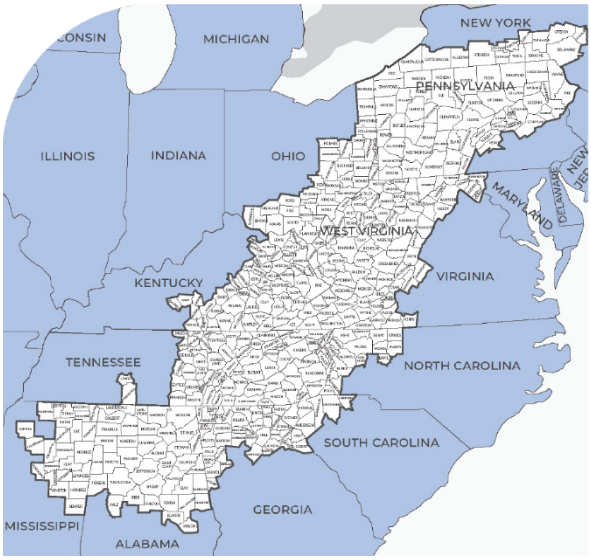
Appalachian Regional Commission

PUBLIC TRANSPORTATION IN APPALACHIA INVENTORY AND ASSESSMENT

December 2020



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INTEGRATED TRANSPORTATION PLANNING

Appalachian Regional Commission

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Abbreviations

ADA	Americans with Disabilities Act
ADHS	Appalachian Development Highway System
ADTAP	Appalachian Development Public Transportation Assistance Program
ALDOT	Alabama Department of Transportation
ARC	Appalachian Regional Commission
ART	Asheville Rides Transit
AVL	automatic vehicle locators
CARES	Coronavirus Aid, Relief, and Economic Security Act
CATA	Crawford Area Transit Authority
CDC	Centers for Disease Control and Prevention
CHSP	Coordinated Human Services Plans
CMAQ	Congestion Mitigation and Air Quality Improvement Program
CNG	compressed natural gas
COG	council of governments
COVID-19	Coronavirus Disease 2019
CTAA	Community Transportation Association of America
DBE	Disadvantaged Business Enterprise
DHS	Georgia Department of Human Services
DRPT	Virginia's Department of Rail & Public Transportation
EEO	Equal Employment Opportunity
FAST	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FMCTA	Fairmont-Marion County Transit Authority
FTA	Federal Transit Administration
FTHRA	First Tennessee Human Resources Agency
FY	fiscal year
GDOT	Georgia Department of Transportation
GIS	geographic information systems
GTFS	General Transit Feed Specification
ITS	intelligent transportation systems
JARC	Job Access Reverse Commute
KYTC	Kentucky Transportation Cabinet
LDD	local development districts
MDOT MTA	Maryland Department of Transportation Maryland Transit Administration
MEOC	Mountain Empire Older Citizens Transit
MOD	mobility on demand
MPO	metropolitan planning organization

NCDOT	North Carolina Department of Transportation
NCHRP	National Cooperative Highway Research Program
NEMT	non-emergency medical transportation
NTD	National Transit Database
NYSDOT	New York State Department of Transportation
ODOT	Ohio Department of Transportation
OTD	Office of Transportation Delivery
PPE	personal protective equipment
RPO	rural planning organization
RTAP	Rural Transit Assistance Program
SCDOT	South Carolina Department of Transportation
SETHRA	Southeast Tennessee Human Resource Agency
SMP	state management plan
STIP	statewide transportation improvement program
TAM	transit asset management
TAMP	transit asset management plan
TCAT	Tompkins Consolidated Area Transit
TDOT	Tennessee Department of Transportation
TDP	transportation development plan
TIP	transportation improvement program
TRB	Transportation Research Board
UIC	Urban Influence Codes
UO	University of Oregon
USDOT	United States Department of Transportation
UZA	Urbanized Areas
VA	Veteran Affairs
WCCA	Western Carolina Community Action
WVDOT	West Virginia Department of Transportation

Executive Summary

Introduction

The mission of the Appalachian Regional Commission (ARC) is to innovate, partner, and invest to build community capacity and strengthen economic growth in Appalachia to help the region achieve socioeconomic parity with the nation. Transportation's role in this mission is largely related to providing access. Those with robust access to opportunities and services are much more likely to be successful and have a high quality of life than those with poor access. Especially in non-urban areas, public transportation is an important lifeline for individuals without access to a vehicle or limited access to a vehicle. The purpose of this report is to document the extent to which existing transit services are adequately creating or enhancing access for disadvantaged populations in Appalachia, particularly those in rural Appalachia. It also documents current best transportation practices across the Appalachian Region (the Region) and explores how transportation intersects with issues of economic development, human capacity, and health.

For this report, the state of rural transit in Appalachia was documented through extensive analysis of the policies, programs, and organization of state-level rural transit programs, findings from a survey of 118 transit providers from every state in the Appalachian Region, and insight from 14 in-depth transit provider interviews. The current use of federal funding, with particular focus on the use of the Appalachian Development Public Transportation Assistance Program (ADTAP), was also a key part of this review.

Public transportation services in all 420 counties served by ARC were systematically documented. For fixed-route services, General Transit Feed Specification (GTFS)[1] data was collected or created, and this information was then used to analyze the public transportation services. In the Appalachian Region, 185 counties have fixed-route service of some kind. This number includes counties where an agency providing fixed-route service is based, as well as counties served by an agency in another county. This study also organized an inventory of 382 demand-response providers that serve 394 of the 420 counties in the Region.

For the purpose of this study, counties in Appalachian states are categorized as follows:

- Large metropolitan areas (1 million or more residents)
- Small metropolitan areas (population of less than 1 million)
- Non-metropolitan (adjacent to large metropolitan areas)
- Non-metropolitan (adjacent to small metropolitan areas)
- Rural counties not adjacent to any metropolitan area

These categories are a simplification of the 2013 Urban Influence Codes (UIC) produced by the United States Department of Agriculture Economic Research Service and adopted by ARC.[2]

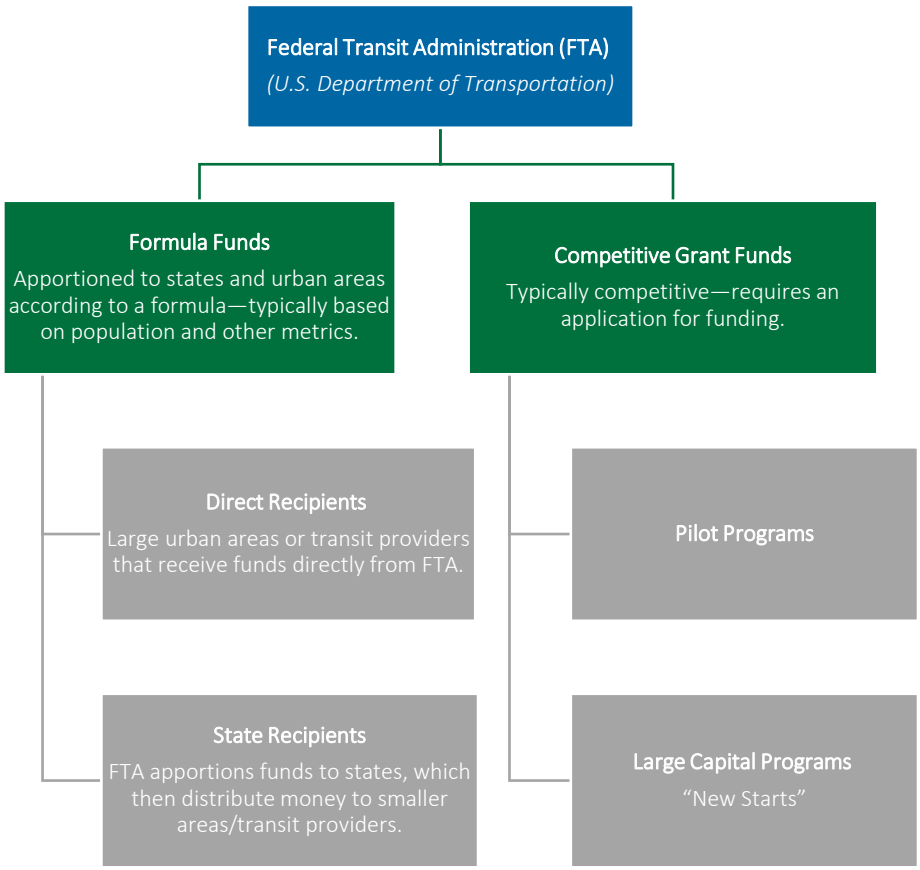
[1] The General Transit Feed Specification (GTFS) defines a common format for public transportation schedules and associated geographic information.

[2] United States Department of Agriculture Economic Research Service Urban Influence Codes, available at https://www.ers.usda.gov/data-products/urban-influence-codes.aspx

Federal Program Summary

The Federal Transit Administration (FTA) provides two funding program types: formula funds and competitive grant funds. Figure 1 demonstrates a breakdown of the program types. Formula funds may be apportioned to direct recipients or state recipients. In the case of rural transit providers with smaller service areas, states distribute federal funding as the grant administrator. Federal funding sources that are the most applicable to rural transit providers are described in Table 1.

Figure 1: Major FTA Funding Program Types—Summary



Source: FTA website

Table 1: FTA Funding Programs

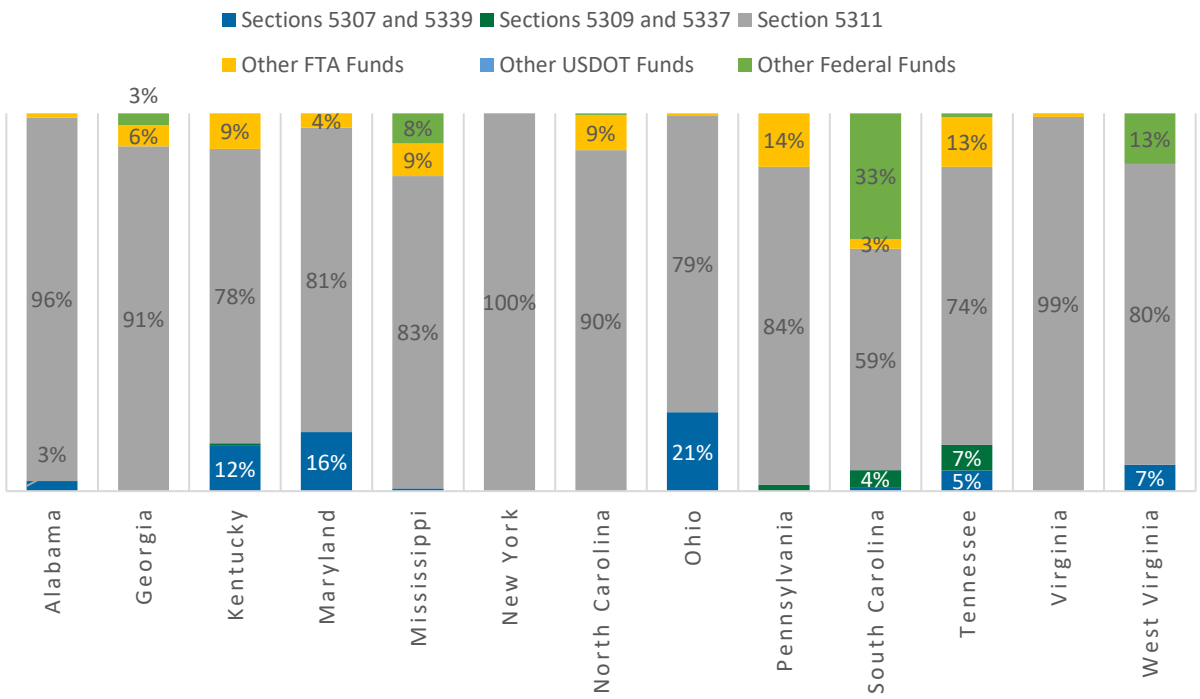
Program	Description
FTA Formula Grants for Rural Areas (Section 5311)	Provides capital, planning, and operating assistance to states to support public transportation in rural areas with populations less than 50,000. Includes the Tribal Transit Program, Intercity Bus Program, and the Appalachian Development Public Transportation Assistance Program.
FTA Urbanized Area Formula Grants (Section 5307)	Provides federal resources to Urbanized Areas for transit capital, operating assistance, and transit-related planning.
FTA Capital Investment Grants (Section 5309)	Provides capital assistance for three primary activities: (i) new and replacement buses and facilities, (ii) modernization of existing fixed guideway (FG) systems, (iii) new FG systems.
FTA Enhanced Mobility of Seniors and Individuals with Disabilities (Section 5310)	Provides formula funding for states to assist private nonprofit groups in meeting the transportation needs of the elderly and persons with disabilities.
FTA State of Good Repair (Section 5337)	Provides capital assistance for maintenance, replacement, and rehabilitation projects of existing high-intensity fixed guideway and high-intensity motorbus systems to maintain a state of good repair.
FTA Bus and Bus Facilities (Section 5339)	Provides formula funding that finances capital projects to replace, rehabilitate, and purchase buses and related equipment and to construct bus-related facilities.

Source: FTA website

A set-aside under the Section 5311 program, the ADTAP provides additional funding to states in the Appalachian Region. Funds may be used for public transportation activities consistent with the formula grants for rural area programs, providing a supplemental funding opportunity that is limited to Appalachian transit providers.

FTA Section 5311 represented the most significant federal funding source for rural transit providers in Appalachian states, as reported to the National Transit Database (NTD) in Fiscal Year (FY) 2017 (Figure 2). Section 5311 funds accounted for 90% or more of rural providers' federal funding in Alabama, Georgia, New York, North Carolina, and Virginia. In that year, over 10% of the rural providers' federal funding in Kentucky, Maryland, and Ohio came from Section 5339 funds. Other FTA funds accounted for 10% or more of the rural providers' federal funding in Kentucky, Mississippi, North Carolina, Pennsylvania, and Tennessee.

Figure 2: FY2017 Rural Providers Federal Funding Sources by State



Source: FY2017 NTD Funding Source Report

State Program Summary

State departments of transportation (DOTs) play significant roles in the planning, design, acquisition, construction, maintenance, and supervision of any public transportation program or system, or the operation thereof, through the Region. Departments' roles and responsibilities may include review and approval of state grant applications, grant management, oversight of implementation, development of state management plans, technical assistance to transit entities, or local jurisdictions as necessary. These responsibilities may be delegated to public transit offices or divisions, as is the case for several Appalachian states.

The Appalachian Regional Commission also works with the Appalachian states through local development districts to ensure the effective and efficient use of funding and to strengthen local participation. Local development districts (LDDs) are a network of 73 multicounty planning and development organizations that cover the 420 counties in Appalachia. The degree of involvement of LDDs in transit planning vary within the Region and even within a state. Several of these organizations are involved in decisions related to the awarding and use of Section 5310 funding. In South Carolina, for example, the LDD administers Section 5310 funds and works with both the state DOT and subrecipients on the Section 5310 grant application process. In Maryland, for instance, in addition to endorsing Section 5310 funding applications, the LDD participates in transit development plan updates undertaken by each public transportation provider every five years. On the other hand, in Kentucky, a couple of LDDs also receive Section 5304 funding for transit planning, but four of the nine LDDs in the state do not receive any funding from the state's transportation cabinet.

Among the FTA's funding grant programs, Sections 5310, 5311, and 5339 are most applicable to rural transit providers' eligibility and needs. Some states use state funds to supplement local match requirements for federal funding programs, either allocated from a general revenue stream or a dedicated funding stream set up by state legislation. Aside from the state-funded match for federal programs, states may set up programs that more closely respond to regional transit needs. The availability of state funding programs and state-funded matches for federal funding programs is detailed in Table 2.

Table 2: State Funding Programs and State-Funded Match for Federal Funding Programs

State	State-Specific Rural Transit Funding Program	State-Funded Match for Federal Funding Programs				
		5310		5311		5339
		Capital	Operating	Capital	Operating	Capital
Alabama						
Georgia				✓		
Kentucky		✓		✓		✓
Maryland	✓			✓	✓	✓
Mississippi	✓			✓	✓	
New York	✓	✓	✓	✓	✓	✓
North Carolina	✓	✓		✓		✓
Ohio	✓			✓	✓	
Pennsylvania	✓	✓		✓	✓	✓
South Carolina				✓	✓	
Tennessee	✓	✓		✓	✓	✓
Virginia	✓	✓	✓	✓		✓
West Virginia				✓	✓	

Source: State management plans

Eight of the thirteen states in the Region provide funding for rural public transportation. Table 3 lists state-specific funding programs relevant to rural transit providers and shows the breadth of program types currently in place across the Region.

Table 3: State Funding Programs

State	State Funding Programs
Maryland	• Senior Rides Program • Americans with Disabilities Act Program • Statewide Specialized Transportation Assistance Program • Statewide Transit Innovation Grant • Jobs Access Reverse Commute
Mississippi	• Multi-Modal Transportation Improvement Program (MMTIP) • State Department of Human Services
New York	• Statewide Mass Transportation Operating Assistance Program • State Omnibus and Transit Purpose Appropriation • Accelerated Transit Capital Program • Modernization and Enhancement Program
North Carolina	• Strategic Transportation Investment (STI)—Rural • Rural Operating Assistance Program • Rural State Operating Funds Program • Traveler's Aid • Consolidation and Coordination of Public Transportation Systems (ConCPT)
Ohio	• Public Transportation Grant Program • Elderly and Disabled Transit Fare Assistance
Pennsylvania	• Multimodal Transportation Fund • Transit Operating Assistance Program • Asset Improvement Program • Capital Improvements Program
Tennessee	• IMPROVE Act Public Transit Capital Grants • Multimodal Access Grant • Community Transportation Planning Grant • Critical Trips Program
Virginia	• MERIT State Aid Grant Programs: Capital • MERIT State Aid Grant Programs: Operating

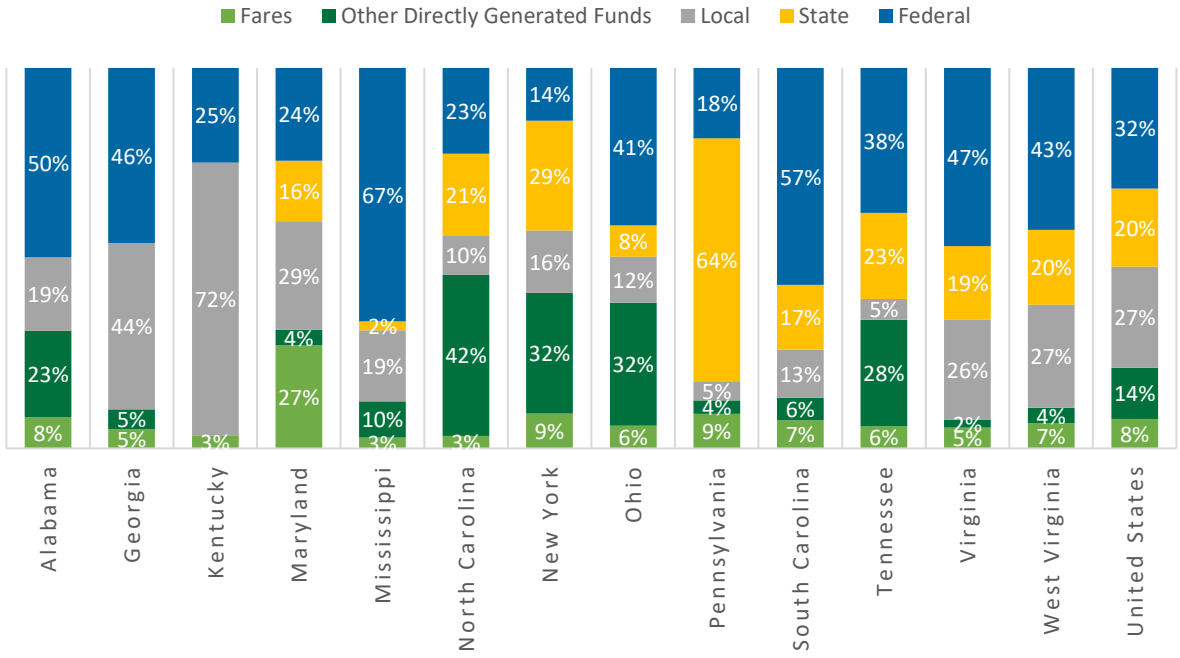
Source: State management plans and state DOT websites

Some states have also developed a dedicated funding source for rural public transportation. New York funds its state-level grant programs with a mix of the Dedicated Mass Transportation Trust Fund and annual state appropriation. Pennsylvania established a Public Transportation Trust Fund for its programs. North Carolina allocates a portion of Highway Trust Funds for state-funded public transportation programs. South Carolina sources its State Mass Transit Fund from a quarter-cent of the state Motor Fuel User Fee, as authorized by state law.

Figure 3 shows rural transit providers' operating funding sources, as reported to NTD, for each Appalachian state in FY2017, as well as the national average. For the national average, federal and local funding accounted for approximately 30% each, while state funding represented 20% of the total operating funding in that year. In the Appalachian Region, federal funding covered 50% or more of the operating expenses in Mississippi, Alabama, and South Carolina in FY2017. The share of federal funding in Georgia, Ohio, Tennessee, Virginia, and West Virginia was also higher than the national average during

that period. In New York and Pennsylvania, on the other hand, federal funding accounted for less than 20% of rural transit providers' operating expenses, as reported to NTD. Pennsylvania had the highest state-funded contribution to operating expenses in the Region.

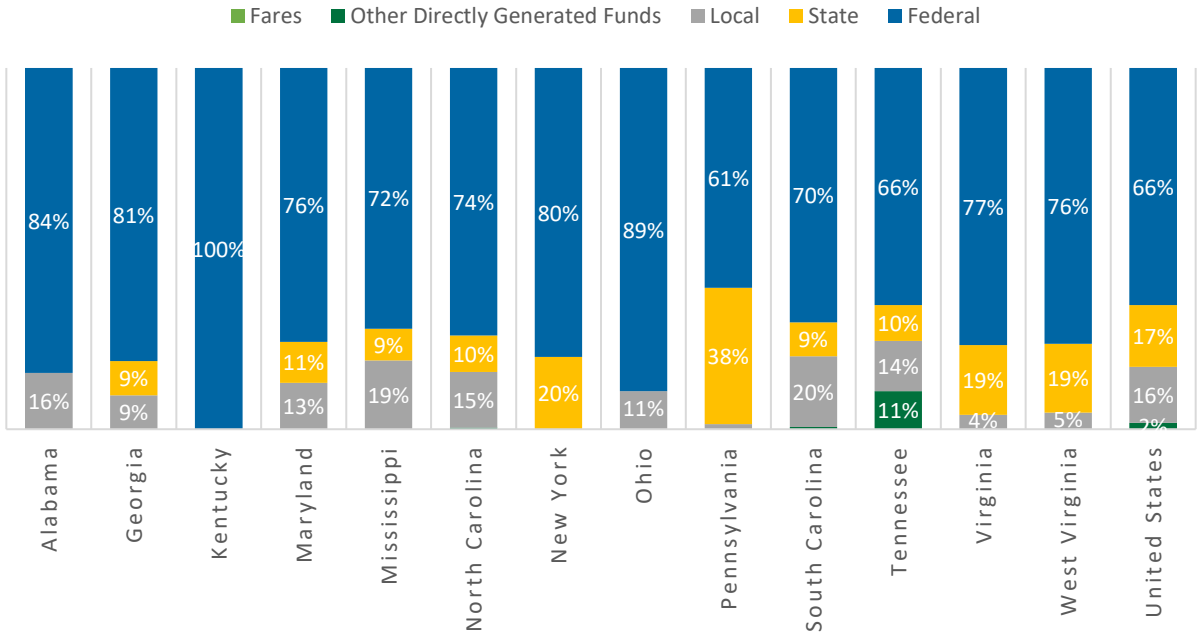
Figure 3: FY2017 Rural Provider Funding Sources: Operating (as reported to NTD), by State



Source: FY2017 NTD Funding Source Report

Figure 4 shows rural transit providers' capital funding sources, as reported to NTD, for each Appalachian state in FY2017, as well as the national average. On the national average, state and local funding accounted for slightly over 15% each, while federal funding represented over 65% of the total capital funding in that year. Except for Pennsylvania and Tennessee, federal funding accounts for 70% or more of all capital funding in states in the Appalachian Region. Pennsylvania has the lowest federal funding share and the highest state share, at 61% and 38%, respectively. All capital funding for rural provider subrecipients of Section 5311 funding in Kentucky in FY2017 came from federal sources. Kentucky and Alabama were the only two states in the Appalachian Region without any state funding for capital expenses reported by rural providers to NTD in FY2017. Kentucky offers state-funded matches to federal capital funding programs available to rural providers, despite those not being reflected on FY2017 NTD funding source figures.

Figure 4: FY2017 Rural Providers Funding Sources: Capital (as reported to NTD), by State



Source: FY2017 NTD Funding Source Report

Fixed-Route Transit Summary

In the Appalachian Region, 185 counties have fixed-route service of some kind. This number includes counties where an agency providing fixed-route service is based, as well as counties served by an agency in another county. For 178 of the counties, detailed information about fixed-route transit services was available from GTFS files and used to provide an in-depth analysis of times of day and days of the week when service is provided, as well as the availability of transit to households, access to jobs via transit, and other transit and travel-related metrics. The levels of public transportation services available in Appalachian counties and non-Appalachian counties, both urban and rural, were also compared.

For both Appalachian and non-Appalachian counties, fixed-route service ranges widely in availability based on the type of county, as shown in Table 4. Of the 109 counties that the UIC classify as rural in the Appalachian Region, only 28% have fixed-route transit. No rural Appalachian counties have fixed-route transit in six of the thirteen Appalachian states, including Alabama, Georgia, Kentucky, Maryland, South Carolina, and Tennessee.

Table 4: Percentage of Counties with Fixed-Route Service

County Type	Appalachian Counties	Non-Appalachian Counties
Large metro (pop. Greater than 1 million)	57%	76%
Small metro (pop. Less than 1 million)	66%	69%
Nonmetro, adjacent to large metro	39%	32%
Nonmetro, adjacent to small metro	32%	23%
Rural (nonmetro, not adjacent to a metro)	28%	16%

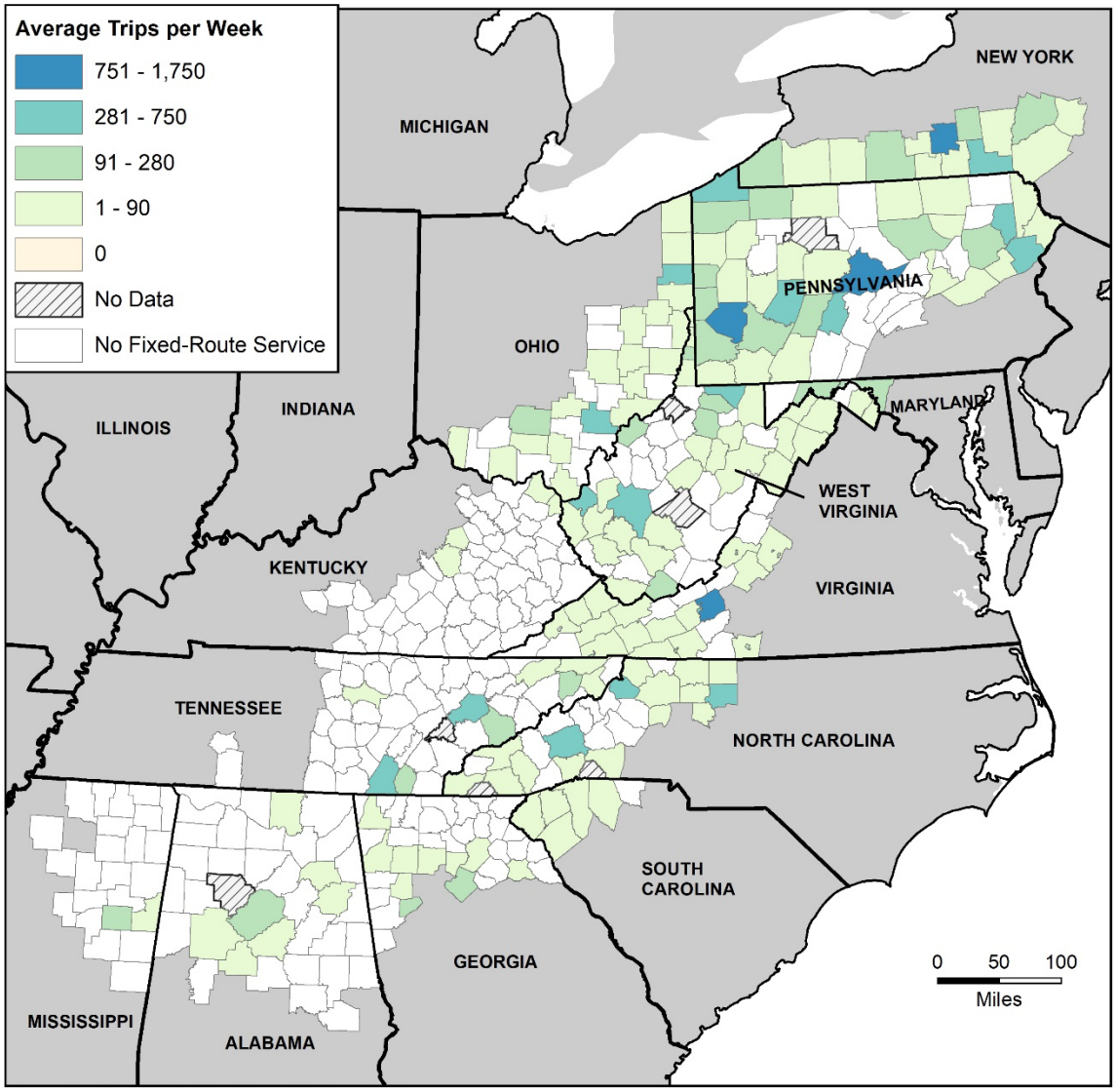
Of the 178 counties for which detailed service level information is available, the amount of service provided varies significantly. Figure 5 shows the number of trips per week available to a household on average across Appalachian counties.[3] The darkest blue areas have more frequent service, and an average household in these counties has access to between 650 and 1,750 fixed-route trips each week.

In areas in light green, an average household has access to 80 or fewer fixed-route trips in a given week, and on an average weekday, the number is far less. Areas with this level of service include counties within large metros (such as Birmingham, Alabama, and Atlanta, Georgia, metropolitan areas) as well as most rural Appalachian counties (23 of the 28 counties for which detailed data on their levels of service is available).

Weekend and late-night service are less common among counties in Appalachia. Of the 178 counties with detailed data about their fixed-route services, 119 have weekend service, and 62 have evening (8 p.m. to 12 a.m.) service. Very few rural counties (7%) provide at least one evening trip accessible to the average household.

[3] Frequency of service figures is computed in several steps. Similar calculation methods are used for other frequency, accessibility, and demographic statistics in this section. First, the number of trips available to each census block group is computed. If a block group is within one-quarter mile of a transit stop, transit trips serving that stop are associated to that block group. The number of trips accessible to households in each block group are then aggregated to the county level, weighting by the number of households. This produces a statistic for the average number of trips available to a household in each county.

Figure 5: Average Number of Transit Trips Accessible to a Household per Week



Among the various socioeconomic variables related to transit explored, one of the most critical was workforce access to jobs. Non-metro Appalachian counties have a higher percentage of jobs near transit than their non-Appalachian peers. As a result, these areas also had more jobs accessible by a 30-minute transit ride for an average household. However, large metropolitan areas in Appalachia lag behind both their non-Appalachian peers as well as small metros and counties adjacent to large metropolitan areas within Appalachia (Table 5).

Table 5: Jobs Within a Half-Mile of Fixed-Route Service by County Type

County Type	Appalachian Counties	Non-Appalachian Counties
Large metro (pop. Greater than 1 million)	39%	77%
Small metro (pop. Less than 1 million)	55%	58%
Nonmetro, adjacent to large metro	40%	32%
Nonmetro, adjacent to small metro	36%	29%
Rural (nonmetro, not adjacent to a metro)	26%	30%

Overall, the proportion of workers near fixed-route service is lower than the proportion of jobs near fixed-route service for both Appalachian and non-Appalachian counties of all sizes (Table 6). In general, jobs are more likely to be clustered in centralized locations such as central business districts, downtowns, and office parks or industrial complexes that are readily served by transit; workers' homes are more widely distributed across an area.

Table 6: Percentage of Workers Who Live Within One-Half-Mile of a Fixed-Route Transit

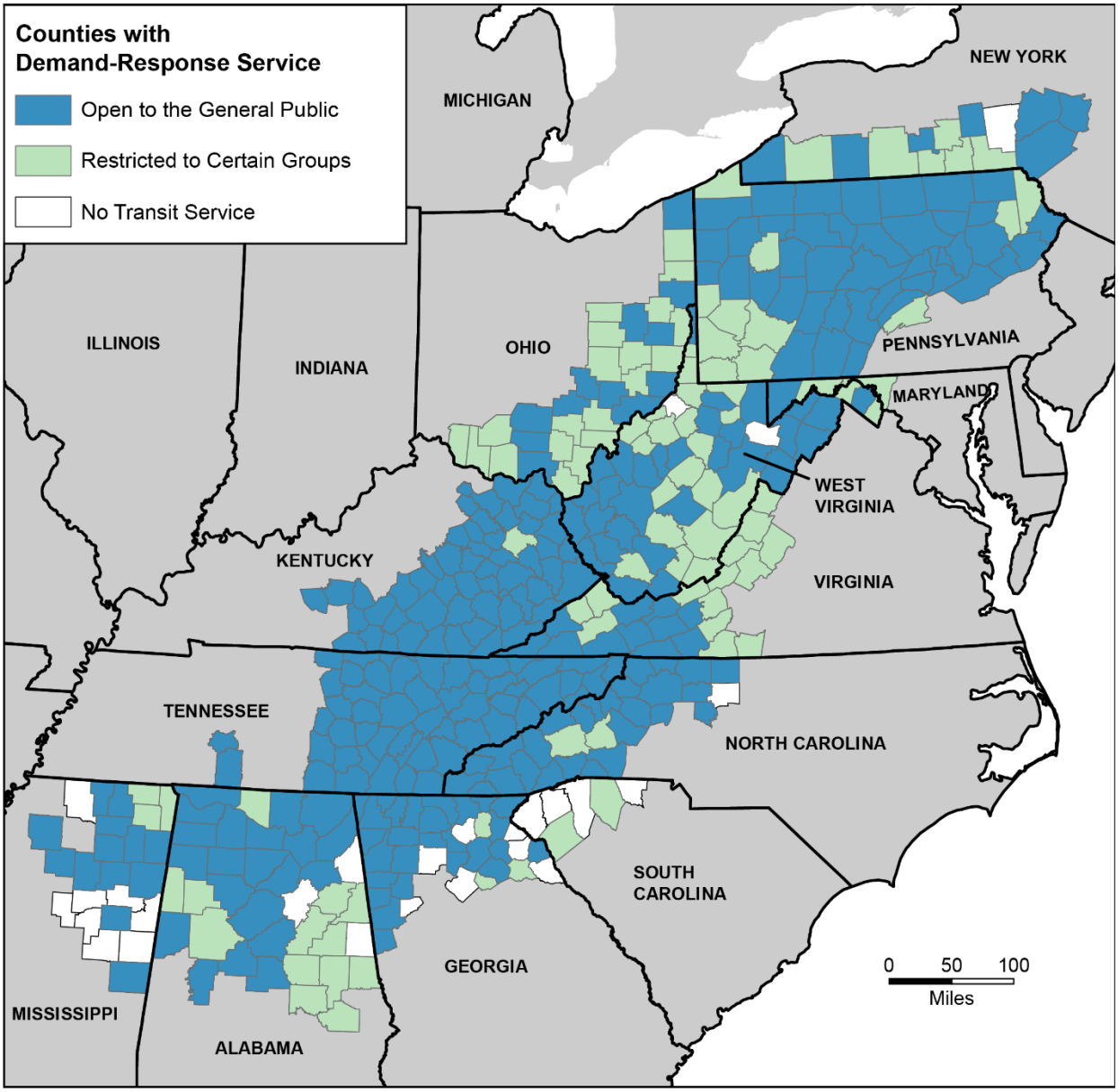
County Type	Appalachian Counties	Non-Appalachian Counties
Large metro (pop. Greater than 1 million)	20%	65%
Small metro (pop. Less than 1 million)	33%	40%
Nonmetro, adjacent to large metro	23%	19%
Nonmetro, adjacent to small metro	21%	17%
Rural (nonmetro, not adjacent to a metro)	14%	17%

Demand-Response Service Summary

Demand-response services are non-fixed-route transit services that require advanced scheduling by the passengers or their agents. Demand-response vehicles do not operate over a fixed route or on a fixed schedule; they may be dispatched to pick up several passengers at different pick-up points before taking them to their respective destinations. Demand-response services offered by human service agencies are often restricted to certain groups of the population based on age, disability or health status, income, or a combination of these.

Figure 6 displays all the counties located in the Appalachian Region and whether they have at least one demand-response service open to the general public or if available services are restricted to certain groups of the general public. Of the 394 counties served by demand-response services, almost three-quarters, 295 counties, have at least one service open to the general public. Appalachian Ohio, Pennsylvania, Maryland, Virginia, Kentucky, and Tennessee have demand-response services covering their entire territories, Tennessee being the only state where service is open to the general public in all counties. South Carolina is the only state without a demand-response service open to the public in its Appalachian region.

Figure 6: Appalachian Counties with Demand-Response Transit Service



Of the 382 providers, 153 offer their services to the general public, representing 40% of the total. Most of the providers inventoried are human service agencies with services restricted to particular groups. Table 7 lists the number of demand-response providers by state and the level of eligibility restrictions for their use. Age, disability, or health status are the most common user requirements, with service of over 75% of the providers restricting use to individuals who qualify based on these factors.

Table 7: Number of Counties Served and Providers by Type of Demand-Response Service

States	Open to the Public		Restricted to Certain Groups		Total	
	Counties	Providers	Counties	Providers	Counties	Providers
Alabama	21	15	13	40	34	55
Georgia	27	27	3	2	30	29
Kentucky	53	14	1	3	54	17
Maryland	1	1	2	5	3	6
Mississippi	13	7	3	2	16	9
New York	7	7	6	27	13	34
North Carolina	26	21	2	5	28	26
Ohio	13	13	19	53	32	66
Pennsylvania	41	23	11	31	52	54
South Carolina	0	0	2	3	2	3
Tennessee	52	9	0	3	52	12
Virginia	10	3	15	5	25	8
West Virginia	31	13	22	50	53	63
Region	**295**	**153**	**99**	**229**	**394**	**382**

Demand-response services operate predominantly on weekdays in the Region. In three-quarters of the counties, the general public has access to services on weekdays only, and the number of providers offering services on weekdays surpasses 80%. Sixteen percent of counties also have Saturday service (11% of providers), while 8% of counties have service seven days a week (5% of providers). It is worth noting that county-level numbers are not intended to suggest that all demand-response transit providers in a given county operate at the same level of service and that not all parts of a specific county may enjoy this level of service.

Challenges and Best Practices

The information and insights collected through the literature and desk reviews, a transit provider survey, and interviews with state DOT staff and transit providers provide a comprehensive look at current challenges and best practices related to rural transit in the Appalachian Region. Findings are organized in Table 8 by the themes indicated in Figure 7.

Figure 7: Challenges and Best-Practice Themes

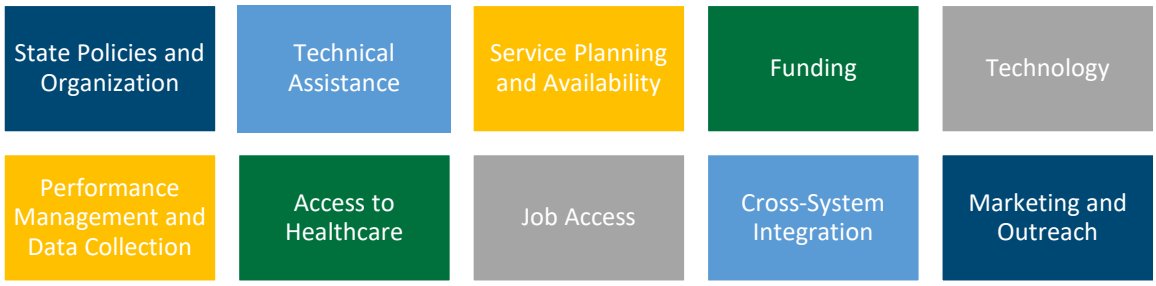


Table 8: Summary of Challenges and Best Practices

Theme	Challenges	Best Practices
State Policies and Organization	• Grant administration dividing among state departments. • Inflexible grant funding requirements.	Consolidating grant administration for non-emergency medical transportation (NEMT) and public transportation in a single department.
Technical Assistance	• General need for more staff capacity. • Specialized skills (e.g., geographic information systems [GIS], financial, and service planning) not available locally.	• State-level on-call planning assistance contracts available for use by providers. • State-funded local planning studies. • Individual state DOT staff assigned to work closely with specific regions. • All state DOTs provide guidance and technical assistance to communities and providers seeking to expand transit service.
Service Planning and Availability	• Low-density, large service areas make it challenging to provide cost-effective service. • Increasing demands for service due to the aging population. • Limited geographic coverage and hours of service constrain service delivery in many Appalachian counties. • Even in communities with high quality rural public transportation services, fare affordability often serves as a barrier to accessing services.	• Statewide and regional transit plans and programs that identify unconstrained transit needs and develop a shared transit vision. • State requirements that systems complete a transit development plan that includes service change recommendations on a constrained and unconstrained financial basis. • The transition of fixed routes to deviated fixed routes or shared ride services in low ridership areas, but retaining/enhancing fixed-route services to connect community centers and major activity centers.

Theme	Challenges	Best Practices
Funding	• Providing local match funding to draw down federal grant funding is difficult for most providers. • Providers are hesitant to start new services without assurances that funding for these services will continue long-term.	• Dedicated state-level transit funding sources, such as Pennsylvania's Act 44 and the use of South Carolina's state-level gas tax (one-quarter of one cent) for transit. • State-level grant funding available for use as the local match for federal grants. • Utilizing a range of contract funding sources (e.g., NEMT, Veterans Affairs, Department of Corrections, etc.) to support an agency's operations. • Examining the benefits or constraints posed by a fare-free system on a case-by-case basis. • All state DOTs proactively work with providers to ensure they have the information needed to access grant funding.
Technology	• The scope and scale of federal transit technology grants render them inaccessible to small and rural transit systems. • Cost of off-the-shelf operational technology (e.g., scheduling and dispatching) is prohibitive for many providers on an individual basis. • Non-typical vehicle types may be needed to accommodate mountainous terrain.	• State DOTs purchasing licenses for scheduling and dispatching software for use by providers statewide has allowed small providers that would otherwise find these technology purchases cost-prohibitive. • Costs associated with electronic/mobile ticketing are decreasing, and providers are finding new solutions to bring this technology to their communities. • PennDOT has a public-private partnership program for fueling vehicles with compressed natural gas (CNG), and that has allowed Appalachian region providers to purchase CNG vehicles.
Performance Management and Data Collection	• The breadth of reporting requirements, along with the lack of technology that enables efficient data collection, can be difficult for rural providers with limited staff capacity.	• Using performance data to inform funding decisions and project prioritization.
Access to Healthcare	• An increase in the need for non-emergency medical tansportation (NEMT), but many NEMT trips cannot be funded with Medicaid. • Hospital and rural health provider closures have forced public transportation providers to travel ever-further distances for NEMT.	• Timed transfers with other providers' services that will connect riders to specific medical facilities. • The use of volunteer helpers to accompany riders who need assistance to and from medical appointments.

Theme	Challenges	Best Practices
Job Access	• Job access needs not explicitly addressed in federal grant programs, and only a few state-level funding opportunities. • Two-thirds of respondents to the provider survey reported that limited access to a reliable private vehicle is a barrier to personal mobility in their service area. • Rural communities that have few large employers or few employers overall, which may make it difficult for providers to design services (particularly fixed route) to address their needs directly.	• Working with employer groups and individual employers to identify and address job access issues. • Engaging in employers in funding assistance for employer-focused public transportation services. • Identifying sites that may be suitable for commuter bus-style service. • Providing lower fares and flat fares for job access transportation to facilitate job access among low-income workers.
Cross-System Integration	• Many providers lack resources to facilitate cross-system transfers. The potential for greater provider integration across regions exists, but it is often unrealized.	• Multi-county regional transportation providers or regional coordination groups that integrate service providers and serve all trip types. • Working with private vendors to expand the reach of traditional public transportation systems. • Facilitating timed transfers between systems, particularly to connect rural and urban public transportation systems.
Marketing and Outreach	• Many providers have limited information on services available online. • The ability to provide customer service, particularly service updates (e.g., real-time arrival information) due to staff and technology constraints.	• Proactive engagement and traditional individual personal engagement with key stakeholders (e.g., doctor's offices) and with the general public. • Ongoing community engagement in service planning, management, and delivery through participation in committees and oversight functions. • Direct outreach to local elected officials, particularly recently elected ones, to solicit support for public transportation. • Clear bus stop signage.

COVID-19 Response

The Coronavirus Disease 2019 (COVID-19) has posed unprecedented challenges to the public transportation industry. Mindful of the unknowns of an ongoing pandemic, this study provides an overview of the impact of COVID-19 on rural public transportation to date, the response of transit agencies in the Region, and potential long-term implications.

The COVID-19 pandemic's impact on large urban transit systems has been more visible than its impact on rural communities since those systems are often more dependent on farebox revenue (EBP, 2020). Nationally, transit ridership and fare revenues fell 73% and 86%, respectively, in April 2020 compared to the same month in 2019 (EBP, 2020). COVID-19 and its associated travel disruptions have resulted in farebox revenue and sales tax subsidy reductions while introducing new costs, such as additional cleaning products and personal protective equipment (PPE) for personnel, associated with preventing the spread of the virus.

Smaller rural public transportation providers may be less reliant on fare revenues than large urban systems, but small public transportation providers have experienced unique operational challenges during this pandemic. These providers generally operate with very constrained budgets and limited staff and are still providing service despite the increased service provision costs. These additional costs are mainly associated with physical distancing requirements that have reduced vehicle capacity, increased costs of facility and vehicle cleaning and disinfection, and changed service and ridership patterns.

- Public transportation providers took unprecedented steps to safeguard employees and riders while maintaining essential services in the last several months. The response of transit providers in the Region to the COVID-19 pandemic include the following:
- On-vehicle changes to mitigate the impact of the pandemic and limit transmittal of the disease, such as cleaning procedures, capacity limits, and other strategies to protect the public and workforce, including changes on fare collection and enforcement
- Service modifications to provide essential services during the pandemic
- Use of communication tools and resources to inform the public about services, changes to procedures, and restrictions

The unprecedented challenges created by the COVID-19 pandemic have changed public transportation in the last several months and perhaps for years to come. Public transportation providers are now dealing with the challenge of providing an essential service while limiting the spread of the virus. However, once the pandemic is over, the challenge will likely be dealing with reduced revenues due to reduced farebox revenues and projected declines in tax revenues as the economy goes through a pandemic-induced recession.

1. Introduction

The mission of the Appalachian Regional Commission (ARC) is to innovate, partner, and invest to build community capacity and strengthen economic growth in Appalachia to help the region achieve socioeconomic parity with the nation. Transportation's role in this mission is largely related to providing access. Those with robust access to opportunities and services are much more likely to be successful and have a high quality of life than those with poor access. Especially in non-urban areas, public transportation is an important lifeline for individuals without access to a vehicle or limited access to a vehicle. The purpose of this report is to document the extent to which existing transit services are adequately creating or enhancing access for disadvantaged populations in Appalachia, particularly those in rural Appalachia. It also documents current best transportation practices across the Appalachian Region (the Region) and explores how transportation intersects with issues of economic development, human capacity, and health.

This study features an extensive analysis of the status and adequacy of rural public transportation efforts by each of the 13 Appalachian states. Each state department of transportation's (DOT) rural public transportation program was reviewed using available documentation (e.g., state management plans), and rural public transportation staff were interviewed. State DOTs also assisted in the distribution of a survey to public transportation providers (fixed route and demand response) throughout the Region, which garnered responses from 118 transit providers from every state in the Appalachian Region. Fourteen transit providers that responded to this survey agreed to further study involvement through in-depth follow-up interviews. This analysis informed the challenges and best practices.

The presence and levels of services available for public transportation in all 420 counties served by ARC was systematically documented. For fixed-route services, General Transit Feed Specification (GTFS)[4] data was collected or created, and this information was then used to analyze the public transportation services. In the Appalachian Region, 185 counties have fixed-route service of some kind, which includes counties where an agency providing fixed-route service is based, as well as counties served by an agency in another county. This study also organized an inventory of 382 rural and human service agency demand-response providers that serve 394 of the 420 counties in the Region.

For the purpose of this study, counties in Appalachian states are categorized as follows (Figure 8):

- Large metropolitan areas (1 million or more residents)
- Small metropolitan areas (population of less than 1 million)
- Non-metropolitan (adjacent to large metropolitan areas)
- Non-metropolitan (adjacent to small metropolitan areas)
- Rural counties not adjacent to any metropolitan area

These categories are a simplification of the 2013 Urban Influence Codes (UIC) produced by the United States Department of Agriculture Economic Research Service and adopted by ARC.[5]

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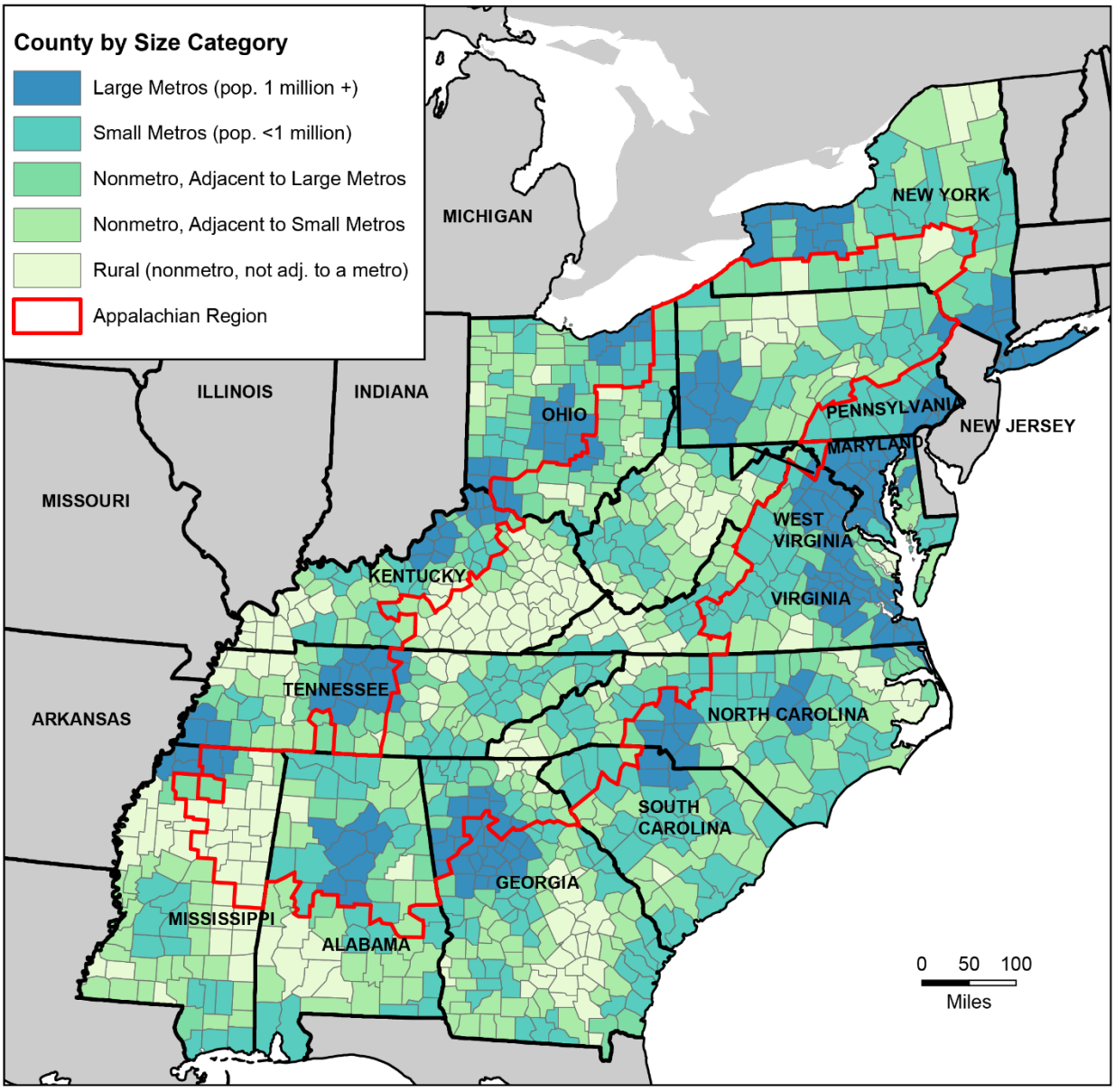
[4] The General Transit Feed Specification (GTFS) defines a common format for public transportation schedules and associated geographic information.

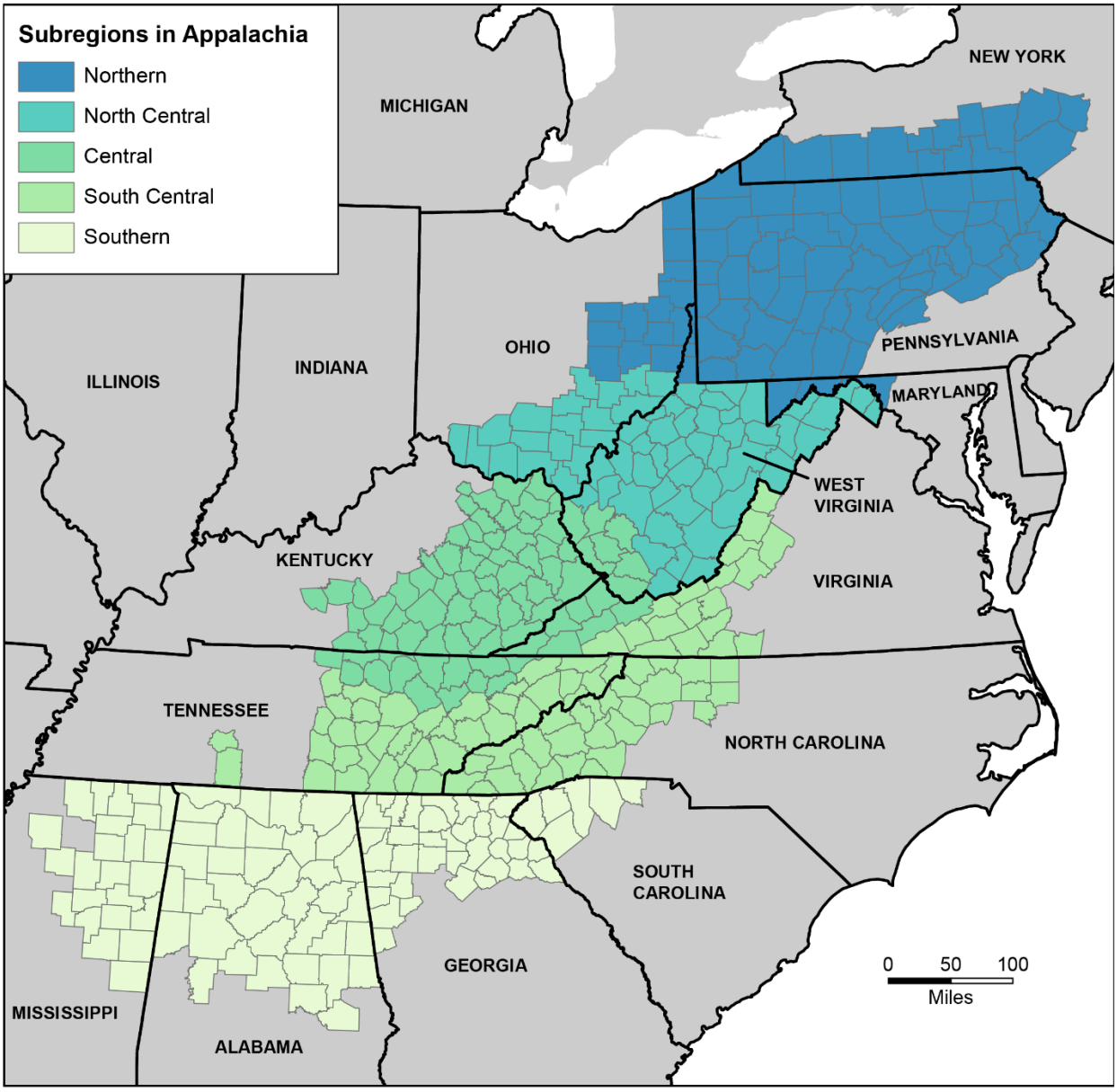
[5] United States Department of Agriculture Economic Research Service Urban Influence Codes, available at https://www.ers.usda.gov/data-products/urban-influence-codes.aspx

Figure 8: County Categorization by Size



The analysis in this study also incorporates the use of the Appalachian subregions for comparative purposes (Figure 9). Subregions are contiguous regions of relatively homogeneous characteristics (topography, demographics, and economics) within Appalachia. This classification was developed in the early history of ARC and provided a basis for subregional analysis. ARC revised the classification in November 2009 by dividing the Region into smaller parts for greater analytical detail and by using current economic and transportation data.

Figure 9: Subregions in Appalachia



2. Rural Transit Literature Review

2.1. Introduction

This literature review is one component of a larger effort to understand the current challenges and best practices related to rural transit in the Appalachian Region. Other components include interviews with state DOTs, transit provider surveys and interviews, and a comprehensive desk review of funding programs for each state within the Appalachian Region.

The documents in this review were selected based on relevance to the provision and funding of rural public transit, which traditionally serves communities of fewer than 50,000 people. These documents are listed in Table 9. ARC represents a regional partnership of federal, state, and local governments, so specific attention was paid to rural transit in a regional context, including connecting communities dispersed over large service areas. Additional documents were reviewed for a greater contextual understanding of the economic, demographic, and transportation-related dynamics within the Appalachian Region.

Table 9: List of Reviewed Documents

Document Title	Author	Date
Industrial Makeup of the Appalachian Region: Employment and Earnings, 2002–2017, ARC	ARC	2019
The Appalachian Region: A Data Overview from the 2013–2017 American Community Survey	ARC	2019
Performance Evaluation for Rural Transit Systems	National Rural Transit Assistance Program	2019
Best Practices and Marketing to Increase Rural Transit Ridership and Investment	NCHRP and TRB (Project 20-65 Task 73)	2018
Expanding Access to Our Communities: A Guide to Successful Mobility Management Practices in Small Urban and Rural Areas	NCHRP and TRB (Project 20-65, Task 68)	2018
Best Practices in Rural Regional Mobility	NCHRP and TRB (Report 861)	2017
Consolidation of Rural Public Transportation Services	NCHRP and TRB (Project 20-65, Task 69)	2017
Mobility Mindset of Millennials in Small Urban and Rural Areas (MDT)	Minnesota Department of Transportation	2016
Creating Opportunity and Prosperity Through Strengthening Rural-Urban Connections	National Association of Development Organizations	2015
Methods for Forecasting Demand and Quantifying Need for Rural Passenger Transportation	TCRP (Report 161)	2013
Innovative Rural Transit Services	TCRP (Synthesis 94)	2011
Operating the Rural Transit Agency	National Rural Transit Assistance Program	2010
Network Appalachia: Access to Global Opportunity	ARC	2010
Guidebook for Rural Demand-Response Transportation: Measuring, Assessing, and Improving Performance	TCRP (Report 136)	2009
Learning Module: Rural and Small-Town Transportation	Shared-Use Mobility Center	n/a

2.2. Appalachian Regional Profile

The following section summarizes the findings and provides a general overview of the Appalachian Region and its economic and demographic trends. This contextual overview is followed by a summary of rural transit best practices, organized by topic area.

2.2.1. Demographics

Population

The Appalachian Region has grown at a slower rate than the rest of the United States. Since 2010, the Region's population has grown by 1.5%, compared to the country's rate of 5% (Appalachian Regional Commission, 2019b, p. 12). As a result, the Region's share of the country's total population has decreased from 9.6% to 7.9% since 1969 (Appalachian Regional Commission, 2019a, p. 143). Since 2010, most of the subregions within greater Appalachia have experienced population loss. This population loss exceeded 2% in West Virginia and in Appalachian New York, Ohio, and Virginia.

Population loss is not universal across the Region. Since 2010, many areas in Southern Appalachia have grown in population faster than the national average: 5.7% in Southern Appalachia, versus 5% nationally (Appalachian Regional Commission, 2019b, p. 12). Several factors have probably contributed to this growth in certain subregions: retirees, proximity to major research universities, and diversified economies that are not dependent on single industries.

Age

Similar to national trends, the Appalachian Region's population is aging. Much of this aging is the result of "aging in place" by the Baby Boomer generation, but also due to the migration of older residents to retirement-friendly communities in parts of Southern Appalachia (Appalachian Regional Commission, 2019b, p. 20). At the same time, the percentage of youth and working-age cohorts (0 to 18 years of age and 18 to 64 years of age) in the Region has declined. Although the percentage of older residents (those over 65 years of age) in the Appalachian Region has increased (17.9% compared to 15.6% nationally), this same trend has been observed nationally as fertility rates have declined (about 2.5 percentage points).

Race and Ethnicity

Since 2010, the Appalachian Region has become more racially and ethnically diverse, especially in Southern Appalachia and in the Region's metropolitan areas (Appalachian Regional Commission, 2019b, p. 128). In 2010, non-whites accounted for 16.4% of the total population; by 2017, they accounted for 18.6%. Although African Americans still account for the largest minority population, the increase in ethnic diversity is mainly the result of an influx of Hispanic residents.

Poverty

Household income levels have improved in the Appalachian Region since the economic downturn started in 2008. Adjusting for inflation, average household income in the Region increased by 3.7% to $64,880 in 2013–2017 (Appalachian Regional Commission, 2019b, p. 136). Median household income in the Region also increased, but more slowly. Poverty rates decreased in several states, particularly in Appalachian Mississippi, South Carolina, and Georgia; in Appalachian Maryland and Kentucky, however, poverty rates increased slightly.

Transportation Behaviors

The percentage of Appalachian Region workers who drive alone to work has increased since 2008–2012, while the percentage of workers who carpool has decreased approximately the same amount over the

same period (Appalachian Regional Commission, 2019b, p. 111). Worker commute times in the Appalachian Region have also increased slightly: the percentage of workers who commute between 30 and 59 minutes increased one percentage point. Furthermore, the share of Appalachian Region residents who work outside their county of residence increased by 0.7 percentage points to 32%.

2.2.2. Economy

As the Appalachian Region's share of the country's total population has declined, so has its share of the working-age population (15 to 64 years of age). It was 7.7% in 2017, compared with 8.3% in 2002 and 9.5% in 1970 (Appalachian Regional Commission, 2019a, p. 144). The Region's share of the country's working-age population (7.7%) is less than its share of the country's total population (7.9%).

While employment has grown in the Appalachian Region since 2002, it has grown more slowly than in the country as a whole (Appalachian Regional Commission, 2019a, p. 146). The Region experienced greater job loss during the economic downturn of 2008–2012 than the rest of the country and has recovered more slowly; furthermore, this job growth has been unevenly distributed throughout the Region. Since 2012, Central Appalachia, including West Virginia and Appalachian Kentucky, Virginia, and Ohio have been the hardest hit. Meanwhile, Southern Appalachia, including most counties south of the Kentucky and Virginia borders, has experienced job growth (Appalachian Regional Commission, 2019a, p. 157).

For most major industries such as health care, natural resources, and construction, the Appalachian Region has a similar proportion of industry jobs as does the country as a whole. An important exception is the manufacturing industry: 10% of jobs in the Appalachian Region are in manufacturing, while country-wide, this figure is only 6.8% (Appalachian Regional Commission, 2019a, p. 149). The Appalachian Region experienced a decrease in their total share of employment, including retail, construction, farming, and forestry jobs, between 2002 and 2017; however, the Region saw an increase in food/lodging/entertainment jobs, from 7.9% to 9.2% over the same period (Appalachian Regional Commission, 2019a, p. 150).

As described above, the Region's share of the country's population has decreased over the past 60 years and now stands at 7.9%; however, the percentage of the country's jobs located in the Appalachian Region is lower at 6.8%, and the Region's percentage of the country's total earnings is even lower at 5.6% (Appalachian Regional Commission, 2019a, p. 151). Workers in the Appalachian Region make approximately 18% less than the average American worker (Appalachian Regional Commission, 2019a, p. 156).

2.2.3. Transportation Networks

For many years, the Appalachian Region's political and community leaders have focused on connecting the Region to the rest of the country via a robust network of multi-lane highways; the Region's leaders feared that the Appalachian Region was at risk of being isolated and cut off from the rest of the country. In 1965, the Appalachian Regional Development Act was passed by Congress and devoted federal funds to the construction of the Appalachian Development Highway System (ADHS). This network of highways would connect the Region to economic activities in metropolitan markets located in the Midwest and on the East Coast (Appalachian Regional Commission, 2010, p. 2). More specifically, the program had three target benefits:

- Link Appalachia to key external markets
- Enhance the flow of commerce, opening isolated areas to economic opportunity

- Facilitate commutation to work and delivery of key social services to residents

A 2005 study conducted by ARC titled "Meeting the Transportation Challenges of the 21st Century" recommended that the Region's leaders increase institutional capacity to plan and build transportation infrastructure across jurisdictional boundaries (Appalachian Regional Commission, 2010, p. 47). In this study, ARC identified three key "building blocks" to support further development of the Region's transportation network and economic growth: continued development of the ADHS, intermodal corridors of commerce, and inland ports.

Continued Development of the Appalachia Development Highway System

The ADHS was 90.8% complete as of Fiscal Year (FY) 2019. The study recommended that the Region commit to completing the ADHS and leveraging this investment to the fullest extent possible. According to a 2017 analysis, more than 168,000 jobs were created or maintained due to increased economic activity associated with the ADHS, while $9 billion was added to the gross regional product (Appalachian Regional Commission, 2017). The study also notes that the completion of the ADHS is estimated to create 47,000 more jobs and add $8.7 billion in goods and services annually across the 13 Appalachian states.

Intermodal Corridors of Commerce: Appalachian Routes to Global Opportunity

The study recommended building out a network of intermodal commercial corridors, including interstate highways, but also waterways and railways. This intermodal network would better position the region to act as a key connection point for all types of freight as it crosses the country (Appalachian Regional Commission, 2010, p. 60).

The Inland Ports of Appalachia: Linking Economic Success to Transportation

Building on its proposed network of intermodal commercial corridors, the study recommended establishing inland ports, which would function as connections between the transportation network and local economies (Network Appalachia, p. 62).

2.3. Rural Transit Best Practices and Findings

The following sections explore best practices used by rural transit providers in the United States. These best practices can be used by ARC or individual providers to operate more efficient transit systems.

2.3.1. Relationships with State DOTs

Beyond distributing funds to rural transit providers, state DOTs can ideally act as advocates on behalf of providers and engage with them continuously. This is best accomplished when state DOTs understand that their missions are multi-faceted. Successful state DOTs in this respect not only build highways but support public transit while also considering environmental, energy, and human service goals (Whitaker, Derk, & Ang-Olson, 2018, p. 61). Data collection and performance measurement were also cited as important requirements in making a data-driven argument to state DOTs regarding the success of state-level investments in rural transit (Whitaker, Derk, & Ang-Olson, 2018, p. 62). State DOTs and regional planning agencies can also play a crucial role in coordinating regional or overlapping services. Some DOTs provide technical assistance to transit providers who are interested in consolidating service, including conducting feasibility studies to look at the associated benefits and costs (Monahan, High, Gandhi, & Krull, 2017, p. ix).

2.3.2. Funding

As with any public good, funding is the backbone of operating a transit service (National Cooperative Highway Research Program, 2018, pp. 24–25). Many rural transit providers are either publicly funded or volunteer-dependent, making funding a limiting factor when it comes to determining capacity. Funding can come from several different sources, the most common source being federal or state grants. In addition, funds can also come from farebox revenue, local governments, and the philanthropic community. Medicaid also provides mileage reimbursement for volunteer transit organizations (VTOs) that transport low-income individuals to medical appointments (Shared-Use Mobility Center, 2019, p. 4).

Table 10 provides examples of common federal programs used to fund rural transit. Although many of the grants are federal, states are typically responsible for allocating federal transit formula funds to rural transit providers. Note that the table includes a small selection of potential federal funding sources; it is not intended to be an exhaustive list. Transit providers may receive funding from more than one source to meet their financial needs. Many states also have their transit funding programs developed to complement federal programs by providing matches for federal funds, as summarized in Table 15.

Table 10: Examples of Federal Funding Sources

Grant Name	Grant Type	Description
Enhance Mobility of Elderly and People with Disabilities (5310)	Federal	Provides formula funding to states to fund projects that work to improve mobility options for the elderly and people with disabilities.
Formula Grants for Rural Areas (5311)	Federal	Provides formula funding to states for capital, planning, and operating assistance for rural transit.
National Rural Transit Assistance Program (RTAP)	Federal	Provides technical assistance and training to rural transit providers.
FTA Mobility on Demand On-Ramp	Federal	Provides technical assistance to develop Mobility on Demand projects.
FTA Mobility on Demand Sandbox Program	Federal	Provides funds for project teams to develop innovative Mobility on Demand projects.
Integrated Mobility Innovation Program	Federal	Provides funds for Mobility on Demand, automation research, and mobility payment integration projects.
Congestion Mitigation and Air Quality Improvement (CMAQ) Program	Federal	Provides funds to support efforts to meet the Clean Air Act, including new transit services and vehicles, service expansions, and financial incentives that encourage the use of transit, carpooling, or vanpooling over single-occupant driving.
Accessible Transportation Technology Research Initiative	Federal	Conducts research, development, and education activities to facilitate the adoption of information and communication technology into transportation initiatives.
Veterans Transportation Community Living Initiative	Federal	Provides funding to programs that offer transportation options to active military service members, veterans, and their families.
Older Americans Act Funds	Federal	Provides funding for projects that improve transportation options for the elderly.

Source: Shared-Use Mobility Center; National Cooperative Highway Research Program

One of the challenges of receiving federal or state funding is that these funding sources often come with specific spending regulations and restrictions. These can be a challenge for smaller, rural transit providers because it further restricts the way that service is operated (Shared-Use Mobility Center, 2019, p. 8). In addition, some grants have specific qualifications that determine whether an organization is eligible to

receive funding. For example, to receive a certain type of funding, a rural transit provider may need to ensure that a certain percentage of their contractors qualify as disadvantaged business enterprises (DBEs), which are women- and minority-run businesses (National RTAP, 2010). Transit providers that receive federal grants must ensure that they are not duplicating service provided by another transit provider receiving the same funds; it is the provider's responsibility to communicate with other providers that operate similar services in similar areas. The government will not support duplicative programs, so it is the responsibility of the agency to be vigilant to ensure that duplication of services does not occur (National RTAP, 2010, p. 3).

Transit providers must balance their funding allocation between maintaining current service and infrastructure and possible service expansion. One of the most important components of internal funding allocation for a rural transit provider is ensuring that the funding is used properly, based on its source. For example, some funding can only be used on infrastructure or only to fund service that qualifies as "demand response." This concept is known as cost principles, which regulate the allowable uses for specific types of grant money (National RTAP, 2010). When a transit provider determines what grants they will apply for, it is important to first determine the capital needs of the system over the next few years. Otherwise, a transit provider may end up with a mismatch between the funding they have obtained and the projects that must be completed.

2.3.3. Service Planning and Operations

Service design and operation have a significant impact on the usefulness, ridership, and financial efficiency of rural transit services. The unique challenges of serving a large, sparsely populated geographic area can influence the types of services offered within a community (such as fixed-route, route-deviated, or demand-response services), as well as locations and times of service.

Longer distance routes, especially limited-stop service with no transfers, continue to be a successful service type (Whitaker, Derk, & Ang-Olson, 2018, p. 5). These types of routes typically minimize the difference between taking transit and driving a car while simultaneously offering a comfortable, safe, and affordable alternative. Longer distance trips should also include onboard vehicle amenities, including access to free Wi-Fi, charging stations, comfortable seats, and even designated space for personal storage such as luggage or shopping bags (KFH Group, Incorporated, 2017, p. 119).

Successful rural transit should be designed to meet the needs of multiple markets; relying exclusively on a specific population creates an inherent "ceiling" to ridership levels, which may not be sustainable (KFH Group, Incorporated, 2017, p. 116). Transit service that is useful to a broad group of patrons can result in higher ridership. Providing service for the various specific trips that exist within a rural transit providers' service area is commendable, but the effort significantly impacts service planning and service operations. Accommodating as many of these trips with limited financial resources is a challenge for many rural transit providers.

Connecting to regional transportation networks is also a critical element of service design. Although relevant to any transit service, the issue of access to transit is especially challenging for rural providers, given that people are more widely distributed. Park-and-ride lots have been an effective tool in addressing this problem of geographic dispersion (KFH Group, Incorporated, 2017, p. 119). Transit providers should also strive to make sure that their service connects seamlessly with other transit options in the region, including rail networks and commuter buses (where available) and nearby local bus options.

Strategies include shared stops that facilitate transfers, unified fare payment systems, and effective marketing and public information.

2.3.4. Performance Monitoring

Data collection and performance monitoring can be a challenge for rural transit providers operating with limited resources. Furthermore, expectations should be adjusted for certain metrics, especially those related to ridership productivity, such as passenger miles traveled per vehicle revenue mile, as rural transit services must often travel much farther to connect with far less dense residential and commercial development. Nonetheless, performance monitoring can be critical to identifying challenges and making service changes to meet unmet demand. Successful rural transit providers monitor service performance and are unafraid to make changes as needed (Whitaker, Derk, & Ang-Olson, 2018, p. 5). This active approach to service planning, buoyed by accurate data, will ensure that transit service constantly meets the needs of the community.

Although it can be difficult, data collection can play an important role in articulating the benefits of rural transit service to both community members and decision-makers. Collecting and tracking data also assists in asset management, goal tracking, service planning, and financial planning. Depending on the size and type of the transit provider, some level of data reporting is mandated by federal regulations, including the National Transit Database (NTD), the Americans with Disabilities Act (ADA), the Federal Transit Administration's (FTA) Rural Area Formula Program (Section 5311), and Transit Asset Management (TAM) Plans (National RTAP, 2019, p. 1). There are a variety of ways that data can be collected, some more expensive than others. For transit providers with enough resources, the easiest way to track vehicle performance is with on-vehicle remote sensors. However, transit providers can track performance in other ways as well, including driver logs, vehicle records, customer input, and complaint records. Providers can also track their performance through employee performance, financial data, and funding success rate (National RTAP, 2019, pp. 4–5).

The types of performance measures that rural transit providers should use are like those used by larger urban transit providers. Rural transit providers can benefit from having good data regarding the purpose of transit riders' trips, whether those trips are for work, shopping, health care, meals, social services, school, or some other purpose. Because of the distances and time involved, transit trips in rural areas are often undertaken for specific reasons. Knowing these reasons can contribute to designing a rural transit system that is useful and convenient.

2.3.5. Marketing

A common theme across studies reviewed was the importance of marketing to the success of many rural transit providers. Due to the low population density and dispersed nature of many rural communities, awareness of rural transit service tends to be lower in rural areas than in urban areas. Vehicles are often unbranded, and branded bus vehicles and bus stops are not as visible due to their limited number, resulting in many residents unaware of transit services in their community.

Marketing strategies, both traditional and new, are, therefore, critical in promoting rural transit service and increasing ridership (Whitaker, Derk, & Ang-Olson, 2018, p. 4). Marketing campaigns are successful when they increase community awareness of transit service and educate residents on how the service works and where it operates. Traditional marketing strategies include bus wrapping, strong branding, and community partnerships. Many rural transit providers have also experienced success using newer

technologies, including social media and smartphones to reach new riders who otherwise would not be reached using traditional marketing campaigns (Whitaker, Derk, & Ang-Olson, 2018, p. 5).

The literature suggests that both targeted and general marketing can be successful in attracting new ridership. Targeted marketing efforts include outreach to specific populations who are likely to use transit, including local senior centers, shopping destinations, health care providers, and large employers (KFH Group, Incorporated, 2017, p. 121). Other studies have emphasized that rural transit providers should not neglect marketing to more general audiences (Ellis & McCollom, 2009, p. 82). Rural transit service is frequently portrayed as a specialized service for specific populations, including seniors and those trying to access medical care. The general public may not be aware that those services are available to them as well. Providers should try to promote their service to the general public in addition to specific target groups.

Marketing programs can go beyond simply attracting new ridership; building community awareness of transit service can also build community support. This support, in turn, can strengthen the case for additional funding as community members come to understand public transit as a valuable community service (Ellis & McCollom, 2009, p. 82).

Due to constrained resources, rural transit providers occasionally struggle to communicate basic service information to riders and potential riders alike. Providers should ensure that service information, including schedules, maps, and fare information, are all readily available online and in print. When service changes are made, or disruptions to service occur, the information should be updated online and promptly disseminated to riders. Creating General Transit Feed Specification (GTFS) feeds and making them publicly available online is another way for providers to raise awareness of their services (Whitaker, Derk, & Ang-Olson, 2018, p. 121).

2.3.6. Community Partnerships

Partnerships with key stakeholders in local communities have proven to be a key to successful rural transit. These stakeholders are quite diverse, including health care facilities, employers, universities, and even farmer's markets. The types of partnerships also vary significantly (Whitaker, Derk, & Ang-Olson, 2018, p. 5). Some examples include funding assistance, discounted fares for specific populations, special marketing opportunities, and exclusive service to a particular destination (Whitaker, Derk, & Ang-Olson, 2018, p. 37).

A significant investment of time and effort is usually needed to form productive partnerships in the community. Connections need to be made and agreements formed, despite limited staffing resources to accomplish these partnerships. Yet, in the long term, they have been shown to both increase ridership and improve the visibility of transit providers within their community. Agency staff should demonstrate and champion the benefits of transit service to the community. Once other entities better understand the positive impact that transit service can have on their constituents, they are more likely to enter into a partnership (Whitaker, Derk, & Ang-Olson, 2018, p. 8).

To facilitate those types of agreements, the U.S. Department of Transportation (USDOT) oversees the Mobility Services for All Americans (MSAA) Initiative. This initiative is designed to encourage partnerships between transit providers, local governments, and other public, private, and non-profit organizations (Shared-Use Mobility Center, 2019, p. 4).

2.3.7. Emerging Technologies

New technologies have the potential to transform rural transit. Rural transit faces many unique challenges, including the relative inefficiency of providing service to a sparsely populated area, the cumbersome process of requesting a ride on demand-response services, and fare payment and collection. Emerging technologies have the potential to address each of these challenges and thereby facilitate the process of using rural transit. One common example of an emerging technology is mobility on demand (MOD), which is one way that transportation agencies can address the challenges of operating rural transit. According to the USDOT, "mobility on demand is an innovative, user-focused approach which leverages emerging mobility services, integrated transit network, and operations, real-time data, connected travelers, and cooperative intelligent transportation systems (ITS) to allow for a more traveler-centric, transportation system-of-systems approach, providing improved mobility options to all travelers and users of the system in an efficient and safe manner" (The Mobility on Demand Alliance, 2020). In rural areas, MOD can provide a variety of services such as first mile/last mile connections to transit and provide an option for senior citizens to travel for medical and social reasons (The Mobility on Demand Alliance, 2020). The federal government has acknowledged the importance of this technology, in part by creating the FTA Mobility on Demand Sandbox Program, described in Section 2.3.2. This program allows agencies to pilot programs that utilize Mobility on Demand to meet public transit needs; the main goal of this particular grant is innovation. Eligible programs could include anything from physically providing service to creating resources that streamline service in an area. Providers who embrace these and similar kinds of innovative technologies are likely to be successful (Hosen & Powell, 2011, p. 31).

Other new technologies include automatic vehicle locators (AVL) and geographic information systems (GIS) to track transportation providers and connect them with potential riders. From the rider's perspective, most of these services are experienced through a smartphone. These technologies enable transit providers to be more responsive to actual demand in real-time, rather than based on desktop analysis of potential demand (Whitaker, Derk, & Ang-Olson, 2018, p. 57). The ability to request a ride on a smartphone improves the rider experience by eliminating the need to make reservations over the phone with a human operator, regardless of whether the reservation needs to be made in advance or not. Certain aspects of scheduling and dispatching can be automated, thereby reducing costs to the transit provider. Finally, mobile payment applications make it easier to pay for a transit trip without fare being collected onboard the vehicle. Volunteer drivers, particularly, prefer a simplified fare collection process (Whitaker, Derk, & Ang-Olson, 2018, p. 58). All these technological improvements have the potential to make service significantly more efficient, with fewer empty transit vehicles and unproductive trips.

Technology can also facilitate implementing a service that encompasses all transit options within a given community, regardless of the type of service or the operator. This "one-call, one-click" service could either take the form of a website database or a call center, or both. The service is meant to be easily accessible and is most useful for areas that have multiple transit operators. For example, an area could have a few commuter buses for long trips operated by a nearby city, a MOD service that can be paid for by local residents, and a free medical transport option for veterans or the elderly. Putting all of these options in the same place and making the service user-friendly help to inform individuals about options they may not have known were available to them (Shared-Use Mobility Center, 2019, pp. 9 – 10; Dabson & Meyers, 2015, p. 5; National Cooperative Highway Research Program, 2018, p. 2). One example of a program that utilized the Mobility on Demand Sandbox Grant is a project that was completed by Vermont

Transit (VTrans). A grant was awarded to VTrans to create a trip planner tool that allows users to incorporate "flexible mobility options" into their trip planning (Cordahi, Shaheen, & Martin, 2018, p. 1). This planner, called the OpenTripPlanner, includes transit services throughout the state, allowing users to gain a comprehensive understanding of the mobility alternatives available to them.

2.3.8. Consolidation

Studies have shown that it can be a smart strategy to consolidate multiple rural transit providers into a single, regional provider. Potential benefits include cost savings, improvements to service design and levels of service, greater in-house capacity and access to resources, and reduced state DOT oversight demands (Monahan, High, Gandhi, & Krull, 2017, p. viii). Consolidation does have certain disadvantages, including local providers' resistance to shared decision-making; the brand of local services, so important in promoting public awareness, could be lost and subsumed by the new regional entity; and the organizational and bureaucratic change required by consolidation may be too much for some local providers to overcome.

State DOTs can also play an important role in facilitating provider consolidation, when appropriate. Many state DOTs offer technical assistance to regions that are interested in pursuing consolidation. State DOTs are sometimes the driving force behind regionalization studies, which is often the first step in studying the costs and benefits of consolidation (Monahan, High, Gandhi, & Krull, 2017, p. ix).

There are many lessons to be learned from regions that have undergone consolidation (Monahan, High, Gandhi, & Krull, 2017, p. ix).They include the following:

- A thorough evaluation of the costs and benefits of consolidation is useful in outlining the case for consolidation.
- It's important to have an active "champion" in the region who drives the process and articulates the case for consolidation.
- Support from the state DOT is a critical element of success, opening up resources for technical assistance, operating funds, and capital investments.
- The focus should be on maintaining or improving existing levels of service when appropriate. Consolidation should not be mistaken for "down-sizing."
- Local transit hubs should continue to be used, rather than directing service to a new centralized hub.
- Although active support from the state DOT is important, the initiative to consolidate service should originate with local communities.
- Consolidation can result in improved service to many areas, including better regional coordination between services; however, cost savings can be lower than expected, especially in the short term.
- After consolidation, the resulting larger organization may be subject to new state and federal regulations based on the number of employees at similar organizations.

2.4. Summary

Since 2010, the Region's share of the national population has decreased. The population has also become older as residents "age in place" and retirees migrate to senior communities in the Region, particularly in Southern Appalachia. The Region's employment growth has been slower than the national average, particularly in the retail, construction, farming, and forestry sectors. During the economic downturn between 2008–2012, the Region lost proportionally more jobs than the rest of the country and has created new opportunities at a slower rate than the nation. Nonetheless, trends across the entire Appalachian Region do not necessarily apply to subregions equally: Southern Appalachia has experienced greater population and job growth than Central or Northern Appalachia.

While funding is an obvious factor in determining a provider's ability to meet its riders' transit needs regardless of the providers' location, this is particularly true for rural transit providers given their limited resources and typically large geographic service areas. At times, federal and state funds come with requirements that are difficult for rural transit providers to meet. Yet, there are several best practices that rural transit agencies can consider as they plan for, deliver, and evaluate their service:

- Service Planning: A successful rural transit system connects to a regional network and appeals to as wide an array of people as possible: commuters, senior citizens, zero-car households, and more.
- Marketing: One of the most significant challenges that rural transit providers face is residents simply not knowing about their services or the perception that they are exclusively for a specific population of riders. Marketing, therefore, is an important element of promoting awareness of transit service within the community. Both targeted and general marketing initiatives are needed to raise broad awareness and buy-in from the local community. Many rural transit providers have found community partnerships to be an effective way to both promote their service and, in some cases, provide additional funding.
- Relationships with State DOTs: A strong working relationship with the state DOT is also an important element in securing funding and technical resources. That is best accomplished when a state DOT plays an active role in advocating for rural transit providers.
- Performance Management: Data collection and performance tracking can be essential ways that rural transit providers assess their impact on their communities and "make the case" to state DOTs for additional funding.

3. Rural Transit in the Appalachian Region—Policies, Programs, Organization, and State of the Practice

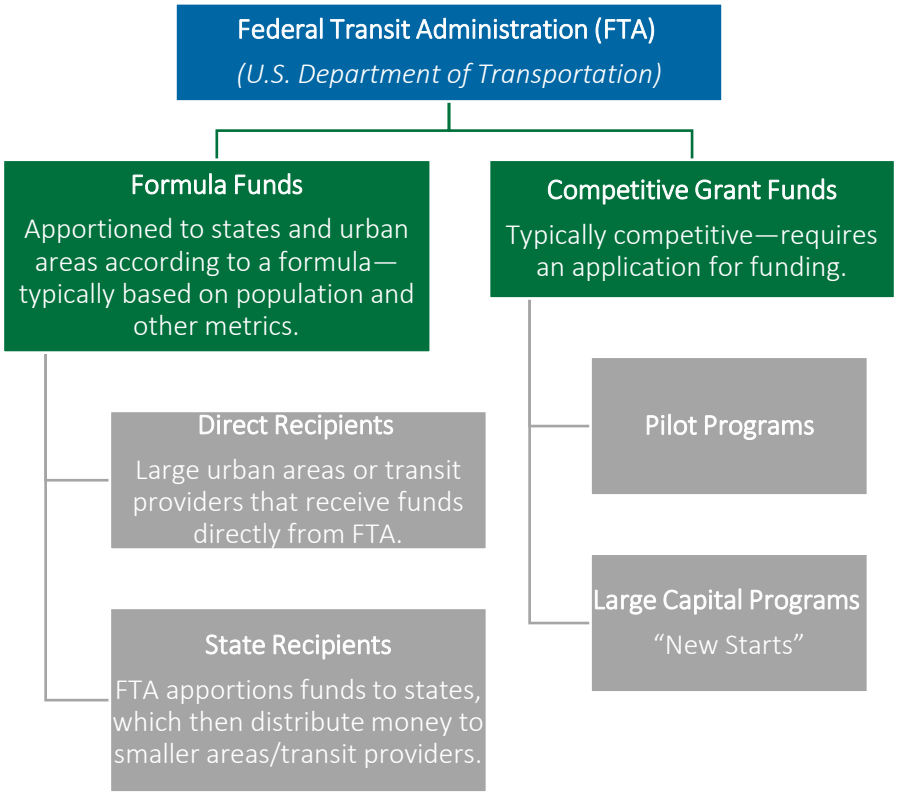
3.1. Introduction

This section provides a summary of the policies, programs, organization, and state of the practice with respect to rural transit in the Appalachian Region. It includes information on federal funding, state-level rural transit programs, findings from a survey of 118 transit providers from every state in the Appalachian Region, and insight from 14 in-depth transit provider interviews.

3.2. Federal Funding Summary

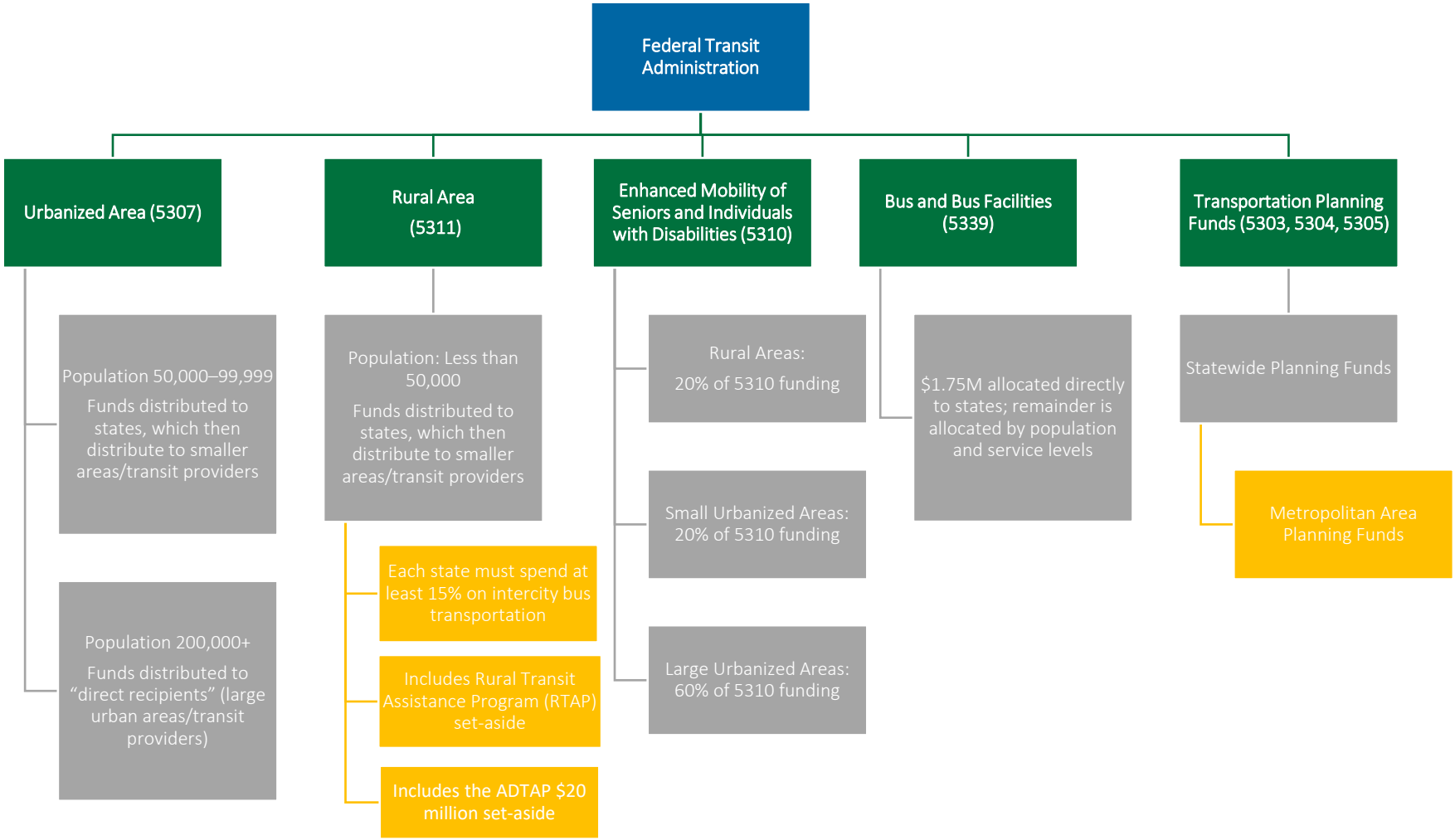
The FTA provides two funding program types: formula funds and competitive grant funds. Figure 10 demonstrates a breakdown of the program types. Formula funds may be allocated to direct recipients or state recipients. In the case of rural transit providers with smaller service areas, states distribute federal funding as the grant administrator. Figure 11 provides a summary of major FTA formula funding programs. Federal funding sources that are the most applicable to rural transit providers are described in Table 11.

Figure 10: Major FTA Funding Program Types—Summary



Source: FTA Website

Figure 11: Summary of Major FTA Formula Funding Programs



Source: FTA website

Table 11: FTA Funding Programs

Program	Description
FTA Formula Grants for Rural Areas (Section 5311)	Provides capital, planning, and operating assistance to states to support public transportation in rural areas with populations less than 50,000. Includes Tribal Transit Program, Intercity Bus Program.
FTA Urbanized Area Formula Grants (Section 5307)	Provides federal resources to Urbanized Areas for transit capital and operating assistance and transit-related planning.
FTA Capital Investment Grants (Section 5309)	Provides capital assistance for three primary activities: (i) new and replacement buses and facilities, (ii) modernization of existing fixed guideway (FG) systems, (iii) new FG systems.
FTA Enhanced Mobility of Seniors and Individuals with Disabilities (Section 5310)	Provides formula funding for states to assist private nonprofit groups in meeting the transportation needs of the elderly and persons with disabilities.
FTA State of Good Repair (Section 5337)	Provides capital assistance for maintenance, replacement, and rehabilitation projects of existing high-intensity fixed guideway and high-intensity motorbus systems to maintain a state of good repair.
FTA Bus and Bus Facilities (Section 5339)	Provides formula funding that finances capital projects to replace, rehabilitate, and purchase buses and related equipment and to construct bus-related facilities.

Source: FTA website

A set-aside under the Section 5311 program, the Appalachian Development Public Transportation Assistance Program (ADTAP) provides additional funding to states in the Appalachian Region (Table 12). Funds may be used for public transportation activities consistent with the formula grants for rural areas program, providing a supplemental funding opportunity that is limited to Appalachian transit providers.

Table 12: FY2019 FTA's Section 5311(c)(2)—ADTAP Apportionments

State	Funding Amount
Alabama	$5,000,000.00
Georgia	$592,000.00
Kentucky	$1,764,000.00
Maryland	$636,000.00
Mississippi	$254,000.00
New York	$200,000.00
North Carolina	$1,450,000.00
Ohio	$964,000.00
Pennsylvania	$4,788,000.00
South Carolina	$200,000.00
Tennessee	$1,110,000.00
Virginia	$1,150,000.00
West Virginia	$1,892,000.00

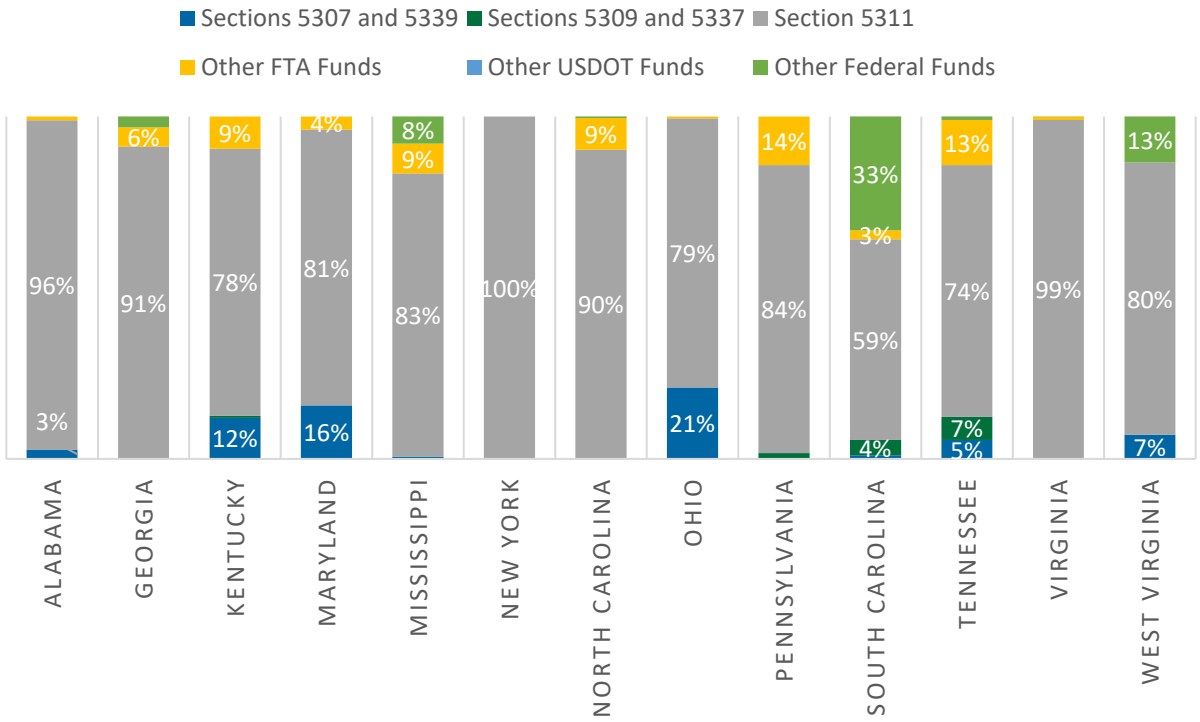
Source: FTA website

Rural transit providers may also be eligible for opportunities to apply for the following programs: Sections 5304 Statewide Transportation Planning, 5308 Clean Fuels, and 5310 Special Needs/ADA. Grants provided by non-FTA divisions of the USDOT or departments other than DOT may be available. Figure 12 shows

rural transit providers' total federal funding sources, as reported to National Transit Database (NTD) in FY2017.

FTA Section 5311 represented the most significant federal funding source for rural transit providers in Appalachian states, as reported to NTD in FY2017. Section 5311 funds accounted for 90% or more of the rural providers' federal funding in Alabama, Georgia, New York, North Carolina, and Virginia. In that year, over 10% of the federal funding in Kentucky, Maryland, and Ohio came from Section 5339 funds. Other FTA funds accounted for 10% or more of the federal funding in Kentucky, Mississippi, North Carolina, Pennsylvania, and Tennessee.

Figure 12: FY2017 Rural Providers Federal Funding Sources by State



Source: FY2017 NTD Funding Source Report

3.3. State Rural Transit Programs

Through a comprehensive document review and phone interviews with staff at each state DOT in the Appalachian Region, the following information was collected:

- An overview of federal funding programs available to rural transit providers
- Description of how each state DOT administers rural transit programs and supports rural transit providers
- Summary of planning requirements and performance metrics
- Available funding programs
- Information on how funding availability is communicated to transit providers and potential transit providers
- Summary of the existing process for identifying demand for transit

Examples of documents reviewed include the following:

- State management plans
- Statewide transit plans
- FTA funding apportionment tables
- Statewide transportation improvement programs
- NTD data reports
- State DOT websites

State management plans (SMPs) describe how states administer the FTA programs. The USDOT, through the FTA, provides federal financial assistance to organizations involved in the planning and delivery of public transit services. In most cases within the Appalachian Region, mainly comprised of rural areas with populations under 50,000, state DOTs administer the FTA grant programs at the state level and provide grant management oversight to the subrecipients of the FTA grants. SMPs provide an overview of FTA programs, general responsibilities of the program administrators and subrecipients of federal funds, and policy, programmatic, and regulatory information for each program.

The review process centered on the fundamental characteristics of each FTA program in the Appalachian states, as described by each state's SMP. These plans describe the population limits, eligible subrecipients, type of assistance available and maximum assistance limits, necessary state and local matches, and eligible matching sources, among other details of the overall application process. Since this analysis focuses on funding opportunities for rural transit systems, only programs for areas with populations of fewer than 50,000 residents were reviewed. Information was summarized in tabular format and supported by additional online research on the application process, application websites, and specific application instructions or training materials.

The total available amount for rural transit funding programs is summarized in tables for each state in Appendix A—State DOT Program Summary. The FY2019 full-year total available amount is based on funding authorized under the Fixing America's Surface Transportation Act (FAST) and The Consolidated Appropriations Act, 2019 (Pub. L. 116-6) for the following FTA programs:

- Section 5310 Enhanced Mobility of Seniors and Individuals with Disabilities
- Section 5311 and Section 5340 Rural Area
- Section 5311(b)(3) Rural Transit Assistance Program (RTAP)
- Section 5311(c)(2) Appalachian Development Public Transportation Assistance Program (ADTAP)
- Section 5339 Bus and Bus Facilities

In applicable cases, statewide transportation improvement programs, state budgets, and grant application announcements were reviewed to confirm and provide additional context to amounts authorized for state-funded programs and state matches.

The desk review informed the questions and topics addressed during phone interviews with state DOTs. The purpose of each of the interviews with the state DOTs was to gain further insight into rural transit programs in the Appalachian Region, supplementing the desk review results where applicable. The title and role of each individual interviewee from the state DOTs varied, though at the time of the interviews, most occupied a managerial role in the state's public transit office. Staff responsible for grant

coordination also participated in the calls, as is the case for New York, Ohio, South Carolina, Tennesee, and West Virginia. Table 13 details interview dates and participants.

Table 13: State DOT Interviews, Dates, and Participants

State	Date	Participants
Alabama	January 16, 2020	Randy Stroup, Asst. Bureau Chief of Transit
Georgia	February 5, 2020	Patricia A Smith, Transit Program Delivery Manager Leigh Ann Trainer, AICP, Rail & Transit Planning Manager
Kentucky	February 3, 2020	Eric Perez, Acting Executive Director, Office of Transportation Delivery
Maryland	January 28, 2020	Travis Johnston, Office of Local Transit Support, MDOT MTA Chris Taylor, Regional Planner, MDOT MTA
Mississippi	February 3, 2020	Shirley Wilson, Public Transit Division Director
New York	January 28, 2020	Kent Sopris, Director of Public Transportation Bureau Erika Bacher, Office of Modal Grants Administration
North Carolina	January 29, 2020	Johanna Cockburn, Director of Integrated Mobility, NCDOT
Ohio	January 23, 2020	Chuck Dyer, Administrator, Planning Division/Transit Section Joachim Bean, Data Coordinator/TIGER VII Grant Project Manager, Planning Division/Transit Section
Pennsylvania	January 22, 2020	Andrew Batson, Chief, PennDOT Urban Transit Division Danielle Spila, Director, Pennsylvania Bureau of Public Transportation JoEllen Clapsadl, Acting Director of Rural & Intercity Transportation
South Carolina	January 29, 2020	Machael Peterson, Statewide Chief Planner, SCDOT Douglas W. Frate, Director of Intermodal and Freight Programs, SCDOT Johnny Mmanu-ike, Director, Office of Public Transit, SCDOT Caroline Griffin, ARC Program Manager, SC Department of Commerce Grants Department
Tennessee	January 23, 2020	Kaitlyn McClanahan, Grants Administration Supervisor George Mitchell, Compliance Program Supervisor
Virginia	January 22, 2020	Neil Sherman, Director of Statewide Transit Programs, DRPT
West Virginia	January 23, 2020	Bill Robinson, Executive Director Tony O' Leary, 5310 Program Coordinator Neal Vance, Planning Coordinator Cindy Fisher, Section Leader

Interview questions were sent to state DOTs before the interviews to allow sufficient time for any preparation, if needed. State DOTs were invited to review interview notes and contribute additional information after the interviews. Ten of the thirteen state DOTs provided comments on the interview notes or additional information. Appendix A—State DOT Program Summary documents each state's rural transit program information, organized into six sections:

1. State planning process
2. Rural transit provider planning requirements
3. Federal and state public transportation funding summary
4. Federal funding programs
5. State funding programs

6. Additional resources

The compilation of state-specific requirements, state-funded matches to federal grants, and state funding programs provide a starting point to identifying challenges and best practices for rural transit in the region. The process helped identify available and underused funding sources or best practices in training new applicants for grant applications.

3.3.1. Rural Transit Planning—State DOT Organization and Local Development Districts

State DOTs play significant roles in the planning, design, acquisition, construction, maintenance, or supervision of any public mass transportation program or system, or the operation thereof, through the Region. Departments' roles and responsibilities may include review and approval of state grant applications, grant management, oversight of implementation, development of state management plans, technical assistance to transit entities, or local jurisdictions as necessary. These responsibilities may be delegated to public transit offices or divisions, as is the case for several Appalachian states.

The Appalachian Regional Commission also works with the Appalachian states through local development districts (LDDs) to ensure the effective and efficient use of funding and to strengthen local participation. Local development districts are a network of 73 multicounty planning and development organizations that cover the 420 counties in Appalachia. The degree of involvement of LDDs in transit planning vary within the Region, and even within a state. Several of these organizations are involved in decisions related to the awarding and use of Section 5310 funding. In South Carolina, for example, the LDD administers Section 5310 funds and works with both the state DOT and subrecipients on Section 5310 grant application process. In Maryland, for instance, in addition to endorsing Section 5310 funding applications, the LDD participates in transit development plans updates undertaken by each public transportation provider every five years. In Kentucky, on the other hand, a couple of LDDs also receive Section 5304 funding for transit planning, but four of the nine LDDs in the state do not receive any funding from the state's transportation cabinet.

3.3.2. Rural Transit Planning Requirements and Performance Metrics

All recipients of federal funding must abide by federal reporting requirements. Such requirements include the NTD reporting, Transit Asset Management (TAM) plan vehicle inventories, civil rights reviews, and progress towards project milestone attainments. Grantees have a responsibility to comply with statutory and regulatory requirements associated with federal grants. FTA monitors grants to confirm that grantees follow federally mandated procedures. Examples include the following:

- Legal, financial, and technical capacity to carry out programs
- Technical inspection and supervision
- Compliance with procurement requirements
- Civil rights statutes
- Safety and asset management

Recipients of FTA Section 5311 funding are required by statute to report to the NTD in uniform categories. Additionally, recipients of federal funding assistance for under 49 U.S.C. Chapter 53 must develop a TAM plan if it owns, operates, or manages capital assets. Annual reports must be submitted on the status of each category of capital asset into the NTD.

As recipients for Section 5311 funding, state DOTs report to NTD on behalf of rural transit providers, who are subrecipients. State DOTs prepare individual reports for each subrecipient and file a Statewide Summary Report to NTD. How often subrecipients need to send NTD data to state DOTs may depend on state policy. While state DOTs may authorize individual subrecipients to self-report data in the NTD system, state DOTs are ultimately responsible for submitting and ensuring the accuracy of the completed report. The FTA compiles the received data into annual NTD reports that summarize transit service, asset, and safety data for Congress to review and use.

State DOTs are also responsible for developing a group TAM plan for subrecipients, although providers may opt out of the group plan and develop their own if preferred. TAM plans must be updated at least every four years. A TAM plan must consist of an inventory of capital assets, condition assessment of assets in the inventor, description of analytical processes/decision-support tools, and prioritization of investments needed for the state of good repair. TAM plans also require providers to set performance targets for the overall condition of each category of assets. Subrecipients are required to set performance targets for their capital assets based on the state of good repair measures and report their targets, as well as information related to the condition of their capital assets.

FTA grantees must comply with all requirements of the ADA Act of 1990, Title VI of Civil Rights Act of 1964 (Title VI), the Disadvantaged Business Enterprise Program, and the Equal Employment Opportunity (EEO) Program. Title VI Circular 4702.1B outlines the requirements and guidelines for FTA recipients. Depending on the service provided, this may include requirements on the collection of demographic data, evaluation of service and fare changes, the establishment of service policies. Transit providers, as subrecipients, must submit a Title VI Program to state DOTs who pass through the funds.

Aside from federal reporting requirements, states may set additional planning requirements and performance metrics that providers must comply to access funding, listed in Table 14. While requirements may differ, performance metrics that are consistently collected may include but are not limited to the following:

- Cost per vehicle hour, cost per vehicle mile, cost per passenger
- Passengers per vehicle hour, passengers per vehicle mile, revenue passengers
- Revenue vehicle miles
- Other financial information

State DOTs put these performance measures to different uses. PennDOT and Virginia Department of Rail and Public Transit (DPRT), for instance, use these statistics to inform funding decisions. West Virginia DOT uses performance measures to identify transit providers who may need technical assistance. Many state DOTs also have their own planning requirements, such as providing prospective budgets for the next four years with each grant application as mandated by the Kentucky Transportation Cabinet or identifying constrained and unconstrained transit needs through a transit development plan process as completed by Maryland DOT and Virginia DPRT.

Table 14: State Grant Administrator, Planning Requirements and Performance Metrics

State	State Grant Administrator	Planning Requirements and Performance Metrics
Alabama	Alabama Department of Transportation, Local Transportation Bureau	Section 5311 applicants in MPO (metropolitan planning organization) study areas must notify the MPO of their intention to apply for funds and acquire a letter of support.
Georgia	Georgia Department of Transportation, Department of Human Services	Any purchases must comply with state procurement guidelines.
Kentucky	Kentucky Transportation Cabinet; Office of Transportation Delivery	All transit providers must provide a budget estimate on operating expenses for the next four years; for capital expenses, a budget for the next two years is needed. Rural transit providers are required to hold coordination meetings and discuss service plans for the next two to three years.
Maryland	Maryland Department of Transportation; Maryland Transit Administration; Office of Local Transit Support	Local jurisdictions and transit providers must go through the process of a Transportation Development Plan (TDP) model every five years. This is handled by a third-party consultant, involving public engagement efforts. Rural transit providers submit reimbursement requests and a 2A report on a quarterly basis. The report consists of all service attributes, showing the performance breakdown of each program. Measures include cost per mile, number of trips, cost per hour, etc.
Mississippi	Mississippi Department of Transportation	All transit providers submit quarterly summary reports and monthly Disadvantaged Business Enterprise (DBE) reporting as well as payment documentation. Rural subrecipients report monthly on performance indicators, including revenue, fleet operations, cost per mile, and more.
New York	New York State Department of Transportation	Section 5310 subrecipients provide semi-annual reports detailing vehicle utilization, expenses, Title VI information, insurance information, and maintenance/repair data. Section 5311 subrecipients report annually on operations, ridership, performance, drug and alcohol testing, and financial data concerning the status of the programs. New York's Statewide Transportation Operating Assistance (STOA) program requires quarterly reporting of vehicle miles and passengers.
North Carolina	North Carolina Department of Transportation; Public Transportation Division, Integrated Mobility Division	All providers are required to have transit plans with a five-year outlook and log operation statistics. Rural transit providers are required to develop Comprehensive Transportation Plans and Transit Focus Plans. State funding streams may require plans that document transit needs in the recipient's service area.
Ohio	Ohio Department of Transportation, Division of Planning, Office of Transit	Subrecipients must submit financial reports, compliance data, ridership data, safety, and DBE reports to ODOT on a quarterly basis. Performance measures are not used to inform decisions for Section 5311 awards.
Pennsylvania	Pennsylvania Department of Transportation	Performance reviews are mandatory for all transit agencies; this happens at five-year intervals for rural transit providers. Functional area reviews and annual audits are also required. PennDOT's funding decisions are driven by statistics, including the number of operating hours, revenue miles, and ridership demographics, among others.

State	State Grant Administrator	Planning Requirements and Performance Metrics
South Carolina	South Carolina Department of Transportation, Office of Public Transit	All agencies submit an annual comprehensive Operating Statistics report called OPSTATS that documents revenue miles, ridership, and other metrics. For Section 5311 funding, SCDOT evaluates previous year allocations, passengers' trips, amongst other measures.
Tennessee	Tennessee Department of Transportation, Multimodal Transportation Resources Division, Long Range Planning Division	Internal strategic planning performance measures apply to all agencies. Section 5310 subrecipients must be part of a regional transportation coordination plan. Rural transit providers must prepare annual asset reports, maintenance records, and mileage reporting, especially for the reimbursement request process. All providers must keep trip denial logs to be submitted with Section 5311 applications. TDOT conducts check-in meetings with providers on a quarterly basis.
Virginia	Virginia Department of Rail and Public Transportation	Subrecipients must report data on a quarterly or monthly basis. All rural transit systems need a TDP and 5-year capital budget plan. Site visits and compliance reviews are mandatory. Transit agencies serving an Urbanized Area with 50,000 or more people and operating with a peak fleet deployment of 20 or more buses are required to do a more extensive Transit Strategic Plan (TSP), in lieu of a TDP. All state funding dedicated to the local match of federal funds is awarded based on performance measurements.
West Virginia	West Virginia Department of Transportation, Division of Public Transit	Section 5311 subrecipients must also participate in the coordinated plans federally required for Section 5310 subrecipients. Subrecipients must also develop and implement safety, security, and emergency response plans following the Safety and Security Planning Information Directed to Effective Response (SPIDER) manual. Performance metrics are used to identify providers that may need technical assistance and inform WVDOT decision making regarding budget increase requests.

Source: State management plans and state DOT websites

3.3.3. Rural Transit Funding Programs

Several federal funding programs are available to all states in the Appalachian Region. Section 5310, 5311, and 5339 are most applicable to the eligibility and needs of rural transit providers. Some states use state funds to supplement local match requirements for federal funding programs, either allocated from a general revenue stream or a dedicated funding stream set up by state legislation. Aside from the state-funded match for federal programs, states may set up programs that more closely respond to regional transit needs. The availability of state funding programs and state-funded matches for federal funding programs is detailed in Table 15.

Table 15: State Funding Programs and State-Funded Matches for Federal Funding Programs

State	State-Specific Rural Transit Funding Program	State-Funded Matches for Federal Funding Programs				
		5310		5311		5339
		Capital	Operating	Capital	Operating	Capital
Alabama						
Georgia				✓		
Kentucky		✓		✓		✓
Maryland	✓			✓	✓	✓
Mississippi	✓			✓	✓	
New York	✓	✓	✓	✓	✓	✓
North Carolina	✓	✓		✓		✓
Ohio	✓			✓	✓	
Pennsylvania	✓	✓		✓	✓	✓
South Carolina				✓	✓	
Tennessee	✓	✓		✓	✓	✓
Virginia	✓	✓	✓	✓		✓
West Virginia				✓	✓	

Source: State management plans and state DOT websites

Federal Programs

The availability of state-funded matches for federal funding programs varies greatly across the Appalachian states. For states that provide state-funded matches, a cap on the non-federal share usually applies—usually not to exceed 10% of project costs. New York provides state-funded capital and operating match for Section 5310, 5311, and 5339 subrecipients. Similarly, Pennsylvania and Tennessee provide state-funded matches for Section 5310, 5311, and 5339, the only exception being operating costs

for Section 5310. Virginia does not provide matching operating funds for Section 5311, though all others are eligible.

The remaining states see a mix of availability in terms of state funding, though capital costs are more likely to be eligible for state-match. Twelve out of thirteen states provide matching capital funds for Section 5311. However, state match availability for 5311(b)(3) and 5311(f) varies. Certain limitations may also apply. For instance, in West Virginia, recipients of Section 5311 funds are only eligible to receive assistance from state general revenue funds if they do not have a dedicated source of local funds, such as an excess levy. Alabama, Georgia, and West Virginia have limited opportunities for state funding. Alabama does not have any state-funded match for federal funding programs. Alabama has no state funds or programs that can be used in the development or expansion of public transportation.

State Programs

States may introduce state funding programs to offer additional funding opportunities for rural transit. Programs include a mix of competitive and formula grants designed to meet varied needs, for instance, fare assistance, employment transportation, or critical trips. State programs' relationships with federal programs may vary. Some intend to supplement local matches for federal programs, while others provide unrelated funding. Allocation formula and funding decisions are up to the discretion of state DOTs. Program application cycles may depend on the availability of funds dedicated to public transportation in a given fiscal year. In the Appalachian Region, eight out of thirteen states have at least one state funding program. State funding programs relevant to rural transit providers are listed in Table 16.

Maryland's Job Access Reverse Commute (MD-JARC) Program, which seeks to help transit agencies meet the demand for employment transportation, allocates $120,000 each year for rural areas to improve job access. This program is modeled after the FTA's former JARC program that was available under previous surface transportation authorization bills, which was not included in the current authorizing legislation. Maryland's Statewide Specialized Transportation Assistance Program is a collaborative effort between Maryland DOT, Office on Aging, and the Governor's Office for Disabled Individuals. Many of Maryland's funding programs are incorporated in the Annual Transportation Plan, a funding application package where information about funding is centralized.

Tennessee's Critical Trips Program was introduced to bridge service gaps in rural areas that have recently been incorporated as a part of an Urbanized Area. This program is viewed as a short-term solution to a larger issue of areas rural in nature losing eligibility for 5311 funded services due to changing definitions of Urbanized Areas.

Ohio and Mississippi have state programs to provide fare assistance to elderly and disabled passengers. Both follow an allocation formula using the count of elderly and disabled passengers as a key metric. Rural and small urban transit system reimbursements are prioritized. This is funded by State General Funds in Ohio and Title III/Title III-b/Title XX via the Department of Human Services in Mississippi.

Table 16: State Funding Programs

State	State Funding Programs
Maryland	• Senior Rides Program • Americans with Disabilities Act Program • Statewide Specialized Transportation Assistance Program • Statewide Transit Innovation Grant • Jobs Access Reverse Commute
Mississippi	• Multi-Modal Transportation Improvement Program (MMTIP) • State Department of Human Services
New York	• Statewide Mass Transportation Operating Assistance Program • State Omnibus and Transit Purpose Appropriation • Accelerated Transit Capital Program • Modernization and Enhancement Program
North Carolina	• Strategic Transportation Investment (STI)—Rural • Rural Operating Assistance Program • Rural State Operating Funds Program • Traveler's Aid • Consolidation and Coordination of Public Transportation Systems (ConCPT)
Ohio	• Public Transportation Grant Program • Elderly and Disabled Transit Fare Assistance
Pennsylvania	• Multimodal Transportation Fund • Transit Operating Assistance Program • Asset Improvement Program • Capital Improvements Program
Tennessee	• IMPROVE Act Public Transit Capital Grants • Multimodal Access Grant • Community Transportation Planning Grant • Critical Trips Program
Virginia	• MERIT State Aid Grant Programs: Capital • MERIT State Aid Grant Programs: Operating

Source: State management plans and state DOT websites

Some states set aside a dedicated funding source. New York funds its programs with a mix of the Dedicated Mass Transportation Trust Fund and Annual State Appropriation. Pennsylvania established a Public Transportation Trust Fund for its programs. North Carolina allocates a portion of Highway Trust Funds for state-funded public transportation programs. South Carolina sources its State Mass Transit Fund from a quarter-cent of the state Motor Fuel User Fee, as authorized by state law.

Relationship Between Federal and State Programs

State management plans (SMPs) serve as the basis for FTA's review of the state's program, provide public information on the state's administration of federal programs, and describe relationships between federal and state programs. As recipients and grant administrators of FTA funding, state DOTs may elect to combine more than one year of available funding into one grant to make a program more responsive and reduce administrative burden. Virginia DRPT's Section 5339 program is one such example. When a funding opportunity is available, DRPT solicits applications through a statewide public notice on its

website. State DOTs must adhere to federal program regulations and may elect to impose additional limitations on those programs.

State-funded matches for federal funding programs may help supplement a significant portion of local match requirements. As previously mentioned, while some state funding programs are unrelated to federal programs, others may be prioritized to be used as the state match for federal funding. For example, New York's State Omnibus and Transit Purpose Appropriation are designed to provide matching funds for Section 5311 and 5339 programs. Funding support from states reduces barriers for transit providers to access federal funding for projects. Besides Alabama, all states in the Appalachian Region contribute to local share either consistently or occasionally, depending on the availability of funds.

The National Transit Database's Funding Source Data Report provides a comprehensive overview of operating and capital funding sources used by rural transit providers that are subrecipients of Section 5311 program funds, a significant portion of which comes from federal, local, and state sources. Funding sources can be grouped into five categories:

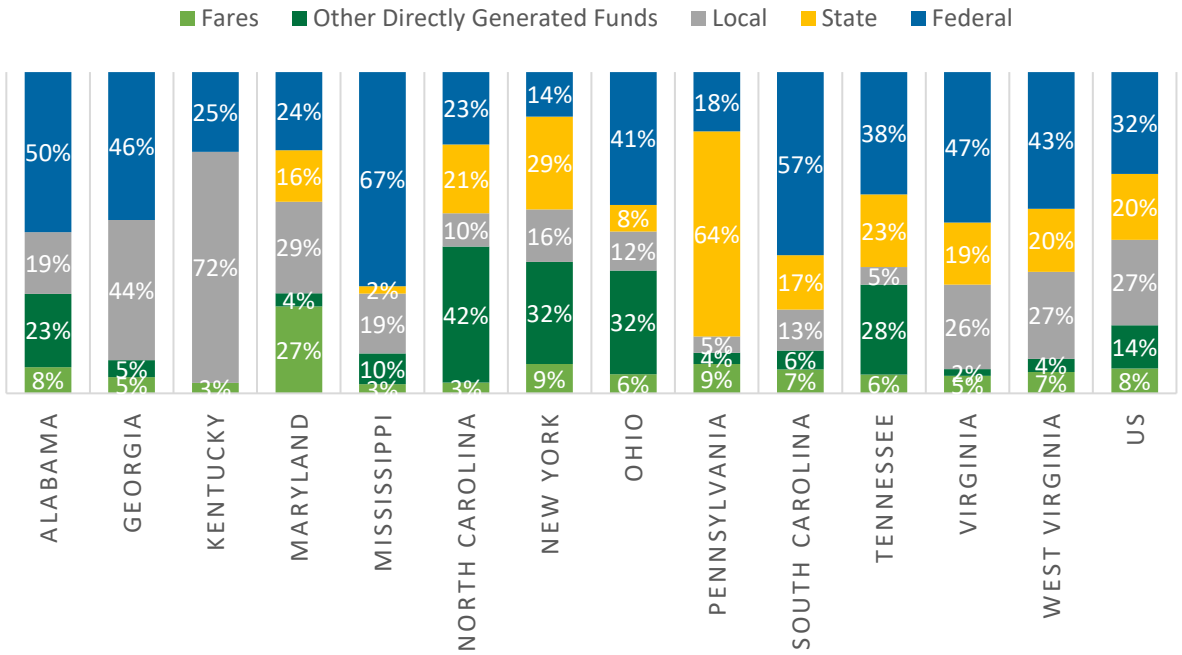
1. Federal: Financial assistance obtained from the federal government to assist with paying the costs of providing transit services.
2. State: Financial assistance obtained from a state to assist with paying the costs of providing transit services.
3. Local: Financial assistance from local governments below the state level to help cover the costs of providing transit services. It does not include funds generated directly by the transit agency.
4. Fares: All income directly earned from carrying passengers, including donations from those passengers who donate money on the vehicle, reduced fares paid by passengers in a user-side subsidy arrangement, or payments made through an agreement to provide fare-free service for a particular group.
5. Other directly generated: Any funds where revenues are generated by or donated directly to the transit agency, including advertising revenues, donations, bond proceeds, and taxes imposed by the transit agency. This excludes fares.

Figure 13 shows rural transit providers' operating funding sources, as reported to NTD, for each Appalachian state in FY2017, as well as the national average. On the national average, federal and local funding accounted for approximately 30% each, while state funding represented 20% of the total operating funding in that year. In the Appalachian Region, federal funding covered 50% or more of the operating expenses in Mississippi, Alabama, and South Carolina in FY2017. The share of federal funding in Georgia, Ohio, Tennessee, Virginia, and West Virginia was also higher than the national average during that period. In New York and Pennsylvania, on the other hand, federal funding accounted for less than 20% of the rural transit providers operating expenses, as reported to NTD. Pennsylvania had the highest state-funded contribution to operating expenses in the Region.

Figure 14 shows rural transit providers' capital funding sources, as reported to NTD, for each Appalachian state in FY2017, as well as the national average. On the national average, state and local funding accounted for slightly over 15% each, while federal funding represented over 65% of the total capital funding in that year. Except for Pennsylvania and Tennessee, federal funding accounts for 70% or more of all capital funding in states in the Appalachian Region. Pennsylvania has the lowest federal funding share and the highest state share, at 61% and 38%, respectively. All capital funding for rural provider subrecipients of Section 5311 funding in Kentucky in FY2017 came from federal sources. Kentucky and

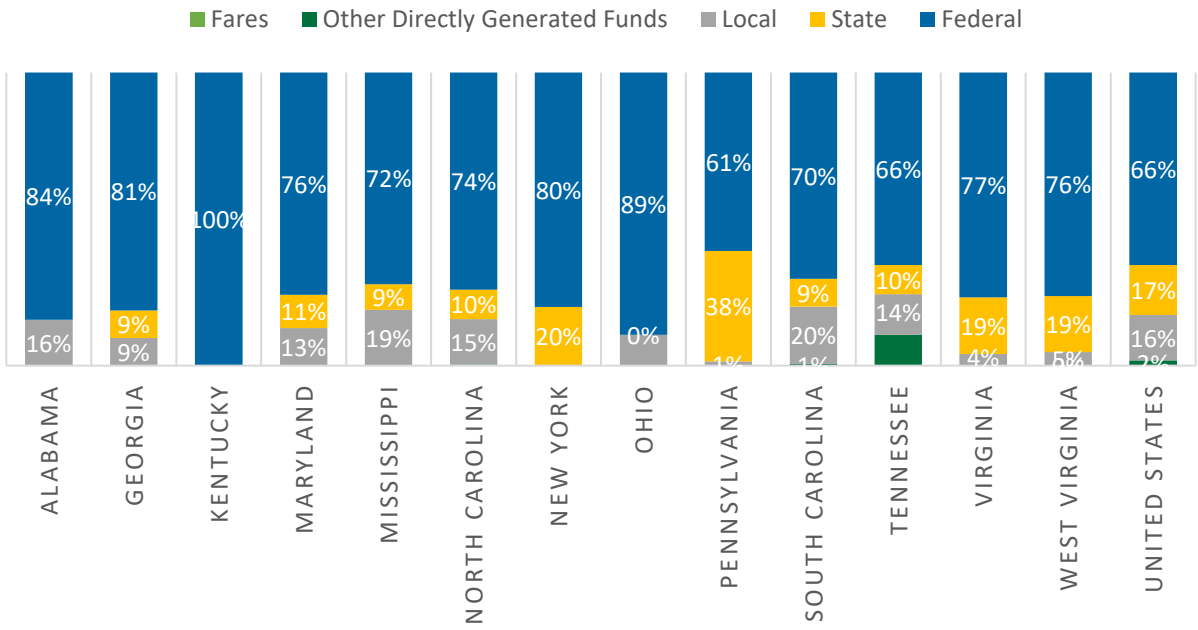
Alabama were the only two states in the Appalachian Region without any state funding for capital expenses reported by rural providers to NTD in FY2017. Kentucky offers state-funded matches to federal capital funding programs available to rural providers, despite those not being reflected on FY2017 NTD funding source figures.

Figure 13: FY2017 Rural Provider Funding Sources: Operating (as Reported to NTD), by State



Source: FY2017 NTD Funding Source Report

Figure 14: FY2017 Rural Providers Funding Sources: Capital (as Reported to NTD), by State



Source: FY2017 NTD Funding Source Report

3.3.4. Rural Transit Funding Information and Access

State DOTs in the Appalachian Region undertake varied strategies to communicate funding information and provide access to resources, summarized in Table 17. Ten out of the 13 state DOTs present funding information at conferences or meetings. Some state DOTs co-sponsor public transit association meetings, while others present at transit forums such as National Rural Transit Assistance Program training events, where transit providers are in attendance. All states use some sort of individual outreach as a means of communicating funding information, in which current recipients may be directly notified of opportunities. State DOTs generally have personnel dedicated as a liaison for individual rural transit providers or a region, ensuring regular correspondence and the ability to provide detailed guidance. Recognizing the transit opportunities that may follow a local administration change, Georgia and Alabama dedicate special efforts in individual outreach when new officials are elected.

Table 17: Funding Information and Access

State	Funding Information and Access					
	E-mail Notifications	Conference and/or Meetings	Individual Outreach	Webinar	Online Grant Mgmt. System	MPO/RPO Coord.
Alabama	✓		✓			
Georgia	✓	✓	✓			
Kentucky	✓	✓	✓	✓	✓	
Maryland	✓	✓	✓			
Mississippi	✓	✓	✓		✓	✓
New York	✓	✓	✓		✓	✓
North Carolina	✓	✓	✓	✓		✓
Ohio	✓		✓			✓
Pennsylvania	✓	✓	✓	✓	✓	
South Carolina	✓		✓		✓	
Tennessee	✓	✓	✓			
Virginia	✓	✓	✓	✓		
West Virginia	✓	✓	✓			✓

Source: Interviews with state DOT staff

Other strategies, listed by frequency of use, are online grant management system, MPO/RPO (metropolitan planning organization/rural planning organization) coordination, webinars, and e-mails. Online grant management systems provide a centralized location where all information is stored. State DOTs are also allowing e-mail submissions for grant applications. Alabama has mentioned that some providers continue to request paper applications, which suggests that some providers may not yet have the technological capacity for a full digital filing system. In some states, rural transit providers may work

closely with MPOs/RPOs that also assist in distributing information regarding funding opportunities. As for webinars, many states acknowledged the cost and difficulty in hosting in-person meetings for transit providers located in rural areas. Webinar sessions help state DOTs reach a wide audience at a minimal cost.

Some states practice unique strategies for communicating funding information to existing and potential subrecipients. North Carolina publishes grant guides for each of the programs, updated annually on its web portal. Both in-person and online opportunities are emphasized. For new applicants, Maryland has a separate orientation process to allow adequate time for extra guidance needed. When demand for new service arises in Kentucky, Kentucky Transportation Cabinet (KYTC) sends staff to visit interested communities. Staff meet with local stakeholders, explain how the grant process works, and help complete grant applications. Pennsylvania takes advantage of regional conferences where transit providers are already gathered to host one-on-one meetings with public transportation providers. During these conferences, providers in Pennsylvania are invited to schedule an appointment to discuss any issues and potential solutions. New York hosts peer-to-peer exchanges that focus on funding requirements for local matches—a topic that providers frequently report as being challenging.

3.3.5. Rural Transit Demand and Needs

Rural transit demands and needs were identified through state DOT interviews and statewide transit plans, when available. State DOTs reported different methodologies in identifying unmet transit needs. Many states reported that needs are identified during the planning or grant application process. States that frequently communicate with rural transit providers mentioned that service issues and opportunities are discussed on an ongoing basis during meetings, webinars, or workshops. PennDOT's one-on-one meetings held at regional conferences with transit providers is one such example. Tennessee requires all demand-response transit providers to keep trip denial logs. Tennessee DOT examines reasons behind trip denials and uses this information to understand gaps in service. Virginia reported using census data and coordinated human service plans to inform unmet needs, conducting feasibility studies based on this information. State DOTs recognize that local agencies may not always have the capacity to determine transit needs, and support is provided where necessary.

Several themes of demand and needs are consistent across most states in the Appalachian Region. Rural areas have a smaller, often lower-income tax base. Fares are often set with affordability for riders in mind, rather than maximizing potential farebox revenue. Transit providers often utilize a variety of sources to meet local match requirements for accessing federal funding, matching federal funds with revenue from trips provided through partnerships with human service organizations and contract revenue from non-emergency medical transportation (NEMT). In states where state funding is unable to supplement local match, transit providers depend more on local funding. However, Alabama is the only state that struggles to draw the full amount of federal funding available.

Shifting demographic trends have created a pressing challenge for rural transit. Many states have cited the widespread aging population as a key contributing factor to increased demand for transit. Often on a limited income, the elderly population is less likely to own vehicles, thereby more dependent on the availability of transit for day-to-day mobility. In service areas where clients are mostly composed of elderly riders, modifications of vehicles may be required to accommodate wheelchairs and/or medical equipment. The acquisition, modification, and maintenance of these vehicles are costly.

The continuous growth of Urbanized Area (UZA) boundaries is starting to spill over to areas that have been previously designated as rural. As Section 5311 funds must be used to support rural public transportation services, changes in rural-urban designation hinder transit providers' ability to reach riders in the newly Urbanized Areas. These zones, while incorporated as part of an Urbanized Area, remain sparsely populated, rendering fixed-route service unfeasible. This leaves a service gap for those who reside in newly urbanized zones. In Appalachian Tennessee, counties have been experiencing transit service loss as a result. In response, Tennessee budgeted $2,000,000 to fill the gaps temporarily. Based on TDOT's analysis of projected UZA growth, this issue is likely to become more common if it is left unaddressed.

Some states reported the need for flexible vehicle acquisition. West Virginia and Maryland's state DOTs cited the region's mountainous terrain, noting that allowing the purchase of four-wheel-drive vehicles would help agencies provide safer, more efficient service. Several rural transit providers in the Appalachian states also reported that the length of time it takes to acquire a vehicle hinders efforts to respond to increasing service demands quickly. Both state DOT officials and rural transit providers have acknowledged that the process and effort it takes to go through funding applications may, at times, overwhelm transit providers due to limited staff capacity. Strategies to assist rural transit providers in applying for funding vary greatly from state to state. All state DOTs staff a liaison person to engage directly with transit providers. Kentucky designates lead agencies to simplify grant processes in hopes of reducing paperwork for smaller systems. The consensus is that streamlined processes and guidelines regarding funding would help transit providers access resources more easily.

3.4. Transit Provider Survey

As part of this study, a web-based survey was distributed to transit providers that serve the counties in the Appalachian Region. The purpose of the survey was to understand the critical elements of each state's transit program and the challenges, needs, and best practices of transit providers in the Region. This section provides an overview of the surveying process and the number of respondents by state, and the survey results are summarized in the following section. A blank version of the survey form is contained in Appendix B—Transit Provider Survey.

The online survey used both multiple-choice and open-ended questions. Respondents could skip any question and add comments on select questions. The survey was divided into five sections:

- Transit provider information
- Transit funding
- Use of transit service
- Transit needs
- Challenges and best practices

State DOT staff distributed a survey invitation e-mail to transit providers in the Appalachian region of each state. The e-mail invitation described the purpose of the study and provided a web link to the survey. In two states, the survey was also distributed directly to transit providers by the consultant team.

The survey was available online from February 19, 2020, to April 3, 2020. The responses in the first three weeks represented most of the initiated surveys, and the survey period was extended for four more weeks to guarantee that providers from all Appalachian states participated. A total of 118 transit providers began the survey, and 85 providers completed it with valid responses, a completion rate of

72%. Table 18 organizes the number of survey respondents by state, and the complete list of respondents can be found in Appendix B—Transit Provider Survey.

Table 18: Surveys Initiated and Completed by State

State	Surveys Initiated	Surveys Completed
Alabama	6	5
Georgia	8	6
Kentucky	12	7
Maryland	2	2
Mississippi	2	2
North Carolina	19	10
New York	9	5
Ohio	7	5
Pennsylvania	23	20
South Carolina	5	4
Tennessee	3	3
Virginia	4	4
West Virginia	18	12
Region	**118**	**85**

3.4.1. Results Summary

Services Provided

Demand response is the most common type of service provided by respondents, followed by fixed-route and deviated fixed-route services. Table 19 shows the types of transit services that respondents with completed surveys provide. (Individual respondents may provide more than one type of service). The vast majority, 84%, offer demand-response service. Over 30% of respondents provide fixed-route service, and a similar percentage of providers offer deviated fixed-route service. Fifteen respondents listed mobility management as a provided service, which represents 18% of the sample. Commuter, intercity, flexible, and special transportation services were listed as other modes offered by respondents.

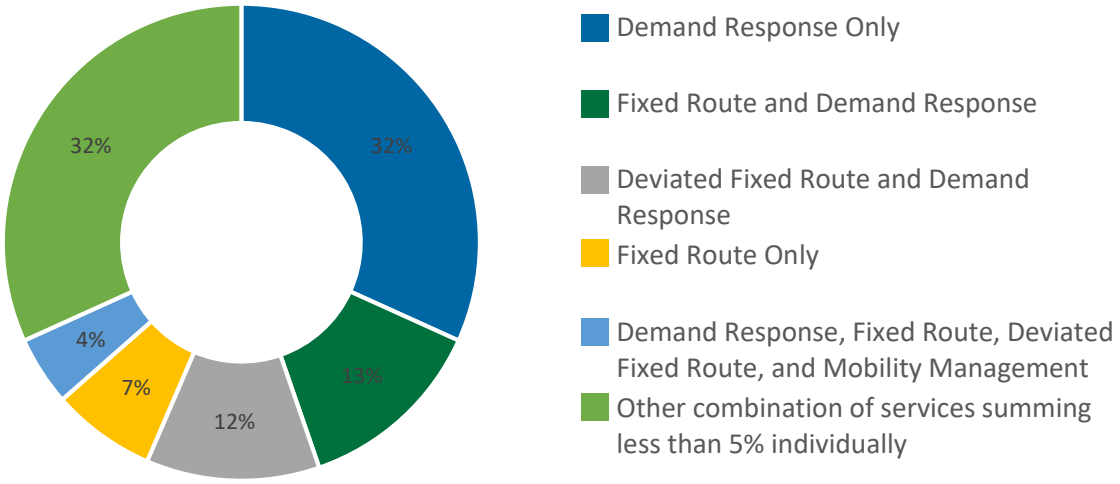
Table 19: Type of Service Provided

Type	Number of Providers	Percent of Providers
Demand Response	71	84%
Fixed Route	29	34%
Deviated Fixed Route	27	32%
Mobility Management	15	18%
Other	22	26%

Figure 15 shows the types of services that each respondent provides. Different from Table 19, which is organized by the type of service, Figure 15 is organized by providers and totals 100%. For 32% of the providers, demand response is the only mode operated. A quarter of the providers offer either fixed-

route and demand-response services or deviated fixed-route and demand-response services. For 7%, fixed-route service is the only mode operated. Four percent of the respondents operate fixed-route, deviated fixed-route, demand-response, and mobility management services. Over 30% of the respondents offer another combination of service types.

Figure 15: Types of Services Provided by Respondent



The majority of demand-response service provider respondents are open to the general public; slightly less than half (i.e., 34 of the 71 agencies) indicated if their services were open to the general public, if priority was given to certain groups, or if they were restricted to specific groups. Service is open to the general public in 82% of the cases, as shown in Table 20. Twelve percent of providers indicated that priority was given to certain groups, and 6% have their services restricted to specific groups. In all cases, priority or restrictions were based on age, disability, or place of residence.

Table 20: Demand-Response Eligibility

Type	Number of Providers	Percent of Providers
Anyone – it's open to the general public	28	82%
It's open to the public, but priority is given to certain groups	4	12%
Restricted to certain groups	2	6%

Transit Funding

Information collected about funding included amounts, sources, application information, and application resources. The survey captured operating and capital budgets and sources of funding according to the following categories:

- Fare revenue
- Local revenue
- State programs or grants

- Federal programs or grants
- Contracts or community partnerships
- Other funding

This study presents a comprehensive analysis of transit funding programs by state, and funding amounts and sources for each provider in the Region in Appendix D—Level of Service by Provider.

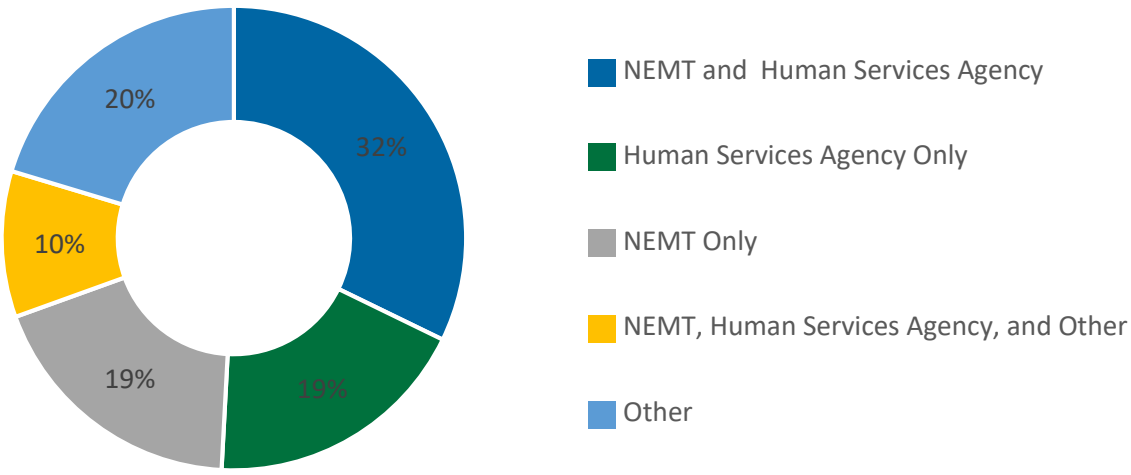
Contracts or community partnerships are a frequent and valuable source of revenue for transit providers in Appalachia, with more than 75% of respondents utilizing these as a funding source. Non-emergency medical transportation and human services agency contracts are the most common types of contracts, as seen in Table 21, which lists all the survey responses.

Figure 16 organizes the responses by provider and shows that 80% of them have one or both types of contracts as funding sources. Partnerships with local businesses are a source of funding for 9% of the respondents. Other types of agreements include contracts with higher education institutions, housing complexes, nursing homes, and hospitals.

Table 21: Type of Contracts or Community Partnerships

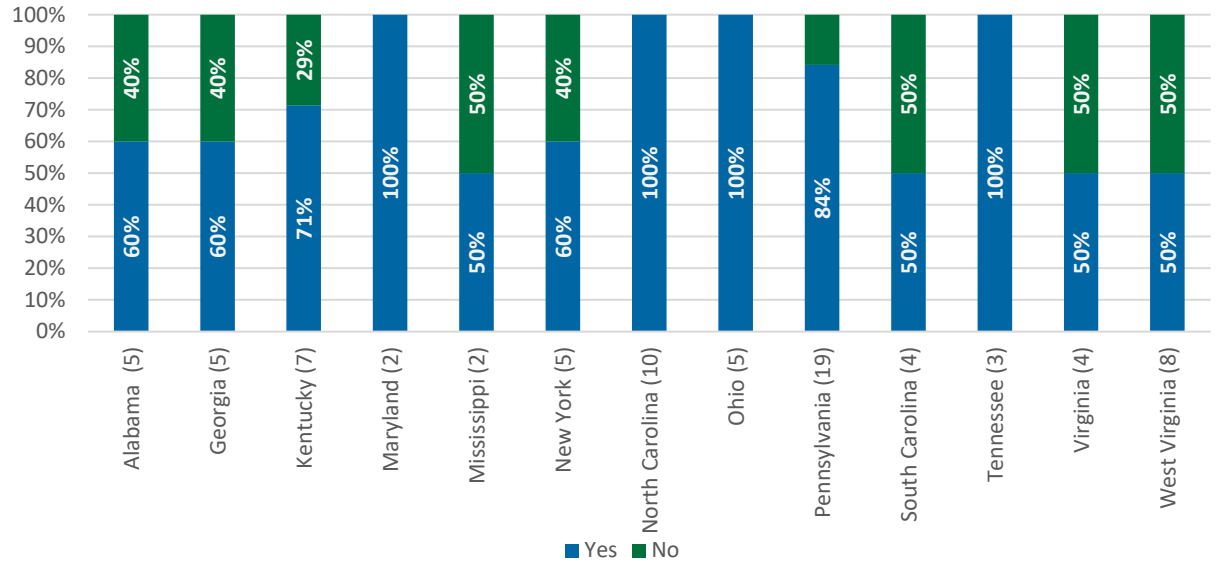
Type	Number of Providers	Percent of Providers
Non-emergency medical transportation	39	49%
Human services agency	42	53%
Local business (such as a shopping center)	7	9%
Other	15	19%

Figure 16: Contractual Revenue Types Received by Providers



Providers were also asked whether they received state funding and, if so, from which department that funding originated. Figure 17 indicates the percentage of providers that are funded by state programs or grants. All respondents in Maryland, North Carolina, Ohio, and Tennessee and over 70% in Kentucky and Pennsylvania are recipients of some sort of state-funded program or grant. Fewer transit providers in Southern Appalachia, Virginia, and West Virginia receive state funding (50% to 60%).

Figure 17: Survey Respondents Receiving State Funding by State



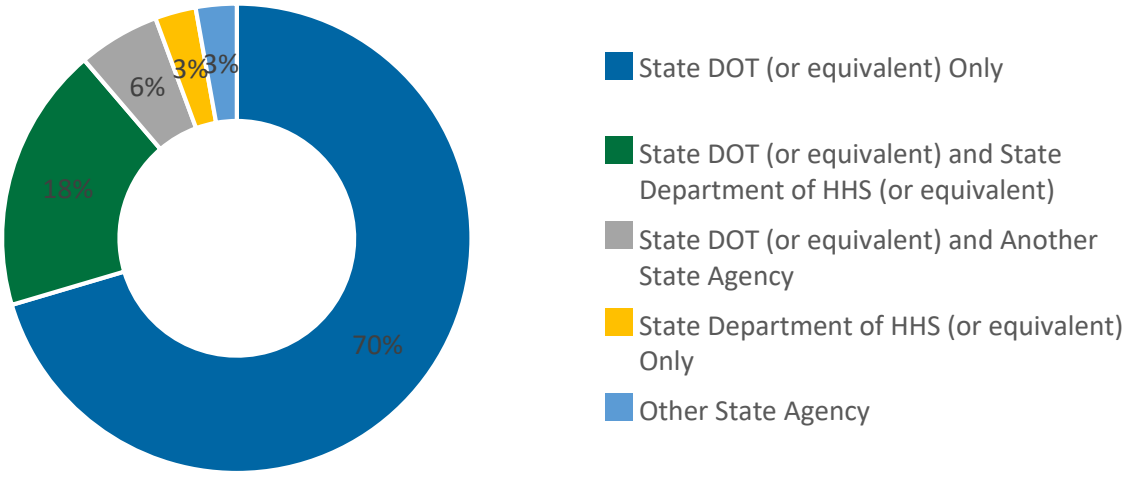
The total number of respondents by state (*n*) is indicated next to the state name in the horizontal axis.

The state DOT is the agency that provides the state-funded programs or grants for 85% of the respondents and is the sole agency providing state funds in 70% of the cases (Table 22 and Figure 18). State departments of health and human services or equivalent agencies also play an important funding role in Appalachia, providing state funds to 20% of respondents. Other state funding agencies include agencies on aging and departments of correction and vocational rehabilitation, and in terms of funding sources, the state lottery and the Older American Act were cited.

Table 22: State Agency That Provides the State Program or Grant

Type	Number of Providers	Percent of Providers
State DOT (or equivalent)	67	85%
State Department of Health and Human Services (HHS) (or equivalent)	16	20%
Other	6	8%

Figure 18: State Agency that Provides the State Programs or Grants



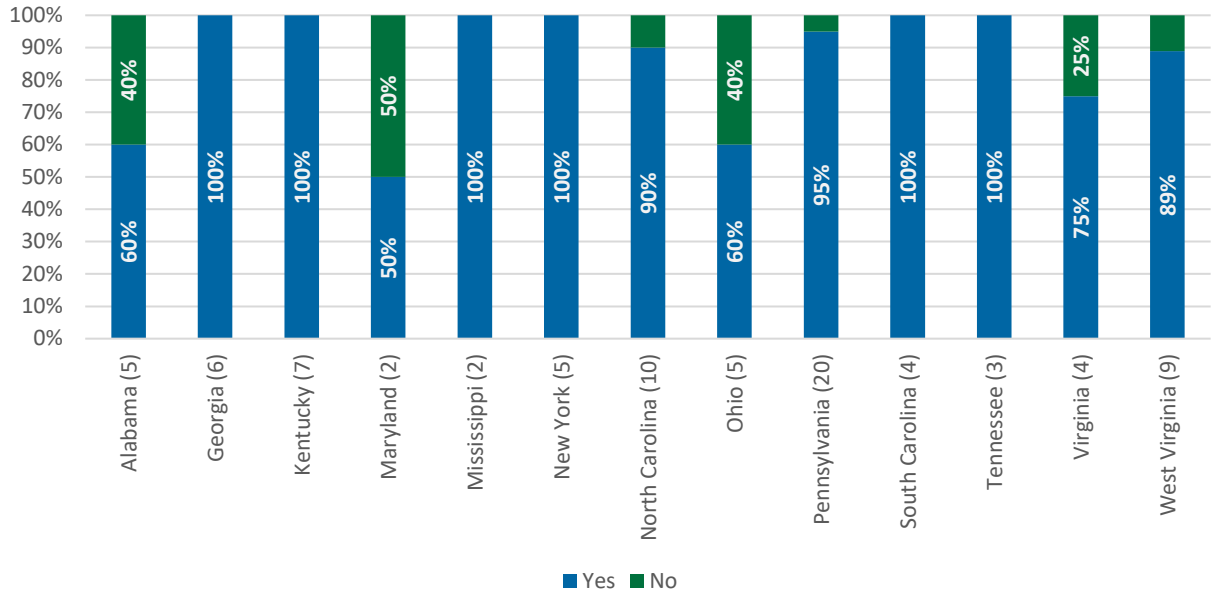
The role of state DOTs is even more critical to disseminating information and resources about funding, with 97% of respondents informed about grants and other funding sources through communication with state DOTs (Table 23). State DOTs websites and webinars are other notable resources available to transit providers. RPOs play a secondary role, but 45% of the respondents are informed about funding through communication with RPOs and 24% via RPOs' websites or webinars. Respondents also indicated FTA, Community Transportation Association of America (CTAA), and National RTAP websites and other regional and state organizations as useful sources of information.

Table 23: How Transit Providers Are Informed About State Grants and Other Funding Sources

Type	Number of Providers	Percent of Providers
Communications with state DOT (meetings, phone calls, e-mails, etc.)	74	97%
State DOT websites or webinars	47	62%
Communications with rural planning organizations (meetings, phone calls, e-mails, etc.)	34	45%
Rural planning organization websites or webinars	18	24%
Other	8	11%

Following the multiple-choice question about the communication of grant and funding opportunities, a "yes/no" question explored the sufficiency of available information about funding sources. Within the Region, 89% of respondents expressed having enough information and resources to apply for grants. At a state level, North Carolina, Pennsylvania, and West Virginia present similar rates, as seen in Figure 19. In Georgia, Kentucky, Mississippi, New York, South Carolina, and Tennessee, all providers indicated having enough information and resources to apply for grants. In Alabama, Maryland, and Ohio, on the other hand, the rate is much lower, ranging between 50% and 60%. Note that there are fewer transit providers in Appalachian Maryland in comparison with Appalachian Alabama and Ohio, and only two Maryland transit providers are represented in the survey.

Figure 19: Respondent Has Enough Information and Resources to Apply for Grants by State



The total number of respondents by state (*n*) is indicated next to the state name in the horizontal axis.

Use of Transit Service

The next question asked respondents to choose the top three most popular destinations in their service area. As seen in Table 24, medical centers or doctor's offices are among the top three most popular destinations of an overwhelming majority of respondents (96%). Numbers point to the relevance of medical and shopping trips for transit users in Appalachia. The third most popular destination overall is a social service provider, which illustrates the vital role of transit in providing access to basic needs in the community. Downtown and neighboring towns or communities were the next most common destinations, with 29% and 22% of respondents, respectively. The results indicate a smaller number of education and workforce trips when compared to medical and shopping trips.

Table 24: Top Three Most Popular Destinations Served

Destination	Number of Providers	Percent of Providers
Medical center or doctor's office	82	96%
Shopping center	72	85%
Social service provider	38	45%
Downtown	25	29%
Neighboring town or community	19	22%
Educational institution	14	16%
Business park	3	4%
Other	10	12%

Transit Needs

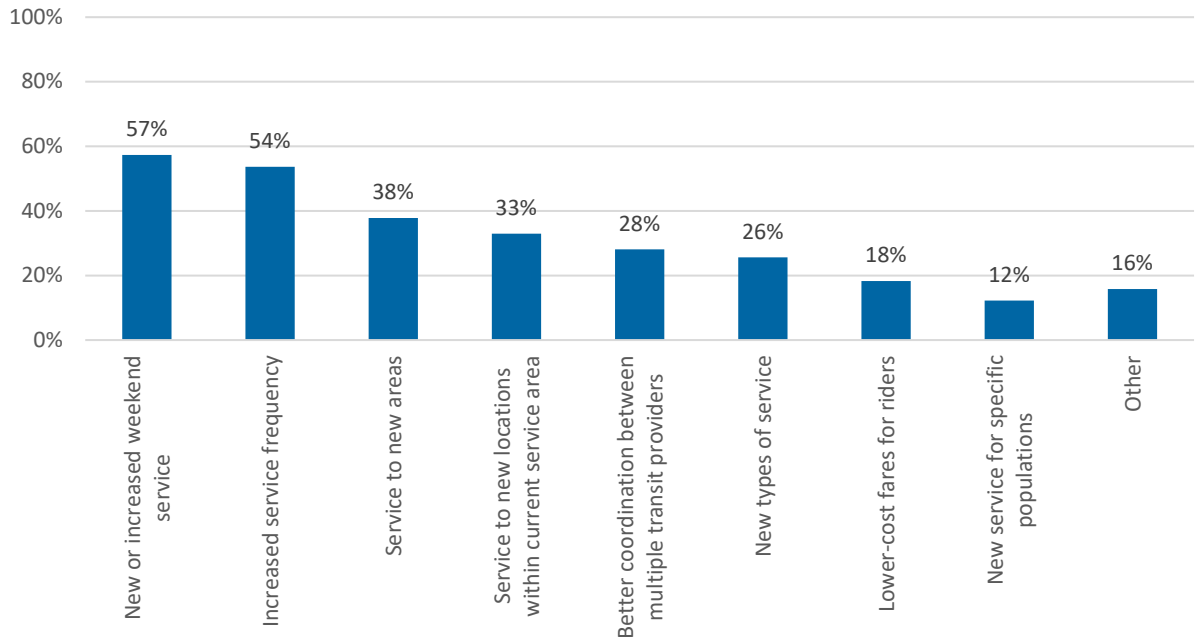
Transit needs were assessed under several lenses:

- A provider's ability to meet the needs of the community
- Potential improvements
- Issues preventing increases in service
- The development of financially unconstrained vision
- The use of customer surveys
- Technology adoption and needs

Overall, roughly half of the providers answered being able to meet the transit needs in their community. Funding is an issue for most providers with respect to potentially improving their level of service. Less than a third of respondents have developed a financially unconstrained vision for meeting transit needs in their service area. A large majority of providers utilize customer surveys, but most fail to capture information about access to private vehicles. Finally, scheduling software is the most widely adopted technology, while still figuring as one of the greatest technological needs.

A multiple-choice question invited providers to choose the top three measures that would improve their ability to meet the transit needs in their communities better. Most providers chose new or increased weekend service and increased service frequency, 57% and 54%, respectively (Figure 20). More than 30% indicated the need to serve new areas or new locations within the current service area. The fifth most popular solution, and the first not to include additional service, was better coordination between multiple transit providers.

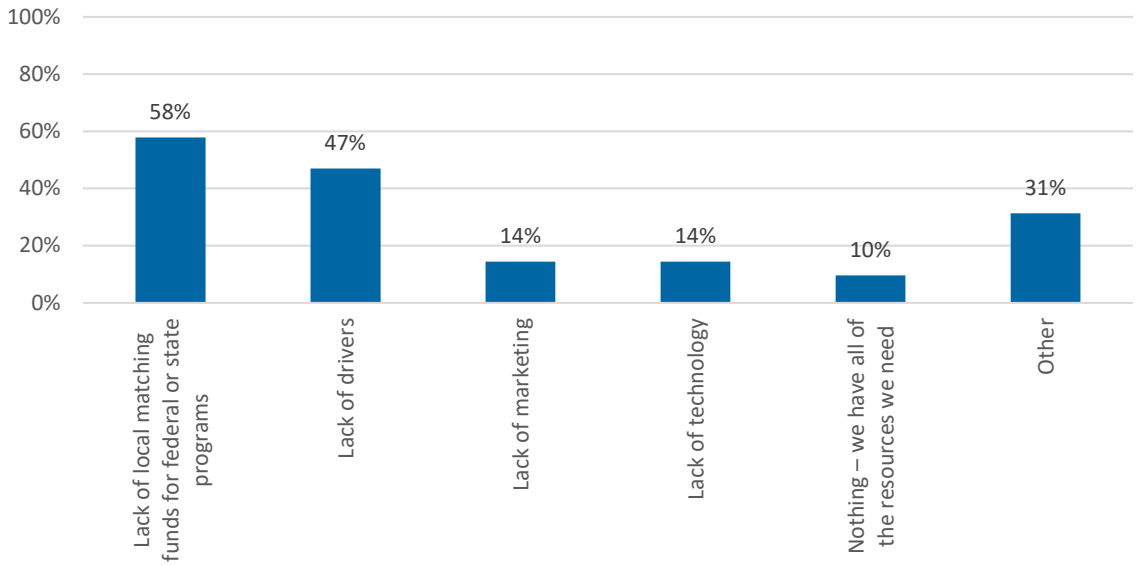
Figure 20: How Could Transit Better Meet the Needs of the Community



Aligned with the reasons preventing providers from meeting the need in their community are the issues preventing them from offering additional service. Lack of local matching funds for federal or state

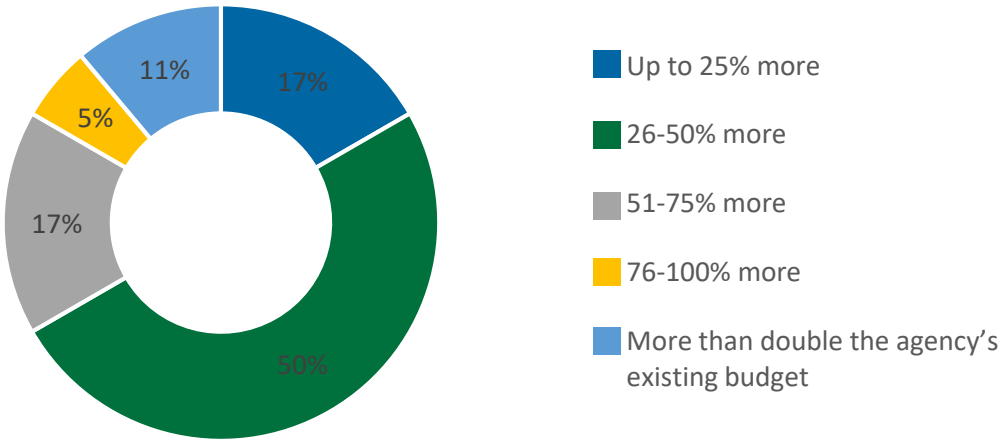
programs figures as the number one issue in the Region, cited by 58% of the providers, as shown in Figure 21. It is worth noting that over half of the problems categorized as other issues are related to funding. Lack of drivers is also a relevant concern for 47% of respondents. Lack of marketing or technology were both cited by 14% of respondents. Respondents also indicated fare collection technology, lack of coordination between systems, and lack of expertise in business planning as reasons preventing the provision of additional service. Finally, 10% of respondents reported that they have all the resources needed, and no additional service is needed.

Figure 21: Issues That Prevent Providers from Offering Additional Service



Only 32% of respondents have developed a financially unconstrained vision for meeting transit needs in their service area. Figure 22 shows how much additional funding would be needed to achieve a financially unconstrained vision. Half of the providers estimated that they would need another 26% to 50% of their current funding. Seventeen percent of providers estimated that they would need up to 25% more funding, and another 17% estimated they would need between 51% and 75% more funding.

Figure 22: Additional Funding Needed to Achieve Financially Unconstrained Vision



Most respondents, 79%, conduct customer surveys. Customer surveys are an effective means of communication with transit users and a potentially powerful planning tool for transit providers. Among the survey sample, 37% use customer surveys to capture information about access to private vehicles (Figure 23). Sixty-six percent of the respondents reported that they consider the lack of a reliable private vehicle a barrier to meeting transportation needs for a significant proportion of the population in their service area (Figure 24).

Figure 23: Agency Captures Information About Access to Private Vehicles as Part of the Customer Surveys

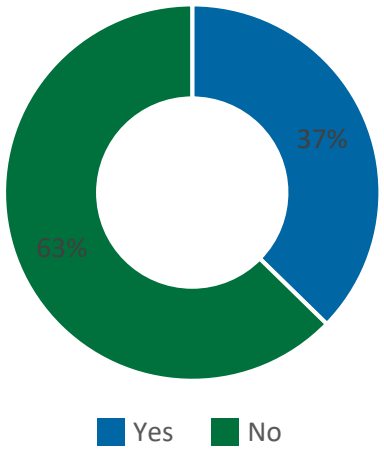
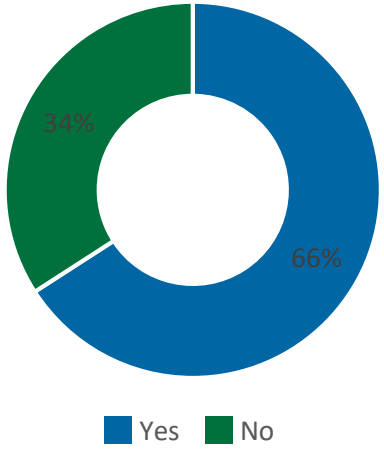
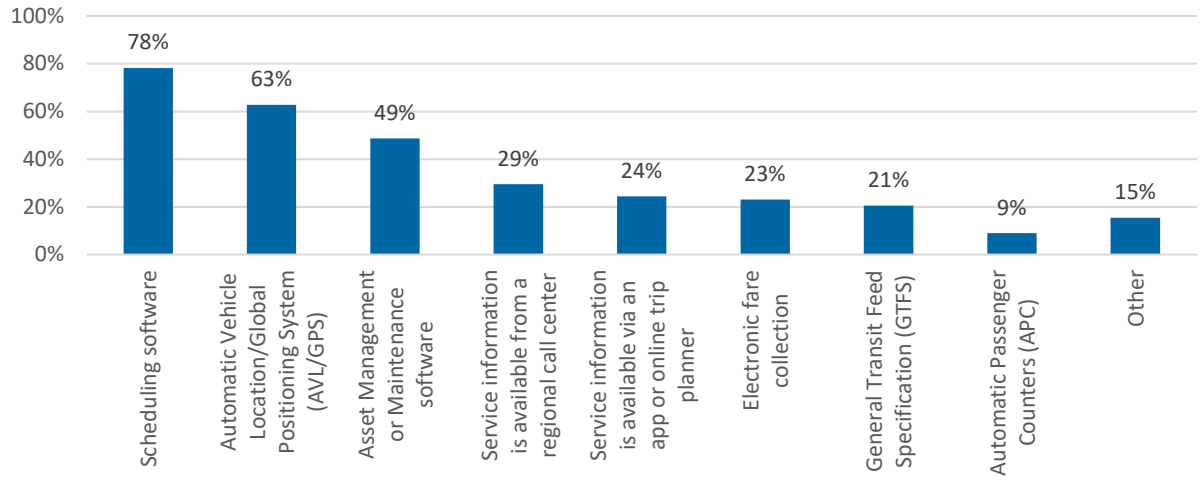


Figure 24: Agency Considers Lack of a Reliable Private Vehicle a Barrier to Meeting Transportation Needs



Respondent-reported rates of adoption of technology varied widely by the specific type of technology. As shown in Figure 25:, the vast majority of the providers, 78%, use scheduling software, while 63% also have their vehicles equipped with automatic vehicle location (AVL) and Global Positioning Systems (GPS) equipment. Slightly less than half of the providers make use of asset management or maintenance software. All other pieces of technology are adopted by less than a third of the providers. For service information available from a regional call center, application or online trip planner, electronic fare collection equipment, and General Transit Feed Specification (GTFS), adoption rates range from 21% to 29%. Some providers cited the ability to automatically remind customers of an upcoming trip reservation as a valuable tool in reducing “no-show” trips.

Figure 25: Technologies Adopted



An open-ended survey question aimed to capture the greatest transit technology needs in the Region. Answers were summarized and categorized as shown in Table 25. Less than 60% of survey takers responded to this question, but electronic fare collection equipment and scheduling software ranked the highest with 22% and 20% of the responses, respectively. In terms of fare collection, providers noted the desire for credit-card-enabled systems and other forms of electronic payments in addition to regular farebox equipment. Several providers that use scheduling software indicated that upgrading aging systems was their greatest technology need.

In most cases, funding is the limiting factor for technology upgrades, and Harrison County Senior Citizens' Center, Inc. in West Virginia mentioned that it would be helpful if the state could purchase scheduling software and make it available to providers statewide, for example. An online trip planner or smartphone application was among the most cited technology needs, and providers listed procurement, funding, and staffing as challenges in implementing these technologies. Multiple providers cited the need for devices such as on-board vehicle cameras, GPS, and tablets. Broadband and cell phone coverage were noted obstacles in some rural regions.

Table 25: Greatest Transit Technology Need

Technology	Number of Providers	Percent of Providers
Electronic fare collection	11	22%
Scheduling software	10	20%
App or online trip planner	5	10%
Automatic vehicle locators (AVL)	4	8%
GFTS/GTFS Flex	4	8%
Broadband/cell phone coverage	3	6%
Cameras	3	6%
GPS	2	4%
Tablets	2	4%
Other	5	10%

Challenges and Best Practices

Survey respondents were given the opportunity to provide information on what they considered to be their biggest challenges and best practices in an open-ended format. In terms of their biggest challenges, Table 26 illustrates that funding is the most common challenge cited by providers (47%). Respondents shared issues such as lack of capital and operating funding to maintain or increase service, lack of local funding and matching funds, low rate of fare recovery, and the rising cost of service provision and stagnant funding revenue. Almost 20% of respondents raised challenges related to characteristics of their service areas, including the low density of jobs and people, population loss, large geographic service areas, challenging mountainous terrain, poor road conditions, and few medical specialists in rural areas forcing customers to travel long distances to access health care. Challenges related to service planning operations involve a lack of qualified drivers, fleet availability, and scheduling, while service availability is mostly associated with the need for more service hours. For 5% of survey takers, improving brand awareness and ensuring that residents know that their service is open to the public are their biggest challenges.

Table 26: Biggest Challenges by Topic

Challenge Topic	Number of Providers	Percent of Providers
Funding	36	47%
Service area	15	19%
Service planning operations	9	12%
Service availability	8	10%
Marketing	4	5%
Other	5	6%

Best practice responses are summarized in Table 27.

Table 27: Best Practices by Topic

Best Practice Topic	Number of Providers	Percent of Providers
Service planning and operations	17	23%
Technology	17	23%
Service availability	13	17%
Marketing	9	12%
Fares	4	5%
Service area	3	4%
Other	12	16%

Service planning operations and technology solutions feature as the most cited best practices. Service planning and operations best practices include operational integration between providers, operational changes that improve productivity, and new service types. Service planning operation best practices include the following:

- "The County's existing deviated fixed-route services connect with two additional transit systems (ART and Haywood County). The County moved to eliminate fares on these routes to remove barriers to connections and service access. Ridership has grown exponentially and the loss of fares was not significant as the cost for counting and tracking fares administratively exceeded the revenue generated." [Buncombe County/Mountain Mobility, North Carolina]
- "As a result of passenger surveys, we revised fixed-route hand schedules to be more user-friendly. In conjunction with this, we trimmed underperforming routes and placed key personnel at the terminal to aid in explaining both the hand schedules and changes. Response (and ridership) has been positive." [Mid-County Transit Authority dba Town and Country Transit, Pennsylvania]
- "We removed three unproductive routes after analyzing ridership and expenses; we decided to offer a 'FLEX' service in place of fixed route by using shared-ride buses already in the area. This has saved approximately 7,000 miles/month and increased our trips per hour while still providing a service option for some of our rural riders." [Monroe County Transportation Authority, Pennsylvania]
- "We re-designed the fixed-route network and launched in July 2019. This increased bi-directional route mileage by more than 60%. We also re-designed all bus stop signage to provide more valuable information to our customers. Signs were installed to compliment the network re-design in July 2019." [Greenville Transit Authority (d.b.a. Greenlink), South Carolina]

Technology-based best practices include scheduling software and the adoption of smartphone applications geared towards improving users' access to transit information. Respondents shared examples of statewide adoption of scheduling software, electronic fare collection systems, AVL and GPS technologies, on-board vehicle and bus stop cameras, one-click/one-call services, and automated calling services for trip information. Twenty-three percent of the best practices are technology-based innovations.

Service availability and marketing solutions were cited as best practices by 17% and 12% of providers, respectively. Best practices associated with service availability included extended operating hours, same-day service, and weekend service. Marketing best practices include a robust social media presence, outreach program expansion, and service rebranding. Other best practices included the adoption of free fares, service area expansion, and new community partnerships.

3.5. Transit Provider Interviews

3.5.1. Introduction

Sixty-six transit provider survey respondents expressed interest in participating in in-depth follow-up interviews. Participants were selected from the 13 Appalachian states to assure geographic representation among interviewees. Interviewees were also chosen based on their survey responses, so interviews could explore selected themes in detail. The interview questions for all interviewees covered funding, particularly the Appalachian Development Public Transportation Assistance Program (ADTAP), and economic development questions, but also included specific questions related to the transit

providers' survey responses. Fourteen respondents participated in additional 30- to 60-minute interviews (Table 28).

Table 28: Interview Participants

Provider Name	Provider Type	Provider Organization Type	Mode Types
Northwest Alabama Council of Local Governments (Alabama)[6]	Small Urban	MPO, COG or Other Planning Agency	Demand Response, Demand Response – Taxi
Catoosa County (Trans-Aid) (Georgia)	Rural	City, County or Local Government Unit or Department of Transportation	Demand Response
Harlan County Community Action Agency, Inc. (Kentucky)	Rural	Private-Non-Profit Corporation	Demand Response
Garrett Transit Service (Maryland)	Rural	City, County or Local Government Unit or Department of Transportation	Demand Response
Northeast Mississippi Community Services, Inc. (Mississippi)	Rural	Private-Non-Profit Corporation	Demand Response
AppalCART (North Carolina)	Rural	Independent Public Agency or Authority of Transit Service	Fixed Route Bus, Demand Response
Western Carolina Community Action – WCCA Apple Country (North Carolina)	Rural	Private-Non-Profit Corporation	Fixed Route Bus, Demand Response
Tompkins Consolidated Area Transit (TCAT) (New York)	Small Urban	Private-Non-Profit Corporation	Fixed Route Bus, Demand Response
Coshocton County Coordinated Transportation (Ohio)	Rural	City, County or Local Government Unit or Department of Transportation	Deviated Fixed Route, Demand Response, Mobility Management
Monroe County Transportation Authority (Pennsylvania)	Small Urban	Independent Public Agency or Authority of Transit Service	Fixed Route Bus, Demand Response, Demand Response – Taxi
Greenville Transit Authority (d.b.a. Greenlink) (South Carolina)	Urban	Independent Public Agency or Authority of Transit Service	Fixed Route Bus, Demand Response
Southeast Tennessee Human Resource Agency (SETHRA) (Tennessee)	Rural	Independent Public Agency or Authority of Transit Service	Demand Response
Mountain Empire Older Citizens Transit (MEOC) (Virginia)	Rural	Private-Non-Profit Corporation	Demand Response
Harrison County Senior Citizens' Center, Inc. (West Virginia)	Small Urban	Private-Non-Profit Corporation	Demand Response

3.5.2. Results Summary

The interviews captured the experiences of public transportation providers spanning rural, small urban, and urban areas. For providers that began as social service agencies, their origin shapes the services they provide today in a variety of ways (e.g., the provision of free fares and other community services).

[6] The Northwest Alabama Council of Local Governments is one of ARC's local development districts (LDDs) in Alabama.

Interviewees provided an overview of their service areas, including terrain, land use, densities, and employment centers, and explained how these elements impacted their service. Several agencies also discussed the impact of census designations that classify them as being part of a metropolitan area in another state or as having parts of their service areas that are rural and parts of their service areas that are urban. These designations dictate the federal funding sources available for the agency and can pose challenges in the provision of service. This section summarizes key findings from the individual interview summaries and identifies trends among the interviewed providers.

Economic Development

Public transportation providers spoke at length about how transit can connect people and jobs and boost economic development and opportunity. Some passengers use public transportation for their commutes. However, for many providers, it is difficult to accommodate round-trip commutes because work schedules don't always overlap with the agencies' operating schedules. Increased funding may make it possible to expand hours of service to accommodate workers, although there are challenges to expanding service. Firstly, agencies would need to assess the demand for expanded operating hours to accommodate workers. Garrett Transit Service in Maryland, for example, expanded its service into the evening but did not notice much of an increase in ridership after the expansion and is unsure that the cost of adding service justifies the current level of use. Secondly, extending service hours would also require agencies to hire more drivers, operate more vehicles, and require more administrative staff to coordinate.

The presence of jobs in a particular region needs to overlap with employees that would access them via transit even if the agency's hours overlap. In some jurisdictions, transit is not a choice for commuters without access to private vehicles. Individuals without access to a car may need to walk miles to get to the closest bus stop. Northeast Mississippi Community Services partnered with Mississippi DOT to procure two large coach buses that seat 45–50 people to provide a fixed-route, commuter bus service. This service would pick up riders at a park-and-ride stop and take employees to a growing area of manufacturing and industrial parks. These parks are home to the highest-paying jobs in the county but can be 30–40 miles away for some employees. Western Carolina Community Action (WCCA) Apple Country, in North Carolina, is already active in employment transportation, as 50% to 60% of their fixed-route passengers are commuters. If the agency had dedicated funding, they would be able to start a route for commuters traveling from a rural area in the county.

Even if there is demand, there may not be any funding to accommodate service expansion for commuting trips. Most providers would take advantage of a funding source dedicated to workforce and job training transportation, but the funding also needs to be sustainable. The providers would not want to apply for grants, create a new service based on that funding, and then have to cut the service if the funding becomes unavailable after a few years. Monroe County Transportation Authority, in Pennsylvania, discussed the extra administrative burden of previous welfare-to-work programs. The provider felt that administering these programs distracted them from their main goal of providing public transit services on fixed and shared routes since they were also required to process taxi reimbursements and coordinate services. Greenlink, SETHRA, and AppalCART mentioned JARC and how their services generally dissipated over time once the funding ended, and they also acknowledged the extra logistical burden that is tied to these funds.

Funding

Interviewees touched on several aspects of funding, including the grant application process, capital and operating costs, and the need for sustainable funding sources. Not all of the providers interviewed were familiar with ADTAP; however, those that were familiar expressed how important it was to their agencies—even though the funding amounts did not tend to be large on a per-agency basis. Monroe County Transportation Authority explained that the amount of available funds wasn't necessarily the challenge they face, but rather that it is difficult to understand all the available funding sources, how they work together, and their requirements. In this example, the provider's fixed-route service received funding from eight different sources, and their demand-response service from six. Working with several sources requires a thorough understanding of the interplay between, and limitations of, these disparate sources. Most agencies do not have a dedicated grant writer, and it takes a significant amount of time to research available funding and prepare the applications.

Funding for capital costs also created some difficulties. Harrison County Senior Citizens' Center, in Kentucky, explained their experience with applying for funding to cover new vans. This provider explained how expensive the operation, maintenance, and repairs are for the older vans in their fleet and the difficulty of increasing their fleet size. Funding can limit what types of vehicles are available, which in turn impacts operations and maintenance costs. Coshocton County Coordinated Transportation, in Ohio, for example, needed to send a 12-passenger shuttle to collect just one motorized wheelchair user because their other vehicles cannot accommodate larger, powered wheelchairs and mobility devices. When they applied for a grant to address this, the grant was too competitive, obtaining a local match was difficult, and the application was rejected. Several other providers expressed the difficulty of securing local matches because some of their jurisdictions have limited budgets. Several states also do not provide funding for transit, which makes it hard to get any kind of match even if a provider were eligible to apply for specific grants.

Several providers have creatively evaluated their revenue models. Mountain Empire Older Citizens (MEOC) Transit, in Virginia, is one example; they paired NEMT rides with other trips with similar destinations to make efficient use of available funding. NEMT funds, which provide a higher per-trip fare than regular fares, are also used as part of the local match. In Greenville, South Carolina, Greenlink is interested in increasing the frequency of service that would almost double operating costs. They are currently evaluating funding options that other providers have used, including a local sales tax (although much of this source would probably go to highways), partial funding from vehicle license and registration fees, and multi-county special tax districts.

Fares

A handful of providers that participated in the interviews did not charge formal fares. In Catoosa County, Georgia, for instance, Trans-Aid's service had always been free since inception; operating costs were supported by local funds. Harrison County Senior Citizens' Center is a donation-based service for local destinations but charges a fee for out-of-county trips. This revenue source, however, does not cover the cost of service, particularly when older, ADA-accessible vans are used and travel 10,000 miles per month given the agency's wide-reaching service area. In Kentucky, Harlan County Community Action Agency offers free transportation to veterans and provides free service to community partners by taking nursing home residents on outings or assisting the county government with free transportation for events. AppalCART, a fare-free provider primarily serving university students, noted that if they were to start charging fares, students would need to show their IDs at the time of boarding, the drivers would need to

make change for non-students, and fareboxes would have to be installed. The agency originally became fare-free in 2005 based on student ridership, ease of operations when drivers didn't need to make change, and the barrier to technology since swiping or scanning might not be accessible to everyone. AppalCART also highlighted that what the agency would have made in fares would not justify the additional cost of adding fareboxes and counting fare revenue every day. The university provides 90% of local funding, and the agency provides extra services for them (routes for graduation, ADA services on campus, and bus service on football day games).

Infrastructure

When expanding service or upgrading the system, providers specifically mentioned challenges with stops and amenities. Greenlink expanded service and noted that the process for siting and building physical bus stops and shelters added time to their project and required additional approvals, sometimes from private property owners. They also explained how their bus stops were not easily identifiable because the previous signage was inadequate. The agency's updated signage, which includes agency logos and bus stop ID numbers, have clearly marked bus stops and helped riders track their buses online in real-time.

Operations

Interviewees shared several successes in improving operations. Harrison County Senior Citizens' Center developed a transportation policy that provides instructions on how to use the service, including guidelines, contact information, and what to do if vehicles are late. The policy also outlines appropriate behavior that the director can reference when conducting personal outreach or discussing problems with clients. The document also lists the fees for transportation out of the county. The provider has also asked passengers if they can move medical appointments to closer facilities instead of needing a longer trip to a larger town, but the provider will take them even if they need to travel that distance.

WCCA Apple Country provides transit service in Henderson County, North Carolina, south of Ashville, and, along with Asheville Rides Transit (ART), developed a program to allow passengers to transfer between the two systems. The two providers meet at the Asheville Regional Airport right on the county line. One of WCCA Apple Country's three routes connects the city of Hendersonville to the airport, where it meets the ART route S3. Meeting in the middle, they exchange riders who benefit from the expanded service area that this exchange creates. This program includes paratransit service. In this arrangement, ART is fare-free while WCCA Apple Country charges $0.75 and is evaluating charging $1 to expedite the boarding process.

Monroe County Transportation Authority modified the types of services provided in response to changes in rider demand. The provider had a route in the western end of their large county that experienced a decrease in ridership for years. The route ran a lot of miles with few riders and had become a cost burden that took away from other, more productive services. The agency eliminated these two fixed-route buses due to poor ridership and replaced them with their existing shared-ride service that was already operating in other parts of their service area. Early figures show that switching from a bus to a smaller vehicle and utilizing a shared-ride model has saved the agency an average of 5,500 miles per month. This service also saves the provider the cost of a driver, a heavy-duty bus, fuel, and maintenance, which were required for the former, less productive service.

Technology

Providers expressed some common concerns about technology but also identified ways in which the use of technology could improve their work. Among the main concerns is the cost involved in implementing and maintaining some technological solutions. If providers receive grants to cover the capital cost of adding technology, they also need to guarantee a revenue source to cover recurring licensing and maintenance fees for the system. In terms of staff expertise, ideally, employees would know how to use the technology, but training on the use of technology can be in short supply. For example, AppalCART expressed a need to have a dedicated GIS and data analysis expert since NCDOT has a data-driven process that compares their transit request for capital project funding against highways, sidewalks, airports, and rail projects across North Carolina. The provider finds that the information they need comes from GIS and considers a GTFS feed essential. They usually employ an apprentice from the Appalachian State University to work with GIS, but they also have to replace this person on an annual basis.

Several providers explained their routing process, how their drivers are impacted, and how tablets could help them improve. At Northwest Alabama Council of Local Governments, drivers pick up a physical list of their stops the night before or the morning of all their trips for that day. In some instances, the providers also print out paper maps for their drivers. If there are any changes to the stops, the dispatchers must record them and inform the drivers. A tablet would be an ideal solution because it would inform the driver and be used as a tool to provide real-time updates. A tablet would also enable an agency to track its drivers, provide updates to customers, and allow them to accept more than just cash as payment. The provider has noticed that riders may start with one driver on their trip to their destination and then change to another on the way home. Currently, the drivers must check in with each other to make sure the fare has been paid. Tablets would alleviate this problem. However, one area of concern is that many of the provider's drivers are older, and there would likely be a learning curve with implementing new technology.

Interviewees also mentioned other technologies, including cameras and smartphones. Trans-Aid and Harlan County Community Action Agency had or were in the process of adding cameras on their vans, which they found helpful to protect riders and drivers. In some service areas, riders tended to have smartphone access, and providers were interested in conducting on-board rider surveys through smartphones. Providers were also interested in sharing real-time information, enabling passengers to know the location of their ride.

Driver Recruitment

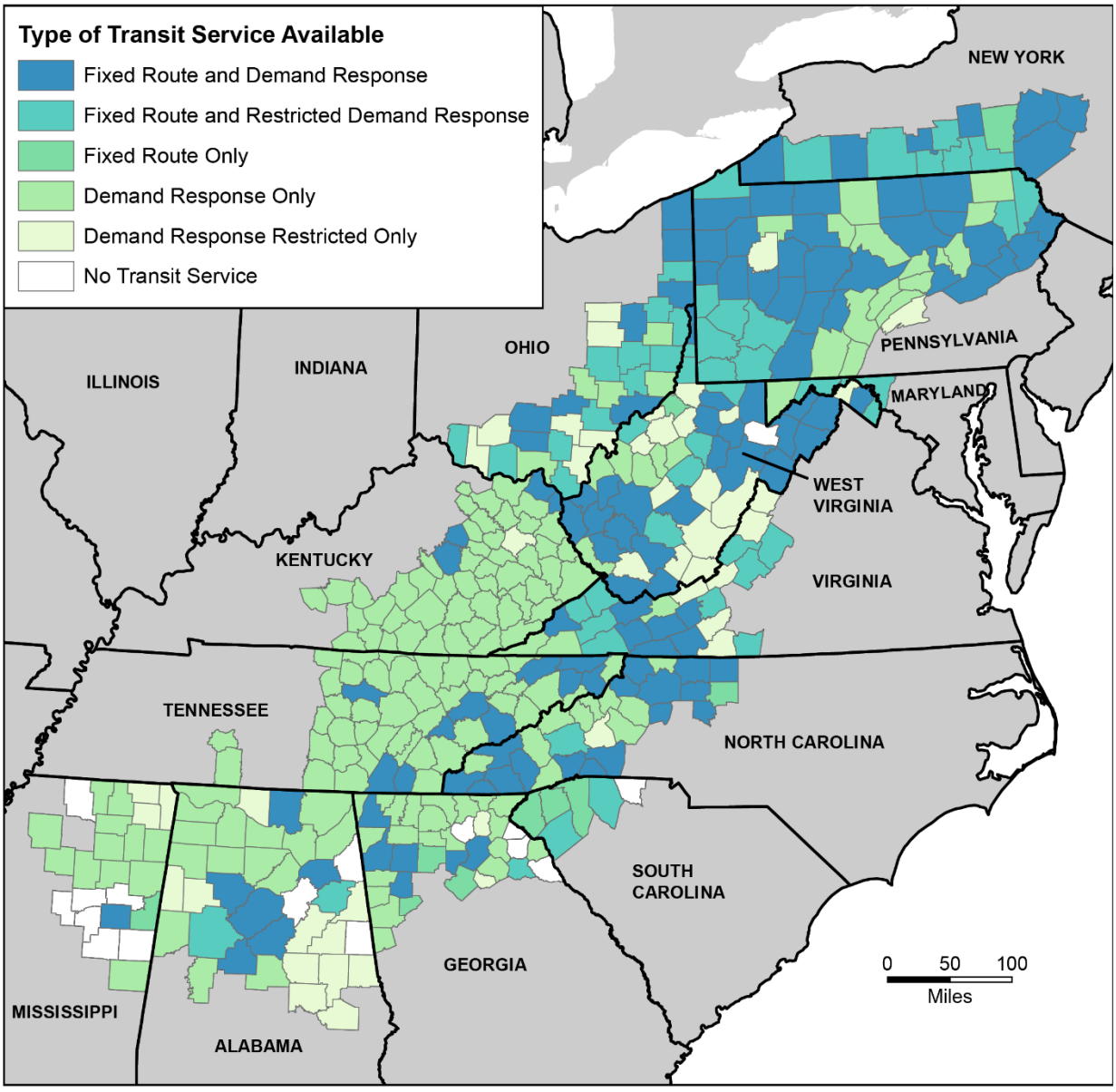
The ability to recruit drivers varied across the interviewed providers. Coshocton County Coordinated Transportation noted that with the Section 5311 funding they were granted for the first time in 2019, they were able to offer full-time positions at rates above minimum wage to their previously part-time drivers. For the Northwest Alabama Council of Local Governments, low unemployment rates and competing employers made it difficult to recruit drivers. AppalCART has difficulties finding drivers in a community with a small population that includes many retirees, and, despite the proximity of Appalachian State University, are unable to find college students interested in driving buses. Providers also noted that $15/hour was not competitive for someone with a commercial driver's license.

4. Rural Transit in the Appalachian Region—Services Provided

4.1. Introduction

This section provides an overview of the public transit services available in the Appalachian Region. An inventory of fixed-route services in the 13 Appalachian states was compiled using publicly available GTFS, and additional data gathered from transit agencies, which allowed for the creation of additional needed GTFS files. An inventory of the demand-response services was developed using the NTD database, reviewing Coordinated Human Services Plans (CHSP), and cross-checking information gathered through interviews with state DOT staff and lists of transit providers available online. Figure 26 depicts the types of services available in Appalachian counties.

Figure 26: Types of Transit Service Available by County



Most counties in Appalachia have access to public transit to some degree; however, it should be noted that while most counties may have some transit available, the level of service is limited (e.g., one bus trip a week, or weekday service only). All counties in Northern and South-Central Appalachia have transit; Appalachian New York is the only state where all counties have fixed-route systems. Tennessee is the only state where the entire Appalachian region is served by demand-response service open to the general public.

Overall, in the entire Region, almost 30% of the counties are served with fixed-route and demand-response services open to the public, and 43% of counties have demand-response services open to the general public without eligibility restrictions. There are ten counties that have only fixed-route service open to the general public, and an additional 52 counties that have fixed-route services open to the public and demand-response services that are only available for use by persons who meet specific eligibility criteria. All counties without transit service are in Southern Appalachia, except one. Appalachian Mississippi has the largest number of unserved counties. In over 10% of the Appalachian counties, a total of 47 counties, transit service is only available to specific groups of the general public. That is the case in multiple counties in West Virginia and Appalachian Ohio and Alabama.

Fixed-route transit service runs on a schedule along a predetermined route to scheduled stops using buses, trains, and other modes of transportation.[7] Fixed-route transit service is typically associated with more densely populated areas, as these are more likely to have the passenger demand necessary to support such services. However, fixed-route transit exists in counties of all density levels, including rural counties in the Region.

In the Appalachian Region, 185 counties have fixed-route service of some kind. This number includes counties where an agency providing fixed-route service is based, as well as counties served by an agency in another county. For 178 of the counties, detailed information about fixed-route transit services was available from GTFS files and used to provide an in-depth analysis of times of day and days of the week when service is provided, as well as the availability of transit to households, access to jobs via transit, and other transit and travel-related metrics. Appendix A—State DOT Program Summary contains a profile of each fixed-route transit provider in the Region with information from its GTFS file and NTD data reports, including the following:

- Agency information
- Service area
- Level of service
- Service metrics
- Performance metrics
- Fleet metrics
- Funding information

Demand-response service is the most prevalent form of transit in the Appalachian Region, with the type of service provided taking various demand-response service model forms, ranging from deviated fixed-

[7] Several variants of fixed-route transit service exist but are not distinguished in this report. For example, some agencies will operate fixed-route services that deviate from their route to pick up and drop off passengers within a short distance from the route.

route services in areas with more activity generators to curb-to-curb flexible services with no predetermined route alignment, which operate in the more rural parts of the Region. Many demand-response service providers can be categorized as human service agencies. These providers offer lifeline transportation services to their communities, connecting residents to health care, grocery shopping, day-care services, and more. In some instances, these services are only available to select riders: senior citizens, passengers with mobility needs, or passengers with a specific health condition.

This study organized an inventory of 374 rural and human service agency demand-response providers that serve 381 of the 420 counties in the Region. Coordinated Human Services Plans (CHSPs) typically include information from all the available demand-response services provided in an area covered by the plan, as inclusion in the plan is a requirement for projects to receive funding under FTA's Section 5310 funding program. These plans include services that are open to the general public as well as those restricted to certain groups, and sometimes even services restricted to members of an organization or private services of a housing complex or nursing home. The compiled demand-response service inventory database consists of services that are either open to the general public or restricted to certain groups of the general public and includes the following:

- Agency name
- Service area (counties served)
- Days of operation
- Span of service
- Advance reservation requirements
- User requirements

4.2.Fixed-Route Transit Service

Fixed-route transit services are examined in three parts in this document. First, through the analysis of recent trends, the supply and demand of fixed-route transit and differences in rural and urban systems are discussed. Then, the availability and level of services in Appalachian and non-Appalachian counties are compared and analyzed. Finally, several metrics explore access to fixed-route service in the Appalachian states highlighting the percentage of jobs and workers near fixed-route transit and how access to that type of transit in Appalachia compares to the rest of the Appalachian states considering household income and vehicle ownership.

4.2.1. Recent Trends

Agencies report aggregate data about their services, funding sources, performances, and other information to the National Transit Database (NTD). In 2017, 635 urban and rural agencies in Appalachian states reported to NTD. Agencies in this section of the report are categorized as urban or rural based on whether the agency receives funding from FTA's Section 5307 grant program (urban) or the Section 5311 grant program (rural). An agency's status as an urban or rural reporter to NTD may change over time. For the following trends, values for urban and rural providers are based on how agencies were classified in each year. For instance, data for the Baldwin County Commission (NTD ID 4R01-40928), in Alabama, is reported in the rural category in the years 2012 through 2015 and in the urban category in subsequent years. From 2012 to 2017, less than 3% of agencies in Appalachian States switched between categories, largely from rural to urban. These changes may affect the comparison of urban and rural reports over time in the metrics discussed below. Demand-response services, including taxi and vanpool services, are excluded from the trends discussed in this section.

Over the last five years, fixed-route service within the Appalachian states has experienced an overall increase in revenue miles and revenue hours, as illustrated by Figure 27 and Figure 28, but has experienced an overall slight decrease in passenger trips, as shown by Figure 29. Revenue miles experienced a slight decrease from 2016 to 2017, but still show a clear upward trend over the five-year period. Revenue miles and hours have increased at similar rates, while passenger trips peaked in 2014 and experienced slight decreases from 2014 to 2015 and 2016 to 2017. These figures represent data from urban and rural providers from Appalachian states and, therefore, include urban and rural providers that are outside of the boundaries of the Appalachia Region.

Figure 27: Total Revenue Miles for Fixed-Route Service (All Counties in the Appalachian States)

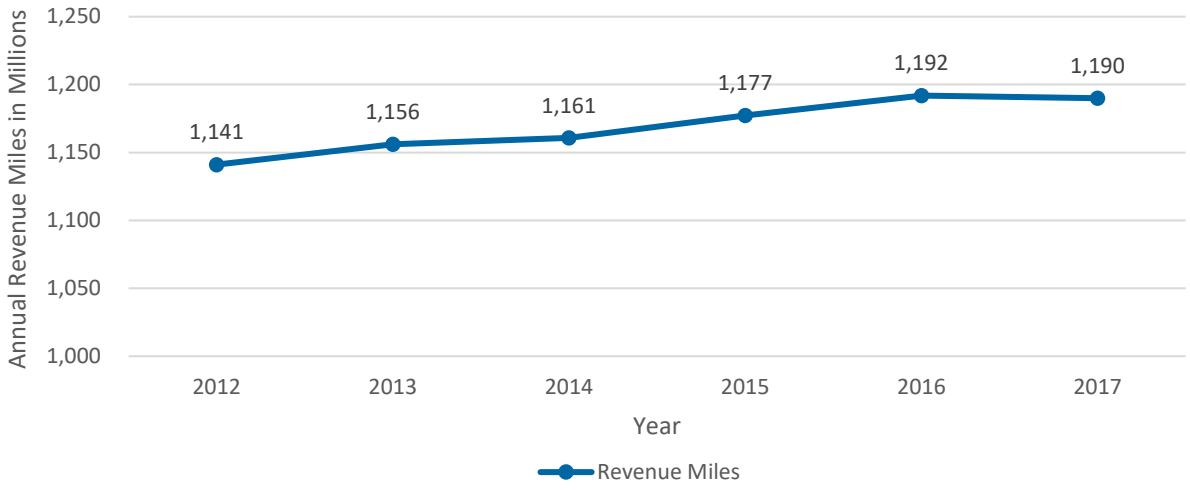


Figure 28: Total Revenue Hours for Fixed-Route Service (All Counties in the Appalachian States)

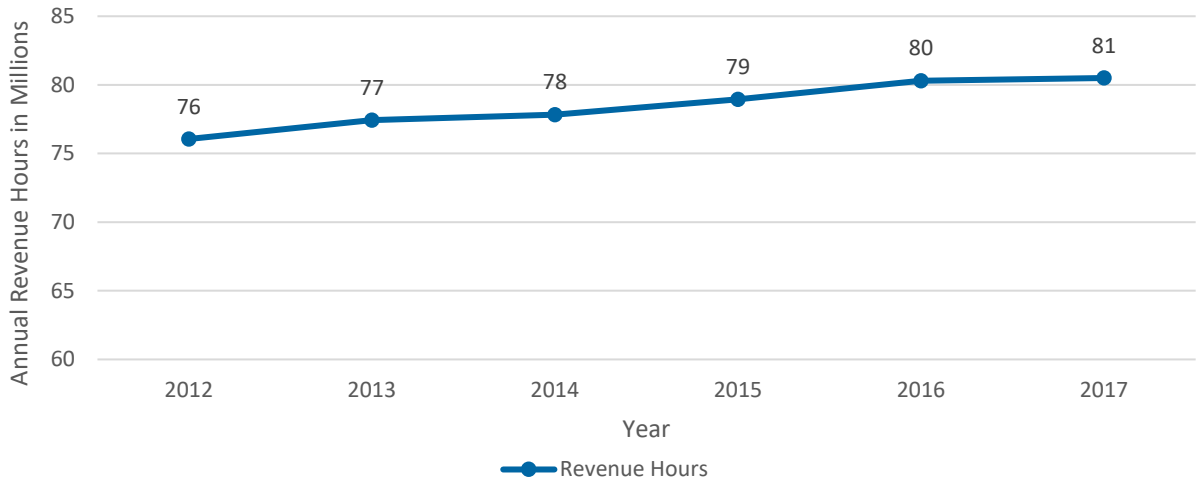
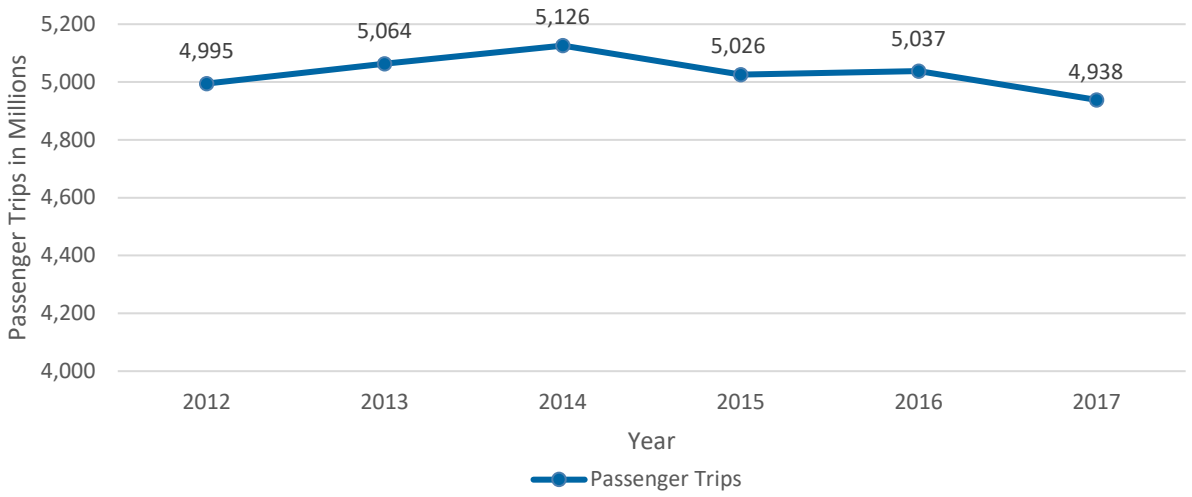


Figure 29: Total Passenger Trips for Fixed-Route Service (All Counties in the Appalachian States)



During these years, data on fixed-route services provided by rural transit agencies in Alabama, Georgia, and Mississippi is absent or inconsistently reported. While aggregate trends are shown in charts, trends without these three states are discussed in the text where relevant.

Among agencies in Appalachian states, rural agencies are providing decreasing amounts of fixed-route service (as measured by revenue hours and revenue miles), while urban areas are adding service. In terms of passenger trips, however, fixed-route ridership has recently increased among rural agencies while decreasing among urban ones. Figure 30, Figure 31, and Figure 32 show the year-over-year percentage change in annual transit revenue miles, revenue hours, and passenger trips for rural and urban providers in the Appalachian states.

Although revenue miles have seen a steady increase over the last five years in absolute terms (Figure 27), that growth can be largely attributed to urban systems (Figure 30). From 2012 to 2013, rural transit saw a nearly 10% decrease in revenue miles, while urban fixed-route systems experienced approximately 2% growth during the same period. Over the six-year period from 2012 to 2017, rural transit saw a 21% net decrease in revenue hours, while urban transit saw a net increase of 5%. The 2013 to 2014 decrease is largely driven by a small number of rural providers in Virginia and Pennsylvania, sharply diminishing the number of revenue miles provided; in the case of Virginia, revenue miles increased among urban providers in the same regions as these. From 2012 to 2017, fixed-route vehicle revenue hours have consistently increased across urban transit as a whole, while rural transit agencies have seen decreases with the exception of 2015 (Figure 31).[8] Overall in this period, transit revenue hours decreased by 17% among rural agencies, while urban transit agencies saw a net increase of 7%. Trends in fixed-route vehicle revenue miles (Figure 30) and vehicle revenue hours (Figure 31) differ for rural agencies from 2014 to 2015 because increases in revenue miles outpaced increases in revenue hours this year.

[8] Throughout the 2012 to 2017 period, rural providers in Alabama, Georgia, and Mississippi did not report vehicle revenue hours data consistently. Setting aside agencies in these states, the aggregate trend in revenue hours is similar: Revenue hours provided by rural agencies decrease sharply in 2013 and 2014 before beginning a slow recovery, especially in 2016 and 2017.

Figure 32 shows the percent change in annual passenger trips across rural and urban providers in Appalachian states. The most notable change over the last five years was a 19% increase in rural passengers from 2014 to 2015. This change is attributable primarily to a single rural agency, the City of Oxford, in Mississippi, beginning to report fixed-route service figures in the year 2015. Note that the agency did not report similarly large increases in vehicle revenue hours or miles in the same year.

Figure 30: Year-over-Year Percentage Change in Fixed-Route Transit Revenue Miles

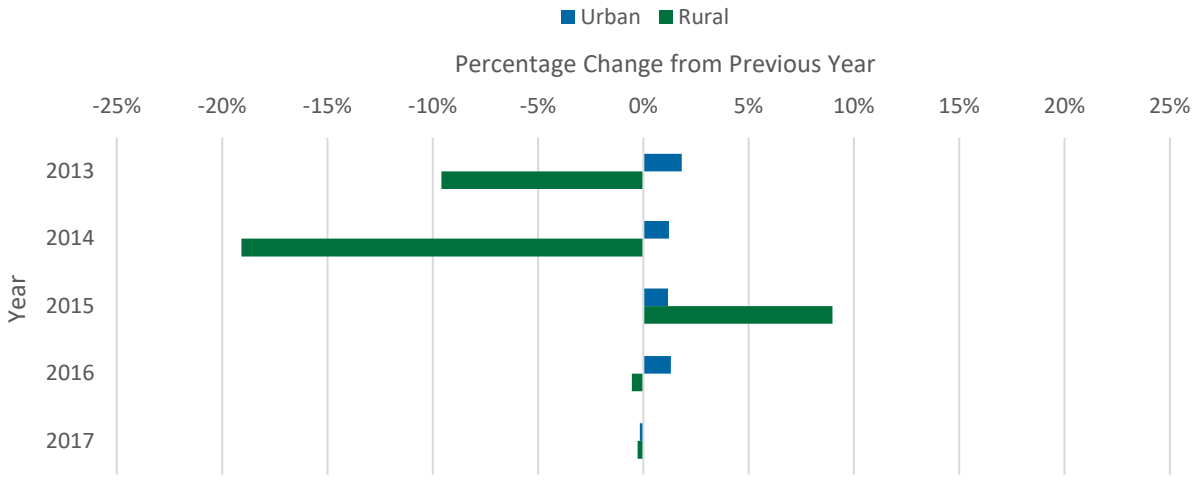


Figure 31: Year-over-Year Percentage Change in Fixed-Route Transit Revenue Hours

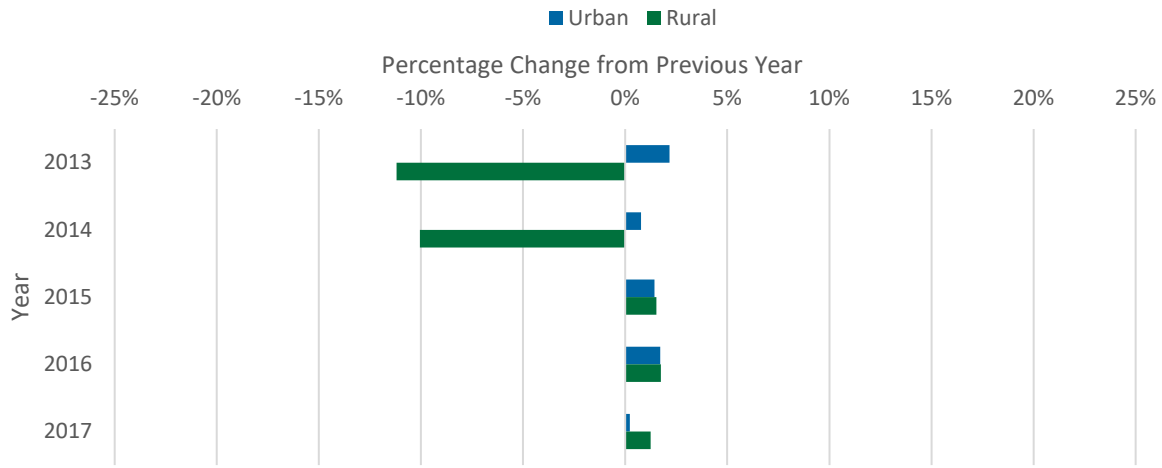
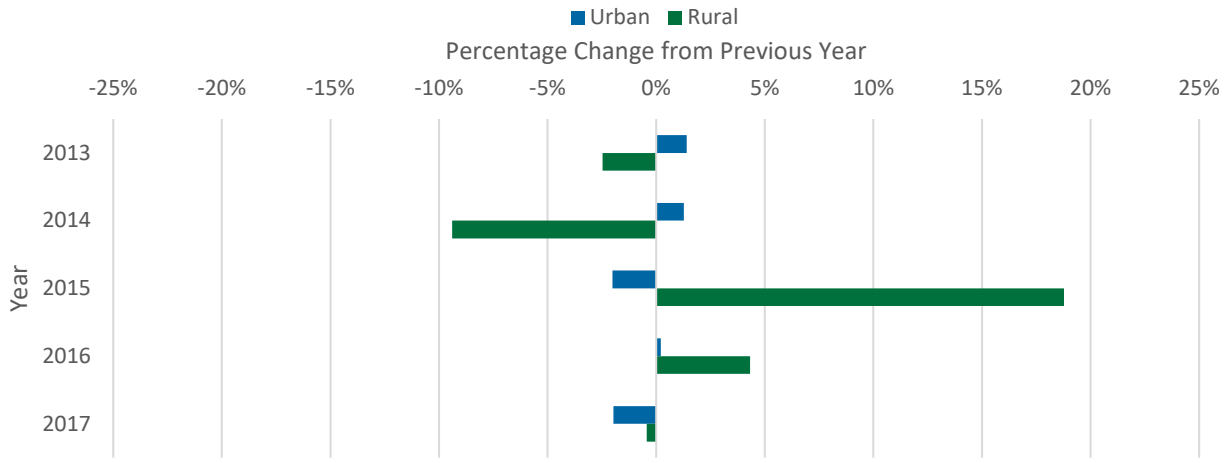


Figure 32: Year-over-Year Percentage Change in Fixed-Route Transit Passenger Trips



In aggregate, rural agencies providing fixed-route service in Appalachian states provided fewer revenue hours and revenue miles from 2012 to 2017 but saw a net increase in passenger trips. Among urban providers in 13 states, the opposite trend occurred: Small increases in revenue hours and revenue miles occurred even as passenger trips declined. These trends are primarily driven by urban agencies, due to the scale of the level of service they provide compared to rural agencies.

4.2.2. Where Transit Service Is Currently Provided

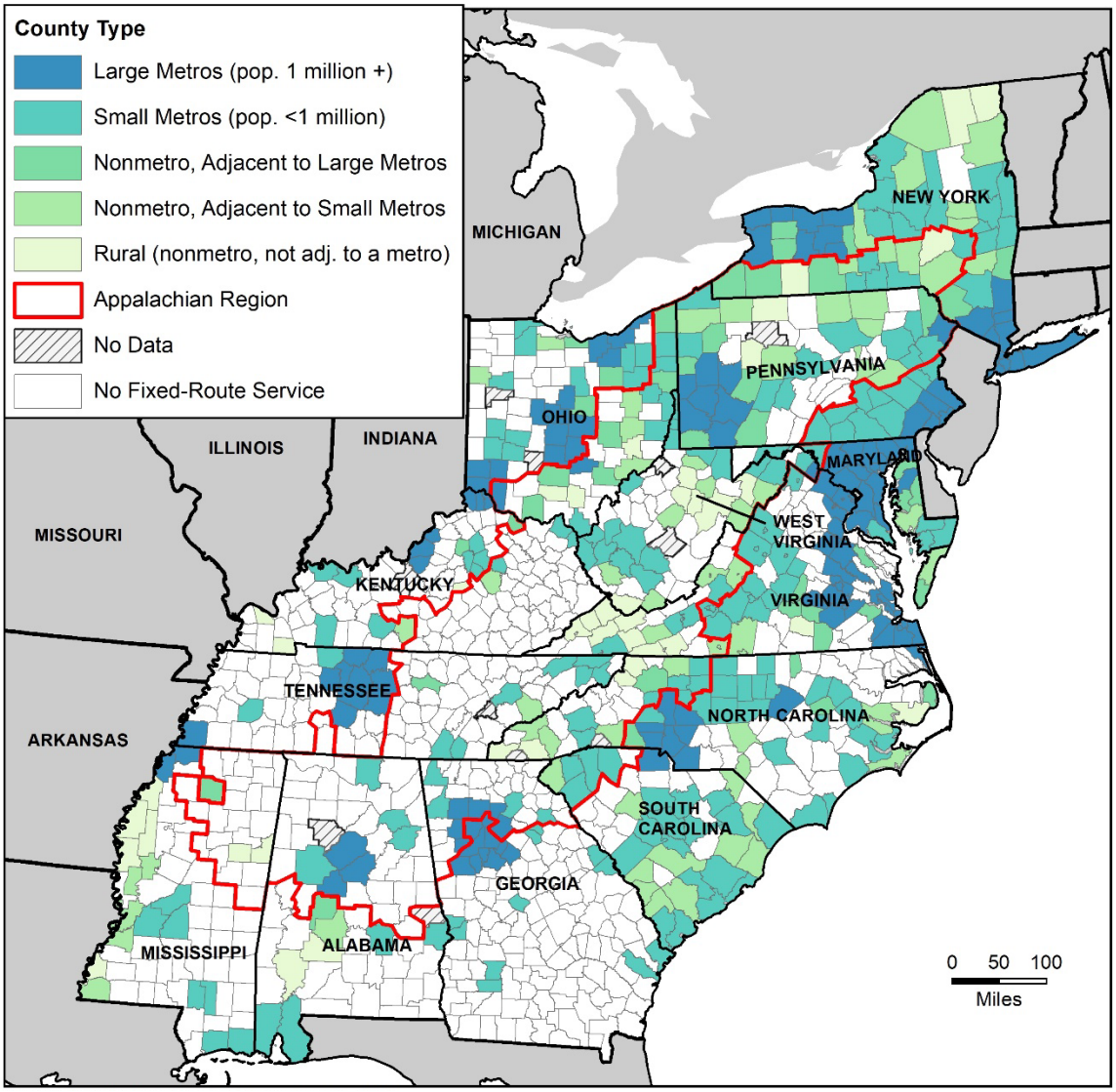
Of the 185 counties in the Appalachian Region that have some level of fixed-route service, detailed service data based on the General Transit Feed Specification (GTFS) is available for services in 178 counties. This detailed data allows for the calculation of levels of service and several accessibility metrics. Additional data on the calculation of the level of service statistics based on GTFS data is available in Appendix C—Data Sources and Methodology for GTFS- and NTD-Based Calculations. The level of service provided in any county will vary based on multiple factors, including funding, population density, transit demand, and other local conditions. To better compare services across the Appalachian Region, counties in Appalachian states are grouped into five categories, from rural counties to counties that are part of large metropolitan areas. These categories are a simplification of the 2013 Urban Influence Codes (UIC) produced by the United States Department of Agriculture Economic Research Service and adopted by ARC. Transit levels of service for Appalachian counties are also compared with non-Appalachian counties within the 13 states.

Existing Service in the Appalachian Region

Across the 13 Appalachian states, 513 counties have fixed-route service, and 185 of those counties are within the Appalachian Region. The red outline in Figure 33 represents the 420-county Region, and the map highlights the counties that have fixed-route service by type from rural counties (light green) to counties that are part of metropolitan areas with more than one million inhabitants (dark blue).[9]

[9] These types are based on groupings of United States Department of Agriculture (USDA) Rural-Urban Continuum codes most recently updated in 2013. These types have previously been used by the Appalachian Regional

Figure 33: Counties with Fixed-Route Transit Service by County Type



Within Appalachia, example locations of each county type are as follows:

- Large metropolitan areas include counties in and around Pittsburg, Pennsylvania, and Birmingham, Alabama. Several Appalachian counties are part of metropolitan areas centered outside of Appalachia, such as Columbus, Ohio, and Atlanta, Georgia. There are 21 large metro counties with fixed-route transit in Appalachia.

Commission to characterize counties by their population density and adjacency to metropolitan areas. The USDA categories are in turn based on U.S. Census and Office of Management and Budget definitions of metropolitan, urban, and rural areas. See https://www.ers.usda.gov/data-products/rural-urban-continuum-codes.aspx#.UgJUxW3LuSo and https://www.ers.usda.gov/topics/rural-economy-population/rural-classifications/what-is-rural/.

- Small metropolitan areas include Greenville, South Carolina; Knoxville, Tennessee; Tuscaloosa, Alabama; Charleston, West Virginia; and Hagerstown, Maryland. There are 77 small metro counties with fixed-route transit in Appalachia.
- Nonmetro counties adjacent to large metropolitan areas include Chautauqua County, New York (adjacent to Erie, Pennsylvania), and Athens County, Ohio (adjacent to Columbus, Ohio). There are 17 of these counties with fixed-route transit in Appalachia.
- Nonmetro counties adjacent to small metropolitan areas include Alleghany County, Virginia (near Roanoke, Virginia); Swain County, North Carolina (near Asheville, North Carolina, and Knoxville, Tennessee); and Madison County, Kentucky (near Lexington, Kentucky). There are 39 of these counties with fixed-route transit in Appalachia.
- Rural counties (defined as nonmetro counties not adjacent to metro counties) include Ostego County, New York, and Lowndes County, Mississippi. There are 31 of these counties with fixed-route transit in Appalachia.

For both Appalachian and non-Appalachian counties, fixed-route service ranges widely in availability based on the type of county, as shown in Table 29. Of the 109 counties classified as rural in the Appalachian Region, only 28% have fixed-route transit. No rural Appalachian counties have fixed-route transit in six of the thirteen Appalachian states, including Alabama, Georgia, Kentucky, Maryland, South Carolina, and Tennessee. Large metropolitan counties of greater than a million people are more likely to have fixed-route service outside the Region, but rural counties are more likely to have fixed-route transit within the Appalachian Region. As expected, counties in metropolitan areas are more likely to have fixed-route service than those adjacent to a metropolitan area or in rural areas. In less densely populated areas such as those, the ability to support fixed-route transit service is generally lower.

Table 29: Percentage of Counties with Fixed-Route Service

County Type	Appalachian Counties	Non-Appalachian Counties
Large metro (pop. greater than 1 million)	57%	76%
Small metro (pop. less than 1 million)	66%	69%
Nonmetro, adjacent to large metro	39%	32%
Nonmetro, adjacent to small metro	32%	23%
Rural (nonmetro, not adjacent to a metro)	28%	16%

Frequency of Service

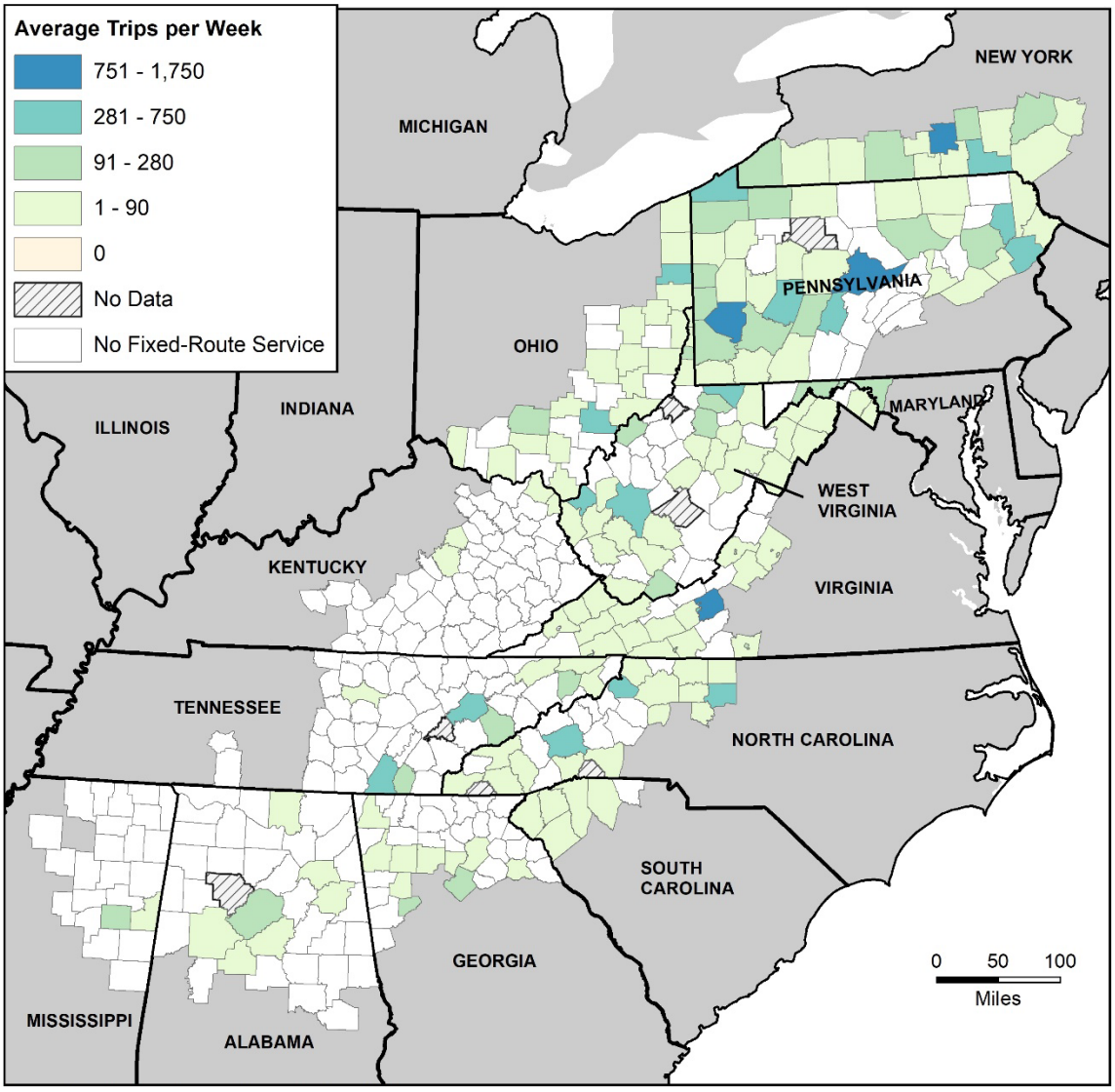
Of the 178 counties for which detailed service level information is available, the amount of service provided varies significantly. Figure 34 shows the number of trips per week available to a household on average across Appalachian counties.[10] The darkest blue areas have more frequent service, and an

[10] Frequency of service figures are computed in several steps. Similar calculation methods are used for other frequency, accessibility, and demographic statistics in this section. First, the number of trips available to each census block group is computed. If a block group is within one-quarter mile of a transit stop, transit trips serving that stop are associated to that block group. The number of trips accessible to households in each block group are then aggregated to the county level, weighting by the number of households. This produces a statistic for the average number of trips available to a household in each county.

average household in these counties has access to between 650 and 1,750 fixed-route trips each week. Those counties include Pittsburg (Allegheny County), Pennsylvania, and several counties with universities, such as Monongalia County, West Virginia (West Virginia University); Centre County, Pennsylvania (Penn State University); and Tompkins County, New York (Ithaca College and Cornell University).

In areas in light green, an average household has access to 80 or fewer fixed-route trips in a given week, and on an average weekday, the number is far less. Areas with this level of service include counties within large metros (such as Birmingham, Alabama, and Atlanta, Georgia, metropolitan areas) as well as the majority of rural Appalachian counties (23 of the 28 counties for which detailed data on their levels of service is available).

Figure 34: Average Number of Transit Trips Accessible to a Household per Week



Hours of Service

Weekend and late-night service are less common among counties in Appalachia. The hours of service in which transit is provided can be as important as how often service is available. A system providing night

or weekend service can offer trips outside of traditional peak periods and deliver additional access to shift-based employment, shopping, recreation, and other activities. Of the 178 counties with detailed data about their fixed-route services, 119 have weekend service, and 62 have evening (8 p.m. to 12 a.m.) service.

Very few rural counties (7%) provide at least one evening trip accessible to the average household, as shown in Table 30 and Figure 35. An evening trip is defined as any trip that operates between 8:00 p.m. and 12:00 a.m. Only two rural Appalachian counties provide evening service of the 28 that provide any fixed-route service. Both inside and outside the Region, households are more likely to have access to at least one evening transit trip if they are located in counties in metropolitan areas. The amount of evening service correlates strongly with the amount of overall service provided. The two counties with the highest number of evening trips accessible to an average household are both in Pennsylvania and are shown in dark blue in Figure 35. The first is Allegheny County, which encompasses metropolitan Pittsburg; and the second is Centre County, which is categorized as a small metro county, where the average household has access to 123 evening trips per week.

Table 30: Household Access to Evening Transit for Counties with Fixed-Route Transit Service

County Type	Appalachian Counties	Non-Appalachian Counties
Large metro (pop. greater than 1 million)	55%	66%
Small metro (pop. less than 1 million)	50%	54%
Nonmetro, adjacent to large metro	35%	23%
Nonmetro, adjacent to small metro	14%	18%
Rural (nonmetro, not adjacent to a metro)	7%	50%

Weekend service, as shown in Table 31 and Figure 36, is more common than evening service. By category, the proportion of Appalachian and non-Appalachian counties that have weekend fixed-route service is fairly consistent. Among rural counties, average households within the Region that already have fixed-route service are much more likely to have access to at least one weekend trip per week than households in similar counties outside of the Region.

Figure 36 shows the number of weekend trips an average household has access to in a single week. The distribution of weekend service is relatively consistent with the overall level of service shown in Figure 34.

Table 31: Household Access to Weekend Transit Versus Counties with Fixed-Route Transit Service

County Type	Appalachian Counties	Non-Appalachian Counties
Large metro (pop. greater than 1 million)	75%	74%
Small metro (pop. less than 1 million)	75%	79%
Nonmetro, adjacent to large metro	76%	54%
Nonmetro, adjacent to small metro	43%	50%
Rural (nonmetro, not adjacent to a metro)	64%	57%

Figure 35: Average Number of Evening Trips Accessible to a Household per Week

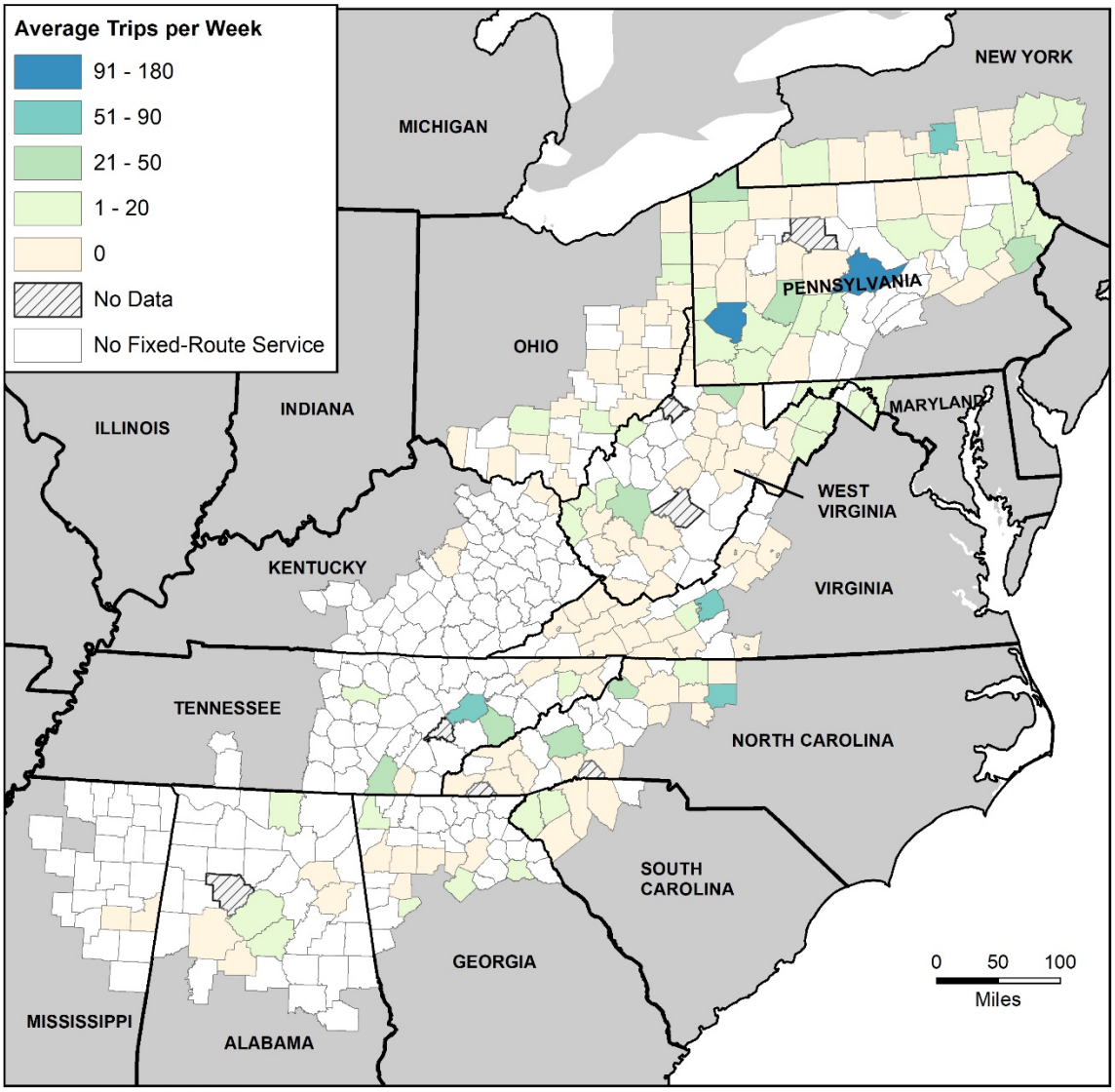
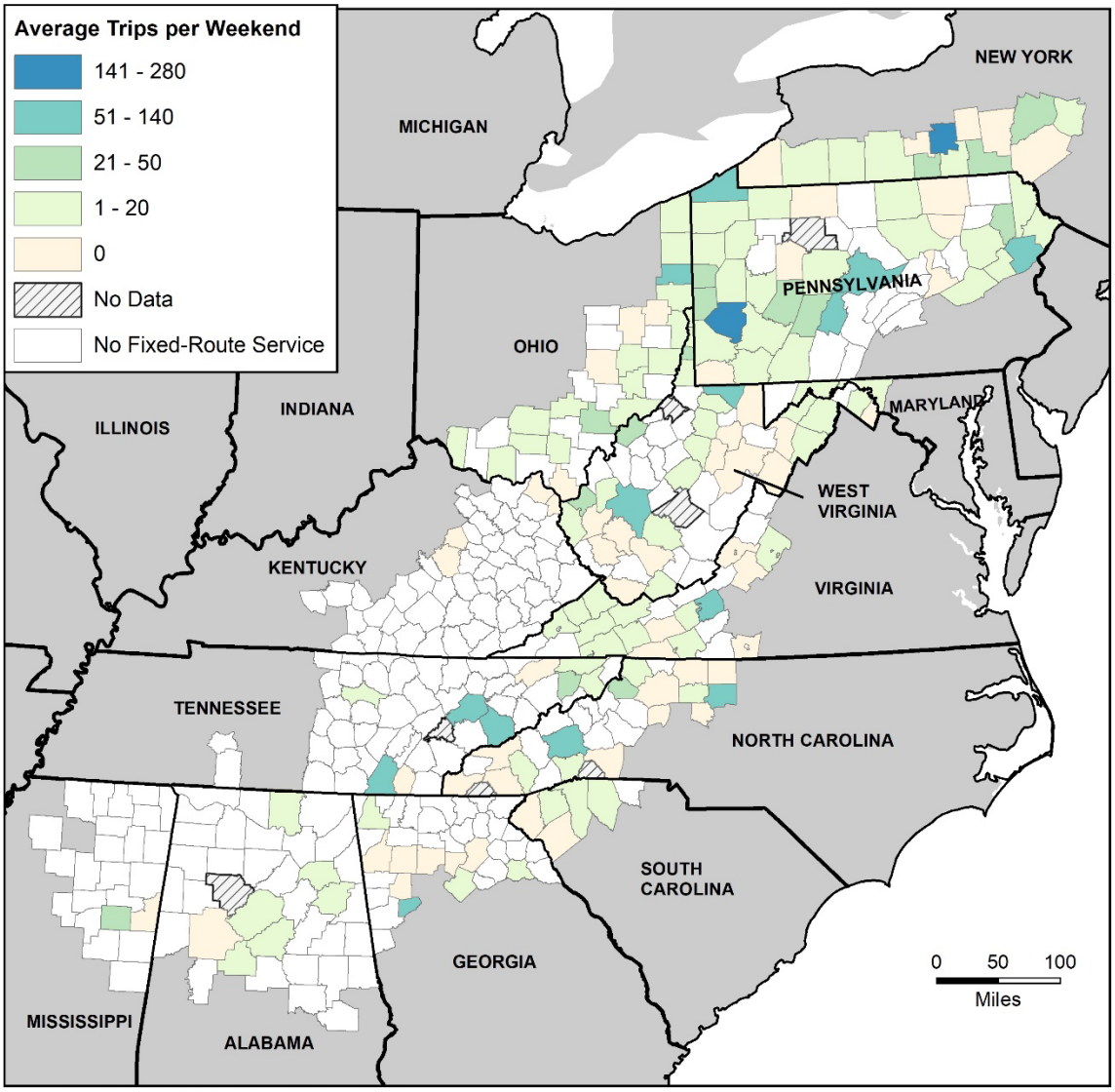


Figure 36: Average Number of Trips Accessible to a Household per Weekend



4.2.3. Access to Fixed-Route Transit Service

Serving high-need groups and connecting the population to jobs and other destinations are important components of successful fixed-route transit services. Detailed data on the geographic scope of transit services collected for fixed-route transit providers are combined with a range of socio-economic metrics to illustrate these dimensions of transit service in this report.

Jobs Near Fixed-Route Service

Households within counties adjacent to metropolitan areas on average have more access to jobs via a 30-minute transit ride in Appalachia than outside, as shown in Table 32. On the other hand, Appalachian households in metropolitan areas and rural areas have less access to jobs via a short transit ride. In urban areas, this is likely due to large, legacy transit systems in large metropolitan areas outside Appalachia like New York City and Philadelphia, but differences are still pronounced in small metros and rural areas. In general, households in large urban areas generally have access to more jobs via transit than those in less dense rural areas.

Table 32: Jobs Accessible Within a 30-Minute Transit Access Shed per Household

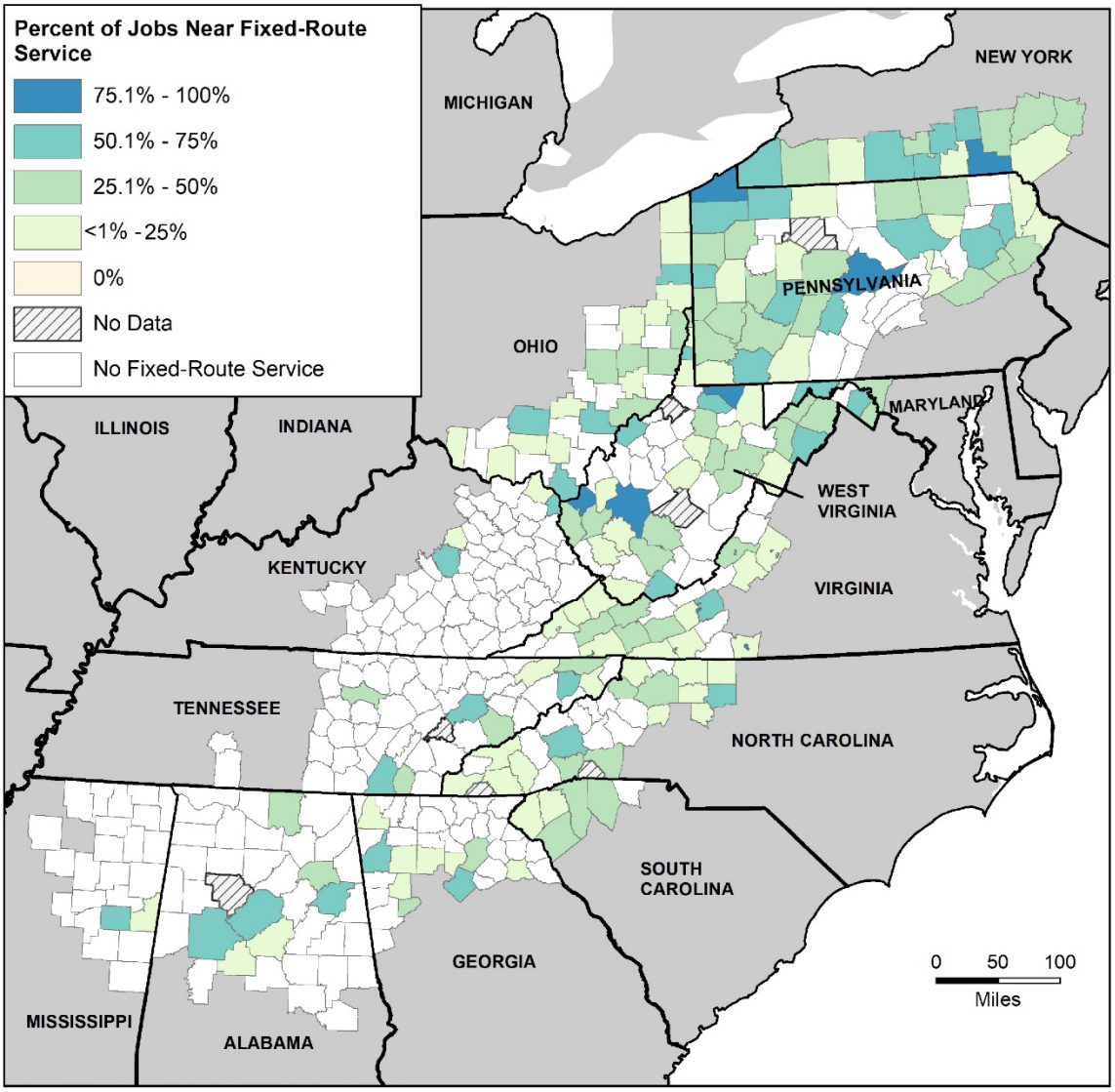
County Type	Appalachian Counties	Non-Appalachian Counties
Large metro (pop. greater than 1 million)	50,965	324,990
Small metro (pop. less than 1 million)	11,977	20,913
Nonmetro, adjacent to large metro	2,348	1,840
Nonmetro, adjacent to small metro	1,665	1,091
Rural (nonmetro, not adjacent to a metro)	1,009	1,408

Differences in the number of jobs accessible within a 30-minute transit ride may be attributed in part to the geographic coverage of transit service. Table 33 shows the percentage of jobs within one-half-mile from a transit stop, and Figure 37 visualizes this data by county. Non-metro Appalachian counties have a higher percentage of jobs near transit than their non-Appalachian peers. As a result, those areas also had more jobs accessible by a 30-minute transit ride for an average household. However, large metropolitan areas in Appalachia lag behind both their non-Appalachian peers as well as small metros and counties adjacent to large metropolitan areas within Appalachia.

Table 33: Jobs Within a Half-Mile of Fixed-Route Service by County Type

County Type	Appalachian Counties	Non-Appalachian Counties
Large metro (pop. greater than 1 million)	39%	77%
Small metro (pop. less than 1 million)	55%	58%
Nonmetro, adjacent to large metro	40%	32%
Nonmetro, adjacent to small metro	36%	29%
Rural (nonmetro, not adjacent to a metro)	26%	30%

Figure 37: Percentage of Jobs Within a Half-Mile of Fixed-Route Service by County



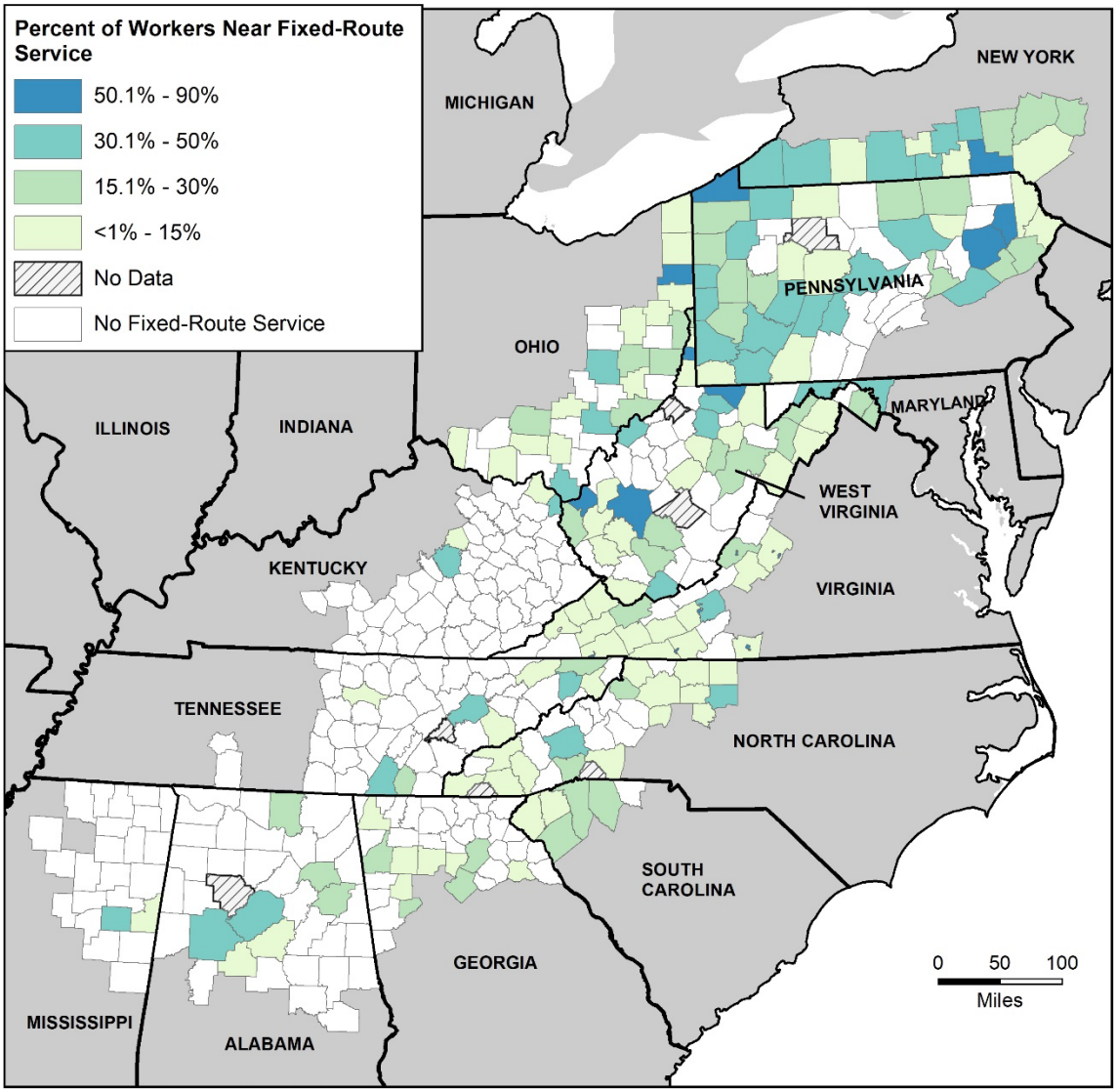
Workers Near Fixed-Route Service

The proportion of workers near fixed-route service is also a key factor in the number of jobs that can be reached by a 30-minute transit ride for an average household. After all, it is difficult for a worker to commute to work via fixed-route transit if they do not live near a transit stop. The proportions of workers who live near transit are shown by county type for Appalachian and non-Appalachian counties in Table 34 and Figure 38. Overall, the proportion of workers near fixed-route service is lower than the proportion of jobs near fixed-route service for both Appalachian and non-Appalachian counties of all sizes. In general, jobs are more likely to be clustered in centralized locations such as central business districts (CBDs), downtowns, and office parks or industrial complexes that are readily served by transit; homes of workers are more widely distributed across an area. Despite the proportional differences, the distribution of transit accessibility in Figure 37 and Figure 38 are relatively similar, and areas with more jobs near fixed-route transit service are also more likely to have workers living near transit service.

Table 34: Percentage of Workers Who Live Within One-Half-Mile of a Fixed-Route Transit

County Type	Appalachian Counties	Non-Appalachian Counties
Large metro (pop. greater than 1 million)	20%	65%
Small metro (pop. less than 1 million)	33%	40%
Nonmetro, adjacent to large metro	23%	19%
Nonmetro, adjacent to small metro	21%	17%
Rural (nonmetro, not adjacent to a metro)	14%	17%

Figure 38: Percentage of Workers that Live Within One-Half Mile of Fixed-Route Transit by County



Equity

Whether the distribution of transportation services is fair and appropriate is a question of equity. One method of examining equity is to examine how well people of varying socioeconomic standings are served by transit. Another method is to examine how well transit provides affordable access to job opportunities.

Transportation costs present a significant financial burden in the average household, particularly low-income ones. Table 35 shows the average percentage of monthly income that is spent on transportation by households. Higher percentages entail transportation costs that are a larger financial burden. The burden is relatively consistent between Appalachian and non-Appalachian counties of the same size, with the exception of large metropolitan areas. The burden increases steadily as the county density decreases; rural counties see the highest financial burden from transportation. These percentages include all transportation costs, including costs related to auto ownership, auto usage, and transit usage, but are shown only for counties that have fixed-route transit services.

Table 35: Percentage of Income That Goes to Transportation by Household

County Type	Appalachian Counties	Non-Appalachian Counties
Large metro (pop. greater than 1 million)	22%	18%
Small metro (pop. less than 1 million)	25%	24%
Nonmetro, adjacent to large metro	28%	26%
Nonmetro, adjacent to small metro	28%	29%
Rural (nonmetro, not adjacent to a metro)	32%	31%

Table 36 shows the percentage of households that reside within a one-half mile distance of fixed-route service. The distribution of access is similar to that of jobs located within a half-mile of transit service. Aside from large metropolitan areas, areas with higher proportions of households within one-half mile of fixed-route transit service have a lower average transportation cost burden.

Table 36: Households Within One-Half-Mile of Fixed-Route Transit Service by County Type

County Type	Appalachian Counties	Non-Appalachian Counties
Large metro (pop. greater than 1 million)	23%	67%
Small metro (pop. less than 1 million)	35%	42%
Nonmetro, adjacent to large metro	24%	20%
Nonmetro, adjacent to small metro	21%	17%
Rural (nonmetro, not adjacent to a metro)	14%	18%

Fixed-route transit service can enhance transportation equity by providing transportation for individuals who otherwise would not have access to reliable transportation. One way to measure the need for fixed-route transit is to examine the share of households that have access to only one personal vehicle or none at all. These households will have a higher demand for transit because their transportation options are otherwise limited. Overall, 40% of households in Appalachian counties have one or zero vehicles, while 46% of households in Non-Appalachian counties in these same states have one or zero vehicles. Of these

households, only 38% are near transit in Appalachia, while outside of Appalachia 72% are located near transit.

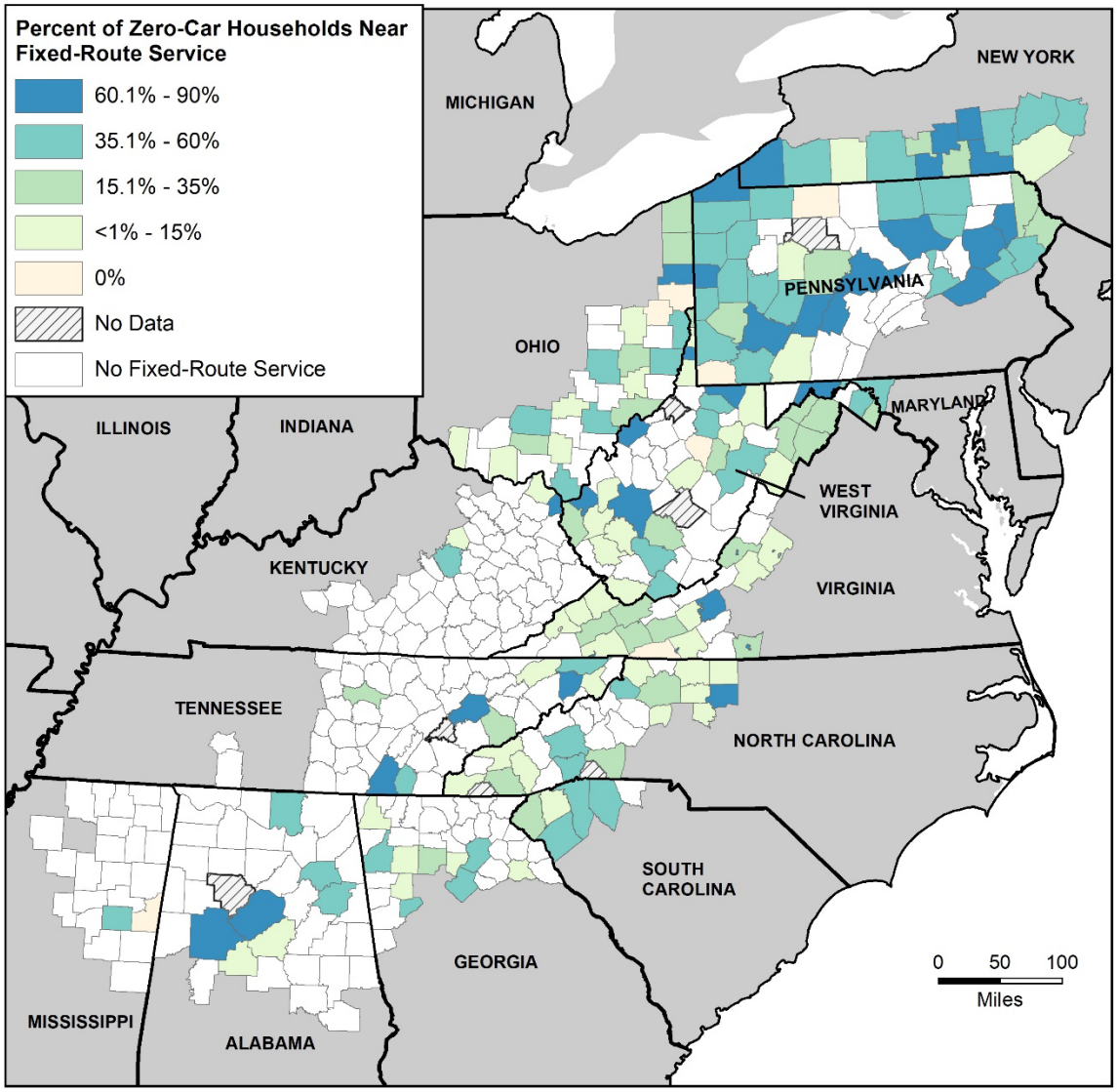
Table 37 shows the share of households that reside within the one-half-mile distance of a transit station by vehicle ownership. Among large metro counties, only 38% of zero-car households within the Appalachian Region have access to fixed-route service; outside of Appalachia, 93% have access to transit within half-mile of their home. In small metros and nonmetro areas, households with zero or one car have access to fixed-route transit comparable to or better than their peers outside of Appalachia; in rural counties, however, Appalachian counties lag slightly behind in this measure.

Table 37: Percentage of Households Near Fixed-Route Transit by Number of Private Vehicles Owned

County Type	Zero-Car Households		One-Car Households		Two or More-Car Households	
	Appalachian Counties	Non-Appalachian Counties	Appalachian Counties	Non-Appalachian Counties	Appalachian Counties	Non-Appalachian Counties
Large metro (pop. greater than 1 million)	38%	93%	29%	75%	17%	53%
Small metro (pop. less than 1 million)	60%	66%	43%	50%	27%	34%
Nonmetro, adjacent to large metro	41%	33%	30%	25%	18%	15%
Nonmetro, adjacent to small metro	37%	32%	27%	21%	17%	13%
Rural (nonmetro, not adjacent to a metro)	20%	26%	16%	22%	12%	13%

Figure 39 shows how zero-car households with access to transit are distributed throughout the Region. In general, urban areas serve a higher share of zero-car households than non-urban areas, but this is not uniformly the case. Counties with universities also perform well on this metric, as do rural and nonmetro portions of Appalachian New York and Pennsylvania. Counties in and around Birmingham, Alabama, which provide fewer transit trips per week than similarly sized counties, show high rates of transit service coverage for households without a car.

Figure 39: Percentage of Zero-Car Households Within One-Half-Mile of Fixed-Route Service



Summary

Within Appalachia, fixed-route transit service is more likely to be found in metropolitan areas than non-metropolitan counties and rural ones, given the concentration of jobs and households in these areas. Of the 109 counties defined as rural in the Appalachian Region based on the UIC simplified categorization, only 28% have fixed-route transit. No rural Appalachian counties have fixed-route transit in six of the thirteen states that make up the Appalachian Region, including Alabama, Georgia, Kentucky, Maryland, South Carolina, and Tennessee. Rural counties with fixed-route transit also serve a smaller percentage of zero- and one-car households than larger, denser areas. Only 7% of rural counties in Appalachia with fixed-route transit service will also provide evening trips, which limits the use of transit for shift workers and those traveling for shopping or recreation. Rural households in the Region spend a higher share of household income on transportation than households in other types of counties in the Region and beyond.

The service levels of other types of counties in and outside of Appalachia indicate opportunities for growth among rural providers of fixed-route transit in Appalachia. Outside of Appalachia, 50% of counties provide the households an average of at least one evening trip per week. Counties that provide additional transit service coverage will have a higher share of jobs and workers within one-half-mile of transit service. Even counties that do not provide a high level of transit service, in general, may benefit by targeting expansions of fixed-route transit service to serve zero- and one-car households that need additional transportation alternatives.

4.3. Demand-Response Transit Service

Demand-response services are non-fixed route transit services that require advanced scheduling by the passengers or their agents. Demand-response vehicles do not operate over a fixed route or on a fixed schedule and may be dispatched to pick up several passengers at different pick-up points before taking them to their respective destinations. Demand-response services offered by human service agencies are often restricted to certain groups of the population based on age, disability or health status, income, or a combination of these.

A total of 382 demand-response providers in the Appalachian Region were identified. These rural and human service agency demand-response providers serve 394 of the 420 counties in the Region. Figure 40 shows a map of all the counties located in the Appalachian Region and whether they have at least one demand-response service open to the general public, or if available services are restricted to certain groups of the general public. Of the 394 counties served by demand-response services, almost three-quarters, 295 counties, have at least one service open to the general public. Appalachian Ohio, Pennsylvania, Maryland, Virginia, Kentucky, and Tennessee have demand-response services covering their entire territories, the latter being the only state where service is open to the general public in all counties. South Carolina is the only state without a demand-response service open to the public in its Appalachian region. Finally, while most counties within the Region have some level of demand-response service, the quality, coverage, and extent of that service can vary significantly.

Figure 40: Appalachian Counties with Demand-Response Transit Service

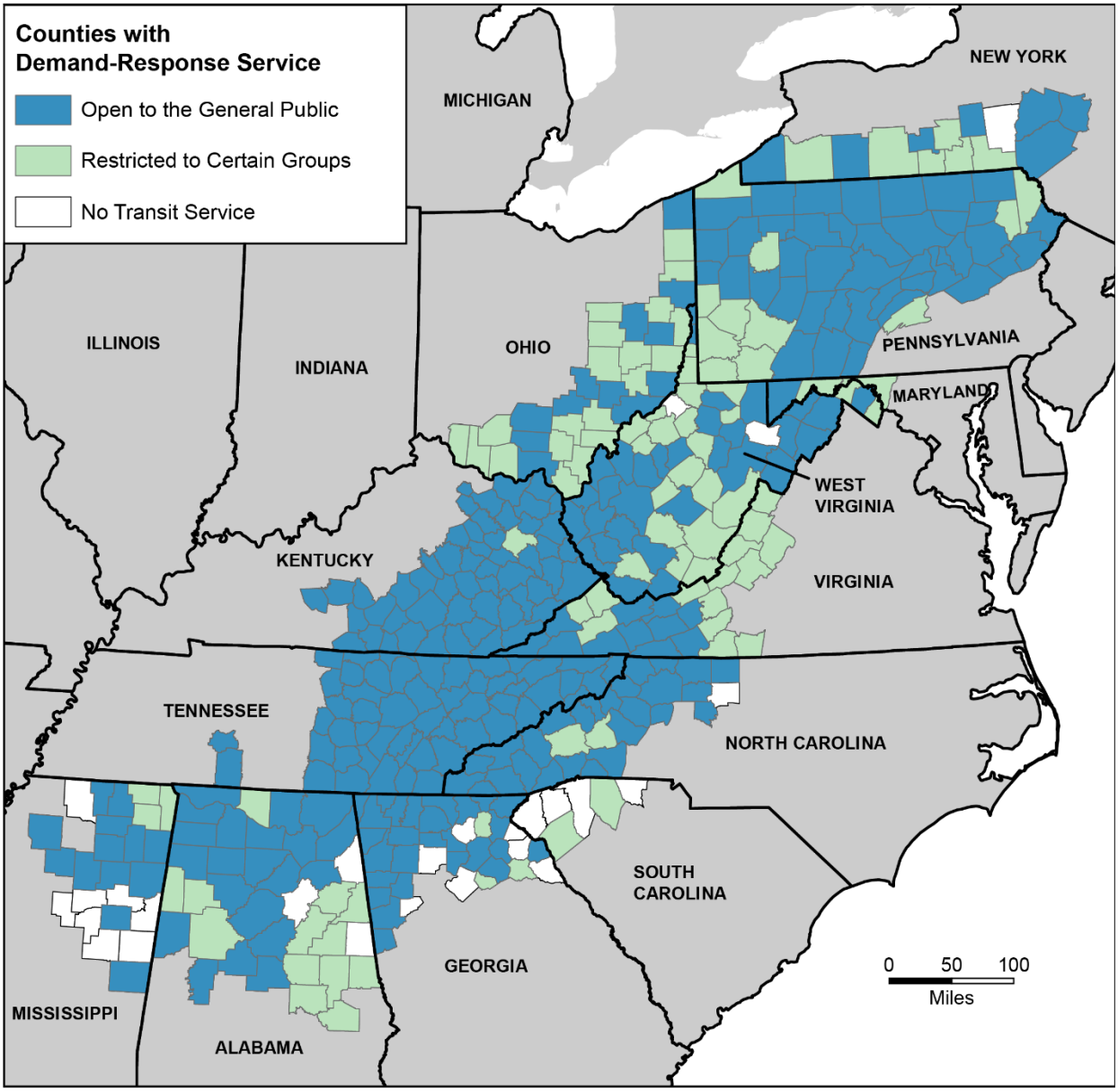
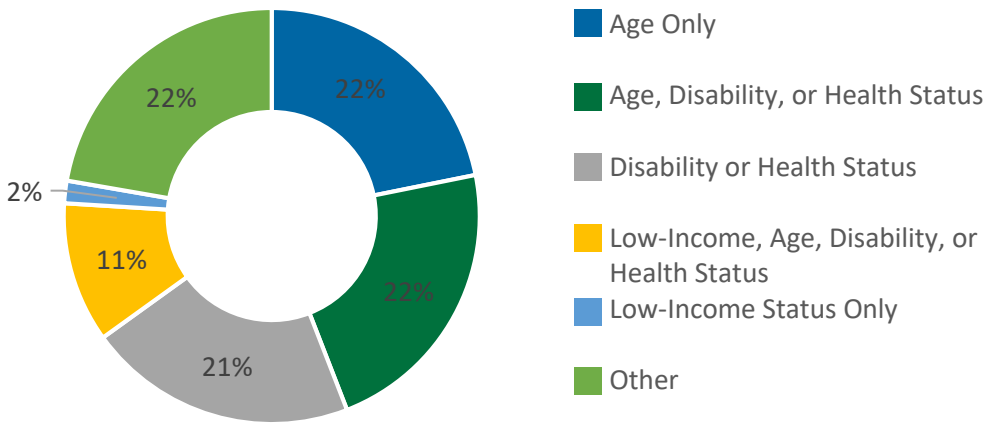


Table 38: Number of Counties Served and Providers by Type of Demand-Response Service

States	Open to the Public		Restricted to Certain Groups		Total	
	Counties	Providers	Counties	Providers	Counties	Providers
Alabama	21	15	13	40	34	55
Georgia	27	27	3	2	30	29
Kentucky	53	14	1	3	54	17
Maryland	1	1	2	5	3	6
Mississippi	13	7	3	2	16	9
New York	7	7	6	27	13	34
North Carolina	26	21	2	5	28	26
Ohio	13	13	19	53	32	66
Pennsylvania	41	23	11	31	52	54
South Carolina	0	0	2	3	2	3
Tennessee	52	9	0	3	52	12
Virginia	10	3	15	5	25	8
West Virginia	31	13	22	50	53	63
Region	**295**	**153**	**99**	**229**	**394**	**382**

Of the 382 providers, 153 offer their services to the general public, which represents 40% of the total. The majority of the providers inventoried are human service agencies with services restricted to particular groups. Figure 41 shows the most common types of user requirements of demand-response services that are restricted to certain groups of the population. Age, disability, or health status are the most common user requirements, with over 75% of the providers restricting use to individuals who qualify based on these factors. That number may point to the relevant role of human services providers in the Region in providing healthcare-related transit trips. Low-income status is another eligibility criterion in use by a considerable number of providers, and other requirements include the user's place of residence or services exclusive for veterans, for example.

Figure 41: Types of User Requirements of Demand-Response Services Restricted to Certain Groups



Demand-response services operate predominantly on weekdays only in the Region. In almost three-quarters of the counties, the general public has access to services on weekdays only, and the number of providers offering services on weekdays is slightly below 80%, as shown in Figure 42 and Figure 43. Nineteen percent of counties also have Saturday service (12% of providers), while 7% of counties have service seven days a week (5% of providers). It is worth noting that county-level numbers are not intended to suggest that all demand-response transit providers in a given county operate at the same level of service; the graphs represent the best available transit service in each county. Additionally, not all parts of a specific county may enjoy this level of service. The same caveat applies to the following maps in Section 4.3. Information on days of service provided was unavailable for a small number of providers.

Figure 42: Days of Service by County

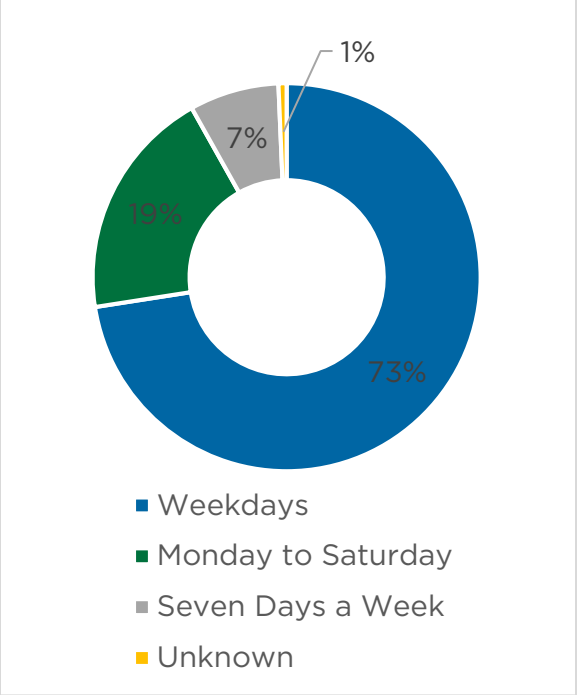


Figure 43: Days of Service by Provider

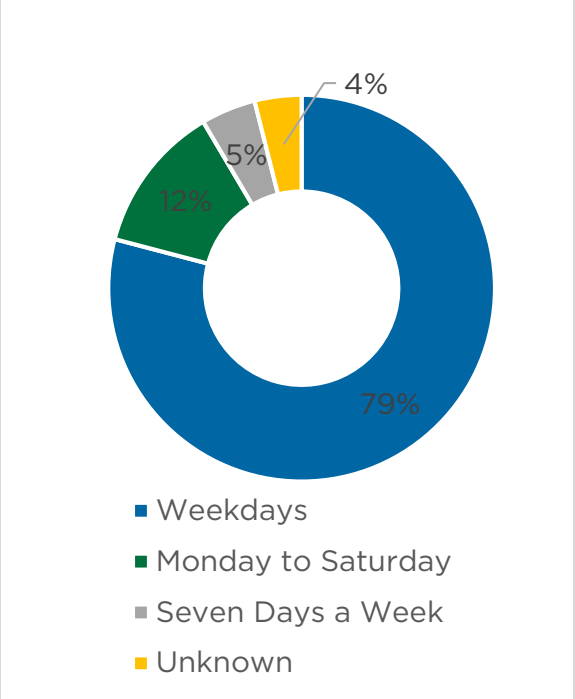
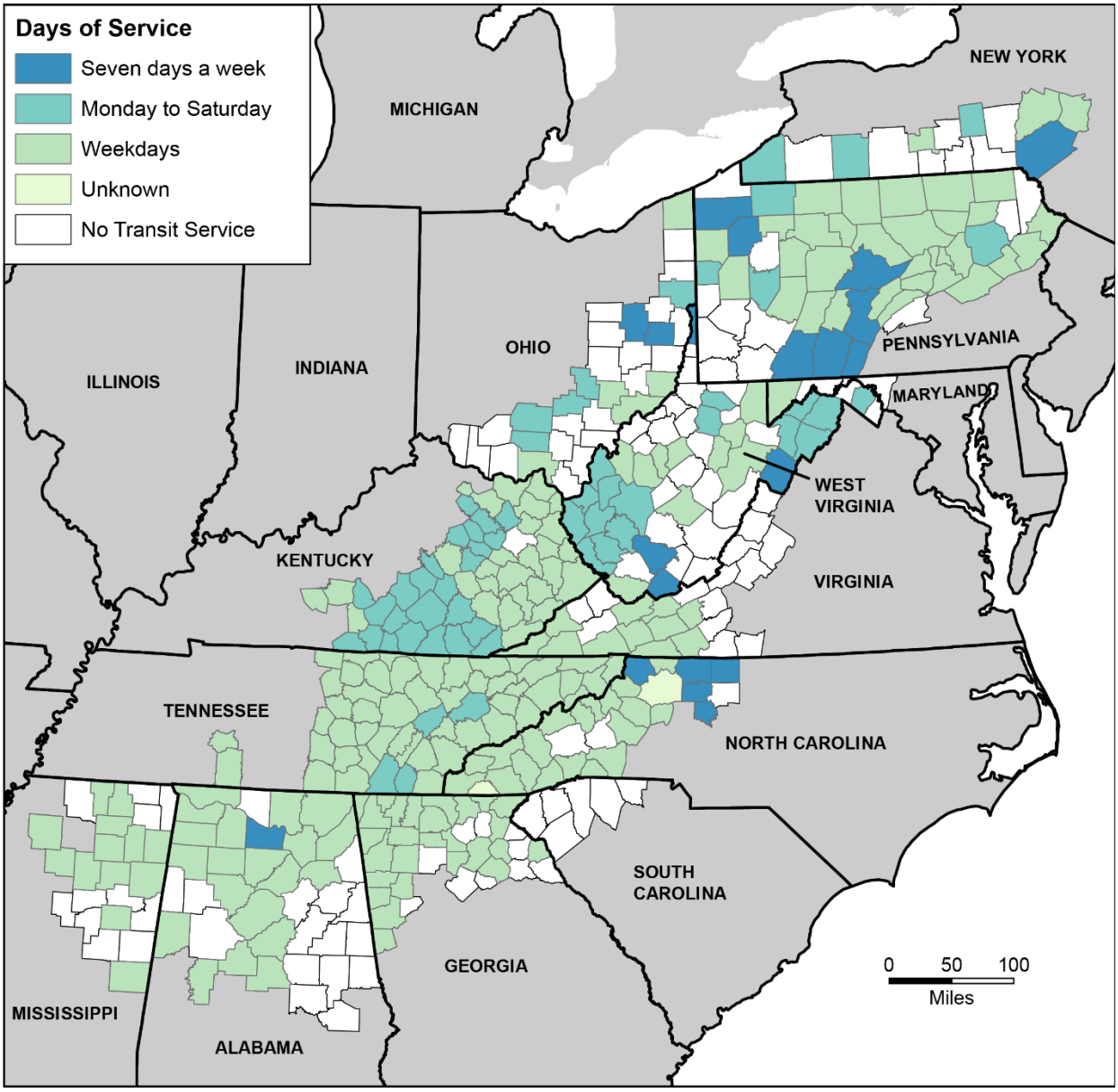


Figure 44 shows the days of operation of demand-response services available in Appalachian counties. The general public in Appalachian Virginia, Mississippi, and Georgia have access to demand-response services only on weekdays. In West Virginia and Appalachian Kentucky, several counties have Saturday service, while in Appalachian New York, Pennsylvania, Ohio, and Tennessee, only a few do. Appalachian Pennsylvania has the largest number of counties with a seven-day-a-week service, followed by North Carolina and West Virginia.

Figure 44: Demand-Response Services: Days of Operation by County



The hours of operation for demand-response transit service varies significantly depending on the provider. Many services are only available in the morning and early afternoon, while some providers offer service into the evening. Given the rural nature and dispersed population centers that characterize the Appalachian Region, demand-response service is relatively expensive to operate. Therefore, many providers are financially constrained and unable to offer service beyond several hours per day. Figure 45 and Figure 46 summarize the hours of available demand-response service by county and provider, respectively. Services in most counties and by most providers are available to the general public for eight to 12 hours on a weekday. Slightly more than one-quarter of the counties have transit service available more than 12 hours a day. Eight percent of the counties and 12% of transit providers operate demand-response services only up to eight hours per day. Information on hours of service provided was unavailable for a small number of providers.

Figure 45: Span of Service by County

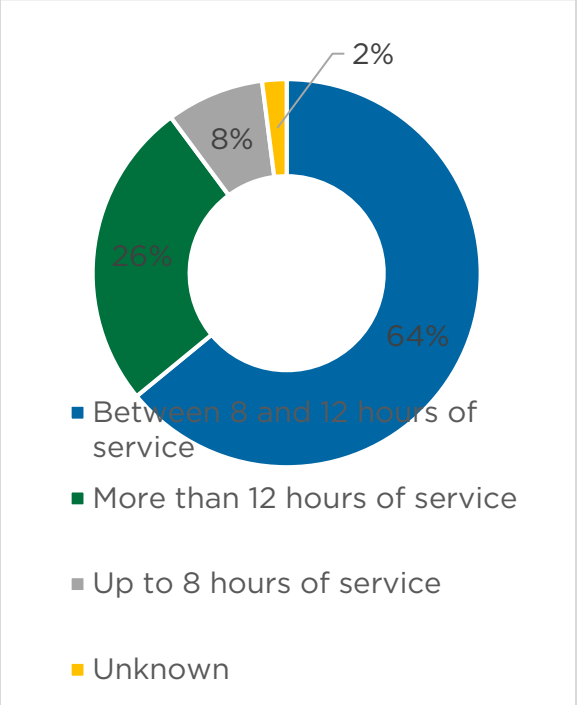


Figure 46: Span of Service by Provider

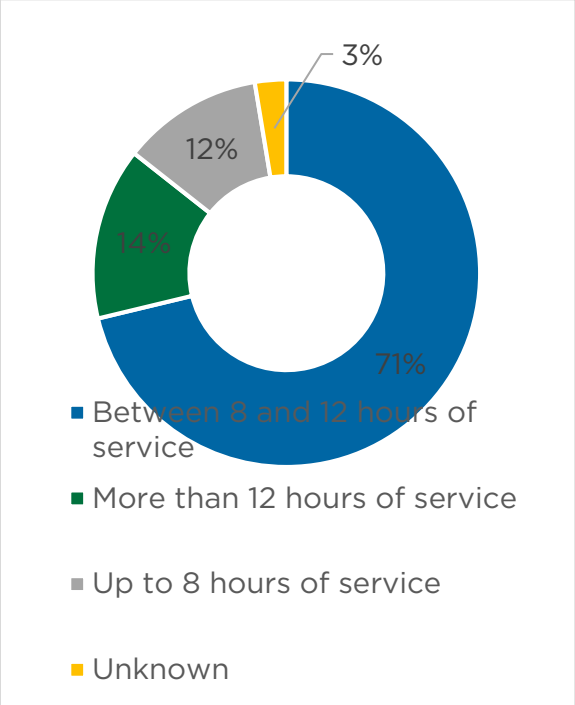
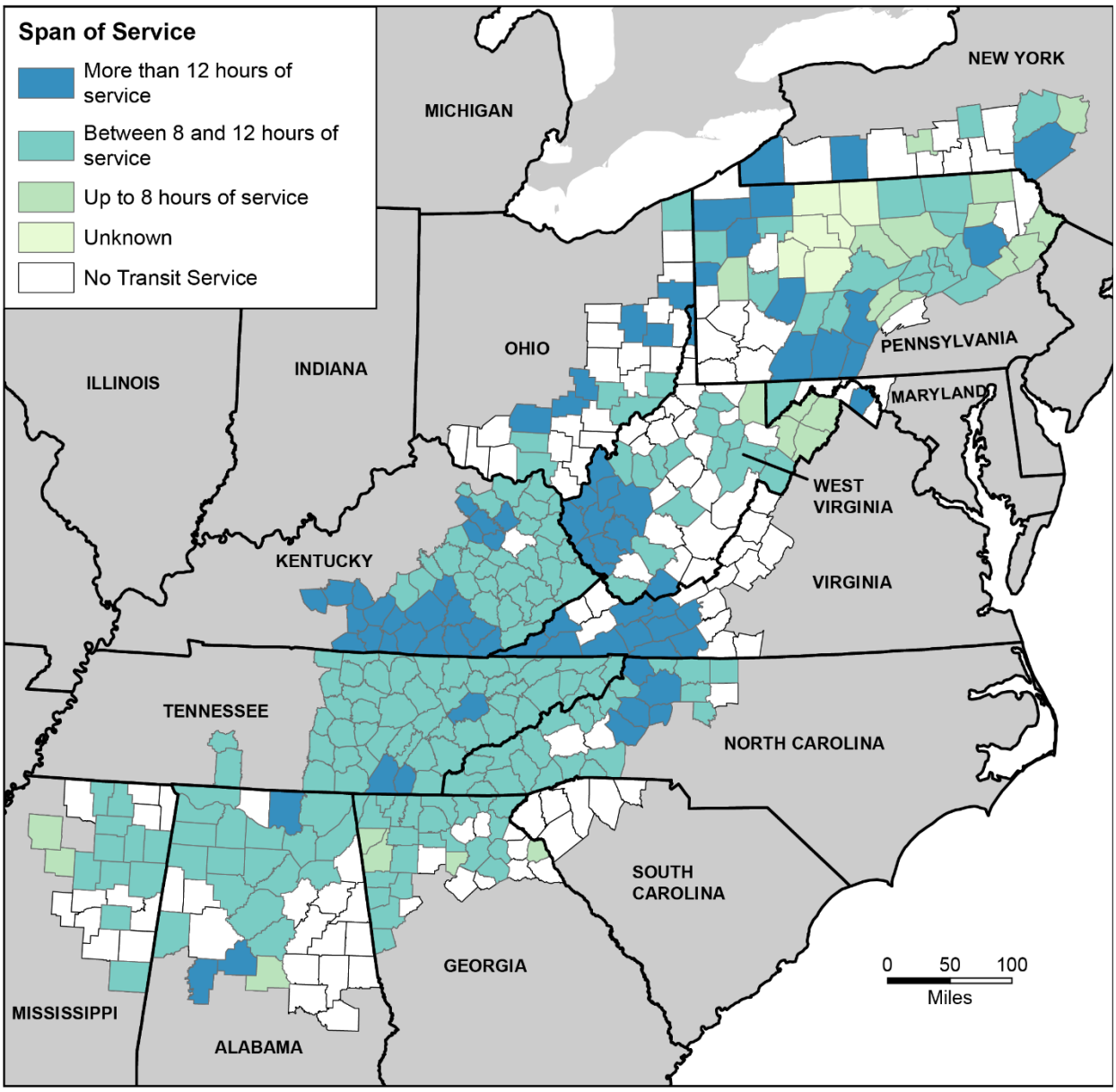


Figure 47 illustrates the span of available demand-response services in all Appalachian counties. In Appalachian Virginia, despite limited to weekdays only, service hours are longer than 12 hours a day in all served counties. In West Virginia and Appalachian Kentucky, the general public in many counties has access to over 12 hours of service on a weekday. Span of service is limited to up to 12 hours in all counties in Appalachian Mississippi and Georgia.

Figure 47: Span of Demand-Response Service on a Weekday in Appalachian Counties



Demand-response transit requires an advance reservation to use the service. Riders usually must call a phone number and indicate when they would like to be picked up. The degree to which this reservation must be made in advance varies by the provider according to their policies. Demand-response service is generally considered more convenient to use when less advance notice is required. Figure 48 and Figure 49 summarize when trips need to be booked by county and provider, respectively. In most cases, trips can be booked in an interval between 24 hours up to a certain time the day before the trip. For almost a fifth of the providers and in 22% of the counties, longer reservation times are required. Few providers offer the possibility of same-day booking for demand-response trips in the Region.

Figure 48: Advance Reservations by County

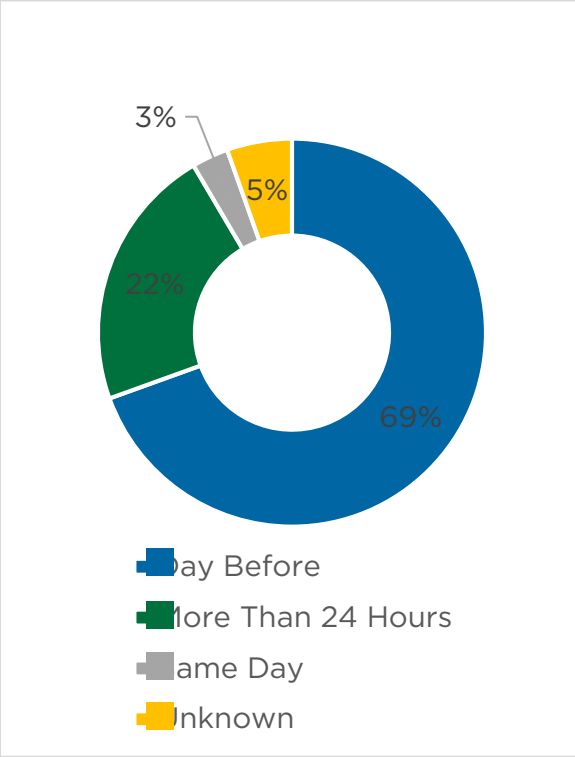


Figure 49: Advance Reservations by Provider

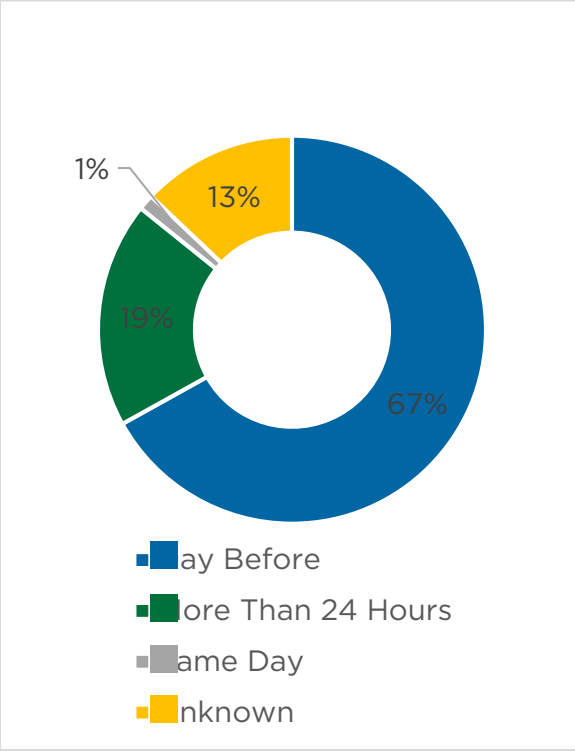
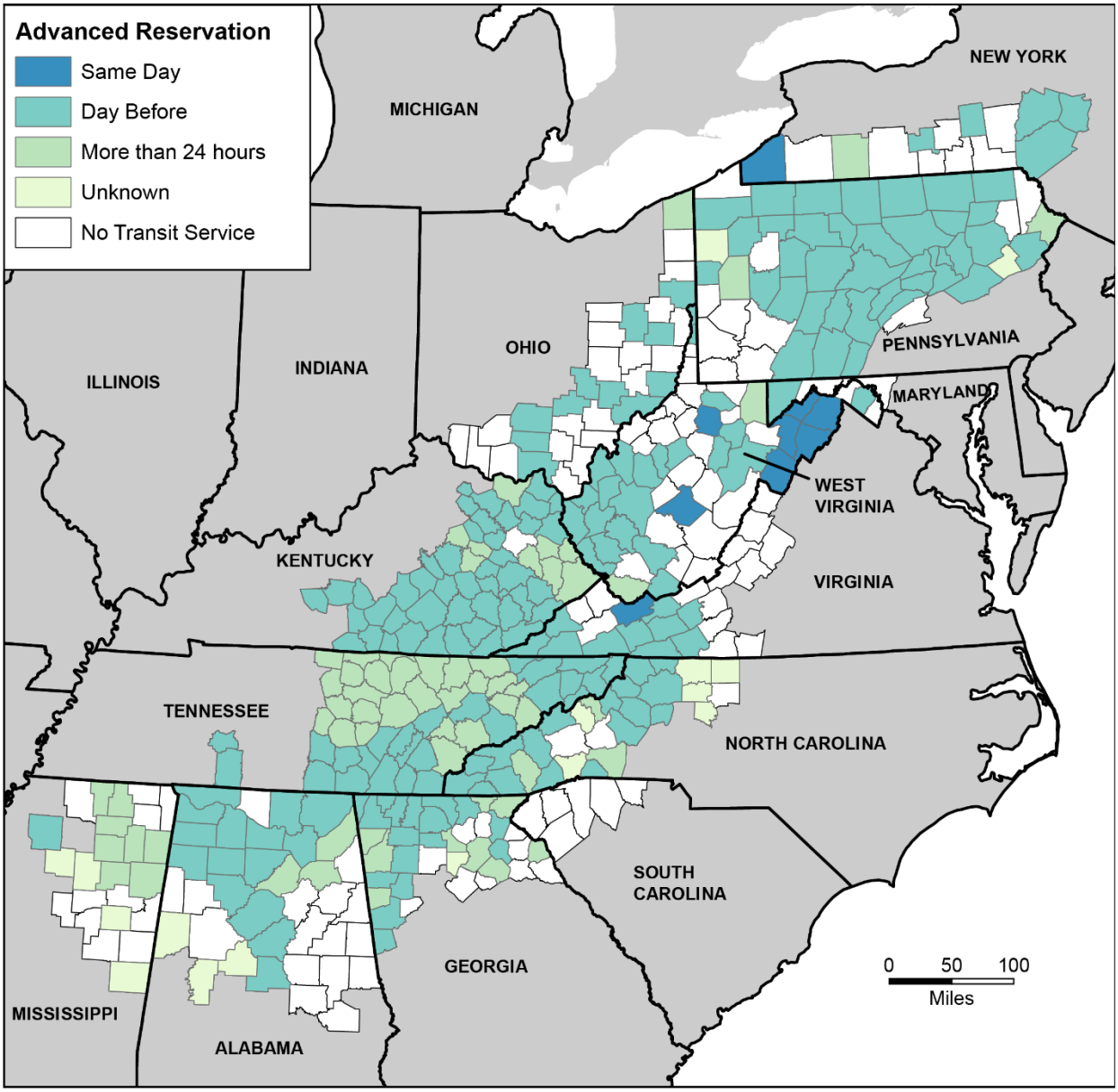


Figure 50 illustrates the demand-response service advance reservation requirement by county in the Region. West Virginia is the only state where providers in several counties offer same-day trip booking. Chautauqua, New York, and Tazewell, Virginia, are the two single counties outside of West Virginia also to accommodate same-day demand-response trip reservations. In most counties, demand-response transit services require reservations the day before the trip. In most counties in Appalachian Mississippi and in large swaths of Appalachian Tennessee longer reservation times are needed.

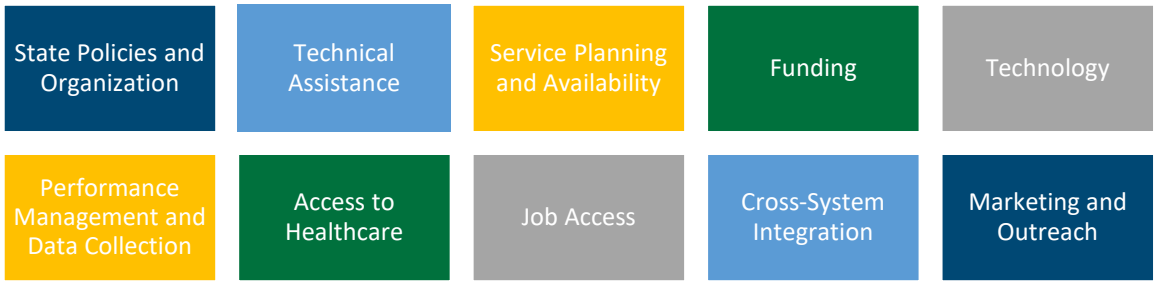
Figure 50: Demand-Response Service Advanced Reservation Requirement by Appalachian Counties



5. Challenges and Best Practices

This section synthesizes the information and insights collected through the literature and desk reviews, a transit provider survey, and interviews with state DOT staff and transit providers. It provides a comprehensive look at current challenges and best practices related to rural transit in the Appalachian Region. Findings are presented in an integrated fashion by the themes indicated in Figure 51.

Figure 51: Challenges and Best Practices Themes



5.1. Summary of Challenges and Best Practices

As shown in Table 39, for each theme area explored in this study, a range of both challenges and best practices were identified. Each individual finding is explored in detail in this chapter.

Table 39: Summary of Challenges and Best Practices

Theme	Challenges	Best Practices
State Policies and Organization	• Grant administration divided between multiple state departments. • Inflexible grant funding requirements.	• Consolidating grant administration for NEMT and public transportation in a single department.
Technical Assistance	• General need for more staff capacity. • Specialized skills (e.g., GIS, financial, and service planning) not available locally.	• State-level on-call planning assistance contracts available for use by providers. • State-funded local planning studies. • Individual state DOT staff assigned to work closely with specific regions. • All state DOTs provide guidance and technical assistance to communities and providers seeking to expand transit service.

Theme	Challenges	Best Practices
Service Planning and Availability	• Low-density, large service areas make it challenging to provide cost-effective service. • Increasing demands for service due to the aging population. • Limited geographic coverage and hours of service constrain service delivery in many Appalachian counties. • Even in communities with high-quality rural public transportation services, fare affordability often serves as a barrier to accessing services.	• Statewide and regional transit plans and programs that identify unconstrained transit needs and develop a shared transit vision. • State requirements that systems complete a transit development plan that includes service change recommendations on a constrained and unconstrained financial basis. • The transition of fixed routes to deviated fixed routes or shared ride services in low ridership areas, but retaining/enhancing fixed-route services to connect community centers and major activity centers.
Funding	• Providing local match funding to draw down federal grant funding is difficult for most providers. • Providers are hesitant to start new services without assurances that funding for these services will continue long-term.	• Dedicated state-level transit funding sources, such as Pennsylvania's Act 44 and the use of South Carolina's state-level gas tax (one-quarter of one cent) for transit. • State-level grant funding available for use as the local match for federal grants. • Utilizing a range of contract funding sources (e.g., NEMT, VA, Department of Corrections, etc.) to support an agency's operations. • Examining the benefits or constraints posed by a fare-free system on a case-by-case basis. • All state DOTs proactively work with providers to ensure they have the information needed to access grant funding.
Technology	• The scope and scale of federal transit technology grants render them inaccessible to small and rural transit systems. • Cost of off-the-shelf operational technology (e.g., scheduling and dispatching) is prohibitive for many providers on an individual basis. • Specialized vehicle types (e.g., four-wheel drive) may be needed to accommodate mountainous terrain.	• State DOTs that purchase licenses for scheduling and dispatching software for use by providers statewide has allowed small providers that would otherwise find these technology purchases cost-prohibitive. • Costs associated with electronic/mobile ticketing are decreasing, and providers are finding new solutions to bring this technology to their communities. • PennDOT has a public-private partnership program for fueling vehicles with compressed natural gas (CNG), and that has allowed Appalachian region providers to purchase CNG vehicles.

Theme	Challenges	Best Practices
Performance Management and Data Collection	• The breadth of reporting requirements, along with the lack of technology that enables efficient data collection, can be difficult for rural providers with limited staff capacity.	• Using performance data to inform funding decisions and project prioritization.
Access to Healthcare	• An increase in the need for non-emergency medical transportation (NEMT), but many NEMT cannot be funded with Medicaid. • Hospital and rural health provider closures have forced public transportation providers to travel ever-farther distances for NEMT.	• Timed transfers with other providers' services that will connect riders to specific medical facilities. • The use of volunteers to accompany riders who need assistance to and from medical appointments.
Job Access	• Job access needs not explicitly addressed in federal grant programs, and only a few state-level funding opportunities. • Two-thirds of respondents to the provider survey reported that limited access to a reliable private vehicle is a barrier to personal mobility in their service area. • Rural communities that have few large employers or few employers overall may make it difficult for providers to design services (particularly fixed route) to address their needs directly.	• Working with employer groups and individual employers to identify and address job access issues. • Engaging employers in funding assistance for employer-focused public transportation services. • Identifying sites that may be suitable for commuter bus-style service. • Providing lower fares and flat fares for job access transportation to facilitate job access among low-income workers.
Cross-System Integration	• Many providers lack resources to facilitate cross-system transfers. The potential for greater provider integration across regions exists, but it is often unrealized.	• Multi-county regional transportation providers or regional coordination groups that integrate service providers and serve all trip types. • Working with private vendors to expand the reach of traditional public transportation systems. • Facilitating timed transfers between systems, particularly to connect rural and urban public transportation systems.
Marketing and Outreach	• Many providers do not have information regarding their services, such as hours of operation, fares, or routes, available online on websites or mobile applications. • The ability to provide customer service, particularly service updates (e.g., real-time arrival information) due to staff and technology constraints.	• Proactive engagement and traditional individual personal engagement with key stakeholders (e.g., doctor's offices) and with the general public. • Ongoing community engagement in service planning, management, and delivery through participation in committees and oversight functions. • Direct outreach to local elected officials, particularly recently elected ones, to solicit support for public transportation. • Clear bus stop signage.

5.2. Challenges

5.2.1. State Policies and Organization

Structure and Responsibilities

The distribution of grant management responsibilities across multiple state agencies complicates the process by which providers access grant funding in several states in the Appalachian Region. For instance, FTA's Section 5310 program is administered by the Georgia Department of Human Services (DHS) Coordinated Transportation System, while GDOT administers FTA's Section 5311 program. This separation requires additional coordination by transit agencies as they report to separate entities to comply with grant funding requirements. A Georgia House Commission on Transit Governance and Funding recognized this challenge and drafted legislation to restructure transit funding administration in the state, combining GDOT and DHS transit programs to allow for centralized grant management.

The consensus among state DOTs and providers interviewed for this study suggested that more consistency between grant requirements and simplification of some of the grant requirements at the federal level would help providers navigate and administer the grant processes more easily and require less administrative capacity to access grants.

Transit agencies operating across state lines also face unusual challenges. Trans-Aid of Catoosa County, Georgia, provides service for non-emergency medical transportation (NEMT) only into neighboring Tennessee. This requires additional coordination by Trans-Aid in order to integrate with their counterparts in Tennessee, who are organized and managed at a regional level, versus Georgia's rural transit, which is organized at the county level.

Grant Funding Restrictions and Requirements

Due to the inflexibility in federal grant requirements, transit agencies have often had to restrict the provision of transit services geographically or by population group despite the broader transit needs.

One of the most pressing issues related to grant restrictions, raised by multiple state agencies across the Appalachian Region, is related to the transition of geographic areas formerly eligible for Section 5311 funding that are re-classified and become eligible only for FTA's Section 5307 Urbanized Area Formula Grants. Following each decennial census, the definition of Urbanized Areas (UZAs) is updated by the U.S. Census Bureau. Areas located within UZAs are eligible for Section 5307 funding, but cannot be served by transit agencies using Section 5311 funding. As a result, following the 2010 Census and update of the UZAs, areas that were formerly eligible for service by agencies using Section 5311 funding transitioned to being eligible only for transit service using Section 5307 funding. This resulted in a loss of transit service for some communities in Appalachia. Many of the areas no longer eligible for Section 5311 remained predominately rural in nature, while the transit agency providing service using Section 5307 funding in a region may not have the resources or be able to feasibly extend their service to the populations that lost access to rural transit service. Some, although not all, transit agencies that have encountered this issue have created a work-around, but such as meeting Section 5310 funded services at the UZA border to allow riders to transfer. Tennessee is one of the states where this issue has been particularly pronounced. In preparation for the revision of the UZAs following the 2020 Census, TDOT has proactively identified areas (particularly in northeast Tennessee) where the loss of rural transit service is a concern to facilitate proactive conversations with the relevant transit agencies.

In other cases, the restrictions of specific grants to specific trips makes the provision of rural public transportation services far more complicated than if providers had a single funding source from which they could serve a variety of trip types. For example, a grant may specify that only workers with a child under age 18 at home can use a specific service, or providers are assigning different trips to different funding sources for specific populations such as seniors, the disabled, veterans, Medicaid recipients, and more. Beyond the administrative capacity needed to manage the requirements of a variety of grant funding sources, these types of requirements also restrict the ability to use rural public transportation services to certain populations, often leaving individuals who do not meet eligibility requirements without access to public transportation services.

Public transportation provider surveys and interviews also revealed the challenges that providers face in complying with grant funding requirements, particularly for public transportation providers that are operating with minimal resources and staff capacity. For instance, Susquehanna-Wyoming County Transportation, Pennsylvania, cited Medical Assistance Transportation Program (MATP) billing requirements as a challenge. The billing process is based on a proposed average rather than actual costs. It is then reconciled after the end of the fiscal year. The provider suggested that a shift to a monthly billing format would help reduce administrative expenses.

5.2.2. Technical Assistance and Staffing

All the state DOTs in the Appalachian Region provide technical assistance to transportation providers. The degrees to which they can provide technical assistance vary by their available resources and by the varying frameworks and planning requirements in place.

Several public transportation providers reported a desire for an increase in technical assistance. Providers with limited staff report needing more assistance on a general level. For instance, AppalCART, North Carolina, described itself as a flat organization that is often busy and has limited staff. The provider does not have a lot of administrative staff, nor a full-time planner or GIS specialist. Although AppalCART enlists the assistance of GIS apprentices, there is only one apprentice at a given time, and apprentices only stay for a year. This staff turnover creates difficulty in the building and maintenance of a system. A full-time staff member familiar with GIS is critically needed as NCDOT's capital project funding is a data-driven process that requires a substantial amount of information from GIS.

This concern is similarly expressed by Steuben County Transit, New York, which reported a lack of in-house transportation planning expertise. Tompkins Consolidated Area Transit, Inc., in New York, mentioned a need for business development expertise. The provider has been exploring a transaction component that would enable riders to make monthly payments for all the mobility options that they use, and it would function similarly to budget billing for utility consumption, which would level out payments over time. The provider expects this feature to help the public understand and create annual mobility budgets. While the staff has some ideas on how to implement the program, limited experience and assistance have been a barrier, especially given that this differs from typical grant activities. Access to business development consultation would empower providers to pursue innovative ideas despite a lack of in-house technical skills.

5.2.3. Service Planning and Availability

Many of the rural service areas of the Appalachian Region are characterized by large geographies, low density, and mountainous terrain. These factors create formidable challenges for service planning with

limited resources. Route planning in service areas with mountains is particularly challenging as routes are rarely able to operate in a straight line or flat highway. The terrain, coupled with low population densities and large service areas, often results in long distances that vehicles must travel to provide service for even a single rider. Providers also strive to keep fares affordable to the local population; even with relatively low fares today, some states reported that today's fares are too high for many potential public transportation users. These factors, taken together, can make affordable service provision a challenge for rural providers.

Additionally, demographic studies in the Appalachian states have shown that the population in rural areas is aging and decreasing. An aging population would become less likely to drive and require more medical transportation services. The decreasing population would result in less density, a change that would severely impact service planning. These are key factors for state DOTs and transit providers to consider when planning for the future.

Coverage and Operating Hours

Rural transit providers often focus on a total area of service coverage, even in communities where the potential service area is quite large. Public transportation providers in Appalachia are often faced with a decision regarding their service goals: Should they try to reach as many people as possible or provide sustainable, efficient service? The degree of available public transportation varies across Appalachia. West Virginia (WV) DOT estimates that existing transit service covers about two-thirds of the state's population. While WV DOT is working on expanding coverage, constraints on their ability to do so include funding as well as the capacity of existing transit providers. Other state DOTs where service is not yet available in all parts of the state expressed similar sentiments.

As mentioned earlier, Tennessee faces challenges in maintaining rural transit services due to the restrictions around the use of Section 5311 in designated UZAs. Tennessee Department of Transportation (TDOT) has termed the resulting issue the "urban donut" to reflect how it impacts service coverage. A rural provider in northeast Tennessee, First Tennessee Human Resources Agency (FTHRA), is providing demand-response service to previously rural clients left unserved by boundary shifts as a result of the 2010 Census. TDOT also implemented a program known as Critical Trips to bridge service gaps caused by the urban donut, but this program is only a temporary measure.

The hours of operation for demand-response services vary greatly. Based on survey and inventory results, many services are only available in the morning and early afternoon, with limited evening service. Between 2012 and 2017, rural transit saw a net decrease of 21% in transit revenue hours. With constrained financial and staff resources, many providers are unable to provide service more than a few hours a day. In some areas, there is little demand for transit service after the early afternoon, and it is difficult for providers to justify the cost of expanding service hours. These limitations also apply to the provision of weekend services. In other areas, demand may exist, but resource constraints limit the provider's ability to provide expanded service hours and days. Although weekend service is more common than late-night service, 73% of Appalachian counties that do not offer any form of weekend demand-response service.

Georgia Department of Transportation (GDOT) estimated a 20% expansion on hours of service is needed, either to add additional weekday service or to provide weekend service, based on input the state DOT received from rural transportation providers. Due to limited resources, rural public transportation

providers in Georgia typically operate from 8:00 a.m. to 5:00 p.m., limiting the ability of the service to be used throughout peak commute hours.

Garrett Transit Service, in Appalachian Maryland, provided another perspective concerning operating hours. Responding to passengers' feedback, the provider extended operating hours from 4:30 p.m. to 6:00 p.m. However, the provider reported minimal activity during the new operating hours. Extended hours require the provider to keep a dispatcher in the office and have an extra one or two drivers working. Garrett Transit Service expressed uncertainty as to whether the added convenience for certain riders is worth the cost of providing the service. However, they have not yet studied this issue in-depth.

Fare Affordability and Farebox Revenue

Even in areas of the Appalachian Region where public transportation services are widely available, the cost of using these services can be prohibitive for many individuals who need to use them. In Kentucky, all transit is operated by non-profit organizations, and although public transportation services are supported by a range of funding sources (including NEMT funds, Older Americans Act Title III, Veterans Affairs, and funds from the Kentucky Department of the Blind and the Kentucky Department of Corrections), local funds for transit remain limited. As a result, public transportation providers must set fares to ensure their services are financially self-sustaining. While some fixed-route systems charge $1 per trip or offer the option to purchase $50 monthly unlimited passes, most demand-response systems charge $1 per person per mile, $3 to $4 one way, or set a different rate for out-of-county trips. Since the price often scales based on distance traveled, the cost per trip can become prohibitive. This can result in transit service inaccessible to many residents, and especially impacts low-income populations who are more likely to depend on public transit. In much of eastern Appalachian Kentucky, fare prices present a larger barrier to accessing service than service availability.

There are a select number of fare-free public transportation systems in Appalachia. AppalCART of North Carolina does not charge fares, in part because the expense of fare collection (e.g., $40,000 farebox on each bus) negated the revenue that would otherwise be collected. AppalCART believes that new technologies for fare collection—such as contactless cards and smartphone-based applications, which are preferred over cash transactions for convenience—may not be accessible for all. By not charging fares, the agency also streamlined the boarding process, leading to an overall more efficient service. In AppalCART' s case, not charging fares was more financially advantageous than it would be to charge them.

Expanding Fixed-Route and Deviated Fixed-Route Services

Although there is interest in expanding fixed-route transit services in the Appalachian Region, its implementation in rural Appalachia is challenging for two reasons: low density and lack of funding. Deviated fixed-route services, where vehicles generally operate on a fixed-route basis but may accommodate alternative pick-up locations within a set radius of the route, have been successfully implemented in rural areas in the Region.

Greenville Transit Authority, South Carolina, shared the challenges they faced in expanding their fixed-route service. Operating hours have been steadily expanding in Greenville, and the provider plans to move on to the next stage of improvements to introduce increased frequency, Sunday service, and to introduce 19 new routes. There are two major barriers to these plans: the provider's current bus maintenance facility does not adequately support additional buses, and the upfront cost needed for vehicle acquisition is a significant sum. Although the provider was awarded $11 million in 2018 to build a

new facility and has selected a location, the land transfer process has been halted as a result of COVID-19 and suspension of council meetings. As for the vehicle costs, the provider noted that they did receive Section 5339 funding to purchase four new buses, but they require a minimum of 13 buses to increase frequency on all their routes.

Transit Workforce

The need for a reliable transit workforce is shared amongst several transit providers across the Appalachian Region. Aside from technical skills, as discussed above, under technical assistance, providers reported a need for maintenance staff, dispatchers, drivers, and more. For small transit systems, the absence of one driver due to unexpected circumstances, such as sickness or a family emergency, could impact the schedule for an entire day and force a provider to cancel trips. When there is limited capacity, dispatchers and drivers attempt to fulfill the most critical trips and usually must reschedule NEMT and other quality of life trips.

Two of the providers interviewed, AppalCART, North Carolina, and the Northwest Alabama Council of Local Governments, discussed challenges in driver recruitment. For the Northwest Alabama Council of Local Governments, low unemployment rates and competing employers made it difficult to recruit drivers. AppalCART's service area has a small population of 55,000, with a significant number of residents at or above the retirement age. As employment opportunities are readily available, there is not a lot of interest in driving buses, especially since AppalCART must be competitive with wages. The lack of a reliable transit workforce requires staff members to fill the responsibilities of multiple roles as a dispatcher, customer service representative, and director, all at the same time. This challenge spreads resources thin and adds difficulties to service operations.

5.2.4. Funding

Funding constraints in Appalachia limit the ability of providers to enhance or expand existing services and start new ones. Public transportation providers throughout Appalachia commonly face several challenges: the difficulty of obtaining a required local match for federal funding, the lack of local funding available to support transit more broadly, and the challenge of balancing affordable fares with the need to increase farebox revenue.

Local Match Funding for Federal Grants

Federal Transit Administration grant programs require a local match, typically ranging from 50% for operating grants to 20% for capital grants. The difficulty in securing local matches was widely cited as a prominent barrier that prevents providers from accessing more funding. Local funding is often limited because revenue sources that are often used to fund transit services in urban areas (such as sales tax) are not available or insufficient to support transit service in rural areas with smaller tax bases.

Another prominent local funding source results from contracts with human service agencies, mental health institutions, community colleges, and/or Medicaid. Contracts of such nature generate revenue that constitutes a sizeable portion of local match. For example, Mountain Empire Older Citizens, Inc. (MEOC Transit), in Virginia, subsidizes general trips using fares generated from NEMT, as NEMT brings in much more money than regular fares and does not require much extra effort. Fifteen percent of the provider's funding comes from Medicaid. This strategy is not unique, and it demonstrates how providers use alternative sources other than transit fares to fulfill local match requirements.

Alabama Department of Transportation (ALDOT) discussed a lack of mechanism through which local match can be secured, preventing rural counties from taking full advantage of federal funds, including the Section 5311 ADTAP set-aside funds. The ALDOT estimates that 80% to 85% of Alabama's available transit funds are allocated, as counties struggle to draw funds according to formula as a result of lacking local match. The Appalachian apportionment, about $5 million, is flexed over to the Federal Highway Administration. Alabama does not provide state funds for use as the local match for federal funds. Northwest Alabama Council of Local Governments notes that although they may apply for and receive federal grants, providers simply do not qualify for most grants without sufficient state match.

Mississippi encounters the same challenge, despite the availability of state funds that localities can use to match federal grants. The state's Multi-Modal Transportation Program funds approximately 20 projects with $800,000. However, it has its limitations and does not provide a match to cover all capital or operating needs. While Section 5311 funding is budgeted, state DOTs cannot expend it all if local providers do not have sufficient match. Every year, approximately $1 million (sometimes more) of federal funding is unspent. This is particularly unfortunate, as this amount has the potential to address all the state's identified project needs if only there were a greater availability of local matching funds.

South Carolina Department of Transportation (SCDOT) provides another perspective concerning the local match. Although South Carolina is always able to fully allocate and use federal funding, SCDOT expressed that flexible funding requirements would allow rural providers not just to maintain services but also expand them. In South Carolina, rural counties typically have the hardest time coming up with the local match due to funding limitations, which makes it difficult for those counties to draw down the totality of the Section 5311 funding available. However, if there were more flexibility at the federal level for local match requirements, rural transit entities would be better able to maintain existing services *and* expand services.

Barriers to Service Improvement and Expansion

While states throughout Appalachia have worked with local public transportation providers to identify the need for service expansion and other types of service improvements, funding is the most often cited factor in limiting the ability of state DOTs and public transportation providers from implementing desired service improvements. Continuing existing public transportation services is the priority over implementing new services across the Appalachian Region. Constraints around capital funding, and being able to maintain a state of good repair among vehicles in existing fleets, also constrain the ability of public transportation providers to increase service.

Many states and providers expressed that for service improvements to be implemented, they need to rely on a secure and continued funding source. South Carolina DOT expressed a belief that service improvements that rely on temporary funding sources are less likely to be continued after the initial funding source is expended, a concern that is shared by public transportation providers across South Carolina.

5.2.5. Technology

Public transportation providers throughout Appalachia reported a need for new technology (e.g., electronic fare collection, scheduling software, online trip planners), either as an upgrade for aging existing systems or as a new system providing additional capabilities. The inability to access modern transit technology has a day-to-day impact on both public transportation providers and their riders. For

example, the Northwest Alabama Council of Local Governments provided insight on how tablets could help simplify the ride scheduling and communication processes. Currently, the provider prints out paper maps for their drivers. Drivers must pick up a passenger list before their trips of the day. If there are any changes, dispatchers struggle to rearrange the schedule and contact drivers to communicate the changes. A tablet would reduce some manual efforts that occur during the process. Many systems throughout Appalachia provide only limited online information to riders (e.g., schedules and other trip-planning), with real-time bus arrival information (which is now common in urban areas) a rarity in Appalachia.

Funding for Rural Public Transportation Technology Support

More federal funding opportunities dedicated to transit innovation need to be accessible to public transportation providers in the Appalachian region. The Federal Transit Administration grant funding opportunities available for innovation are competitively bid and focused on big ideas and projects, making it difficult for Appalachian public transportation providers to participate in these opportunities. North Carolina DOT staff suggested that a funding program with a lower bar of access could encourage states to explore more innovative strategies and implement pilot programs to expand the use of technology in service delivery. When innovations reap successful results, states may then scale solutions using traditional resources.

Harrison County Senior Citizens' Center, West Virginia, provided a concrete example of how the cost of public transportation technology is prohibitive for Appalachian providers today. The agency wanted to purchase an off-the-shelf software product that organizes riders' trips and plan fuel-efficient routes, and even had a software trial, but could not proceed to implement the product due to being unable to afford the ongoing license fees. This product has the potential to reduce the agency's scheduling problems tremendously, but its cost was equivalent to the provider's entire annual transportation budget. Available grants for technology-related projects are limited and do not cover yearly license fees that are typically required for software usage. Harrison County Senior Citizens' Center suggested that statewide procurements of this type of software may be one way to overcome the cost barriers faced by individual providers while providing substantial benefits to rural transit providers.

Vehicles

Transit providers in the Appalachian Region often require specialized vehicles to travel the Region's mountainous terrain and to serve its rider demographics. Providers in Tennessee and Ohio expressed that while four-wheel-drive or accessible vehicles best accommodate the terrain and wheelchair users, the vehicles are not fuel efficient. Southeast Tennessee Human Resource Agency currently has small cutaway buses with wheelchair stations that may accommodate eight to twelve passengers. Tennessee DOT works with the procurement office to help with solicitation and secure funding for conversion vans.

Overall, these technological factors are some of the barriers that rural transit providers face in their efforts to provide efficient, sustainable service. Although state DOTs and providers have been collaborating to explore potential solutions, there is room for improvement.

5.2.6. Performance Management and Data Collection

The involvement of state DOTs in performance management and the subsequent assistance that is provided varies across the Appalachian Region. In most cases, state DOTs, as grant administrators, are responsible for ensuring that data is reported to the National Transit Database (NTD) on behalf of transit

providers. Besides the baseline metric collection requirements that are mandatory for subrecipients of federal funding, a few state DOTs have additional performance tracking measures.

The array of reporting requirements can be an administrative burden for many Appalachian public transportation providers. Data from the providers are occasionally required to be submitted on varied time schedules. For instance, Mississippi DOT requires quarterly summary reports and monthly Disadvantaged Business Enterprise (DBE) reporting, payment documentation, and performance indicator reports. This applies especially to providers who receive both federal and state funding. Providers have expressed that there are lots of reporting deadlines to keep up with, despite their limited staff capacity. The ease of reporting also depends on technological capabilities, and some providers may utilize state DOTs' online portals for data-entry if it is available, while others may still be logging data using hard-copies by hand.

5.2.7. Access to Healthcare

Affordability and Medicaid

The aging population in parts of Appalachia has led to a sharp increase in demand for access to healthcare in the form of non-emergency medical transportation (NEMT), with chemotherapy and dialysis trips being mentioned as specific trip types for which demand has increased. Medicaid is the most common funding source to pay for NEMT, but a significant portion of the population with NEMT needs do not have Medicaid, nor do they have access to a vehicle. If these individuals reside in a community that is not served by transit, they lack the ability to access needed medical services.

Hospital Closures

Hospital closures in rural areas have increased the distances that passengers need to travel in order to receive medical care. In rural Georgia, it is becoming increasingly difficult to meet doctors and specialists locally. Georgia DOT explained that riders often need to travel across several counties to meet healthcare needs, requiring substantial coordination to provide trips for medical appointments. This challenge is not unique to Georgia, as confirmed by surveys and interviews with state DOTs and transit providers alike. As out-of-county trips are costly to both the passenger and transit provider, Harrison County Senior Citizens' Center, Inc., West Virginia, coordinates with passengers to reschedule medical appointments in a closer location, as opposed to traveling to Morgantown, if possible. This is one example of how transit providers have responded to rising demand in medical transportation and the trend of rural hospital closures.

Funding

A substantial number of rural transit providers depend on NEMT contract revenue as a primary funding source. Any reduction of NEMT funding would not only impact a provider's ability to serve NEMT, but it would also impact general public transportation services, as NEMT often serves as the local match necessary to draw down federal grant funding. For example, Medicaid provides fifteen percent of all funding for MEOC Transit of Virginia. MEOC strategically schedules trips to include both NEMT with trips of other purposes, in part because revenue per NEMT is far higher than that provided by regular fares, and this pairing helps public transportation providers serve both NEMT and non-NEMT funded trips more broadly. Other providers reported that they face competition from unqualified and untrained transportation providers for NEMT funds.

5.2.8. Job Access

Job access is a persistent and growing challenge for residents throughout Appalachia, particularly as access to reliable private vehicles is not universal among job seekers in the Region. Sixty-six percent of provider survey respondents reported that they consider the lack of access to private vehicles as a barrier to mobility in their service area. This metric is taken into consideration in the process of service modifications and may be used as a factor for local funding and service prioritization. Without access to a car, individuals who wish to use transit service may need to walk for miles to get to the closest bus stop. However, job access is one trip type for which no federal and very few state-level grants seek to address explicitly. Perhaps unsurprisingly, the transit provider survey found that business parks make up just 4% of respondents' most common trip destinations.

North Carolina's DOT's Public Transportation Strategic Plan, published in 2018, highlighted employment growth in low-wage jobs and anticipation for increased demand for affordable transportation options that would provide job access. As businesses seek out viable locations for offices, locations that offer a good quality of life, including robust transit systems, are desired. Mississippi's Statewide Public Transportation Study of 2017 points out another pressing concern that is shared with various states: Employment is anticipated to become increasingly concentrated in Urbanized Areas, but rural counties are projected to lose jobs. This change would inevitably impact efforts to plan for and meet the needs of job access in the Appalachian Region. Garrett Transit Service in Maryland noted that the lack of job opportunities in their county and the fact that there are very few large employers in the county that have the potential to generate ridership constrain both the need and the ability of the agency to provide workforce transportation. Garrett Transit Service explored applying for Maryland's state-level job access grant. Still, as the grant required providers to designate certain trips/runs to employers, the agency did not apply for it as they did not have enough demand to create trips/runs to individual employers.

5.2.9. Cross-System Integration

As discussed previously, the vast distance of rural transit trips creates a multitude of challenges for providers. The cost of transporting one passenger across long distances over multiple counties can strain resources as it wears out vehicles at a faster rate, occupies service schedule for a significant part of the day, and prevents providers from being able to provide service to more passengers. Although some counties have established cross-system partnerships to utilize resources efficiently while meeting transit needs, others have space for improvement. There are successful examples of municipal and county systems merging to provide better service, but there are still lots of opportunities for consolidation. Additional funding available to incentivize a transition for consolidation would help to facilitate these opportunities.

5.2.10. Marketing and Outreach

Promoting Rural Transit

Providers often manage outreach and marketing of their services independently, even as their ability to provide service is constrained by funding, staffing, and other resource issues. Fourteen percent of respondents in the transit provider survey cited a lack of marketing as an issue that prevents providers from offering additional service. Many critical items, such as vehicle maintenance costs or staff capacity, take precedence over marketing and outreach of services. Small providers may lack a dedicated employee responsible for increasing community awareness of available transit services.

Another challenge lies in creating a positive image for rural transit, enticing passengers to utilize the service. Characteristics of rural transit differ from urban transit, which typically features frequent service, modern amenities, a multitude of fixed-route services, and more. Rural transit commonly requires an advanced reservation to allow providers adequate time to arrange schedules. While demand-response services are available, the need to plan ahead of time may be an inconvenience and may not always respond to passenger needs.

Customer Service

During the process of developing the transit inventory, information regarding transit service proved to be occasionally difficult to find. Key information that is commonly missing from provider websites includes operating days/times, eligible clients, advanced reservation requirements, and more. Although more information may be acquired through phone calls, smaller providers with limited staff regularly have an occupied phone line—preventing prospective passengers from accessing the information they need, and potentially discouraging first-time users seeking assistance. For current passengers, limitations in technological or customer service capabilities may hinder communication. Harrison County Senior Citizen's Center's director shared the provider's previous struggles in communicating with passengers. While the first leg of a trip usually runs on time, drivers may experience delays during pick-up for return trips. The provider states that they would try their best to communicate service delays, though it may not always be feasible. The provider has since then introduced a service policy that provides passengers with reassurance and guidance on steps to take if a trip is delayed. However, it does not provide a solution to the root of the problem—passengers lack a reliable way to acquire service updates. Rural transit service would greatly benefit from an established and clear-cut communication chain between operators, drivers, and passengers.

5.3. Best Practices

5.3.1. State Policies and Organization

Structure and Responsibilities

Each state in the Appalachian region has structured its rural public transportation programs in a unique way. While NEMT and rural public transportation grants administered by different state departments were identified as an administrative challenge by providers, the converse was found to be true among states that have consolidated the administration of NEMT and rural public transportation grant programs at the state level. For example, Kentucky Transportation Cabinet's Office of Transportation Delivery has a branch solely responsible for seeking, overseeing, and implementing grant programs, including both federal transit and NEMT programs. Kentucky also streamlined the grant applications process for small providers by designating ten lead agencies (one per region) throughout the state to be responsible for facilitating the human service transportation coordination planning process, as well as submitting a single grant application to cover all providers within the region. This means that individual senior centers, adult daycares, and other facilities and providers submit their grant applications directly to the lead agency. All the stakeholders "sign off" on the final allocation of funding. This has simplified the process of a grant application and reduced the paperwork burden on smaller systems.

Georgia may soon also be moving in the direction of consolidating the administration of grant programs. A commission of Georgia's state legislature has recommended that the grants administration functions of the GDOT Transit Program and transportation programs at the Georgia Department of Human Services and Community Health be combined. The result would be a single entity that would be responsible for

administering transit funds, increasing coordination, and allowing more structure to regional and statewide transit planning. This practice may help streamline funding application processes for states where the management of federal transportation programs span different departments.

5.3.2. Technical Assistance

With limited staff capacity, rural transit providers often lack the technical expertise needed to optimize service or adequately plan for changes in transit demand. In many cases, state DOTs provide resources for additional technical assistance. Tennessee DOT, for instance, currently has four on-call contracts with consultants that are used to support rural transit providers in need of planning assistance. North Carolina DOT also provides consultants to rural systems to work on planning at the local and regional level. When several providers consolidate into a single, new system, or when there is staff turnover, NCDOT offers technical assistance on a recurring basis to train staff in their new positions. Providers in the process of consolidation receive technical support and funding to cover cost differentials through state funds. South Carolina DOT's Office of Public Transit assigns regional planning managers to targeted geographic areas. This facilitates direct collaboration with providers in each region, providing technical assistance to councils of governments (COGs) and meeting rural transit planning needs.

New Applicants

State DOTs may provide additional support to providers who are first-time applicants to federal funding programs. In Maryland, MDOT assigns new applicants to at least one staff person. During application workshops, new applicants receive an orientation separate from returning applicants, which provides one-on-one assistance for those who need the attention. By doing so, MDOT can ensure that new applicants have access to the resources they need and provide more direct support.

The first step of Virginia's Department of Rail & Public Transportation in supporting new applicants is to conduct a feasibility study to verify needs and identify a source for the local match; this was most recently done for the Town of Woodstock in Shenandoah County. Localities in Virginia may then apply for a technical assistance grant to demonstrate their need for transit, supported by a four-year budget. A demonstration grant would fund the first year of a new system. In the second year, the provider would apply for Section 5311 funds. This two-step process provides a buffered time period for potential adjustments and sets providers up for success prior to submitting an application for the federal program.

West Virginia DOT uses Rural Transit Assistance Program (RTAP) dollars to assist transit providers that request assistance. While WV DOT has on-call consultants to support providers with route design, analysis, or full-service evaluations, consultants are used for another key function. Before WV DOT funds any service expansion, applicants must go through a process in which a consultant develops a planning study to explore gaps and needs in the service area. Tri-River Transit, which serves four counties, is a recent example. The provider was approached by local officials requesting transit service to Mason County. West Virginia DOT provided assistance with planning needs, which included pinpointing unmet needs and aspects concerning finances.

5.3.3. Service Planning and Availability

Statewide Transit Plans and Programs

Statewide transit plans and programs help provide structure for service planning efforts in the Appalachian states. These documents, which are typically in the form of long-range plans, assess states' existing multimodal transportation systems and present opportunities for improvement as well as

maintenance, illustrating a big picture of what transit could be like in the coming years. The development process for these plans entails coordination with local governments, planning agencies, and transit providers across the state to prioritize future investments effectively.

Georgia DOT is currently working on a statewide transit plan that would compile all needs identified in local plans, both in urban and rural systems. The plan would establish a vision for transit and outline the implementation of performance metrics and goals on a statewide level. Recommendations for rural and urban transit systems will also be included. Georgia DOT anticipates that the plan will discern funding needs for transit in Georgia, providing a clear estimation of the capital and operational funding needed to achieve goals detailed in the plan.

The Ohio Statewide Transit Needs Study Report is another example of how state-level plans can guide service planning efforts. The report, published in 2015, included the analyses of existing conditions and ridership trends, a needs assessment, and a financial plan. Best practices from peers were also reviewed to help ODOT understand the successful strategies and innovations implemented elsewhere. As part of the consultation process, ODOT conducted site visits and interviews with providers. Public input was collected through surveys and a series of regional stakeholder meetings. These efforts were supported by a project website where online activities and various resources were available. Overall, the report demonstrated Ohio's transit needs and set tangible goals for the state to achieve.

States may also introduce transit programs to meet demands for service availability and improve access to transit information. New York State DOT sponsors the 511NY Rideshare Program, a centralized location where the public may access information and explore alternatives to single-occupancy vehicle usage. Transit and vanpool riders in the 511NY Rideshare Program may access a door-to-door itinerary planner and access the Guaranteed Ride Program. The program invites employers and organizations to partner up, providing more transportation options for employees. On its website, the program reports that it has supported 10,000 employers and more than 120,000 commuters since 2010.

There are several rideshare programs available in Pennsylvania. The CommuteInfo program supports the general public commuting to or from select Appalachian counties. If commuters opt for transit, they may purchase discounted weekly or monthly passes. After completing a Commute Options Report, commuters have the option to participate in vanpooling if an appropriate route is available. CommuteInfo provides a cost-efficient way for commuters in rural areas to get to where they need to be. Older Pennsylvanians are eligible for another shared-ride program that enables senior citizens to use demand-response services and pay a discounted fare. Seniors citizen pay 15% of the fare, and the remaining 85% is covered by the Lottery Fund. This discount program is available in every county in Pennsylvania with shared-ride service hours. These programs bridge mobility gaps by reducing the hurdles of vanpool and transit use, making these services more accessible.

Regional Plans and Local Transit Development Plans

States also often look to metropolitan planning organizations (MPOs) or rural planning organizations (RPOs) to facilitate more coordinated transportation planning in rural areas. North Carolina, for example, engages RPOs in the process of developing community connectivity plans and comprehensive transportation plans. RPOs are also authorized to work on planning projects such as corridor plans, bicycle and pedestrian plans, etc. RPOs develop and identify projects that are appropriate to be included in the state's Transportation Improvement Program, further providing transportation-related information to municipalities. Each RPO has a designated Lead Planning Agency that provides staff support for RPO

operations, assisting with the various tasks that concern funding distribution. The breakdown of responsibilities in North Carolina is one example of how state DOTs may adjust organizational structures and strengthen partnerships with RPOs to improve transit planning and ease of program administration.

A few Appalachian states have required public transportation providers to develop periodic Transit Development Plans (TDPs) under a defined framework to ensure that systematic, periodic transit planning occurs at every provider, although the specific TDP requirements vary across states. Maryland DOT uses a standard TDP model that is required every five years. A third-party consultant manages the TDP processes. North Carolina DOT developed planning templates and engaged consultants for assistance. These templates are designed to be scalable. Transit providers can use them independently, while RPOs that cover several counties are also able to utilize this tool. In North Carolina, all providers are required to have a plan with a five-year outlook. NCDOT shares that they aim to address transit needs as they occur rather than having a structured schedule to better respond to population or demographic changes.

Virginia's DRPT requires all rural providers who are recipients of state funding to participate in a TDP every five years. This process intends to help providers improve transit service by reflecting on the need in their respective communities and resources they may require to bridge mobility gaps. The TDP is used as a planning, management, and policy tool for providers while informing DRPT of the support that providers may need in the future with both financially constrained and unconstrained elements. It is also used to track mid- and long-term project progress for transit in the region.

Individual providers may also engage in extensive analyses of existing services and budgets through studies of their own design. Greenville Transit Authority conducted a rider survey in 2015 that identified areas in need of improvements, such as hours of service, route planning, and frequency. The agency then conducted a study with the aim of determining what service changes could be made within the existing budget that addressed the findings of their rider survey. When it was determined the budget was too constrained to allow for most desired changes, Greenville focused its initial efforts on cost-neutral system updates that improved efficiency without costing additional money.

Coverage and Introduction of New Service

The vast nature of the Appalachian Region has made service coverage a prominent challenge for transit providers. Georgia DOT shared that their primary goal is to expand coverage, as about 36 counties in Georgia do not have any public transit service. South Carolina DOT also discussed similar concerns. One region in South Carolina has historically been under-serviced with transit, with four of the six counties in the region having no transit service. In recent years, SCDOT has provided state planning funds to develop a needs assessment and study the introduction of service in that region. The service implementation is currently in progress—one county has received funded service, while efforts to start service in a second county is ongoing. To address service coverage needs, SCDOT sets aside a portion of the State Mass Transit Funds for the New Starts Program for providers to establish service for the initial three years, setting them up to be eligible for Section 5311 at the end of the three-year period.

Fixed-Route and Deviated Fixed-Route Services

The literature review process demonstrated key components of a successful rural transit system: robust connection to a regional network and widespread appeal to the public, including commuters, senior citizens, zero-car households, and more. Although conditions in rural areas do not always support fixed-route transit service, slight modifications such as deviated fixed-route service may be a feasible middle ground. Monroe County Transportation Authority, Pennsylvania, replaced two fixed-routes with a new

FLEX service. The provider offers passenger pick-ups using their existing shared-ride network, which is already operating in the same service area. Under the previous system, these riders would have used the unproductive and costly fixed routes. Unlike shared-ride service, which picks riders up at the door, FLEX is offered at designated stops only. The shift to FLEX service allowed the provider to save on the costs of a driver, vehicle fuel, and maintenance associated with the heavy-duty bus required for the old fixed-route service. This enables the provider to redirect its resources where there is more demand, in Monroe County's case, the Silver Line route with higher ridership. The provider reports saving 5,500 miles per month on average from October 2019 through March 2020 by utilizing FLEX route, as compared to the previous fixed-route services.

Greenville Transit Authority of South Carolina redesigned its fixed-route network in July 2019. Aware of transit's increasing importance for access to health and human services, the provider explored options to expand service without changing the existing budget. Although the provider concluded that the budget is being stretched to its maximum, they sought to make revenue-neutral adjustments to meet the community's transit needs. The result was a network redesign that replaced the existing loop route with a bidirectional route. Riders at the tail end of the loops greatly benefit from this updated service as it reduces travel time. The provider shared that it has been thirty years since the last network redesign—the changes implemented brought substantial improvements to service efficiency and ease of use. There are now locations besides downtown where riders can transfer. In hindsight, the provider notes that the bus stop placements could be revised to reduce the distance between stops and include stop amenities. This is an example of the positive impact that network redesign can have on existing fixed-route service.

Despite barriers to operating fixed-route service in rural counties, there are still plenty of successful instances in the Appalachian Region. In North Carolina, some fixed-route transit systems thrive in communities where key destinations are located in walkable places. The Town of Rutherfordton provides fixed-route services to connect the town to Forest City and Spindale, two nearby communities. These routes have been used widely and are more successful than expected. Its success has been attributed to a fare-free approach and accurate identification of priority destinations through their local planning process. AppalCART, a North Carolina provider that services a small college town, reports success with fixed-route service as well. The provider runs full buses with the lowest cost per trip in the state, and they believe that more funding to expand service would realize great benefits in their community.

5.3.4. Funding

Dedicated Funding Sources

The availability of state funding dramatically improves providers' ability to access federal funding, funds projects that may not otherwise be eligible for federal programs, and enables state DOTs to support projects that respond to transit needs specific to their own states. Having a dedicated funding source facilitates long-term commitment to transit investment.

South Carolina DOT receives one-quarter of one cent of the South Carolina Motor Fuel User Fee, known as the "Gas Tax," which totals approximately $6.5 million on an annual basis. SCDOT applies this funding towards state-funded matches for Section 5307 and 5311 grants, splitting the amount between urban and rural transit providers with a formula. There are some limitations to the fund, as Section 5310 and 5339 are not eligible for funding support that derives from the Gas Tax.

Pennsylvania's Act 44 Public Transportation Program, named the "Public Transportation Trust Fund," mandates predictable funding for maintaining and expanding transit service in the state. The program is guided by the following principles: a simple and transparent funding structure and distribution, performance and need-based funding, transit accountability and oversight, as well as financial and operating efficiency. Besides providing state-funded matches to federal programs, this fund supports state programs that more closely fit Pennsylvania's transit needs, such as the New Initiatives Program and Programs of Statewide Significance. The state does not require a local match for providers to access capital improvements funding. Pennsylvania's Act 44 is an exemplar of a dedicated funding source that, if adopted by other Appalachian states, may improve resources available for rural transit providers.

Local and State Matches and ADTAP

While difficulties in securing local matches are commonly cited as a challenge for rural transit providers, many state DOTs are proactively seeking to address it. For example, Kentucky Transportation Cabinet (KYTC) has been able to use toll credits from the federal government based on Kentucky's investment in the federal highway system as a source of local match funding for public transportation. While these are technically federal toll credits, they are used as transportation development credits in Kentucky. However, even with the use of toll credits, just $1.7 million was available in the fiscal year 2020 to match capital grant programs. This amount is far short of what is needed to achieve a state of good repair among the transit agency's fleets. Kentucky Transportation Cabinet has also requested an additional allocation of approximately $9 million from the state's general funds to be used as a capital match for transit, and, if fulfilled, this request would cover all the costs of local match needed for capital.

PennDOT's commitment to state funding for transit can be attributed to Act 44. When it passed in 2007, a majority of Pennsylvania's transit providers received a 50% increase in operating funds. Beyond Act 44, PennDOT utilizes all allocated federal operating and ADTAP (Appalachian Development Public Transportation Assistance Program) funds every year with little to no carryover. Since state funding is adequate, ADTAP is not needed for capital or operation projects. It is used to promote projects in the Appalachian Region, filling holes in major facilities projects to speed up completion and prevent an extended period of waiting for state funds. Occasionally, it may be used to fund large capital projects in need of a cash infusion, such as the CATA facility in State College and a $75 million transit facility in Erie.

Where state match funding is limited, providers must seek alternative avenues to meet local match requirements. Many providers reported using NEMT contract funding as the primary source for the local match. Local governments may also allocate financial support for transit using general funds, in the range of about $50,000 to $100,000. As some services in rural areas excel in human service transportation, the rising demand for NEMT services helps providers collect the local match they need to maintain its transit service for the general public. In Kentucky, providers coordinate with various state departments and work with Medicare as well as insurance companies to build more partnerships for the current network.

North Carolina DOT dedicates special effort to ensuring ADTAP funds are fully allocated in an appropriate timeframe and fashion. The state DOT provides an award table that shows the maximum amount of both state and federal funding available to providers, based on population factors and eligible population. Transit providers can request NCDOT flex available funds. Recently, the award table has been incorporated to be pre-loaded in the grant portal so that providers can easily see how much funding is available to them. NCDOT sees strong state commitment in providing matching funds required to draw down federal money to make sure that all available federal funds are used effectively.

Fare-Free Systems

A delicate balance between fare affordability and sufficient revenue is essential in rural areas where the collection of the local match is a challenge. Apple Country Transportation/Western Carolina Community Action (WCCA) of North Carolina shared its insight on how fare revenue can make a difference. While the neighboring Buncombe County has transitioned to become a fare-free system, the provider still charges 75 cents per trip. This accumulates to $40,000 a year in fare revenue, which county commissioners perceive as indispensable since the state offers a fifty-fifty match, bringing in another $40,000 from the state. The $80,000 in total accounts for over 10% of the provider's operating funds. This demonstrates that while a fare-free system may drastically improve affordability and promote transit usage, fare revenue's contribution to local match is a key point of consideration.

On the other hand, fare-free systems may, in certain cases, be the most cost-efficient option for rural transit providers. Discussed as a challenge in the previous section, the cost of farebox maintenance may outweigh the financial gains that charged fares are able to generate. With that in mind, AppalCART of North Carolina decided to implement a no-charge policy. This also resulted in a more streamlined boarding process. AppalCART shared that for a fare-free system to be successful, a provider must secure a funding source to supplement fares, and examples include employers or educational institutions.

Rutherford County of North Carolina offers transit services that are mostly fare-free. Trips to the grocery and laundromat are available to residents at no charge. The county also provides deviated fixed-route transportation that is free to riders, although there is a $1 charge for deviations. Elderly and disabled transportation is also available for free—the number of free trips allowed per month is subject to change based on the program's ability to secure grant funds.

Trans-Aid of Catoosa County, Georgia, has been fare-free since its inception. It started as a single van that the county funded by itself to help residents get to medical appointments, evolving over time to transport senior citizens from senior centers. It has since been made available to the general public. While Trans-Aid has proposed the idea of charging fares, it was met with strong community pushback as riders expressed concern regarding affordability, many stating that they would not be able to afford transit if there a fare was charged. Cognizant that any fares charged would not make a notable difference in supplementing operating costs, Trans-Aid is committed to funding this service and keeping it fare-free.

Communication with State DOTS

Despite technology's strong potential to improve communication, transit providers may see limited benefits if they lack technological capabilities. The use of technology varies greatly across transit providers in the Appalachian states. Streamlined communication allows state DOTs to efficiently distribute information regarding funding opportunities and relevant guidelines. The ability to host webinars or check-in meetings online facilitates frequent conversation between state DOTs and transit providers, saving the costs of physically traveling for check-ins. The convenience of grant management systems, where guidelines, application forms, invoice reporting forms, etc. are centralized, may also reduce the administrative burden on both ends. While it appears that technological advancements would ease the funding process, many rural providers cannot access these benefits. Alabama DOT staff mentioned that although electronic application packages are readily available, some transit providers still request paper applications to be mailed, as that is the method that is most accessible to them. The preference for physical copies could be attributed to sparse broadband and cell phone coverage, as 6% of survey respondents cited this as one of their greatest technology needs.

5.3.5. Technology

Scheduling and Dispatching Technology

Accessing scheduling and dispatching technology was cited as the greatest technology need by 20% of all respondents to the transit provider survey, coming in second only to the desire for electronic fare collection technology, which was cited by 22% of respondents.

A range of benefits was reported by providers that have implemented scheduling and dispatching technologies. Monroe County Transportation Authority in Pennsylvania has used around a half dozen different scheduling and dispatching platforms over the past two decades. They are currently using software for their shared ride service that was designed specifically for paratransit and NEMT, and that can track riders in real-time and automatically re-reroute rides when needed. The Northwest Alabama Council of Local Governments implemented scheduling software around ten years ago; prior to this time, all scheduling had been done with pen, paper, and a physical map. As a result of using the scheduling software, the Northwest Alabama Council of Local Governments has been able to offer more rides due to the efficiencies in scheduling provided by the software. This has resulted in an increase in ridership. Apple Country/WCCA in North Carolina noted that before they implemented scheduling and dispatching software, they struggled to have more than two riders in a single-vehicle at the same time. The software allows for tighter scheduling, and it allows staff to see passengers' home and destination locations.

Communities are also making investments in route matching and routing technologies that help build a route. North Carolina DOT is currently purchasing one of these software platforms on a statewide level to reduce overall cost and to have all systems on the same kind of platform and create opportunities for interoperability. PennDOT similarly provides paratransit scheduling software to its agencies across the state, giving every agency the same experience, from the very smallest through the City of Philadelphia's Southeastern Pennsylvania Transportation Authority. Previously, some agencies relied on a sticky-note or spreadsheet scheduling.

Electronic Ticketing and Mobility as a Service (MaaS)

As the cost of the technology for mobile ticketing and electronic ticketing comes down over time, rural systems are beginning to adopt the use of mobile ticketing or explore it for the future. Macon County Transit in North Carolina has implemented electronic farecards, while Butler Transit Authority in Pennsylvania is preparing to implement mobile ticketing.

Tompkins Consolidated Area Transit, Inc. (TCAT) in New York is working towards implementing full-service mobility as a service application that includes a multimodal trip planner, customer service, a 24-hour call center, and real-time passenger information while being integrated with other non-profit and for-profit service providers in the community, as well as modes beyond traditional transit such as ride-hailing and carshare. TCAT received state funding to develop the first phase of this project, a first/last mile pilot project in which a smartphone application will facilitate demand-response trips to/from the bus stop within a three-mile radius of two bus stops.

Vehicles

Several states have taken initiatives to help providers procure special vehicle types. PennDOT has a statewide public-private partnership for compressed natural gas (CNG) fueling at most of the state's transit agencies, including those within the Appalachian Region. While implementing electric buses in rural areas is currently infeasible, rural public transportation providers can purchase vehicles that use

CNG. West Virginia DOT is now allowing, on a case-by-case basis, the acquisition of four-wheel-drive vehicles for 5310 providers due to the topography, weather, and road conditions of their service area.

5.3.6. Performance Management and Data Collection

While all state DOTs in the Appalachian Region collect performance measures needed for reporting to the National Transit Database (NTD), several state DOTs go beyond the NTD requirements. Often states are using additional data to help inform decisions around funding, project prioritization, and service expansion.

Maryland DOT has a capital funding prioritization process that looks at the data and determines the urgency of need and the justification, going through a worksheet on the bus they are replacing to make sure it has met its useful life while looking at the burn rate to see if recipients are spending the funds in a timely manner. There are a few other data points that are factored into the model—for example, safety-related items get more points. New York State DOT asks for mobility management performance measures when collecting 5310 applications. NYSDOT looks at this information to see if funding is sufficient. Mobility management was not allowed as an operating expenditure until a few years ago; now that NYSDOT understands the funding constraints that operators have, they have opened this type of funding up to other projects.

In Pennsylvania, if agencies would like to fund a new route or new service, they can pursue a three-year demonstration grant. If services that are provided with the demonstration grant funding meet established performance standards, up to 65% of the operating cost of new routes/services may be subsequently provided to continue the service.

In 2018, Virginia changed the laws guiding the allocation of DRPT funds for capital improvements, including state of good repair (SOGR), minor enhancement, and major enhancement funding. Instead of relying on a formula for distributing these funds, all state funding for capital improvements is now directed to support local matches of federal funding that are awarded based on the provider's performance as measured by several key metrics. Even though all funding awards are now based on performance, most rural transit providers in Virginia have seen their funding levels increase.

5.3.7. Access to Healthcare

Several public transportation providers in Appalachia have designed innovative solutions to address the increasing need for NEMT and to provide personal assistance for NEMT users.

In North Carolina, collaboration across transit systems has occurred over the last couple of years in the more mountainous regions where healthcare access has become more challenging after some healthcare facilities have shut down. There are routes that start in a distant part of the state and travel into Asheville on a regular schedule and are coordinated with other transit systems. For example, riders may be picked up and brought to a central hub where they transfer to another vehicle for the final leg of their journey to access a hospital.

In Virginia, Mountain Empire Older Citizens (MEOC) Transit works with local churches and local communities to identify a group of volunteers in each community who ride with individuals who are going to medical appointments and need assistance managing the trip and their personal belongings. This program was funded through the National Aging and Disability Transportation Center. MEOC Transit takes

an active role in the community by addressing medical and human service needs outside the traditional scope of a transit provider.

5.3.8. Job Access

Providers seeking additional revenue for local matches have begun to explore opportunities at the intersection of transit service and job access. Kentucky Transportation Cabinet shared that some Kentucky providers in the Appalachian Region collaborate with local and regional employers to arrange group transportation. The provider generally provides bulk pricing, making transit more affordable than it otherwise would have been if an individual opted for a standalone trip.

Northeast Mississippi Community Services, Inc. shared their recent endeavors to increase job access in their service area. In the northern tip of Marshall County, close to the Memphis and Germantown area, there is an emerging cluster of manufacturing and big industrial parks. These are the highest paying jobs in the county. The provider procured two large coach buses that may seat 45 to 50 people to provide what is planned to be a fixed-route service, like the nature of a commuter bus that would pick up passengers in a park-and-ride stop. The effort is undertaken in collaboration with the regional economic development director. The provider has engaged directly with employers to seek assistance with vehicles and operations in the future.

Some providers operate programs dedicated to supporting job access. To accommodate those who work minimum wage jobs, Harlan County Community Action Agency, Inc., Kentucky's Jobs Program, transports community members anywhere in the county to their employment location for a flat fee of $5 a day, no matter the distance. The service is also available to those who work late shifts.

5.3.9. Cross-System Integration

Many state DOTs have focused on increasing the integration of various public transportation and NEMT providers across political geographies with the aim of expanding the ability of riders to reach more destinations.

In Mississippi, the state DOT's Public Transit Division works on statewide rural transit planning efforts with transit providers by way of the regional coordination groups, monitoring and technical assistance efforts, statewide and regional coordination plans, and planning studies. Mississippi providers (and mobility managers) work together on regional coordination and connecting the first and last legs of trips across different transit providers' service areas. Mississippi DOT is currently working to take this integration to the next level by implementing statewide IT software that will enable providers to communicate with each other and allow transfer trips across the state between providers.

As part of the Mobility Management Regional Pilot Program, Ohio DOT is attempting to develop multi-county coordinated regions. ODOT has initiated a process of developing regionally coordinated plan guidance—as opposed to the current county-level plans. In two regions in the state, ODOT is trying to pilot implementation of coordinated regional plans, to include coordinating health and human service transportation with participating state agencies. In the future, the state intends to use a mobility management network in the region to act as the agency or non-profit that does the oversight and acts as a broker. Of the two regions with the pilot, the one in the rural area is moving faster; it is developing a standardized set of rules for NEMT, and there is a potential non-profit to act as a mobility manager. The region also has a completed coordinated plan. The other pilot region is a mix of rural and urban and needs to go back to the drawing board to re-do their coordinated plan. In this case, rural agencies were

concerned that urban systems would end up taking all the available resources. The funding sources are different, and different funding programs are available to rural and urban providers; it is difficult for an urban system to interfere in rural system funding allocation.

Virginia's DRPT used FTA New Freedom funds for some services to connect residents to other transit services, including connecting riders of MEOC Transit to Johnson City, Tennessee. DRPT is always looking at discretionary grants offered by FTA, with an eye towards developing opportunities to enhance or create partnerships with private partners, including ride-hailing companies, to increase rural transportation services as well. Similarly, WV DOT recently is exploring ways to work with private vanpool vendors and expand vanpool services throughout the state.

Providers have also taken the initiative to integrate services. Apple Country/WCCA has had routes that travel to connect with Asheville Regional Transit (an urban provider) for the past 15 years. Apple Country/WCCA's routes have a timed transfer with Asheville Regional Transit's services right at the Airport, which is on the county line to allow passengers to transfer between systems easily.

5.3.10. Marketing and Outreach

The marketing of local public transportation services ensures that the community is aware of existing services and how to access them, while outreach activities provide opportunities for community engagement in the development and management of public transportation services.

Providers have taken a range of approaches to increasing awareness and community involvement in their systems, but many of the successful approaches involve concerted efforts at direct engagement with riders and the community-at-large. Seneca Transit System in New York developed a marketing and promotional plan to increase and sustain their customer base, while Central West Virginia Community Actions has distributed marketing flyers within the community and local doctor's offices to increase awareness. West Virginia's Harrison County Senior Citizens' Center developed a transportation policy document that is a user guide for riders and explains how to use the service, contact information, and guidelines on what to do in specific situations, such as late vehicle arrivals. MEOC Transit in Virginia created an award-winning program that actively recruited elderly and disabled stakeholders to sit on the provider's planning board and participate in planning decision making. This active community engagement and empowerment has built both trust and awareness within the community.

Greenville Transit Authority in South Carolina modified its bus stop signs and added information on how to access real-time arrival information to the signs to make them more visible in the community. Their bus stop signs are now made of reflective material and include stop name, stop ID, routes that service the stop, agency logo, and city or county logo depending on if the stop is within the city limits.

State DOTs are also active in trying to increase awareness and conduct a range of outreach with local elected officials and communities to develop solutions for unmet transit needs and promote the benefits of public transportation in communities where service does not exist. Alabama DOT conducts outreach with elected officials, particularly with newly elected local officials, to inform them of the benefits that public transportation can bring to their communities.

6. COVID-19 Response

6.1. The Impact of COVID-19 on Public Transportation in Appalachia

Much is yet to be learned about the virus SARS-CoV-2 and the disease it causes, the Coronavirus Disease 2019 (COVID-19). Declared a pandemic by the World Health Organization in March 2020, the outbreak has since posed unprecedented challenges to the public transportation industry (Burdette & Larson-Friend, 2020). Mindful of the unknowns of an ongoing pandemic, this chapter provides an overview of the impact of COVID-19 on rural public transportation to date, the response of transit agencies in the Region, and potential long-term implications.

6.1.1. The Impact on Rural Public Transportation Providers

The COVID-19 pandemic impact on large urban transit systems has been more visible than its impact on rural communities because urban systems are often more dependent on farebox revenue (EBP, 2020). Nationally, transit ridership and fare revenues fell 73% and 86%, respectively, in April 2020 compared to the same month in 2019 (EBP, 2020). COVID-19 and its associated travel disruptions have resulted in farebox revenue and sales tax subsidy reductions while introducing new costs, such as additional cleaning products and personal protective equipment (PPE) for personnel, associated with preventing the spread of the virus.

Smaller rural public transportation providers may be less reliant on fare revenues than large urban systems, but they have experienced unique operational challenges during this pandemic. These providers generally operate with very constrained budgets and limited staff and are still providing service despite the increased service provision costs. These additional costs are mainly associated with physical distancing requirements that have reduced vehicle capacity, increased costs of facility and vehicle cleaning and disinfection, and changed service and ridership patterns. In addition to adapting to physical distancing requirements, rural transit agencies must deal with dramatic worker absenteeism, ongoing and additional need for services, disruptions from their supply chain, and a confused and scared public during a pandemic. Table 40 lists the characteristics of a pandemic and its impacts on public transportation agencies.

Table 40: Pandemic Impacts on Transportation Organizations

Characteristics of a Pandemic	Impact on Transportation Organization
Widespread workforce shortages	• Significant absenteeism amongst employees • Disruption to supply chain • Lack of resources/mutual aid support from surrounding communities and like organizations • Change in required services and operations
Confusion and fear amongst the public and employees	• Increased need for public information about services, changes to procedures, restrictions • Coordination of messages with other local agencies • Safety concerns regarding sick passengers and their impact on the workforce
Implementation of public health strategies to limit transmittal of the disease (e.g., physical distancing, personal protection)	• The challenges of implementing containment and control strategies • The increased need for scarce personal protection supplies (e.g., gloves, masks, hand sanitizer)

Information Source: NCHRP Report 769: A Guide for Public Transportation Pandemic Planning and Response

Even before the pandemic, rural transit providers in the Region experienced a shortage of drivers, for whom compensation is low and hours are limited. Rural public transportation drivers are often older adults working to supplement retirement income. According to the Centers for Disease Control and Prevention, adults over the age of 65 and those with underlying medical conditions (such as heart, lung, and chronic diseases) are at greater risk of COVID-19 complications or even death (CDC, 2020). For these reasons, many drivers in this cohort have chosen to quit their jobs (Rall, 2020).

Workforce shortages during a pandemic are not limited to the transportation industry. Workforce shortages can lead to supply chain disruptions and require rural public transportation providers to establish new partnerships and cooperate with other organizations. A good example is the case of Choctaw Transit, a rural service operated by the Mississippi Band of Choctaw Indians that serves areas in and surrounding Appalachian Mississippi. While Choctaw Transit had a stockpile of cleaning supplies and PPE, more was needed. Their efforts in planning, communication, and partnerships helped them obtain more from the Choctaw Emergency Management, the Choctaw Health Center, and even from a resort that ceased operations during the shutdown (National RTAP, 2020).

During a pandemic, decisions made within a transit agency may have far-reaching effects, making imperative good communication and coordination with local emergency management, public health, other transportation organizations, suppliers and vendors, and the public. According to a survey conducted by the American Public Transportation Association (APTA) with 174 transit agency members of all sizes in mid-March 2020, nearly all agencies had provided employees and the public with guidance on protecting themselves against infection (APTA, 2020). At rural public transportation providers, where staff commonly “wear several hats,” communication and coordination with other organizations is an additional burden to the staff but an undeniable impact of a pandemic.

Rural transit agencies often operate with very tight margins and unstable financial support, and implementing disease containment and control strategies is a hard hit on already stretched rural transit funding. Early in the pandemic (by the end of March 2020), the federal government approved additional funding for transit through the Coronavirus Aid, Relief, and Economic Security (CARES) Act, detailed later in this chapter. Agencies like the Fairmont-Marion County Transit Authority (FMCTA) in West Virginia have indicated plans to use CARES funds to fulfill local match requirements.

During a transit manager panel discussion, Crawford Area Transit Authority (CATA) in Pennsylvania highlighted the importance of keeping good records and tracking all COVID-19-related expenses (National RTAP, 2020). The agency anticipates a long recovery period and is raising awareness at the state DOT about long-term issues. However, at most rural public transportation providers, the work of providing service, ensuring vehicles are clean and running and drivers and riders safe, means that staff do not have the time available to document the impacts of COVID-19 on their budgets or to lobby elected officials for additional financial support.

Arguably one of the pandemic’s most significant impacts is on rural economies and the ripple effect on rural transit funding. Stay-at-home orders, physical distancing practices, and the overall economic decline are impacting local revenue sources that might not recover for years to come, and rural transit providers rely on local matching funds to leverage federal dollars to continue service. The pandemic’s long-term impact is a growing concern among providers because an effective public transit is a major component of economic recovery.

6.1.2. The Federal Government Response to COVID-19

In late March 2020, the federal government responded to the pandemic with the CARES Act, a massive stimulus package consisting of $25 billion for public transit agencies. These funds represent the largest single infusion of cash ever from the federal government into public transportation and comprise 2.8 times the FY2020 FTA funding allocation. The CARES Act provides operating and capital grants to prevent, prepare for, and respond to COVID-19. The FTA is distributing the funds proportionally, based on the ratio of funding of four programs: Section 5307, Urbanized Area formula grants; Section 5311, rural area formula grants; Section 5337, state-of-good-repair (SOGR) formula grants; and Section 5340, growing/high-density states formula grants.

Of the $25-billion package, the FTA allocated $2.2 billion in federal funding to help rural public transportation providers in the country. Rural area apportionments in Appalachian states totaled $765 million, in addition to $20 million in ADTAP (Appalachian Development Public Transportation Assistance Program) funds, as shown in Table 41. Funding is provided at a 100% federal share, with no local match required, to support capital, operating, and other expenses generally eligible under the formula grants for rural areas (FTA, 2020).

Table 41: FY2020 CARES Act Section 5311 and 5340 Rural Area and Section 5311(c)(2) ADTAP Apportionments

States	Apportionments	
	Section 5311 and 5340	ADTAP
Alabama	$54,126,485.00	$5,000,000.00
Georgia	$74,428,850.00	$592,000.00
Kentucky	$58,808,456.00	$1,764,000.00
Maryland	$19,184,735.00	$636,000.00
Mississippi	$49,448,479.00	$254,000.00
New York	$71,444,684.00	$200,000.00
North Carolina	$93,491,001.00	$1,450,000.00
Ohio	$80,968,267.00	$964,000.00
Pennsylvania	$75,813,777.00	$4,788,000.00
South Carolina	$44,761,932.00	$200,000.00
Tennessee	$64,523,351.00	$1,110,000.00
Virginia	$51,377,174.00	$1,150,000.00
West Virginia	$26,972,721.00	$1,892,000.00
Total	**$765,349,912.00**	**$20,000,000.00**

Source: FTA Website

FTA will reimburse any eligible expenses incurred on or after January 20, 2020, including eligible expenses under the Section 5311 program that would have otherwise been paid for by the lost revenue, such as operating costs associated with providing fare-free service. Also eligible are operating expenses to maintain transit services as well as to pay for administrative leave for transit personnel due to reduced operations during an emergency or leave required for a quarantine. Grantees may use funds to take protective measures to protect health and safety, too, such as cleaning of vehicles, which is considered

preventive maintenance (a capital expense), and acquiring PPE and cleaning supplies, eligible as either a maintenance or an operating expense.

Adding even more flexibility to CARES Act funding, states and designated recipients can allocate funds through a different process than the one described on the state management plan, without prior FTA approval. Any deviations should still be documented, and requirements for fair and equitable distribution and intercity bus consultation still apply to CARES Act funds. Additionally, public transportation systems that have not previously received FTA formula funding but meet the definition of a public transportation service and are otherwise eligible to be a recipient or subrecipient under the Section 5311 program may receive CARES Act funding if allocated funds by the designated recipient.

In addition to the CARES Act funds, FTA has taken a number of steps to support the public transportation industry during this public health emergency. FTA has expanded federal assistance eligibility under the Emergency Relief Program to help transit agencies respond to COVID-19 in states where the governor has declared an emergency. Rural transit providers can now use Section 5311 funding for emergency-related capital and operating expenses. FTA now also permits operating expenses to be covered at an 80% federal share instead of the usual 50%. However, CARES Act funds can only be used to match other federal funds if the program explicitly allows other federal funds to be used as a match, and the project meets all requirements of the participating federal agencies. CARES Act funds generally may not be used to meet the local match requirement for other FTA or U.S. DOT grants.

6.2. The Response of the Region's Transit Providers

Advance planning helps small transportation organizations address pandemic-related issues specifically related to transit. Policymakers must provide executive support to prepare for a pandemic, including planning, training, exercising, and acquiring materials that may be needed, such as cleaning supplies and PPE. Policymakers must also be able to make decisions during a pandemic to protect workers, minimize impacts to transit providers, and offer an appropriate level of service based on capabilities, capacities, and hazards (National Academies of Sciences, Engineering, and Medicine, 2014). According to the National Cooperative Highway Research Program (NCHRP) Report 769, "A Guide for Public Transportation Pandemic Planning and Response," transit providers are best prepared when they have:

- A robust overall emergency management program (planning, training, and exercising) that is coordinated with other transportation agencies and organizations that will be engaged in response;
- A means to communicate with riders before and during an outbreak;
- Developed various plausible scenarios and actions to be taken and acquired appropriate resources; and
- Policymakers that are able and willing to make reasoned decisions.

In preparing for and responding to a pandemic, it is critical to know what can be done to mitigate the impact, what decisions about service will have to be made, and what tools and resources are available to help. Public health departments have the wide ability, particularly at the federal and state levels, to determine and provide guidance on what actions transit providers and the public must take to protect the population's welfare during a pandemic. However, at the local level, especially in rural areas, public health may not have extensive resources nor experience in emergency management (National Academies of Sciences, Engineering, and Medicine, 2014).

In this section, the response of Appalachian Region transit providers to the COVID-19 pandemic is organized under three topics:

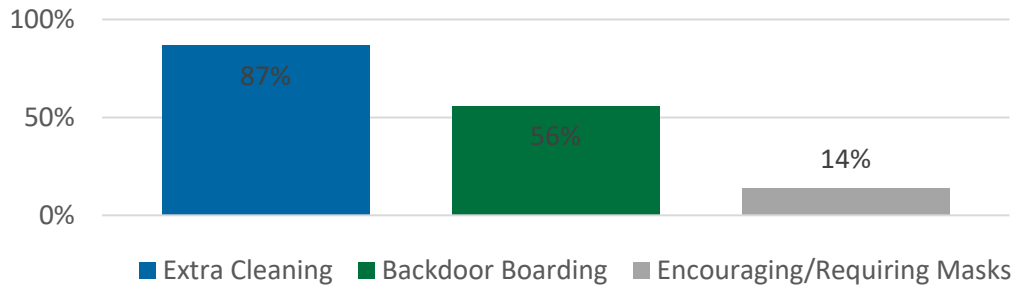
- On-vehicle changes to mitigate the impact of the pandemic and limit transmittal of the disease, such as cleaning procedures, capacity limits, and other strategies to protect the public and workforce, including changes on fare collection and enforcement;
- Service modifications to provide essential services during the pandemic;
- Communication tools and resources used to inform the public about services, changes to procedures, and restrictions.

The findings organized in this section are from four main sources. Two are the transit provider survey and interviews conducted as part of this study from February 19, 2020, to April 3, 2020, and from March 26, 2020, to April 9, 2020, respectively. These captured some initial responses to COVID-19 from five providers. The third source is a comprehensive database on how 111 agencies responded to the pandemic compiled by the Transportation Research Group at the University of Oregon and published in June 2020, which features six agencies in the Appalachian Region. And lastly, based on electronic research, the responses of several more transit providers in the Region are shared.

6.2.1. On-Vehicle Changes

Public transportation providers took unprecedented steps to safeguard employees and riders while maintaining essential services in the last several months. The University of Oregon (UO) research effort showed that nearly all agencies in the country adopted policies to limit the spread of COVID-19 onboard transit vehicles. While extra cleaning, backdoor boarding, and mask use were some of the most common policies taken by public transportation providers (Figure 52), others took additional steps such as creating barriers so that the driver had extra protection, marking off seats to maintain social distancing, and limiting the numbers of riders per vehicles.

Figure 52: Agencies' On-Vehicle Changes to Combat COVID-19



Source: Transit Agencies Response to COVID-19. Available at https://drive.google.com/file/d/10vBef_kXjr45ZC2BnC3YNY_FjHJcq-Yq/view

Stringent cleaning and disinfection of transportation assets are critical to maintaining safety in transportation locations and vehicles during a pandemic. Five of the six Appalachian transit providers in the UO database listed extra cleaning as one of their on-vehicle changes in response to COVID-19. Guidance is that transit providers should have a policy of when and how to implement altered cleaning activities in response to a disease outbreak, which should include cleaning protocols for vehicles, transit

facilities, and work areas, and having PPE and Environmental Protection Agency-registered disinfectants (National Academies of Sciences, Engineering, and Medicine, 2014).

The Community Transportation Association of America (CTAA) recommends disinfectant fogging of vehicles on a regular schedule (CTAA, 2020). Greenlink, in South Carolina, for example, has defined cleaning protocols and has these available on their website. The agency is disinfecting its buses at 8:30 a.m., 12:30 p.m., 3:30 p.m., and 7:30 p.m. with a spray sanitizer, and drivers disinfect their work area, including the farebox and other high-touch areas, every two hours (Greenlink, 2020). Tompkins Consolidated Area Transit (TCAT) implemented cleaning protocols in early March and started using a professional-grade germicidal electrostatic sprayer to disinfect bus interior surfaces every night at the end of the day's service period (Tompkins Consolidated Area Transit, 2020). Hand sanitizers are also available to riders of both agencies on all buses.

Backdoor boarding is one of the on-vehicle strategies to protect drivers during this pandemic, along with driver compartment barriers and changes in fare collection and enforcement. Four of the six Appalachian transit providers in the UO database require bus passengers to enter and exit the bus through the rear entry doors. In addition to backdoor boarding, CTAA recommends driver compartments that separate drivers from passengers, which can be done in several ways. Fairmont-Marion County Transit Authority in West Virginia, for example, is using a shower curtain to separate drivers from the passengers; Max Transit, in Alabama, blocked access to the driver area by cordoning off front rows of seats; while the Port Authority of Allegheny County, Pennsylvania, installed plexiglass barriers on its buses.

Half of the Appalachian transit providers in the UO database had eliminated fare collection to reduce passenger and drivers' interaction by June 2020, in line with the rate of 52% for the entire database of 111 providers in the country. However, the changes in fare policies are dynamic and have changed throughout the pandemic at several agencies. The Port Authority of Allegheny County, for example, which had eliminated cash fares on buses and implemented a pass reimbursement program initially, has resumed regular fare collection policies since June 5, 2020. Similarly, Greenlink waived fares and required backdoor boarding from March 19 to May 3, 2020, but is charging fares now. The agency encourages customers to pay fares using a smartcard or smartphone app and is waiving a $2 smartcard activation fee until the end of the year. TCAT ceased accepting fares from March 20 through September 5, 2020, when the agency completed installing driver barriers and restarted accepting fares.

Mask requirements and vehicle capacity measures are two common on-vehicle changes that protect employees and aim to limit the transmittal of the disease among riders. The Community Transportation Association of America (CTAA) recommends N95 masks, or the Chinese equivalent KN-95, for drivers, and advises systems to offer cloth masks to passengers. Greenlink, for instance, encourages passengers to wear a mask or face covering and offers free masks at its transit center, while drivers must always either use the barrier or wear a mask. On the other hand, TCAT requires all riders to wear face coverings following an executive order in the state, and notes that bus drivers and other transit employees are also required to wear face coverings or masks when in contact with the public. Still, drivers who are on the road many hours a day are allowed to remove their masks when they are alone on the bus.

Providers of all sizes are also limiting capacity in their vehicles. Harlan County Community Action Agency, Inc. in Kentucky has started to transport one client at a time on their demand-response service to ensure physical distancing, which has increased the challenge of serving its rural community. The number of passengers in fixed-route buses has varied in time, by vehicle size, and at agencies. Central West Virginia

Transit Authority imposed a five-passenger limit on buses in May, and Greenlink limited the capacity on fixed-route buses to 10 passengers in April, increasing the limit to 15 between May and September, and operates now with a 20-passenger limit per vehicle. The Port Authority of Allegheny County started limiting the number of passengers per vehicle at one time in April, with passenger capacity varying according to vehicle size. In June, the agency took an extra step and launched a new online tool to help riders plan trips with physical distancing in mind by showing how crowded buses usually are at any given stop.

It is important to acknowledge that public transit drivers are front-line workers, and that despite prudent measures to protect and physically distance drivers and passengers, that they are at greater risk for exposure to the virus. The World Economic Forum noted that they should be acknowledged as essential workers, alongside the service of healthcare and food workers (World Economic Forum, 2020). The Community Transportation Association of America (CTAA) recommends placing drivers on administrative leave who have underlying health conditions identified by the CDC as increasing the risk of experiencing complications or death from COVID-19. The CTAA also suggests extending this policy, when feasible, to drivers over the age of 60 or drivers who live with someone over the age of 70 with pre-existing conditions, noting that CARES Act funds can be used to continue to pay any at-risk drivers placed on administrative leave.

6.2.2. Service Modification

The operational burden on small transit providers of infection prevention during a pandemic can substantially impact their ability to provide services. Therefore, providers must identify their essential functions and strategies for reallocating resources to maintain those essential functions and optimize service. Essential functions may encompass activities that are at the core of the organization's mission, but may also include activities that are deemed essential due to the nature of the outbreak, such as providing transportation to medical providers.

The Community Transportation Association of America recommends providers restrict services to essential trips only while operating under government-mandated stay-at-home orders. From discussions with member agencies, CTAA lists the following as essential trip types during the COVID-19 pandemic:

- Employment trips for front-line healthcare workers
- Employment trips for first responders
- Employment trips to individuals working in groceries, pharmacies, and restaurants
- Trips to purchase food and medicine
- Non-emergency medical transportation (NEMT)

By June 2020, most public transportation providers in the country, 94% according to the UO's database, had modified or canceled some aspect of their services. Among the six Appalachian providers in the database, four indicated that they decreased service levels, one reduced service after suspending service for over a month between March and May, and one did not have any planned service modifications. Providers in the country and in the Region continue to evaluate best practices, local ordinances, business openings, and other statewide orders to adjust services. While many agencies have started to improve service levels, service has yet to return to a regular schedule, and most agencies still advise the public to restrict travel to essential trips.

Local transportation services are likely the most reliable and accessible transportation option for people without access to private vehicles or who do not drive (National Academies of Sciences, Engineering, and Medicine, 2014). Many older adults have been urged to stay home in the current pandemic (Rall, 2020). These individuals often do not drive and may have limited financial resources. Yet, they still need food and possibly medication, and they may need to make routine yet necessary medical trips. Older adults are not alone in their reliance on public transit systems. Lower-income households may also rely on transit to reach school lunch programs and supermarkets. Homeless individuals may need to access test sites and quarantine locations to keep themselves and their neighborhoods safe. And, as many human service organizations have been temporarily shuttered, public transportation stands out as an essential service.

Based on the nature of a pandemic, the demand for public transportation services may increase or decrease. Local travel preferences are changing quickly, and the impacts of these changes are not yet fully understood. Maryland's Garrett Transit Service, for example, had a large demand for meal delivery during the pandemic. In Pennsylvania, Crawford Area Transit Authority (CATA) has maintained pre-pandemic ridership levels on its paratransit system. The paratransit service is used by riders impacted by reduced weekday service on fixed routes, including essential employees who use public transportation to travel to work. In addition, CATA is using paratransit to provide round-trips for seniors to go to the senior center and pick up meals. Some providers across the country have expanded microtransit and on-demand services in response to the public perception of larger transit vehicles as a health risk.

6.2.3. Communication Methods

During a pandemic, the CDC and public health agencies are the primary government agencies communicating information to the public about the disease and its effect. However, federal, state, and regional transportation organizations also provide information and guidance. Transit providers of all sizes must navigate this wealth of information to develop an understanding of the pandemic and take policy and operational actions to prepare for and respond safely, effectively, and promptly. This is particularly challenging for small and rural transit providers who must provide clear, consistent messages to employees, partners, and riders to anticipate problems and mitigate confusion or the spread of inaccurate information among the general public.

An important part of communications preparedness is identifying which delivery methods should be used in which circumstance and in coordination with what partners (National Academies of Sciences, Engineering, and Medicine, 2014). Website banners and social media outreach seem to be the most common communication delivery methods in the Region. All six Appalachian transit agencies included in the UO database (Port Authority of Allegheny County, Crawford Area Transit Authority, Central West Virginia Transit Authority, Blacksburg Transit, Charleston Area Regional Transportation Authority (CARTA), and Max Transit) have a website banner with COVID-19-related information and updates. However, of the 14 interviewed transit providers, only half have website banners or pages with pandemic-related information. These banners can direct the public to social media pages, which may be more frequently updated by the agency, or the banners can provide more details, such as AppalCART's website banner, which includes an informational video. At some larger agencies, banners provide links to detailed guidance and information for riders on their websites.

Communicating during a crisis is different than routine communications and requires a more simplified message, as people are more distracted than normal (National Academies of Sciences, Engineering, and Medicine, 2014). Public transportation providers should aim to present a short, concise, and focused

message, which should be repeated frequently using many different delivery methods. The Port Authority of Allegheny County, for example, has used several communication methods, including social media outreach, regular or daily website updates, local news media outreach, messages from the CEO, service alerts on trip planning apps, and signage in vehicles and public areas like stations and transit centers. Additionally, agencies need to not only use different delivery methods but also need to understand the diverse communication needs of constituents. Persons with access and functional needs, including people with limited English proficiency, are especially vulnerable during emergencies.

Public transportation providers in the Region, such as the Port Authority of Allegheny County and CARTA, have also conducted local news media outreach. When combined with social media, traditional media provide powerful tools to disseminate information to key stakeholders regarding services and other changes that may affect them during a pandemic (National Academies of Sciences, Engineering, and Medicine, 2014). However, public transportation providers often spend most of their efforts reaching out to the public but not effectively communicating with their staff and allied organizations (National Academies of Sciences, Engineering, and Medicine, 2014). An informed staff is more likely to be engaged in promoting safety measures. For example, some CTAA member agencies have worked with drivers to enforce essential trips, and some small-urban have stationed personnel at high-traffic stops, trip generators, and transfer centers for the same reason.

6.3. COVID-19 and the Future of Public Transportation in Appalachia

The unprecedented challenges created by the COVID-19 pandemic have changed public transportation in the last several months and perhaps for years to come. Public transportation providers are now dealing with the challenge of providing an essential service while limiting the spread of the virus. However, once the pandemic is over, the challenge will likely be dealing with reduced revenues due to reduced farebox revenues and projected declines in tax revenues as the economy goes through a pandemic-induced recession.

6.3.1. Financial Challenges

The impact of coronavirus-related disruption has reverberated throughout the economy leading to an economic recession. An analysis of the impact of prior recessions illustrates the scale of challenges facing transit providers today. Work commissioned by the American Public Transportation Association (APTA) analyzed the yield, adequacy, and stability of funding sources during the last two recessions, 2001 and 2008, and found that sales and property taxes are the foundation of local funding sources for public transportation but are particularly susceptible to economic downturns (APTA, 2020). During the last two recessions, transit providers had to cut transit service and lay off workers while pursuing an array of alternative funding sources, many of which failed to offer the yield and adequacy of sales tax revenue. Furthermore, agencies often face difficulty in developing a balanced funding portfolio because of legislation limiting access to other sources. Therefore, APTA highlights how falling sales tax revenue requires a fiscal intervention.

According to a May 2020 study prepared for APTA, transit providers in the country are facing an overall funding shortfall of $48.8 billion between the second quarter of 2020 the end of 2021 (EBP, 2020). Even with the CARES Act infusion of $25 billion, according to APTA, public transportation providers will still face a shortfall of $23.8 billion in operating funding through the end of 2021. In addition to fares and other ridership-related funds, other key funding sources are also forecast to decline significantly due to underlying economic conditions. These include revenues from state and local taxes, which may see a 25%

decline, as well as motor fuel tax revenues, which closely track gas prices and vehicle miles of travel, down in April 2020 by 66% nationally.

6.3.2. Long-Term Implications

Despite the limitations in predicting how the COVID-19 pandemic might alter rural public transportation over the long term, a few points about fare collection, safety, and funding can be made (Comfort, 2020). In terms of fare collection, it is likely that technology could begin to play a stronger role and more systems become fare-free. It is also likely that an elevated focus on cleaning vehicles and facilities will continue as standard practice. Lastly, federal funding would likely remain higher than normal as ridership levels may be slow to recover and operating expenses higher.

Some public transportation providers had moved towards fare-free or cashless operations even before the pandemic. As a result of the physical distancing requirements mandated by governments, and to promote the safety and well-being of bus drivers and riders, most providers moved away from front-door boarding of their buses to eliminate potential cross-contamination between the drivers and passengers at the farebox area. While some providers have already resumed front-door boarding and fare collection, the pandemic may accelerate an ongoing shift towards fare-free or cashless operations among transit providers in the country (Descant, 2020).

The pandemic made technology that reduces the need to touch farecards even more attractive, but part of the rationale for moving away from fares or cash is the high cost associated with collecting, counting, and depositing fares along with the price of new fareboxes (Comfort, 2020). Smartcard validators are much simpler and less costly than fareboxes. With electronic and mobile options expanding and becoming more affordable, many systems can be expected to stop ordering new fareboxes, beginning a transition to cashless fares.

An added benefit of fare-free or cashless systems is speeding up the boarding process. The requirement for all passengers to queue at the front door of the bus to pay their fare slows the passenger pick up process dramatically and the overall system productivity; this is already one of the reasons why some providers in the Region, such as AppalCART, do not charge fares. Eliminating fareboxes also allows providers to adopt all-door boarding of buses.

Transit providers have adopted strict cleaning procedures and some of these practices will likely continue. Maintaining these practices and messaging the approach to the public may help to attract back some riders. High-touch activities such as boarding and riding a bus will need to be reevaluated and re-messaged to allow passengers to feel safe from germs and possible contagion (Comfort, 2020). Even reducing capacity on buses to maintain social distancing may need to continue for a time to attract choice riders back to the system.

The pandemic has demonstrated the essential role that public transportation plays in our communities today. Additional federal funding assistance was key in keeping transit running and available for frontline workers, upon whom the broader society and the economy rely. This could become the benchmark, or new norm, with public transportation as a federal priority (Comfort, 2020). Federal funding is likely to remain higher than normal as ridership levels may be slow to recover, with the resulting operating expense deficits seen as a federal responsibility.

7. Conclusion

In the Appalachian Region, access to a reliable private automobile is often limited, even for households in rural and non-metro Appalachian counties. While throughout Appalachia the percent of households without access to a vehicle or with access to a single vehicle is close to these figures for the United States as a nation (9% of American households do not own a car, and 33% of households have a single vehicle), there are 51 Appalachian counties where at least one in 10 households had no vehicle available, with the vast majority of these counties in New York, Pennsylvania, West Virginia, and Kentucky (Appalachian Regional Commision, 2020, pp. 91–97).

Having access to a vehicle does not necessarily equate to the vehicle being operational and available for use by all household members when needed. Two-thirds of respondents to the transit provider survey conducted for the Public Transportation in Appalachia Report indicated that limited access to a reliable private vehicle is a barrier to personal mobility in their service area. According to the Bureau of Transportation Statistics, the average cost of owning and operating a vehicle exceeds $9,200 annually. In rural Appalachia, the median annual income is just under $40,000 (Appalachian Regional Commision, 2020, p. 117). Owning and operating a single vehicle in rural Appalachia could account for nearly a quarter of the household's income.

At the same time, access to public transportation across the Region remains limited. Today, 30% of Appalachian counties are served with fixed-route and demand-response services open to the public, 43% of counties have demand-response services open to the general public without eligibility restrictions, and 10% of the Region's counties have fixed-route service open to the general public. In rural Appalachian counties, just 26% of jobs are accessible within a half-mile of fixed-route transit, and only 14% of persons active in the workforce in rural Appalachia live within a half-mile of fixed-route transit. Even in counties with public transportation options, the amount of service available (hours and days of service, number of trips) may be insufficient to meet local demand.

Many of the existing public transportation services in the Appalachian Region are focused on providing non-emergency medical transportation (NEMT) and trips for senior citizens. While the need for this type of transportation is great and anticipated to continue to increase in the coming decades, there is also an unmet need for affordable public transportation services open to the general public or oriented towards workforce transportation. Today, Maryland is the only state among the Appalachian states that offers public transportation grant funding sources explicitly focused on workforce transportation.

7.1. Role of the Appalachian Regional Commission

As an economic development partner agency of the federal government and 13 state governments, the Appalachian Regional Commission's role is to innovate, partner, and invest in building community capacity and strengthening economic growth in Appalachia. Across the Region today, ARC provides technical assistance and support for pilot projects that expand access to jobs, job training, and economic opportunity, enriching the communities that it serves. Access to transportation is a critical component of ensuring that the Region's residents have access to all the opportunities that Appalachia has to offer.

7.1.1. Technical Assistance

Across Appalachia, states offer varying degrees of technical planning assistance and access to assistance to complement the local match funding needed to draw down available federal funds. Three Appalachian

states (Maryland, Virginia, and North Carolina) currently have requirements for local transit agencies to complete periodic transit plans that identify fiscally constrained and unconstrained needs in their communities. Georgia is also exploring ways to implement a similar planning process with their local transit agencies. Other states typically provide planning assistance upon request from local agencies or community stakeholders. Therefore, in many states, existing transit agencies do not currently have in place a process to formally re-evaluate existing service plans, identify needs, and create a fiscally unconstrained vision for services that fulfill existing public transportation needs.

The Appalachian Regional Commission can help address unmet needs for expanded access to technical assistance for public transportation planning at the local level. Providing technical assistance to communities is a role traditionally played by ARC. This assistance can include funding studies for local public transportation providers and communities that identify unmet needs for public transportation services with an emphasis on those relating to workforce transportation and exploring various solutions (e.g., fixed-route service, vanpools/carpools, demand response, microtransit, etc.) for meeting those needs. Access to technical assistance planning studies may also potentially catalyze neighboring providers to collaborate to improve connections across provider service areas.

Many existing transit agencies in Appalachia do not have a fiscally constrained multi-year financial plan, nor a fiscally unconstrained "vision plan" and associated financial plan. Providing technical assistance to local providers and communities to plan for the immediate fiscal year as well as to document unmet needs and develop solutions will ensure that information will be available to support applications for future local, state, and federal funding opportunities. It will also provide ARC with information to share with other key stakeholders interested in increasing resources throughout the Region to increase public transportation access.

7.1.2. Innovative Demonstration Pilot Projects

The Appalachian Regional Commission may wish to consider supporting the development of public transportation throughout the Region by providing funding for innovative, time-limited demonstration pilot projects. Such a pilot program would provide Appalachian communities with the ability to pilot new types of services or programs, demonstrate success and impact, and identify ongoing funding sources to continue services successfully piloted.

Pilots could be for services that are open to the public and/or focused on meeting specific needs related to ARC's core economic development mission, such as access to workforce education, job access, and supporting tourism in the Region. Innovative demonstration projects may also emphasize the engagement of key stakeholders that can potentially play a role in funding services post-pilot, such as employers. Demonstration projects need not be limited to fixed-route transit service, but can also support funding for a range of services, such as employer-based vanpool programs or other types of vanpool programs, microtransit, deviated fixed-route, or partnerships with transportation network companies or taxis, where these services are available.

Best Practice: Harlan County Community Action Agency, Inc., Kentucky's Jobs Program, transports community members anywhere in the county to their employment location for a flat fee of $5 a day no matter the distance. This is done to accommodate those who work minimum wage jobs. The service is also available to those who work late shifts.

7.1.3. Stay Engaged with Public Transportation Partners

The local development districts (LDDs) are ARC's local presence through which priority needs of local communities are identified, and plans are developed for their communities' economic development investments, to target and meet the most pressing needs, and to build community unity and leadership. Local development districts can play a critical role in identifying public transportation needs to support local economic development, disseminating best practices from providers throughout the Region, and convening stakeholders to develop new or enhanced public transportation services in their communities. The degree of involvement of LDDs in transit planning varies within the Region, and even within a state. Several of these organizations are involved in decisions related to the awarding and use of Section 5310 funding. In South Carolina, for example, the LDD administers Section 5310 funds and works with both the state DOT and subrecipients on Section 5310 grant application process. In Maryland, for instance, in addition to endorsing Section 5310 funding applications, the LDD participates in transit development plan updates undertaken by each public transportation provider every five years. In Kentucky, on the other hand, a couple of LDDs also receive Section 5304 funding for transit planning, but four of the nine LDDs in the state do not receive any funding from the state's transportation cabinet.

The Appalachian Regional Commission can encourage all LDDs to strengthen their relationships with public transportation providers to foster collaboration in meeting shared goals and objectives.

7.2. Meeting the Appalachian Region's Public Transportation Needs

In this report, several other priorities for public transportation in the Region were identified for consideration by stakeholders throughout the Region and in the public transportation industry.

7.2.1. Matching Funding for Vehicle Replacements

In many Appalachian communities, finding local match funding to draw down federal funding for vehicle replacement is a challenge. This challenge is coupled with the fact that in some parts of the Region, there is a need for vehicles with specific features, such as wheelchair accessibility and adaptions for mountainous terrain, that increase vehicle costs. When providers are unable to replace aging vehicles, they face increased costs related to operating and maintaining vehicles that are beyond their useful life.

Funding can limit what types of vehicles are available, which in turn impacts operations and maintenance costs. Coshocton County Coordinated Transportation in Ohio, for example, needed to send a 12-passenger shuttle to collect just one motorized wheelchair user because their other vehicles cannot accommodate larger, powered wheelchairs and mobility devices. When they applied for a grant to address this, the grant was too competitive, obtaining a local match was difficult, and the application was rejected.

7.2.2. Communicate Challenges Specific to Appalachian Region Public Transportation Providers

This report documented the current availability of public transportation throughout the Region and the accessibility of jobs and residents in the Region to public transportation, as well as the wide-ranging benefits these services provide.

It is important to continue to highlight the benefits and discuss the challenges of providing public transportation service specific to the Region. Issues such as the "urban donut" (which occurs as geographic areas formerly eligible for Section 5311 funding are re-classified and become eligible only for FTA's Section 5307 Urbanized Area Formula Grants, thereby creating areas where service is lost) are less well known in the public transportation community than the common challenges faced by public transportation providers across the country. The shortage of qualified vehicle drivers is a perennial issue faced by public transportation providers in the Region and beyond, and it's now exacerbated by COVID-19.

Expanding understanding of the specific challenges faced by the Region's public transportation providers can help stakeholders and public transportation providers foster solutions to their most pressing challenges.

Following the 2010 Census and the update of the UZAs, areas that were formerly eligible for service by agencies using Section 5311 funding transitioned to being eligible only for transit service using Section 5307 funding. This resulted in a loss of transit service for some communities in Appalachia. Many of the areas no longer eligible for Section 5311 remained predominately rural in nature, while the transit agency providing service using Section 5307 funding in a region may not have the resources or be able to feasibly extend their service to the populations that lost access to rural transit service.

7.2.3. Technology

Many of the traditional providers of public transportation technology offer large-scale solutions not accessible or well suited to smaller providers. However, there are emerging systems and software that are less costly and designed with smaller and rural providers as their primary users. However, even with the availability of more options than ever before, providers struggle to identify funding they can use to support the acquisition of these technologies, even when their use may result in significant operational benefits for both provider and rider.

7.2.4. Rider Information

In most urban areas of the United States, accurate information on nearby transit options is readily available via web-based and smartphone applications, many of which provide the location of a bus or train in real-time. However, in the Appalachian Region, many providers do not currently share information on their websites, such as where their bus stops are located, what services are available, and how to access these services. Lack of readily accessible information is an impediment to ensuring access to public transportation.

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Appendix A—State DOT Program Summary

Alabama

State Planning Process

The Alabama Department of Transportation (ALDOT) is the designated administrator of all FTA grant programs for rural areas with populations of less than 50,000, including 5311 and 5310 grant programs. Alabama DOT develops and updates the Statewide Transportation Improvement Program (STIP) covering all areas of the state; projects approved to receive federal funding must be included in a STIP.

Alabama DOT encourages Rural Transportation Planning Organizations transportation advisory committees to meet at least bi-annually or as needed to review project status, evaluate proposed modifications to the Transportation Improvement Program (TIP) and STIP, update long-range plan and funding priorities, comment on rural functional classification changes, receive input on the rural work programs, and coordinate special studies. Alabama DOT allocates resources to those projects assigned the highest priority through these planning and programming processes. Additionally, all projects funded with Section 5310 must be derived from a locally developed, coordinated public transit–human services transportation plan.

Rural Transit Provider Planning Requirements

Alabama DOT is currently in the process of adjusting performance measure requirements to accommodate transit providers that may have limited administrative capacity to meet these requirements. Aside from federal requirements, ALDOT requires all Section 5311 applicants in metropolitan planning organization (MPO) study areas to notify their respective MPOs of their intention to apply for funds and acquire a letter of support. For Section 5310 subrecipients, the State Management Plan decrees that at least 55% of capital program funds must be used on public transportation projects designed to meet the needs of seniors and individuals with disabilities, with limitations on the remaining 45% as well.

Federal and State Public Transportation Funding Summary

Table 42: FY2019 Alabama Public Transportation Funding Summary

Funding Type	Funding Program	Funding Amount
Federal Funds	FTA FY19 5310 State Allocation[11]	$1,638,050.00
	FTA FY19 5311 State Allocation (Total)[12]	$17,799,272.00
	FTA FY19 5311(b)(3)—RTAP State Allocation	$300,153.00
	FTA FY19 5311—ADTAP State Allocation	$5,000,000.00[13]
	FTA FY19 5339 State Allocation[14]	$3,500,000.00

[11] For non-urbanized areas under 50,000.

[12] Includes: FTA FY19 5340 allocation for Growing States and High-Density States, 5311(b)(3) RTAP State Allocation, and 5311 ADPTAP State Allocation.

[13] ALDOT has transferred ADTAP fund to its ADHS highway program in recent years.

[14] Statewide allocation outside of Urbanized Areas (50,000 or greater).

Federal Funding Programs

Table 43: FY2019 Alabama Public Transportation Funding—Federal Funding Programs and State Matches

Program Name	FTA Funding	Funding Administrator	Assistance Type/Maximums	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Enhanced Mobility of Seniors and Individuals with Disabilities	5310	ALDOT	Capital: Up to 80%[15]	None	Annual Program Application	Annual Public Notice of the Programs available at the ALDOT website.	Public Notices indicate where to direct questions and comments.
Rural Transit Program	5311	ALDOT	Capital: Up to 80% Operating: Up to 50%	None	Annual Program Application	Annual Public Notice of the Programs available at the ALDOT website.	Public Notices indicate where to direct questions and comments.
Intercity Bus Program Section	5311(f)	ALDOT	Capital: Up to 80% Operating: Up to 50%	None	Annual Program Application	Annual Public Notice of the Programs available at the ALDOT website.	Public Notices indicate where to direct questions and comments.
Public Transportation on Indian Reservations	5311(c)	ALDOT	Capital: Up to 80% Operating: Up to 50%	None	Annual Program Application	Annual Public Notice of the Programs available at the ALDOT website.	Public Notices indicate where to direct questions and comments.

State Funding Programs

State funding programs are not available.

[15] The Alabama DOT State Management Plan defines that at least 55% of the program funds must be used on capital projects that are public transportation projects planned, designed, and carried out to meet the special needs of seniors and individuals with disabilities when public transportation is insufficient, inappropriate, or unavailable. The remaining 45% may be used for: (i) public transportation projects that exceed the requirements of the ADA; (ii) public transportation projects that improve access to fixed-route service and decrease reliance by individuals with disabilities on complementary paratransit; (iii) alternatives to public transportation that assist seniors and individuals with disabilities.

Additional Resources

Table 44: Alabama Public Transportation Funding—Other Resources

Resource	Website
ALDOT, Local Transportation Bureau, Transit Programs	https://www.dot.state.al.us/ltweb/transit/ProgramsofProjects.html
State Management Plan	https://www.dot.state.al.us/ltweb/transit/pdf/StateManagementPlan.pdf
Statewide Public Transportation Plan	https://www.dot.state.al.us/oeweb/pdf/swtp/FINAL_SWTP.pdf
Local Coordinated Human Services Transportation Plans	https://www.dot.state.al.us/ltweb/transit/LocallyDevelopedTransitPlans.html
Alabama Rural Transit Assistance Program (RTAP)	https://ecm.eng.auburn.edu/wp/rtap
Alabama Transit—ALTRANS	http://altrans.org
Alabama Transportation Association	https://atassociation.org

Georgia

State Planning Process

Projects receiving federal funds must be identified through the Georgia Department of Transportation (GDOT) planning processes. The STIP is a statewide prioritized listing of transportation projects covering at least four years that is developed by the State in cooperation with local officials and rural transit providers and incorporates the TIP from each of the state's 16 MPOs. The STIP serves as a budgeting and scheduling tool. The applicable state funding sections for the federal assistance programs are also included in the STIP that is submitted to the federal funding agencies, FTA and FHWA, annually.

Rural Transit Provider Planning Requirements

GDOT requires subrecipients of FTA funding to report NTD data and invoices for reimbursements monthly. GDOT uses this information to evaluate performances and possible improvements made in previous years, which helps the process of awarding funds. GDOT may potentially increase a subrecipient's funding amount by up to 5%, depending on project needs. All expenditures of federal funding will be verified. Purchases made in Georgia must also comply with state procurement guidelines; this especially applies to beneficiaries of state funding.

Federal and State Public Transportation Funding

Table 45: FY2019 Georgia Public Transportation Funding Summary

Funding Type	Funding Program	Funding Amount
Federal Funds	FTA FY19 5310 State Allocation[16]	$2,031,129.00
	FTA FY19 5311 State Allocation (Total)[17]	$24,524,576.00
	FTA FY19 5311(b)(3)—RTAP State Allocation	$386,280.00
	FTA FY19 5311—ADPTAP State Allocation	$592,000.00
	FTA FY19 5339 State Allocation[18]	$3,500,000.00
State Funds	FY19 Transit Projects	N/A

[16] For non-urbanized areas under 50,000.
[17] Includes: FTA FY19 5340 allocation for Growing States and High-Density States, 5311(b)(3) RTAP State Allocation, and 5311 ADPTAP State Allocation.
[18] Statewide allocation outside of Urbanized Areas (50,000 or greater).

Federal Funding Programs

Table 46: Georgia Public Transportation Funding—Federal Funding Programs

Program Name	FTA Funding	Funding Administrator	Federal Assistance Type/Maximums	State-Funded Match for Federal Funding Programs[19]	Funding Process	Application Website	Application Guidance
Enhanced Mobility for Seniors and Individuals with Disabilities Program	5310	Georgia Department of Human Services (DHS) Coordinated Transportation System	Capital: Up to 80%[20] Operating: Up to 50%	None	Annual Program Application	Department of Human Services (DHS) Coordinated Transportation System	Applications for funding under Section 5310 can be obtained by contacting the DHS Office of Facilities and Support Services, Transportation Services Section, or through one of the DHS Regional Transportation Offices by mail or e-mail.
Non-Urbanized (Rural) Area Formula Program	5311	GDOT	Capital: Up to 80% Operating: Up to 50%	Capital: Up to 10% Operating: 0%	Annual Program Application	Call for projects available at GDOT Website	FY2021 5311 Application Form and Instructions
Intercity Bus Program Section	5311(f)	GDOT	Capital: Up to 80% Operating: Up to 50%	None	Annual Program Application	Call for projects available at GDOT Website	FY2021 5311 Application Form and Instructions

[19] This funding is based on availability of State of Georgia funds. If GDOT cannot provide the state match, it is the subrecipient's responsibility to pay the state share percentage.

[20] State Management Plan defines that at least 55% of the program funds must be used on capital projects that are public transportation projects planned, designed, and carried out to meet the special needs of seniors and individuals with disabilities when public transportation is insufficient, inappropriate, or unavailable. The remaining 45% may be used for: (i) public transportation projects that exceed the requirements of the ADA; (ii) public transportation projects that improve access to fixed-route service and decrease reliance by individuals with disabilities on complementary paratransit; (iii) alternatives to public transportation that assist seniors and individuals with disabilities.

Program Name	FTA Funding	Funding Administrator	Federal Assistance Type/Maximums	State-Funded Match for Federal Funding Programs[19]	Funding Process	Application Website	Application Guidance
Tribal Transit Program	5311	GDOT	Capital: Up to 80% Operating: Up to 50%	Capital: Up to 10% Operating: 0%	Annual Program Application	Call for projects available at GDOT Website	FY2021 5311 Application Form and Instructions
Bus and Bus Facilities Program	5339	GDOT	Capital: Up to 80%	None	Annual Program Application	Call for projects available at GDOT Website	FY2021 5339 Application Form and Instructions

State Funding Programs

State funding programs are not available.

Additional Resources

Table 47: Georgia Public Transportation Funding—Other Resources

Resource	Website
Georgia DOT, Transit Programs	http://www.dot.ga.gov/IS/Transit
State Management Plans	http://www.dot.ga.gov/InvestSmart/Transit/Documents/StateManagementPlan/FY2018_StateManagementPlan_Draft.pdf https://dhs.georgia.gov/sites/dhs.georgia.gov/files/STATEMANAGEMENTPLAN2017.pdf
Statewide Transportation Plan	http://www.dot.ga.gov/InvestSmart/Documents/SSTP/Statewide%20Transportation%20Plan%20Final%20Report.pdf
Department of Human Services, Coordinated Transportation System	https://dhs.georgia.gov/coordinated-transportation-system
Georgia Rural Transit Assistance Program (RTAP)	http://www.dot.ga.gov/IS/Transit
Georgia Transit Association	https://www.gatransit.org

Kentucky

State Planning Process

The Office of Transportation Delivery (OTD) in the Kentucky Transportation Cabinet (KYTC) is the designated administrator and recipient of all FTA programs affecting rural areas. The KYTC develops and maintains a STIP, which lists rural transit projects. Projects included in the STIP must be consistent with the Statewide Transportation Plan. Subrecipient submits a grant application each year to KYTC/OTD, and it must include 2-year budgets for operations and planning, three-year capital budgets, and long-term public transit goals.

Rural Transit Provider Planning Requirements

In the past, KYTC required transit providers to report more data than what the National Transit Database (NTD) required but have since cut back to ask for data that is needed and used. At conferences, recognition and awards may be given to agencies with strong performances to encourage sustained service quality. The data also helps KYTC determine which providers need funding the most—weighing in on where the investment would bring the most return in value.

Federal and State Public Transportation Funding

Table 48: FY2019 Kentucky Public Transportation Funding Summary

Funding Type	Funding Program	Funding Amount
Federal Funds	FTA FY19 5310 State Allocation[21]	$1,741,939.00
	FTA FY19 5311 State Allocation (Total)[22]	$19,346,765.00
	FTA FY19 5311(b)(3)—RTAP State Allocation	$310,348.00
	FTA FY19 5311—ADPTAP State Allocation	$1,764,000.00
	FTA FY19 5339 State Allocation[23]	$3,500,000.00
State Funds[24]	FY19 5310 State Funding (State Match)	$650,000.00
	FY19 5311 State Funding (State Match)	$0.00
	FY19 5339 State Funding *(State Match)*	$1,220,000.00

[21] For non-urbanized areas under 50,000

[22] Includes: FTA FY19 5340 allocation for Growing States and High-Density States, 5311(b)(3) RTAP State Allocation, and 5311 ADPTAP State Allocation

[23] Statewide allocation outside of Urbanized Areas (50,000 or greater)

[24] STIP FY19-22 Planned Federal Aid Program Apportionments
https://transportation.ky.gov/TransportationDelivery/Documents/KY%20State%20Management%20Plan.pdf

Federal Funding Programs

Table 49: Kentucky Public Transportation Funding—Federal Funding Programs

Program Name	FTA Funding	Funding Administrator	Assistance Type/Maximums	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Kentucky Non-Urbanized (Rural) Area Program	5311	KYTC Office of Transportation Delivery	Capital: Up to 80% Operating: Up to 50%	Capital: Up to 10%	Annual solicitation of proposals.	KYTC OTD IGX Grant Management Software	Application Checklist
Intercity Bus Program	5311(f)	KYTC Office of Transportation Delivery	Capital: Up to 80% Operating: Up to 50%	No state-funded match	Annual solicitation of proposals.	KYTC OTD IGX Grant Management Software	N/A
Enhanced Mobility of Seniors and Individuals with Disabilities	5310	KYTC Office of Transportation Delivery	Capital: Up to 80% Operating: Up to 50%	Capital: Up to 10%	Annual solicitation of proposals.	KYTC OTD IGX Grant Management Software	Application Checklist
Rural Transit Assistance Program	5311(b)(3)	KYTC Office of Transportation Delivery	Capital: Up to 80% Operating: Up to 50%	No state-funded match	Annual solicitation of proposals; Apply within 5310 or 5311 applications.	KYTC OTD IGX Grant Management Software	N/A
Bus and Bus Facilities Program	5339	KYTC Office of Transportation Delivery	Capital: Up to 80%	Capital: Up to 10%	Annual solicitation of proposals.	KYTC OTD IGX Grant Management Software	Application Checklist

Program Name	FTA Funding	Funding Administrator	Assistance Type/Maximums	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Appalachian Development Public Transportation Assistance (ADTAP)	5311	KYTC Office of Transportation Delivery	Capital: Up to 80% Operating: Up to 50% Admin/Technical: 10%	No state-funded match	Annual solicitation of proposals; incorporated into 5311.	KYTC OTD IGX Grant Management Software	N/A

State Funding Programs

State funding programs are not available.

Additional Resources

Table 50: Kentucky Public Transportation Funding—Other Resources

Resource	Website
State Management Plan	https://transportation.ky.gov/TransportationDelivery/Documents/KY%20State%20Management%20Plan.pdf
Kentucky Public Transit Association	http://www.kypublictransit.org/
Grant Management Online Portal	https://business.kytc.ky.gov/work/TDG/SitePages/Home.aspx
Office of Transportation Delivery, How to File a Grant	https://transportation.ky.gov/TransportationDelivery/Pages/Transportation-Delivery-Grants.aspx
9-County KIPDA Coordinated Human Services Transportation Plan	https://mk0kipdask1408l5ah7.kinstacdn.com/wp-content/uploads/2020/04/2016-Update-2014-Coordinated-Human-Services-Transportation-Plan.pdf

Maryland

State Planning Process

The Maryland Transit Administration (MTA) requests that local systems assist MTA in planning for adequate funding for local transit by realistically projecting capital replacement needs for the next five years in each Annual Transportation Plan (ATP). Transportation Development Plan (TDP) funds are allocated according to the last time a jurisdiction prepared a TDP. Subrecipients for Sections 5311 and 5339 are requested to complete this type of study on a five-year basis, including capital and operations plans. The TDP process helps MTA and local providers understand what the demands and needs for transit planning are. Several public meetings involving stakeholders are required during this process.

Rural Transit Provider Planning Requirements

Maryland DOT has a standard TDP model. Local jurisdictions and transit providers must go through the process every five years. The process, handled by a third-party consultant, requires several public meetings that include a sampling of all stakeholders in the county. Each quarter, when rural transit providers submit reimbursement requests, they must submit a list of metrics and a 2A report in order to get paid. The 2A report consists of all service attributes, showing a breakdown of the performance for each program receiving federal and state public transportation funding.

Table 51: FY2019 Maryland Public Transportation Funding Summary

Funding Type	Funding Program	Funding Amount
Federal Funds	FTA FY19 5310 State Allocation[25]	$607,375.00
	FTA FY19 5311 State Allocation (Total)[26]	$6,317,468.00
	FTA FY19 5311(b)(3)—RTAP State Allocation	$156,083.00
	FTA FY19 5311—ADPTAP State Allocation	$636,000.00
	FTA FY19 5339 State Allocation[27]	$3,500,000.00
State Funds	Maryland Jobs Access Reverse Commute (MD-JARC)	$120,000.00[28]
	Statewide Specialized Transportation Assistance Program (SSTAP)	$4,305,908.00
	Senior Rides Program (SRP)	$187,091.00
	Maryland Americans with Disabilities Act (ADA) Program	$1,408,450.00
	Statewide Transit Innovation Grant	$1,000,000.00

[25] For non-urbanized areas under 50,000
[26] Includes: FTA FY19 5340 allocation for Growing States and High-Density States, 5311(b)(3) RTAP State Allocation, and 5311 ADPTAP State Allocation
[27] Statewide allocation outside of Urbanized Areas (50,000 or greater)
[28] For the next five to ten years; no more than $400,000 per year is to be used for this program; 30% is for rural areas

Federal Funding Programs

Table 52: Maryland Public Transportation Funding—Federal Funding Programs

Program Name	FTA Funding	Funding Administrator	Federal Assistance Type/Maximums	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Rural Transit Program	5311	MDOT MTA	Capital: Up to 80% Operating: Up to 50% of the net operating deficit	Capital: 10% Operating: Up to 25% of the net operating deficit	Announced alongside other programs in the ATP.	MTA's ProjectWise System	Locally Operated Transit System Program Manual
Intercity Bus Program	5311(f)	MDOT MTA	Capital: Up to 80% Operating: Up to 50%	Capital: Up to 10% Operating: Up to 25%	Biennial competitive application. Stand-alone application, separate from other 5311 funding applications.	MTA's ProjectWise System	Locally Operated Transit System Program Manual
Enhanced Mobility of Seniors and Individuals with Disabilities	5310	MDOT MTA	Capital: Up to 80% Operating: Up to 50%	None	Competitive application submitted through Regional Coordinating Bodies.	MDOT MTA Section 5310 FY20-21 Grant Application	MTA 5310 Program Manual
Bus and Bus Facilities Program	5339	MDOT MTA	Capital: Up to 80%	Capital: Up to 10%	Annual competitive application. Apply through ATP.	MTA's ProjectWise System	Locally Operated Transit System Program Manual

State Funding Programs

Table 53: Maryland Rural Public Transportation Funding—State Funding Programs

Program Name	Revenue Source	State Funding Administrator	State Assistance Type/Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
Senior Rides Program (SRP)	State Funds	MDOT MTA	Operating: Up to 75%	Government agencies, non-profits, or faith-based agencies with qualifying services.	N/A	MDOT MTA will award grants annually based on availability, distributed among the state.	Senior Rides Application Package	Included in the package.
Maryland Americans with Disabilities Act (ADA) Program	State Funds	MDOT MTA	Operating: Up to 90%	LOTS that operate ADA complementary paratransit.	N/A	Discretionary funding that is not assigned each year. When available, apply as a part of the ATP.	N/A	Annual Transportation Plan (ATP)—Subrecipient Application Package
Statewide Specialized Transportation Assistance Program (SSTAP)	State Funds	MDOT, Office on Aging and Governor's Office for Disabled Individuals	Between $130,000 to $175,000 of funding is provided each year. Capital: Up to 95% Operating: Up to 75% of the net operating deficit	Each county and City of Baltimore (it may be a Transportation or an Aging program)	N/A	Apply as a part of the ATP.	N/A	Annual Transportation Plan (ATP)—Subrecipient Application Package

Program Name	Revenue Source	State Funding Administrator	State Assistance Type/Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
Statewide Transit Innovation Grant	State Funds	MDOT MTA	Capital: Up to 80%	Maryland local governments or locally operated transit providers.	Projects must comply with federal regulations. Federal funding accepted as part of the project match.	Competitive application; funding contingent upon availability. The review is coordinated with other relevant programs.	Statewide Transit Innovation Grant Website or ProjectWise	Procedures and Guidelines
Maryland Jobs Access Reverse Commute (MD-JARC)	State Funds	MDOT MTA	$120,000 each year is available for rural areas.	Non-profits, local transit systems, and employers/corporations.	It is modeled after the FTA JARC program.	MDOT MTA will award grants based on funding availability, the number of eligible applications received, and the quality of the proposed projects.	FY20-22 MD-JARC Grant Application	Grant Announcement

Additional Resources

Table 54: Maryland Public Transportation Funding—Other Resources

Resource	Website
Transportation Association of Maryland, Inc. Office of Local Transit Support	http://www.taminc.org/Office-of-Local-Transit-Support
MTA FY2021 Annual Transportation Plan Application	https://www.taminc.org/assets/docs/MTA/ATP/Application.docx
Transportation Association of Maryland, Inc. Locally Operated Transit Program Manual	https://www.taminc.org/assets/docs/2017%20LOTS%20Manual%20Rev_%203_1.pdf
State Management Plan: Section 5339	http://files.ctctcdn.com/c04a3525301/0f65378d-15a1-499e-a10a-93b109b6fba7.pdf
State Management Plan: Section 5311	http://www.taminc.org/Portals/11/MTA%20Docs/MTA%20Section%205311%20SMP%20-%20April%202015.docx
State Management Plan: Section 5310-5316-5317	http://files.ctctcdn.com/c04a3525301/ae00c168-10f8-4b98-8002-a133ffe3052c.pdf
Statewide Transportation Improvement Program FY19-22	http://www.mdot.maryland.gov/newMDOT/Planning/STIP_TIP/Documents/2019/Documents/Final/MARYLAND_STIP_FY20192022_Final_41719.pdf
Transportation Association of Maryland	http://www.taminc.org/

Mississippi

State Planning Process

The Public Transit Division within the Office of Intermodal Planning is authorized by the Mississippi Transportation Commission to apply for as well as manage FTA-funded formula programs and administer FTA grants. The Interagency Transportation Committee (ITC) is an advisory body that assists the Public Transit Division in reviewing individual project requests and making recommendations. The ITC reviews proposals and, where appropriate, recommends transportation alternatives and options that provide coordination of resources. All applicants are required to document efforts to coordinate with social service agencies and other providers of transit services.

Sub-recipients of FTA funding are encouraged to develop agency advisory committees to, among other responsibilities, assist with short- and long-range planning. The purpose of these committees is strictly advisory, and members play a crucial role in being a liaison within their communities to gain an understanding of local and regional transportation needs and challenges.

Rural Transit Provider Planning Requirements

Rural transit providers who are subrecipients of federal funding are required to report monthly on performance indicators. This information is also used for National Transit Database (NTD) reporting. Data collected include fleet operations, cost per mile, cost per trip, revenue, etc. Each provider is also required to submit quarterly summary reports, as well as Disadvantaged Business Enterprise (DBE) reporting and payment documentation.

Federal and State Public Transportation Funding

Table 55: FY2019 Mississippi Public Transportation Funding Summary

Funding Type	Funding Program	Funding Amount
Federal Funds	FTA FY19 5310 State Allocation[29]	$1,313,614.00
	FTA FY19 5311 State Allocation (Total)[30]	$16,215,551.00
	FTA FY19 5311(b)(3)—RTAP State Allocation	$270,773.00
	FTA FY19 5311—ADPTAP State Allocation	$254,000.00
	FTA FY19 5339 State Allocation[31]	$3,500,000.00
State Funds	Multi-Modal Transportation Improvement Program (FY17)	$1,600,000.00
	FY19 Transportation Alternatives Program (*State Match*)	$2,171,213.00

[29] For non-urbanized areas under 50,000

[30] Includes: FTA FY19 5340 allocation for Growing States and High-Density States, 5311(b)(3) RTAP State Allocation, and 5311 ADPTAP State Allocation

[31] Statewide allocation outside of Urbanized Areas (50,000 or greater)

Federal Funding Programs

Table 56: Mississippi Public Transportation Funding—Federal Funding Programs

Program Name	FTA Funding	Funding Administrator	Federal Assistance Type/Maximums	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Rural Area Formula Grants	5311	MDOT Office of Intermodal Transportation Planning, Public Transit Division	Adm./Capital: Up to 80% Operating: Up to 50%	Capital: Up to 20% Operating: Up to 20% (Largely for vehicle match and vehicle insurance)	Annual competitive application	MDOT Grant Management System	Access via the grant management system.
Intercity Bus Transportation	5311(f)	MDOT Office of Intermodal Transportation Planning, Public Transit Division	Capital: Up to 80% Operating: Up to 50%	N/A	It is announced annually, alongside Section 5311.	MDOT Grant Management System	Access via the grant management system.
Appalachian Development Public Transportation Assistance Program	5311(c)(2)	MDOT Office of Intermodal Transportation Planning, Public Transit Division	Up to 80% Adm./Cap. Operating: Up to 50%	N/A	Annual competitive application	MDOT Grant Management System	Access via the grant management system.
Enhanced Mobility of Seniors and Individuals with Disabilities	5310	MDOT Office of Intermodal Transportation Planning, Public Transit Division	Capital: Up to 80%	N/A	Annual competitive application	MDOT Grant Management System	Access via the grant management system.
Bus and Bus Facilities Grant Program	5339	MDOT Office of Intermodal Transportation Planning, Public Transit Division	Up to 80%. Subrecipients cannot use funds to operate transportation services.	N/A	Annual competitive application	MDOT Grant Management System	Access via the grant management system.

State Funding Programs

Table 57: Mississippi Public Transportation Funding—State Funding Programs

Program Name	Revenue Source	State Funding Administrator	State Assistance Type/Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
Multi-Modal Transportation Improvement Program (MMTIP)	Multi-Modal Transportation Improvement Fund	Mississippi DOT Public Transit Division	16% of MMTIP is allocated for public transit projects (FY20) Capital and other expenses that meet FTA eligibility.	5311 Recipients	Funds are limited to those eligible for FTA assistance.	Annual competitive application.	MDOT Grants Management	MMTIP Instructions
State Department of Human Services (DHS)	Title III Title III-b Title XX	MS Department of Human Services	Funding is allocated by formula (the number of elderly and disabled passengers and fare reduction amount. Rural and small urban transit systems get priority.	Funding via direct contracts with 5311/5310 providers.	These are federal funds for aging/disabled services that are eligible to match 5311 funds.	Annual competitive application	N/A	N/A

Additional Resources

Table 58: Mississippi Public Transportation Funding—Other Resources

Resource	Website
State Management Plan	https://mdot.ms.gov/documents/Public%20Transit/Plan/State%20Management%20Plan/State%20Management%20Plan.pdf
Statewide Transportation Improvement Plan	https://mdot.ms.gov/FiveYearPlanData/STIP%20Archived/2015-2019/2015-2019%20STIP.pdf
Statewide Public Transportation Plan	https://mdot.ms.gov/documents/Public%20Transit/Reports/Studies/MDOT%20Final%20Report%202017.pdf
Mississippi DOT, Connect Mississippi Transit Provider Portal	https://mdot.ms.gov/connectms/
Mississippi DOT, Grant Management System	https://mdot.ms.gov/gms/

New York

State Planning Process

Within the New York Department of Transportation (NYSDOT), the FTA program administration is assigned to the Policy and Planning Division (PPD). Sections 5310, 5311, and 5339 programs are administered by the Office of Modal Grants Administration and further delegated to the Public Transportation Bureau. For applicants to be considered for 5310 funding, proposed projects must be included in a locally developed, coordinated public transit–human service transportation plan. Additionally, 5310 subrecipients are required to prepare and submit reports semi-annually, and 5311 subrecipients are required to submit annual reports—or NYSDOT may withhold reimbursement.

Rural Transit Provider Planning Requirements

NYSDOT does not make a distinction between rural providers and other providers for reporting requirements. Aside from federal reporting requirements, New York state's Statewide Transportation Operating Assistance (STOA) program requests the submission of miles and passengers' statistics on a quarterly basis, as it is apportioned pursuant to a service and usage formula. For Section 5310 subrecipients in rural areas, a minimum of 55% of each apportionment must be used to support the special needs of seniors and individuals with disabilities. Section 5310 subrecipients are expected to report semi-annually while Section 5311 subrecipients must report on an annual basis.

Federal and State Public Transportation Funding

Table 59: FY2019 New York Public Transportation Funding Summary[32]

Funding Type	Funding Program	Funding Amount (2019–2020 Budget)
Federal Funds	FTA FY18 5310 State Awards (2 Years)	$2,993,587.00
	FTA FY17-18 5311 State Awards (2 Years)	$21,023,118.00
	FTA FY19 5311(b)(3)—RTAP State Expenditures	$64,633.00
	FTA FY19 5311—ADPTAP State Allocation	$200,000.00
	FTA FY19 5307 SUZA Allocation	$7,215,069.00
	FTA FY19 5339 SUZA Allocation	$525,507.00
	FTA FY19 5339 State Allocation to SUZAs	$1,477,456.00
State Funds	Statewide Mass Transit Operating Assistance (STOA)	$18,944,806.00
	SFY2019 Modernization and Enhancement Program (MEP)	$1,344,837.00
	SFY2019 Accelerated Transit Capital (ATC) Program	$1,625,569.00
	SFY2019 State Omnibus and Transit Purpose Expenditures	$802,339.00

[32] In addition to the rural areas, there are three urban areas located within the Appalachian Region: Binghamton, Elmira, and Ithaca.

Federal Funding Programs

Table 60: New York Public Transportation Funding—Federal Funding Programs

Program Name	FTA Funding	Funding Administrator	Federal Assistance Type/Maximums	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Enhanced Mobility of Seniors and Individuals with Disabilities	5310	NYSDOT	Capital/Mobility Management: Up to 80% Operating: Up to 50%	Project sponsors required to provide 100% of the nonfederal share; state first instances vehicle purchase/ directly and applies for federal reimbursement. Operating: May apply to NYSDOT for up to 25% of federal award after three months of eligible expenses are incurred.	Annual competitive process	NYSDOT Section 5310	Guidance and Application Instructions
Intercity Bus Program	5311(f)	NYSDOT	Operating: Up to 50%	Supplemented by the STOA. Level of assistance is based on eligibility identified in Annual Reports.	Biennial; allocated based on rural population served, fleet size, and passengers per vehicle mile	NYSDOT Section 5311	NYSDOT State Management Plan (2019)
Formula Grants for Rural Areas	5311	NYSDOT	Capital/Mobility Management: Up to 80% Operating: Up to 50%	Capital/Mobility Management: Up to 10% Operating: STOA provides a percentage of the local match based on quarterly statistics.	Biennial; NYSDOT issues a notice of funding availability and project selection criteria.	NYSDOT Section 5311	Guidance and Application Instructions NYSDOT State Management Plan (2019)

Program Name	FTA Funding	Funding Administrator	Federal Assistance Type/Maximums	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Rural Transportation Assistance Program	5311(b)(3)	NYSDOT	Does not require a match.	No State Match.	Apply for training and other support services assistance through application.	NYSDOT RTAP – Main Page	N/A
Urbanized Area Formula Grants	5307	FTA-designated recipients	Capital: Up to 80% Operating assistance eligibility up to 50% for areas under 200,000 in population	See Omnibus Program under State Programs.	Apportioned directly to Urbanized Areas/states for areas less than 200,000 in population.	N/A	N/A
Buses and Bus Facilities Formula Program (Formula Program)	5339	FTA-designated recipients	Capital: Up to 80%	See Omnibus Program under State Programs.	Apportioned directly to Urbanized Areas/states for areas of less than 200,000 in population.	N/A	N/A

State Funding Programs

Table 61: New York Public Transportation Funding—State Programs

Program Name	Revenue Source	State Funding Administrator	Assistance Type/Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
Statewide Mass Transportation Operating Assistance Program (STOA)	State dedicated funds (e.g., corporate franchise surcharge taxes, auto rental taxes, motor vehicle taxes/feed, petroleum)	NYSDOT	Operating Assistance	County and city sponsors of public transportation services (provided directly or under contract); any public benefit corporation constituting a transportation authority; Indian reservations; and intercity bus services directly sponsored by NYSDOT.	Participation in STOA determines applicant eligibility for Section 5310 and Section 5311 programs.	Funding amounts for large county/city sponsors and public benefit corporations are specified in annual appropriation bills; for other sponsors, a general line is specified in the budget from which funds are apportioned pursuant to a service and usage formula.	STOA Website	STOA Application
State Omnibus and Transit Purpose Appropriation (Omnibus)	Annual State Appropriation—Dedicated Mass Transportation Trust Fund	NYSDOT	State match to federally eligible capital assistance programs. Provides 50% of the non-federal share not to exceed 10% of total project costs.	FTA-designated recipients other than the Metropolitan Transportation Authority (MTA).	State matching funds to FTA Section 5307; 5311; 5339 and 5337 programs	Assigned by state as eligible FTA grants are approved.	NYSDOT State Omnibus and Transit Purpose Appropriation—Main Page	N/A

Program Name	Revenue Source	State Funding Administrator	Assistance Type/Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
Accelerated Transit Capital (ATC) Program	Annual State Appropriation – Capital Projects Fund/Personal Income Tax	NYSDOT	Capital: Up to 100%	Upstate County and city sponsors of public transportation services; any public benefit corporation constituting a transportation authority.	None. 100% state funds; however, may be used for any FTA eligible activity.	Funding levels for public benefit corporations constituting a transportation authority are specified in annual appropriation bills; for other sponsors, a general line is specified in the budget from which funds are apportioned pursuant to the share of service and usage payments received in the previous year.	NYSDOT ATC – Main Page	Program Information and Requirements
Modernization and Enhancement Program (MEP)	Annual State Appropriation – Capital Projects Fund/Personal Income Tax	NYSDOT	Capital: Up to 100%	County/city sponsors of public transportation systems; and public benefit corporations constituting a transportation authority.	None. 100% state funds; however, may be used for any FTA eligible activity.	Funds apportioned based on a formula that incorporates ratio of federal/state aid (5307/STOA). 10% of annual apportionment is banked for a competitive solicitation to address extraordinary needs.	NYSDOT Modernization and Enhancement Program – Main Page	Guidelines and Application Instructions

Additional Resources

Table 62: New York Public Transportation Funding—Other Resources

Resource	Website
State Management Plan	https://www.dot.ny.gov/divisions/policy-and-strategy/public-trans-respository/State%20Management%20Plan%20FINAL%204.8.19.pdf
Rural Transit Assistance Program (RTAP)	https://www.dot.ny.gov/divisions/policy-and-strategy/public-transportation/rural-programs/rtap
Locally Developed Human Services Transportation Plans	https://www.dot.ny.gov/divisions/policy-and-strategy/public-transportation/local-dev-coordinated-plans
State and Federal Funding Program Directory	https://www.dot.ny.gov/divisions/policy-and-strategy/public-transportation/funding-sources
New York Public Transit Association	https://nytransit.org/

North Carolina

State Planning Process

The North Carolina Department of Transportation (NCDOT) Public Transportation Division (PTD) requires Enhanced Mobility of Seniors and Individuals with Disabilities projects to be included in a coordinated public transit–human services transportation plan or locally coordinated plan (LCP). These plans must be updated every five years, but plans may be amended in the interim years to reflect any new needs. Rural Formula Grant Program operating funds are distributed based on a performance tier in addition to the federal formula tier. Each transit system must have a five-year budget that includes a capital replacement plan, which is used to assist in prioritizing capital funding.

North Carolina DOT PTD and local transit systems must prioritize projects identified in the State Transportation Improvement Plan to receive the state match for capital (expansion vehicles, facilities, and fixed guideway). The Strategic Transportation Investment law (HB817) from 2013 created a formal, data-driven process to prioritize transportation capital projects.

Rural Transit Provider Planning Requirements

Each county in the state complete a Community Transit Services Plan (CTSP) as a prerequisite for federal and state funding for capital, administrative, and operating assistance every five years. North Carolina DOT requires each plan to evaluate the system's current approach in all facets of management and operations, evaluate the results of the system's current direction, and identify organization strengths and target opportunities for improvement.

Federal and State Public Transportation Funding

Table 63: FY2019 North Carolina Rural Public Transportation Funding Summary

Funding Type	Funding Program	Funding Amount
Federal Funds	FTA FY19 5310 State Allocation[33]	$2,857,043.00
	FTA FY19 5311 State Allocation (Total)[34]	$30,794,235.00
	FTA FY19 5311(b)(3)—RTAP State Allocation	$477,230.00
	FTA FY19 5311—ADPTAP State Allocation	$1,450,000.00
	FTA FY19 5339 State Allocation[35]	$3,500,000.00
State Funds	Strategic Transportation Investment (STI)—Rural	Varies by STIP cycle. All FTA funding above appears in the STIP, in addition to state funded capital awards.
	Intercity Bus Program	$1,003,420.00
	FY19 Mobility Management Grant	$40,275.00
	FY19 Rural Operating Assistance Program (ROAP)	$17,328,215.00
	Rural State Operating Funds Program	$466,507.00
	FY19 Traveler's Aid	$42,416.00
	FY19 Consolidation and Coordination of Public Transportation Systems (ConCPT)	$659,664.00

[33] For non-urbanized areas under 50,000

[34] Includes: FTA FY19 5340 allocation for Growing States and High-Density States, 5311(b)(3) RTAP State Allocation, and 5311 ADPTAP State Allocation

[35] Statewide allocation outside of Urbanized Areas (50,000 or greater)

Federal Funding Programs

Table 64: North Carolina Public Transportation Funding—Federal Funding Programs

Program Name	FTA Funding	Funding Administrator	Federal Assistance Type/Maximums	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Enhanced Mobility of Seniors and Individuals with Disabilities	5310	NCDOT	Capital: Up to 80% Operating: Up to 50%	Capital: Up to 10%	Annual Program of Projects Development and Approval	NCDOT Website	NCDOT Website
Mobility Management (Mobility Manager position)	5310	NCDOT	Up to 50%	State Program	Annual Program of Projects Development and Approval	NCDOT Website	NCDOT Website
Rural Formula Grant Program	5311	NCDOT	Capital: Up to 80% Operating: Up to 50%	Capital: Up to 10%	Annual Program of Projects Development and Approval	NCDOT Website	NCDOT Website
Intercity Bus Program	5311(f)	NCDOT	FTA Section 5311(f) funds can be used to provide up to 50% of the net operating deficit.	This is a state program—see Table 65	Annual Program of Projects Development and Approval	NCDOT Website	NCDOT Website
Bus and Bus Facilities Program	5339	NCDOT	Capital: Up to 80%	Capital: Up to 10%	Annual Program of Projects Development and Approval	These projects are selected based on available funds and eligible vehicles and facility requests that appear on the master 5311 grant application.	Grantee Tools
Combined Capital	5311, 5307, 5339	NCDOT	Capital: 80%	Capital: 10%	Annual Program of Projects Development and Approval	These projects are selected based on available funds and eligible vehicles and facility requests that appear on the master 5311 grant application.	Grantee Tools

State Funding Programs

Table 65: North Carolina Public Transportation Funding—State Programs

Program Name	Revenue Source	State Funding Administrator	State Assistance Type/Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
Strategic Transportation Investment (STI) – Rural	FTA and Highway Trust Funds	NCDOT	Capital: 80% (Expansion Vehicle, Facility, and Fixed Guideway) Only projects with a total cost of $40,000 or higher are eligible	City or County governments or public transportation authorities	Can include 5311, 5307 or 5339 Federal Bus and Bus Facility funds.	Projects selected through a competitive process guided by the state Strategic Transportation Investment law.	NCDOT Website	NCDOT Website
Rural Operating Assistance Program (ROAP)	Highway Trust Funds	NCDOT	EDTAP (Elderly and Disabled Transportation Assistance Program): Up to 100% EMPL (Employment and Transportation Assistance Program): Up to 100% Rural General Public Program (RG): Up to 90%	County governments or public transportation authorities	ROAP funds may be used as local match for 5310 operating, 5311 operating, and other funds as pre-approved in the application.	EDTAP: Formula (50% divided equally among all counties, 22.5% senior residents, 22.5% disabled residents, 5% population density) EMP: Formula (10% divided equally among all counties, 45% population, 45% unemployed individuals) RGP: 50% divided among eligible counties, 50% based on elderly population	NCDOT Website / NCDOT Documents Library	NCDOT Website
Rural State Operating Funds (RO) Program	Highway Trust Funds	NCDOT	Operating: 50%	A small fixed-route system, regional system, or urban/rural system	No federal funding included in this grant program.	Annual grant application	NCDOT Website	NCDOT Website

Program Name	Revenue Source	State Funding Administrator	State Assistance Type/Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
Traveler's Aid *(intercity bus and/or train tickets for disadvantaged individuals, victims of domestic violence, and stranded travelers)*	Highway Trust Funds	NCDOT	Federal Share: 0% State share: 50% Local share: 50%	Private non-profit organizations, public transportation providers, or local governmental authorities	No federal funding included in this grant program.	Annual grant application	NCDOT Website	NCDOT Website
Consolidation and Coordination of Public Transportation Systems – ConCPT	Highway Trust Funds	NCDOT	50% State Funds 50% Non-State Funds $1.5M in funding, $750,000 for each program; $200,000 per year for each grantee.	Must be subrecipients of federal transit funds	No federal funding included in this grant program.	Rolling grant application	NCDOT Website	NCDOT Website
Intercity Bus Program	5311 (f) Highway Trust Funds	NCDOT	Up to 50%	Public, private non-profit and for-profit transportation providers; intercity bus providers; and local public bodies including counties, municipalities and regional or local planning organizations	FTA Section 5311(f) funds can be used to provide up to 50% of the net operating deficit.	Projects with a higher percentage of farebox revenue and/or contributions from local government(s) will be given a higher priority for funding.	NCDOT Website	NCDOT Website

Additional Resources

Table 66: North Carolina Public Transportation Funding—Other Resources

Resource	Website
North Carolina DOT, Transit Grants	https://connect.ncdot.gov/business/Transit/Pages/Transit-Grants.aspx
State Management Plan	https://connect.ncdot.gov/business/Transit/Documents/State%20Management%20Plan%20NCDOT-PTD%20Final%2020160620.pdf
Statewide Public Transportation Plan	https://www.ncdot.gov/initiatives-policies/Transportation/plan/Documents/NCDOT_2040TransportationPlan.pdf
Statewide Coordinated Human Services Transportation Plan	https://connect.ncdot.gov/business/Transit/Documents/LCP_Full%20Final_30July2018.pdf
Public Transportation Strategic Plan	https://www.ncdot.gov/divisions/public-transit/statewide-strategic-plan/Documents/december-2018-strategic-plan.pdf
North Carolina Public Transportation Association (NCPTA)	https://www.nctransit.org/

Ohio

State Planning Process

The Ohio Department of Transportation (ODOT) prepares the Statewide Transportation Improvement Program (STIP), which includes all rural transit projects. Rural transit systems, which are located within the planning jurisdictions of metropolitan planning organizations (MPOs), however, must also be included in the local TIP. Additionally, all rural transit grantees must submit a four-year capital and operating plan bi-annually.

Local governmental agencies and nonprofit organizations receiving assistance from other federal agencies for non-emergency medical transportation (NEMT) must also participate and coordinate with FTA recipients in the design and delivery of transportation services and be included in the planning for those services. Rural transit grantees must, therefore, include these organizations on their transit advisory and planning committees and ensure that they are involved in all public participation activities. In communities where formal coordination activities are occurring, ODOT expects the rural transit system to be an active participant in the coordination effort.

Rural Transit Provider Planning Requirements

There are no set planning requirements necessary to access funding, aside from what is federally required. ODOT collects metrics such as on-time percentage, missed trips, and late trips per TIGER requirements, though this information has not been used to inform funding award decisions. Data concerning elderly and disabled riders is collected as Ohio's Elderly and Disabled Transit Fare Assistance Program funds are allocated based on trips provided.

Federal and State Public Transportation Funding

Table 67: FY2019 Ohio Rural Public Transportation Funding Summary

Funding Type	Funding Program	Funding Amount
Federal Funds	FTA FY19 5310 State Allocation[36]	$2,424,197.00
	FTA FY19 5311 State Allocation (Total)[37]	$26,668,523.00
	FTA FY19 5311(b)(3)—RTAP State Allocation	$448,405.00
	FTA FY19 5311—ADPTAP State Allocation	$964,000.00
	FTA FY19 5339 State Allocation[38]	$3,500,000.00
State Funds	SFY20/21 Ohio Public Transportation Grant Program—Rural Transit Program[39]	$4,000,000.00
	SFY20/21 Ohio Elderly and Disabled Transit Fare Assistance	$2,000,000.00

[36] For non-urbanized areas under 50,000

[37] Includes: FTA FY19 5340 allocation for Growing States and High-Density States, 5311(b)(3) RTAP State Allocation, and 5311 ADPTAP State Allocation

[38] Statewide allocation outside of Urbanized Areas (50,000 or greater)

[39] Program combines state funds and federal 5311 funds into one rural transit grant program

Federal Funding Programs

Table 68: Ohio Public Transportation Funding—Federal Funding Programs

Program Name	FTA Funding	Funding Administrator	Federal Assistance Type/Maximums	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Specialized Transportation Program	5310	ODOT Office of Transit	Vehicles, Preventative Maintenance, Computer Hardware: Up to 80% Public Transportation Alternatives: Up to 50%	N/A	Annual competitive application Applicants with 5311-funded transit providers in their area are ineligible for operating assistance unless they prove it is unable to meet the needs of seniors and individuals with disabilities.	Ohio DOT Specialized Transportation Program	5310 Application Instructions (2019)
Ohio Mobility Management Program	5310	ODOT Office of Transit	Up to 80%. Subrecipients cannot use funds to operate transportation services.	N/A	Annual competitive application	Ohio Mobility Management Program	Ohio Mobility Management Program Guide
Ohio Public Transportation Grant Program - Rural Transit Program[40] *(note: also a state funding program)*	5311	ODOT Office of Transit	Capital: Up to 80% Operating: Up to 50%	Capital: Up to 10% Operating: Up to 30%	Annual Rural Transit Program Application	BlackCat Grant Management System	Ohio DOT FTA Section 5311 Rural Transit Program Criteria and Application Instructions
Ohio Rural Intercity Bus Program	5311(f)	ODOT Office of Transit	Capital: Up to 80% Operating: Up to 50%	N/A	Annual Rural Transit Program Application	BlackCat Grant Management System	Ohio DOT FTA Section 5311 Rural Transit Program Criteria and Application Instructions

[40] Section 5304 funds and RTAP funds are used for training, technical assistance, and on-site reviews.

Program Name	FTA Funding	Funding Administrator	Federal Assistance Type/Maximums	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Bus and Bus Facilities Program	5339	ODOT Office of Transit	Capital: Up to 80%	N/A	Applications are completed through a two-part process: First, there is a letter of intent completed through Formstack; Second, there is the application processed in the BlackCat System.	BlackCat Grant Management System	N/A

State Funding Programs

Table 69: Ohio Rural Public Transportation Funding—State Funding Programs

Program Name	Revenue Source	State Funding Administrator	State Assistance Type/Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
Ohio Public Transportation Grant Program - Rural Transit Program *(note: also a federal funding program)*	State General Funds, 5311	ODOT Office of Transit	Capital: Up to 10% Operating: Up to 30%	5311 Recipients	Combined with federal 5311 funding in one grant program.	Annual Rural Transit Program Application	BlackCat Grant Management System	Ohio DOT FTA Section 5311 Rural Transit Program Criteria and Application Instructions
Ohio Elderly and Disabled Transit Fare Assistance	State General Funds	ODOT Office of Transit	Funding is allocated by multiplying a transit provider's elderly and disabled passengers by the amount of the fare reduction (up to half). Rural and small urban transit system reimbursements are calculated first.	ODOT Rural Transit Program or Urban Transit Program recipients that provide reduced fare to the elderly and people with disabilities.	N/A	Reimbursement program, no application required. ODOT sends a contract to the eligible public transit system each year.	Elderly and Disabled Transit Fare Assistance Program	N/A

Additional Resources

Table 70: Ohio Public Transportation Funding—Other Resources

Resource	Website
Ohio DOT, Planning Division, Transit Funding Programs	http://www.dot.state.oh.us/Divisions/Planning/Transit/Pages/Programs.aspx
Statewide Public Transportation Plan (Access Ohio 2040)	http://www.dot.state.oh.us/Divisions/Planning/SPR/StatewidePlanning/access.ohio/AO40_library/ODOTAccessOhio2014.pdf
Locally Developed, Coordinated Public Transit-Human Services Transportation Plans	http://www.dot.state.oh.us/Divisions/Planning/Transit/Pages/LocallyDevelopedCoordinatedPlans.aspx
Ohio Rural Transit Assistance Program (RTAP)	http://www.dot.state.oh.us/Divisions/Planning/Transit/Pages/RTAP.aspx
Ohio Public Transit Association	https://www.ohioneedstransit.org

Pennsylvania

State Planning Process

The Pennsylvania Department of Transportation (PennDOT) is the designated recipient for FTA Section 5310, 5311, and 5339 funds. Within PennDOT, the Bureau of Public Transportation (BPT) is responsible for administering grant programs. BPT develops recommendations for new or revised public transportation policies, programs, and legislation necessary to respond to transit needs in Pennsylvania. Grant opportunities are announced during the annual application process. State funding for transit is made available through two dedicated funding streams:

- Public Transportation Trust Fund (PTTF):[41] "The Public Transportation Trust Fund was created by Act 44 of 2007 to provide dedicated funding for public transportation in the commonwealth. Act 89 of 2013 increased funding and revenue sources for the fund. Revenues come from scheduled payments by the Pennsylvania Turnpike Commission, a portion of the Sales and Use Tax, certain motor vehicle fees, vehicle code fines and surcharges, and transfers from the Public Transportation Assistance Fund and the Lottery Fund. Monies in this fund are disbursed as grants to public transit agencies for operating costs, capital and asset improvements, and programs of statewide significance. Effective in 2022, Act 89 eliminates $400 million in annual transfers from the Turnpike Commission to support mass transit operations. The fund balance does not reflect substantial commitments for public transportation operating and capital."
- Multimodal Transportation Fund (MTF):[42] "The Multimodal Transportation Fund was created by Act 89 of 2013 to provide additional funding for passenger rail, rail freight, ports and waterways, aviation, bicycle and pedestrian facilities, roads and bridges, and other modes of transportation. The program is funded by deposits from the Pennsylvania Turnpike Commission, a portion of certain Motor Vehicle Fees and the Oil Company Franchise Tax. The Pennsylvania Constitution restricts the use of Motor License Fund revenues and the issuance of bonds utilized by PTC to make these payments. In 2017, applications for this program funding totaled more than $240 million—far more than the amount available to be distributed through the Commonwealth Financing Authority."

Rural Transit Provider Planning Requirements

Performance reviews are mandatory for all transit agencies in Pennsylvania, per state legislation requirements. As a part of the process, PennDOT may require agencies to create a Transportation Development Plan (TDP), strategic plan, etc., and provide help with the planning process. Rural agencies are required to do performance reviews every five years, followed by a functional area review for 13 functional areas. Agencies are also required to provide PennDOT an audit every year.

[41] Source: https://www.budget.pa.gov/PublicationsAndReports/CommonwealthBudget/Documents/2019-20%20Proposed%20Budget/2019-20_Budget_Document_Web.pdf
[42] Source: https://www.budget.pa.gov/PublicationsAndReports/CommonwealthBudget/Documents/2019-20%20Proposed%20Budget/2019-20_Budget_Document_Web.pdf

Federal and State Public Transportation Funding

Table 71: FY2019 Pennsylvania Public Transportation Funding Summary

Funding Type	Funding Program	Funding Amount
Federal Funds	FTA FY19 5310 State Allocation[43]	$2,368,603.00
	FTA FY19 5311 State Allocation (Total)[44]	$24,945,192.00
	FTA FY19 5311(b)(3)—RTAP State Allocation	$421,868.00
	FTA FY19 5311—ADPTAP State Allocation	$4,788,000.00
	FTA FY19 5339 State Allocation[45]	$3,500,000.00
State Funds[46]	Public Transportation Trust Fund (FY19-20 Estimated Funds Available/Allocated)	$1,656,654.00
	Public Transportation Assistance Fund (FY19-20 Estimated Funds Available/Allocated)	$276,829.00
	Multimodal Transportation Fund (FY19-20 Estimated Funds Available/Allocated)	$154,765.00

[43] For non-urbanized areas under 50,000

[44] Includes: FTA FY19 5340 allocation for Growing States and High-Density States, 5311(b)(3) RTAP State Allocation, and 5311 ADPTAP State Allocation

[45] Statewide allocation outside of Urbanized Areas (50,000 or greater)

[46] Governor Tom Wolf Executive Budget, 2019-2020, at: https://www.budget.pa.gov/PublicationsAndReports/CommonwealthBudget/Documents/2019-20%20Proposed%20Budget/2019-20_Budget_Document_Web.pdf

Federal Funding Programs

Table 72: Pennsylvania Public Transportation Funding—Federal Funding Programs

Program Name	FTA Funding	Funding Administrator	Assistance Type/Maximums	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Enhanced Mobility for Seniors and Individuals with Disabilities	5310	PennDot Bureau of Public Transportation; managed by Urban Division	Capital: Up to 80% Operating: Up to 50%	The state may provide Community Transportation Capital funds for 20% of local share for eligible providers.	Annual competitive application	dotGrants Grant Management System	PennDOT SharePoint Portal – 5310 Application Materials
Non-Urbanized Area Grant	5311	PennDot Bureau of Public Transportation; managed by Rural and Intercity Division	Capital: Up to 80% Operating: Up to 50%	Capital: Up to 19.355% Operating: Local sources must have a cash match equal to 15% of Act 44 operating assistance	Annual application	dotGrants Grant Management System	Distributed via e-mail
Bus and Bus Facility Formula Grants	5339	PennDot Bureau of Public Transportation; managed by Urban Division	Capital: Up to 80%	Capital: 19.355%	Annual competitive application	dotGrants Grant Management System	PennDOT SharePoint Portal

State Funding Programs

Table 73: Pennsylvania Public Transportation Funding—State Funding Programs

Program Name	Revenue Source	State Funding Administrator	Assistance Type/ Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
Multimodal Transportation Fund	Multimodal Transportation Fund (MTF)	PennDOT	Up to 70% Financial assistance under the Multimodal Transportation Fund shall be matched by local funding in an amount not less than 30% of the amount awarded.	Municipality, council of governments, business/non-profit, economic development organization, public transit agency, or ports/rail entity.	Financial assistance under section 2104(a)(2) and (4) (relating to use of money in fund) shall be matched by local funding in an amount not less than 30% of the non-Federal share of the project costs.	Reimbursement program, annual competitive application.	PennDOT SharePoint Portal – Multimodal Transportation Funding Application Materials	PennDOT Multimodal Transportation Funds Guidelines
PTTF Transit Operating Assistance (Section 1513)	Public Transportation Trust Fund	PennDOT	Operating: Up to 85%.	Transit providers	N/A	Base funding and new formula funds based on needs and performance.	N/A	N/A
PTTF Asset Improvement Program (Section 1514)	Public Transportation Trust Fund	PennDOT	Capital: Up to 96-⅔%	Projects that have existing debt service commitment, to provide matching funds and non-federal capital projects.	It provides matching funds for federally approved projects and limited non-federal projects.	Based on need: Debt service, matching funds for federal projects, and non-federal capital projects.	N/A	N/A
PTTF Capital Improvements Program (Section 1517)	Public Transportation Trust Fund	PennDOT	Capital: Up to 100%	Projects must be on statewide Capital Plan.	N/A	Formula: Funding is distributed by a formula based on passenger numbers.	N/A	N/A

Program Name	Revenue Source	State Funding Administrator	Assistance Type/ Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
PTTF New Initiatives Program (Section 1515)	Public Transportation Trust Fund	PennDOT	Capital: Up to 96-⅔%	N/A	Federal New Starts funding match has priority.	Discretionary funding	N/A	N/A
PTTF Programs of Statewide Significance (Section 1516)	Public Transportation Trust Fund	PennDOT	N/A	Subrecipients of federal programs.	It provides a match for federally funded programs.	Discretionary distribution based on need for Persons with Disabilities program, matching funds for JARC/Welfare to Work, intercity rail and bus, community transportation, technical assistance and demonstration projects, rail safety and transit security. .	N/A	N/A

Additional Resources

Table 74: Pennsylvania Public Transportation Funding—Other Resources

Resource	Website
State Management Plan	http://www.dot.state.oh.us/Divisions/Planning/Transit/Pages/Programs.aspx
PennDOT, Public Transportation Highlights	https://www.penndot.gov/Doing-Business/Transit/InformationandReports/Documents/PublicTransportationHighlightsNov2013.pdf
Human Service Transportation Coordination Study	https://www.penndot.gov/Doing-Business/Transit/InformationandReports/Documents/HST%20Coordination%20Study%207-16-09.pdf
PennDOT, dotGrants Portal	https://www.penndot.gov/Doing-Business/Pages/dotGrants.aspx
PennDOT, Information and Reports	https://www.penndot.gov/Doing-Business/Transit/InformationandReports/Pages/default.aspx
Act 44 Public Transportation Program	https://www.penndot.gov/Doing-Business/Transit/Funding%20and%20Legislation/Documents/Act44_Fact_Sheet.pdf
Pennsylvania Public Transportation Association	http://ppta.net

South Carolina

State Planning Process

Rural communities that are not a part of the Urbanized Areas of metropolitan planning organizations (MPOs) are included under the jurisdiction of a council of governments (COG). The South Carolina Department of Transportation (SCDOT) Commission has designated COG as the lead regional agencies responsible for coordinating transportation planning and, where appropriate, services funded by FTA programs. The COG reviews and ranks project applications within their respective regions for funding consideration. Projects approved by SCDOT are included in the local Transportation Improvement Program (TIP) and become part of SCDOT's submission to FTA as the Statewide Transportation Improvement Program (STIP).

Any county without public transportation service could petition the Office of Public Transit (OPT) for funding consideration to conduct a public transportation feasibility study. The application may be submitted to OPT by the county or the agency acting on behalf of the county. If the application is accepted and after the SCDOT Commission approves the funding recommendation, a subrecipient agreement will be executed providing State Mass Transit Funds for the feasibility study. Areas considering public transit may apply for funding for a feasibility study during the annual application cycle; projects are generally funded with State Mass Transit Funds as a pilot project for three years. Continuing subrecipients are exempt from submitting any study request except in the event of proposed service expansion.

Rural Transit Provider Planning Requirements

All transit providers are required to submit an annual comprehensive operating statistics report (called OP STATS) that SCDOT reviews, compiles, and analyzes at a statewide level. Subrecipients must also submit performance indicator reports alongside reimbursement requests on a monthly basis. Both reporting requirements help SCDOT understand project progress and update grant availabilities accordingly.

South Carolina's Section 5311 allocation formula includes several criteria, such as previous years' allocation and drawdown, passenger trips, vehicle revenue miles, cost per passenger trip, rural population, etc. These metrics are compiled and compared across all agencies in the state; SCDOT uses this information to allocate available Section 5311 and state funding among the agencies.

Federal and State Public Transportation Funding

Table 75: FY2019 South Carolina Public Transportation Funding Summary

Funding Type	Funding Program	Funding Amount
Federal Funds	FTA FY19 5310 State Allocation[47]	$1,384,238.00
	FTA FY19 5311 State Allocation (Total)[48]	$14,739,811.00
	FTA FY19 5311(b)(3)—RTAP State Allocation	$260,957.00
	FTA FY19 5311—ADPTAP State Allocation	$200,000.00
	FTA FY19 5339 State Allocation[49]	$3,500,000.00
State Funds	FY19 State Mass Transit Fund (SMTF)	$6,000,000.00

[47] For non-urbanized areas under 50,000.
[48] Includes: FTA FY19 5340 allocation for Growing States and High-Density States, 5311(b)(3) RTAP State Allocation, and 5311 ADPTAP State Allocation.
[49] Statewide allocation outside of Urbanized Areas (50,000 or greater).

Federal Funding Programs

Table 76: South Carolina Public Transportation Funding—Federal Funding Programs

Program Name	FTA Funding	Funding Administrator	Federal Assistance Type/Maximums[50]	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Enhanced Mobility of Seniors and Individuals with Disabilities Program	5310	SCDOT, Office of Public Transit	Capital: Up to 80% Operating: Up to 50%	None	Annual Transit Program Application	Grants Management System	Transit Subrecipient Portal SCDOT State Management Plan
Formula Grants for Rural Areas Program	5311	SCDOT, Office of Public Transit	Capital: Up to 80% Operating: Up to 50%	Capital: Typically, up to 10% of the local share of projects may consist of State Mass Transit Funds[51] Operating: Typically, up to 25% of the local share of projects may consist of State Mass Transit Funds	Annual Transit Program Application	Grants Management System	Transit Subrecipient Portal SCDOT State Management Plan
Tribal Transit Program	5311(c)	SCDOT, Office of Public Transit	Capital: Up to 80% Operating: Up to 50%	The local share of projects may consist of State Mass Transit Funds.	Annual Transit Program Application	Grants Management System	Transit Subrecipient Portal SCDOT State Management Plan

[50] The federal share for vehicle-related equipment and/or facilities required by the Clean Air Act (CAA) or the ADA is 85%. If a vehicle or facility is retrofitted to meet CAA or ADA requirements, federal participation is up to 85% of the retrofit items only.

[51] State Mass Transit Funds are sourced from ¼ cent of the South Carolina Motor Fuel User Fee as authorized by state law.

Program Name	FTA Funding	Funding Administrator	Federal Assistance Type/Maximums[50]	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Intercity Bus	5311(f)	SCDOT, Office of Public Transit	Capital: Up to 80% Operating: Up to 50%	The local share of projects may consist of State Mass Transit Funds.	Annual Transit Program Application; SCDOT does not utilize the full 15% apportionment—a SCDOT Intercity Bus Services Network Analysis found that needs are substantially being met.	Grants Management System	Transit Subrecipient Portal SCDOT State Management Plan
Bus and Bus Facilities Grant Program	5339	SCDOT, Office of Public Transit	Capital: Up to 80%	None	Annual Transit Program Application	Grants Management System	Transit Subrecipient Portal SCDOT State Management Plan

State Funding Programs

South Carolina State Mass Transit Fund (SMTF) is sourced from a quarter-cent of the South Carolina Motor Fuel User Fee as authorized by state law. Depending on the type of program, the local share of project costs may consist of SMTF and local funds in addition to non-DOT funds. Effective July 1, 2013, subrecipients are provided greater flexibility in maximizing the use of their SMTF allocation within the approved budget categories so far as the required local match is satisfied. For example, SMTF may be used to satisfy 100% of the required local match for each budget category (20% for administrative, capital, and technical assistance or 50% for operations). For Section 5311 subrecipients, the administrative category limitation of 40% of the total OPT allocation remains effective, except where the subrecipient has documentation of an approved indirect cost rate.

Table 77: South Carolina Public Transportation Funding—State Programs

Program Name	Revenue Source	State Funding Administrator	Assistance Type/Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
State Mass Transit Fund	Motor Fuel User Fee	SCDOT Commission and Secretary of Transportation	100% of local match required for each budget category: Administrative: 20% Capital: 20% Technical: 20% Operations: 50%	Subrecipients of federal programs.	Supplements local share requirements for federal programs.	N/A	N/A	N/A

Additional Resources

Table 78: South Carolina Public Transportation Funding—Other Resources

Resource	Website
South Carolina DOT, Transit Programs	https://www.scdot.org/inside/PublicTransit-Programs.aspx
State Management Plan	https://www.scdot.org/inside/pdf/PublicTransit/SCDOT_SMP_Revision6(002).pdf
Statewide Public Transportation Plan	https://www.scdot.org/Multimodal/pdf/SC_MTP_Transit_Plan_FINAL.pdf
Statewide Coordinated Human Services Transportation Plan	https://www.scdot.org/Multimodal/pdf/SC_MTP_Transit_Plan_FINAL.pdf
Appalachian Region Transit and Coordination Plan	https://www.scdot.org/Multimodal/pdf/SC_MTP_Regional_Transit_Plan_Appalachian_FINAL.pdf
Transportation Association of South Carolina	https://transitsc.org/

Tennessee

State Planning Process

To meet federal requirements, the Tennessee Department of Transportation (TDOT) develops a four-year, short-term improvement program, the Statewide Transportation Improvement Program (STIP). Rural planning organizations (RPOs) and metropolitan planning organizations (MPOs) throughout the state are expected to collaborate with TDOT to help determine project needs.

Tennessee's Appalachian funds are distributed only to the agencies that operate within the federally defined Appalachian area. The funds are allocated to five regional transit providers (ETHRA, FTHRA, SCTDD, SETHRA, UCHRA)[52] using the same allocation formula factors as the 5311 formula. A small percentage of Appalachian funds are also allocated to the two tourist-intensive transit agencies, which are located in the Appalachian Region.

Rural Transit Provider Planning Requirements

Applicants to the 5310 programs must be part of a regional transportation coordination plan. The 5311-program allocation utilizes performance metrics such as public revenue miles and public trips in the funding formula. Additionally, Tennessee requires all transit providers to keep trip denial logs. These are reviewed on an annual basis and must be submitted with the Section 5311 application. Tennessee DOT uses this to examine the reasons behind trip denials to understand gaps in service. Quarterly check-ins with transit providers are required. Information regarding ridership, farebox revenue, and compliance are communicated regularly during the reimbursement request process.

[52] ETHRA, East Tennessee Human Resource Agency, ETHRA Public Transit; FTHRA, First Tennessee Human Resource Agency, NET Trans; SCTDD, South Central Tennessee Development District Rural Public Transportation; SETHRA, Southeast Tennessee Human Resource Agency Public Transportation; UCHRA, Upper Cumberland Human Resource Agency, Upper Cumberland Area Rural Transit System.

Federal and State Public Transportation Funding

Table 79: FY2019 Tennessee Public Transportation Funding Summary

Funding Type	Funding Program	Funding Amount
Federal Funds	FTA FY19 5310 State Allocation[53]	$2,010,862.00
	FTA FY19 5311 State Allocation (Total)[54]	$21,241,675.00
	FTA FY19 5311(b)(3)—RTAP State Allocation	$342,400.00
	FTA FY19 5311—ADPTAP State Allocation	$1,110,000.00
	FTA FY19 5339 State Allocation[55]	$3,500,000.00
State Funds[56]	FY19 5310 State Funding *(State Match)*	$251,358.00 budgeted
	FY19 5311 State Funding *(State Match)*	Federal: $7,627,060.00 State Overmatch: $3,018,429.00
	FY19 5311 (Appalachian) State Funding *(State Match)*	$553,055.00
	FY19 5339 State Funding *(State Match)*	$437,500.00 budgeted
	Multimodal Access Fund	$15,000,000.00
	Community Transportation Planning Grant—funded by FHWA SPR Federal Funds	$1,500,000.00
	IMPROVE Act Public Transit Capital Grants	$21,000,000.00
	Critical Trips Program (Urban Donut Stop-Gap)	$2,000,000.00

[53] For non-urbanized areas under 50,000.

[54] Includes: FTA FY19 5340 allocation for Growing States and High-Density States, 5311(b)(3) RTAP State Allocation, and 5311 ADPTAP State Allocation.

[55] Statewide allocation outside of Urbanized Areas (50,000 or greater).

[56] Source for FY20 state matching funds for 5310, 5311, 5311(f), 5311 (Appalachian), and 5339 formula funds: TDOT State Transportation Improvement Program, Fiscal Years 2020-2023. Accessed at https://www.tn.gov/content/dam/tn/tdot/programdevelopment/stateprograms/SPDraftSTIP2020-2023_Draft_07192019R.pdf

Federal Funding Programs

Table 80: Tennessee Public Transportation Funding—Federal Funding Programs

Program Name	FTA Funding	Funding Administrator	Federal Assistance Type/Maximums	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Elderly and Persons with Disabilities Grants	5310	TDOT Office of Public Transportation	Capital: Up to 80%	Capital: Up to 10%	Annual competitive application	Tennessee DOT Section 5310 Application Package	Tennessee DOT Section 5310 Application Package
Program Formula Grants for Rural Areas	5311	TDOT Office of Public Transportation	Capital: Up to 80% ADA Capital: Up to 85% Operating: Up to 50% Project Administration: Up to 80% Planning: Up to 80%	If available in the state annual budget: ADA Capital: Up to 7.5% Operating: Up to 25% Project Administration: Up to 10% Planning: Up to 10%	Apportioned to rural areas by formula based on population, general public ridership, and general public revenue mile.	Emailed directly to eligible agencies.	Tennessee FTA Section 5311 Fact Sheet
Bus and Bus Related Equipment and Facilities Program	5339	TDOT Office of Public Transportation	Capital: Up to 80% Capital ADA: Up to 85%	Capital: Up to 10% Capital ADA: Up to 7.5%	Annual competitive application	E-mailed directly to eligible agencies.	Tennessee FTA Section 5339 Fact Sheet

State Funding Programs

Table 81: Tennessee Public Transportation Funding—State Programs

Program Name	Revenue Source	State Funding Administrator	State Assistance Type/Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
IMPROVE Act Public Transit Capital Grants	Tennessee General Funds	TDOT Multimodal Transportation Resources Division	Capital: Up to 75%	Public transit providers that are 5307 or 5311 recipients.	N/A	Annual competitive application and a rolling, request-based process for Advance Commitment of funds.	IMPROVE Act Public Transit Capital Grants	Grant Application Instruction and Checklist
Multimodal Access Grant	Multimodal Access Fund (state gas tax revenue)	TDOT Multimodal Transportation Resources Division	Capital: Up to 95% *(includes transit stop amenities and park-and-ride facilities for carpooling or access to transit)*	Municipal or county governments.	N/A	Reimbursement program, invitations to apply will be sent out to eligible applicants.	eGrants Application Portal	TDOT Multimodal Access Grant Guidelines
Community Transportation Planning Grant	FTA 5303 funds	TDOT Multimodal Transportation Resources Division	Planning: Up to 90% (Includes Community Mobility Plans, which includes public transportation)	Municipality not located inside the MPO boundary.	N/A	Annual application cycle, applications should be sent to RPO coordinators.	Community Transportation Planning Grant	Program Overview

Additional Resources

Table 82: Tennessee Public Transportation Funding—Other Resources

Resource	Website
TDOT, Office of Public Transportation, Grant Administration	https://www.tn.gov/tdot/multimodal-transportation-resources/office-of-public-transportation/grant-administration.html
State Management Plan	https://www.tn.gov/content/dam/tn/tdot/multimodaltransportation/tdot-resources/Tennessee%20State%20Management%20Plan_Amended_SMR2017.pdf
Statewide Transportation Improvement Program	https://www.tn.gov/content/dam/tn/tdot/programdevelopment/stateprograms/2.26.20%20Tennessee%20STIP%202020-2023%20Final_12022019_RS%20(002).pdf
Tennessee Rural Transit Assistance Program (RTAP)	https://www.tnrtap.com/
Middle Tennessee Connected 2040 Regional Transportation Plan	http://www.nashvillempo.org/docs/2040RTP/Adopted/Connected_Highlights.pdf
Tennessee Public Transportation Association	http://www.tntransit.org/

Virginia

State Planning Process

The Virginia Department of Rail and Public Transportation (DRPT) requires that any public transit operator receiving state funding prepare, adopt, and submit a Transit Development Plan (TDP). These plans are updated every six years and provide the basis for the inclusion of an operator's capital and operating programs in the Six-Year Improvement Program (SYIP), Statewide Transportation Improvement Program (STIP), Transportation Improvement Program (TIP), and Constrained Long-Range Plan (CLRP). Transit Development Plans must be adopted by the operator's governing body, and a letter must be submitted annually to DRPT describing progress with implementing the TDP and any significant changes.

Counties applying to SMART SCALE funds are encouraged to coordinate with towns and prioritize candidate projects for submission, similar to the secondary Six-Year Plan process. Projects are not required to be in the long-range plans before the application submission; however, federally eligible projects must meet the relevant federal requirements for inclusion into the CLRP to make use of funding received through SMART SCALE. A project submitted by a locality within a metropolitan planning organization (MPO) boundary must provide a resolution of support from the governing MPO Policy Board if the project is not consistent with or referenced in the adopted MPO CLRP.

Rural Transit Provider Planning Requirements

All systems are required to prepare a TDP and five-year capital budget plan. Compliance reviews, monthly and quarterly reporting, and site visits are also required. DRPT states that public transportation funding should be applied as intended; fund diversion to provide service to clients of agencies on aging, for instance, should be avoided. Transit providers need to submit National Transit Database (NTD) data to DRPT on a monthly basis; this is put into formulas for state funding allocation. Financial audits and inventories are required annually; an inventory must be submitted to TransAM (DRPT's open-source asset management, grant management, and capital planning platform). DRPT may request information from providers occasionally for various reasons; legislators may also request additional details for bills.

Federal and State Public Transportation Funding

Table 83: FY2019 Virginia Public Transportation Funding Summary

Funding Type	Funding Program	Funding Amount
Federal Funds	FTA FY19 5310 State Allocation[57]	$1,473,438.00
	FTA FY19 5311 State Allocation (Total)[58]	$16,935,907.00
	FTA FY19 5311(b)(3)—RTAP State Allocation	$296,566.00
	FTA FY19 5311—ADPTAP State Allocation	$1,150,000.00
	FTA FY19 5339 State Allocation[59]	$3,500,000.00
State Funds[60]	FY20 Operating Funding[61]	$96,539,678.00
	FY20 Capital Projects[62]	$151,154,937.00
	FY20 TDM and Mobility Programs	$4,353,698.00
	FY20 Demonstration Program Grants	$2,668,166.00
	FY20 Training and Internship Program Grants	$283,136.00
	FY20 Technical Assistance Grants	$3,553,819.00
	FY20 Senior Transportation Grants	$166,982.00

[57] For non-urbanized areas under 50,000.
[58] Includes: FTA FY19 5340 allocation for Growing States and High-Density States, 5311(b)(3) RTAP State Allocation, and 5311 ADPTAP State Allocation.
[59] Statewide allocation outside of Urbanized Areas (50,000 or greater).
[60] Statewide allocation includes Rural and Urbanized Areas.
[61] Includes 5303 Planning Projects.
[62] Includes Congestion Mitigation Air Quality (CMAQ) and Regional Surface Transportation Program (RSTP).

Federal Funding Programs

Table 84: Virginia Public Transportation Funding—Federal Funding Programs

Program Name	FTA Funding	Funding Administrator	Federal Assistance Type/Maximums	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Enhanced Mobility of Seniors and Individuals with Disabilities Program	5310	DRPT	Capital: Up to 80% Operating: Up to 50%	Capital: Up to 80% of the non-federal portion Operating: 80% of the non-federal portion	Annual Program Application	Online Grant Administration (OLGA)	FY2021 Grant Program Application Guidance
Rural Areas Program	5311	DRPT	Capital: Up to 80% Operating: Up to 50%	Capital: 80% of the non-federal portion	Annual Program Application	Online Grant Administration (OLGA)	FY2021 Grant Program Application Guidance
Bus and Bus Facilities Program	5339	DRPT	Capital: Up to 80%	Virginia would use state matching funds from the Commonwealth Mass Transportation Funds.	Annual Program Application	Online Grant Administration (OLGA)	FY2021 Grant Program Application Guidance

State Funding Programs

Table 85: Virginia Rural Public Transportation Funding—State Funding Programs

Program Name	Revenue Source	State Funding Administrator	State Assistance Type/Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
Operating Assistance *(MERIT State Aid Grant Programs)*	Commonwealth Mass Transportation Funds	DRPT	Operating: Up to 30% of the operating budget[63]	Local and state government, Transportation District Commissions, Public Service Corporations	State funding only	Annual Program Application	Online Grant Administration (OLGA)	FY2021 Grant Program Application Guidance
Capital Assistance *(MERIT State Aid Grant Programs)*	Commonwealth Mass Transportation Funds	DRPT	Varies by project type: SGR and MIN[64]: Up to 68% MAJ[65]: Up to 50%	Local and state government, Transportation District Commissions, Public Service Corporations, Federally Recognized Indian Tribes	Recipients can augment state funds with eligible federal funds to reduce the local funding burden.	Annual Program Application	Online Grant Administration (OLGA)	FY2021 Grant Program Application Guidance
Demonstration Project Assistance *(MERIT State Aid Grant Programs)*	Commonwealth Mass Transportation Funds	DRPT	Up to 80% of eligible expenses	Local government, Planning District Commissions, Metropolitan or Transportation Planning Organizations, Transit Agencies that Receive State Operating Assistance from the Mass Transit Fund	State funding only	Annual Program Application	Online Grant Administration (OLGA)	FY2021 Grant Program Application Guidance

[63] DRPT follows a sizing- and performance-based methodology for allocating operating assistance funds.
[64] State of Good Repair (SGR) and Minor Enhancements (MIN)
[65] Major Expansions (MAJ)

Program Name	Revenue Source	State Funding Administrator	State Assistance Type/Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
Technical Assistance *(MERIT State Aid Grant Programs)*	Commonwealth Mass Transportation Funds	DRPT	Up to 50% of eligible expenses	Local and state government, transportation district commissions, public service corporations, planning district commissions and regional planning commissions, human service agencies involved in rural public transportation, transportation management associations	State funding only	Annual Program Application	Online Grant Administration (OLGA)	FY2021 Grant Program Application Guidance
Public Transportation Intern Program *(MERIT State Aid Grant Programs)*	Commonwealth Mass Transportation Funds	DRPT	Up to 80% of eligible expenses	Local and state government, transportation district commissions, public service corporations, planning district commissions, human service agencies involved in rural public transportation, public transportation system operators, commuter assistance program operators	State funding only	Annual Program Application	Online Grant Administration (OLGA)	FY2021 Grant Program Application Guidance
Transportation Demand Management (TDM) Operating Assistance *(MERIT State Aid Grant Programs)*	Commonwealth Mass Transportation Funds	DRPT	Up to 80% of eligible expenses	Local and state government, transportation district commissions, planning district commissions, transportation management associations, transit service operators	N/A	Annual Program Application	Online Grant Administration (OLGA)	FY2021 Grant Program Application Guidance

Program Name	Revenue Source	State Funding Administrator	State Assistance Type/Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
Mobility Programs *(MERIT State Aid Grant Programs)*	Commonwealth Mass Transportation Funds	DRPT	Up to 80% of eligible expenses	Local and state government, regional commissions, transit service operators, transportation district commissions, public service corporations, planning district commissions, transportation management associations, vanpool operators/providers on a case-by-case basis	State funding only	Annual Program Application	Online Grant Administration (OLGA)	FY2021 Grant Program Application Guidance
Senior Transportation Program (MERIT State Aid Grant Programs)	Commonwealth Mass Transportation Funds	DRPT	Up to 80% of eligible expenses	Local and state government, transportation district commissions, public service corporations, private non-profit organizations	State and local funds	Annual Program Application	Online Grant Administration (OLGA)	FY2021 Grant Program Application Guidance

Program Name	Revenue Source	State Funding Administrator	State Assistance Type/Maximums	Eligible Recipients	Relationship to Federal Programs	Funding Process	Application Website	Application Guidance
SMART SCALE[66]	*Commonwealth Mass Transportation Funds* Construction District Grant Program and High Priority Projects Program	Commonwealth Transportation Board (CTB)	Capital and operational improvements only; Localities using Revenue Sharing Program funds (which requires a 50% match of non-state funds) can increase their SMART SCALE score; SMART SCALE has application limits per jurisdiction. For localities <200,000, a limit of 4 applications per cycle.	Local government, metropolitan planning organizations, planning district commissions, transit agencies that receive operating assistance from the mass transit trust fund. Must meet a VTrans need and meet SMART SCALE planning requirements.	State funding only	Biennial Cycle with a one-month pre-application period followed by a final application period. SMART SCALE uses a prioritization process based on project cost and benefits.	Smart Portal	Overview and Policy Guide

[66] In February 2015, the General Assembly adopted HB1887, which established a new transportation funding formula with funding, after specialized programs, distributed as follows: 45% for the State of Good Repair Program (SGR); 27.5% for the District Grant Program (DGP); and 27.5% for the High-Priority Projects Program (HPPP). Both the HPPP and the DGP are subject to SMART SCALE.

Additional Resources

Table 86: Virginia Public Transportation Funding—Other Resources

Resource	Website
Virginia Department of Rail and Public Transportation (DRPT), Statewide Transit Grants Program (MERIT)	http://www.drpt.virginia.gov/transit/merit
State Management Plan	http://drpt.virginia.gov/media/2143/fta-5310-5316-5317-smp-june-2017.pdf http://drpt.virginia.gov/media/2144/fta-5311-smpjune-2017-final.pdf
Statewide Public Transportation Plan	http://www.drpt.virginia.gov/media/1333/final-report.pdf
Statewide Coordinated Human Services Transportation Plan	http://www.drpt.virginia.gov/activities/files/State_Coordination_Model_for_Human_Service_Transportation.pdf
Virginia Transit Association	https://vatransit.com/
SMART SCALE	http://vasmartscale.org/

State Planning Process

The West Virginia Department of Transportation (WVDOT) Division of Public Transit (DPT) encourages the coordination and distribution of publicly funded transportation services within the state, including, but not limited to, transportation services for senior citizens, for participants in Head Start programs, for persons with disabilities, and for private non-profit organizations. Section 5311 applicants must describe their coordination activities, and subrecipients must have a locally developed coordinated public transit human services transportation plan. The division is responsible for ensuring that the Section 5311 program of projects is included in the Statewide Transportation Improvement Program (STIP).

Rural Transit Provider Planning Requirements

West Virginia DOT requires all Section 5311 subrecipients to also participate in the coordinated plans that are federally required for Section 5310 subrecipients. All subrecipients are also required to develop and implement safety, security, and emergency response plans following the Safety and Security Planning Information Directed to Effective Response (SPIDER) manual.

Performance metrics are used to identify transit providers that may need technical assistance. While performance is not related to funding, it has been used as an incentive to award additional training opportunities for providers with good performance. Performance measures have been used to inform WVDOT's decision-making process regarding budget increase requests.

Federal and State Public Transportation Funding

Table 87: FY2019 West Virginia Public Transportation Funding Summary

Funding Type	Funding Program	Funding Amount
Federal Funds	FTA FY19 5310 State Allocation[67]	$895,957.00
	FTA FY19 5311 State Allocation (Total)[68]	$8,873,281.00
	FTA FY19 5311(b)(3)—RTAP State Allocation	$183,585.00
	FTA FY19 5311—ADPTAP State Allocation	$1,892,000.00
	FTA FY19 5339 State Allocation[69]	$3,500,000.00
State Funds	General Revenue Allocation	$2,600,000.00

[67] For non-urbanized areas under 50,000.

[68] Includes: FTA FY19 5340 allocation for Growing States and High-Density States, 5311(b)(3) RTAP State Allocation, and 5311 ADPTAP State Allocation.

[69] Statewide allocation outside of Urbanized Areas (50,000 or greater).

Federal Funding Programs

Table 88: West Virginia Public Transportation Funding—Federal Funding Programs

Program Name	FTA Funding	Funding Administrator	Federal Assistance Type/Maximums	State-Funded Match for Federal Funding Programs	Funding Process	Application Website	Application Guidance
Seniors and Individuals with Disabilities Program	5310	WVDOT, Division of Public Transit	Capital: Up to 80% Mobility Management: Up to 80%	N/A	Competitive; annual Program Application and Triannual Purchase of Transportation Services Applications[70]	WVDOT Division of Public Transit 5310 Grant Documents	WVDOT Division of Public Transit 5310 Grant Documents
Section 5311	5311	WVDOT, Division of Public Transit	Capital: Up to 80% Operating: Up to 50%	The local match can be a combination of state and local funds[71]	Annual Application	Applications directly mailed to current recipients.	WVDOT Division of Public Transit 5311 Compliance Workbook
Intercity Bus Program Section	5311(f)	WVDOT, Division of Public Transit	Capital: Up to 80% Operating: Up to 50%	The local match can be a combination of state and local funds[72]	Annually, the Division posts a notice on its website soliciting intercity bus projects.	Applications directly mailed to current recipients.	WVDOT Division of Public Transit 5311 Compliance Workbook
Section 5339	5339	WVDOT, Division of Public Transit	Capital: Up to 80%	N/A	Annual Application	Applications directly mailed to current recipients.	WVDOT State Management Plan

[70] If funds are limited, any previous applicant that has been funded by the last two grants, must set out at least one funding cycle. Should additional funding become available, this policy may be changed at the discretion of the Executive Director of the Division of Public Transit.

[71] Recipients of Section 5311 funds are eligible to receive assistance from state general revenue funds so long as they do not have a dedicated source of local funds such as an excess levy.

[72] Recipients of Section 5311 funds are eligible to receive assistance from state general revenue funds so long as they do not have a dedicated source of local funds such as an excess levy.

State Funding Programs

As indicated in the 2016–2021 STIP, the state government, through West Virginia Division of Public Transit (WVDPT), provides approximately $2.4 million yearly from General Revenue state funding to support public transit in the form of operating assistance to rural transit systems and capital assistance to both rural and urban systems.

Additional Resources

Table 89: West Virginia Public Transportation Funding—Other Resources

Resource	Website
West Virginia DOT, Division of Public Transit	https://transportation.wv.gov/publictransit/Pages/default.aspx
5310 Grant Program Website	https://transportation.wv.gov/publictransit/Pages/Section5310Grant.aspx
State Management Plans	https://transportation.wv.gov/publictransit/Section5310Documents/2018-5310-State-Management-Plan.pdf https://transportation.wv.gov/publictransit/Documents/WV2019-Section-5311-SMP.pdf https://transportation.wv.gov/publictransit/Documents/WV5339StateManagementPlan.pdf
Statewide Public Transportation Plan	http://transportation.wv.gov/highways/programplanning/planning/statewide/Documents/West_Virginia_Long_Range_Multi-modal_Transportation_Plan.pdf
Public Transit-Human Services Transportation Plans	https://transportation.wv.gov/publictransit/Pages/PublicTransit-HumanServicesTransportationPlans.aspx
West Virginia Public Transit Association	https://wvtransit.com

Appendix B—Transit Provider Survey

Table 90: Transit Providers Surveyed by State

State	Surveys Initiated	Surveys Completed	Transit Provider Name
Alabama	6	5	ARISE, Inc.
			Dekalb County Rural Public Transportation
			East Alabama Regional Planning and Development Commission
			NARCOG Regional Transit Agency
			Northwest Alabama Council of Local Governments
Georgia	8	6	Catoosa County Transit
			Dade County Commission
			HART Transit
			Lumpkin County Transit
			Rabun Transit
			Union County Transportation
Kentucky	12	7	BGCAP Transit
			Daniel Boone Community Action Agency, Inc.
			Harlan County Community Action Agency, Inc.
			Licking Valley C.A.P. Inc.,
			Middle Kentucky Community Action Partnership, Inc.
			Northeast Kentucky Community Action Agency
			Sandy Valley Transportation Services, Inc.
Maryland	2	2	Garrett Transit Service
			Washington County Transit
Mississippi	2	2	Northeast Mississippi Community Services, Inc.
			Noxubee County Human Resource Agency
New York	9	5	Broome County Department of Public Transportation
			Schoharie County Public Transportation
			Seneca Transit System (STS)
			Steuben County NY
			Tompkins County & Tompkins Consolidated Area Transit, Inc.
North Carolina	19	10	AppalCART
			Apple Country Transit/ WCCA
			Ashe County Transportation Authority
			Avery County Transportation Authority
			Buncombe County/Mountain Mobility
			Cherokee County Transit
			Clay County Transportation
			Macon County Transit
			Mitchell County Transportation

State	Surveys Initiated	Surveys Completed	Transit Provider Name
			Swain Public Transit
Ohio	7	5	Access Scioto County Public Transit
			Carroll County Transit
			Coshocton County Coordinated Transportation
			FRS Transportation
			South East Area Transit
Pennsylvania	23	20	Area Transportation Authority of North Central Pennsylvania
			Blair Senior Services
			Butler Transit Authority
			Cambria County Transit Authority
			Centre County Transportation
			Endless Mountains Transportation Authority
			Fayette Area Coordinated Transportation
			Forest County Transportation
			Greene County Transportation
			LANTA
			Mid-County Transit Authority dba Town and Country Transit
			Monroe County Transportation Authority
			Schuylkill County Transportation Authority
			Somerset County Transportation System
			STEP, Inc.
			Susquehanna - Wyoming County Transportation
			Warren County Transit Authority
			Washington County Transportation Authority/Freedom Transit
			Wayne County Transportation System
			Westmoreland County Transit Authority
South Carolina	5	4	City of Seneca
			Clemson Area Transit
			Greenville Transit Authority (d.b.a. Greenlink)
			Spartanburg Area Regional Transit Agency
Tennessee	3	3	East Tennessee Human Resource Agency
			Southeast Tennessee Human Resource Agency (SETHRA)
			Upper Cumberland Human Resource Agency
Virginia	4	4	AASC Four County Transit
			District Three Governmental Cooperative-Mountain Lynx Transit
			Mountain Empire Older Citizens Transit
			Pulaski Area Transit
West Virginia	18	12	C & H Taxi
			CASEWV Commission on Aging

State	Surveys Initiated	Surveys Completed	Transit Provider Name
			Central WV Community Actions
			Christian Help Inc., of Mingo County
			Council on Aging
			Hancock County Senior Services
			Harrison County Senior Citizens' Center, Inc.
			Kanawha Valley Senior Services, Inc.
			Little Kanawha Transit Authority
			McDowell County Commission on Aging, Inc.
			Mountain Transit Authority
			Webster County Senior Citizens, Inc

Appendix C—Data Sources and Methodology for GTFS- and NTD-Based Calculations

The overview of rural transit in this report and the agency profiles that follow in Appendix D—Level of Service by Provider were primarily derived from two transit data sources: The National Transit Database (NTD), General Transit Feed Specification (GTFS) feeds, and U.S. Census data. The methodology for calculations involving these data sources are described in this section.

The NTD provided information regarding the population served, the types of service provided, operating metrics such as the number of passenger trips and passenger miles, the agencies capital and operating expenditures, and funding sources. In the body of the report, NTD data sourced from the Florida Department of Transportation iNTD reporting database is used for longitudinal comparisons from 2012 to 2017; other statistics are reported for 2017 only.

National Transit Database data from 2017 is used throughout the agency profiles in Appendix D—Level of Service by Provider. Details on the data sources and calculation methods for these profiles are provided in Table 91 and

Table 92. Reporting requirements vary between urban and rural systems, such that not all agency profiles in Appendix D—Level of Service by Provider will contain the same tables. For instance, “average fleet age” is not reported for rural systems. Only agencies that report to NTD have a profile.

Table 91: Agency Profile NTD Data Sources

Data Source	Table Used	Date	Associated Measures
National Transit Database	2017 Agency Info	2017	Service area size, service area population, primary UZA size, primary UZA population
National Transit Database	2017 TOS	2017	Vehicles operated in maximum service (VOMS)—directly operated; vehicles operated in maximum service (VOMS)—purchased transit; vehicles available for maximum service (VAMS)—directly operated; vehicles available for maximum service (VAMS)—purchased transit
National Transit Database	Funding Sources	2017	Operating—fare revenue; operating—local funding; operating—state funding; operating—federal funding; operating—other funds; operating—total funds; capital—fare revenue; capital—local funding; capital - state funding; capital—federal funding; capital—other funds; capital—total funds
National Transit Database	Metrics	2017	Annual unlinked passenger trips, annual passenger miles, annual vehicle revenue miles (VRM), annual vehicle revenue hours (VRH), operating expenses per vehicle revenue mile, operating expenses per vehicles revenue hour, operating expenses per unlinked passenger trip, unlinked passenger trip per vehicle revenue hour, unlinked passenger trip per vehicle revenue mile
National Transit Database	2017 Revenue Vehicle Inventory	2017	Average vehicle age

Data Source	Table Used	Date	Associated Measures
National Transit Database	2017 Revenue Sources	2017	FTA Urbanized Area formula program (5307) and bus & bus facilities (5339); FTA capital program (5309) and state of good repair (5337); FTA rural program (5311); other FTA funds; other federal funds; other USDOT funds; general fund—state; general fund—local; income tax—state; income tax—local; sales tax—state; sales tax—local; property tax—state; property tax—local; tolls—state; tolls—local; other tax; other funds; total

Table 92: Agency Profile NTD Metric Calculations

Table	Measure	Table Used	Data Source Fields
Service Area	Service Area—Area	2017 Agency Info	Service Area Square Miles
Service Area	Service Area—Population	2017 Agency Info	Service Area Pop
Service Area	Primary Urbanized Area—Area	2017 Agency Info	Square Miles
Service Area	Primary Urbanized Area—Population	2017 Agency Info	Population
Agency Service Metrics	Annual Unlinked Passenger Trips	Metrics	Unlinked Passenger Trips
Agency Service Metrics	Annual Passenger Miles	Metrics	Passenger Miles
Agency Service Metric	Annual Vehicle Revenue Miles (VRM)	Metrics	Vehicle Revenue Miles
Agency Service Metrics	Annual Vehicle Revenue Hours (VRH)	Metrics	Vehicle Revenue Hours
Agency Performance Metrics	Operating Expenses per Vehicle Revenue Mile	Metrics	Total Operating Expenses, Vehicle Revenue Miles
Agency Performance Metrics	Operating Expenses per Vehicle Revenue Hour	Metrics	Total Operating Expenses, Vehicle Revenue Hours
Agency Performance Metrics	Operating Expenses per Unlinked Passenger Trip	Metrics	Total Operating Expenses, Unlinked Passenger Trips
Agency Performance Metrics	Unlinked Passenger Trips per Vehicle Revenue Mile	Metrics	Unlinked Passenger Trips, Vehicle Revenue Miles
Agency Performance Metrics	Unlinked Passenger Trips per Vehicle Revenue Hour	Metrics	Unlinked Passenger Trips, Vehicle Revenue Hour
Agency Fleet Metrics	Vehicles Operated in Maximum Service (VOMS)—Directly Operated	2017 TOS	Vehicles Operated at Maximum Service (VOMS), TOS
Agency Fleet Metrics	Vehicles Operated in Maximum Service (VOMS)—Purchased Trans.	2017 TOS	Vehicles Operated at Maximum Service (VOMS), TOS
Agency Fleet Metrics	Vehicles Available for Maximum Service (VAMS)—Directly Operated	2017 TOS	Vehicles Available at Maximum Service (VAMS), TOS
Agency Fleet Metrics	Vehicles Available for Maximum Service (VAMS)—Purchased Trans.	2017 TOS	Vehicles Available at Maximum Service (VAMS), TOS

Table	Measure	Table Used	Data Source Fields
Agency Fleet Metrics	Average Fleet Age	2017 Revenue Vehicle Inventory	Manufacture Year, Active Fleet Vehicles (A vehicle's year of manufacture is subtracted from 2017 to obtain the age. The average age is weighted by the number of vehicles in each category)
Sources of Operating Funding Expended	Fare Revenue	Funding Sources—Operating	Fares
Sources of Operating Funding Expended	Local Funding	Funding Sources—Operating	Local
Sources of Operating Funding Expended	State Funding	Funding Sources—Operating	State
Sources of Operating Funding Expended	Federal Funding	Funding Sources—Operating	Federal
Sources of Operating Funding Expended	Other Funds	Funding Sources—Operating	Other Directly Generated
Sources of Operating Funding Expended	Total Funds	Funding Sources—Operating	Fares, Local, State, Federal, Other Directly Generated
Sources of Capital Funding Expended	Fare Revenue	Funding Sources—Capital	Fares
Sources of Capital Funding Expended	Local Funding	Funding Sources—Capital	Local
Sources of Capital Funding Expended	State Funding	Funding Sources—Capital	State
Sources of Capital Funding Expended	Federal Funding	Funding Sources—Capital	Federal
Sources of Capital Funding Expended	Other Funds	Funding Sources—Capital	Other Directly Generated
Sources of Capital Funding Expended	Total Funds	Funding Sources—Capital	Fares, Local, State, Federal, Other Directly Generated
Federal Funding Detail	FTA Urbanized Area Formula Program (5307) and Bus & Bus Facilities (5339)	2017 Revenue Sources	FTA Urbanized Area Formula (UAFP) program (5307), MAP-21 Bus and Bus Facilities Formula (5339)
Federal Funding Detail	FTA Capital Program (5309) and State of Good Repair (5337)	2017 Revenue Sources	ARRA Fixed Guideway Modernization Funds (5309), MAP-21 State of Good Repair (5337)

Table	Measure	Table Used	Data Source Fields
Federal Funding Detail	FTA Rural Program (5311)	2017 Revenue Sources	FTA Other Than Urbanized Area (5311), FTA Other than Urbanized Area Program funds (5311) - capital assistance spent on operations (including maintenance), FTA ARRA Other than Urbanized Area Program funds (5311), FTA ARRA other than Urbanized Area Program funds (5311) - capital assistance spent on operations (including maintenance)
Federal Funding Detail	Other FTA Funds	2017 Revenue Sources	Other FTA Funds
Federal Funding Detail	Other Federal Funds	2017 Revenue Sources	Other Federal Funds
Federal Funding Detail	Other USDOT Funds	2017 Revenue Sources	Funds Received from other USDOT Grant Programs
Federal Funding Detail	Total	2017 Revenue Sources	All the above columns
State Funding Detail	General Fund	2017 Revenue Sources	Revenue from General Fund
State Funding Detail	Income Tax	2017 Revenue Sources	Income Taxes (Earned Only)
State Funding Detail	Sales Tax	2017 Revenue Sources	Sales Taxes (Earned Only)
State Funding Detail	Property tax	2017 Revenue Sources	Property Taxes (Earned Only)
State Funding Detail	Tolls	2017 Revenue Sources	High Occupancy Tolls (Earned Only), Bridge, Tunnel, and Highway Tolls (Earned Only)
State Funding Detail	Other Tax	2017 Revenue Sources	Other Dedicated Funds (Earned Only), State/Local Other Funds
State Funding Detail	Total	2017 Revenue Sources	All the above columns
Local Funding Detail	General Fund	2017 Revenue Sources	Revenue from General Fund
Local Funding Detail	Income Tax	2017 Revenue Sources	Income Taxes (Earned Only)
Local Funding Detail	Sales Tax	2017 Revenue Sources	Sales Taxes (Earned Only)
Local Funding Detail	Property tax	2017 Revenue Sources	Property Taxes (Earned Only)
Local Funding Detail	Tolls	2017 Revenue Sources	High Occupancy Tolls (Earned Only), Bridge, Tunnel, and Highway Tolls (Earned Only)
Local Funding Detail	Other Tax	2017 Revenue Sources	Other Dedicated Funds (Earned Only), State/Local Other Funds
Local Funding Detail	Total	2017 Revenue Sources	All the above columns

General Transit Feed Specification (GTFS) Data

The General Transit Feed Specification (GTFS) is a method for transit agencies to describe their fixed-route services in a manner that can be easily read and interpreted by navigation apps. This data can also be used to calculate statistics about the levels of service provided by an agency. General Transit Feed Specification data representing almost 300 agencies based Appalachian states were used to calculate level of service statistics in this report.

Not all agencies with fixed-route service will produce a GTFS feed or make these feeds public if they do so. For this report, publicly available GTFS feeds have been supplemented by GTFS feeds provided by agencies and GTFS feeds produced from agency timetables.

For select measures in this report, GTFS data is combined with information about persons and households from the 2013–2017 American Community Survey and the 2015 Longitudinal Employer-Household Dynamics dataset.

GTFS Definitions and Calculation Methods

A transit user boards fixed-route transit at a transit stop. An individual stop is derived from the GTFS stops and is defined as follows:

- If a transit route has stops on either side a street (for example, eastbound service on one side and westbound service on the other), there are two distinct stops counted. This is because transit service in both directions provides value.
- Some transit agencies define unique stops for each route using the same location. Where two bus lines share a stop, this may be coded as one stop for some agencies but two for others.
- The distinction between a station and a stop is ignored for the purposes of analysis.
- For agencies without publicly available GTFS data, GTFS feeds were constructed based on other publicly available timetables and maps. In some cases, the created GTFS may only contain key timepoint stops as a result.

Transit stops are served by transit routes. Each transit agency defines a route differently, but for the purposes of analysis here, a distinct “route_id” in the GTFS routes table as defined by each agency constitutes a route. A transit route may have one or more transit trips associated with it. A route may have transit trips in one or more directions and may have patterns that have distinct start or end locations. For the purposes of calculations, the number of trips serving individual stops are used to calculate the accessibility and availability of transit.

In this report, “near transit” is defined as a half-mile buffer around each transit stop. Jobs, workers, commuters, households, and population characteristics within these buffers will be summed (without duplication) to calculate near transit statistics.

Calculating the number of jobs or households accessible within 30 minutes by public transportation is a multi-step process. For each transit stop, all stops that can be reached within 30 minutes are identified. One transfer within a quarter mile of a stop is allowed, and all transfers are padded with 10 minutes of walking and/or waiting. The stops reachable within 30 minutes are based on the minimum travel time between the two stops, allowing the inclusion of more distant stops that are reachable within 30 minutes via express service. For each origination stop, a quarter-mile buffer is created around the destination stops. Based on the location of the originating stop, the access shed is then aggregated for each stop to the block group by including stops that were within the block group or within a quarter of a mile of its boundary. Finally, the accessible area is calculated by summing the areas of the quarter-mile buffers around every stop that is within 30 minutes as defined above. To assign a value to a census block group, the transit accessible area for all stops within walking distance (a quarter mile) of the block group are merged into one grand Transit Access Shed (TAS). Jobs, workers, and household data within each block group’s TAS is proportionally summed to it. County-level statistics are based on household- and job-weighted aggregates of these block group level-statistics.

The number of transit trips per week is based on transit routes serving stops within a half-mile of a block group. Within a block group, the total number of trips is aggregated by summing the total number of trips per week for every such route. Note that by using the route rather than the stops alone, double and triple counting of service is avoided. Similar aggregation is performed for trips in other time periods.

Although GTFS feeds were assembled for agencies based in non-Appalachian states that provide service into states in Appalachia (e.g., New Jersey providers that serve New York), profiles were not generated for agencies in states outside of Appalachia. However, service levels from such GTFS feeds are incorporated into county-level statistics reported elsewhere in this report.

Level of Service by Provider Appendix

In Appendix D—Level of Service by Provider, GTFS-based statistics include the span of service, the number of routes in operation, and the number of trips per day (see Table 93). The calculated statistics are reflective of service as of the first week without holidays included in the feed. If an agency's service levels have recently changed, this will result in levels of service that are different from those implied by NTD statistics based on data from 2017. Similarly, the calculated level of service statistics may not reflect how service levels change for an agency over the course of a year (e.g., agencies with a summer and fall schedule) or particular days (e.g., agencies with different Friday service from Monday through Thursday service). By comparison, county-level statistics on access to fixed-route transit elsewhere in this report are based on aggregate averages over all calendar dates reported in a transit feed.

Table 93: Agency Profile GTFS Metric Calculations

Measure	Note
Span of service	Calculated as the first departure from a stop to the last arrival to a stop for all agency routes.
Modes of service	Based on the 'route_type' field provided in GTFS feeds.
Trips per service day	The number of departures from the first stop on a pattern for all agency routes.
Routes in operation	The number of distinct 'route_id' services in operation for a given service day.
Number of routes with headway	The average time in minutes between departures from the first stop on a pattern is calculated, and then averaged across directions for a given 'route_id.' These headways are then grouped accordingly. Routes with no effective headway (e.g., a route operates only one trip in a direction) are placed in the category "More than 60 Minutes." Note that routes may not operate at this headway throughout the entire period. AM Peak is defined as 6:00 a.m. to 9:00 p.m. Daytime is defined as 8 a.m. to 5 p.m.

Appendix D—Level of Service by Provider

Tabular summary of level of services available by transit provider in a separate document.