

Jaunt Rural Transit Needs Assessment



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ABSTRACT

This study examines rural transit needs for Jaunt. The objective is to quantify the need for transit services in each of Jaunt’s partner jurisdictions. Jaunt provides transit in the city of Charlottesville, Virginia, and the counties of Albemarle, Buckingham, Fluvanna, Greene, Louisa, and Nelson. Neighboring Goochland County is also included in the analysis. The study examines population and demographic data in the area. A description of current services and an analysis of existing ridership data are provided. Service gaps are estimated by identifying service targets, which were developed based on a peer analysis, and comparing current ridership to those ridership goals. Data are presented at the county level and a more detailed census tract level. Feedback from stakeholders provided additional evidence regarding the needs for transit improvements. Recommendations and cost estimates are provided.

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1. INTRODUCTION

Jaunt is interested in learning more about the need for transportation services that allow for optimum personal mobility within its service area, including the city of Charlottesville and the counties of Albemarle, Buckingham, Fluvanna, Greene, Louisa, and Nelson. Neighboring Goochland County is also included in the analysis, although Jaunt does not currently provide service within Goochland County. This study will provide Jaunt and its partners with a guide to future development of personal mobility options and to identify gaps that either exist now in mobility services or are likely to exist in the near future as the result of service modifications or changing demographics.

The objective of this study is to quantify the need for transit services in each of Jaunt's partner jurisdictions. The study relies mostly on demographic and industry data, with input from stakeholders. A description of the data used in the study is provided in Appendix A. The intent of the study is not to formally identify the specific services needed; rather, the goal is to indicate the quantity and cost of filling the gap between what is needed and what is currently provided. Specific objectives are as follows:

1. Construct a demographic profile of the Jaunt service area
2. Develop a mobility needs index
3. Describe existing levels of transit service across the study area
4. Identify base levels of desired transit service and gaps in existing service
5. Develop recommendations for meeting mobility needs

Results of the study may be used by Jaunt, the Virginia Department of Rail and Public Transportation, the Virginia Department of Transportation, and state and local policymakers to identify programmatic and funding needs related to personal mobility. The data collected as a part of the study can be used to plan for new or revised local services.

2. POPULATION AND DEMOGRAPHIC PROFILES

Population density and demographics are important determinants of the need for public transit services, and understanding population trends and the distribution of different demographic population groups is an important part of planning public transit services. Some population groups demonstrate a greater propensity to use or need public transportation.

2.1 Population Density

Figure 2.1 shows the population density across the area. A population density of 3,000 people per square mile is generally considered necessary to support a fixed-route transit system. This level of density is found primarily within and near the city of Charlottesville. A few census blocks in Crozet, Lake Monticello, areas north of Charlottesville, and elsewhere reach this density threshold, but they are smaller pockets of higher density. Buckingham and Nelson counties have the lowest population density.

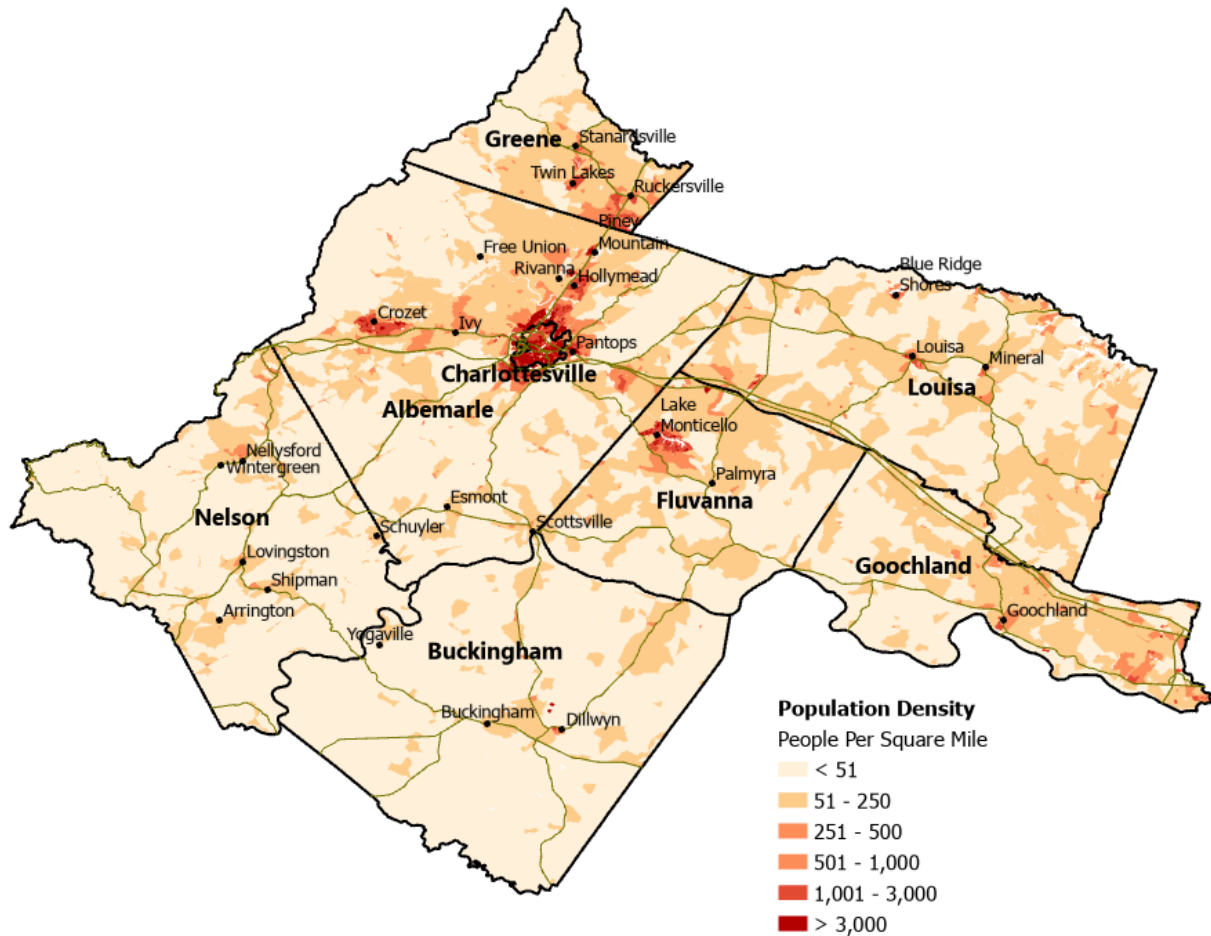


Figure 2.1 Population Density

2.2 Demographics

In rural areas, older adults, people with disabilities, low-income individuals, and those without access to a car have a greater propensity to use public transportation than the overall population. Data from the

American Community Survey (ACS) were used to identify areas with higher concentrations of these population groups to identify places with increased need for transit. Surveys of rural transit riders have shown that rural transit serves a disproportionately higher percentage of older adults, people with disabilities, low-income individuals, and those without access to a personal vehicle (Mattson et al. 2020). Data from this section show the 2017-2021 five-year estimates for census tracts.

2.2.1 Population Aged 65 or Older

Figure 2.2 shows the percentage of the population aged 65 or older. In many rural areas, 20% or more of the population is 65 or older, including some areas where more than a quarter of the population consists of older adults.

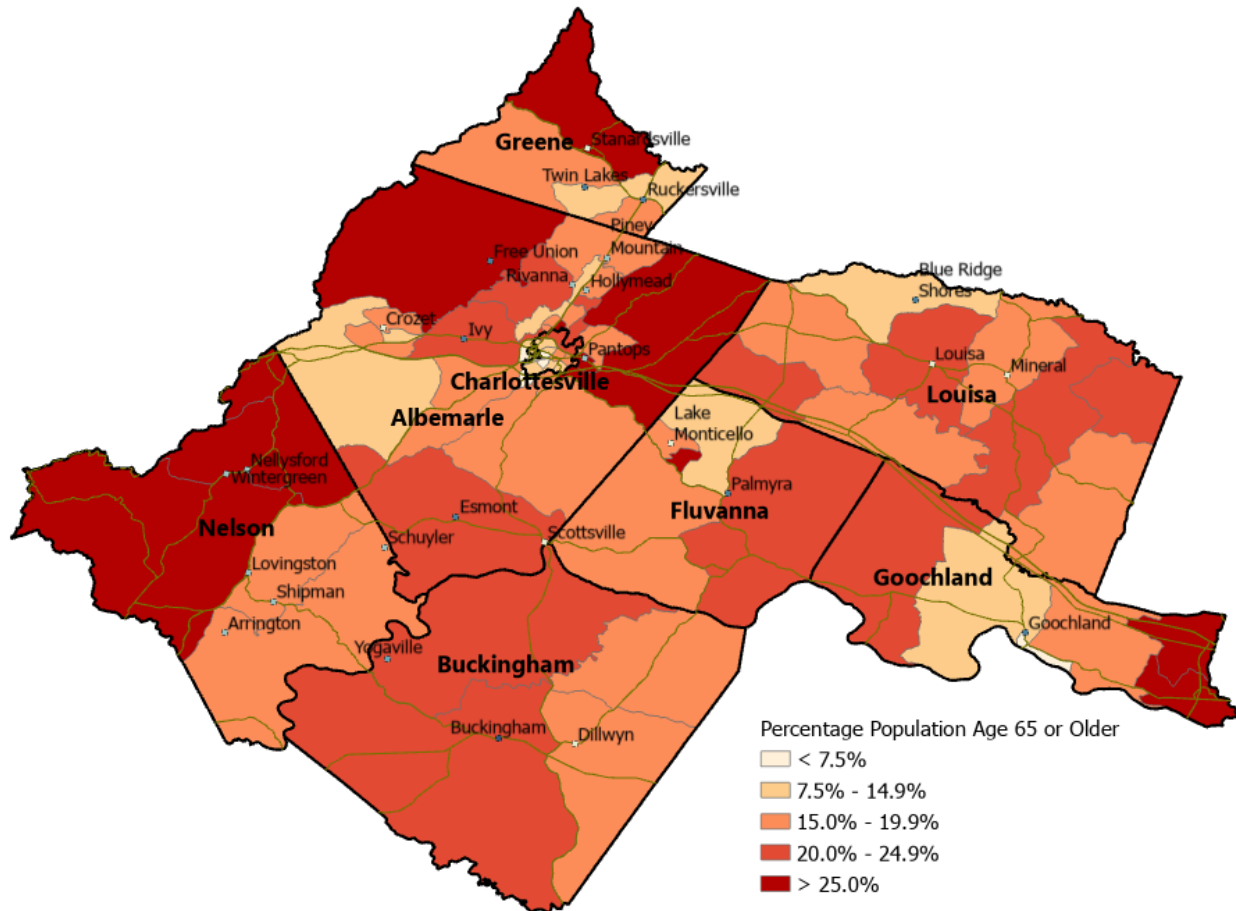


Figure 2.2 Percentage of Population Aged 65 or Older

Figure 2.3 shows the density of the older adult population. Although the percentage of the population aged 65 or older is lower in Charlottesville, it has the highest density of the older adult population because of its greater overall population. Outside of Charlottesville, the highest densities of older adult populations are found in parts of Albemarle County, Lake Monticello in Fluvanna County, part of Greene County, and eastern Goochland County.

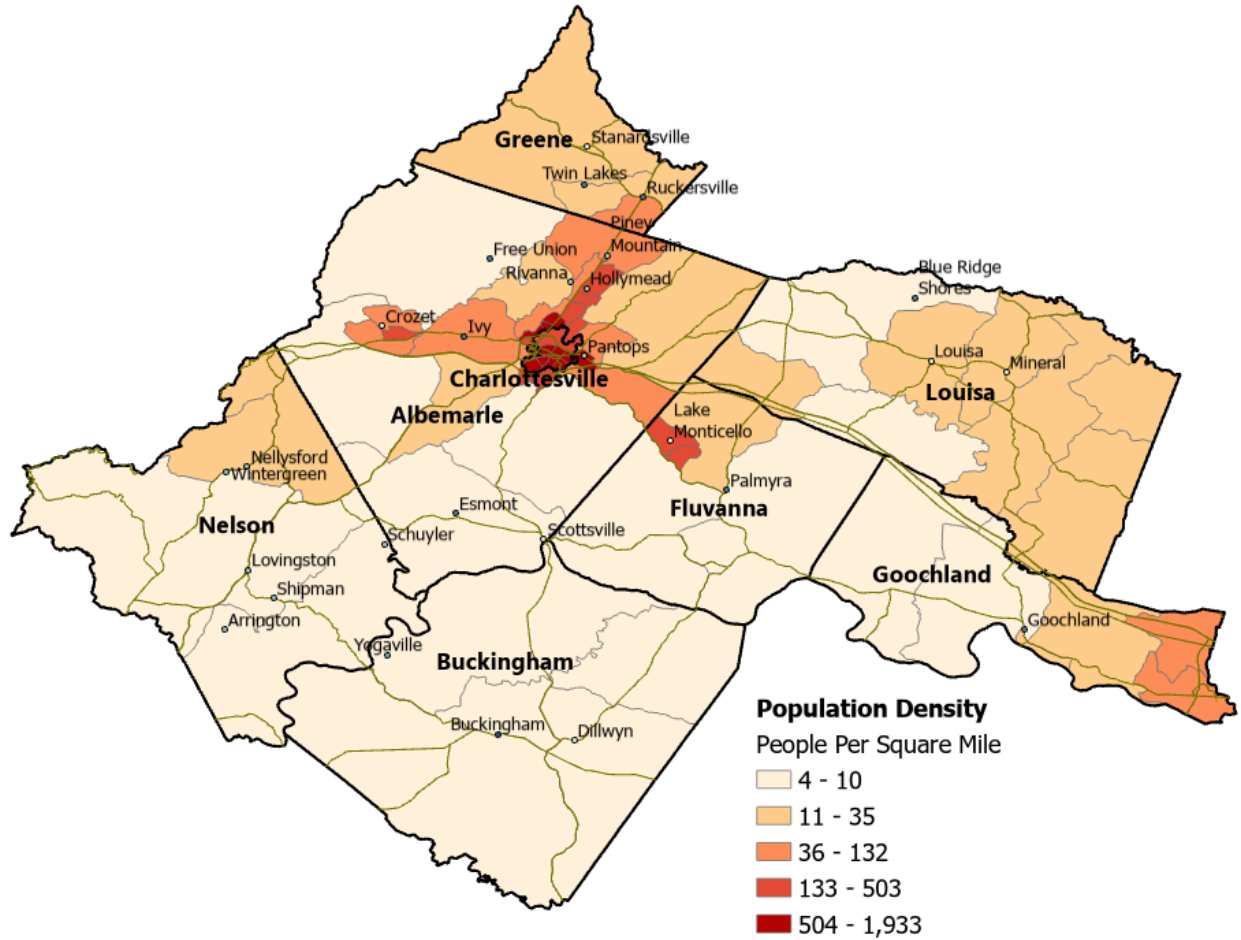


Figure 2.3 Density of Population Aged 65 or Older

2.2.2 Population with a Disability

The percentage of the population with a disability exceeds 15% for large parts of Buckingham and Louisa counties, as well as parts of Greene and Nelson counties (Figure 2.4). The rates of disability are lowest in Albemarle County and parts of Charlottesville. However, the population density of people with a disability is highest in Charlottesville and in areas near Charlottesville, Lake Monticello, and part of Greene County (Figure 2.5).

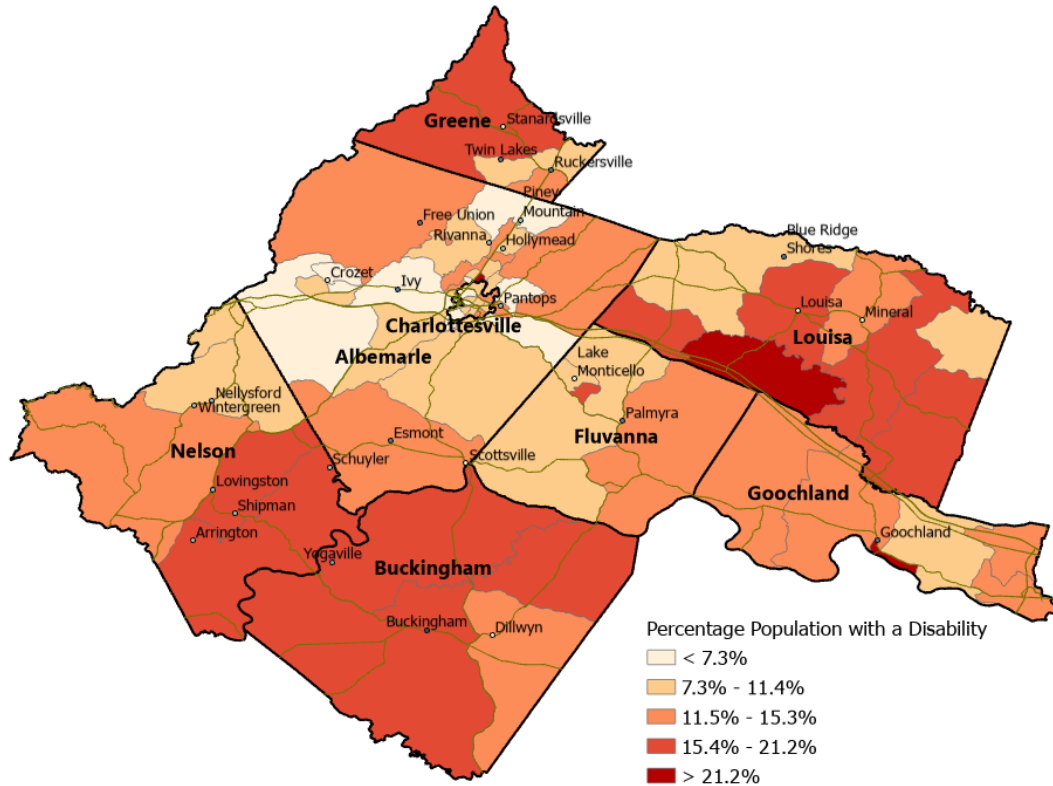


Figure 2.4 Percentage of Population with a Disability

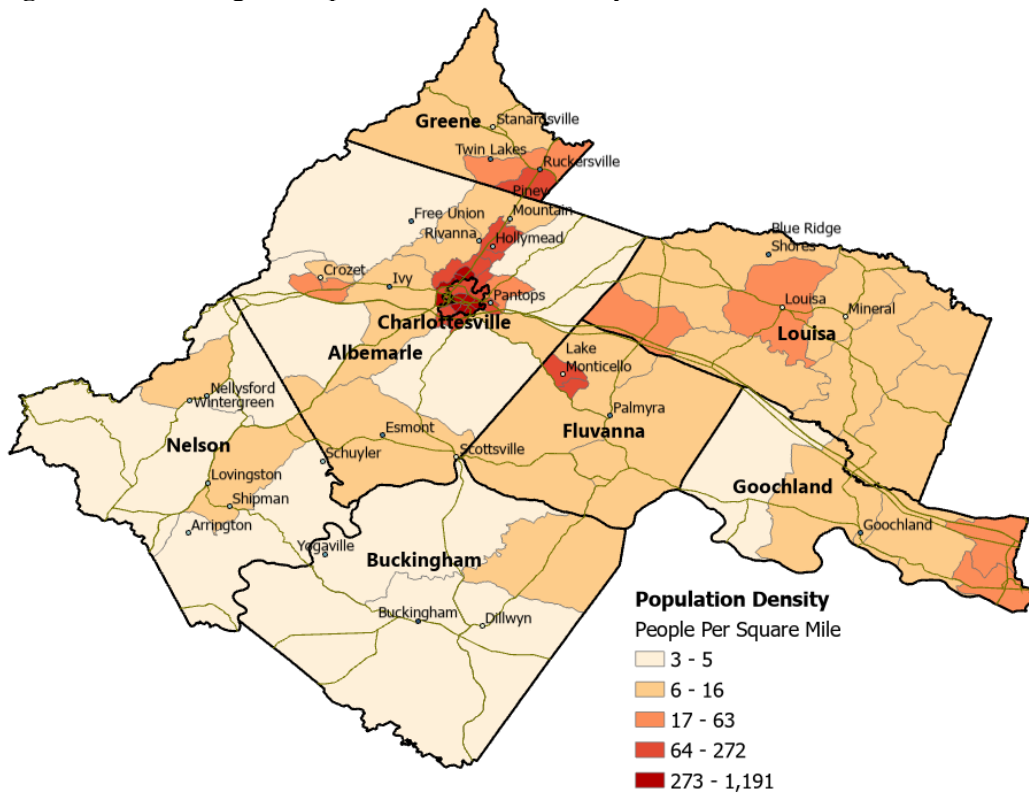


Figure 2.5 Density of Population with a Disability

2.2.3 Low-Income Population

Data on poverty rates and household income were analyzed to show the size and distribution of the low-income population. Poverty rates are highest in parts of Charlottesville and parts of Buckingham, Nelson, and Louisa counties (Figure 2.6). Poverty rates are the lowest throughout much of Albemarle, Fluvanna, and Goochland counties.

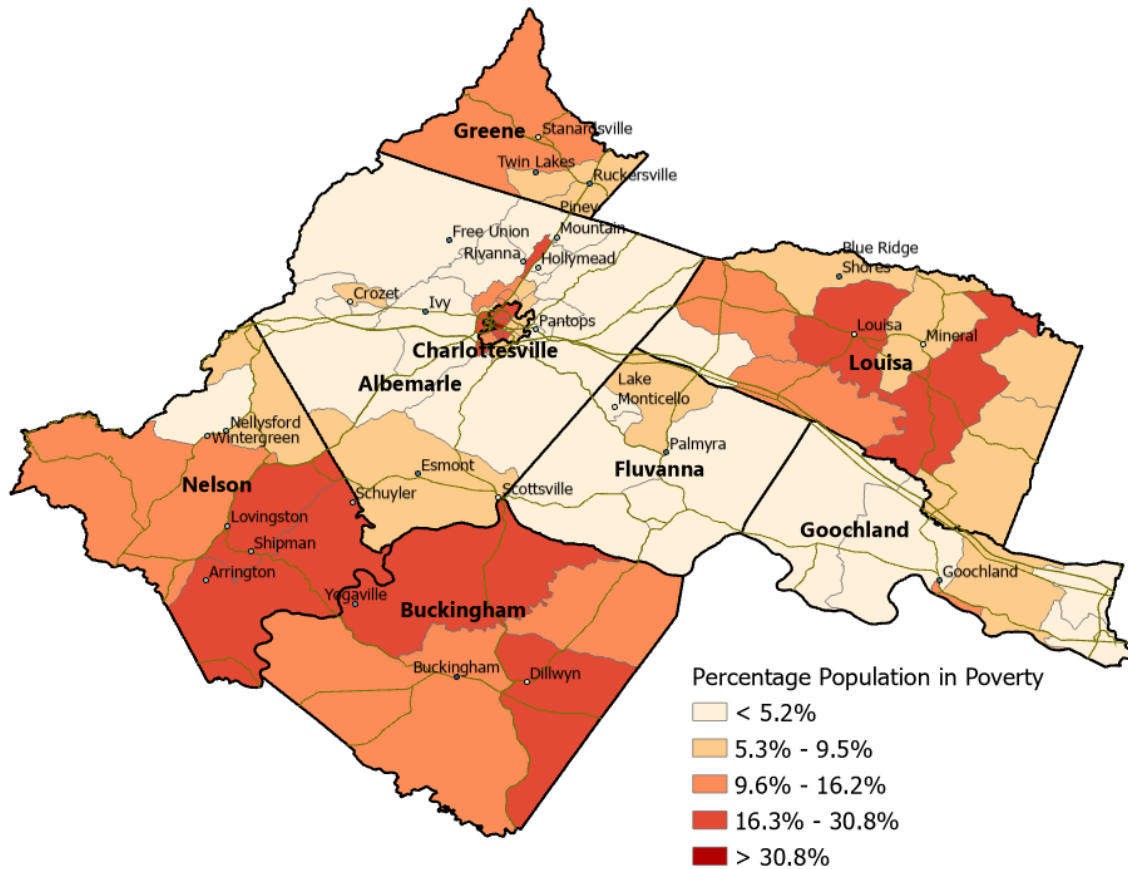


Figure 2.6 Percentage of Population in Poverty

Figures 2.7 and 2.8 show the percentages of households with income less than \$35,000 and \$50,000, respectively. Results are similar, showing the largest concentrations of low-income households in Buckingham, Nelson, and Louisa counties. The highest income areas appear to include areas of Albemarle County near Charlottesville, eastern Greene County, parts of western Fluvanna and Louisa counties, and eastern Goochland County. However, some of the areas with lower poverty rates are also more populated areas, so they may still have a higher density of low-income households. The places with the highest density of people living in poverty are also the places with the highest overall population density, including Charlottesville and surrounding areas and Lake Monticello (Figure 2.9).

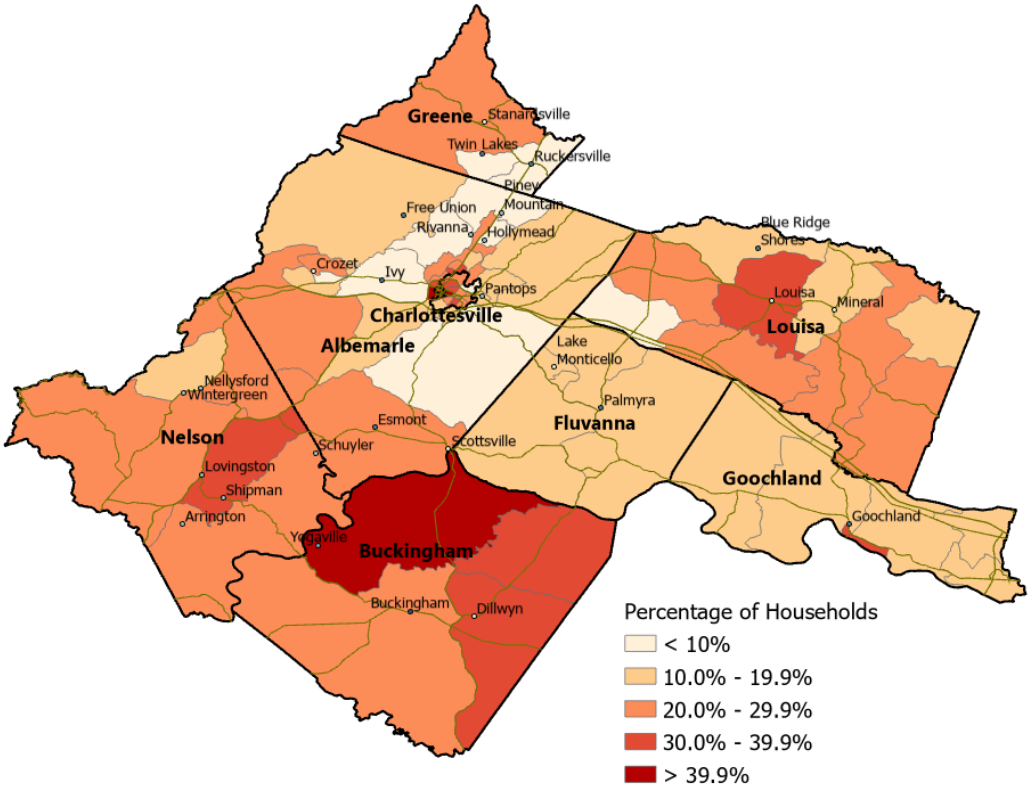


Figure 2.7 Percentage of Households with Income less than \$35,000

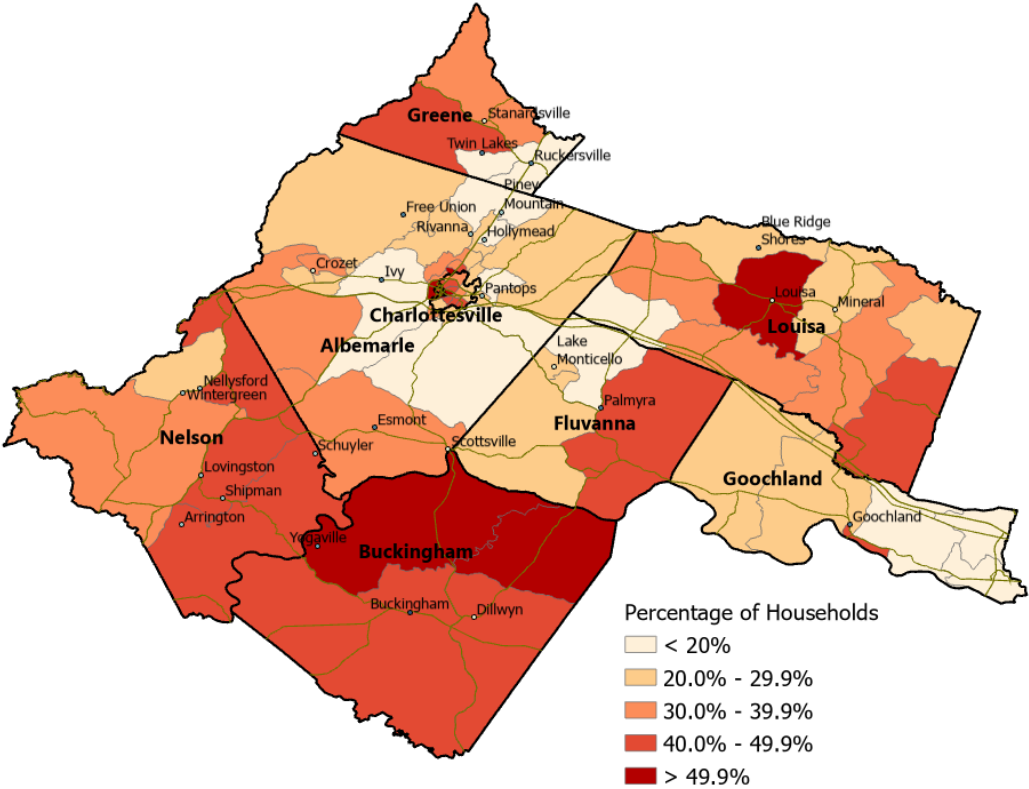


Figure 2.8 Percentage Households with Income Less than \$50,000

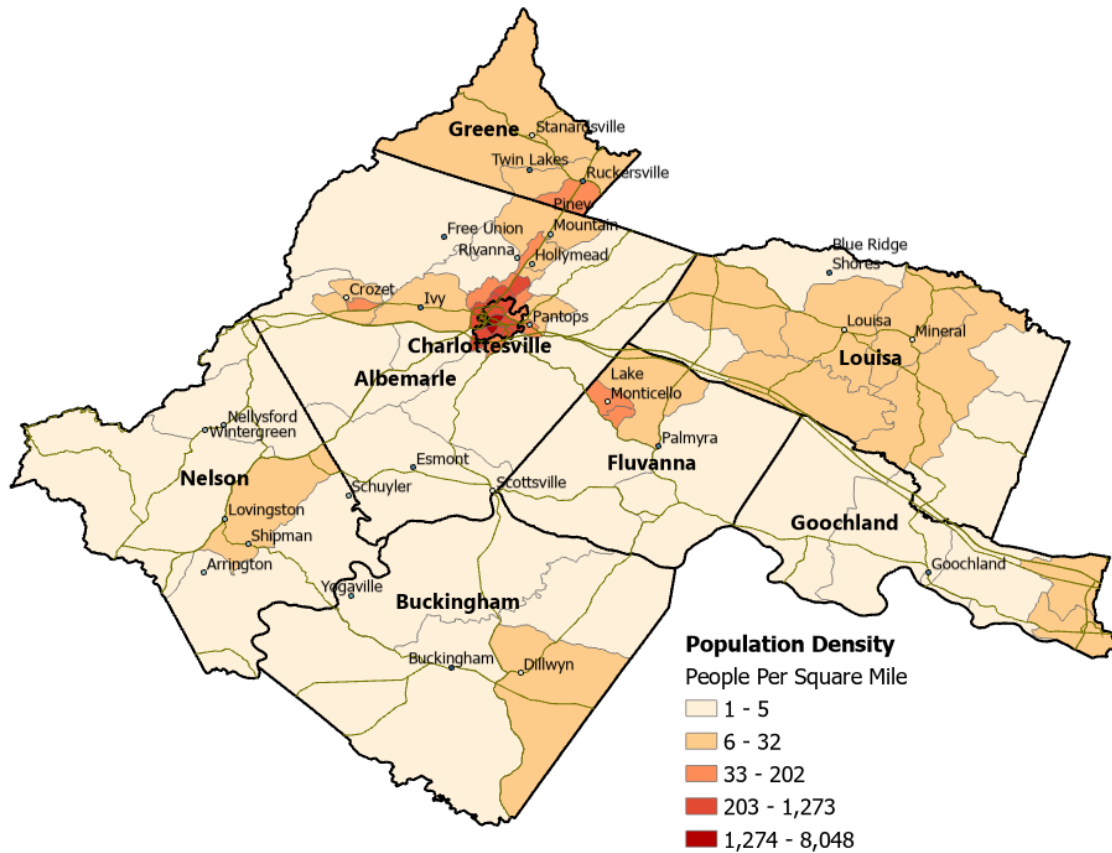


Figure 2.9 Density of Population in Poverty

2.2.4 Population without Access to a Vehicle

Lack of access to a vehicle could be related to low income or inability to drive. The percentage of households without any vehicles is shown in Figure 2.10. The percentage of carless households is greatest in parts of Buckingham, Nelson, and Louisa counties, as well as areas in or near Charlottesville, where it exceeds 8.5% in many areas. The density of workers living in households without a vehicle is greatest in Charlottesville and surrounding areas, as well as Lake Monticello (Figure 2.11).

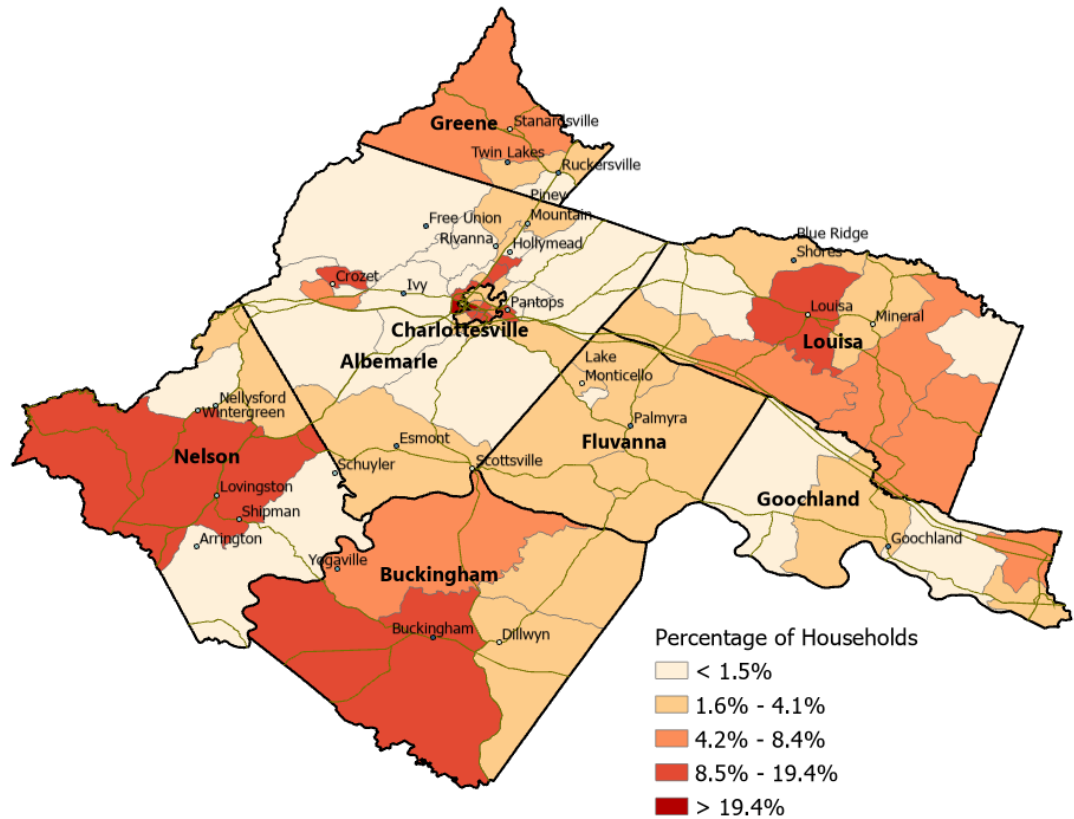


Figure 2.10 Percentage of Households with No Vehicles

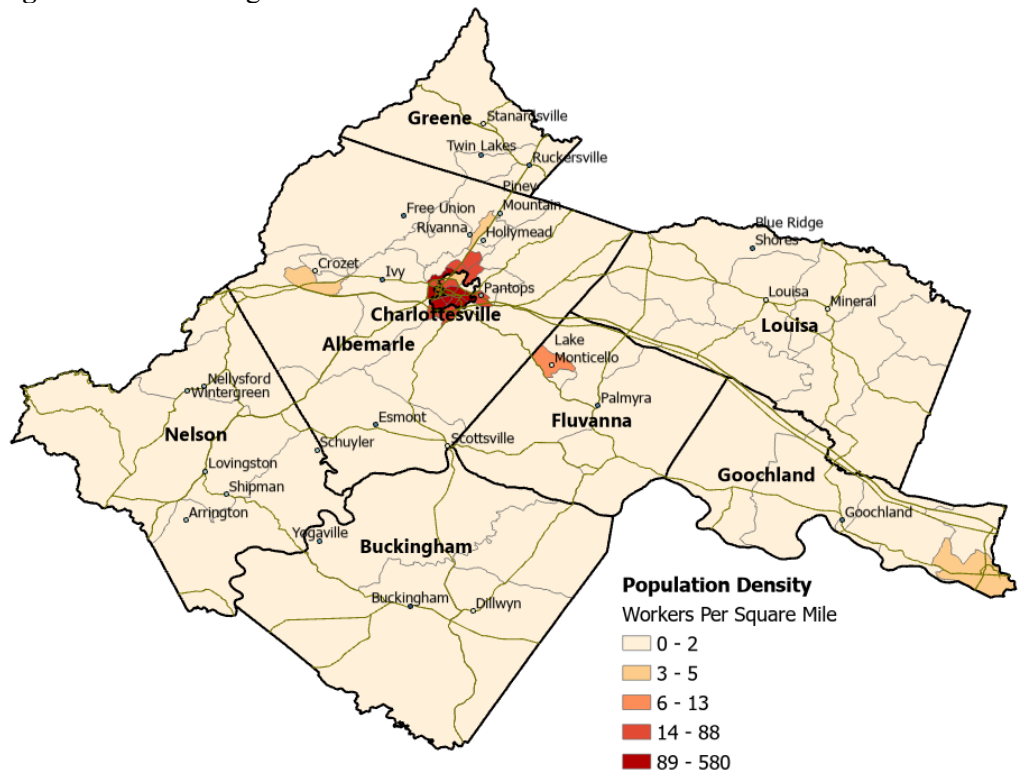


Figure 2.11 Density of Workers in Carless Households

2.2.5 Youth Population

The school-aged youth population can create a need for public transportation since most are not old enough to drive and many need to travel for various activities. The percentage of the population consisting of youth aged 10 to 17 varies across the region, with the highest percentages being in parts of Albemarle, Greene, and Louisa counties (Figure 2.12). Charlottesville has a lower percentage of this population group but, again, the highest density (Figure 2.13).

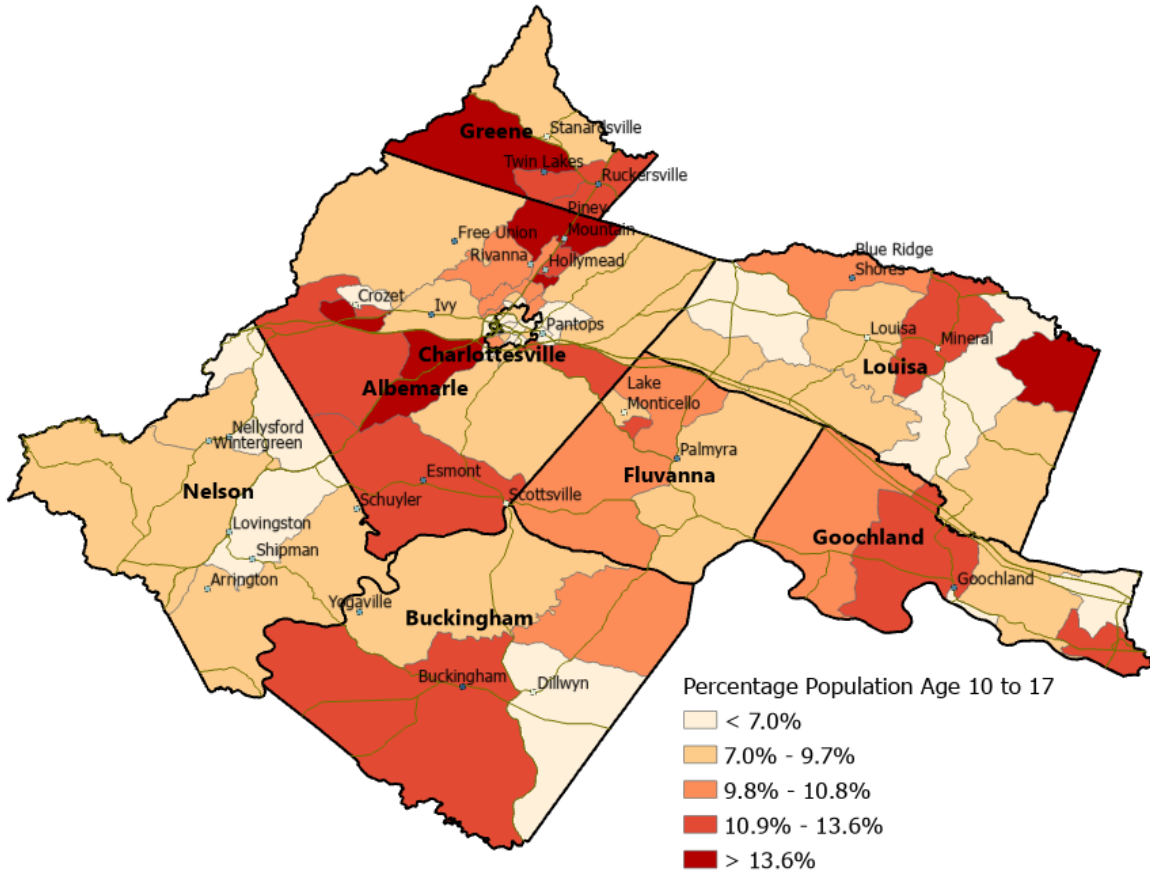


Figure 2.12 Percentage of Population Aged 10 to 17

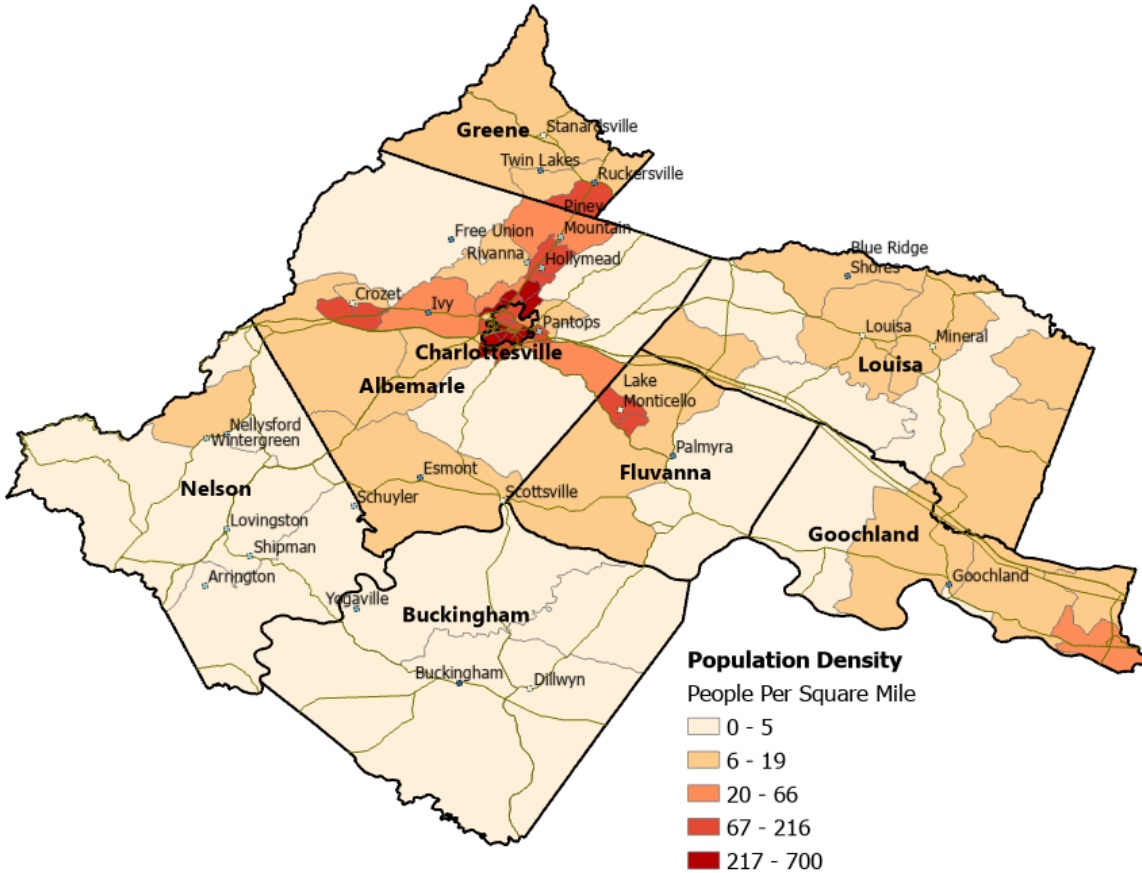


Figure 2.13 Density of Population Aged 10 to 17

2.2.6 County-Level Data

Tables 2.1 and 2.2 show the demographic data aggregated by county and for the city of Charlottesville. Data for Goochland County are presented for the entire county and for the western half of the county. In Nelson County, 28% of the population is aged 65 or older, which is the highest in the study area. Nelson County also has the highest poverty rate outside of the city of Charlottesville at 13%, followed by Buckingham, Greene, and Louisa counties. The percentage of the population with a disability is highest in Buckingham and Louisa counties and lowest in Albemarle and the city of Charlottesville. Within the rural areas, Buckingham and Nelson counties have the highest percentages of households without a vehicle at 6%, although this rate is much higher in the city of Charlottesville, which has significantly different demographics from the rural areas. It has a much higher poverty rate (22%) and a higher percentage of households with no vehicle (12%), but a lower percentage of older adults, people with a disability, and school-aged youth.

Table 2.1 County- or City-Level Population by Demographic

	Total	Age 65+	Poverty	Disability	Age 10-17	Households with No Vehicles
Albemarle	112,513	22,137	7,378	10,339	10,348	2,084
Buckingham	16,869	3,340	2,083	2,631	1,405	377
Fluvanna	27,442	5,603	1,561	3,023	2,321	276
Greene	20,631	3,813	2,273	2,526	2,532	159
Louisa	38,106	7,709	4,120	6,258	3,538	519
Nelson	14,773	4,203	1,950	2,108	1,087	355
Goochland	24,906	5,739	1,009	3,020	2,326	261
Western Goochland	9,433	1,653	330	1,202	1,153	100
City of Charlottesville	46,289	5,853	10,254	4,138	2,697	2,293

Source: American Community Survey 2022 5-year estimates

Table 2.2 Percentage of Population by Demographic, by County or City

	Age 65+	Poverty	Disability	Age 10-17	Households with No Vehicles
Albemarle	20%	7%	9%	9%	5%
Buckingham	20%	12%	16%	8%	6%
Fluvanna	20%	6%	11%	8%	3%
Greene	18%	11%	12%	12%	2%
Louisa	20%	11%	16%	9%	4%
Nelson	28%	13%	14%	7%	6%
Goochland	23%	4%	12%	9%	3%
Western Goochland	18%	3%	13%	12%	3%
City of Charlottesville	13%	22%	9%	6%	12%

Source: American Community Survey 2022 5-year estimates

2.3 Mobility Needs Index

The population and demographic data presented in the previous section provide guidance for determining where the greatest needs for mobility services exist. These data were combined into a single index, referred to as the mobility needs index, to show how needs for mobility services vary across the area based on these demographic and population density characteristics. This method, which has been used in previous research (Mattson et al., 2020; Mattson & Hough, 2015), measures mobility needs based only on identifiable demographic groups and does not suggest that all related needs are unmet.

This study uses five important demographic groups to create a mobility needs index for determining mobility needs. As illustrated in the previous section, those groups are populations that are aged 65 or older, with a disability, below the poverty line, workers without access to a vehicle, and youth. County-tract-level data from the ACS 2021 five-year estimates were used to calculate the index values for the five demographic groups. First, population densities were calculated for each of these demographic groups. Second, percentile rankings were calculated for each demographic group for each geographic area. Finally, the individual percentile rankings from each demographic group, weighted equally, were

averaged for each geographic area to produce the mobility needs index. These mobility needs index values rank all regions on a scale of 0 to 1, with higher values identifying areas with greater mobility needs. The method was rerun using the percentages of the population belonging to each demographic group instead of the population densities.

Results based on the population densities of each population group are shown in Figure 2.14, and results based on the population percentages are shown in Figure 2.15. The city of Charlottesville was excluded from this analysis because the focus of this study is identifying rural needs. Furthermore, Charlottesville has a significantly greater population density and different demographics, which would alter the results. The index shows how the mobility needs differ throughout the areas outside of Charlottesville.

The areas in Figure 2.14 identified as having the greatest mobility needs tend to be those with the highest population density, which is because the densities of the transportation-disadvantaged populations tend to be correlated with the overall population density. The results in Figure 2.15 show areas with high percentages of transportation-disadvantaged populations. Some areas with low population densities, such as Buckingham and Nelson counties, have high percentages of the population consisting of these demographic groups.

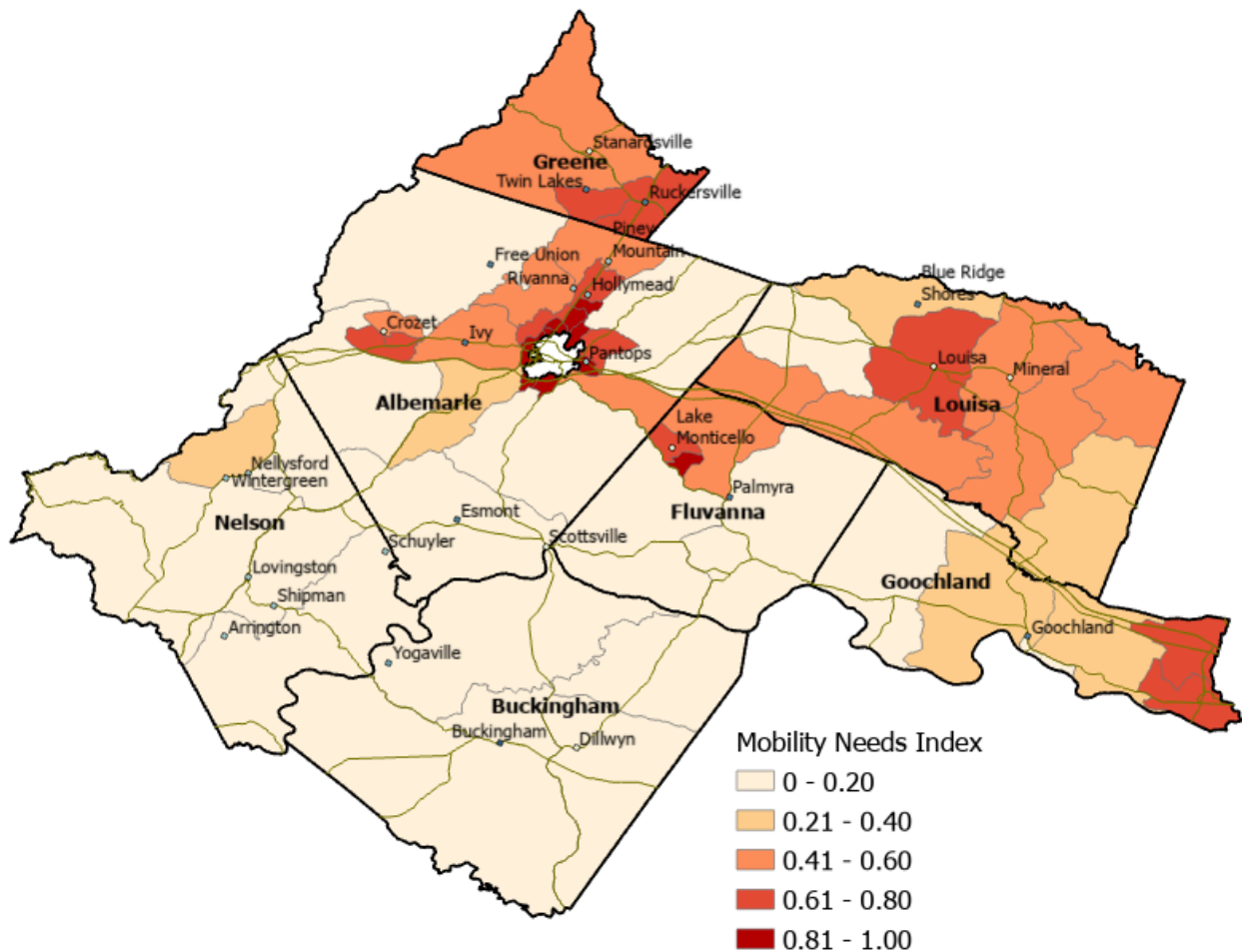


Figure 2.14 Mobility Needs Index - Population Density

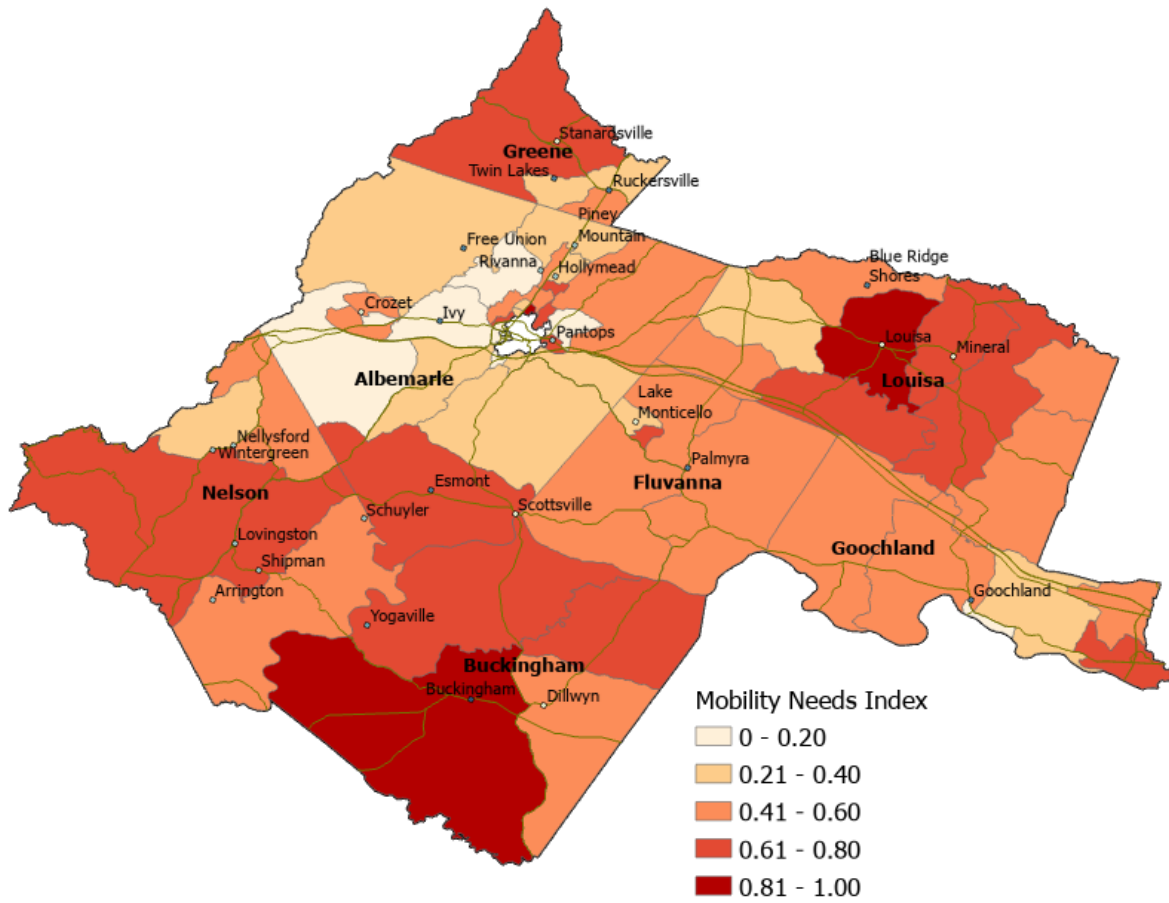


Figure 2.15 Mobility Needs Index - Percentages

3. EXISTING TRANSIT SERVICE LEVELS

3.1 Description of Services Provided

Jaunt provides both demand-response and commuter bus services. Curb-to-curb demand-response services are provided in the counties of Fluvanna, Louisa, Nelson, and rural Albemarle. Jaunt provides ADA paratransit in Charlottesville and urban Albemarle County. Demand-response service includes service from rural areas across the service area into Charlottesville or urban Albemarle County, as shown in Table 3.1, as well as services within the rural areas, as shown in Table 3.2. The ADA paratransit services are described in Table 3.3.

Table 3.1 Curb-to-Curb Demand-Response Service from Rural Areas to Urban Albemarle or Charlottesville

Name	Days of Service	Hours of Service	Geographic Coverage
20 North Link	Mon–Fri	7:30 am – 8:30 am: Morning service to urban Albemarle/Charlottesville 3:00 pm – 3:30 pm: Return service to 20 North	Route 20 North region of Albemarle to urban Albemarle or Charlottesville.
29 North Link	Mon–Fri	6:00 am – 9:00 am: Morning service to urban Albemarle/Charlottesville 3:00 pm – 3:30 pm: Return service to 29 North	Route 29 North region of Albemarle to urban Albemarle or Charlottesville.
Crozet Link	Mon–Fri	8:00 am – 2:00 pm: Buses run from Crozet to urban Albemarle at 8 am, 10 am, 12 pm, and 2 pm 9:00 am – 5:00 pm: Buses run from urban Albemarle to Crozet at 9 am, 11 am, 1 pm, 3 pm, and 5 pm	Crozet to urban Albemarle County / Charlottesville.
Earlysville Link	Mon–Fri	6:00 am – 9:00 am: Morning service to urban Albemarle/Charlottesville 3:00 pm – 3:30 pm: Return service to Earlysville	Earlysville to urban Albemarle or Charlottesville.
Esmont-Scottsville Link	Mon–Fri	6:15 am – 10:00 am: Buses run from Esmont / Scottsville to urban Albemarle / Charlottesville at 6am and 9 am 12:00 pm – 4:30 pm: Buses run from urban Albemarle/Charlottesville to Esmont / Scottsville at 12 pm and 4 pm	Esmont / Scottsville to urban Albemarle or Charlottesville.
Keswick Link	Mon–Fri	8:00 am – 8:30 am: Morning service to urban Albemarle/Charlottesville 3:00 pm – 3:30 pm: Return service to Keswick	Keswick to urban Albemarle or Charlottesville.
Fluvanna Midday Link	Tue, Th	7:30 am – 9:30 am: Morning service to urban Albemarle/Charlottesville 1:45 pm – 2:45 pm: Return service to Fluvanna	Fluvanna to urban Albemarle or Charlottesville.
Fluvanna Workday Link	Mon–Fri	6:00 am – 6:35 am: Morning service to urban Albemarle/Charlottesville 4:15 pm – 4:30 pm: Return service to Fluvanna	Fluvanna to and from urban Albemarle County/ Charlottesville.
Greene Link	Mon–Fri	6:00 am – 8:00 am: Approximate pick-up window in Greene with subsequent drop-off in Charlottesville 8:00 am – 10:00 am: Approximate pick-up window in Greene with subsequent drop-off in Charlottesville 2:00 pm – 3:00 pm: Approximate pick-up window in Charlottesville and subsequent drop-off in Greene 5:00 pm – 6:00 pm: Approximate pick-up window in Charlottesville and subsequent drop-off in Greene	Greene to and from urban Albemarle or Charlottesville.
Louisa Link	Mon, Wed, Fri	7:30 am – 9:00 am: Morning service to urban Albemarle/Charlottesville 2:45 pm – 3:30 pm: Return service to Louisa	Louisa County to and from urban Albemarle/ Charlottesville
Nelson Midday Link	Mon, Fri	8:00 am – 9:30 am: Morning service to urban Albemarle/Charlottesville 2:30 pm – 3:30 pm: Return service to Nelson	Nelson to and from urban Albemarle or Charlottesville.

Table 3.2 Rural Door-to-Door/Curb-to-curb Circulator Demand-Response Service

Name	Days of Service	Hours of Service	Geographic Coverage
Albemarle Demand-Response	Mon–Fri	10:00 am – 2:00 pm	Albemarle County
Crozet Circulator	Mon–Fri	8:00 am – 4:00 pm last pickup is at 3:45 pm	Crozet
Esmont-Scottsville Circulator	Tue, Th	8:45 am – 3:00 pm last pickup is at 2:00 pm	Esmont-Scottsville area
Fluvanna Circulator	Mon, Wed, Fri	8:30 am – 4:00 pm last pickup is at 3:00 pm	Fluvanna County
Greene Circulator	Mon–Fri	7:00 am – 5:00 pm Monday through Friday	Greene County
Louisa Circulator	Mon–Fri	6:00 am – 5:00 pm (last pickup is 4:30 pm)	Louisa County
Lovingson Circulator	Mon, Tue	8:00 am – 4:00 pm last pickup is 3:30 pm	Lovingson area

Table 3.3 ADA Paratransit Service

Name	Description	Days of Service	Hours of Service	Geographic Coverage
ADA Service	A door-to-door paratransit service for people with disabilities who are unable to use the local fixed route system (CAT). Certification required.	Sun-Sat	Monday-Saturday 6:15 am – 11:00 pm last pickup is at 11:00 pm Sunday 7:15 am – 10:00 pm last pickup is at 10:00 pm	Charlottesville

Fixed-route commuter bus services are provided to the University of Virginia (UVA) and downtown Charlottesville. These are referred to as the CONNECT services. There are four such services, as described below:

- Crozet CONNECT – Weekday commuter service transporting riders from east and west Crozet to UVA and Downtown Charlottesville. This includes two separate routes: Crozet CONNECT East and Crozet CONNECT West. A third route, Crozet CONNECT PM Loop, provides services to both east and west Crozet in the evening after the other routes have stopped running.
- 29 North CONNECT – Weekday commuter service transporting riders from the Hollymead area to UVA and Downtown Charlottesville.
- Buckingham CONNECT – Commuter service transporting riders from central Buckingham along Rt. 20 to UVA, 29 North, Downtown Charlottesville, and Pantops.
- Lovingson CONNECT – Weekday commuter service transporting riders from the Lovingson area along Rt. 29 to UVA, Downtown Charlottesville, and Belmont.

These services are further described in Table 3.4.

Table 3.4 Commuter Service

Name	Days of Service	Hours of Service	Geographic Coverage
29 North CONNECT	Mon–Fri	6:22 am – 8:13 am Morning service to urban Albemarle / Charlottesville 4:23 pm – 6:18 pm Return service to Hollymead	To and from 29 North and urban Albemarle County / Charlottesville.
Crozet CONNECT East	Mon–Fri	5:56 am – 8:21 am Morning service to urban Albemarle / Charlottesville 3:47 pm – 6:07 pm Return service to Crozet	Crozet to and from urban Albemarle County / Charlottesville.
Crozet CONNECT West	Mon–Fri	6:16 am – 8:22 am Morning service to urban Albemarle / Charlottesville 3:49 pm – 6:16 pm Return service to Crozet	Crozet to and from urban Albemarle County / Charlottesville
Crozet CONNECT PM Loop	Mon–Fri	7:30 pm – 8:53 pm Evening service to Crozet	Crozet to and from urban Albemarle County / Charlottesville
Buckingham CONNECT East	Mon–Fri	5:45 am – 6:17 am Morning service to urban Albemarle / Charlottesville 4:00 pm – 4:22 pm Return service to Buckingham	Buckingham County to and from urban Albemarle County / Charlottesville.
Buckingham CONNECT North	Mon–Fri	5:00 am – 8:40 am Morning service to urban Albemarle / Charlottesville 5:02 pm – 5:48 pm Return service to Buckingham	Buckingham County to and from urban Albemarle County / Charlottesville.
Lovington CONNECT	Mon–Fri	6:36 am – 6:53 am Morning service to urban Albemarle / Charlottesville 4:30 pm – 5:04 pm Return service to Lovington	Lovington to and from urban Albemarle County / Charlottesville.

3.2 Ridership Data

Like most agencies across the world, Jaunt’s ridership dropped in 2020 and 2021 during the Covid pandemic, but ridership has since been steadily increasing, as shown in Figure 3.1. The next sections provide more detail about the demand-response and commuter bus ridership for fiscal year (FY) 2023. The annual data are reported by fiscal years, which are July 1–June 30.

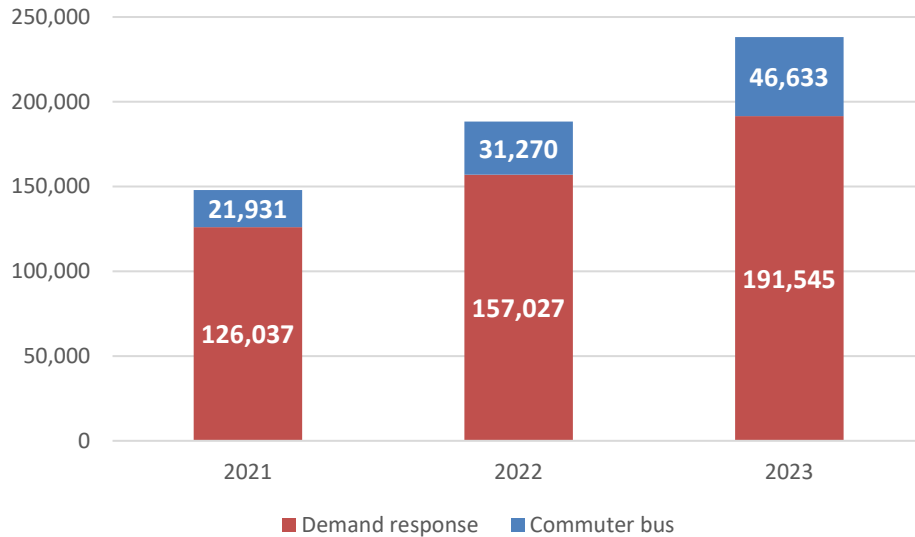


Figure 3.1 Jaunt Ridership, FY 2021-2023

3.2.1 Demand-Response Ridership

There were 191,545 unlinked passenger trips provided by the demand-response service in FY 2023. These trips can be categorized by service, as shown in Table 3.5. The ADA paratransit service in Charlottesville accounts for slightly more than half of the total demand-response trips. The Greene County Circulator provided the next most trips, followed by the Louisa Intra Circulator and Albemarle Demand-Response. Table 3.6 shows the number of trips by funding source, with the most provided by Albemarle County, the city of Charlottesville, Greene County, and Louisa County.

Table 3.5 FY 2023 Demand-Response Ridership by Service

Service	Unlinked Passenger Trips
ADA Service	94,987
Greene County Circulator	20,905
Louisa Intra Circulator	15,889
Albemarle Demand-Response	8,845
Pace Agency	8,290
Greene County Link	6,792
General Agency	4,789
Esmont Scottsville Link	4,222
Crozet Link	3,376
Albemarle Priority Service	3,190
Esmont Scottsville Circulator	1,557
Fluvanna Commuter Link	1,434
Louisa Link	1,164
Jaunt Employee Benefit	1,083
Lovingston Circulator	982
Nelson Midday Link	931
Jaunt Business Trips	800
29 North Link	799
Fluvanna Midday Link	771
Fluvanna Intra Circulator	740
20 North Link	654
Earlysville Cho Link	635
Keswick Link	507
Crozet Circulator	261
COVID-19 Vaccination	13

Table 3.6 FY 2023 Demand-Response Ridership by Local Funding Source

Funding Source	Unlinked Passenger Trips
Albemarle County	70,511
City of Charlottesville	48,535
Greene County	27,693
Louisa County	17,053
Pace Agency	8,294
Fluvanna County	2,945
Logisticare Agency	2,655
Nelson County	1,913
Jaunt	1,883
Other	2,143

As suggested by Table 3.6, the majority of trips are in Albemarle County or Charlottesville. This is further demonstrated by Table 3.7, which shows the number of trips by pickup area. Pickup areas are categorized by county, plus the city of Charlottesville. Albemarle County is divided into urban and rural areas. About two-thirds of all demand-response trips originated in urban Albemarle County or the city of Charlottesville. Most of the rural trips originated in Greene, Louisa, or rural Albemarle counties. Significantly fewer trips originated in Nelson or Fluvanna counties, and very few trips originated in Buckingham County, while a few trips began in other neighboring counties.

Table 3.7 FY 2023 Demand-Response Ridership by Pickup Area

Pickup Area	Unlinked Passenger Trips
Urban Albemarle County	69,572
City of Charlottesville	54,613
Greene County	24,983
Louisa County	16,844
Rural Albemarle County	12,453
Nelson County	2,804
Fluvanna County	2,192
Madison County	82
Buckingham County	66
Culpeper County	5
Amherst County	2

The most common demand-response trips are employment and social trips, accounting for 61% of trips in FY 2023, followed by medical and shopping trips, as shown in Figure 3.2.

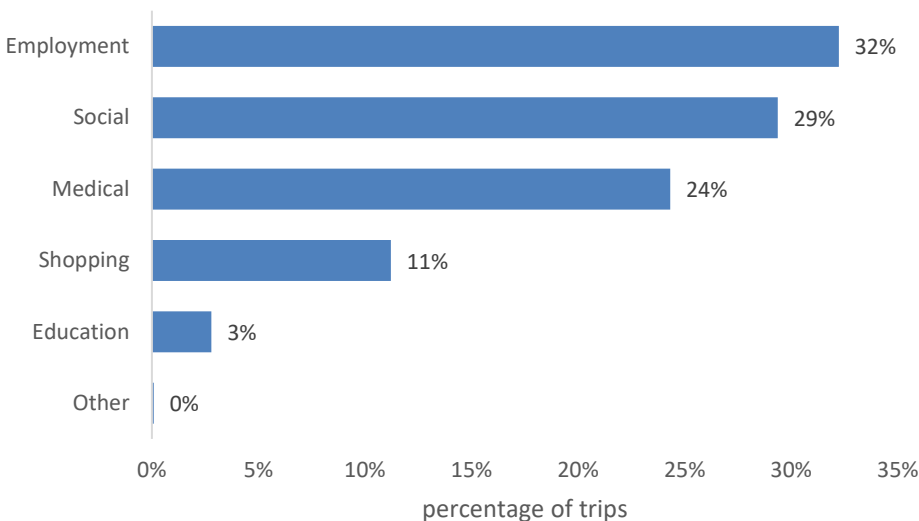


Figure 3.2 Percentage of Trips by Trip Purpose

There are some variations in trip type based on geographic area. Rural Albemarle County has a higher percentage of social trips (38%) and less employment trips (23%); Fluvanna and Greene counties have lower percentages of medical trips (5% and 8%, respectively) and more employment trips; Greene County has a higher percentage of education trips (10%); Nelson County has a high percentage of social trips (62%) and very few employment trips; and the few trips in Buckingham County are mostly social trips.

There are three main funding groups for Jaunt’s demand-response service: FTA section 5307, FTA section 5311, and agency funding. The ADA paratransit service is funded by section 5307. Most of the remaining services are funded by section 5311, which funds rural transit services. Some services are funded by Jaunt’s agency partners.

ADA paratransit serves Charlottesville and the urban areas of Albemarle, and the agency services are also mostly in these urban areas. The rural areas are served by the section 5311 rural transit services, the largest being the Greene County Circulator and the Louisa Intra Circulator.

To understand the locations of trips and trip patterns across the service area, Figure 3.3 maps the locations of all trip origins and destinations, and the lines connect the origin and destination for each trip. Many of the lines and dots may represent multiple trips. The map illustrates the general pattern of trips across the area. The largest concentration of trip origins and destinations are in Charlottesville and urban Albemarle County, the corridor northeast of Charlottesville, Greene County, and Crozet. Many of the trips connect rural areas to Charlottesville. The map shows very few trips in Buckingham County, and Goochland County does not have any trips because it is not being served by Jaunt.

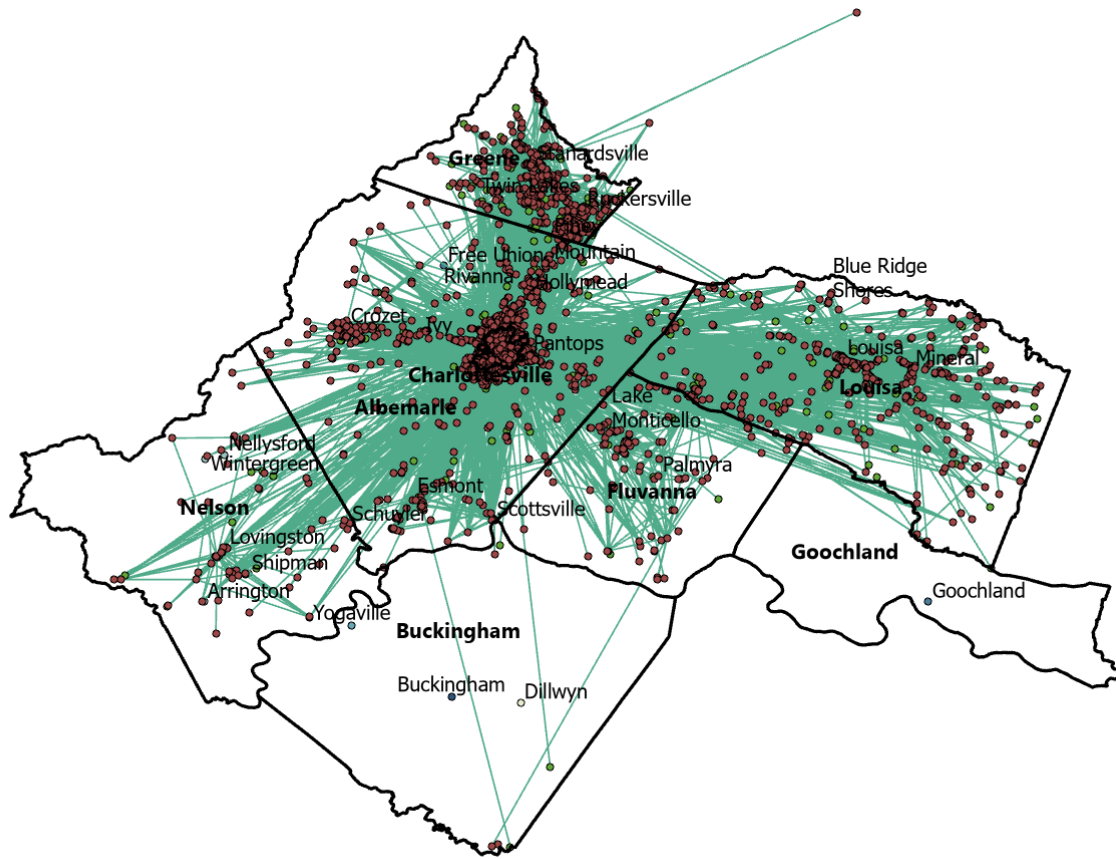


Figure 3.3 FY 2023 Demand-Response Trip Patterns

3.2.2 Commuter Bus Ridership

The commuter bus services provided 46,391 trips in FY 2023. The Crozet CONNECT and 29 North CONNECT services provided the largest shares of these trips, and the Lovingston CONNECT had the lowest ridership (Table 3.8).

Table 3.8 FY 2023 Commuter Bus Ridership by Service

Service	Unlinked Passenger Trips
Crozet CONNECT	16,238
29 North CONNECT	14,904
Buckingham CONNECT	11,427
Lovingston CONNECT	3,822

3.3 Per Capita Ridership

While Figure 3.3 and the preceding tables showed the greatest concentration of trips in Charlottesville, urban Albemarle County, and Greene County, these are also areas with the highest population densities; and while Buckingham, Nelson, and Fluvanna counties have the fewest trips, they are also the most sparsely populated. Calculating the number of trips per capita provides a better understanding of how well the needs are being met. This section provides several maps showing how trips per capita vary across the service area.

To show variations in service across the region, the service area was divided into census tracts, which are small, relatively permanent statistical subdivisions of a county developed by the U.S. Census. They have an average population of about 4,000, and are, therefore, larger in size in rural areas and smaller in urban areas. For example, Buckingham County consists of four census tracts and the city of Charlottesville consists of 11 census tracts. The study area consists of 74 census tracts.

Per capita ridership for FY 2023 was calculated for each census tract. Data from Jaunt showed the pickup and drop-off coordinates for each demand-response trip so the pickup and drop-off locations could be matched to census tracts. A trip was considered to occur in a given census tract if either the pickup or drop-off location was in that census tract.

Figure 3.4 shows the resulting demand-response trips per capita across the study area. Many of the areas have less than 0.5 trips per capita, including most of the rural areas. Among the rural areas, Greene County stands out as having the most trips per capita, and part of Louisa County also has a greater number of per capita trips. The areas with the fewest trips—Buckingham, Nelson, and Fluvanna counties—are also shown to have the fewest trips per capita, suggesting a greater need for service in these areas. Goochland County is included in each of the maps in this section, even though it is not being served by Jaunt, so the maps naturally show no trips in the county.

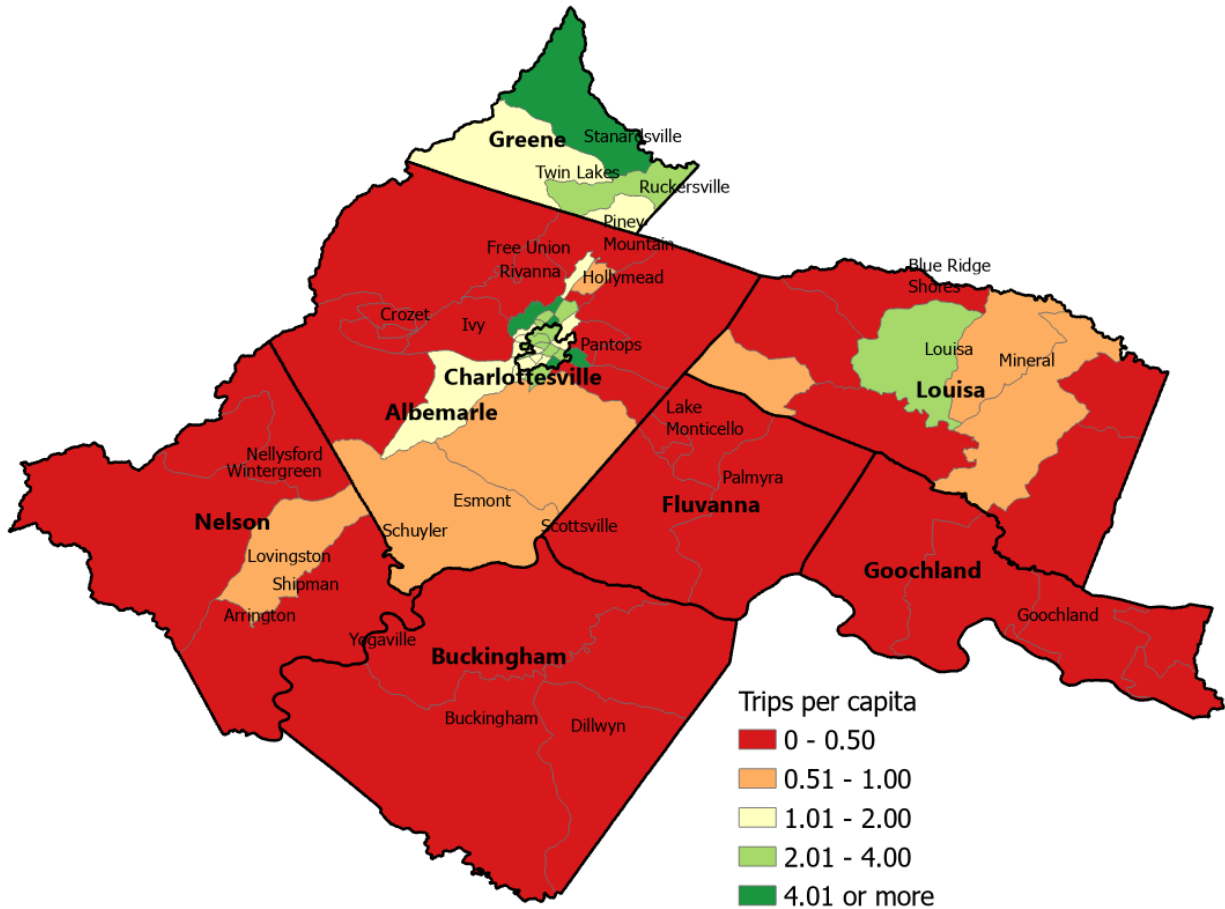


Figure 3.4 Demand-Response Trips Per Capita, FY 2023

Trips per capita are useful for identifying unmet needs but, as discussed in Section 2, some areas have a greater or lesser need for service based on the demographics of the population. Therefore, it is useful to look at the number of trips provided in comparison with the number of people who are more likely to need the service. This includes older adults, people with a disability, and those with low income.

Two additional per capita measures were calculated. First, for each census tract, the population aged 65 or older and the population aged 18–64 with a disability were determined and added together. This represents the population that is more likely to have mobility needs. Second, the population in each census tract below the poverty level was determined, representing the lower-income population that is more likely to need transportation. The total trips in each census tract were divided by the sizes of these population groups to show the number of trips provided in relation to the sizes of these transportation disadvantaged populations. The results are provided in Figures 3.5 and 3.6.

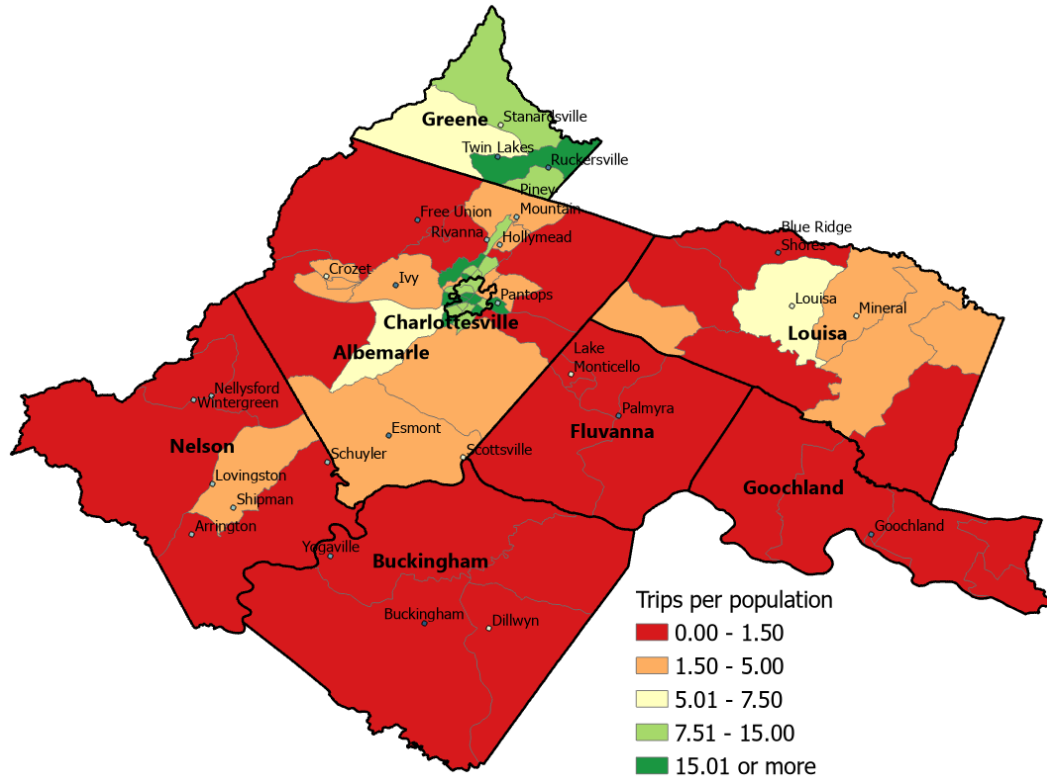


Figure 3.5 Demand-Response Trips Per Population Aged 65 or Older or 18-64 With a Disability

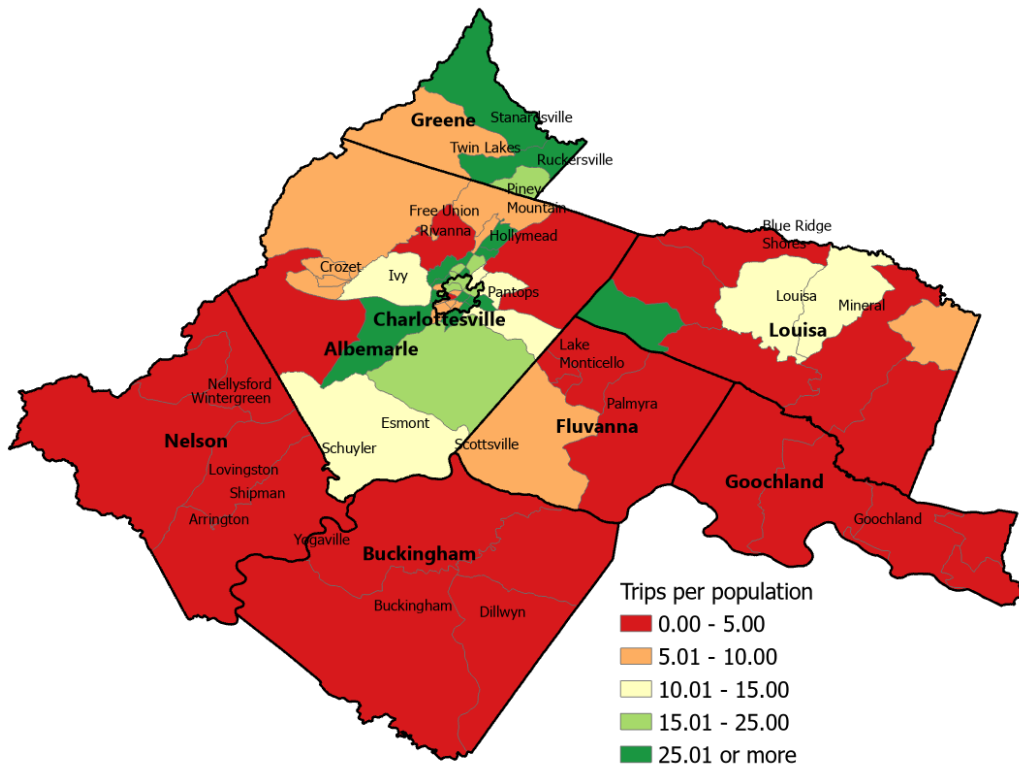


Figure 3.6 Demand-Response Trips Per Population Below the Poverty Level

The maps show that many of the rural areas, including Buckingham, Nelson, and Fluvanna counties, as well as parts of Louisa County and rural Albemarle County, have relatively fewer trips in comparison with the size of the transportation disadvantaged populations. Among the rural areas, Greene County generally has the most trips.

The data in Figures 3.4 to 3.6 do not include commuter bus trips. Commuter services are provided in Buckingham and Nelson counties, the corridor northeast of Charlottesville, and to the west in Crozet. Figure 3.7 maps the commuter bus trips per capita across the area. The commuter services in Buckingham and Nelson counties help to alleviate some of the service gaps in those counties.

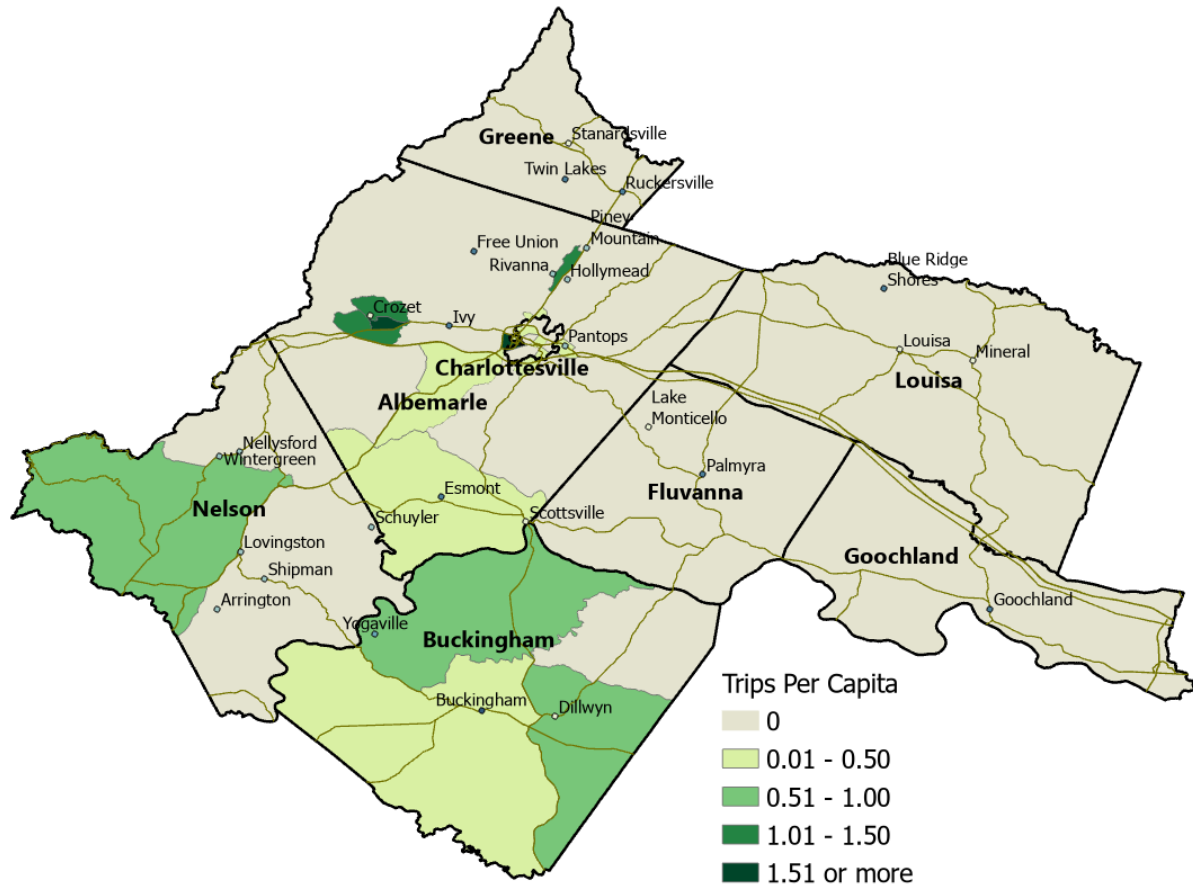


Figure 3.7 Commuter Bus Trips Per Capita, FY 2023

Next, the commuter bus trips were added to the demand-response trips to show total trips per capita, as illustrated in Figure 3.8.

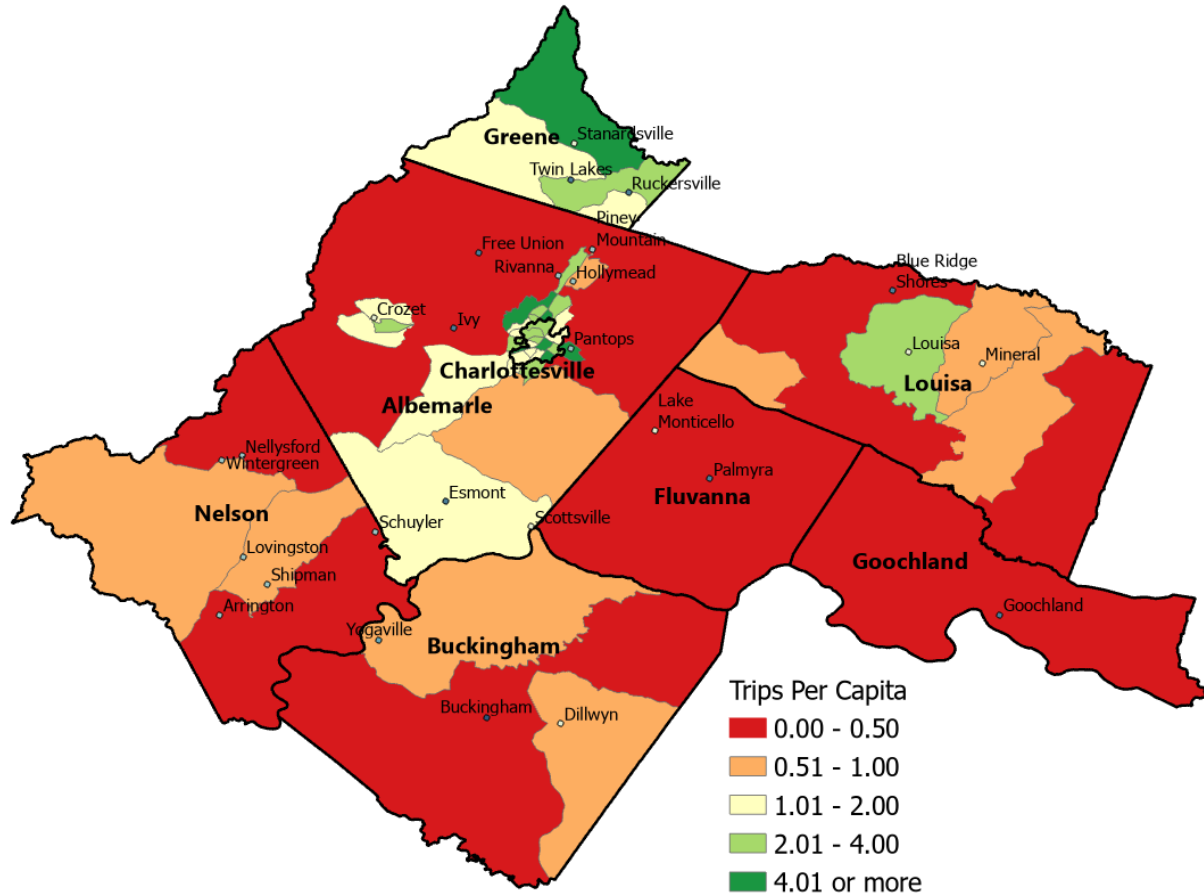


Figure 3.8 Total Trips Per Capita, FY 2023

Many rural areas are still shown to provide fewer than 0.50 trips per capita, and most provide fewer than 1.0 trip per capita. Greene County and part of Louisa County have the most per capita trips within the rural areas. Total trips were also divided by the population aged 65 or older or 18-64 with a disability (Figure 3.9) and the population in poverty (Figure 3.10). The results are similar to what was found in the previous maps.

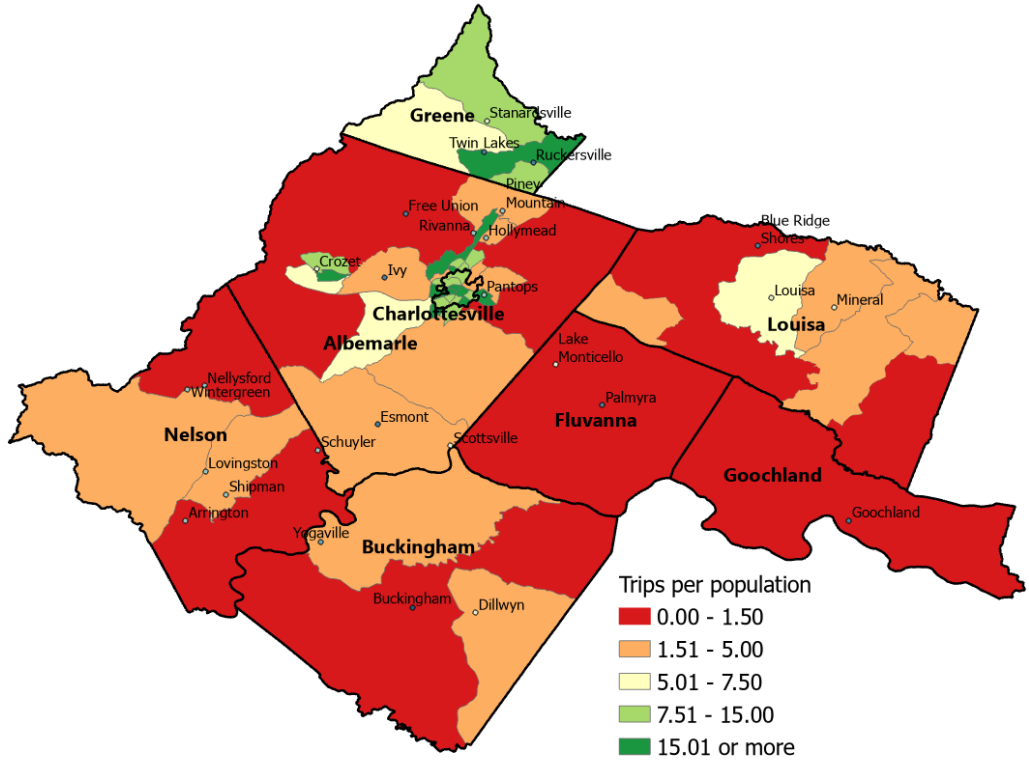


Figure 3.9 Total Trips Per Population Aged 65 or Older or 18-64 With a Disability

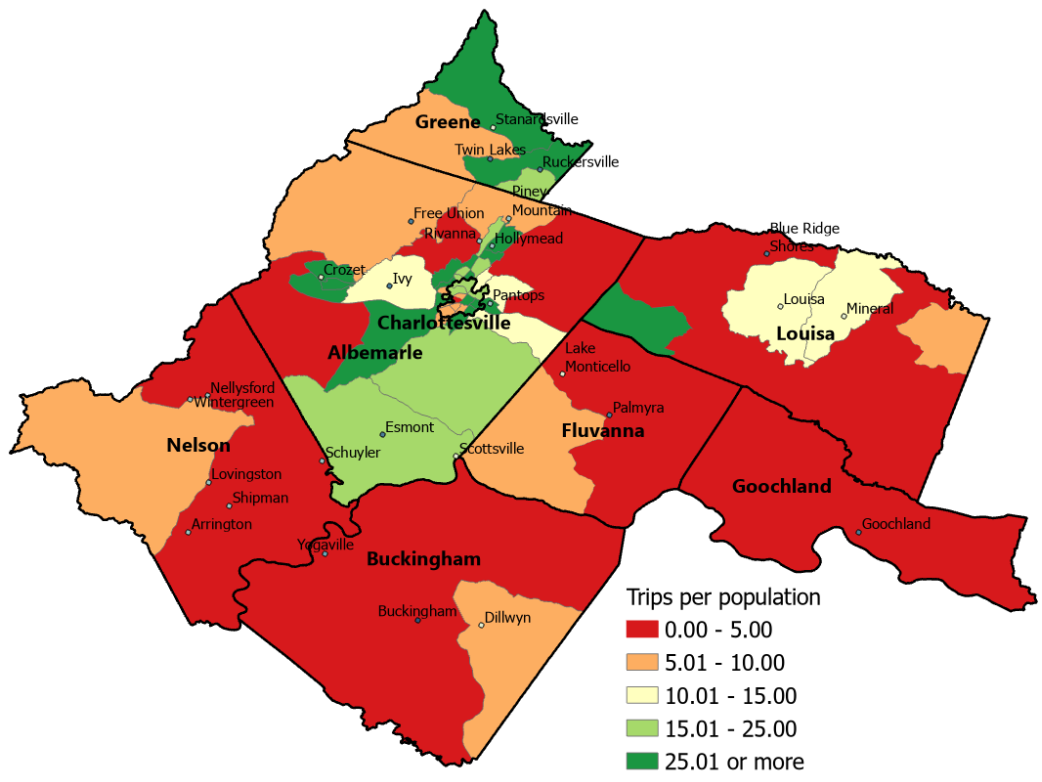


Figure 3.10 Total Trips Per Population in Poverty

3.4 Other Operating Statistics

Vehicle revenue miles (VRM) and vehicle revenue hours (VRH) are measures of the quantity of service supplied. Figures 3.11 and 3.12 show trends in VRM and VRH since 2021.

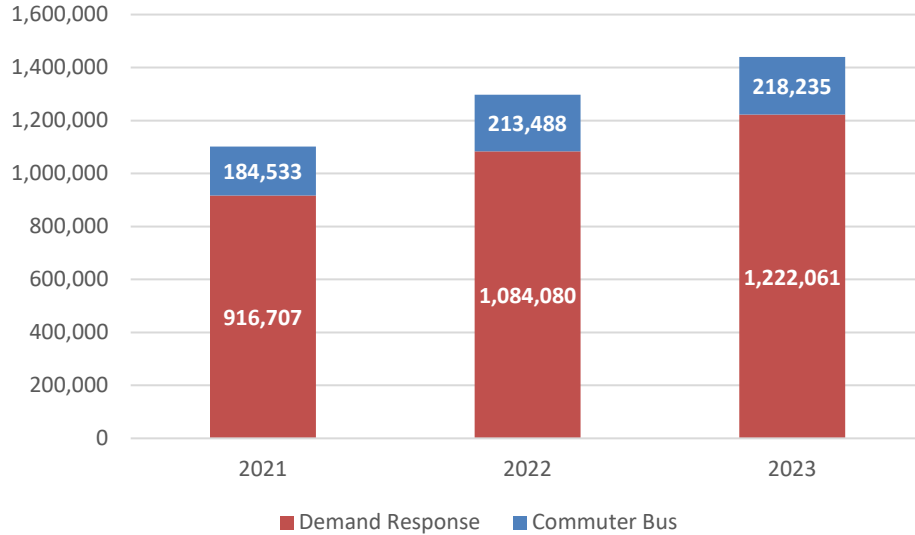


Figure 3.11 Vehicle Revenue Miles, FY 2021-23

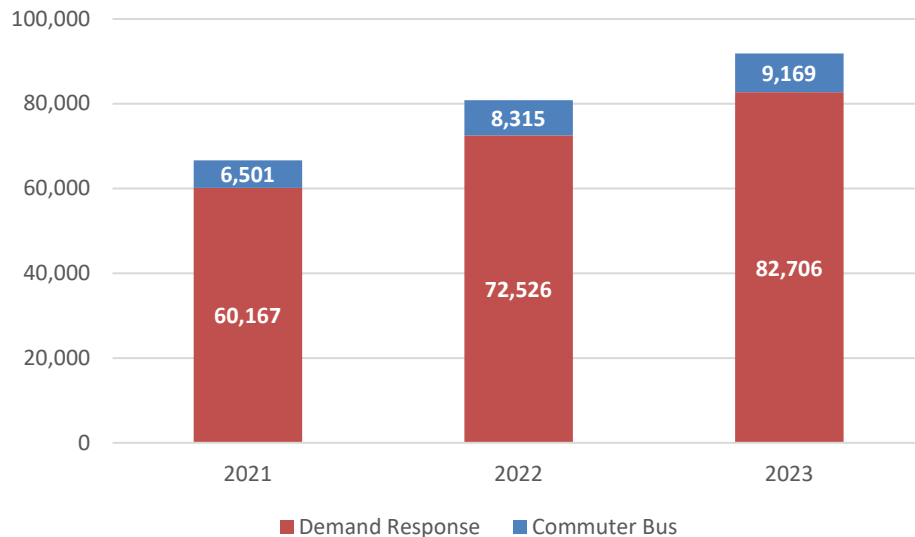


Figure 3.12 Vehicle Revenue Hours, FY 2021-23

VRM and VRH cannot be shown by census tracts, but they can be shown at the county level. Table 3.9 provides demand-response VRM and VRH data by county, along with trips and passenger miles. Data are also provided for the city of Charlottesville, and Albemarle County is divided into urban and rural areas. Services for each area include passenger trips that either originated or ended there. For example, the services for Greene County include passenger trips that either began or ended in Greene County. If a trip began in one county and ended in another, it would count for both counties. Therefore, the sum of each column in Table 3.9 equals more than the total service provided by Jaunt.

Table 3.9 Demand-Response Operating Data by County, FY 2023

	Vehicle Revenue Miles	Vehicle Revenue Hours	Unlinked Passenger Trips	Passenger Miles
Urban Albemarle County	594,560	44,815	101,704	749,967
City of Charlottesville	461,090	36,609	86,882	598,565
Greene County	222,353	13,312	28,887	315,272
Louisa County	234,731	10,612	17,677	252,960
Rural Albemarle County	202,966	10,287	20,359	350,474
Nelson County	31,847	1,243	3,462	91,325
Fluvanna County	33,150	1,452	3,493	84,769

Within rural areas, VRM and VRH are distributed somewhat evenly among Greene, Louisa, and rural Albemarle counties, with VRM a bit higher in Louisa County and VRH higher in Greene County. Much less service is provided in the other rural areas. These data can be used to calculate trips per VRM and trips per VRH, measures of operating efficiency, as shown in Table 3.10.

Table 3.10 Demand-Response Trips Per Vehicle Revenue Mile and Vehicle Revenue Hour, FY 2023

	Trips per Vehicle Revenue Mile	Trips per Vehicle Revenue Hour
Urban Albemarle County	0.17	2.27
City of Charlottesville	0.19	2.37
Greene County	0.13	2.17
Louisa County	0.08	1.67
Rural Albemarle County	0.10	1.98
Nelson County	0.11	2.79
Fluvanna County	0.11	2.40

Transit services in urban areas tend to be more efficient because of more concentrated demand and shorter trip distances. Therefore, it is not surprising that trips per vehicle mile or hour are higher in these areas. In Nelson and Fluvanna counties, trips per VRM is lower than the urban areas, but trips per VRH is somewhat higher, which could be due to longer trip distances at higher speeds

Per capita measures at the county level are shown in Table 3.11. Within the rural areas, per capita VRM, VRH, and trips are the highest in Greene County and very low in Nelson and Fluvanna counties. This does not include the commuter bus trips, which would increase the amount of service in Buckingham, Nelson, and Albemarle counties.

Table 3.11 Demand-Response Per Capita Service, by County, FY 2023

	Per Capita Vehicle Revenue Miles	Per Capita Vehicle Revenue Hours	Per Capita Trips
Albemarle County	0.49	7.10	1.09
City of Charlottesville	0.79	9.90	1.87
Greene County	0.65	10.82	1.41
Louisa County	0.28	6.24	0.47
Nelson County	0.08	2.16	0.23
Fluvanna County	0.05	1.22	0.13

4. SERVICE GAPS

Current service levels need to be compared to service goals or targets and mobility needs in the regions to identify service gaps. This section examines service gaps by comparing Jaunt’s service levels to those of peers, gathering input from stakeholders, identifying service targets, and comparing current levels to those targets.

4.1 Desired Levels of Service

4.1.1 Service Span

The Transit Capacity and Quality of Service Manual (TCQSM) (Kittelsohn & Associates et al., 2013) describes service span as one of the key measures of quality of service for demand-response transit. It is one of the measures of service availability, along with geographic coverage and advance reservation requirements. The TCQSM describes the quality of service provided by demand-response systems based on the number of days per week and hours per day that service is provided, as shown in Tables 4.1 and 4.2.

Table 4.1 TCQSM Description of Quality of Service for Demand-Response Transit Based on Days of Service

Days of Service	Passenger Perspective	Transit Agency Perspective
7 days/week	<ul style="list-style-type: none"> • Allows DRT trips every day of the week including the weekend • Increases access to employment and education any day of the week • Permits trips on weekend days that are more likely “life-fulfilling” (e.g., trips for social, recreational, religious purposes) 	<ul style="list-style-type: none"> • Provides transit service every day of the week • Ensures community residents have access to trips for “life-fulfilling” purposes (as opposed to life-sustaining purposes) • Requires more operating funds to provide weekend service in addition to weekday service • Requires a larger driver work force to cover 7-day service span • Increases vehicle maintenance needs and impacts maintenance scheduling • May need to consider strategies to reduce payroll hours, e.g., by increasing part-time work assignments or providing weekend service on an on call basis (only for trips reserved in advance) or through a taxi-voucher program or volunteer drivers • May increase risk of greater driver absenteeism on weekend days • May reduce productivity (passenger trips per hour) during lower demand period on weekend days

Table 4.1 (continued)

Days of Service	Passenger Perspective	Transit Agency Perspective
6 days/week	<ul style="list-style-type: none"> • Allows DRT trips every day of the traditional work week and at least one weekend day • Increases access to employment and education opportunities beyond the traditional work week to include at least one weekend day • Increases access to medical services available six days per week (e.g., dialysis treatment) • Allows for trips on a weekend day that are more likely “life-fulfilling” 	<ul style="list-style-type: none"> • Increases transit service to the community beyond weekdays by adding DRT on either Saturday or Sunday, depending on agency goals/objectives and community preferences • Requires more operating funds to provide service one weekend day in addition to weekday service • Requires a larger driver work force to cover 6-day service span • Increases vehicle maintenance needs and impacts maintenance scheduling • May increase risk of greater driver absenteeism on the one weekend day • May reduce productivity during lower demand periods on the weekend day
5 days/week	<ul style="list-style-type: none"> • Allows DRT trips every day of the traditional work week • Permits trips by DRT for full-time, weekday employment and education if combined with appropriate hours per day • Provides access to medical services five days per week 	<ul style="list-style-type: none"> • Provides basic weekday transit service for a community • Requires operating funds for service five days per week • Provides the minimum service that may attract choice riders, depending on hours per day of service
Less than 5 days/week	<ul style="list-style-type: none"> • Provides weekly access by DRT to essential shopping, personal business, medical appointments, and social or government services • Allows trips for part-time employment and education if combined with appropriate hours per day. • Requires pre-planning transit trips for the specific weekdays when service is available • Limits access to some medical services (e.g., dialysis, some medical clinics) 	<ul style="list-style-type: none"> • Provides transit services for transit-dependent riders such as seniors and people with disabilities • Provides options for choice of days in consideration of trip needs for transit-dependent population in the community, e.g., if community has intercity bus service, transit service might be provided on the days allowing transfer connections • Requires less operating funds for service operated fewer than five days per week
Less than weekly	<ul style="list-style-type: none"> • Allows for “lifeline” trips such as grocery shopping, banking, one-time medical appointments, etc. if planned in advance • Limits the opportunity to use DRT for purposes other than lifeline trips 	<ul style="list-style-type: none"> • Serves only transit-dependent riders • Minimizes the cost of providing transit services and may be the only transit service affordable in a large rural service area with scattered small communities • Requires public information/rider guide material to be clear and specific in explaining the limited service

Source: Kittelson & Associates et al. (2013)

Table 4.2 TCQSM Description of Quality of Service for Demand-Response Transit Based on Hours of Service

Hours of Service	Passenger Perspective	Transit Agency Perspective
≥16.0 hours/day	<ul style="list-style-type: none"> Allows use of DRT for all trip purposes during daytime hours and until midevening Provides DRT for full-time employment or education, including hours extending until mid-evening 	<ul style="list-style-type: none"> Provides robust DRT service hours for a community Requires a commitment of operating funds to sustain this high level of service availability May increase need to consider strategies to reduce payroll hours, e.g., by increasing part-time work assignments or by providing evening service on an on-call basis (only for trips reserved in advance) or through a taxi-voucher program or volunteer drivers
12.0–15.9 hours/day	<ul style="list-style-type: none"> Allows for DRT use during typical business hours including early evening hours Permits DRT service for many full-time workers and for full-time and part-time students Enables DRT trips for medical appointments and health services including some extended hours 	<ul style="list-style-type: none"> Provides good DRT service hours for most communities. Allows for transit service to become an integral community service, if matched with service at least five days/week.
9.0–11.9 hours/day	<ul style="list-style-type: none"> Allows DRT trips during daytime business hours Permits DRT trips for some users with full-time jobs, depending on trip length/travel time from home to work location Allows transit use for most medical appointments and health services 	<ul style="list-style-type: none"> Provides basic transit service for a community, if funding does not allow at least 12 hours of service/day
5.0–8.9 hours/day	<ul style="list-style-type: none"> Allows opportunity for DRT trips for essential shopping, personal business, medical appointments, human or government services, and some part-time jobs and educational programs Requires pre-planning transit trips to ensure both “going” and return trips are scheduled within service hours 	<ul style="list-style-type: none"> Provides limited transit service for a community, acceptable if this is the most service a transit agency can provide with available funding
<5.0 hours/day	<ul style="list-style-type: none"> Limits the opportunity to use transit for any purpose other than lifeline trips such as grocery shopping, banking, or medical appointments Requires pre-planning transit trips to ensure both “going” and return trips are scheduled within limited hours 	<ul style="list-style-type: none"> Serves only transit-dependent riders Minimizes the cost of providing transit services and may be the only transit service affordable in a large rural service area with scattered small communities

Source: Kittelson & Associates et al. (2013)

As described in Section 3.1, many of the areas served by Jaunt have rural demand-response service five days per week. This provides basic weekday service for the communities, and it is the minimum level of service that may attract choice riders. It can potentially serve the traditional work week, depending on the hours of service. Providing service six days per week increases access to many activities and allows for more “life-fulfilling” types of trips. Some services, however, are just two or three days per week, such as the Fluvanna Circulator, which is three days per week, and the Lovingston Circulator in Nelson County, which is two days per week. There is also a service in the Esmont-Scottsville area of Albemarle County that runs two days per week. Service that is less than five days per week can be characterized as a lifeline service for transportation-disadvantaged individuals that provides basic access to essential services and activities. However, it requires more pre-planning, and the level of access is limited.

Service five days per week is typical for rural transit service across the United States. Mattson (2017b) gathered service span data for rural transit agencies across the United States and found that five days per week was most common. A minority of agencies provided some weekend service, and few provided service less than five days per week. This is also consistent with more recent findings from Mattson et al. (2023) of rural transit service in the Upper Midwest and Great Plains region. It would be desirable for Jaunt to extend service to five days per week in areas that do not currently have that level of service.

While Jaunt provides service five days per week in many areas, the hours of service are limited. The Albemarle Demand-Response is available for just four hours per day. The Esmont-Scottsville Circulator is available for 6.25 hours, the Fluvanna Circulator is available 7.5 hours, and the Crozet and Lovingston Circulators are available for eight hours. Higher levels of service are provided in Greene and Louisa County, which have 10 and 11 hours of service, respectively.

Services that are available less than five hours per day, such as the Albemarle Demand-Response, provide limited opportunities for lifeline trips that require pre-planning to ensure the entire trip can be made within the limited hours. Services that are available for at least five hours but less than nine hours are limited transit services that may be acceptable if funds do not allow for additional hours. This should be the minimum acceptable level of service for most communities. It allows access for essential services and activities, though it may not serve full-time employment trips, and it still requires some advance planning. Much of Jaunt's service falls within this category. Service that is available at least nine hours per day but less than 12 hours is a basic transit service. This is the level of service in Greene and Louisa counties. This type of service can serve many full-time jobs and allow for trips throughout daytime business hours. It is still limiting or unavailable for those who work early or late hours, but it may be acceptable if funds do not allow for additional hours. Once service reaches 12 or more hours per day, transit can become an integral community service, serving a wider range of people and types of trips. Jaunt provides no rural services that reach this level.

Mattson (2017b) found that most rural transit agencies provide about 8–12 hours of service per day. In a study of rural transit in six states, Mattson et al. (2023) similarly found that agencies most commonly provided at least nine hours but less than 12 hours, though five to 8.9 hours was not uncommon, and a few agencies provided 12 or more hours. Service of at least nine hours per day is desirable for a basic transit service, and 12 or more hours per day is a characteristic of a good service. Less than nine hours per day may be acceptable in some areas with low demand where the goal is to provide a lifeline service for transit-dependent riders.

4.1.2 Peer Analysis of Per Capita Ridership

The per capita ridership data presented in Section 3.3 need to be compared to some benchmarks or targets to show the existing levels of ridership in comparison with desired levels. This can be accomplished first by conducting peer analysis.

Previous research by Mattson et al. (2020) compared per capita ridership data for rural transit in North Dakota to benchmarks based on national data. Based on rural transit data across the country reported to the National Transit Database (NTD), the study roughly calculated an average of 2.1 trips per capita in rural areas across the United States (Table 4.3). This is a rough estimate because it depends on how the rural population is defined and measured. They also calculated 8.2 trips per senior or disabled population and 10.2 trips per low-income population, defined as people living in poverty. This was based on 2018 data reported to the NTD by rural agencies.

Table 4.3 National Rural Transit Per Capita Ridership Averages

	National Average
Trips per capita	2.1
Trips per populated aged 65 or older or 18–64 with a disability	8.2
Trips per population living in poverty	10.2

Source: Mattson et al. (2020)

More recently, Mattson et al. (2023) calculated rural per capita ridership across the six states of North Dakota, South Dakota, Montana, Wyoming, Nebraska, and Minnesota. The study estimated statewide per capita ridership as well as per capita ridership for individual transit systems or regions. The statewide annual averages, based on 2017–2021 data, are shown in Table 4.4. Estimates are based on rural transit ridership reported to the NTD and the statewide rural population. The estimates for Wyoming exclude two high-ridership systems that are classified as rural but have unique operating characteristics [the Southern Teton Area Rapid Transit (START) and the University of Wyoming (UW)].

Table 4.4 Rural Per Capita Ridership in the Upper Midwest and Great Plains Region, 2017-2021 Average

State	Trips per capita	Trips per population aged 65 or older or 18–64 with a disability	Trips per population living in poverty
North Dakota	1.2	6.3	12.4
South Dakota	1.9	9.4	14.2
Montana	1.6	6.9	12.3
Wyoming (exc. START and UW)	0.7	3.8	6.8
Nebraska	0.6	3.1	6.9
Minnesota	1.6	7.5	17.8

Source: Mattson et al. (2023)

The per capita ridership estimates for these states are below the national averages previously estimated, ranging from 0.6 to 1.9. These estimates may be more accurate, however, because the rural population data are more accurately determined. The analysis showed that there is significant variation in per capita ridership within each state. For example, a multi-county region in South Dakota had nearly seven trips per capita because of a high-performing system serving this area. In North Dakota, the highest performing rural system provided 3.1 trips per capita. On the other hand, about half of the systems across the region provided less than one trip per capita. The 25th percentile for trips per capita was 0.5, the median was 1.0, the 75th percentile was 1.9, and the 90th percentile was 3.4. In Minnesota, which has a more consistent level of ridership across the state and may also be more similar to Virginia than the other states, the median trips per capita was 1.8.

Additional peer analysis was conducted by analyzing the rural transit systems in North Carolina. North Carolina was chosen for comparison because it has a fairly robust rural public transit program, with some of the highest levels of ridership and service across the country. In 2022, there were 57 rural transit agencies in North Carolina reported in the NTD, and they provided 4.2 million trips. In the three years prior to the Covid pandemic (2017–2019), the state averaged 5.9 million trips provided by the rural systems.

The analysis of the North Carolina systems started with the 57 rural agencies reported in the NTD. Systems were removed if they served any counties classified as urban. Among the 100 counties in North Carolina, 30 are defined as urban by the NC Department of Health and Human Services. Six of the rural

transit systems serve at least one county classified as urban, so they were removed from the analysis. AppalCART in Boone, NC, was also removed from the analysis because it is a clear outlier, providing an average of 1.5 million trips from 2017–2019. The data for two systems were combined because they both serve the same county. The other agencies all have distinct, non-overlapping service areas. Most serve an individual county, and a few serve multiple counties.

The remaining 49 systems provided an average of 2.9 million trips from 2017–2022, and 3.4 million trips in the three years prior to the pandemic (2017–2019). Service area population and demographics were obtained for these transit agencies in North Carolina to calculate per capita trips, trips per population aged 65 or older or 18–64 with a disability, and trips per population living in poverty.

The results in Table 4.5 show that the median rural agency provided 1.3 trips per capita, 4.3 trips per population aged 65 or older or 18–64 with a disability, and 8.0 trips per population in poverty. This is based on average ridership data for 2017–2022. Note that because of the pandemic, ridership was higher in 2017–2019, so these numbers would be higher if only those years were considered.

Table 4.5 Rural Per Capita Ridership in North Carolina, 2017–2022 Average

	Trips per capita	Trips per population aged 65 or older or 18–64 with a disability	Trips per population living in poverty
10th percentile	0.6	2.0	4.1
25th percentile	0.9	3.2	5.5
Median	1.3	4.3	8.0
75th percentile	1.8	5.2	10.3
90th percentile	2.5	8.0	19.5

The results for North Carolina are somewhat similar to those found for other states, as shown in Table 4.4, although some states such as Minnesota and South Dakota provided more trips on a per capita basis, especially when examining just the transportation disadvantaged systems. The 90th percentile represents the higher performing systems. For North Carolina, the 90th percentile system provided 2.5 trips per capita, 8.0 trips per population of older adults or people with a disability, and 19.5 trips per population in poverty.

4.1.3 Mobility Gap

The peer analysis provides insight on the amount of service provided by similar transit agencies. However, it does not show the actual need for service. Even in areas with quality transit services, there are often unmet needs. One method for determining the need for service is to estimate the mobility gap. The mobility gap is the number of trips not taken because of a lack of access to a vehicle. As described in Transit Cooperative Research Program (TCRP) Report 161, the mobility gap can be estimated as the difference in trip rates between households with no vehicles and those with one vehicle. The needed number of trips could then be estimated by multiplying this mobility gap times the number of households with no vehicles (Vanasse Hangen Brustlin et al., 2013).

Estimates for the mobility gap can be found by examining data from the National Household Travel Survey (NHTS). Vanasse Hangen Brustlin et al. (2013) cited 2009 NHTS data showing that in the South Atlantic region of the country, which includes Virginia, the gap between households with one vehicle and those with no vehicle was 1.3 trips per day. Mattson & Molina (2022) studied individual trip rate data from the 2017 NHTS and found that in rural areas and small towns, people who can drive take about 1.2–1.5 more trips per day than those who cannot. That difference in trip rates increases with age.

Figure 4.1 shows the number of occupied households across the area with no vehicles. If we assume a mobility gap of 1.3 trips per day, this means that households with no vehicles need an additional 1.3 trips per day to have mobility equal to households with one vehicle. Therefore, the number of needed trips per day is calculated as the number of households with no vehicles multiplied by 1.3. To calculate the number of trips needed per year, this is multiplied by 300, as recommended by Vanasse Hangen Brustlin et al. (2013), because trip needs are expected to be lower on the weekend; however, there is still a need for some weekend trips. This results in the total number of needed trips based on the mobility gap estimation, as shown in Figure 4.2. Figure 4.3 provides these results on a per capita basis.

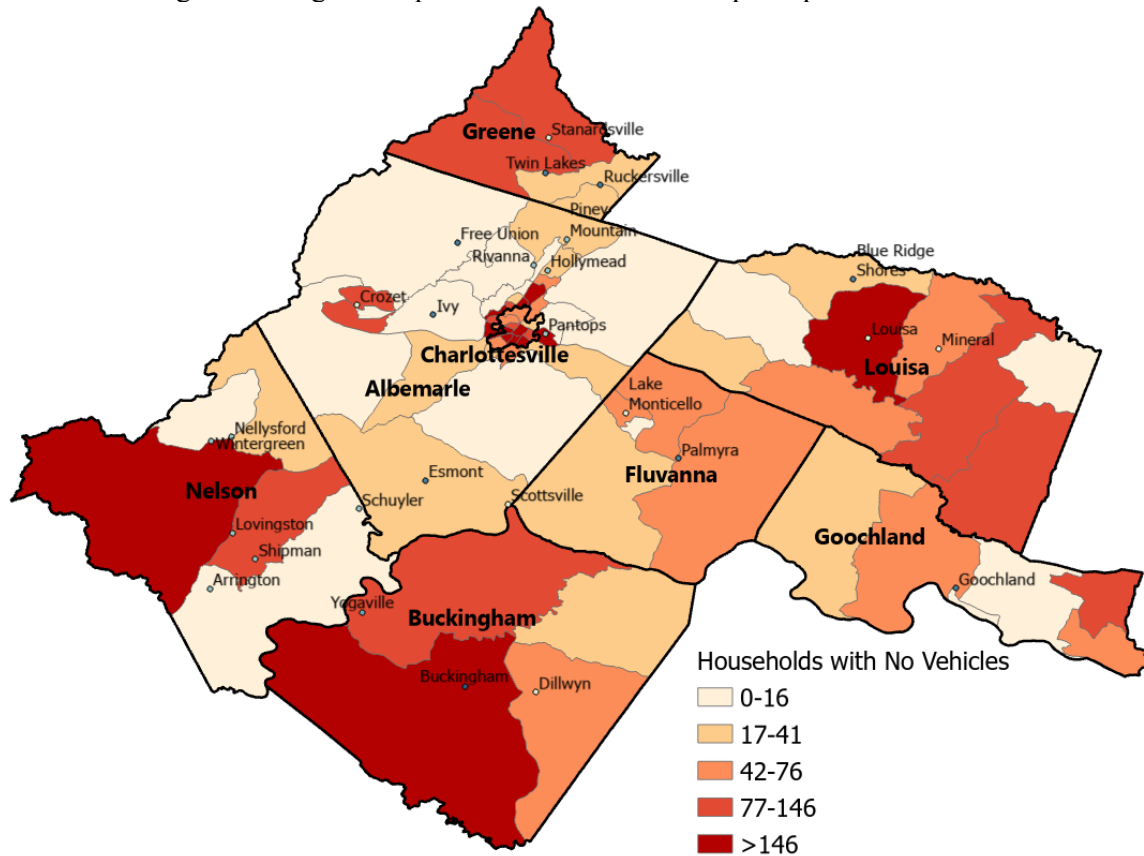


Figure 4.1 Number of Households with No Vehicles

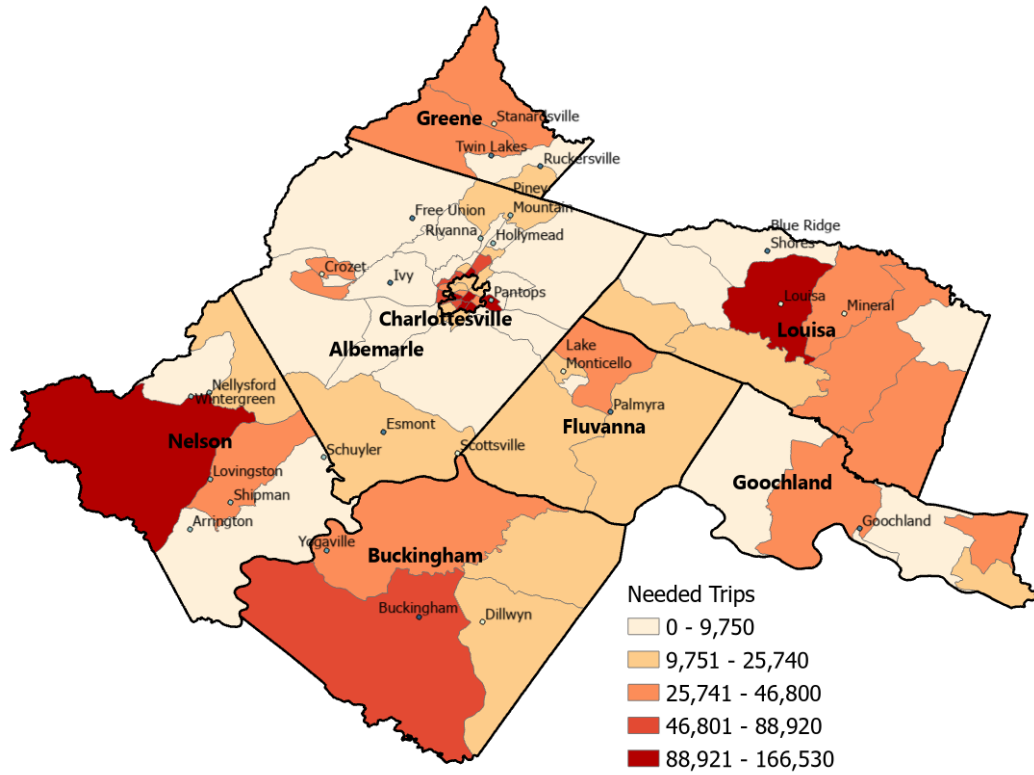


Figure 4.2 Needed Trips Based on Mobility Gap Estimation

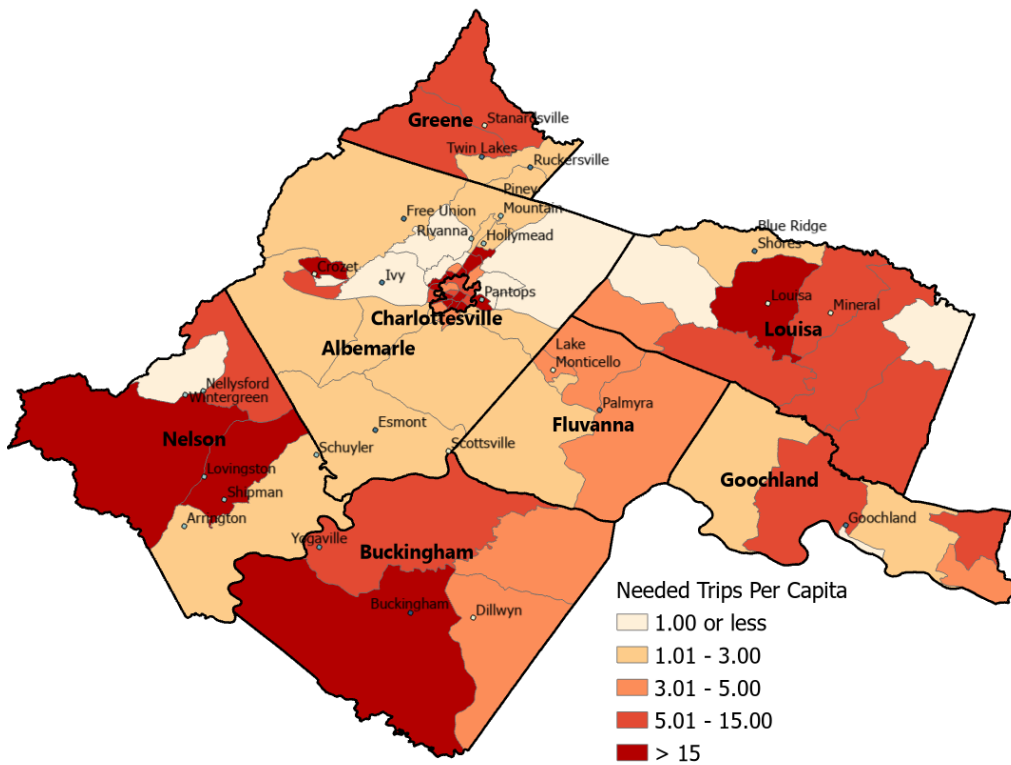


Figure 4.3 Needed Trips Per Capita Based on Mobility Gap Estimation

The results in 4.3 suggest that the needed trips per capita are greater than 1.0 in most areas, greater than 3.0 in many areas, and even higher than 15 in some places. This is far greater than the number of transit trips being provided, but it is unrealistic to expect that public transit would entirely fill this gap. Some of this gap could be met in other ways, such as family or friends providing rides, and people in zero-car households may also have less demand for making trips. Vanasse Hangen Brustlin et al. (2013) recommend that agencies using the mobility gap method may choose to establish a target or goal for the proportion of the gap to be satisfied by public transit.

The mobility gap analysis shows the need for services is highest in parts of Nelson, Buckingham, and Louisa counties, where the number of households without vehicles is the highest.

4.1.4 Demand Estimation

Other methods can also be used to estimate expected ridership for an area based on population, demographics, and other characteristics. TCRP Report 161 (Vanasse Hangen Brustlin et al., 2013) examined rural transit ridership data across the country and developed the following equation for estimating demand for general public, or non-program, passenger transportation in rural areas:

$$\text{Non-program Demand (trips per year)} = (2.20 \times \text{Population Age 60+}) + (5.21 \times \text{Mobility Limited Population age 18-64}) + (1.52 \times \text{Residents of Household Having No Vehicle})$$

This equation was developed based on older data from 2009, and while not perfect, it provides another reference for determining desired levels of service. In this equation, the mobility limited population is defined as people with a disability who identify as having difficulties with independent living. This method does not account for any program-related trips.

This equation was used to estimate demand for ridership in the Jaunt area. Results are shown in Figure 4.4. The estimated number of trips per year was divided by population to calculate estimated per capita ridership per year, as shown in Figure 4.5. These estimates are much lower than the calculated mobility gap and are closer to the actual level of service being provided. Some areas, however, such as Nelson County, have a higher level of estimated demand than the current ridership levels.

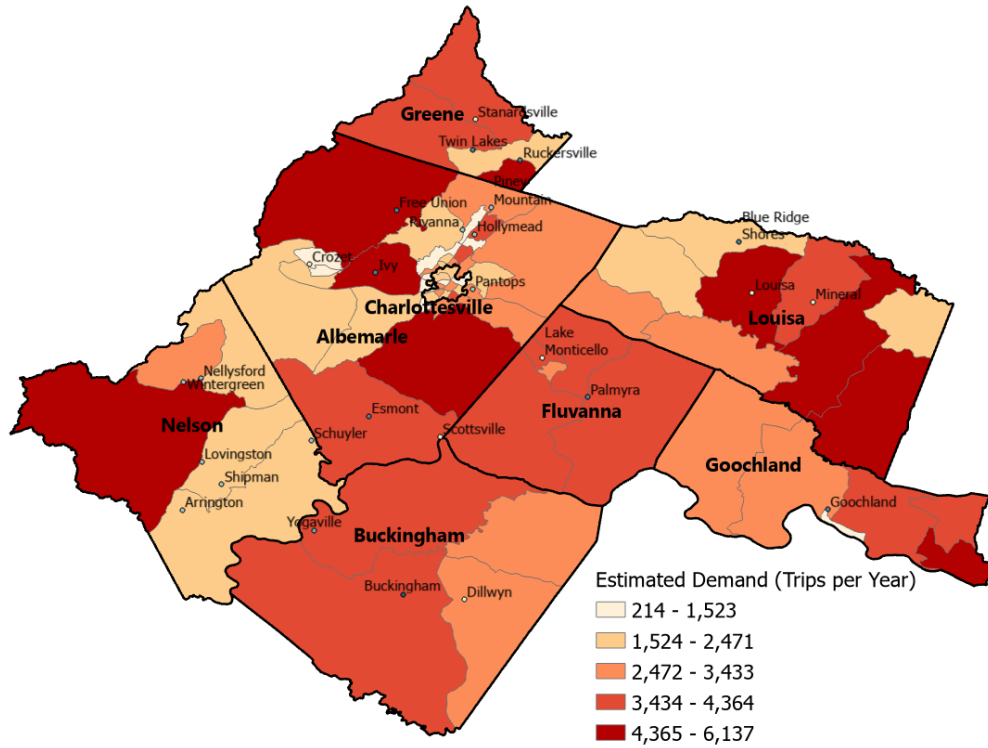


Figure 4.4 Estimated Trip Demand Based on TCRP Report 161 Method

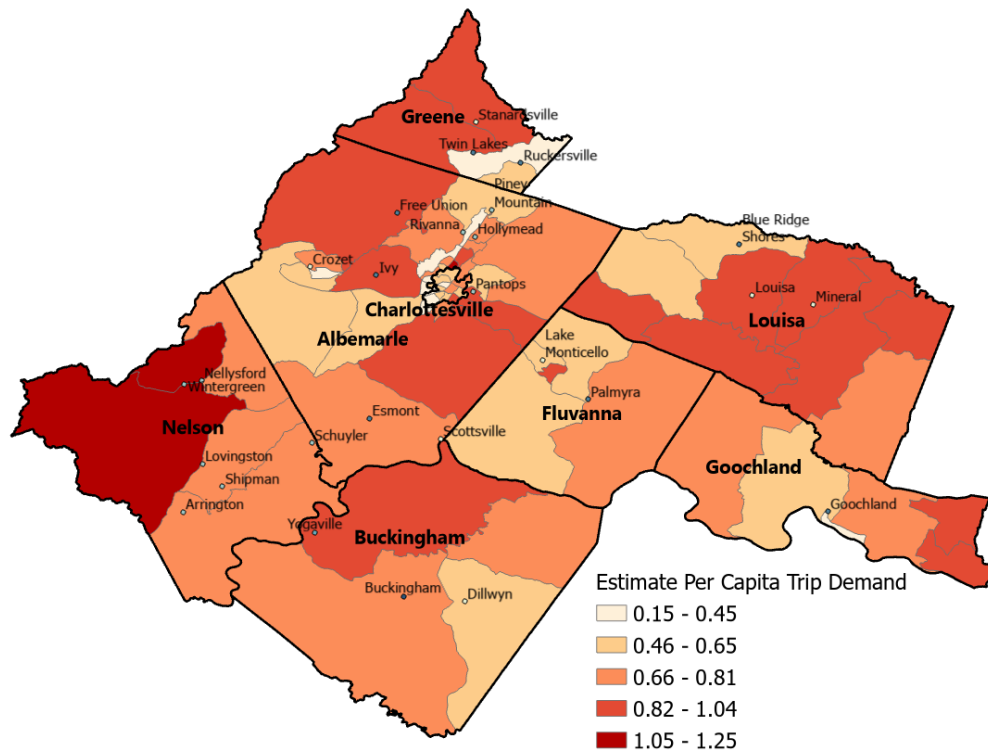


Figure 4.5 Estimated Per Capita Trip Demand Based on TCRP 161 Method

Mattson (2017a) also developed models of rural demand-response transit ridership based on demographics, but the study also considered other factors such as the span of service provided, fares, and other agency characteristics. These models provide another tool for estimating the expected level of ridership for the Jaunt service area.

Mattson (2017a) developed two models. The first was based on NTD and ACS data and predicts ridership based on total population, the percentage of population aged 65 or older, the percentage of population without a vehicle, and other basic characteristics such as region of the country and service area size. Figure 4.6 shows the predicted number of trips per year based on this model, and Figure 4.7 shows the predicted per capita ridership. The city of Charlottesville is excluded from the analysis because the models developed by Mattson (2017a) are intended only for rural areas.

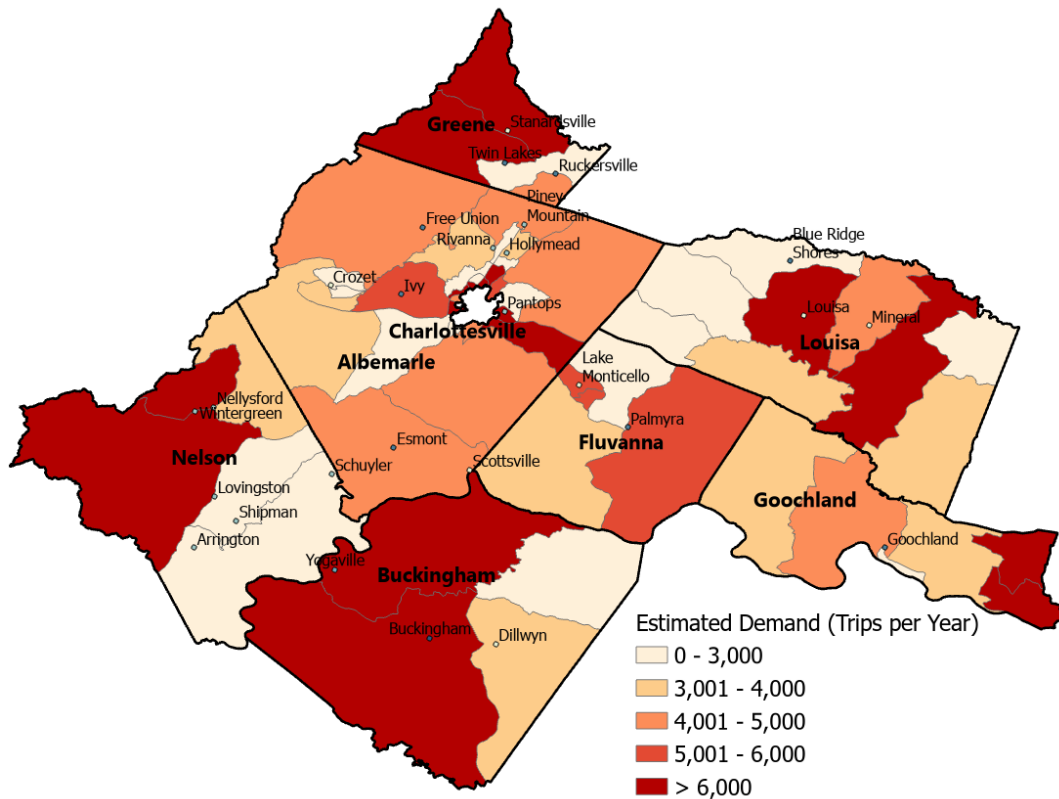


Figure 4.6 Estimated Trip Demand Based on Mattson (2017) Model #1

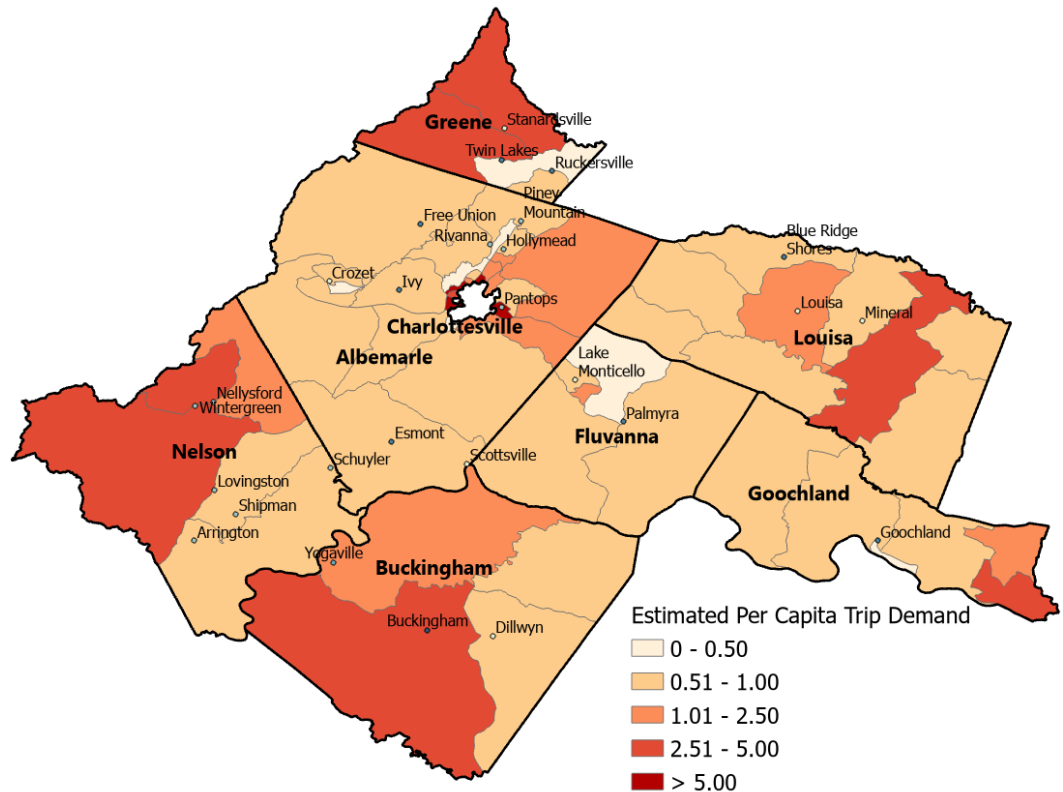


Figure 4.7 Estimated Per Capita Trip Demand Based on Mattson (2017) Model #1

The results from this model predict many areas with ridership less than 1.0 trip per capita, but some areas are estimated to have greater demand, including some areas in Nelson, Buckingham, Louisa, and Greene counties that have estimated per capita demand greater than 2.5 trips per year.

Mattson (2017a) developed a second model that accounts for the level of service provided by the transit agency. This model estimates ridership based on population as well as the number of days per week that service is provided, how far in advance rides must be reserved, and the fare level. Figure 4.8 shows the predicted level of ridership for the Jaunt area assuming that service is provided five days per week and rides must be reserved one day in advance. The results also assume that no fares are being charged. Figure 4.9 shows the estimated ridership on a per capita basis. The results all are within the range of 0.88 to 1.69 trips per capita. Some areas currently have ridership above this prediction, but many areas have lower levels of ridership.

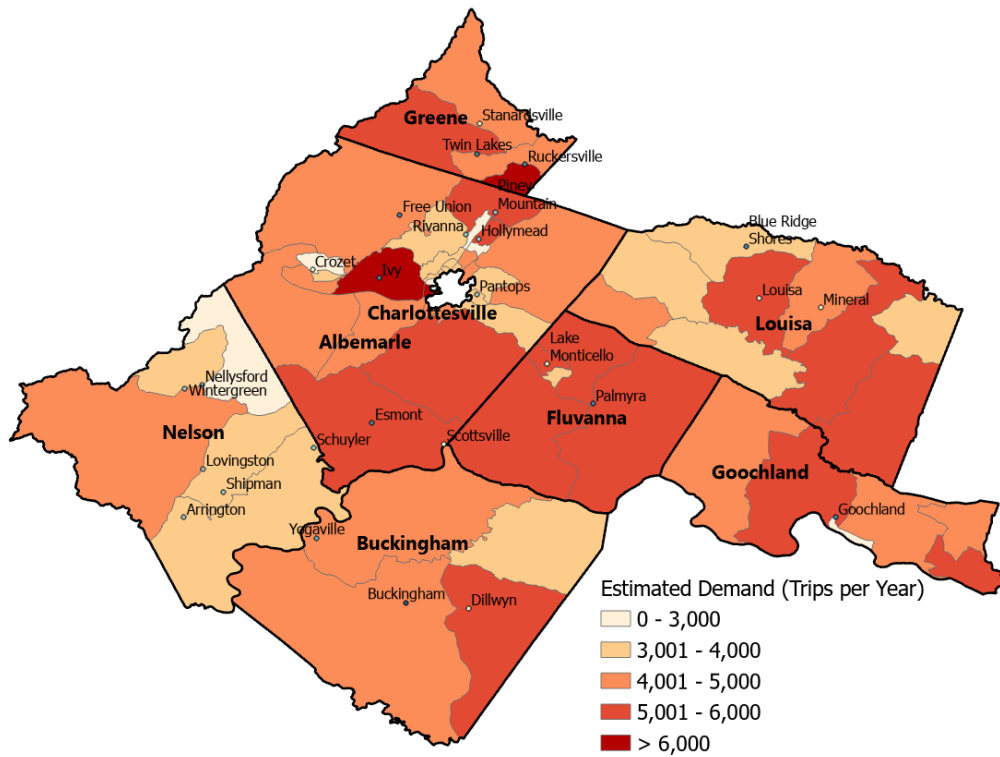


Figure 4.8 Estimated Trip Demand Based on Mattson (2017) Model #2 Assuming Service Five Days per Week with Reservations One Day in Advance

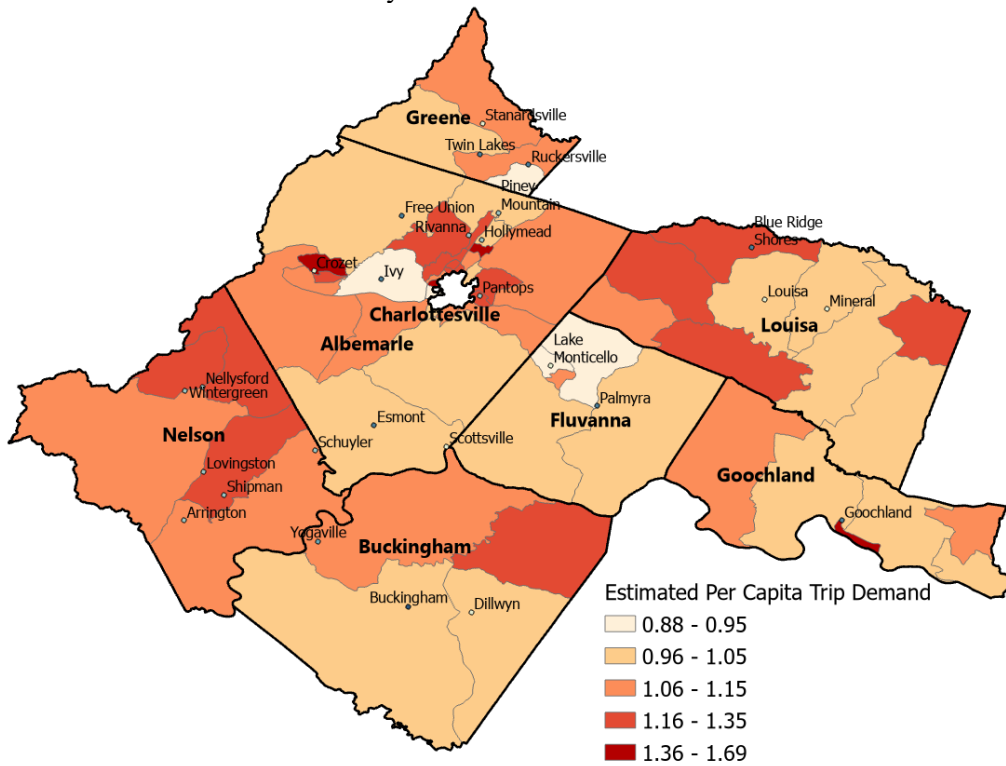


Figure 4.9 Estimated Per Capita Trip Demand Based on Mattson (2017) Model #2 Assuming Service Five Days per Week with Reservations One Day in Advance

This model could also be used to estimate the level of ridership if a higher level of service was provided. The results in Figure 4.10 show the estimated level of ridership if service was provided six or more days per week and riders could make same-day reservations. Figure 4.11 shows the per capita ridership estimates. These results demonstrate the increase in expected ridership if a higher level of service was provided. Per capita ridership is estimated to range from 2.43 to 4.64 trips per year. This could be interpreted as an estimate of potential demand if a high enough quality of service was provided.

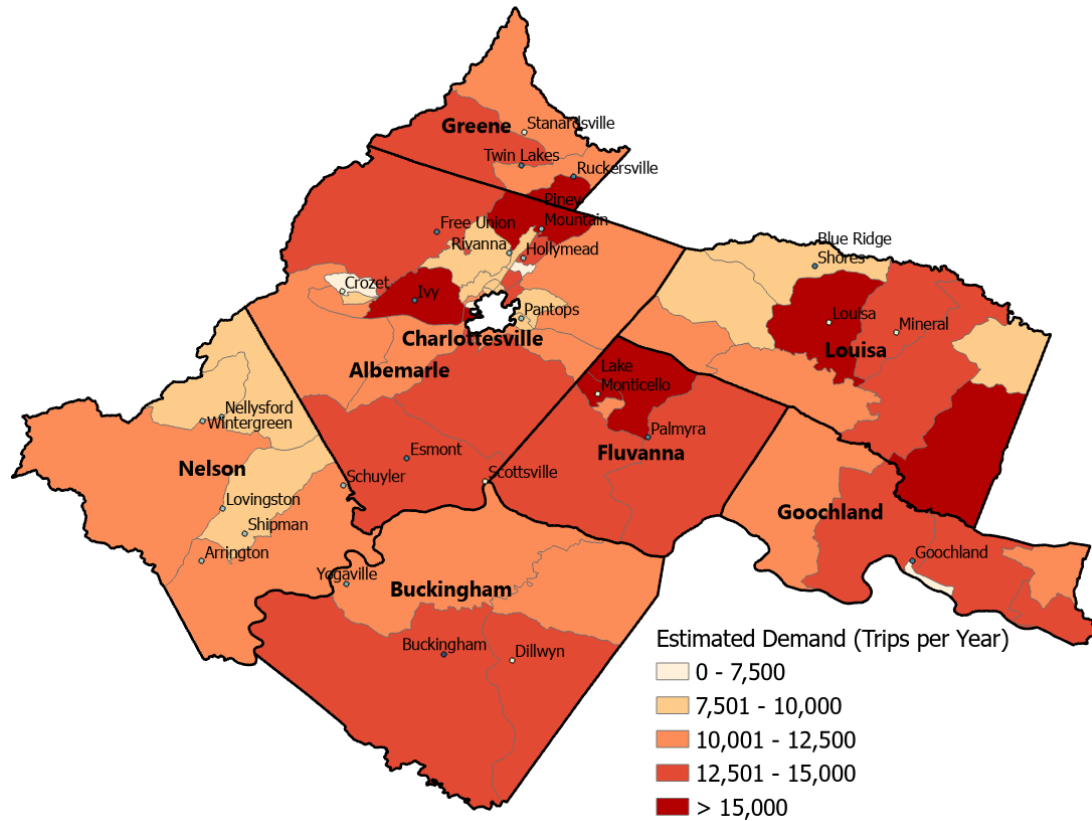


Figure 4.10 Estimated Trip Demand Based on Mattson (2017) Model #2 Assuming Service Six or More Days per Week with Same-Day Reservations

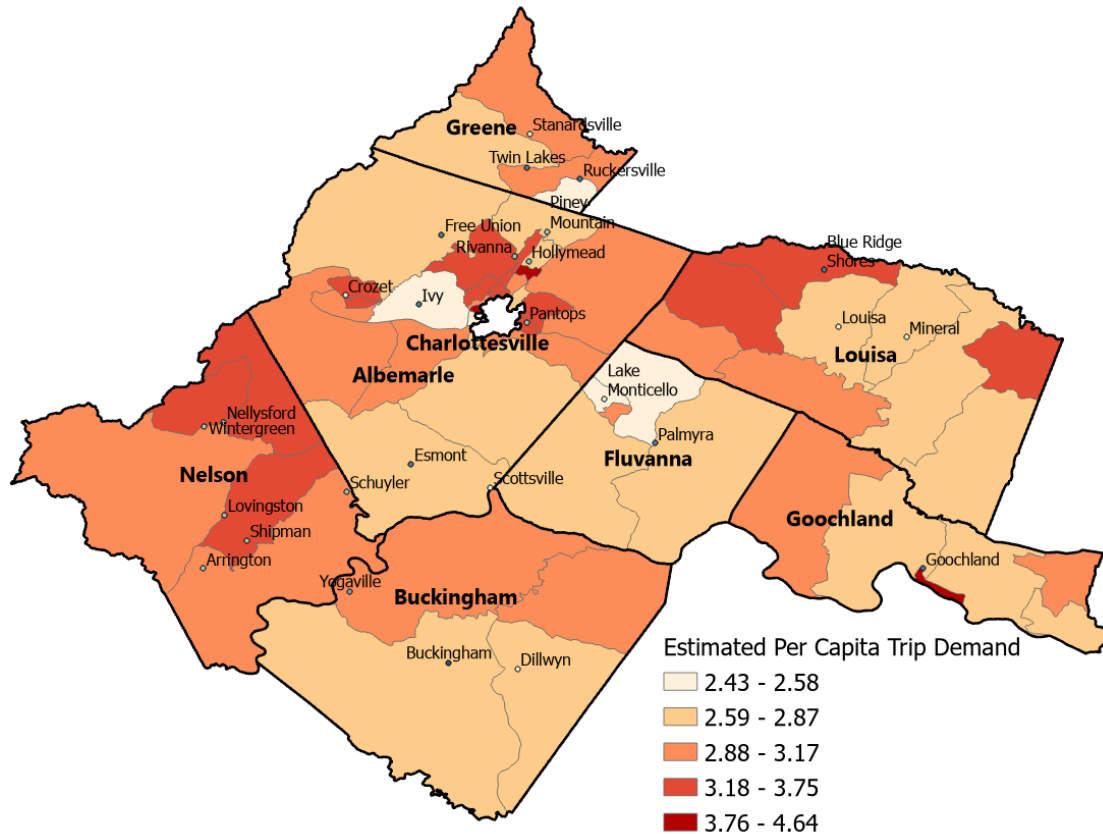


Figure 4.11 Estimated Per Capita Trip Demand Based on Mattson (2017) Model #2 Assuming Service Six of More Days per Week with Same-Day Reservations

4.2 Service Targets

Based on analysis from Section 4.1, this section identifies service targets, or goals for level of service and ridership. Three target levels for ridership were identified. The first is a baseline level of service to ensure basic needs are being met. The second target level would ensure that Jaunt’s service is on par with most peer agencies. The third target level would be on par with higher performing rural transit agencies and would meet estimated demand levels when a higher quality of service is provided.

These targets or goals are presented in Table 4.6. Because demand is determined by demographics rather than using overall per capita goals, the goals are expressed as a number of trips per person aged 65 or older or 18–64 with a disability and a number of trips per person living in poverty. To meet the first goal, for example, requires 4.0 trips for every person 65 or older or 18–64 with a disability and also at least 7.5 trips for every person living in poverty. Goals 2 and 3 have progressively higher ridership goals.

Table 4.6 Per Capita Ridership Targets

Goal	Trips per population aged 65 or older or 18–64 with a disability	Trips per population living in poverty
1 – Baseline for basic needs	4.0	7.5
2 – On par with most peer agencies	5.0	10.0
3 – Higher performing service	8.0	20.0

The target levels follow from the peer analysis in North Carolina. The goal 1 targets are a bit below the median levels observed in North Carolina and lower than the averages observed in the Upper Midwest states studied. Therefore, this is considered a level needed to meet basic needs. The goal 2 targets are above the median values observed for North Carolina but less than the 75th percentile. The goal 3 targets are close to the 90th percentile observed for North Carolina, representing higher performing systems.

4.3 Service Deficits

This section documents the difference between current service levels, described in Section 3, and the service targets identified in Section 4.2. Figures 4.12–4.13 show the number of additional trips needed in each census tract to meet the targets for goals 1 to 3, respectively. Greene County and parts of Albemarle and Louisa counties meet the first goal. Parts of these counties also meet the second goal, and part of Greene County meets the third goal. The largest first goal deficits are found in parts of Buckingham, Fluvanna, and Louisa counties. Significant second and third goal deficits are found throughout the area.

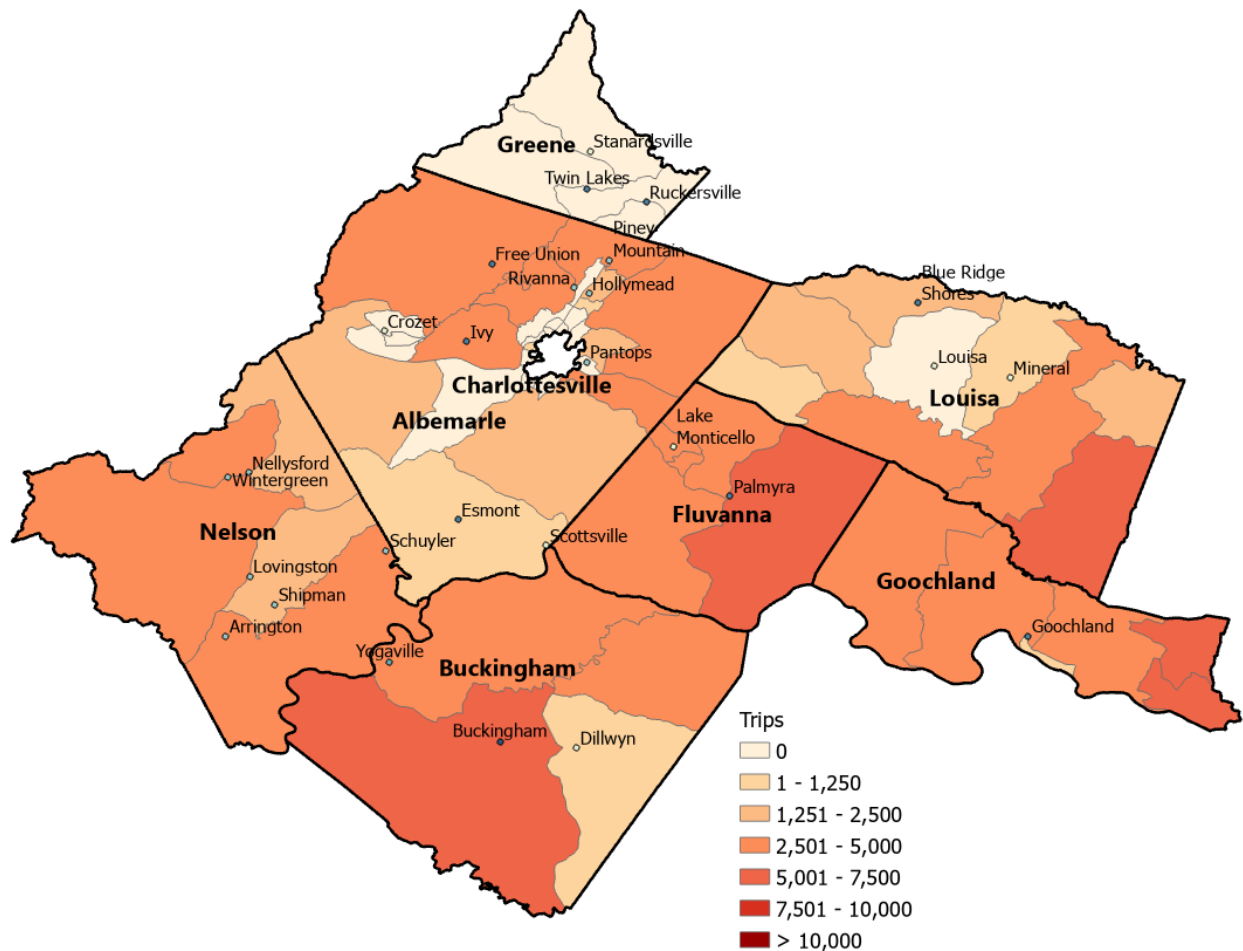


Figure 4.12 Trip Deficit for Goal 1

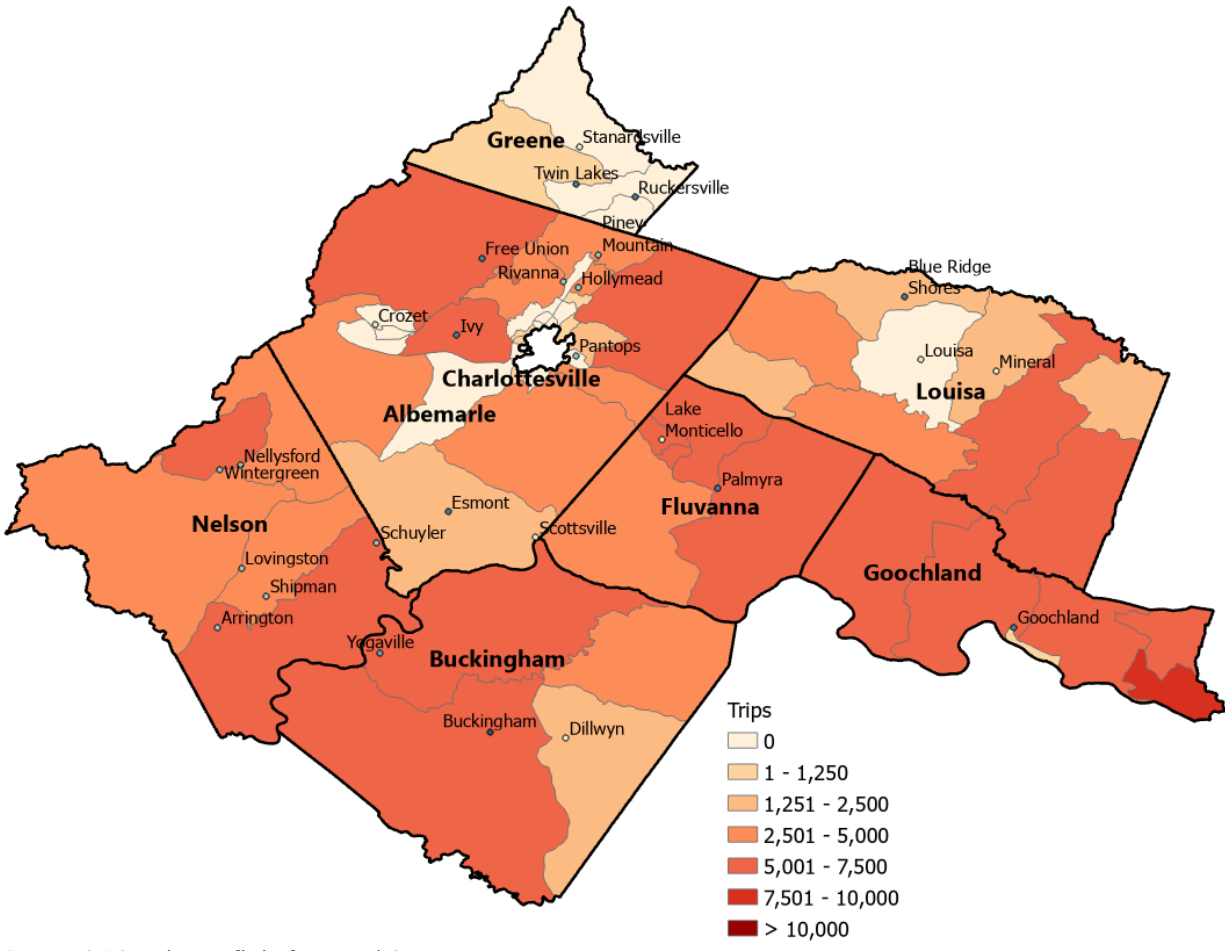


Figure 4.13 Trip Deficit for Goal 2

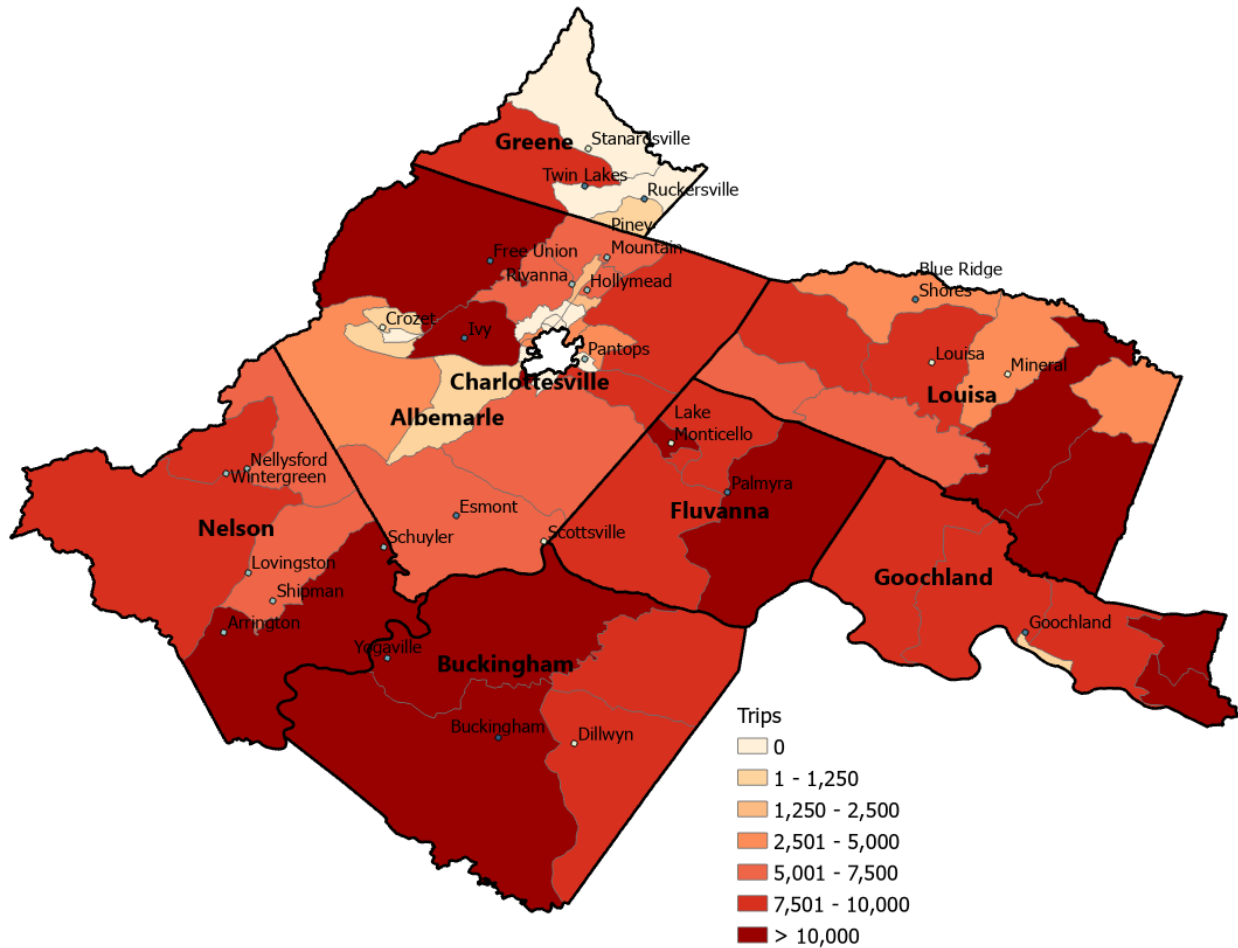


Figure 4.14 Trip Deficit for Goal 3

4.4 Stakeholder Feedback

Stakeholders were surveyed regarding their opinions on service goals and current service gaps. Findings from the previous sections were shared with stakeholders to determine if the identified service targets are in line with their expectations and if the estimated service gaps are consistent with their experiences. Qualitative evidence obtained from the stakeholders helps to complement the quantitative results.

The survey was sent to 134 stakeholders within the seven counties and the city of Charlottesville. A total of 49 completed responses were received. Stakeholders represented organizations such as the County Board of Supervisors, the County Department of Social Services, the Department of Health, churches, the Blue Ridge Health District, community action programs, the Thomas Jefferson Planning District Commission, the University of Virginia, the Jefferson Area Board for Aging, and others.

Figure 4.15 shows the number of responses by jurisdictions. Several respondents represent organizations serving more than one county. The largest number of responses came from people representing Goochland County, followed by Albemarle County. Buckingham and Greene counties had the fewest responses.

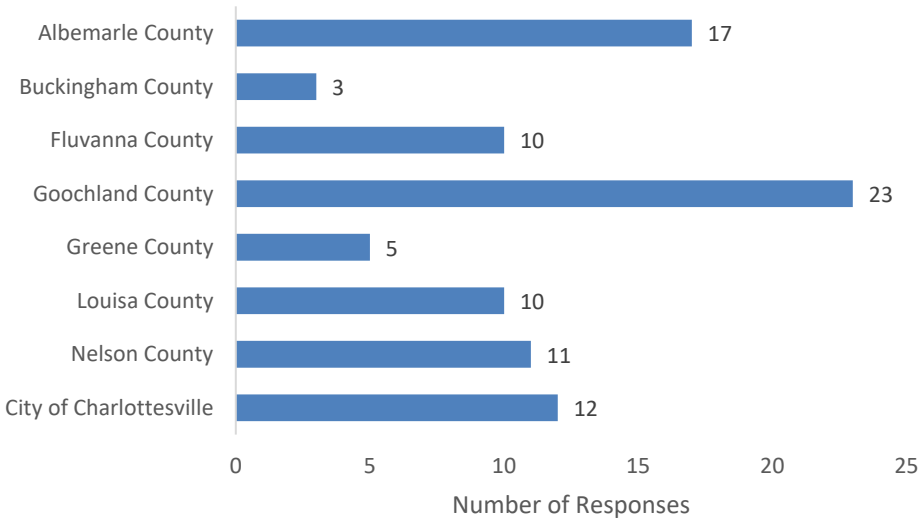


Figure 4.15 Number of Responses by Jurisdictions

4.4.1 Goals for Service

Respondents were asked what they thought were reasonable goals for Jaunt regarding the number of days per week and hours per day that service is provided. Separate responses were given for each county, and respondents provided answers for the jurisdictions they serve. Responses are summarized below. Some respondents recommended that service should be longer on weekdays and could be shorter on the weekend.

- **City of Charlottesville:** Most respondents believed that service should be provided 7 days per week. Responses regarding the number of hours per day, however, varied from 10 hours to 18 hours, with the median response being 12 hours.
- **Urban Albemarle County:** Responses ranged from 5 to 7 days per week, with 7 days being most common, and from 9.5 to 24 hours per day, with 10–14 being most common.
- **Rural Albemarle County:** The average response was 6 days per week and 11 hours per day, ranging from 5–7 days and 6–17 hours.
- **Buckingham County:** One response was received for Buckingham County, recommending a goal of 5 days per week and 10 hours per day.
- **Fluvanna County:** A wide range of responses were received, from 1 to 7 days and from 2 to 11 hours. The median response was 5 days per week and 10 hours per day.
- **Goochland County:** The median response was 5 days per week and 8 hours per day, with most responses ranging from 3–7 days and 5–10 hours.
- **Greene County:** The average response was 5–6 days and 10 hours per day.
- **Louisa County:** The median response was 5 days per week and 9 hours per day.
- **Nelson County:** Responses ranged from 4–7 days and 8–14 hours. The median response was 6 days and 10 hours per day.

The following figures compare the existing demand-response service levels with the desired levels identified by the stakeholders.

Figure 4.16 maps the days per week of existing demand-response circulator services. Figure 4.17 shows desired days per week of service identified by stakeholders, and Figure 4.18 maps the gap between this desired level of service and the current service provided by the demand-response circulator services. The goals for days per week of service are being met in Louisa County and Charlottesville/urban Albemarle, while significant gaps exist in Nelson, Buckingham, Goochland, and Fluvanna counties.

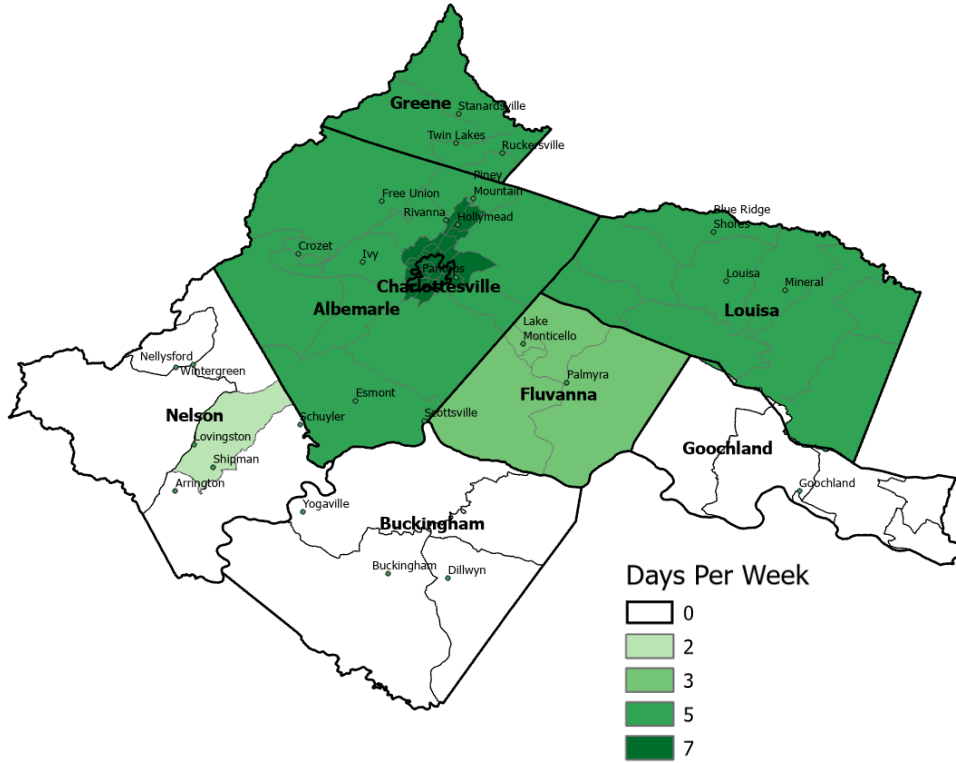


Figure 4.16 Existing Demand-Response Days of Service Per Week

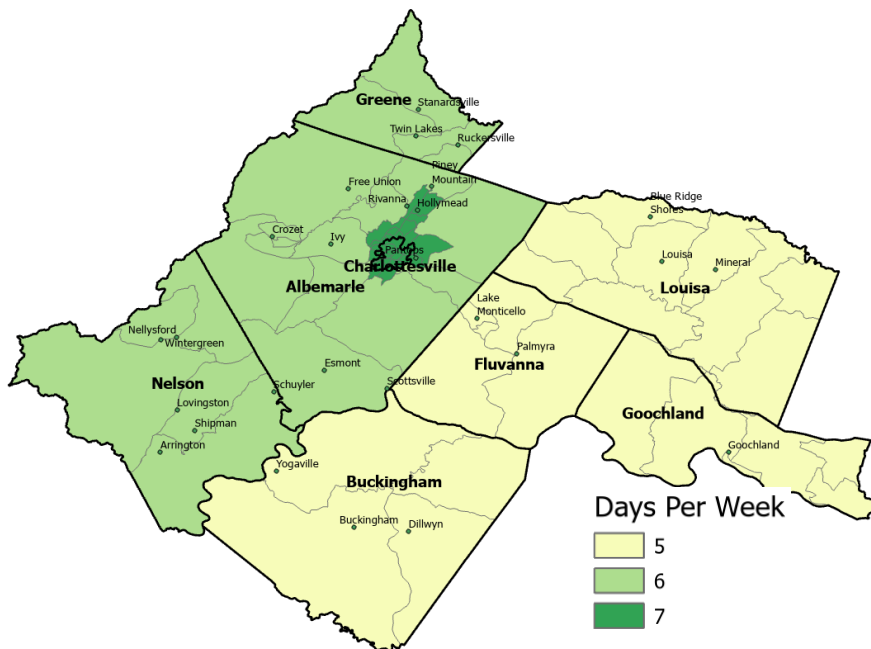


Figure 4.17 Desired Days Per Week of Service

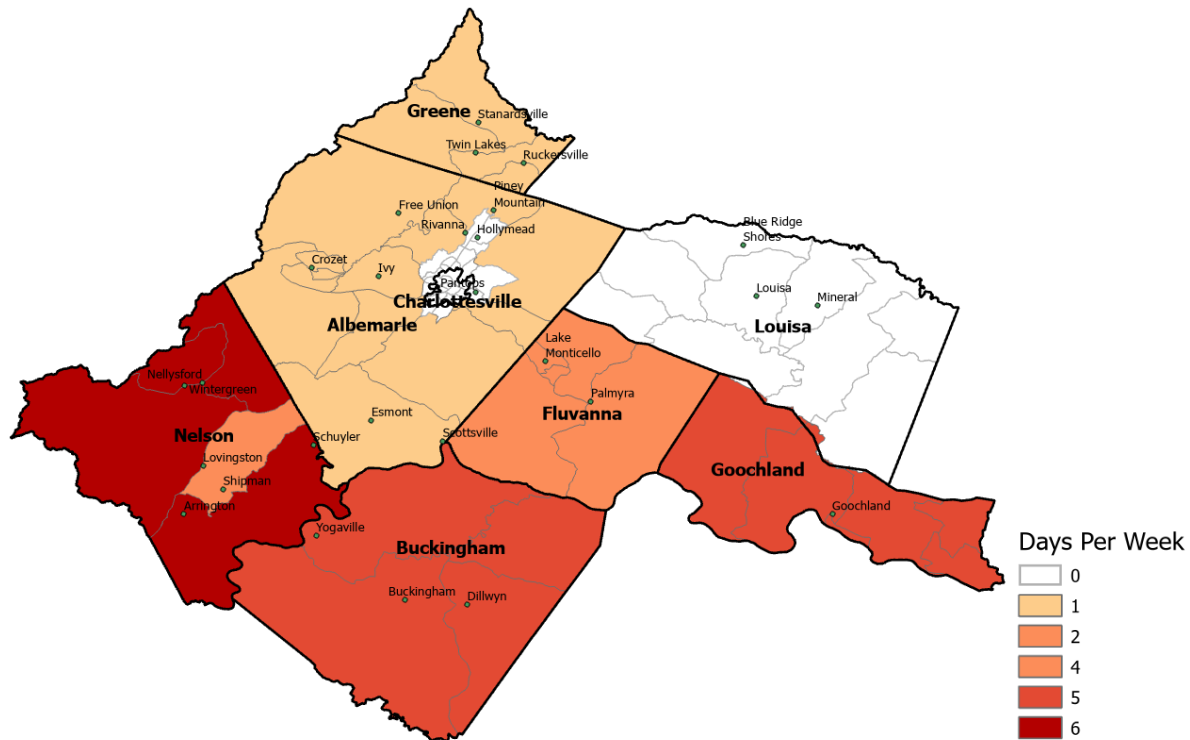


Figure 4.18 Gap in Days Per Week Compared to Current Demand-Response Circulator Service

Figure 4.19 maps the existing hours of service per day for demand-response circulator services, while the desired hours of service per day are shown in Figure 4.20; Figure 4.21 maps the current gaps. Greene and Louisa counties and the City of Charlottesville are the only areas meeting these goals. Buckingham and Goochland counties currently do not have any demand-response service, and the only such service in Nelson County is in the Lovingston area. Rural Albemarle County also has a significant gap in the hours of service provided compared with desired levels. In addition to the Circulator services, Jaunt operates commuter bus services and the Link services into Charlottesville/urban Albemarle, but these services operate with limited pickup and return times.

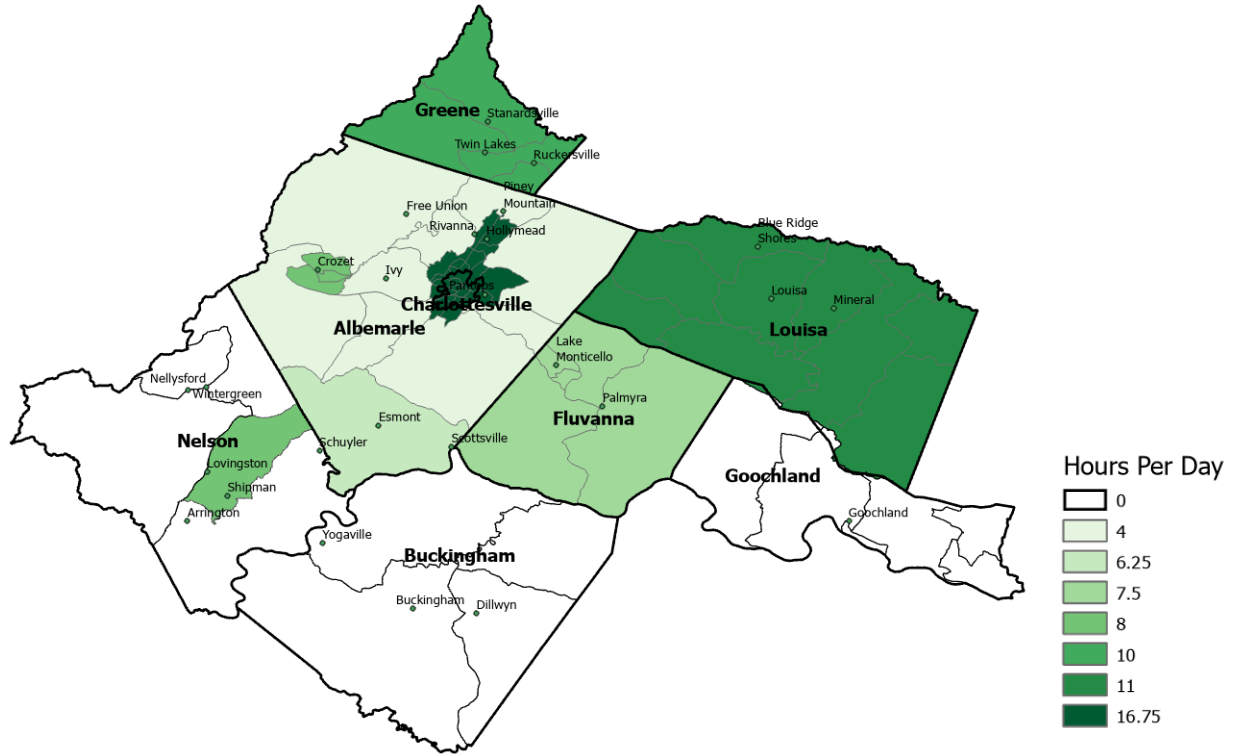


Figure 4.19 Existing Demand-Response Hours Per Day of Service

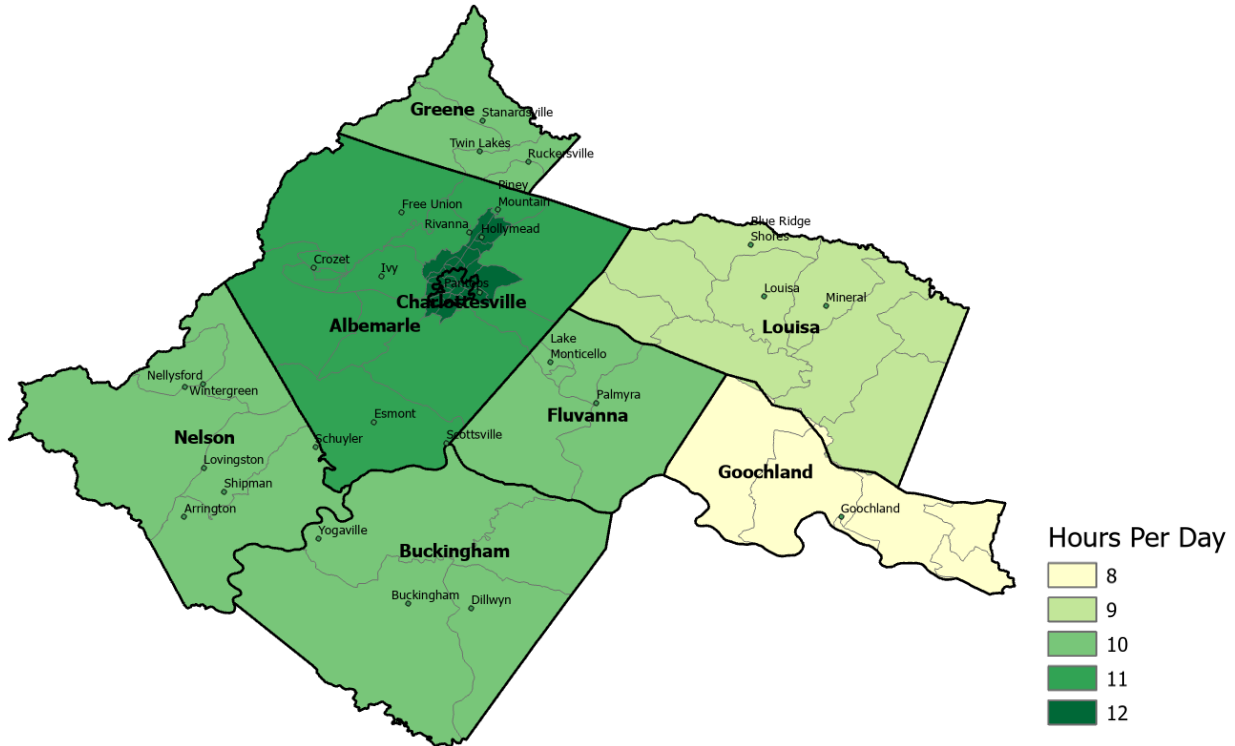


Figure 4.20 Desired Hours Per Day of Service

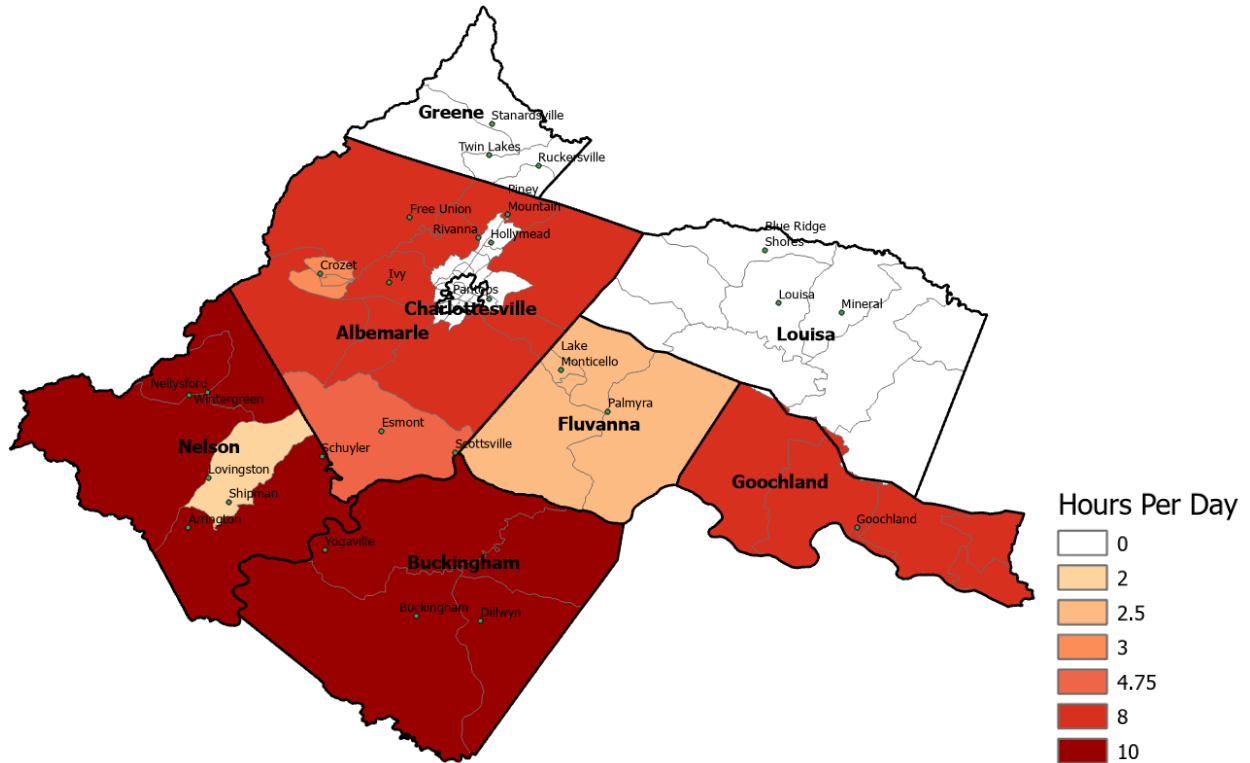


Figure 4.21 Gap in Hours Per Day Compared to Current Demand-Response Circulator Service

4.4.2 Service Needs

Most respondents indicated that some types of service improvements are needed in their area (Figure 4.22). A majority indicated a need for new origin-to-destination service, expanded geographic coverage, weekend service, new commuter bus service, new intercity service, and longer hours of service. Respondents from Buckingham, Nelson, and Louisa counties tended to be more likely to indicate a need for improvement, but most stakeholders from all areas identified needed improvements.

Are any of the following service improvements needed in your area?

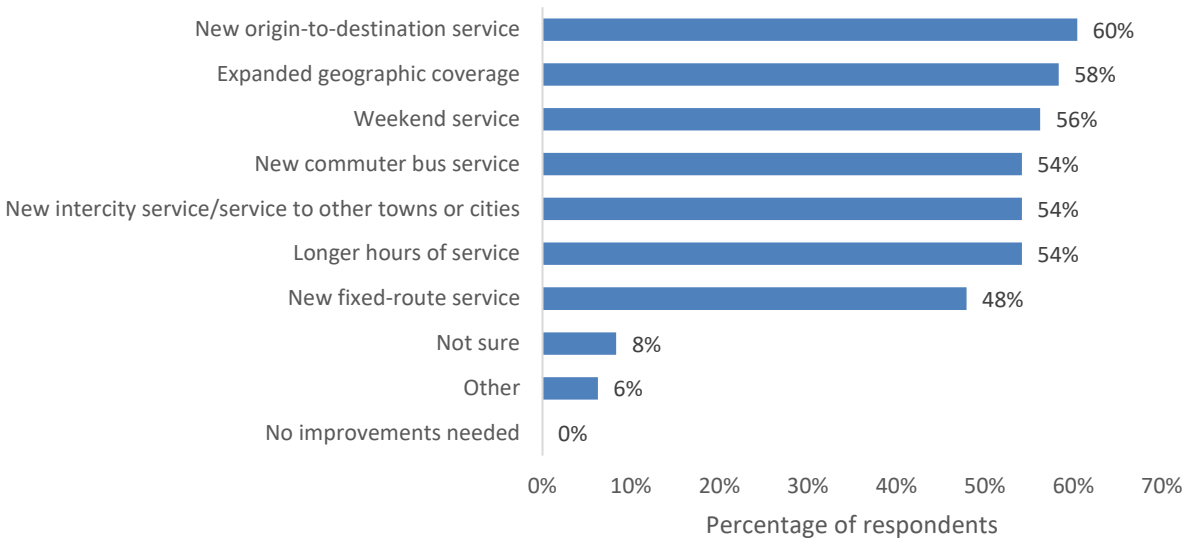


Figure 4.22. Need for Service Improvements Identified by Stakeholders

Using a five-point Likert scale, respondents were asked to identify how well the transportation needs of the residents in their area are being met. Responses were nearly evenly distributed between moderately well, slightly well, and not well at all (Figure 4.23). Table 4.7 shows how the responses differ between areas. Respondents representing Goochland County were much more likely to answer, “not well at all.” This result makes sense since Jaunt does not serve Goochland County. Respondents from Albemarle and Greene counties and the City of Charlottesville tended to give more favorable responses, indicated by the higher percentage of “moderately well” responses.

Overall, how well are the transportation needs of the residents in your area being met?

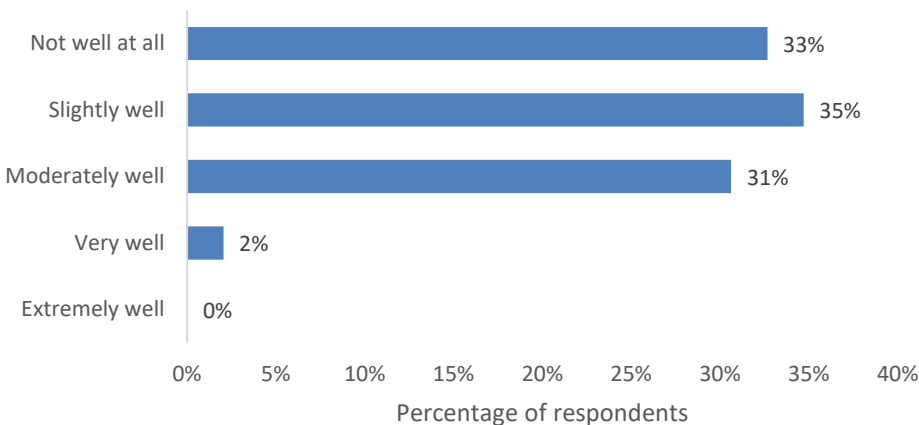


Figure 4.23 Stakeholder Opinion on How Well Needs are Being Met

Table 4.7 Stakeholder Opinion on How Well Needs are Being Met, by Jurisdiction

	Extremely well	Very well	Moderately well	Slightly well	Not well at all
Albemarle County (n=17)	0%	6%	59%	29%	6%
Buckingham County (n=3)	0%	0%	33%	67%	0%
Fluvanna County (n=10)	0%	0%	40%	40%	20%
Goochland County (n=23)	0%	0%	9%	30%	61%
Greene County (n=5)	0%	0%	60%	20%	20%
Louisa County (n=10)	0%	0%	40%	30%	30%
Nelson County (n=11)	0%	0%	36%	45%	18%
City of Charlottesville (n=12)	0%	0%	50%	42%	8%

Most respondents indicated a need for more work and health care trips, as well as other types of trips (Figure 4.24). Responses to this question were fairly similar across jurisdictions.

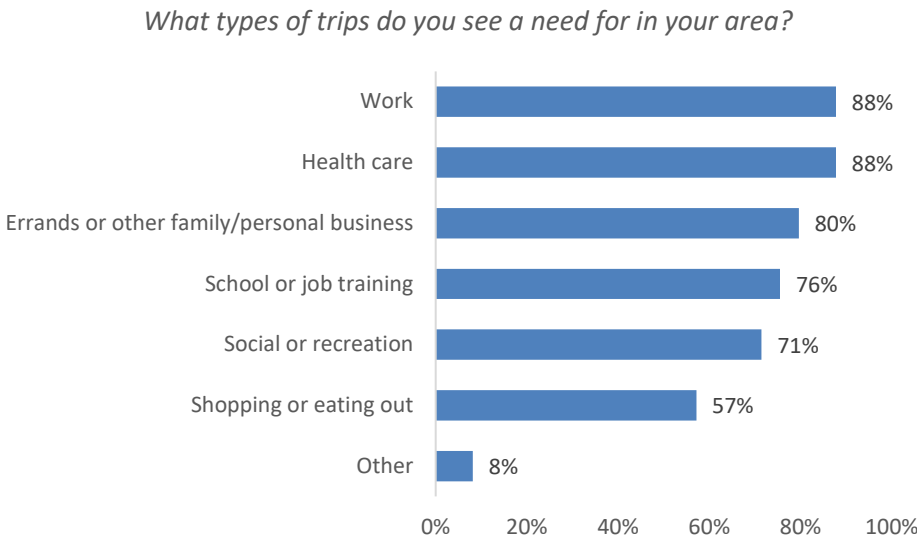


Figure 4.24 Types of Trips Needed, as Identified by Stakeholders

Respondents were given open-ended questions to explain their responses to these questions. Several stakeholders representing Goochland County commented that there are no services currently available. Some also commented that there is a large senior population in Goochland County that needs rides for medical appointments or other programs and activities.

Other respondents commented on the need for better weekend service; more routes to facilitate shopping and medical trips for seniors, as well as social engagements; extended hours; affordable work trips; and expanded coverage. One respondent from Louisa County commented that there are a number of residents without personal transportation who need rides for medical and resourcing needs within the county and across the region.

Some stakeholders commented on the lack of coverage in Nelson County. One respondent suggested that “the creation of two or three transit lines that travel Nelson’s well-populated roads for a frequency of two

to three times within a 14-hour period that also include stop and pick-ups at Nelson’s businesses, food stores, medical facilities and employment would provide sufficient transportation services to Nelsonians.” Another commented that Jaunt does not directly serve the Route 151 corridor or the southern part of Nelson County and that services need to be daily. They also recommended service to Amherst or Lynchburg, which are outside of Jaunt’s service area.

Other respondents also suggested providing trips to nearby cities and counties outside of Jaunt’s service area, where residents may have appointments or other services are available. On the other hand, several respondents focused on improving connections to Charlottesville. This included more commuter and non-emergency medical transportation from rural areas, more effective commuter services to Charlottesville that are more frequent with longer hours, more trips to Charlottesville from Greene County, additional service from Fluvanna County into Charlottesville, better service to UVA, and service for Charlottesville residents traveling to other towns.

A few respondents also mentioned inconvenient or confusing services. One commented that the problem has less to do with the range of services, “but that the service provided currently is confusing, inconvenient, and not ideal for the riders’ needs (not happening daily).” A daily service with expanded service hours would be easier to understand and meet the riders’ needs better. Another commented that their clients often complain about the amount of time it takes to get to a doctor’s appointment because of the high demand for transportation, taking up to an entire day for one appointment. A stakeholder from Fluvanna County similarly commented on the long wait times for return trips. They also noted that because of the limited service in Fluvanna County, people with morning appointments in Charlottesville need to seek other transportation means.

4.4.3 Feedback on Estimated Service Deficits

Survey respondents were shown the ridership in each county and the number of trips below each of the three goals in each county. Stakeholders were then asked if these results were surprising to them. Results are shown in Figure 4.25. Respondents most commonly said that the results are about what they expected. A few thought the number of additional trips needed was surprisingly high, others thought it was low, and several had no prior expectations. Overall, results were generally within expectations. Responses were fairly similar across counties.

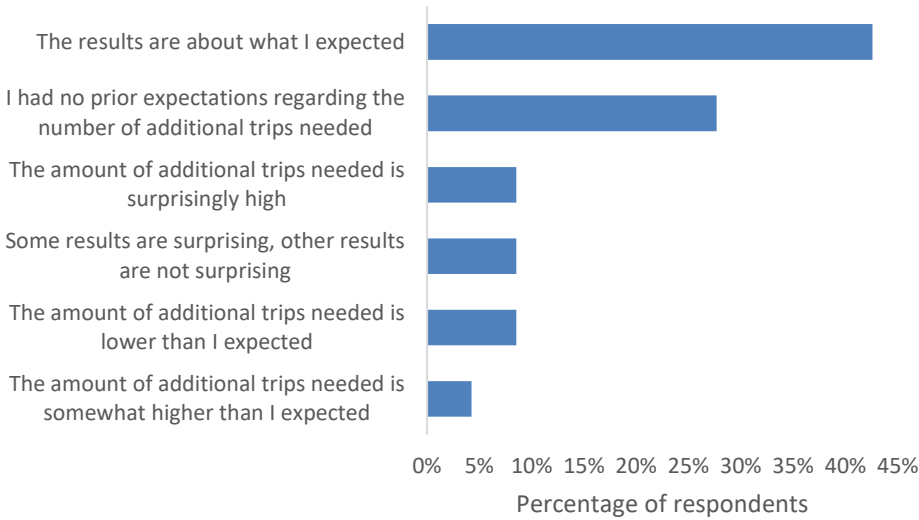


Figure 4.25 Stakeholder Response to Estimated Ridership Deficits

One respondent commented that the results were consistent with where there seems to be more need. Others commented that the goals for Albemarle County seemed to be within reach. A stakeholder representing Fluvanna and Louisa counties said the results were about as expected and commented that older adults and people with disabilities have a difficult time finding rides to needed services like medical appointments due to limited transportation options.

Because of low population densities and longer travel distances, the higher goals for the more rural areas may be unrealistic. One stakeholder commented that trip distances need to be accounted for when setting goals. The higher goals may be realistic for Albemarle County, because of the proximity to Charlottesville, but not for other areas. Even the first goal may be challenging in some areas.

4.4.4 Recommended Improvements

Stakeholders were asked, in an open-ended question, if they had any opinion on the type of service that would best meet these needs or other types of improvements needed to meet the goals. Several comments were received. The most common suggestions were to implement microtransit, enhance commuter bus services, and improve marketing. Microtransit, or on-demand transit, was a popular suggestion for improving service. One respondent commented that microtransit provided by Charlottesville Area Transit has been shown to work in the preliminary service areas in Albemarle County and should be expanded. Another suggested that microtransit could be used to connect people from their homes to an hourly fixed-route service that would travel from the rural communities into the urban centers.

Several thought that marketing could be improved, and that ridership could increase with better promotion. One respondent remarked that most people think Jaunt is only for ADA trips or the elderly. A few specifically mentioned marketing through radio or television. Some respondents prioritized improved commuter bus services. Other recommendations included expanded hours (to accommodate full-time work schedules and appointments at other times), expanded coverage, better scheduling to reduce wait times, more frequent trips to and from medical appointments, and regular service to senior centers.

4.5 County-Level Service Needs

This section presents the service deficits from Section 4.3 at the county level with a few adjustments. First, the estimates for Goochland County were revised to include only the western half of the county, which consists of two census tracts. The eastern half of the county borders the Richmond metro area, and the intent of this study is to focus on the needs in the western part of the county. Adjustments were also made based on travel patterns and the destinations of commute trips.

Table 4.8 shows the ridership goals for each county, and Table 4.9 shows the number of trips below the goals. Albemarle and Greene counties meet both the first and second goals. In these areas, current services are doing a relatively good job of meeting demand, though improvements could be made to reach the third goal. In each of the other counties, substantial increases in ridership are needed to meet the first goal.

Table 4.8 County-Level Ridership Goals

County	Trips FY	Goal 1	Goal 2	Goal 3
	2023			
Albemarle	160,833	105,440	131,800	210,880
Buckingham	5,725	17,688	22,110	41,660
Fluvanna	3,493	26,864	33,580	53,728
Greene	28,887	19,684	24,605	45,460
Louisa	17,677	43,744	54,680	87,488
Nelson	5,594	20,308	25,385	40,616
Western Goochland	0	8,764	10,955	17,528

Table 4.9 County-Level Ridership Deficits

County	Trips FY	Number of trips below goal		
	2023	Goal 1	Goal 2	Goal 3
Albemarle	160,833	0	0	50,047
Buckingham	5,725	11,963	16,385	35,935
Fluvanna	3,493	23,371	30,087	50,235
Greene	28,887	0	0	16,573
Louisa	17,677	26,067	37,003	69,811
Nelson	5,594	14,714	19,791	35,022
Western Goochland	0	8,764	10,955	17,528

These service deficits are based on the sizes of the transportation-disadvantaged populations in each county and a peer analysis of how many trips are provided by other rural transit agencies. However, this could include demand for trips outside of Jaunt’s current service area. To serve all these needs, Jaunt would need to provide trips to surrounding communities. Therefore, commuting trip patterns were analyzed to estimate the percentage of commute trips that are within Jaunt’s service area. This was accomplished using Longitudinal Employer-Household Dynamics (LEHD) data from the U.S. Census Bureau.

The LEHD data link employer and household data so that commuting patterns can be identified. LEHD data were analyzed to find job locations of workers in each county, which are shown in Figure 4.26. These results are based on workers earning less than \$40,000 per year because they are more likely to be transit users, but the results would not be substantially different if all workers were included. The data include some very distant job locations, including out of state. When calculating the share of workers commuting to each location, data points that had job locations out of state or in the far western or southeastern parts of the state were excluded under the assumption that they are not regular commuters. The data may still not be a perfect representation of commute patterns because it is not known which workers are regular commuters, but it provides a useful estimate.

Workers Living in Albemarle County	
Job Location	Share
Albemarle County	40%
Charlottesville city	27%
Fairfax County	3%
Henrico County	2%
Harrisonburg city	2%
Chesterfield County	2%
Augusta County	1%
Greene County	1%
Louisa County	1%
Fluvanna County	1%
Other	19%

Workers Living in Buckingham County	
Job Location	Share
Buckingham County	25%
Albemarle County	12%
Prince Edward County	8%
Charlottesville city	8%
Fluvanna County	4%
Henrico County	4%
Chesterfield County	4%
Lynchburg city	3%
Richmond city	3%
Cumberland County	2%
Other	27%

Workers Living in Fluvanna County	
Job Location	Share
Albemarle County	28%
Fluvanna County	20%
Charlottesville city	17%
Louisa County	6%
Fairfax County	3%
Henrico County	2%
Rockingham County	2%
Harrisonburg city	2%
Chesterfield County	1%
Orange County	1%
Other	18%

Workers Living in Greene County	
Job Location	Share
Albemarle County	28%
Greene County	23%
Charlottesville city	15%
Orange County	3%
Madison County	3%
Rockingham County	3%
Fairfax County	2%
Harrisonburg city	2%
Henrico County	2%
Louisa County	2%
Other	17%

Workers Living in Louisa County	
Job Location	Share
Louisa County	31%
Albemarle County	12%
Charlottesville city	7%
Orange County	6%
Spotsylvania County	4%
Henrico County	3%
Fairfax County	3%
Fluvanna County	3%
Hanover County	3%
Goochland County	2%
Other	26%

Workers Living in Nelson County	
Job Location	Share
Nelson County	34%
Albemarle County	17%
Charlottesville city	9%
Lynchburg city	5%
Amherst County	3%
Augusta County	3%
Roanoke city	2%
Waynesboro city	2%
Staunton city	2%
Harrisonburg city	1%
Other	23%

Workers Living in Western Goochland County	
Job Location	Share
Henrico County	23%
W Goochland County	13%
Richmond city	11%
Chesterfield County	10%
E Goochland County	9%
Hanover County	7%
Fairfax County	4%
Louisa County	4%
Powhatan County	2%
Fluvanna County	2%
Other	16%

Figure 4.26 Commuting Patterns as Illustrated by Job Locations of Workers

The data are useful for showing the percentage of work trips that Jaunt could serve. For example, in Nelson County, 34% of workers have jobs in Nelson County, 17% are employed in Albemarle County, and 9% in the City of Charlottesville. A total of 61% have jobs located somewhere within Jaunt’s current service area. On the other hand, some workers commute south to the City of Lynchburg (5%) or Amherst County (3%) or northwest to Augusta County (3%) and the City of Waynesboro (2%). To serve these trips, Jaunt would need to begin providing trips into these surrounding communities. In Buckingham and Louisa County, just slightly more than half of workers commute within Jaunt’s service area, while many have jobs in surrounding counties and cities. In western Goochland County, a majority of workers commute east to Henrico, Chesterfield, and Hanover counties and the City of Richmond.

The service deficits presented in Table 4.9 were adjusted to account for the fact that many commute trips are to areas outside of Jaunt’s service area. Currently, Jaunt provides intra-county demand-response services and services from rural areas into Charlottesville/Albemarle. The LEHD data from Figure 4.20 were analyzed to calculate the percentage of workers in each county that have jobs either within the same county or in Charlottesville or Albemarle County (Table 4.10). For example, among workers living in Fluvanna County, 65% have jobs within either Fluvanna or Charlottesville/Albemarle.

Table 4.10 Share of Jobs Within Jaunt’s Service Area

Workers living in:	Share of jobs located in the same county or Charlottesville/Albemarle
Albemarle	67%
Buckingham	45%
Fluvanna	65%
Greene	65%
Louisa	50%
Nelson	60%
Western Goochland	22%

The ridership goals from Table 4.8 were adjusted downward to account for commuting patterns. First, based on current trip purpose data, it was assumed that about a third of transit trips are for commuting. Among commute trips, it was assumed that only the percentages of trips shown in Table 4.10 could be served by Jaunt.

Goals could be adjusted downward further by assuming that other types of trips are also made to areas outside of Jaunt’s service area. Someone who works in Lynchburg, Richmond, or other surrounding communities may also travel there for other purposes. However, trip pattern behavior for those types of trips is unknown. Furthermore, additional downward adjustments could result in goals that are too conservative because they are not based on an estimate of the total number of needed trips but on a peer analysis of other rural transit systems that also serve residents who work, shop, and have appointments in areas outside of the transit service area. A high percentage of trips outside the service area could also indicate a need for additional services to meet those needs.

Tables 4.11 and 4.12 show the adjusted ridership goals and deficits by county. Albemarle and Greene counties are again shown to meet the first two goals, and goal 3 is reasonable. The other counties still require significant ridership increases to meet the first goal, though less than estimated in Table 4.9. Ridership in Buckingham County would need to more than double. Buckingham County does not currently have a demand-response service, so nearly all of its current trips are commuter bus trips. Ridership would need to roughly double in Louisa County, triple in Nelson County, and increase several times in Fluvanna.

Table 4.11 Adjusted County-Level Ridership Goals

	Trips FY 2023	Goal 1	Goal 2	Goal 3
Albemarle	160,833	93,987	117,484	187,975
Buckingham	5,725	14,478	18,097	34,099
Fluvanna	3,493	23,721	29,651	47,441
Greene	28,887	17,423	21,778	40,238
Louisa	17,677	36,542	45,678	73,085
Nelson	5,594	17,601	22,001	35,202
Western Goochland	0	6,508	8,135	13,015

Table 4.12 Adjusted County-Level Ridership Deficits

County	Trips FY 2023	Number of trips below goal		
		Goal 1	Goal 2	Goal 3
Albemarle	160,833	0	0	27,142
Buckingham	5,725	8,753	12,372	28,374
Fluvanna	3,493	20,228	26,158	43,948
Greene	28,887	0	0	11,351
Louisa	17,677	18,865	28,001	55,408
Nelson	5,594	12,007	16,407	29,608
Western Goochland	0	6,508	8,135	13,015

4.6 Costs and Funding Needs

According to 2022 data, Jaunt had an operating expense of \$6.92 per VRM, \$111.08 per VRH, and \$47.69 per unlinked passenger trip. Costs per VRM and per trip are lower for commuter bus service and higher for demand-response, while the reverse is true for expenses per VRH. These costs provide an estimate for how much additional funding would be needed to increase ridership to target levels. However, the marginal cost of providing an additional trip may not be the same as the average cost of existing trips. The marginal cost may be lower if Jaunt is able to provide more trips per VRM or per VRH, take advantage of existing excess capacity, attract increased ridership through marketing activities, or increase efficiencies.

A review of 2022 NTD data shows there is significant variation in costs for rural transit agencies, though the average and median costs are lower than what Jaunt reported. Costs can vary based on the operating characteristics of the agency. Rural agencies that provide more total trips generally tend to provide more trips per VRM and per VRH and have lower operating costs per trip. The median rural agency had an operating cost of about \$30 per trip. To estimate the marginal cost for Jaunt of providing additional trips, data for rural transit agencies across the country were studied to determine the relationship between trips provided and cost per trip. Based on this analysis, and after adjusting for inflation, a marginal cost of \$37

per trip is assumed.¹ However, these costs would vary depending on the type of service improvements or additions being made, whether it is expanding existing demand-response service, adding new commuter bus service, implementing microtransit, or other steps. Estimating the costs of specific service improvements is beyond the scope of this study. Rather, the intent is to provide a rough estimate of funding needs.

The analysis contained three levels of goals. The first level meets the most basic needs, the second is a level of service at or above average compared with other rural agencies, and the third is a higher level of ridership compared with most rural transit providers. Different goals may be reasonable for different areas. More rural areas with lower population densities generally have lower per capita ridership. Therefore, for Buckingham, Fluvanna, Louisa, Nelson, and Western Goochland, the first goal may be appropriate. In Albemarle and Greene, on the other hand, current services are already meeting the first two goals, and the third goal may be appropriate. Therefore, to calculate costs of needed services, the third goal is assumed for Albemarle and Greene, and the first goal is used for the other counties.

The funding needs were estimated based on the adjusted ridership goals and deficits shown in Tables 4.11 and 4.12. For western Goochland, however, the goals are not adjusted downward because it is assumed that service would need to provide trips into the Richmond area to be effective.

Table 4.13 shows the increase in trips needed in each county to meet the goal and an estimate of additional operating expenses needed to provide those trips. As noted, a cost of \$37 per trip is assumed. Trips between counties would count as a trip for both counties. Therefore, the total number of trips needed would be less than the sum for each county. Costs were adjusted downward to avoid double counting trips that occurred in two counties.

Table 4.13 Additional Trips and Operating Funding Needed to Meet Goals

	Ridership Increase	Operating Costs
Albemarle	27,142	\$672,841
Buckingham	8,753	\$216,978
Fluvanna	20,228	\$501,442
Greene	11,351	\$281,380
Louisa	18,865	\$467,674
Nelson	12,007	\$297,648
Sub total		\$2,437,963
Western Goochland	8,764	\$324,268
Total		\$2,762,231

Within the Jaunt service area, the additional ridership needed to meet the goals would require an increase in operating costs of about \$2.4 million, which is an increase of about 25%. This is the cost needed to improve services to meet ridership needs, which include extending service hours, expanding service coverage, or introducing new services. A large share of this increase occurs in the rural areas. The estimated cost, however, could vary significantly depending on the type of service provided and the level

¹ An analysis of 2022 data for rural transit agencies from the NTD shows that a 1% increase in unlinked passenger trips is associated with a 0.2% decrease in operating cost per trip. To meet the ridership goals described in this study, Jaunt would need to increase ridership by almost 50% in the study area. Given this relationship, average cost per trip would decrease from \$47.69 to \$43.09, which would require the marginal cost of the additional trips to be \$33.55 per trip. Since this was based on 2022 data, costs were adjusted upward to \$37 per trip to account for two years of inflation, at 5% per year.

of efficiency achieved. In percentage terms, the largest increases in ridership and costs are estimated for Buckingham, Fluvanna, and Nelson.

These costs include only the operating costs, and additional capital costs would also be required when more vehicles are needed. The average rural transit vehicle in the United States provides about 1,500–2,000 trips per year for demand-response service and about 8,500–10,000 trips per year for fixed routes. This varies depending on the level of efficiency achieved. Based on the needed increase in ridership to meet the goals, additional vehicles will likely be needed throughout the service area.

5. RECOMMENDATIONS

This section first summarizes the findings from the recent Transit Development Plan (TDP) for Jaunt. Many stakeholders mentioned microtransit and improved marketing as strategies for improving service and increasing ridership. This section provides a review of those strategies. Finally, recommendations are made for each county based on the results of this study.

5.1 Findings from Transit Development Plan

Jaunt completed a Transit Development Plan (TDP) in 2022 (the final plan was released in January 2023) that identified potential transit needs and improvements. Through the study, community outreach was conducted by interviewing stakeholders and surveying community members and riders. Stakeholders identified a need for expanded service hours, expanded service coverage, and more frequent service. Stakeholders mentioned that expanded service hours would make the service more accessible for their clients, including those who work late hours or need to access stakeholder services or programs that run later than the current transit service. Expanding services to evenings and holidays would help those dependent on transit. Expanded access was noted for some areas that have lower densities where providing service is a challenge. Stakeholders generally indicated a need for more services in rural areas. Stakeholders also noted that outside of Charlottesville, travel times by transit can be lengthy—double or triple the automobile travel time. Survey responses from community members confirmed the longer travel times. Among responses from community members that do not use public transit, the most cited reason for not using transit was that it takes too long. The next most common reason was that the hours and days of operation are too limited. Stakeholders mentioned a willingness to coordinate with Jaunt to improve transportation access in the area.

Most of the community members surveyed indicated a need for additional or improved service in the region, and 60% noted specific locations where improvements are needed. Below are the areas identified in need of improvement, ranked in order of response, according to the TDP:

1. Buckingham County with specific requests for New Canton
2. Nelson County
3. Greene County
4. Charlottesville –Crozet –Waynesboro
5. Rural areas (all areas outside of Charlottesville)
6. Weekend Crozet Service
7. Weekend Greene County Service
8. Madison Heights
9. Lynchburg
10. Buckingham to Charlottesville
11. Louisa

Survey responses from riders were generally positive, indicating high levels of satisfaction with various attributes of the service. Riders were asked what they liked most about the service and what they liked the least. Riders most mentioned the drivers when asked what they like the most, and they also commented that the service is convenient, reliable, and friendly. The things they liked the least about the service are the waiting time, long travel time, lack of weekend service, need for reservations, and late buses. The longer time it takes to make trips by transit was the most mentioned aspect that they do not like, which is consistent with findings from the stakeholder and community surveys.

The TDP proposed several service improvements, as follows:

1. App-based demand-response with a focus on Albemarle County
2. Monticello microtransit
3. U.S. 29 service expansion to complement microtransit
4. Fluvanna Circulator additional service
5. Stoney Creek / Nelson County additional service
6. Streamline Crozet CONNECT
7. Streamline Buckingham CONNECT
8. New Louisa Circulator flex route

5.2 Microtransit

Microtransit has become an increasingly popular strategy for addressing mobility needs. Several stakeholders suggested it as an option. The TDP proposed specific microtransit projects. Microtransit is an on-demand service that uses technology to route vehicles based on real-time rider demand. Passengers are often asked to walk a short distance to meet a vehicle at a designated location, though it could be a curb-to-curb or door-to-door service depending on agency policy. Passengers can book a trip through a smartphone app, a website, or through a call center, and they typically must wait about five to 25 minutes for a ride, depending on the level of demand and number of vehicles available. Vehicles will group trips as much as possible, picking up and dropping off passengers heading in the same direction.

Recent pilot projects have been conducted in rural areas that involved converted existing services to microtransit or adding new microtransit services. These projects have largely been successful, although the approach might not be suitable for all rural applications. Examples of microtransit exist within Jaunt's service area. Charlottesville Area Transit began testing a microtransit program called MicroCAT in the fall of 2023, providing app-based, on-demand rides in the Pantops area and the U.S. 29 corridor, east and north of Charlottesville. The University of Virginia provides UTS OnDemand, an on-demand van shuttle service that provides rides for university community members during night hours.

Other rural transit systems in Virginia have also tested microtransit services. The Virginia Department of Rail and Public Transportation (DRPT) published a report describing the results of two such pilot projects in the state (Virginia Department of Rail and Public Transportation, 2023). DRPT received an Integrated Mobility Innovation (IMI) Demonstration Research Program grant to plan and implement microtransit in two rural areas. To conduct these demonstration projects, they collaborated with Bay Transit, providing a service called Bay Transit Express in Gloucester County, and Mountain Empire Older Citizens (MEOC), implementing a service called MetGo in the Town of Wise and the City of Norton in western Virginia. Services were launched in late June 2021, and the report analyzed 18 months of data.

By all accounts, the programs were successful. Ridership increased through most of the period. Rider experience was significantly improved because of the on-demand rides and the more modern and responsive communication tools. Riders gave high ratings for the two services. Important metrics from the perspective of the rider include the ride availability and the wait time. Ride availability refers to the percentage of requested trips that are met with a proposal or, in other words, the percentage of trip requests that can be served given the available capacity. Average ride availability for the two systems ranged from 95.9% to 97.4%, indicating they had the capacity to serve most trips, and most of the unmet trips occurred during the last hour of service. The average waiting time for the ride ranged from 11 minutes for Bay Transit Express to 20 minutes for MetGo, although this increased to 25 minutes near the end of the evaluation period as ridership increased. Both services offered wheelchair-accessible vehicles with similar trip availability.

From an agency perspective, cost measures are important for determining the feasibility of the service. The MetGo service was found to be considerably more cost effective than MEOC's other demand-response services, with an average cost per trip of \$8.06. Bay Transit Express had a higher cost per trip of \$18.02, but this is still lower than a majority of rural demand-response systems.

While the results of these projects were successful, the services were limited to geographic areas with greater population density and more concentrated demand. Bay Transit Express did not serve all of Gloucester County, instead being limited to a corridor with a higher population. MetGo similarly had a limited service area focused on two towns in close proximity. Another success story that has often been cited as an example of microtransit succeeding in rural areas is the City of Wilson, North Carolina. Wilson converted its entire fixed-route system to microtransit. Ridership more than doubled, nearly all trip requests were being met, and riders had a very positive response (North Carolina Department of Transportation, 2023). However, the City of Wilson has a population of almost 50,000. It is more similar to the City of Charlottesville than the rural areas served by Jaunt.

Implementing microtransit would address some of the issues noted by Jaunt's stakeholders, including inconvenient services and long wait times. Microtransit provides a high quality of service to passengers, and ridership would likely increase. The need to reserve a ride a day in advance requires advanced planning and does not allow for transit to serve spontaneous trips. Research by Mattson (2017a) showed that rural agencies that offer same-day service have significantly higher ridership, and a system that provided on-demand service with wait times of less than 30 minutes would likely see much higher use. However, it may not be feasible to operate an on-demand microtransit service countywide in an area with low population densities and longer trip distances. In such a setting, it would be challenging to have sufficient capacity to keep wait times low and trip availability high, and costs would likely be higher than experienced in the Virginia pilot projects.

In its report, DRPT identified five potential microtransit use cases that are appropriate for rural services in Virginia (Virginia Department of Rail and Public Transportation, 2023):

1. Provide a new service focused on high-need populations (seniors, people with a disability)
2. Replace fixed-route buses with microtransit
3. Replace older demand-response service with microtransit
4. Expand service into areas with limited or no existing public transit
5. Provide first-and-last mile connections to other transit routes

There are areas where Jaunt could implement microtransit under some of these use cases. Some existing demand-response services could be replaced with microtransit, microtransit could be implemented in areas with limited or no existing service, and it could also be implemented to provide first-and-last mile connections to commuter bus services or fixed-route services.

The DRPT report provided recommendations for where microtransit would be suitable based on population densities (Virginia Department of Rail and Public Transportation, 2023). In low density areas with fewer than 2 residents per acre or 2 jobs per acre, the report recommends pre-scheduled services. Two residents per acre would equate to 1,280 people per square mile (although this is likely a very rough guideline). Most of Jaunt's service area falls below this density threshold. The report recommends on-demand microtransit for medium density areas with 2-30 residents per acre or 2-20 jobs per acre. Based on these recommendations, areas that might be most suitable for microtransit include Crozet and Lake Monticello, the U.S. 29 corridor currently being served by MicroCAT, and for ADA service in Charlottesville. MicroCAT currently extends as far north as Piney Mountain, though it could potentially extend farther north into Greene County and Ruckersville.

These recommendations are consistent with the proposed improvements from the TDP. The TDP recommended an app-based demand-response service in Albemarle County, similar to the MicroCAT service currently being offered. The TDP also recommended microtransit for the Monticello region. Jaunt is nearing completion of a microtransit study. The likely result of the study is the recommendation to pilot a microtransit strategy for the ADA service in Charlottesville and urban Albemarle County. Other concepts currently under consideration include Crozet and Greene County.

A current Transit Cooperative Research Program (TCRP) study is in progress that will provide greater guidance on the implementation of microtransit in rural areas. The project is TCRP Synthesis J-07/Topic SB-41, titled Microtransit Solutions in Rural Communities: On-Demand Alternatives to Dial-A-Ride Services and Unproductive Coverage Routes. Its objective is to document the current state of practice of transit entities that have implemented on-demand services in rural settings.

5.3 Marketing

While expanding services and providing new options may be needed to reach ridership goals, Jaunt could see gains in ridership from existing services through increased marketing and promotion. Many stakeholders commented on the need for improved marketing. Some existing research describes best practices for marketing rural transit systems, though there is a lack of empirical evidence on the impacts to ridership from marketing programs.

One of the goals of National Cooperative Highway Research Program (NCHRP) 20-65 Task 73 was to document best practices for rural transit agencies and state DOTs for attracting and retaining riders, focusing on marketing tools as well as service design, partnerships, and new technologies (Whitaker et al., 2018). One of the themes of their research was that strengthening community awareness and marketing transit service remains a critical part of attracting new riders. They concluded that marketing strategies such as bus wrapping, lettering, attention grabbing branding, and marketing campaigns can be low cost and effective at increasing awareness, building community support, and attracting riders.

Whitaker et al. (2018) described best practices for branding, education and outreach, and statewide marketing. They noted there is not any good quantitative research on the return on investment or ridership impact from these marketing activities. However, they concluded that branding has generally been shown to improve public perception and attract riders, and education and outreach activities targeted toward a specific group of people have been shown to be effective at attracting new riders. A goal of branding could be to attract new markets by shifting public perception away from the idea that transit is just for people with disabilities and older adults.

Improved marketing activities could be a successful strategy for Jaunt to increase ridership from existing services. The National Rural Transit Assistance Program (RTAP) provides a Marketing Transit Toolkit to help rural transit agencies develop and implement successful marketing programs.² However, it is difficult to predict the return on investment or impact on ridership from specific activities. Several studies have attempted to measure the impacts of various factors on transit ridership, including for rural agencies. Research on marketing, however, has tended to examine more qualitative data, such as attitudes and perceptions, rather than empirically studying causal relationships (Taylor & Fink, 2013).

² National RTAP Marketing Transit Toolkit: <https://www.nationalrtap.org/Toolkits/Marketing-Toolkit/Welcome>

5.4 Recommendations by County

The intent of this study is to quantify the need for additional transit services in the rural areas served by Jaunt. Previous sections have estimated unmet needs by comparing existing ridership to goal levels. Increasing ridership to meet the targets could be accomplished through several different strategies, such as extending service hours or coverage of existing services or introducing new services. This section summarizes the results for each county and provides a few recommendations for how ridership could be increased to meet the goals.

5.4.1 Albemarle County

Needs assessment:

- Ridership goals are being met in urban areas, but there is room for improvement.
- Ridership is significantly below targets in rural areas.

Recommendations:

- Extend service hours in rural areas, with a goal of at least 5 days per week and 10 hours per day.
- Implement microtransit in Crozet.

A large percentage of Jaunt's ridership comes from Albemarle County, especially the urban areas of the county. Per capita ridership levels are higher in Albemarle County than elsewhere, and overall Jaunt is meeting both the first and second ridership goals for the county described in this report. However, there is still a need for service enhancements and potential for increased ridership.

Population densities are the greatest in the areas near Charlottesville, the U.S. 29 corridor northeast of Charlottesville, and the area around Crozet. These are also the areas with not just the greatest ridership but also the greatest per capita ridership. Other areas of the county have substantially lower per capita ridership. Rural areas with low per capita ridership have demographic characteristics that support the need for transit services. Rural areas east of Charlottesville and in the northwest part of the county have a high percentage of older adults. Most of the rural areas of the county have low poverty rates, but the far southern part of the county has a higher percentage of low-income households, as well as households with no vehicles and youth population.

Some of the rural areas have low per capita ridership levels, and there is potential for increased ridership. This could be accomplished by extending the service hours of the existing demand-response services, including the Albemarle Demand-Response, the Crozet Circulator, and the Esmont-Scottsville Circulator. In particular, the Albemarle Demand-Response operates just four hours a day with no weekend service. Extending this service would help meet the service deficits in the rural areas of the county.

Microtransit is a potential solution in the more densely populated parts of the county, though it may not be feasible countywide. Charlottesville Area Transit has implemented pilot microtransit service along the U.S. 29 corridor and the Pantops area. Microtransit could be a solution for the Crozet area as well, and the current study is examining how this could work

5.4.2 Buckingham County

Needs assessment:

- Population density is low, but poverty and disability rates are higher.
- Demand-response services are not available.
- Ridership levels are well below targets.

Recommendations:

- Add demand-response services within the county and into Charlottesville/urban Albemarle.

Buckingham County is served by commuter bus service into Charlottesville. There is no demand-response service in the county. Some areas are well served by the commuter bus service, with relatively high per capita usage. However, overall ridership in the county could be increased with the availability of a demand-responsive service. Buckingham County has among the highest levels of poverty and disability in the area, suggesting a need for transit. Public responses to the TDP survey indicated a high need for service in the county. It is also low density, making it more difficult to provide effective transit. Service could be improved by adding demand-response transit in the county and increasing the frequency of service into Charlottesville.

5.4.3 Fluvanna County**Needs assessment:**

- Per capita ridership levels are the lowest in Fluvanna County.
- Ridership would need to increase 7.7 times to reach the first goal, the largest relative gap within Jaunt's service area.

Recommendations:

- Extend the service days and hours of the existing Fluvanna Circulator, with a goal of 5 days per week and 10 hours per day.
- Expand the frequency and hours of the Workday Link.
- Expand the Midday Link to 5 days per week.

Fluvanna County has very low per capita ridership. Overall, it is the lowest in the study area. Poverty and disability rates are not as high as some other counties, and the percentage of older adults in the population is similar to other counties. Overall, ridership is well below the targets.

Fluvanna County does not have commuter bus service, but it has weekday demand-response service into Charlottesville and countywide demand-response. Service could be improved by expanding the hours and days of service. The Fluvanna Circulator, which is the countywide demand-response service, operates three days a week for 7.5 hours per day. This is a limited service that cannot serve many types of trips. The TDP also recommended additional service for the Fluvanna Circulator. The stakeholders surveyed recommended service 5 days per week and about 10 hours per day.

The Fluvanna Workday Link provides service into Charlottesville in the morning and back in the afternoon five days per week, and the Fluvanna Midday Link provides morning service to Charlottesville with early afternoon return service two days per week. The service hours require pre-planning and serve a limited number of trips. The workday link does not serve those with later work schedules. Expanding the hours and frequency of service into Charlottesville/urban Albemarle would help to satisfy the unmet demand.

5.4.4 Greene County**Needs Assessment:**

- Per capita ridership is the highest among all rural areas served by Jaunt.
- The first two ridership goals are being met, but improvements could be made to exceed the third goal.
- Commuter buses do not serve the county.

Recommendations:

- Implement microtransit in the more densely populated areas of the county.
- Extend the 29 North CONNECT commuter bus service into Greene County.
- Extend the circulator service to 12 hours per day and 6 days per week as funding allows.

Greene County has a high level of ridership compared with the other counties. It meets the first two ridership goals, but service could be improved to meet the third goal. There are parts of Greene County that have a high percentage of older adults and people with a disability. It also has a larger youth population.

Per capita demand-response ridership is highest in Greene County. Greene County is not served by commuter bus, but its overall per capita ridership is high compared with other counties. The demand-response service operates five days a week, with service 10 hours per day on weekdays. This is a higher level of service than most areas served by Jaunt. Jaunt could further increase ridership by extending the hours later into the evening or reinstating weekend service. Greene County previously operated service on Saturday, but due to budget constraints, the schedule was revised to Monday–Friday effective July 1, 2023. The ridership data analyzed in this study were collected when the system included Saturday service.

The Greene Link provides demand-response service into Charlottesville five days a week, with a longer span of service hours than is available in other rural counties. Overall, service in Greene County is doing fairly well. Nevertheless, stakeholders mentioned a need for more trips to Charlottesville from Greene County, and respondents to the public survey conducted for the TDP mentioned a need for service improvements in the county. This could be accomplished by extending the hours of its current service.

An expansion of microtransit service along U.S. 29 into Greene County could also lead to increased ridership. The microtransit study currently underway in June of 2024 is examining the potential for a microtransit zone in Greene County, with expanded CONNECT service all the way to Ruckersville.

5.4.5 Louisa County

Needs Assessment:

- Ridership is significantly below the first goal—in absolute terms the gap below the first goal is the largest among all of the counties.
- Gaps are found throughout the county, but the largest gaps are in the eastern part of the county.
- The central part of the county around the town of Louisa is better served.

Recommendations:

- Expand the Louisa Link demand-response service into Charlottesville to 5 days per week and extend the hours later.
- Study options for additional services, such as commuter bus or flex route services, connecting the town of Louisa to outlying areas.

Louisa County has the highest population outside of Albemarle County, but it has less ridership than Greene County and significantly lower per capita ridership. While Greene County has less population, it is smaller in size with a greater population density that is also closer to Charlottesville, which makes it easier to provide transit. Louisa, on the other hand, is a larger county with a more dispersed population and longer travel distances to Charlottesville, which makes it more challenging to provide transit.

The Louisa Link is a demand-response service that provides trips into Charlottesville, but it operates just three days a week with limited hours. It requires pre-planning to use and cannot serve work trips. The

Louisa Circulator provides demand-response service within the county five days per week, 11 hours per day, which is a comparatively good service span.

Per capita ridership is relatively good in the central part of the county, around the town of Louisa, but is lacking elsewhere. The TDP recommended a new Louisa Circulator flex route that would connect the town of Louisa to Zion Crossroads. This would help increase ridership in the western part of the county.

Connections to Charlottesville could be improved by expanding the Louisa Link or adding a commuter bus service. This would help satisfy some of the unmet needs. Current services are unable to serve commute trips into Charlottesville or Albemarle County, and the limited services can also make it difficult to use transit for health care or other appointments.

5.4.6 Nelson County

Needs Assessment:

- Low population density, but the demographics support a need for transit with a high percentage of older adults and relatively high rates of poverty and disability.
- Demand-response service is limited.
- Ridership would need to increase 3.6 times to reach the first goal.

Recommendations:

- Expand the geographic coverage of the Lovington Circulator demand-response service to the entire county.
- Extend the service span of the Circulator service, with a goal of 5 days per week and 10 hours per day.
- Expand the Nelson Midday Link, providing demand-response service to Charlottesville, to 5 days per week, with increased hours and frequency.

Nelson County has a low population density, which makes it challenging to provide effective transit. Demographics suggest a need for transit services. Twenty-eight percent of the population is aged 65 or older, the highest percentage in the study area. It also has the highest poverty rate and, along with Buckingham County, the highest percentage of occupied households without a vehicle (6%).

Nelson County is served by commuter buses and some limited demand-response service. The demand-response service includes trips into Charlottesville two days a week and the Lovington Circulator that operates in the Lovington area two days a week.

Ridership in Nelson County is well below the first goal and could be increased by expanding the days and coverage of the demand-response services. The Lovington Circulator does not cover all of the county. The TDP recommended adding service for the Stoney Creek and Wintergreen communities, and eventually expanding it to include all of Nelson County; they also recommended expanding the demand-response services to five days a week. This study supports those recommendations.

While Jaunt provides connections to Charlottesville through both the commuter bus and demand-response services, many residents in the county commute or travel to other areas that are not served by Jaunt, such as Lynchburg, Waynesboro, or elsewhere. Service from Nelson County south to Amherst County and Lynchburg could satisfy some of the unmet demand. However, the LEHD data show that more trips are made north to Albemarle County and Charlottesville, and serving those needs should remain a priority.

5.4.7 Goochland County

Needs Assessment:

- There are no transit services currently available.
- Western Goochland County, the focus of this study, has a lower population density.
- Travel is oriented more toward the Richmond area than to Charlottesville.
- There is a demand for service in Western Goochland, but other counties in Jaunt's service area have greater unmet needs.

Recommendations:

- Prioritize improvements within Jaunt's existing service area.
- Goochland County should focus on obtaining services from a Richmond-based provider.

Goochland County does not currently have transit services. The eastern part of the county borders the Richmond metro area. This study focuses on the western half, which is adjacent to Jaunt's service area. Like other rural areas served by Jaunt, western Goochland has a low population density. The poverty rate is low, but it has a larger youth population and a disability rate similar to other counties in Jaunt's service area.

This study estimated a goal of close to 9,000 annual trips for western Goochland, with progressively higher second and third goals. Some of this ridership could be achieved by providing demand-response services within the county. Stakeholders recommended service five days per week and 10 hours per day. To meet the demand, services would also need to be provided outside the county. Unlike areas currently served by Jaunt, however, Charlottesville and Albemarle County are not the main travel destinations. The Richmond metro area is the main commute destination for workers in western Goochland. An effective transit service in Goochland County would need to provide trips east to Henrico County, Chesterfield County, and the city of Richmond. However, such a service would be costly, given the long travel distances to an area not currently served by Jaunt, and it may not be economically viable. Furthermore, other areas currently served by Jaunt are estimated to have greater ridership gaps than the estimated ridership potential from Western Goochland, so the study recommends prioritizing improvements within the existing service area and adding service in Goochland only if it is deemed economically viable.

6. CONCLUSIONS

The demographic analysis identifies areas with a higher concentration of populations more likely to need public transportation services. Notably, Nelson County has a high percentage of older adults, as do other areas such as parts of rural Albemarle County and Greene County. Nelson, Buckingham, and Louisa counties have areas with higher rates of poverty. Disability rates are highest in Buckingham and Louisa Counties. Compared with the City of Charlottesville, the percentage of the population aged 65 or older is much higher in the rural areas served by Jaunt. The rural areas also have higher disability rates but lower rates of poverty and a lower percentage of households without access to a vehicle.

The study mapped ridership across Jaunt's service area, showing variations in the number of trips per capita. Because older adults, people with disabilities, and low-income individuals are primary users of rural transit services, the number of trips being provided in relation to the sizes of these populations is an important measure of how well the service is meeting the needs of its residents. The study mapped these ridership measures, developed goals based on peer analysis, and compared current ridership to those goals.

The study shows there are significant unmet needs throughout the rural areas served by Jaunt. These unmet needs are greatest in Louisa and Fluvanna counties, while there are also significant unmet needs in Nelson and Buckingham counties and parts of rural Albemarle County. Albemarle and Greene counties are comparatively better served, but some of the rural areas of Albemarle County have low ridership, and services could be enhanced in both counties to reach the higher ridership target identified in this study.

Recommendations were provided for each county for how improvements could be made to reach ridership goals. In many cases, this involves extending the days and hours of existing demand-response services. Some existing services operate fewer than five days per week, and many provide eight or fewer hours per day. The limited service hours require more pre-planning for riders and restricts the number or types of trips that can be served by transit. Ideally, a basic transit service would operate five days per week and at least 10 hours per day, with weekend service or later hours where funding allows. Other enhancements could include increased commuter bus service or the introduction of microtransit in some areas.

While this study discussed recommended improvements, the intent was not to formally identify the specific services needed or prescribe specific changes. Rather, the goal was to quantify the magnitude of the need for transit services and show where those needs are the greatest. The study also provides rough cost estimates for filling the gap between what is needed and what is currently provided. Decision makers can use these results to understand the magnitude of the need and to inform investment decisions.

Future efforts should be made to study the specific service improvements suggested in this report. This includes the ongoing study of implementing microtransit in selected areas. Jaunt should also increase efforts to market its services. Many stakeholders identified a need for improved marketing, and while the impact of such efforts on ridership is not clear, it can be a low-cost way of increasing awareness and attracting riders. Ultimately, however, the quality of the service is the main determinant for how well the demand is being met, and this report provides a guide on the extent to which service levels must increase to meet the needs.

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APPENDIX A: DATA SOURCES

Primary Data Sources

Data Source	Description	Use in Study
Jaunt	FY 2023 operational data were collected from Jaunt, as reported by the Trapeze and RouteMatch software. Information about service hours and days and geographic coverage of different services were also collected.	These data were used to conduct the analysis of ridership, service span, and other operational statistics for FY 2023.
Survey of stakeholders	A survey of stakeholders was conducted to collect information on service goals and needs. A total of 49 responses were received.	Responses identified desired days and hours of service and provided evidence regarding service needs to complement and support the quantitative analysis.

Secondary Data Sources

Data Source	Description	Use in Study
American Community Survey (ACS)	The ACS is conducted annually by the U.S. Census Bureau. It covers several topics not included in the decennial census.	Population and demographic data at the county, city, and census tract levels were obtained from the ACS. In addition to creating the population and demographic profiles, these data were used in the mobility gap calculation, the demand estimation, and the development of the ridership goals. The 2021 and 2022 five-year estimates were used in the study.
Longitudinal Employer-Household Dynamics (LEHD)	The LEHD program is part of the Center for Economic Studies at the U.S. Census Bureau. The program links employer and household data.	LEHD data from 2021 were used to estimate commuting patterns and the directions and destinations of commuting trips. Ridership goals were adjusted based on LEHD data.
National Household Travel Survey (NHTS)	The NHTS is a periodic national survey conducted by the Federal Highway Administration that collects data on personal and household travel.	Information from the 2009 NHTS, as cited in TCRP Report 161, was used in the calculation of the mobility gap.
National Transit Database (NTD)	The NTD is a national source of transit data. Agencies that receive Section 5307 or 5311 funding are required to report data to the NTD.	Jaunt operational data for 2021 and 2022 were collected from the NTD. NTD data from other rural agencies were used to conduct the peer analysis (along with population and demographic data from those areas). The peer analysis, along with demographic data for Jaunt's service area, formed the basis of the ridership goals.