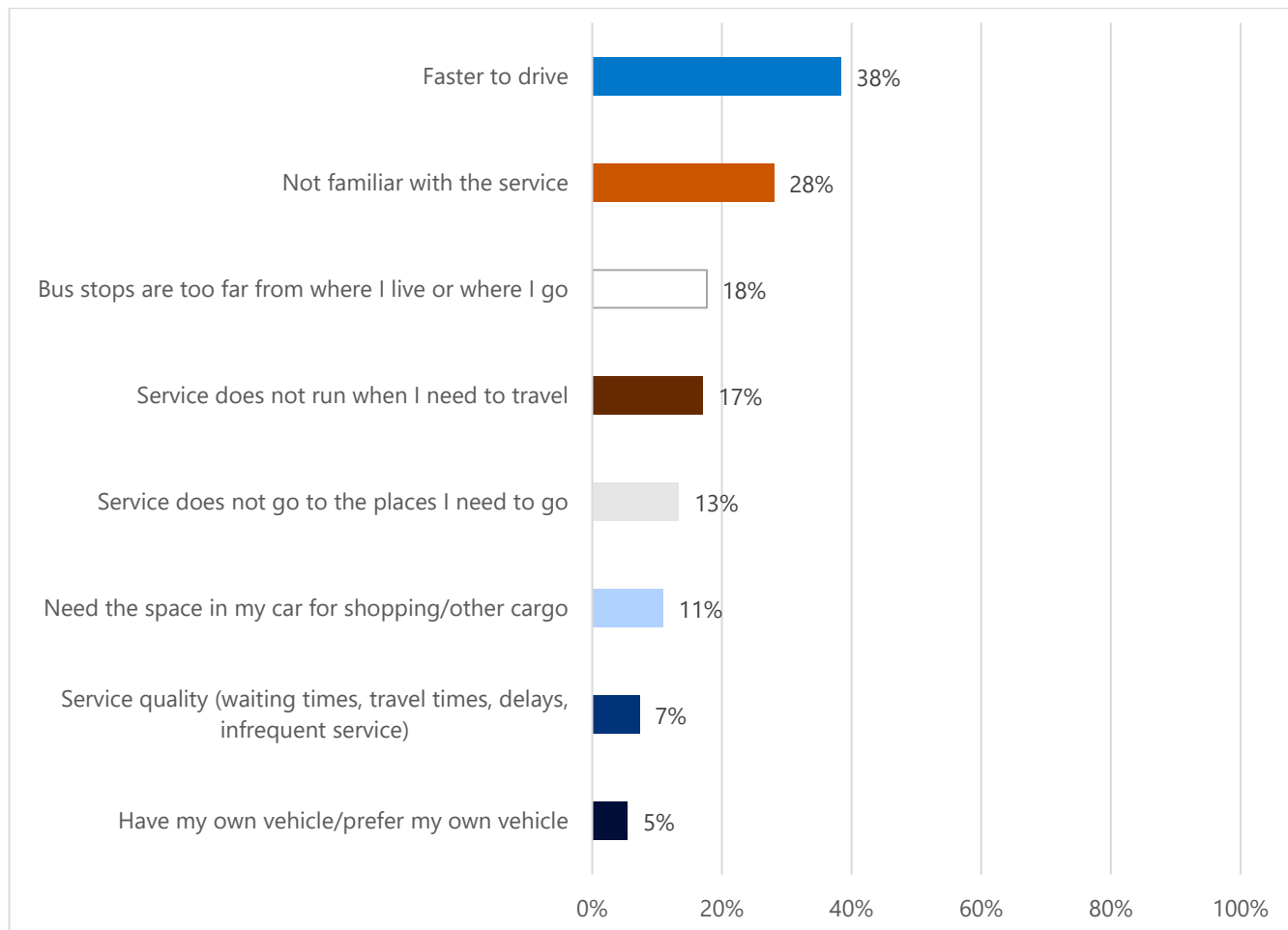
Figure 2-16: Frequency of Use



Barriers to Using Public Transportation

The top reason non-riders do not use Mountain Lynx is that they perceive driving to be faster (38%), followed by lack of familiarity with the service (28%). Other common barriers include bus stops being too far away from where they live or want to go (18%), limited service hours (17%), and routes not serving needed destinations (13%). Concerns about service quality, space for cargo, or cleanliness were cited, but less frequently. All these findings can be seen below in **Figure 2-17**.

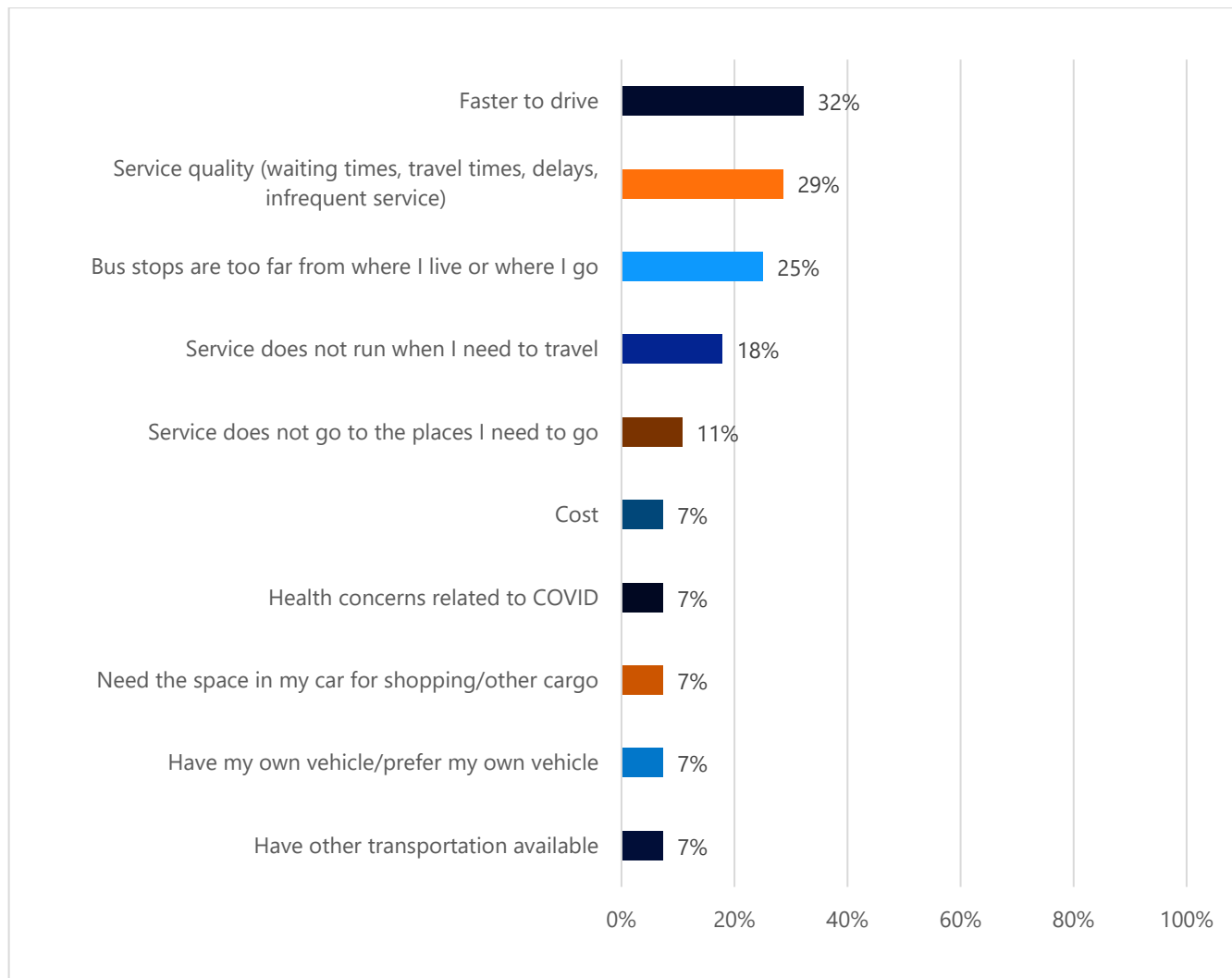
Figure 2-17: Barriers to Using Public Transit



Reasons for Discontinuing Use

Among the 31 former Mountain Lynx riders surveyed, the most common reasons for no longer using the service were that driving is faster (32%) and concerns about service quality (29%), such as delays or infrequent service. Other key reasons include distance to bus stops (25%) and limited operating hours (18%). Additional concerns like health, cost, and cleanliness were cited by smaller portions of respondents. **Figure 2-18**, found below, represents these results.

Figure 2-18: Reasons for Discontinuing Use



Impact of Free Fares

Among those who have ridden Mountain Lynx, more than half (55%) rode prior to the implementation of free fares. Of those who began riding afterward, one-third (33%) say free fares influenced their decision to start. Among prior riders, 28% now ride more frequently, while 68% ride the same amount and only 4% ride less frequently. To better display the results from these three questions, they can be seen below in **Figures 2-19, 2-20, and 2-21**.

Figure 2-19: Using Mountain Lynx Transit Before Free Fares

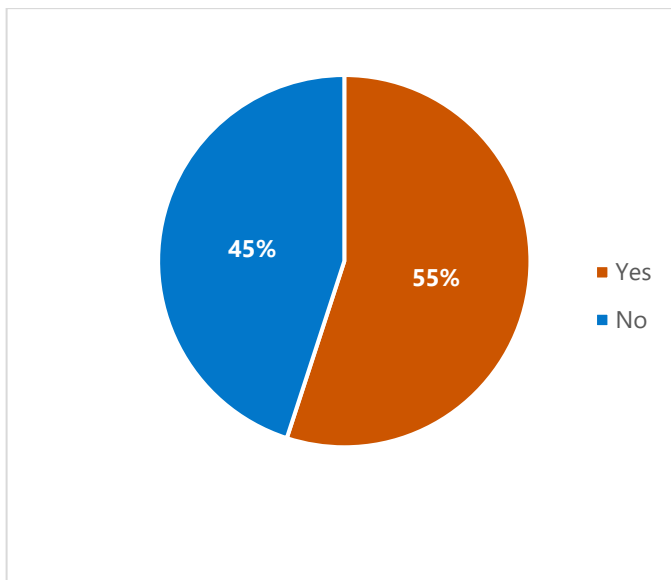


Figure 2-20: Did Fares Impact Decision to Start Riding Mountain Lynx Transit

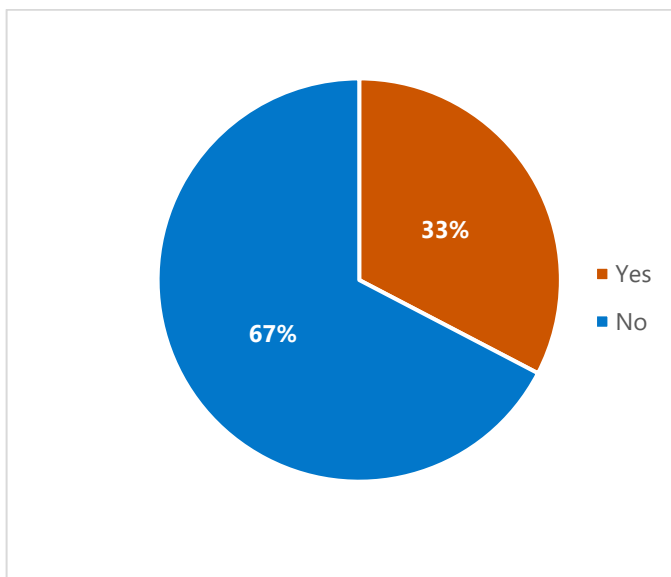
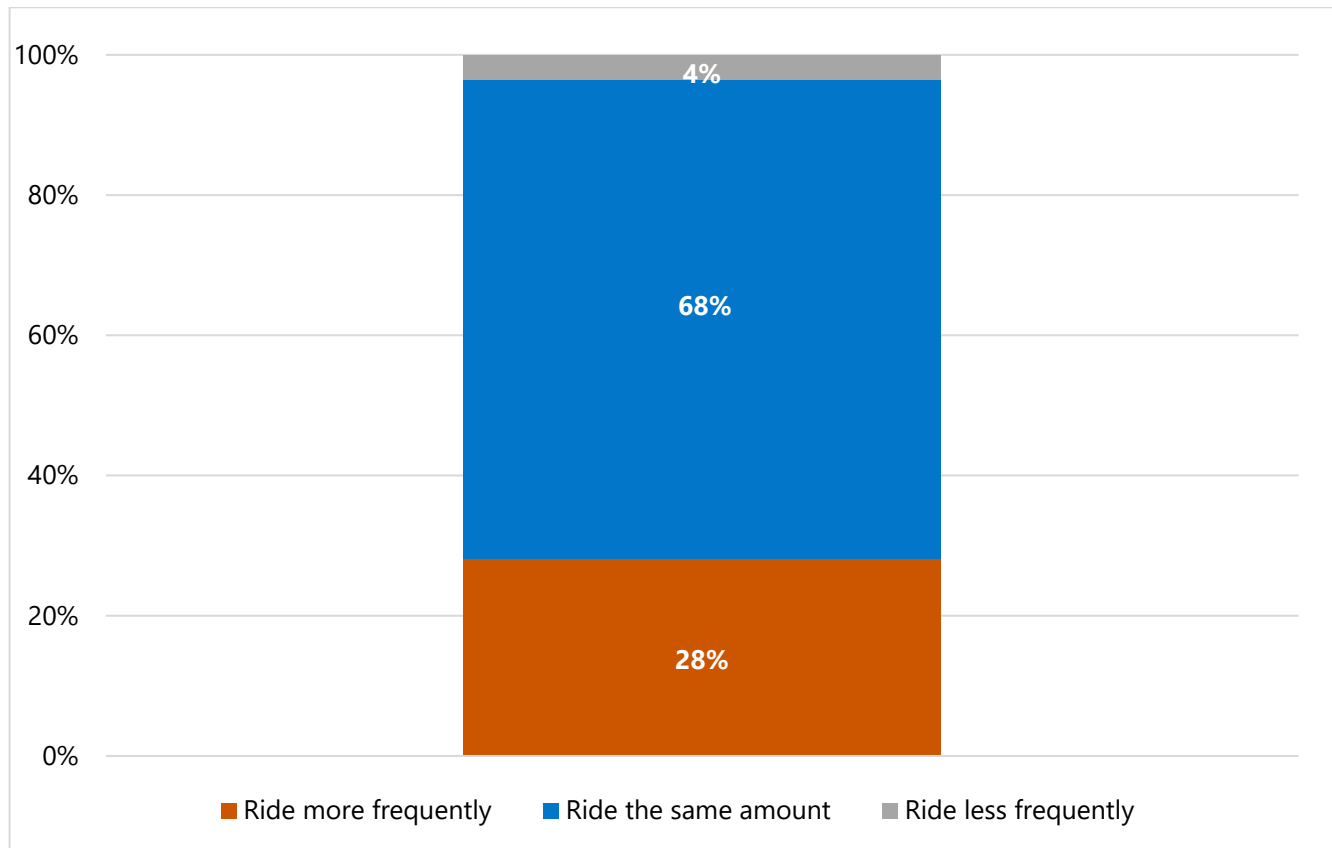


Figure 2-21: Frequency of Riding Mountain Lynx Transit After Free Fares

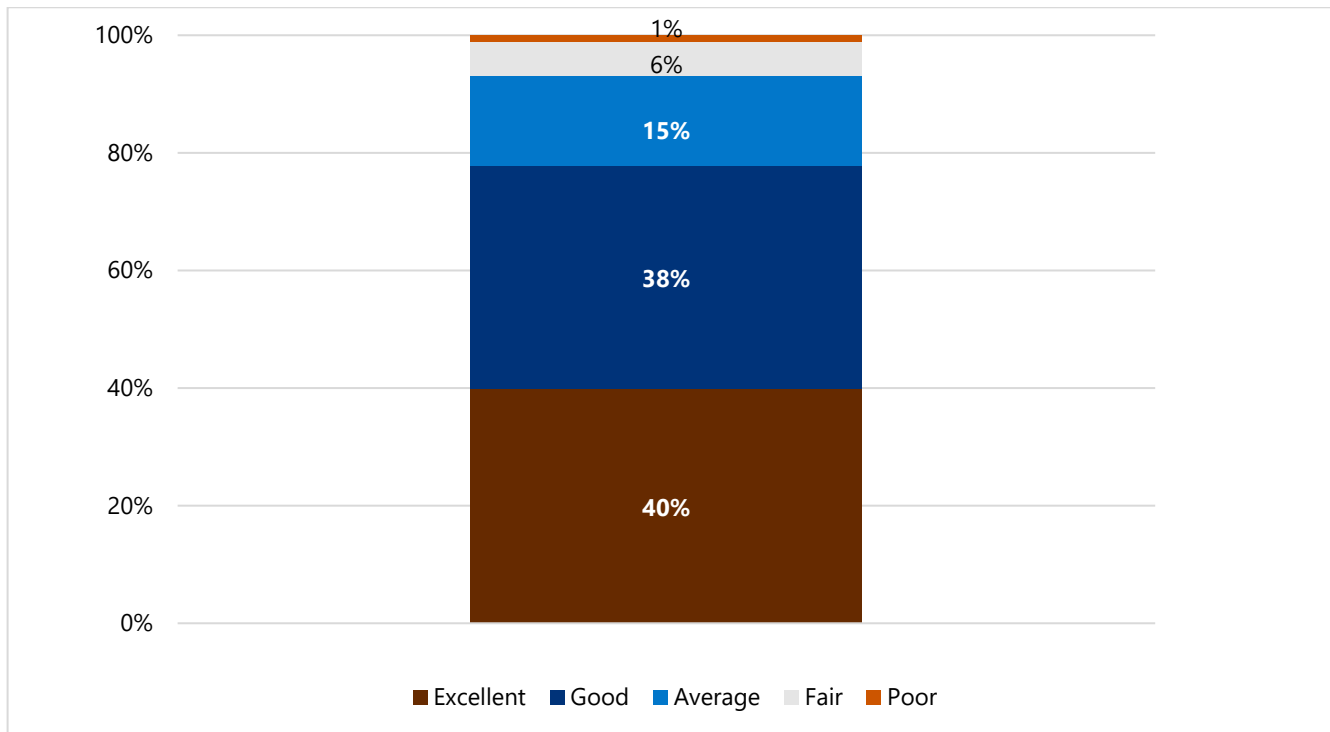
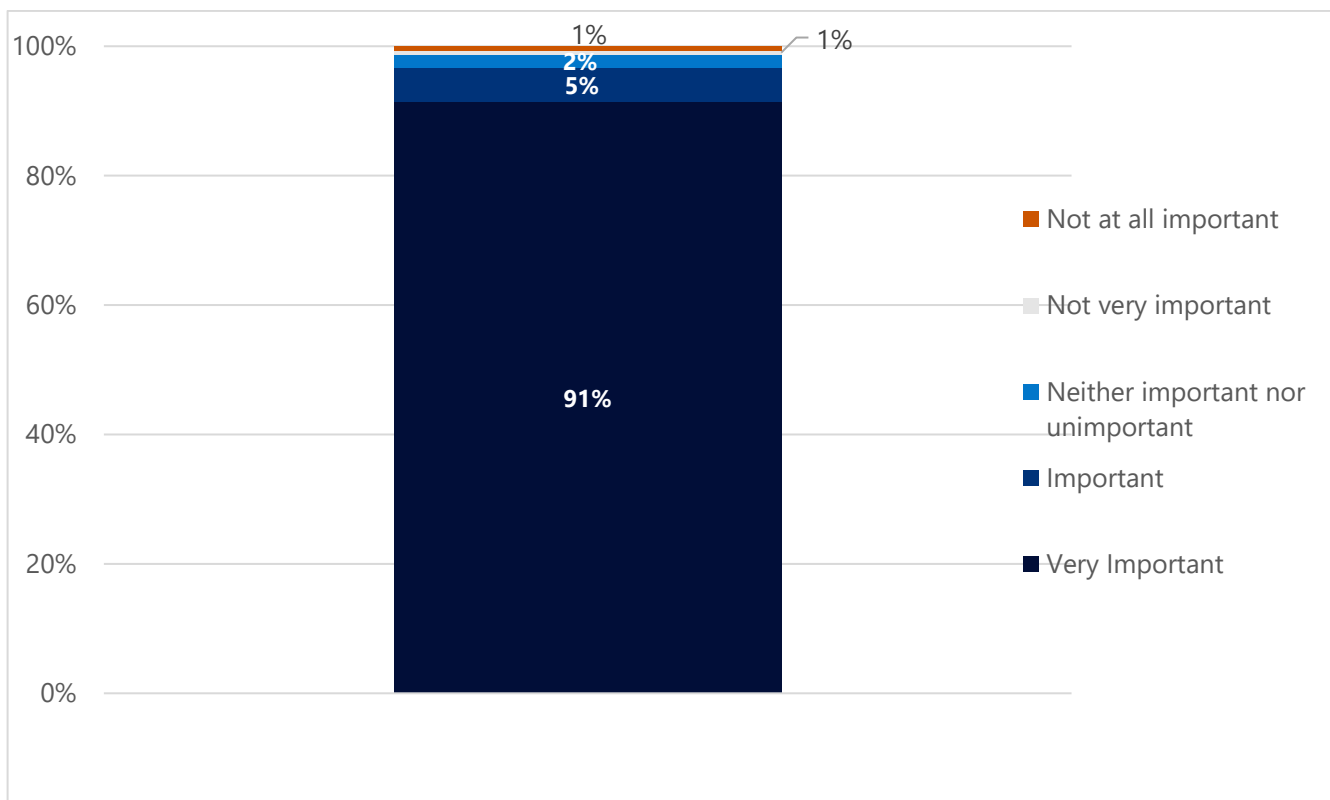
Mountain Lynx Transit Ratings

Overall Impression of Mountain Lynx Transit

The majority of community survey respondents have a positive overall impression of Mountain Lynx Transit, with about three-fourths (78%) rating it as "Excellent" or "Good." A much smaller portion (7%) rated it as fair or poor. Older adults aged 65 and older (86%) are more likely than those aged 35–64 (71%) to rate their overall impression of Mountain Lynx Transit as excellent or good. This can be seen below in **Figure 2-22**.

Importance of Public Transportation Availability

The vast majority of community survey respondents (97%) consider it important for public transportation to be available to those who need it, with 91% rating it as "very important." Only 2% consider it not very important. These findings can be found in **Figure 2-23**.

Figure 2-22: Overall Impression of Mountain Lynx Transit**Figure 2-23: Importance of Public Transit Availability**

Improvements

Desired Improvements

The most frequently requested improvement through the community survey is expanding service to more areas (38%). Other key suggestions include providing real-time updates and a navigation app (23%), longer operating hours (19%), and increased Saturday service (18%). Better regional connections (17%) and increased frequency (16%) were also common responses. Younger and middle-aged adults, those under the age of 35 (32%-36%) and 35–64 (21%-25%), are more likely than older adults (8%) to want extended service hours and better connections between counties, indicating a stronger demand for expanded and more flexible service among younger demographics. More information on this can be found in **Figure 2-24**.

Preferred Information Sources

If they were to ride Mountain Lynx, most community survey respondents would prefer to access service information via the website (54%). Paper schedules (29%), social media (28%), and bus stop postings (27%) are also popular. A smaller group would favor a mobile app (21%), with 39% of those looking for a mobile app—specifying that they would want a dedicated Mountain Lynx Transit app, as seen in **Figure 2-25**.

Figure 2-24: Desired Improvements

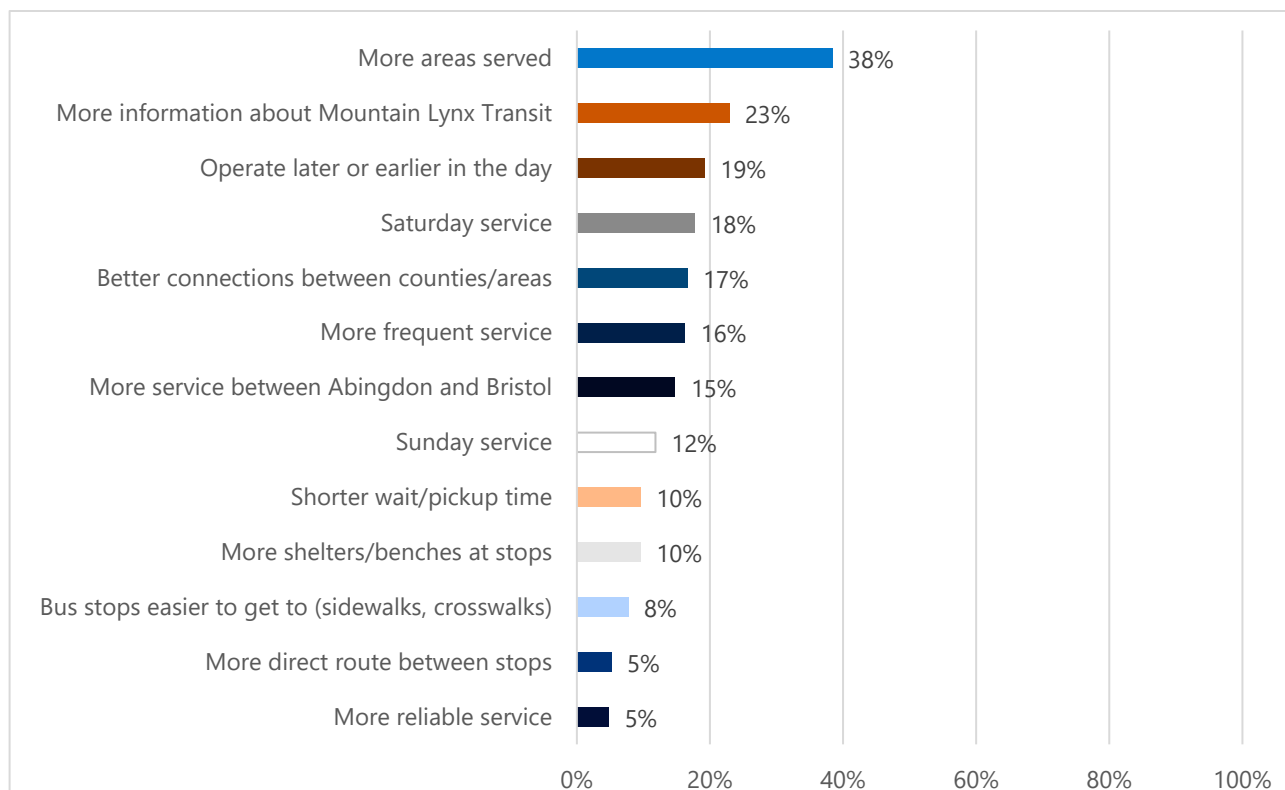
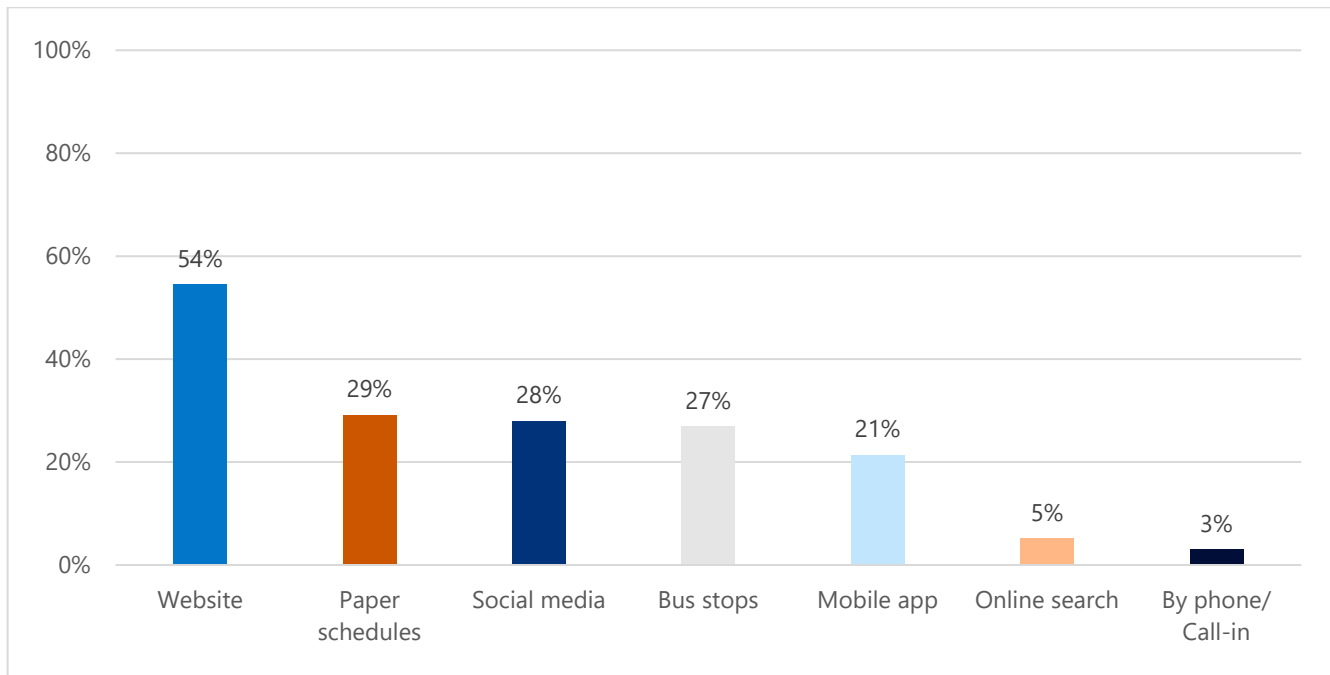


Figure 2-25: Preferred Information Sources

Trip Purpose

Common Purposes

Among community survey respondents who use Mountain Lynx, the most common trip purposes are shopping (56%) and recreational or personal activities (45%). Medical needs (26%) are also a frequent reason. **Table 2-4** shows more information on those results.

Table 2-4: Trip Purpose

	Total
To go shopping	56%
For recreational and personal trips (dining, entertainment, park, visiting friends/family, errands, etc.)	45%
For medical or mental health needs (for you or someone you care for)	26%
To go to or from work	8%
To go to or from school/vocational training (as a student)	3%

Comments

Additional Comments: Respondents highlighted several key themes, with 26% requesting an expanded service area, particularly to serve more locations. More than one in 10 also called for a greater service span (15%), including extended hours (12%) and weekend service (5%). Praise for the system was voiced by 28%, with compliments on service quality (15%), friendly drivers (9%), and overall gratitude for public transit (11%). Some respondents expressed the need for more information (14%), particularly online or through social media (13%), and others emphasized the importance of public transit as a community asset (27%).

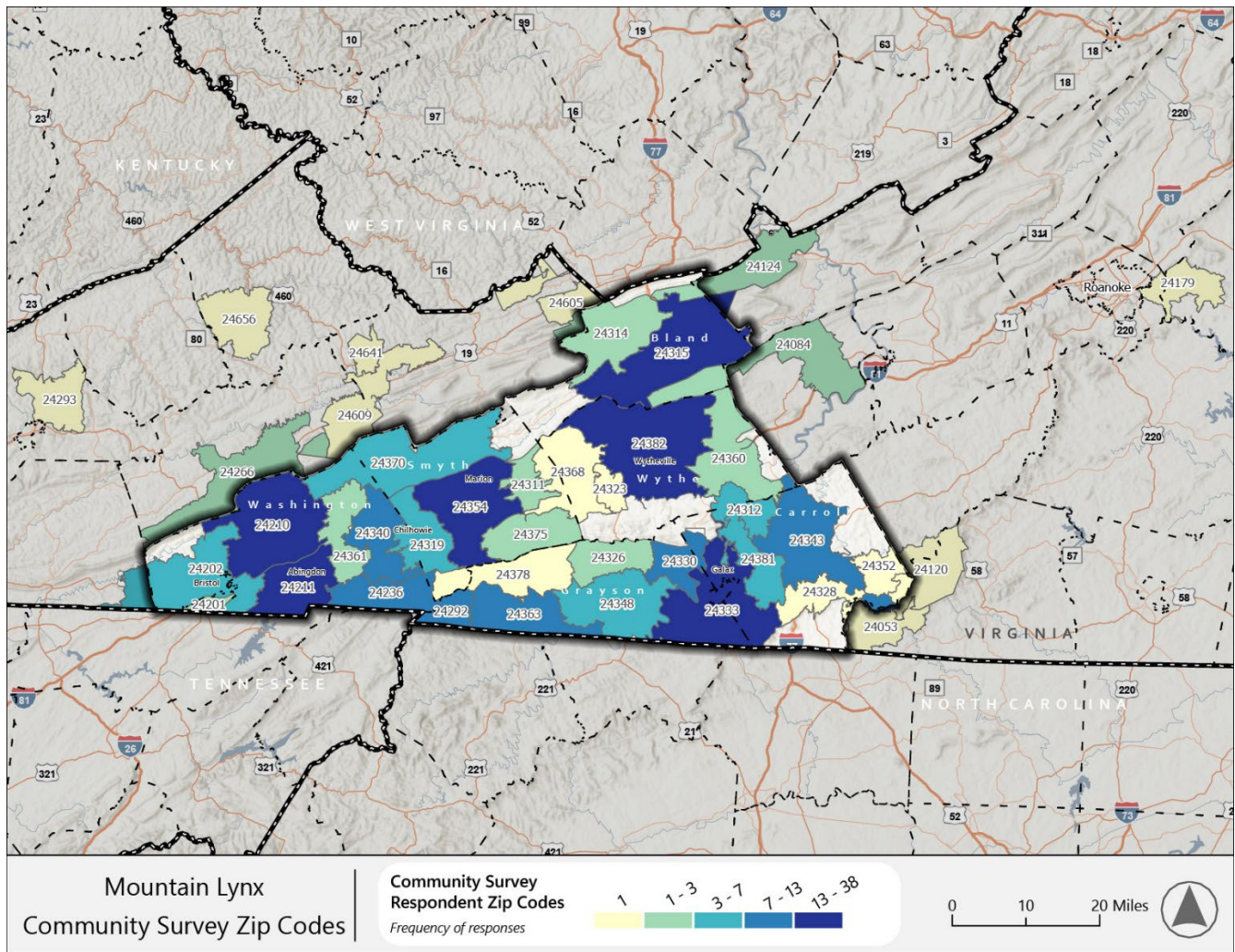
Community Survey Respondent Profile

The following section details the demographic characteristics of the respondents to the community survey. For all questions, the community survey received far more responses than the passenger survey. The ZIP Code, age, employment status, and annual household income of the respondents are shown below.

ZIP Code

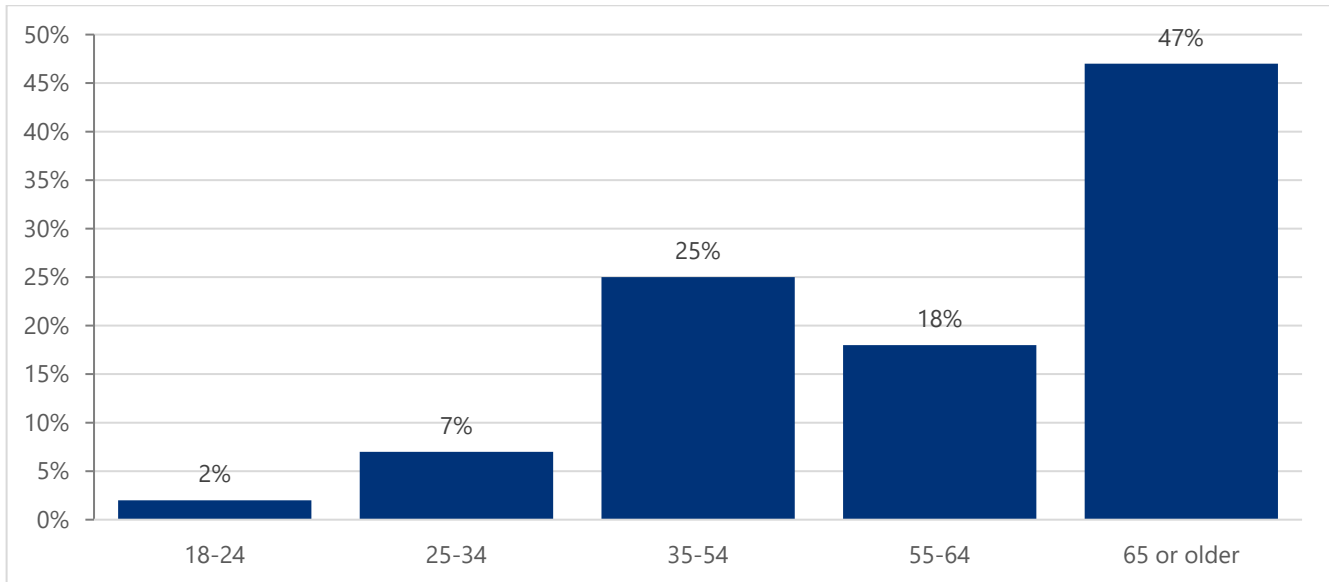
Respondents were from 47 different ZIP Codes in the region, with the highest number reporting living in the following areas, as seen below and shown in **Figure 2-26**.

- 24210 (Abingdon area): 13%
- 24333 (Galax area): 11%
- 24354 (Marion area): 11%
- 24315 (Bland area): 6%
- 24382 (Wytheville area): 6%

Figure 2-26: Community Survey Respondent ZIP Codes

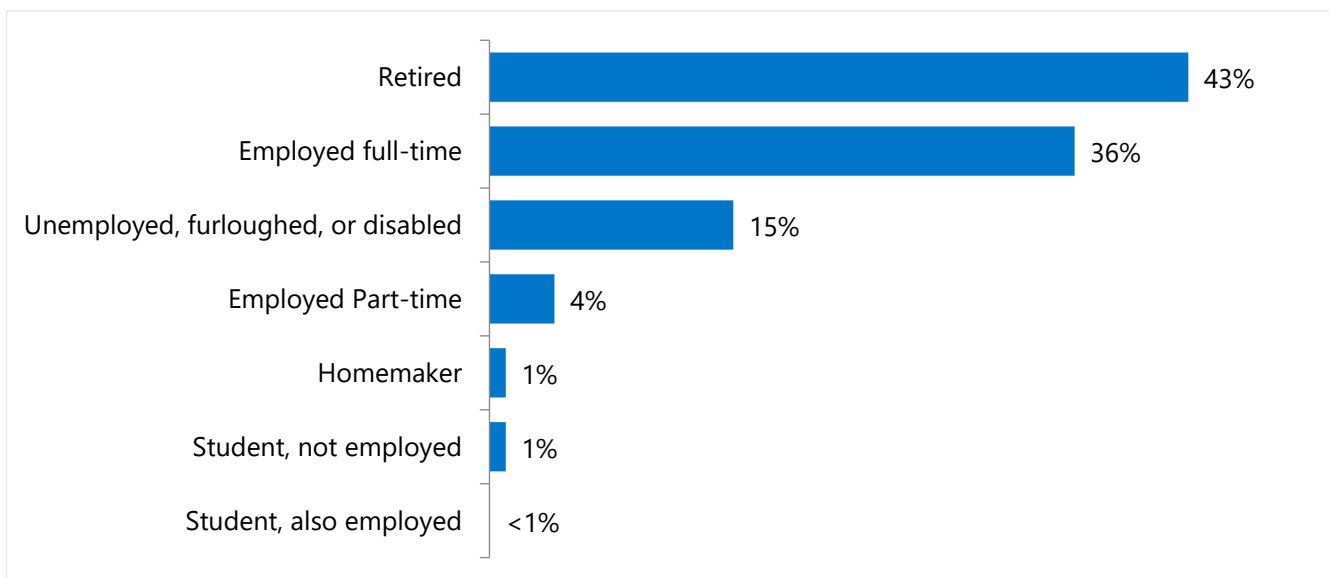
Age

Figure 2-27 shows that the most common age group of the community survey respondents is 65 and older. A total of 298 respondents answered this question, and the average age of the respondents was 58 years old—10 years higher than the average for the passenger survey. Only 10% of the respondents are aged 35 and younger, showing a very small proportion of young respondents. The 35 through 64-year-old age group represents 43% of respondents, which is significant, but lower than that of the passenger survey (57%). The higher average age with the community may be partially explained by the fact that many community surveys were distributed at community centers that cater to the aging population.

Figure 2-27: Community Survey Age

Employment Status

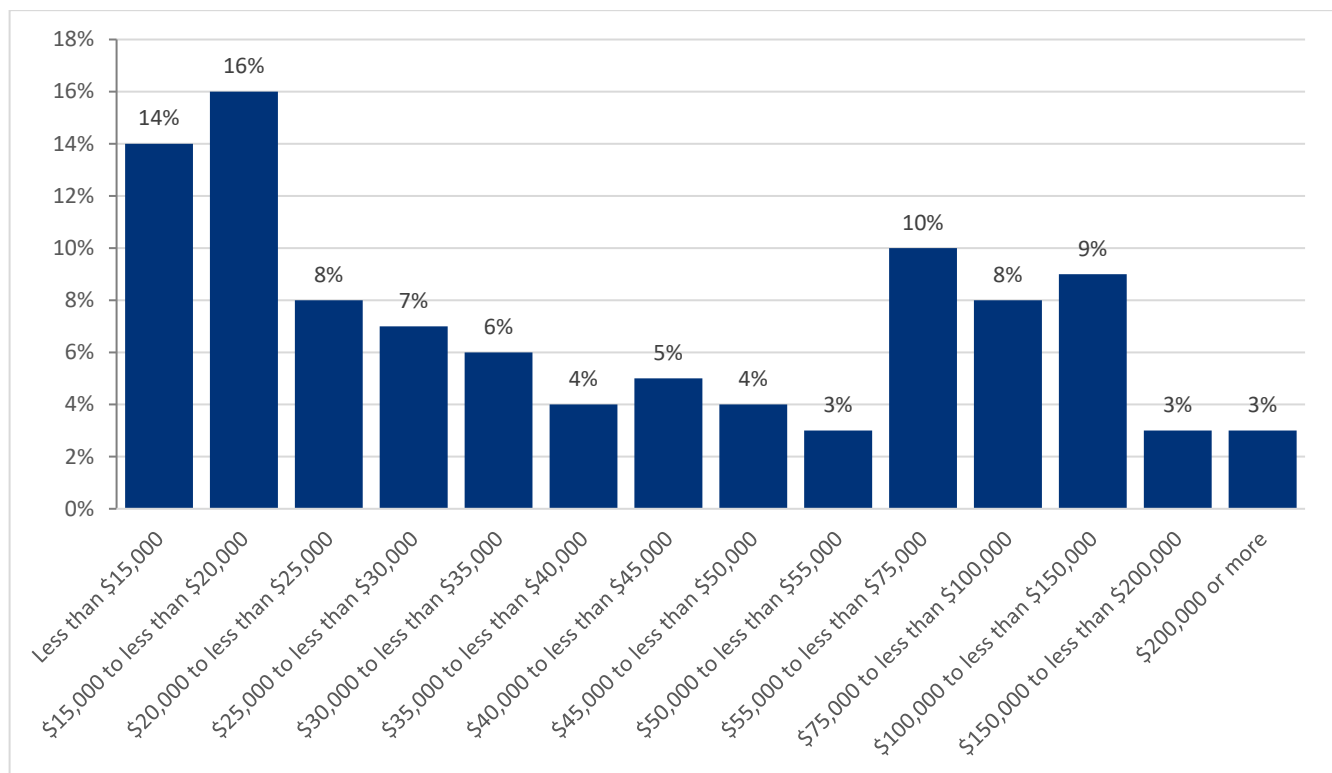
Figure 2-28 shows that, unlike the passenger survey, a plurality of community survey respondents are retired. Of the 294 people who answered this question, 40% of people are employed in one form or another—much higher than the 25% reported in the passenger survey. Additionally, a vast majority of these employed respondents are employed full-time. Unemployed, furloughed, or disabled respondents represent a much smaller percentage of the responses at 15%.

Figure 2-28: Community Survey Employment Status

Annual Household Income

Figure 2-29 shows the annual household income reported by the 243 respondents who answered this question. The distribution of annual household income levels is relatively even among respondents, with slight peaks less than \$20,000 and from \$55,000 to \$149,999 a year. The most common income range is \$15,000 to \$19,999. The highest income group reported was over \$200,000 a year with 3% of respondents selecting this option. The average annual household income reported was \$53,580 and the median was \$33,390. While this median is much higher than that reported by the passenger survey (\$14,850), it is still significantly below the 2023 national median of \$80,610.

Figure 2-29: Community Survey Annual Household Income



Driver and Operations Staff Questionnaire

A questionnaire seeking input on current services and possible improvements was distributed by Mountain Lynx Transit to their drivers and operations staff. Front-line staff are the most public-facing employees in any transit system, and their position gives them a unique perspective on current needs. Seventeen staff members provided feedback, and a summary of their comments is included below.

Drivers and operations staff were asked about the current strengths of public transportation in the region served by Mountain Lynx Transit. The importance of the service to people in the community with limited or no other transportation options was highlighted. Some other identified strengths included:

- Helping people in the community needing transportation.
- Offering a flexible, convenient, affordable, and dependable service.
- Serving a large geographic area.
- Teamwork among the staff to serve the community.

The staff were then asked about weaknesses of the current system, which included:

- Not enough buses.
- Better telephone service.
- Improved communication within the system.
- Additional training in working with the public.
- Need for better pay and benefits.

Next, the staff were asked three questions based on the input they have received from customers:

1. Are there geographic areas or specific destinations that need new or improved service?
2. Are there specific days and hours when new or improved services are needed?
3. Are there other opportunities to improve services?

Staff noted that they had received some complaints about waiting times for the X-Bus service, and comments on the need for expanded service to Bristol. They also mentioned the need for later evening and Sunday service, for services that connect the cities and towns in the region, and for expanded service in areas outside of current routes.

Employees were then asked about their opinion on the most important opportunity that could improve public transportation services in the region, and their responses included:

- Expanded operating hours in evenings and on Sundays.
- Less waiting time.
- More and better routes.
- Bigger buses.
- Greater use of the X-Bus service.
- Shorter loop routes.
- Improved snow plowing.

Demographic Analysis

This section provides a review of demographics, land use, and travel patterns to help identify where potential transit users live, where they travel, and to assess the region's transit needs using quantitative data. It documents and examines the study area's major trip generators as well as the underserved and unserved population segments. In addition to a review of the demographic factors pertinent to a Title VI analysis, it includes a general population profile, and the identification and assessment of underserved population subgroups. This section also develops a land use profile based on major trip generators and resident commuting patterns in the region.

Population Analysis

This section provides a general population profile for the study area, identifies and evaluates underserved population subgroups, and reviews the demographic characteristics pertinent to a Title VI analysis. The study area consists of Washington, Smyth, Wythe, Grayson and Carroll counties, the City of Galax, and the Towns of Abingdon, Wytheville, and Marion. This analysis includes data sources from the 2020 US Census and the 2023 American Community Survey (ACS) 5-year estimates.

Population

Table 2-5 shows US Census population counts for the study area from 2020 to 2023. During the 2023 ACS 5-year estimate, the US Census Bureau reported that Mountain Lynx Transit's service area had a population of 169,107. This was a 2.1% decrease from 2000, a 3.8% decrease from 2010, and a 0.2% decrease from 2020.

With seven jurisdictions under the umbrella of Mountain Lynx Transit's service area, population gains and losses can show striking comparisons. For example, Washington County experienced a 5.5% population increase from 2000 to 2023. During the same period, Grayson County saw a 14.5% decline in population, and Smyth County saw a 10.6% decline.

Since 2000, Washington County and Wythe County have shown population growth. Since 2020, all counties have remained stagnant or experienced slight decreases in population. The population data by jurisdiction for the three Census periods are shown in **Table 2-5**. The population is forecasted to decrease slightly in the region during the next 20 years (**Table 2-6**). Grayson, Smyth, and Bland counties will see the largest population decreases. By 2030, adults aged 65 and older will increase by about 11% in the region, while all other age groups will decrease slightly. By 2050, other age groups are expected to increase in proportion, while adults aged 65 and older will be a smaller percentage of the population.

Table 2-5: Population by Jurisdiction for Mountain Lynx Transit

Location	2000 Population	Growth Rate	2010 Population	Growth Rate	2020 Population	Growth Rate	2023 Estimate	2000-2023 Change
Washington County	51,103	7.4%	54,876	-1.7%	53,935	0.0%	53,913	5.5%
Smyth County	33,081	-2.6%	32,208	-7.5%	29,800	-0.7%	29,585	-10.6%
Wythe County	27,599	5.9%	29,235	-3.2%	28,290	-0.3%	28,219	2.2%
Grayson County	17,917	-13.3%	15,533	-1.3%	15,333	-0.1%	15,323	-14.5%
Carroll County	29,245	2.7%	30,042	-3.0%	29,155	0.0%	29,158	-0.3%
Bland County	6,871	-0.7%	6,824	-8.1%	6,270	-0.9%	6,211	-9.6%
City of Galax	6,837	3.0%	7,042	-4.6%	6,720	-0.3%	6,698	-2.0%
MLT Region	172,653	1.8%	175,760	-3.6%	169,503	-0.2%	169,107	-2.1%

SOURCE: US CENSUS, ACS 2023 5-YEAR ESTIMATE

Table 2-6: Age Divisions and Population Forecasts

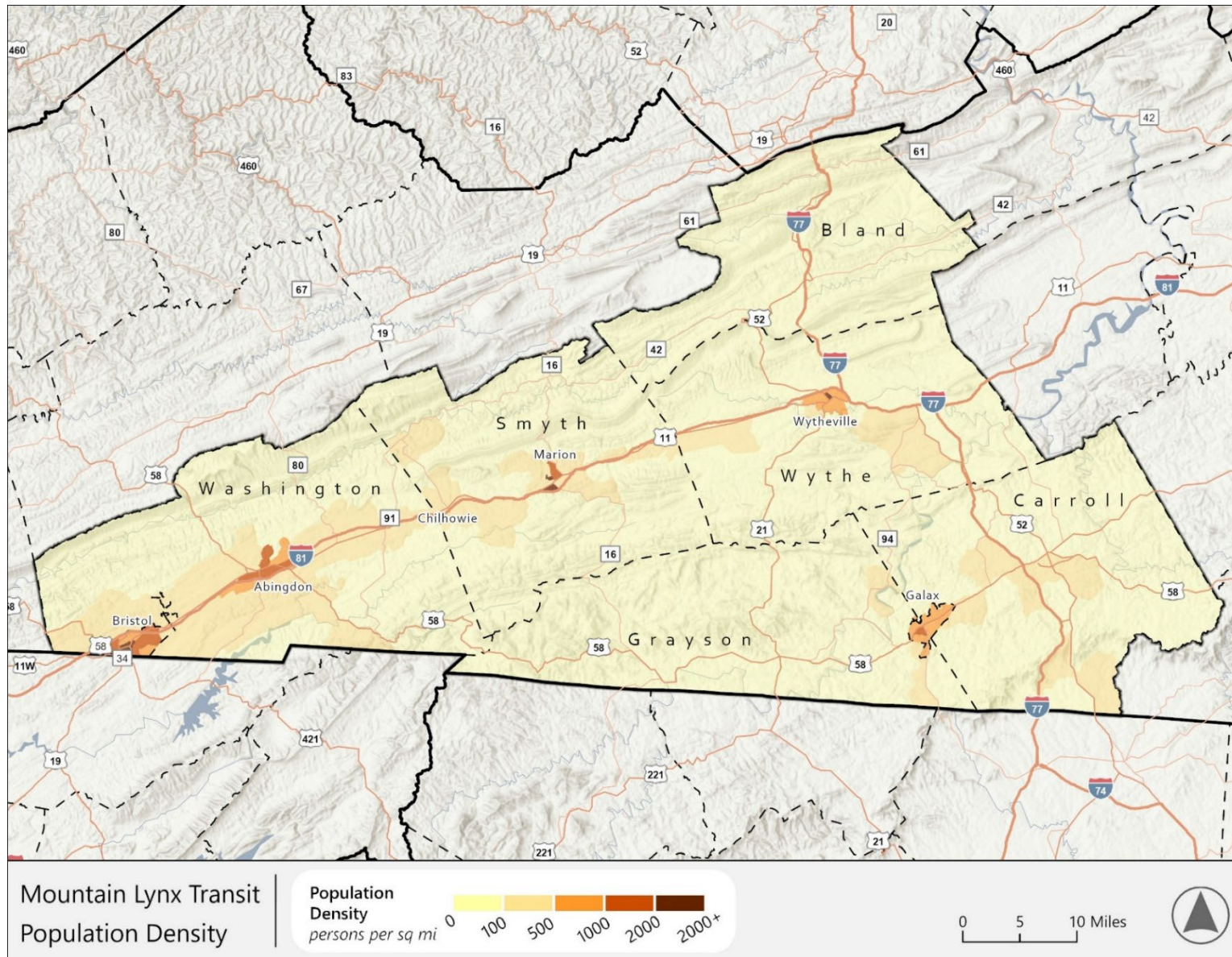
	2020 Population		2030 Projection		2040 Projection		2050 Projection	
Age Group	Population	Percentage	Population	10-Year Change	Population	10-Year Change	Population	10-Year Change
Virginia	8,631,393	-	9,129,002	6%	9,759,371	7%	10,535,810	8%
0-19	2,134,002	24.7%	2,183,546	2%	2,398,845	10%	2,604,358	9%
20-64	5,102,100	59.1%	5,182,815	2%	5,493,708	6%	6,024,220	10%
65+	1,395,291	16.2%	1,762,641	26%	1,866,818	6%	1,907,232	2%
MLT Region	169,503	-	160,905	-5%	156,982	-2%	155,405	-1%
0-19	35,569	21.0%	32,394	-9%	32,028	-1%	32,058	0%
20-64	93,986	55.4%	84,120	-10%	79,916	-5%	81,119	2%
65+	39,948	23.6%	44,393	11%	45,036	1%	42,230	-6%
Bland County	6,270	-	5,634	-10%	5,255	-7%	4,954	-6%
0-19	1,059	16.9%	879	-17%	800	-9%	742	-7%
20-64	3,721	59.3%	3,123	-16%	2,748	-12%	2,552	-7%
65+	1,490	23.8%	1,633	10%	1,707	5%	1,661	-3%
Carroll County	29,155	-	27,863	-4%	27,408	-2%	27,363	0%
0-19	6,036	20.7%	5,596	-7%	5,550	-1%	5,640	2%
20-64	15,774	54.1%	13,969	-11%	13,280	-5%	13,718	3%
65+	7,345	25.2%	8,297	13%	8,577	3%	8,005	-7%
Galax City	6,720	-	6,306	-6%	6,156	-2%	6,097	-1%
0-19	1,566	23.3%	1,383	-12%	1,370	-1%	1,355	-1%
20-64	3,608	53.7%	3,325	-8%	3,155	-5%	3,159	0%
65+	1,546	23.0%	1,599	3%	1,630	2%	1,583	-3%
Grayson County	15,333	-	14,916	-3%	13,423	-10%	12,131	-10%
0-19	2,756	18.0%	2,618	-5%	2,322	-11%	2,061	-11%
20-64	8,643	56.4%	7,647	-12%	6,628	-13%	6,106	-8%
65+	3,934	25.7%	4,651	18%	4,473	-4%	3,964	-11%
Smyth County	29,800	-	26,999	-9%	24,985	-7%	23,344	-7%
0-19	6,528	21.9%	5,713	-12%	5,331	-7%	5,021	-6%
20-64	16,576	55.6%	14,338	-14%	12,877	-10%	12,374	-4%
65+	6,696	22.5%	6,948	4%	6,777	-2%	5,949	-12%
Washington County	53,935	-	52,234	-3%	52,859	1%	54,275	3%
0-19	11,399	21.1%	10,595	-7%	10,985	4%	11,418	4%
20-64	29,874	55.4%	27,410	-8%	27,446	0%	28,942	5%
65+	12,662	23.5%	14,230	12%	14,428	1%	13,916	-4%
Wythe County	28,290	-	26,953	-5%	26,896	0%	27,241	1%
0-19	6,225	22.0%	5,610	-10%	5,670	1%	5,821	3%
20-64	15,790	55.8%	14,308	-9%	13,782	-4%	14,268	4%
65+	6,275	22.2%	7,035	12%	7,444	6%	7,152	-4%

SOURCE: UNIVERSITY OF VIRGINIA WELDON COOPER CENTER FOR PUBLIC SERVICE. (2022). VIRGINIA POPULATION PROJECTIONS.

RETRIEVED FROM [HTTPS://COOPERCENTER.ORG/VIRGINIA-POPULATION-PROJECTIONS](https://coopercenter.org/virginia-population-projections)

Population Density

Population density is an important indicator of how rural or urban an area is, which in turn affects the types of transportation that may be most viable. While fixed-route transit is more practical and successful in areas with 2,000 or more people per square mile, flexible or specialized transportation services are typically a better fit for rural areas with less population density. As shown in **Figure 2-32**, most of the Mountain Lynx Transit service area has a population density of less than 100 persons per square mile, particularly in Bland and Grayson counties. Block groups with a population density between 101 to 500 people per square mile are found along I-81 between Washington and Wythe counties, outside of Bristol, VA (which provides its own transit service), Damascus, Saltville, Galax, and along I-77 in Carroll County. Block groups with a population density of more than 1,000 people per square mile are present in Abingdon, Marion, Wytheville, and Galax.

Figure 2-32: Population Density in the Study Area

Transit-Dependent Population Analysis

Public transportation needs are defined in part by identifying the relative size and location of segments within the general population that are most likely to be dependent on transit services. This includes individuals who may not have access to a personal vehicle due to income status or are unable to drive due to age or disability. The results of this demographic analysis highlight areas within the study area with the greatest transportation needs.

In order to develop the process of ranking socioeconomic need, block groups are classified relative to the entire study area by using a five-tiered scale of “Very Low” to “Very High.” A block group classified as “Very Low” can still have a significant number of potential transit-dependent persons, as “Very Low” only means below the study area’s average. At the other end of the spectrum, “Very High” means greater than twice the study area’s average. The exact specifications for each score are summarized in **Table 2-7**.

Table 2-7: Relative Ranking Definitions for Transit-Dependent Populations

Number of Vulnerable Persons or Households	Score
Less than and equal to the study area’s average	Very Low
Above the average add up to 1.33 times the average	Low
Above 1.33 times the average and up to 1.67 times the average	Moderate
Above 1.67 times the average and up to two times the average	High
Above two times the average	Very High

Figure 2-30 displays Transit Dependence Index (TDI) rankings for the study area. According to the TDI, areas with higher transit need are generally found in high density areas, including block groups in Abingdon, Bristol, Marion, Wytheville, and Galax. Chilhowie and Atkins also have a high TDI index but are not high-density areas.

Figure 2-31 shows the Transit Dependence Index Percent (TDIP), which is similar to the TDI measure; however, it excludes the population density factor. The TDIP for each block group in the study area was calculated based on autoless households and the older adult/youth/below-poverty populations. By removing the population density factor, the TDIP can measure the degree of vulnerability. It represents the percentage of population within the block group with above socioeconomic characteristics, and it follows the TDI’s five-tiered categorization of “Very Low” to “Very High.” It does not highlight block groups that are likely to have higher concentrations of vulnerable populations only because of their population density. **Figure 2-31** shows transit needs based on percentage. According to the TDIP, there are no block groups with a high or very high transit need based on percentage. Overall, areas that fall into a moderate classification are more dispersed in Washington, Smyth, Carroll, Grayson, and Wythe counties.

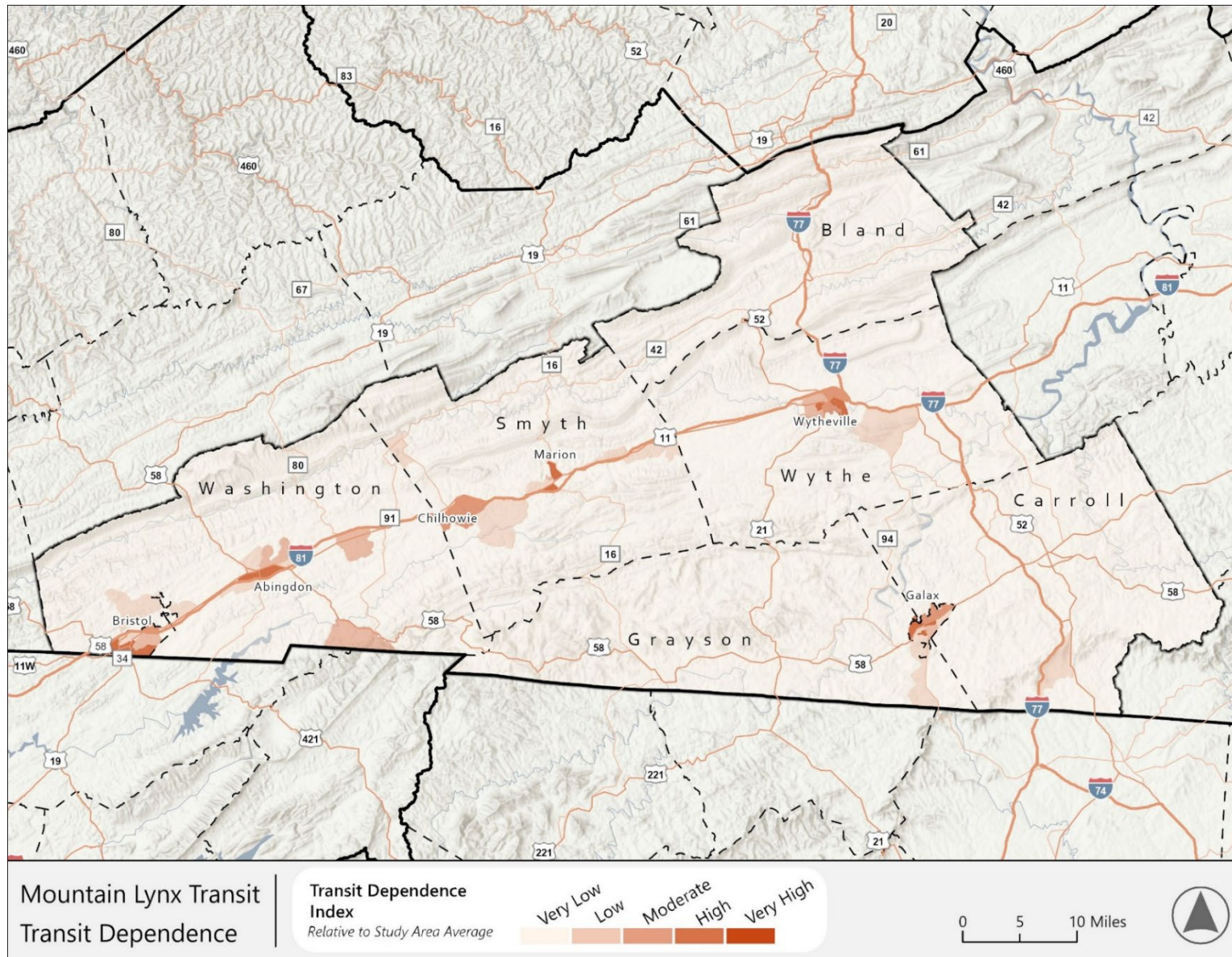
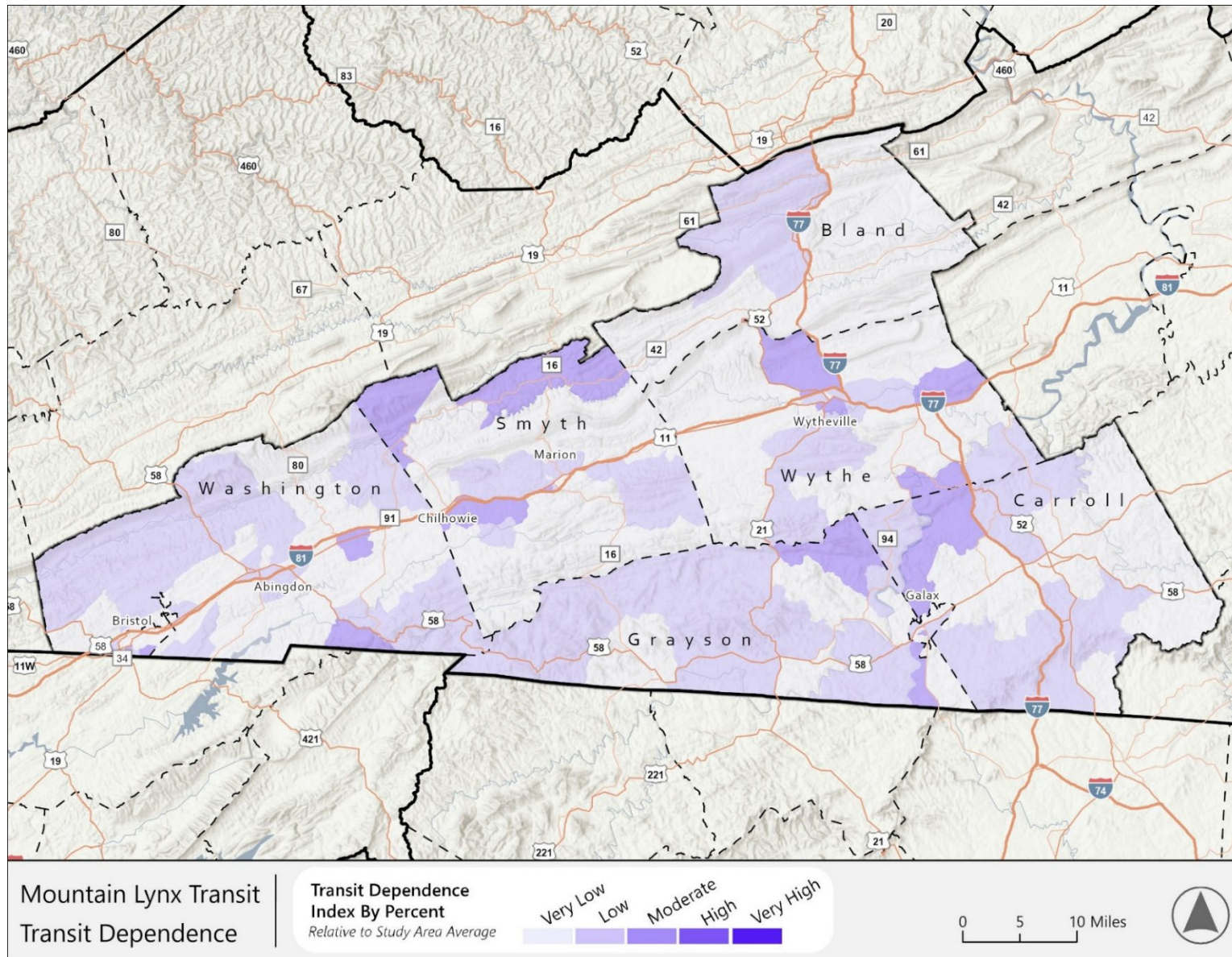
Figure 2-30: Transit Dependence Index (TDI)

Figure 2-31: Transit Dependence Index Percentage (TDIP)

Autoless Households

Households without at least one personal vehicle are more likely to depend on the mobility offered by public transit and human services organizations than those households with access to a car. **Figure 2-33** displays the relative number of autoless households for the region. Block groups with a classification of “Very High” or “High” are found in Abingdon and in the south of Washington County; Chilhowie, Marion, areas around Saltville, and southeastern Smyth County; Wytheville and along I-77 in Wythe County; near Galax in Grayson County; Galax City; and portions of northwestern Carroll County.

Individuals with Disabilities

Those with disabilities may be unable to operate a personal vehicle and are more likely to rely on public transportation. **Figure 2-34** displays the relative number of individuals with disabilities. The only location with “Very High” need block groups is in Bristol. Block groups classified as “High” can be found in multiple groups around Washington County, in Smyth County specifically near Chilhowie, around Wytheville in Wythe County, and surrounding Galax.

Senior Adult Populations

Individuals aged 65 and older may scale back their use of personal vehicles as they age, leading to greater reliance on public transportation compared to those in other age brackets. According to the American Community Survey (ACS), approximately 23% of the region’s population is aged 65 or older. **Figure 2-35** displays the relative concentration of older adults. The block groups classified as having a high number of older adults are often in lower density areas, and are located in northern Bland County, northern Grayson County, around Marion, and east of Chilhowie. The only block group with a very high concentration of older adults is in southern Carroll County.

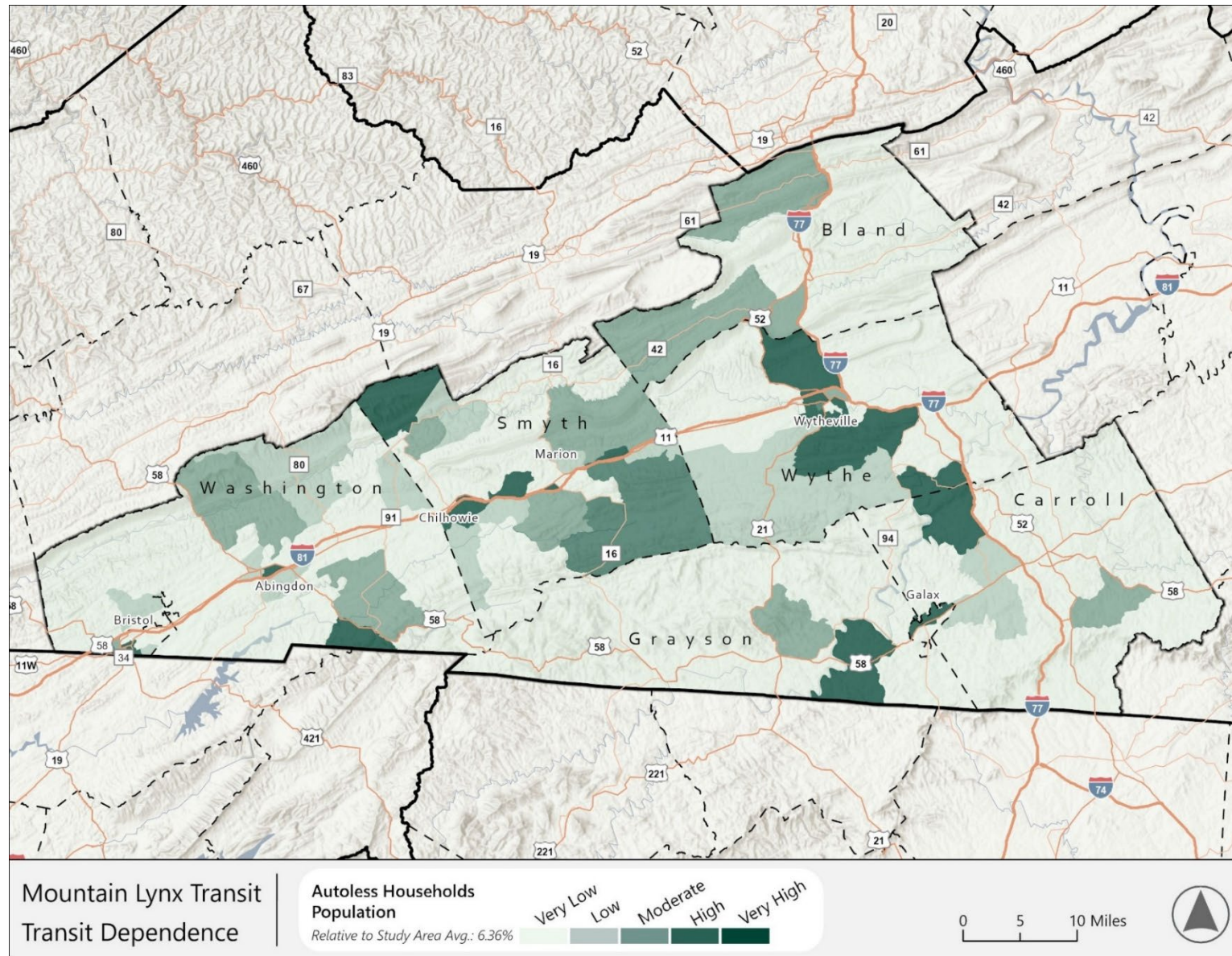
Figure 2-33: Autoless Households in the Study Area

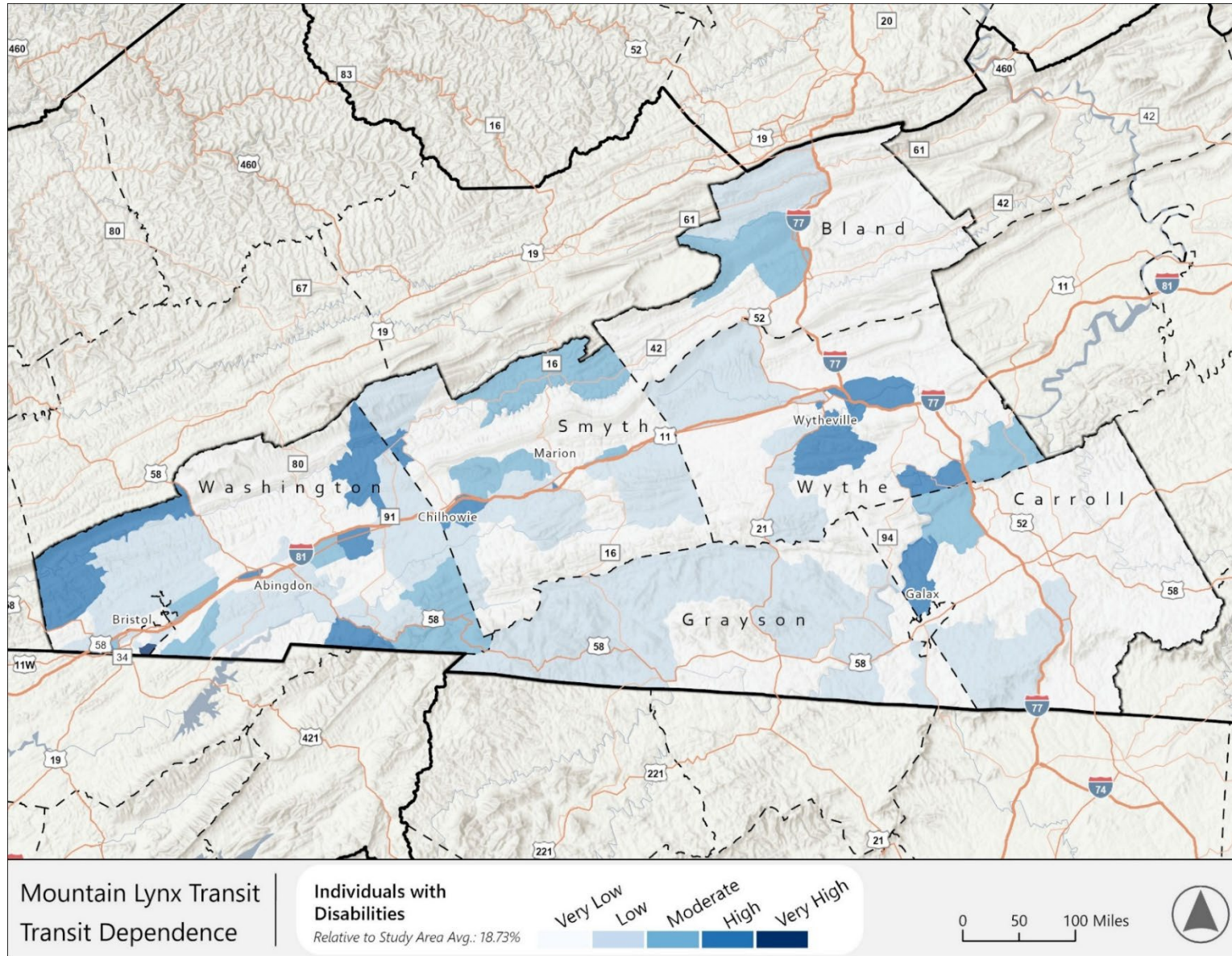
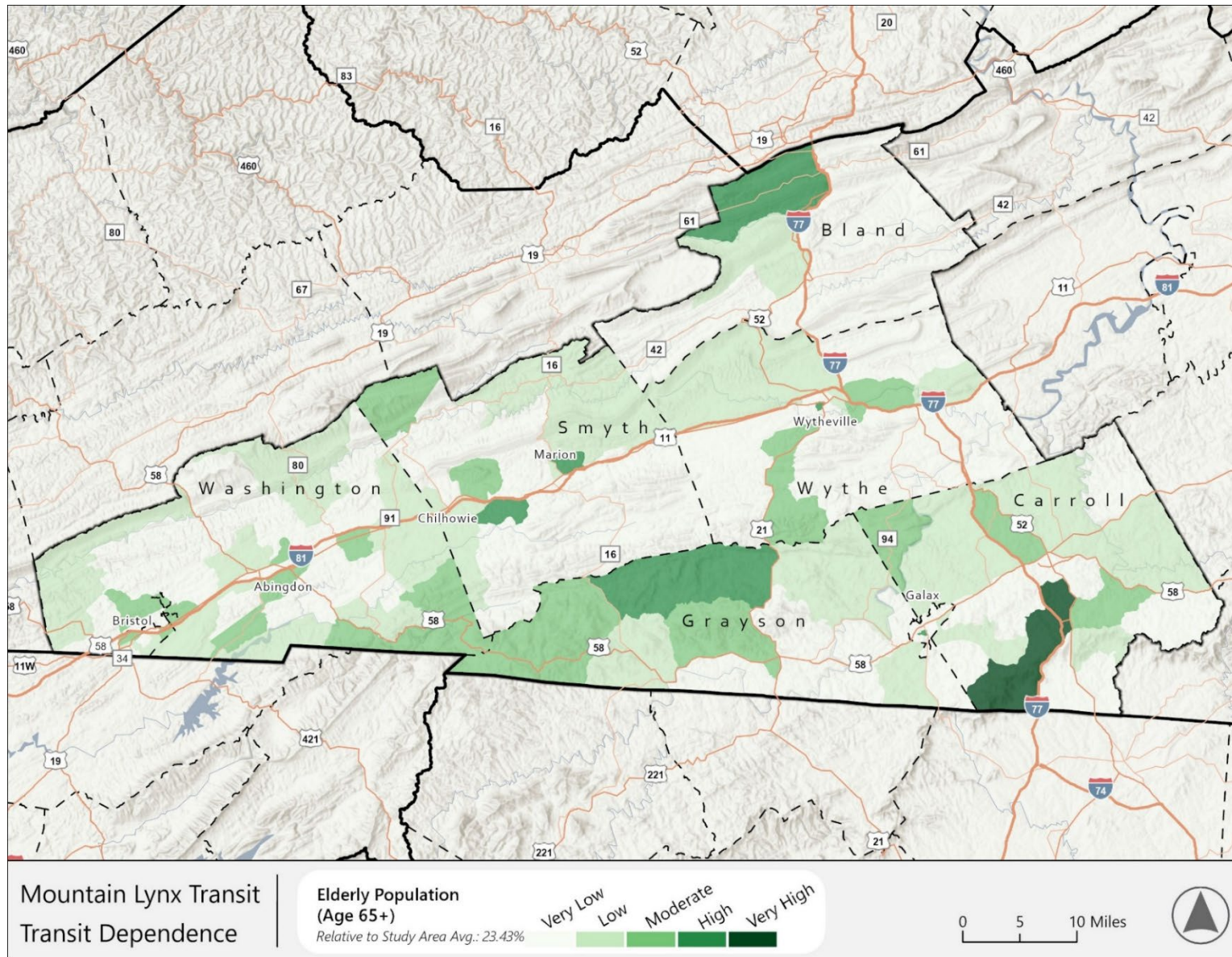
Figure 2-34: Populations with Disabilities in the Study Area

Figure 2-35: Populations with Older Adults in the Study Area

Title VI Demographic Analysis

The Civil Rights Act of 1964, Title VI prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving federal subsidies. This includes agencies that provide federally-funded public transportation. The following section examines the minority and below-poverty level populations in the study area.

Minority Population

It is important to ensure that areas with an above-average percentage of racial and/or ethnic minorities are not negatively impacted by any proposed alterations to existing public transportation services. In the study area, the average percentage of the minority population in a block group is 8.01%. **Figure 2-36** illustrates which block groups have a density of minority populations above and below the area's average. The block groups classified as having an above-average percentage of minorities include: the areas surrounding Bristol; Abingdon and areas north of Abingdon in Washington County; in the center-west and center-east segments of Smyth County; near Wytheville, along the western segment of I-81, and the south-east corner of Wythe County; southeastern Bland County; eastern Grayson County; Galax City and the surrounding areas; and eastern Carroll County. The counties with a higher percentage of above-average block groups are Washington, Grayson, and Wythe Counties.

Below-Poverty Populations

The second group included in the Title VI analysis represents those individuals who earn less than the federal poverty level. This segment of the population may find it a financial burden to own and maintain a personal vehicle, thus relying on public transit as their primary means of transportation. In the study area, the average percentage of individuals in a block group living below the federal poverty level is 15.29%. **Figure 2-37** depicts the concentration of population above or below the average percentage of individuals living below poverty. Around half of the block groups are classified as above-average in Washington, Smyth, Grayson, and Carroll Counties. In particular, Smyth County has a high percentage of above-average block groups. Wythe County also has some above-average block groups, although fewer than half.

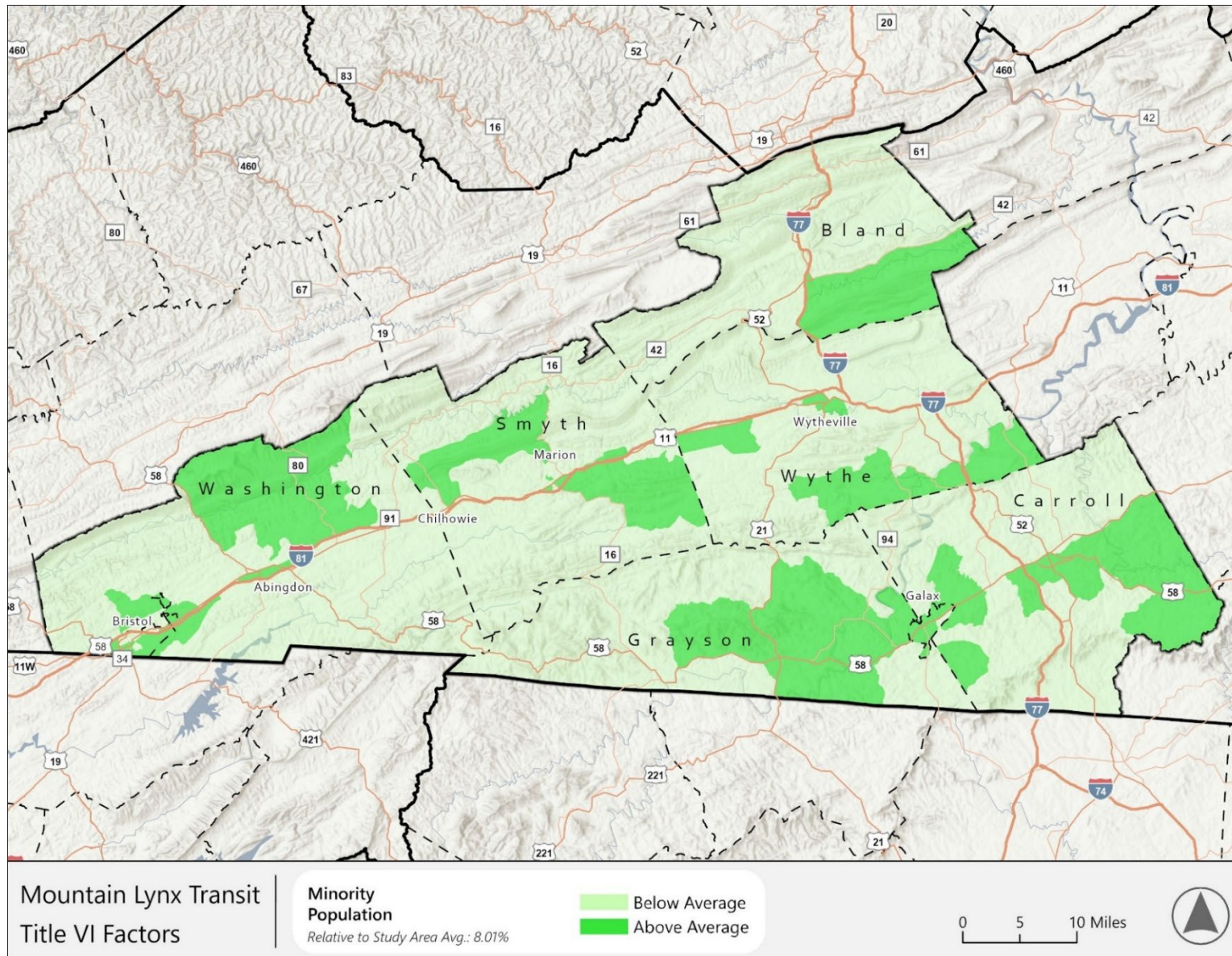
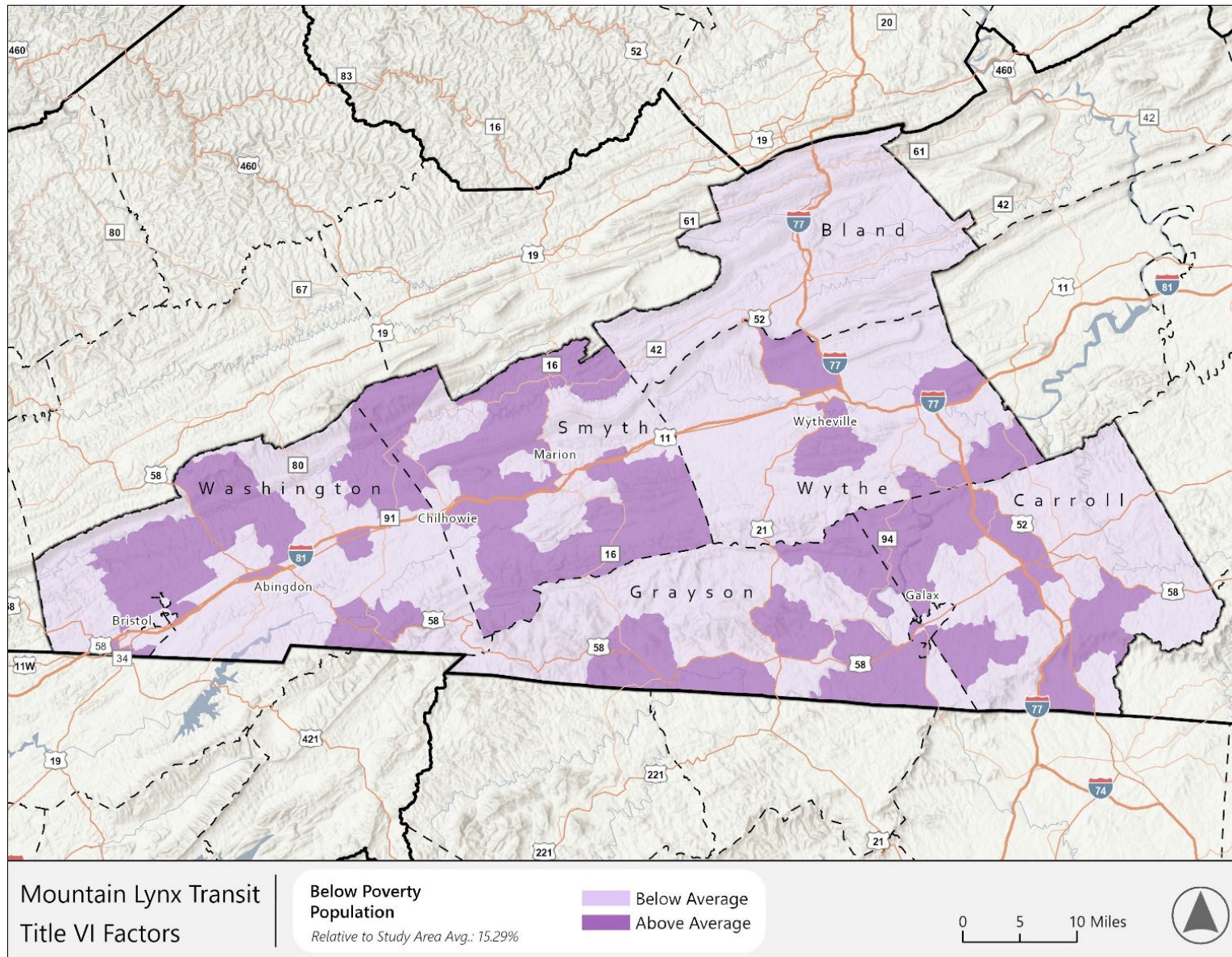
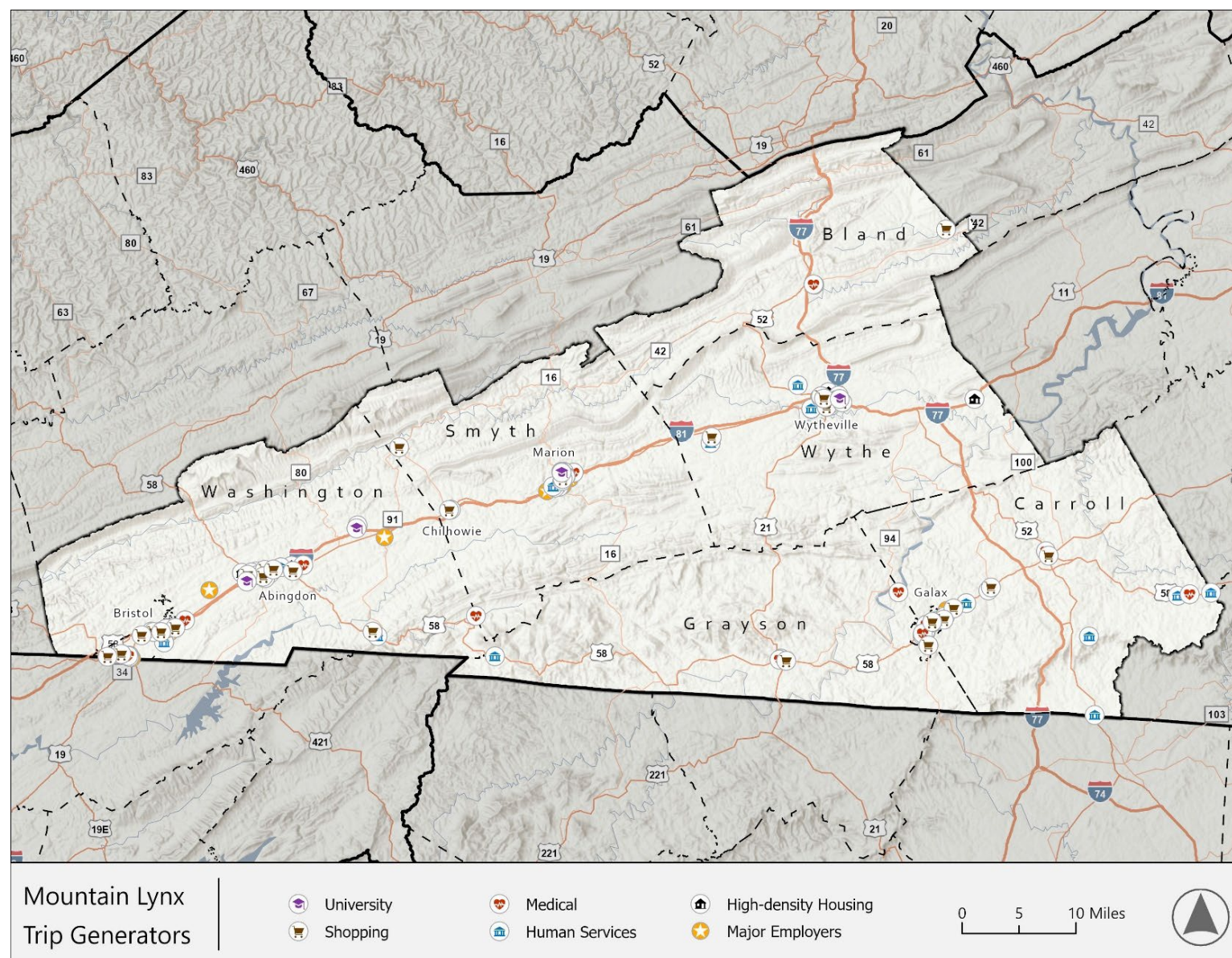
Figure 2-36: Distribution of the Minority Population in the Study Area

Figure 2-37: Populations Below the Poverty Line in the Study Area

Land Use Profile

Major Trip Generators

Identifying land uses and major trip generators in the study area complement the above demographic analysis by indicating where transit services may be most needed. Trip generators attract transit demand and include common origins and destinations, like high-density housing, major employers, medical facilities, educational facilities, human services agencies, and grocery stores/shopping centers. The data on major trip generators was obtained through Open Street Maps, Google Maps, and the Virginia Works (Department of WDA). As seen in **Figure 2-38**, most trip generators are located in or near the larger population centers in the service area, along major travel corridors, and areas served daily by Mountain Lynx Transit. A few places with an above-average number of trip generators that do not have daily MLT service include Chilhowie, Bland, Damascus, Rural Retreat, Independence, and Hillsville. **Appendix C** provides the names and addresses for each of the major trip generators.

Figure 2-38: Mountain Lynx Transit – Major Trip Generators

Employment Travel Patterns

In addition to considering the locations of the region's major employers, it was also important to consider the commuting patterns of residents. According to ACS five-year estimates for 2018-2023, 60% of the region's workers ages 16 and older worked at locations within their home counties. As seen in **Table 2-8**, in-county/city commuting has the highest rates in Wythe, Smyth, and Washington counties, as well as Galax City. Commuters from Grayson and Carroll counties often work in other counties across the state. Carroll County commuters travel outside the state more than commuters from the other jurisdictions in the region, with 19.5% of the workers leaving Virginia, largely for North Carolina.

About 30% of the region's workers commute to other Virginia counties and 9% of workers commute to other states. These are slight decreases from the 2013-2018 ACS, when 31% of workers commuted to other counties, and 10% of workers commuted to other states.

Table 2-8: Journey to Work Travel Patterns

Place of Residence	Bland County	Carroll County	Galax City	Grayson County	Smyth County	Washington County	Wythe County
Workers Ages 16 and Older	2,324	12,181	2,835	5,798	11,713	23,291	12,303
Location of Workplace							
In State of Residence	88.1%	80.5%	97.0%	86.4%	97.5%	88.8%	98.4%
a) In County of Residence	56.5%	39.9%	67.8%	39.1%	67.5%	66.5%	70.8%
b) Outside County of Residence	31.6%	40.6%	29.2%	47.3%	30.0%	22.3%	27.6%
Outside State of Residence	11.9%	19.5%	3.0%	13.6%	2.5%	11.2%	1.6%
Means of Transportation to Work							
Car, Truck, or Van (drove alone)	82.3%	83.7%	80.1%	81.3%	83.1%	82.5%	82.8%
Car, Truck, or Van (carpooled)	10.3%	10.7%	16.6%	9.9%	9.5%	7.9%	9.9%
Public Transportation	0.0%	0.0%	0.0%	1.0%	0.1%	0.1%	0.0%
Walked	1.5%	1.4%	0.4%	0.9%	0.5%	1.6%	0.6%
Bicycle	0.0%	0.3%	0.0%	0.0%	0.2%	0.0%	0.0%
Taxicab, Motorcycle, or Other	0.7%	0.3%	0.0%	1.8%	0.5%	0.5%	1.0%
Worked at Home	5.2%	3.5%	3.0%	5.2%	6.1%	7.5%	5.8%

SOURCE: ACS, FIVE-YEAR ESTIMATES (2018-2023), TABLE S0801

Table 2-9: Top Ten Employment Destinations for County Residents in Mountain Lynx Transit Service Area

Place	Number	Percent	Place	Number	Percent
Bland County			Carroll County		
Wytheville town, VA	225	9.5%	Galax city, VA	1,682	14.6%
Bland CDP, VA	188	7.9%	Hillsville town, VA	1,554	13.5%
Bastian CDP, VA	160	6.7%	Mount Airy city, NC	494	4.3%
Princeton city, WV	74	3.1%	Wytheville town, VA	381	3.3%
Pulaski town, VA	46	1.9%	Pulaski town, VA	184	1.6%
Bluefield city, WV	41	1.7%	Blacksburg town, VA	172	1.5%
Tazewell town, VA	38	1.6%	Independence town, VA	170	1.5%
Bluefield town, VA	35	1.5%	Woodlawn CDP, VA	165	1.4%
Roanoke city, VA	34	1.4%	Christiansburg town, VA	163	1.4%
Christiansburg town, VA	33	1.4%	Roanoke city, VA	134	1.2%
All Other Locations	1,506	63.3%	All Other Locations	6,419	55.7%
Galax City			Grayson County		
Galax city, VA	925	35.2%	Galax city, VA	1,045	17.9%
Hillsville town, VA	165	6.3%	Independence town, VA	673	11.5%
Independence town, VA	85	3.2%	Wytheville town, VA	222	3.8%
Wytheville town, VA	54	2.1%	Hillsville town, VA	151	2.6%
Christiansburg town, VA	42	1.6%	Marion town, VA	137	2.3%
Roanoke city, VA	30	1.1%	Sparta town, NC	112	1.9%
Blacksburg town, VA	29	1.1%	Jefferson town, NC	76	1.3%
Mount Airy city, NC	25	1.0%	Roanoke city, VA	71	1.2%
Sparta town, NC	23	0.9%	Blacksburg town, VA	58	1.0%
Abingdon town, VA	21	0.8%	Atkins CDP, VA	51	0.9%
All Other Locations	1,232	46.8%	All Other Locations	3,252	55.6%

Place	Number	Percent	Place	Number	Percent
Washington County			Smyth County		
Abingdon town, VA	4,001	18.6%	Marion town, VA	2,986	25.7%
Bristol city, VA	2,397	11.1%	Atkins CDP, VA	844	7.3%
Bristol city, TN	1,091	5.1%	Chilhowie town, VA	672	5.8%
Marion town, VA	695	3.2%	Abingdon town, VA	476	4.1%
Kingsport city, TN	606	2.8%	Wytheville town, VA	452	3.9%
Johnson City city, TN	592	2.8%	Saltville town, VA	300	2.6%
Lebanon town, VA	463	2.2%	Bristol city, VA	271	2.3%
Chilhowie town, VA	246	1.1%	Rural Retreat town, VA	177	1.5%
Meadowview CDP, VA	212	1.0%	Johnson City city, TN	110	0.9%
Wytheville town, VA	212	1.0%	Lebanon town, VA	109	0.9%
All Other Locations	10,989	51.1%	All Other Locations	5,235	45.0%
Wythe County					
Place	Number		Percent		
Wytheville town, VA	3,382		28.0%		
Rural Retreat town, VA	480		4.0%		
Pulaski town, VA	364		3.0%		
Marion town, VA	302		2.5%		
Christiansburg town, VA	217		1.8%		
Fort Chiswell CDP, VA	206		1.7%		
Galax city, VA	204		1.7%		
Atkins CDP, VA	201		1.7%		
Blacksburg town, VA	187		1.5%		
Radford city, VA	173		1.4%		
All Other Locations	6,369		52.7%		

SOURCE: CENSUS BUREAU, ONTHEMAP APPLICATION AND LEHD ORIGIN-DESTINATION EMPLOYMENT STATISTICS, 2022.

Employment Projections

The Virginia Employment Commission prepares employment projections for counties, cities, and regions of the Commonwealth. For residents in the Mountain Lynx Transit area, the projections are not available by jurisdiction, but are available for Local Workforce Development Area II, which includes all of the MLT counties (Bland, Carroll, Washington, Smyth, Wythe and Grayson counties), in addition to the city of Radford and the adjacent counties of Floyd, Giles, Montgomery, and Pulaski.

Table 2-10 displays the project growth rate of the ten largest industry classifications in Local Workforce Development Area II. This data projects modest growth in the region of 5.2% over the 10-year period. The largest employment growth sectors are expected to be Leisure and Hospitality (12.9%), Food Services and Drinking Places (11.3%), and Manufacturing (9.4%). Declining sectors are expected to include Government (-0.6%) and unclassified industries (-4.9%).

Table 2-10: Local Workforce Development Area II Employment Projections 2020-2030

Industry	Employment			Percent	
	Estimated 2020	Projected 2030	Change	Total	Annual
Total All Industries	137,771	144,908	7,137	5.2%	0.0%
Services Providing	99,055	104,335	5,280	5.3%	0.0%
Education and Health Services	34,118	36,774	2,656	7.8%	0.0%
Goods Producing	31,449	33,665	2,216	7.0%	0.0%
Manufacturing	23,596	25,818	2,222	9.4%	0.0%
Trade, Transportation, and Utilities	23,477	23,972	495	2.1%	0.0%
Educational Services	17,928	19,418	1,490	8.3%	0.0%
Leisure and Hospitality	12,614	14,241	1,627	12.9%	0.0%
Professional and Business Services	12,257	12,770	513	4.2%	0.0%
Food Services and Drinking Places	10,466	11,645	1,179	11.3%	0.0%
Government	9,245	9,193	-52	-0.6%	0.0%
Unclassified	7,267	6,908	-359	-4.9%	0.0%

SOURCE: VIRGINIA EMPLOYMENT COMMISSION, LONG-TERM WORKFORCE AREA INDUSTRY PROJECTIONS, 2020 – 2030

Summary Of Demographic Analysis

Presented below are key observations collected from demographic, land-use, and commuter trends analyzed in the previous sections:

- The majority of the region is low density, with fewer than 500 people per square mile. Concentrations of populations greater than 500 are found along I-81; however, there are block groups with transit-dependent households that do not receive frequent MLT service including Chilhowie, Saltville, Atkins, Rural Retreat, Fries and Hillsville.
- The region's population overall is predicted to decrease slightly by 2050. From 2020 to 2050, the population aged 65 and older is expected to decrease by approximately 6%, while the population aged 20-64 should increase by about 2%. From 2020 to 2030, every county's population of adults aged 0-64 is predicted to decrease, while the population of adults aged 65 and older is predicted to increase by at least 10% in every area except Smyth and Galax. No counties are expected to experience increases in population during this decade.
- Commuting habits differ widely by county. While about two-thirds of commuters from Wythe, Galax, Smyth, and Washington commute within their city/county, roughly half of commuters from Carroll, Grayson, and Bland commute outside of their counties. Top destinations for out-of-county commuters include Wytheville and Galax. Carroll County also has the highest percentage of workers (19.5%) employed out of the state.