



Regional Transit Vision

Final Transit Vision Plan

November 2022



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Executive Summary

What is the Vision Plan?

This Transit Vision Plan is a collaborative effort to evaluate transit service in the City of Charlottesville and the Counties of Albemarle, Greene, Louisa, Fluvanna, Buckingham, and Nelson and to establish **a clear, long-term vision for efficient, equitable and effective transit service in the region.**

The **Thomas Jefferson Planning District Commission** (TJPDC) has led this effort, which is funded by the City of Charlottesville, Albemarle County, and the Virginia Department of Rail and Public Transit (DRPT). This Transit Vision Plan furthers the work of the Regional Transit Partnership (RTP), which strives to improve communication and collaboration between regional transit providers.

A key goal of the Plan is to establish a single unified vision for transit service in the Charlottesville area that can be shared and supported by all the members of the RTP and its constituents. The plan includes:

- A study of the region's existing conditions, including transit services, transportation patterns, and land development practices.
- Engagement with the community, stakeholders, and elected officials about the priorities for the future of public transit.
- A Vision, Goals, and set of Objectives as well as a recommended set of transit networks.

What is the Vision for Transit?

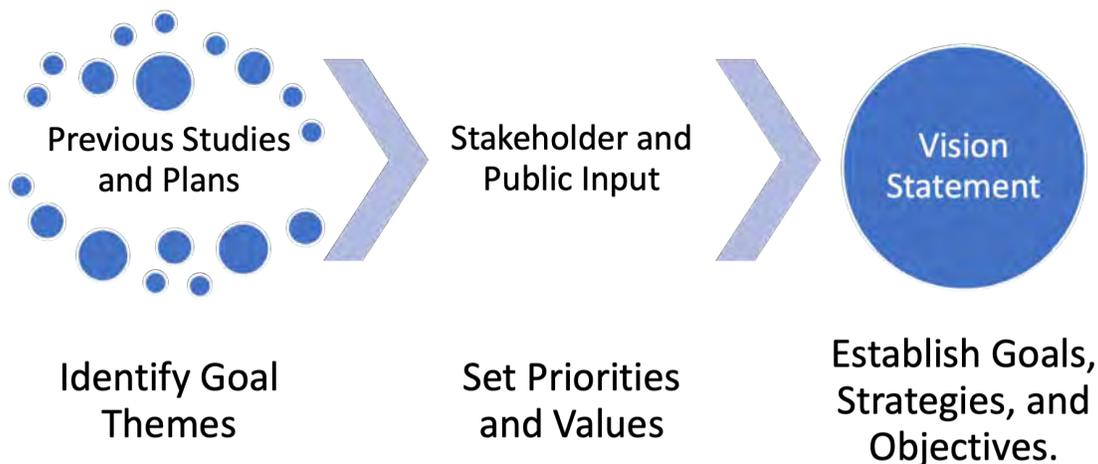
This Transit Vision Plan is built upon a set of three key items:

- **The Vision Statement** that guided the development of the plan and should guide future implementation efforts.
- **A Set of Guiding Principles and Goals** which expand on the Vision Statement and provide further direction to the plan and to implementation steps.
- **The Vision Networks** that guide where new and improved services should be provided under different financial scenarios in the future.

Several stakeholder and public priorities emerged from the engagement process including collaboration, equity, and ecology—especially climate change.

Feedback from the public and key stakeholders indicated the vision should respond to emerging priorities and concerns, such as equity across groups and places. Stakeholders said the vision should reflect the needs in both urban and rural areas of the region. Based on this feedback, and a careful consideration of competing priorities, a vision statement was developed based on the three guiding principles which surfaced through the public and stakeholder engagement activities.

Figure 1: Transit Vision Plan Statement and Goals Process



Vision Statement

Develop, design, and provide transit in the region in a manner that reflects a collaborative, inclusive and equitable process, representing needs in both urban and rural areas. This transit system expands opportunities for all residents (Equity), reduces reliance on automobiles (Multi-modality), and helps protect the environment (Climate Change Mitigation).

Guiding Principles

Three key Guiding Principles—equity, multi-modality, and mitigating climate change—are encapsulated in the Vision Statement above and are a critical foundation to the Transit Vision Plan.

Equity

The Transit Vision Plan prioritizes

- high-quality service to underserved, disadvantaged, and historically marginalized communities;
- connecting these communities to jobs and opportunities in the region;
- connecting rural communities, particularly those who cannot drive or cannot afford to drive, with jobs, medical services, groceries, and many other essential services;

A sense of equity for rural communities drives this vision toward a comprehensive, regionally connected system of transit services across all of Charlottesville, Albemarle County, Greene County, Louisa County, Fluvanna County, Buckingham County, and Nelson County. The feedback from the public engagement activities exhibits broad agreement with these priorities.

Multi-modality

The Transit Vision Plan prioritizes multimodal connections

- in the urban core by improving connections between local transit and intercity services;
- along fixed routes where safe, accessible, and attractive walk/bike connections to transit should be available;
- and in outlying rural areas where long-distance transit, on-demand services, and intercity stops, can converge to improve local and regional connectivity.

These measures amplify each other to reduce reliance on automobiles, support a safer transportation system, provide better access to jobs and opportunities across the region, and improve transit rider satisfaction.

The Transit Vision Plan includes transit services attractive to transit-oriented development, such as Bus Rapid Transit (BRT) and well-integrated transit centers. **To achieve a multimodal future, local jurisdictions will need to lead on land use policies supportive of sustainable transit operations, with higher densities and lower parking requirements near transit services.**

Climate Change Mitigation

The Transit Vision Plan prioritizes the environment by

- emphasizing improved transit service to encourage more transit ridership and discourage single occupancy vehicle use;
- encouraging complementary land use policies that support higher transit ridership, as well as walking and biking as alternatives to driving; and
- planning for a clean fuel transition for transit, recognizing the various options to make the transition over time.

The environmental benefits of transit come from a range of ways **transit reduces the energy needed for people to move around and access their daily needs**. Transit is incredibly space-efficient and with more people moving in less space, there is less need for parking and other auto-oriented designs that spread development farther apart. Thus, places where transit is useful tend to be dense and walkable, which means more people can access their daily needs with shorter trips. Furthermore, a shift to electric propulsion will add to the ways transit improves air quality and reduces carbon impacts.

Goals

Building off the Vision Statement and Guiding Principles, the following eight Goals were developed to guide the Transit Vision Plan and its implementation.

Goal 1—Enhance: Provide high quality and high frequency transit options in the busiest parts of the region

Goal 2—Expand: Expand the region’s transit service to more neighborhoods, towns, and places and increase basic transit connectivity

Goal 3—Connect: Promote efficient and attractive multimodal connectivity for seamless regional travel

Goal 4—Collaborate: Improve internal and external communication with the transit

agencies and with local governments to increase transit supportive land use decisions

Goal 5—Improve Equity: Improve transit access for people with low household incomes, limited physical mobility, or lack of access to automobiles

Goal 6—Grow Equitably: Create a strong linkage between transit and compact, walkable, robust transit-supportive and equitable land use with safe access/egress conditions

Goal 7—Support: Enhance the region’s economy and economic well-being of its residents by improving access to employment opportunities and community services

Goal 8—Sustainability/Climate: Minimize the environmental impact of the region's transportation system

These goals are supplemented by a set of objectives that define actions needed to implement the vision, described in more detail in Chapter 2.

The Vision in Action

To imagine the future where this Vision and these Goals are implemented the Transit Vision Plan includes two Networks to guide the implementation of new and expanded transit service across the region:

- **The Unconstrained Vision Network** shows what a future transit network looks like that fully implements the Vision Statement and Goals above, without considering any financial constraints.
- **The Constrained Vision Network** shows a future transit network that implements the Vision Statement and Goals within the constraints of a potential regional transit funding measure.

These two Vision Networks were developed based on the goals above, transit provider guidance, and public feedback. The networks are described on the next few pages and in more detail in Chapter 4.

Unconstrained Network

The project team—including staff from the transit agencies, local planners, and the consultant team—developed the Unconstrained Network based on the project Goals and it reflects a fundamental rethink of transit in the region. It imagines a future where the transit network is substantial enough to meet the key community desires around economic development, land use, housing affordability, climate, and other policy objectives. In this sense, one could also call this the **policy network**, as it supports many community policies.

In the Unconstrained Network, every transit service in the region would run seven days a week. On weekdays, most services on both the urban and regional networks would run at minimum from 7 am to 8 pm, with some services running to midnight. Also, most services would run “all-day” service—consistently both during the morning and evening peak periods and during the middle of the day.

Urban Transit in the Unconstrained Network

Figure 3 shows the Unconstrained Network, which contains the following key service types:

- High-frequency (10 minutes or better) service running on key corridors;
- A BRT service running every 10 minutes from US 29 north of Charlottesville, through UVA and downtown to Pantops;
- High-to-moderate (15 to 30 minutes) frequency local bus service providing access to neighborhoods and key destinations;
- Low-frequency (60 minutes) regional or express bus services that connect outer-lying communities with the urban core; and
- On-demand transit zones in targeted areas.

These features combine to create an extensive network connecting people and places in the urban parts of the region.

Access to Jobs and Opportunity in the Unconstrained Network

A key measure of the usefulness of transit is how it connects people to employment.

Job access is an indicator of both the work opportunities that can be reached by transit, and the businesses and services customers or clients could choose to travel to. The Unconstrained Network vastly expands the number of jobs accessible to most people in the urban parts of the region compared to the Baseline Transit Network.

The chart in Figure 2 shows the change in jobs reachable by transit in 30 and 45 minutes for the average person in the urban area. In the Unconstrained Network, the average person could reach 140% more jobs in 45 minutes. This represents an enormous increase in access to opportunities as jobs represent more than just employment opportunities; they represent many destinations that people want to reach, such as shopping, medical centers, and educational institutions.

The average resident of the urban area would be able to reach 140% more jobs in 45 minutes by transit.

Figure 2: Change in Job Reachable for the Average Resident with the Unconstrained Network

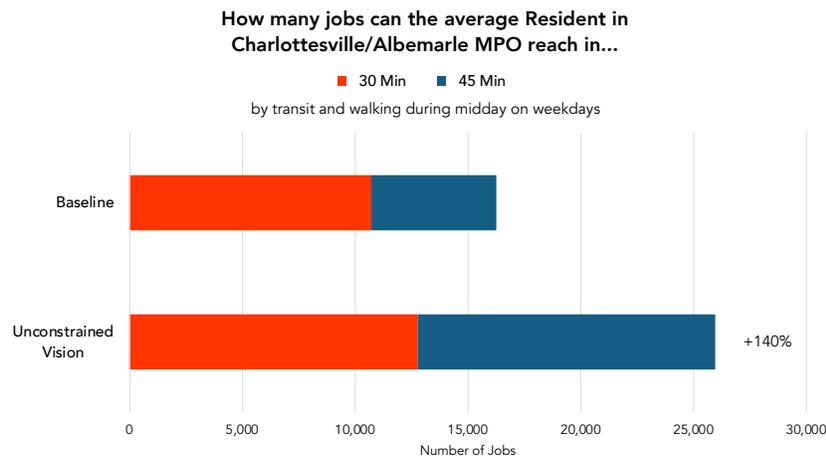
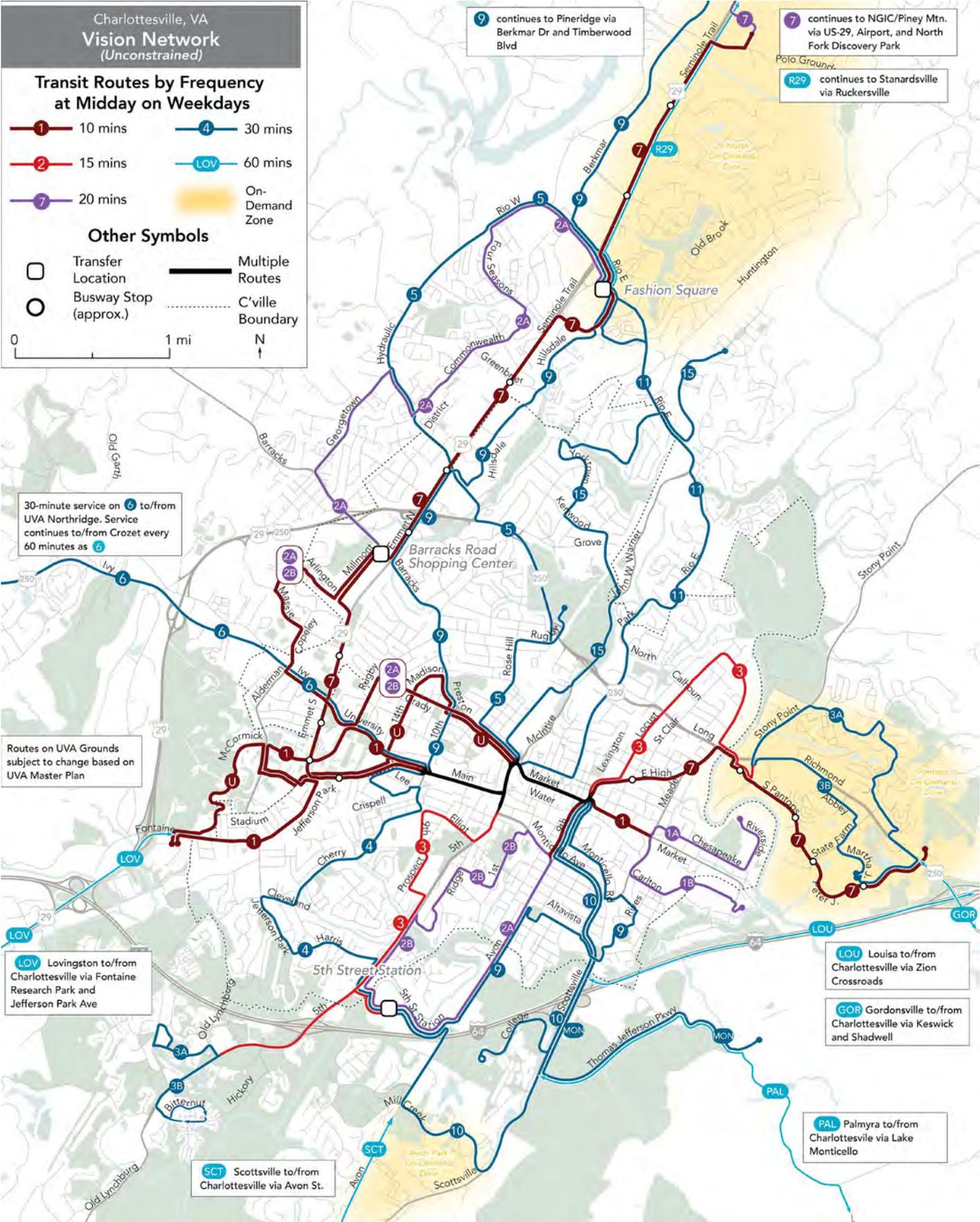


Figure 3: Unconstrained Network in the Urban Area of the region.



Rural and Regional Transit in the Unconstrained Network

The Unconstrained Network presents a dramatically expanded network for areas beyond the urban areas of Charlottesville and Albemarle. Figure 5 shows the map of expanded service.

The Unconstrained Network includes **eight new fixed-route regional services**. Some of these services look similar to the present-day CONNECT services, but would now provide all-day service, seven days per week.

To connect people to these fixed-route services, **seven on-demand zones** would provide same-day access to the regional transit network in specific zones.

On-demand services are flexible transit services where a rider can call ahead or use an app to request a ride, similar to how one might call a taxi or an Uber. Service can be door-to-door, or it can be arranged to connect only to and from a transit hub, or to pre-determined "virtual stops" (see Figure 4).

In addition, the Unconstrained Network includes an expansion of the existing county-wide Circulator services to connect with the regional network. Some areas would continue to have day-ahead reservation Link services.

What Would the Unconstrained Network Cost?

For services operated by CAT, the Unconstrained Network represents a 310% increase in the total amount of revenue hours as compared to the existing service. For services operated by Jaunt (excluding ADA paratransit service), the Unconstrained Network represents a 704% increase in the total amount of revenue hours as compared to the existing service. Including the cost of operations and vehicles, it is estimated that the Unconstrained Network would require about \$70 million per year (in today's dollars) to operate and maintain.

The Unconstrained Network includes a few major capital improvements to address speed, reliability, and directness of service:

- a Bus Rapid Transit corridor along US-29 to Pantops via downtown.
- a restructuring of transit circulation in downtown to reduce the one-way looping with a new downtown transit center.
- a pedestrian, cyclist, and transit-only bridge parallel to the existing Free Bridge across the Rivanna River at Pantops to provide a more direct and delay-free alternative for transit vehicles.

These capital requirements are not explored in detail in the Transit Vision Plan and will require additional studies in the future as the Region works towards implementing the Vision.

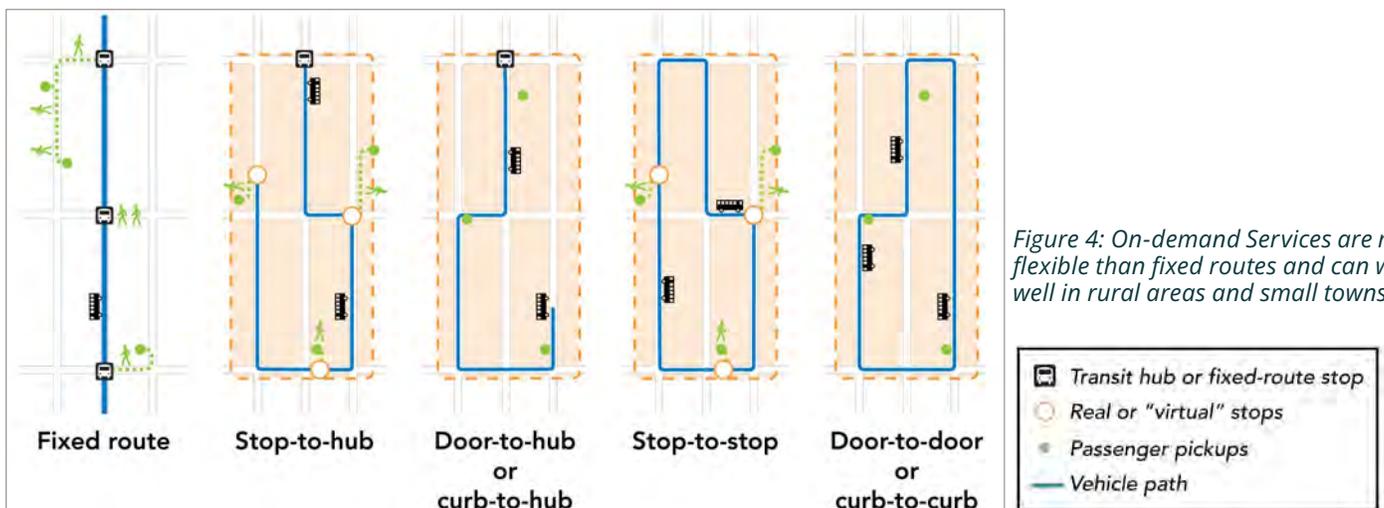
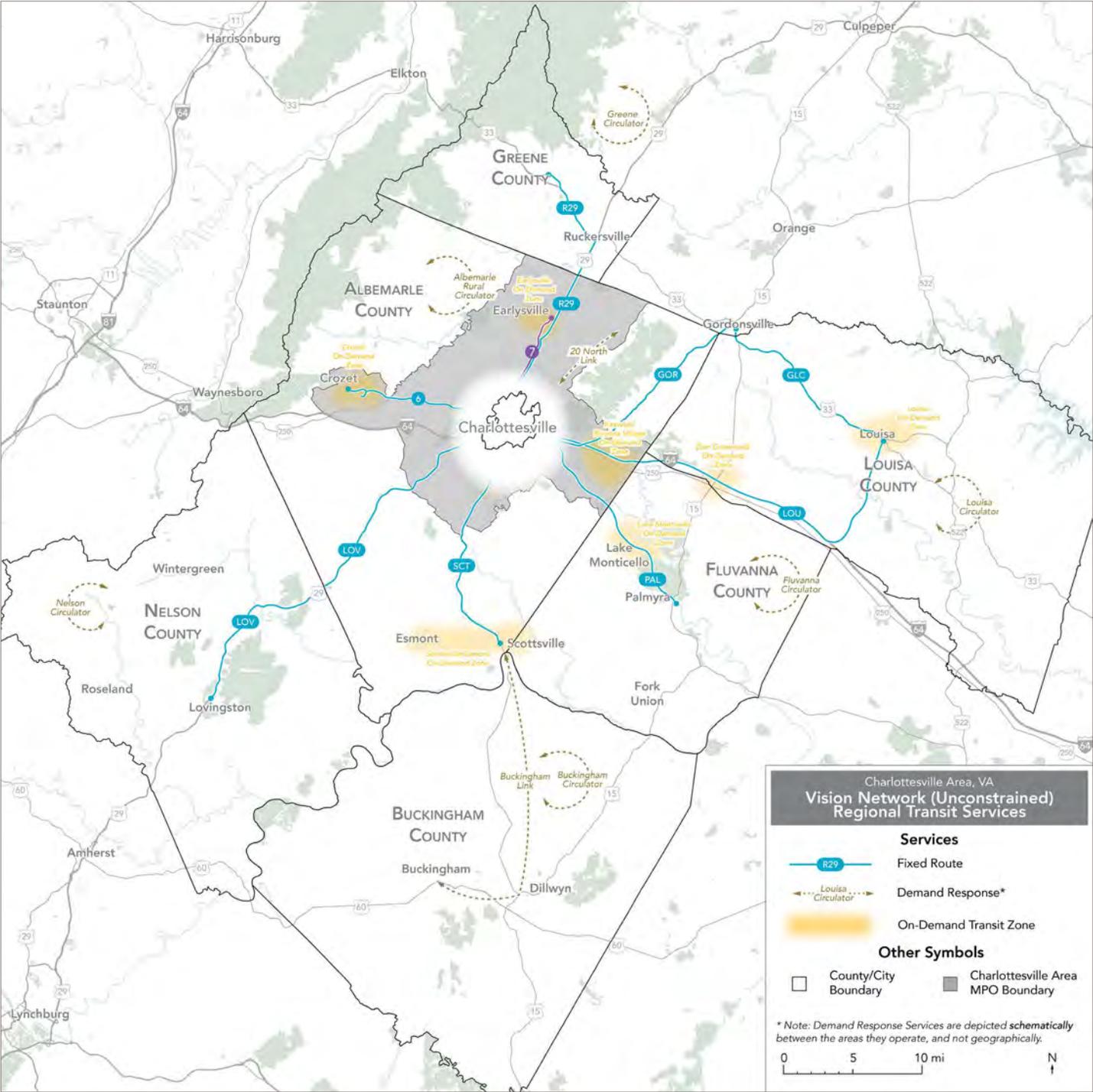


Figure 4: On-demand Services are more flexible than fixed routes and can work well in rural areas and small towns.

Figure 5: Unconstrained Network in the Rural and Outlying Communities in the Region



Constrained Network

The Constrained Network also springs from the project goals and associated objectives. However, it scales back recommendations based on cost. It improves upon the existing system and assumes the creation of a new regional funding mechanism similar to the Central Virginia Transportation Authority (CVTA) in the Richmond area. The CVTA is funded by sales and gas tax revenues collected within the jurisdictions covered by the authority. Based on direction provided by study partners and the Regional Transit Partnership, the Constrained Network assumes part of the new regional funding would relieve local governments from some of the direct cost of transit services that they fund today.

Urban Transit in the Constrained Network

In the Constrained Network, there are a number of improvements to fixed route services in the urban area. **Most fixed-route services and several regional services in this concept will now run seven days a week.** More routes and more services run all-day, meaning not just at rush hours, but at mid-day and evenings as well.

The Constrained Network builds on the revamped CAT network the agency plans to roll out in 2023. In the urban areas, there are a number of fixed route and other service improvements, including:

- Route 7 operates every 20 minutes.
- Routes 2A, 2B, and 4 operate every 30 minutes.
- Routes 2A and 2B combine on Avon to provide service every 15 minutes.
- Hourly service to the Airport and North Fork Research Park provided by Route 7.
- The Trolley is extended from downtown to Pantops via High Street. In Pantops the Trolley would branch into two services routes serving South Pantops and Fontana.
- On-Demand Transit zones would serve

Pantops and 29 North Area.

- More consistent 7-day a week service, with all fixed routes operating every day and later in the evening on Saturdays.

What Would the Constrained Network Cost?

For services operated by CAT, the Constrained Network would represent a 113% increase in the total revenue hours, and therefore annual operating costs, compared to the existing service. For services operated by Jaupt (excluding ADA paratransit service), the Constrained Network would represent a 154% increase in the total revenue hours, and therefore operating costs, compared to the existing service.

Including capital costs, the entire network would cost about \$35.5 million per year to operate and maintain. Assuming consistent Federal and State funding of about \$9.5 million, the Constrained Network would require about \$26 million per year in regional funding.

With the Constrained Network, the average resident in the urban area could reach 33% more jobs in 45 minutes by transit.

Figure 6: Change in Job Reachable for the Average Resident with the Constrained Network

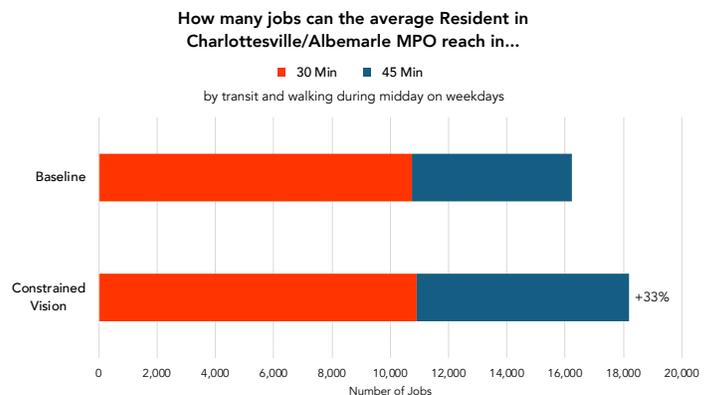
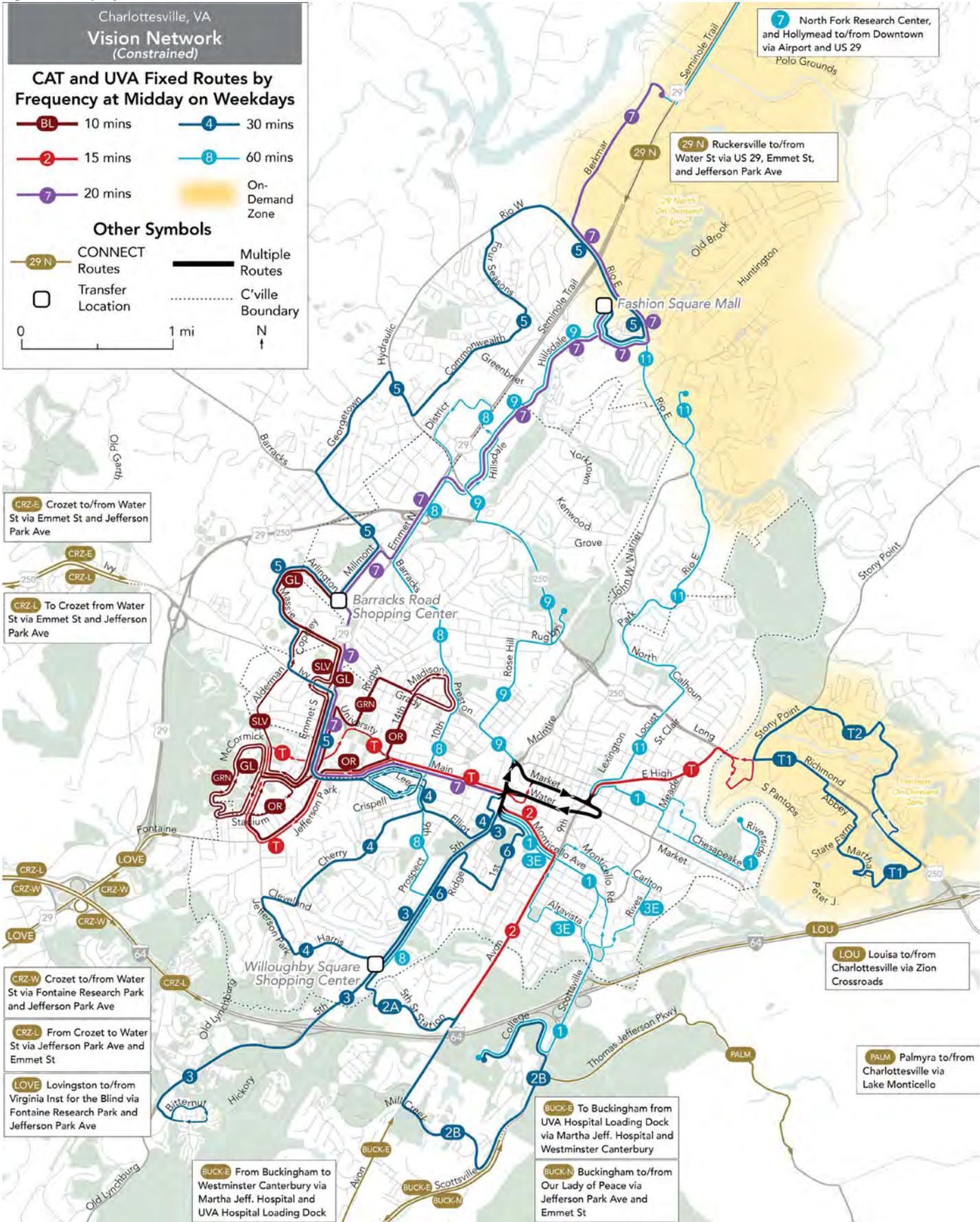


Figure 7: Map of the Constrained Network in the Urban Area.



Rural and Regional Transit in the Constrained Network

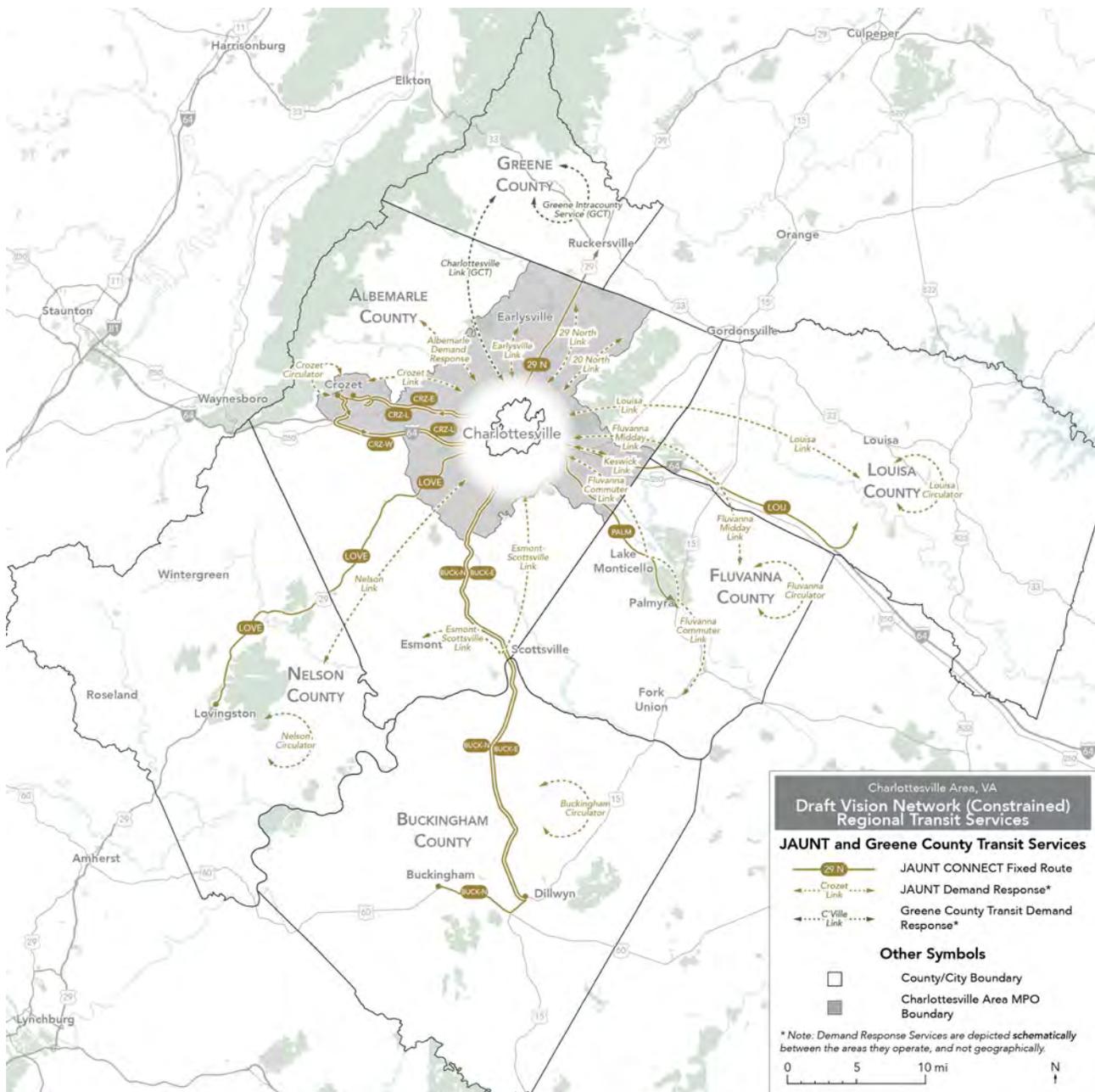
The map of regional transit in the Constrained Network appears the same as the existing in Figure 8. In the Constrained Network, though, there would be more hours of service and more trips per day on most services.

All **CONNECT routes would now run seven days a week** and provide two additional trips a day compared to existing services. The Constrained Network would create new

CONNECT lines to Louisa and Palmyra and extend the 29 North CONNECT from Hollymead all the way to Ruckersville.

Circulator services would now operate seven days a week and be expanded to include Buckingham County. These services would still require a reservation a day ahead. Link services connecting Charlottesville and urban Albemarle County would be the same as in the existing network.

Figure 8: Map of the Constrained Network in Outlying Communities



Summary of Engagement

The Transit Vision Plan incorporated a robust engagement process, establishing early and continuous engagement through a public involvement process beginning in July 2021 and continuing through September 2022. **The process involved diverse community members and stakeholders through multiple channels and opportunities.**

These channels enabled TJPDC to connect with thousands of individuals regarding the Transit Vision Plan, many of whom contributed the perspective of traditionally underrepresented communities. Feedback from these individuals shaped the Vision Statement, Guiding Principles, Goals, and Networks. Key feedback included a focus on equity and climate change, an emphasis on better frequency as well as evening and weekend service, and a desire for all-day regional connecting service.

Public and stakeholder engagement during the Transit Vision Plan process included

- **A Website** that has functioned as an online resource throughout the process.
- **Four Community Surveys** garnered a **total of nearly 1,400 responses**. The surveys included direct engagement with transit riders at the Downtown Transit Center.
- **Five Stakeholder Workshops** where the project team presented to stakeholders and the Regional Transit Partnership (RTP).

- **Three Public Forums**, in total: two virtual events and one in-person forum.
- **Multiple Public Intercept Events** where TJPDC staff attended gathered feedback including collaboration with Albemarle County's public outreach department at Soul of C'ville.
- **Five Focus Groups** where TJPDC held discussions with targeted stakeholders to ensure representative perspectives from those often excluded from transportation planning, including:
 - Low-income residents
 - Older adults
 - People with disabilities, and
 - People with limited English proficiency
- **Ongoing Stakeholder Coordination** with various groups to collect feedback and spread the word including IMPACT C'ville, PAH, Community Climate Collaborative (C3), Piedmont Environmental Council (PEC), Jefferson Area Board for Aging (JABA), Sin Barreras, and UVA Hospital.
- **Numerous Presentations** by the project team to elected bodies and stakeholder groups.
- **Mailing and Notices** to inform the public about the process, engagement opportunities, and outreach forums.

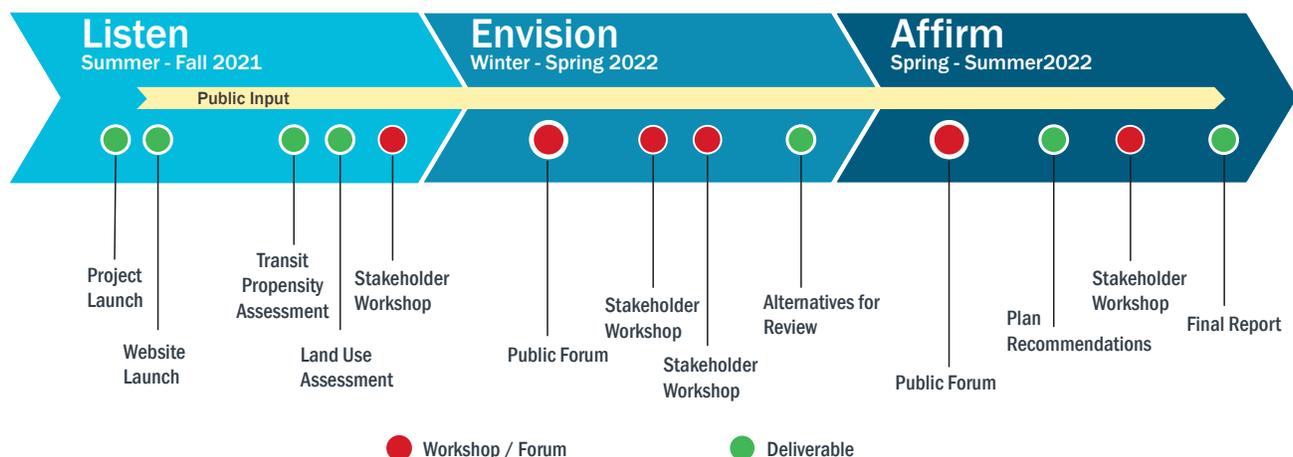


Figure 9: Timeline of the three phases of engagement for the Transit Vision Plan

Key Next Steps

Key first steps the region can take to make progress on the Transit Vision Plan include:

- Initiating the **Transit Governance Study** to guide governance structure of a regional authority and likely revenue sources and other key funding structures.
 - Communicate and organize to build understanding of different regional transit funding and governance models and develop a consensus recommendation to take to the General Assembly.
 - Work with local governments to **identify the corridors and services they want to champion** through further studies, particularly for BRT services.
 - Continue to coordinate on future land use plans to incorporate best practices for transit-oriented development and higher ridership development patterns.
 - Consider using **scenario planning techniques** to assess the potential for land use and transit synergies during the region's long-range transportation planning efforts.
 - Continue to support the Regional Transit Partnership as a body to coordinate on transit planning and decision-making as the region considers governance, funding, and key planning decisions before implementation of an authority.
 - For key corridors, like Route 29 North, where BRT is recommended in the future, explore extending service to unserved areas first, and improve the frequency of service before pursuing capital investment funding for BRT investments.
 - Continue to educate stakeholders and elected officials across the region on the relationship between density, walkability, design, and other factors supportive of transit investments so appropriate land use policies and plans can encourage long-term increases in transit demand.
- Work with regional partners like educational institutions to **improve workforce development efforts** to address the current labor shortage in the transit industry.
 - **Incorporate service guidelines** as the Vision Plan is implemented to track progress and adjust services as needed.

Central Virginia, Northern Virginia, and Hampton Roads have implemented transportation authorities to significantly improve transit. These examples provide guides to a range of financial and governance structures this region could use to fund and implement this Transit Vision Plan.



Chapter 1

Why Should the Region Improve Transit?

What Issues Does Transit Address?

Public transit provides many potential benefits to the community and its residents, businesses, and institutions. Different people and communities value these benefits differently so understanding which benefits matter most in the region is a key step in developing a new vision for transit in the region.

Some major benefits of transit include:



Social Safety Net

Transit can help meeting the needs of people in situations of disadvantage, with access to essential services and jobs, or alleviate social isolation by providing a basic affordable transportation option.



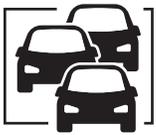
Economic Opportunity

Transit can give workers access to more jobs; businesses access to more workers; and students more access to education and training.



Climate and Environmental Benefits

By reducing car trips, transit use can reduce air pollution and greenhouse gas emissions. Frequent transit can also support compact development and help conserve land.



Congestion Mitigation

Transit carries more people than cars; transit use can mitigate traffic congestion by reducing Vehicle Miles Traveled (VMT). This is especially important in areas with high jobs-housing imbalances and a preponderance of long commutes.



Health

Transit can support physical activity. This is partly because most riders walk to their bus stop, but also because riders will tend to walk more in between their transit trips.



Personal Liberty

By providing people the ability to reach more places than they otherwise would, a transit system can be a tool for personal liberty, empowering people to make choices and fulfill their individual goals.

High Transportation Costs

Transportation is a significant cost to households and public entities. Transportation makes up around 16% of the average household's spending in the US. In this region's urban area, transportation expenses consume about 21% of the average household budget and in rural areas it consumes about 25%, substantially higher than the national average.

Longer distances and fewer alternatives to the car are key reasons for the higher transportation costs in this region. The average household in the US drove about 17,800 miles each year. In

the urban area of Charlottesville and Albemarle, the average household drives about 20,300 miles, 14% more miles annually. And in rural areas, the average household drives even more miles, on average, each year.

Transportation costs also accrue to state and local governments that build and maintain roads. More vehicle miles traveled mean more wear and tear. VDOT has budgeted about \$2.1 billion dollars on maintenance and about \$3 billion for construction in Fiscal Year 2022, a total of \$5.1 billion. Comparatively, the state spent about \$929 million on public transportation and rail.

IN CHARLOTTESVILLE AND ALBEMARLE

- 1 IN 10 PEOPLE LIVE IN POVERTY**
- 7% HOUSEHOLDS HAVE NO VEHICLE AVAILABLE**
- \$12,700 ANNUAL TRANSPORTATION COST PER HOUSEHOLD**
- \$59,600 MEDIAN HOUSEHOLD INCOME IN THE CITY OF CHARLOTTESVILLE**
- \$65,000 MEDIAN HOUSEHOLD INCOME IN THE URBAN AREA**
- 21% OF HOUSEHOLD INCOME IS SPENT ON TRANSPORTATION**
- 20,300 AVERAGE HOUSEHOLD VEHICLE MILES TRAVELED**
- 8.42 TONNES OF GREENHOUSE GASES FROM AUTO USE BY AVERAGE HOUSEHOLD**

IN OUTER COUNTIES

Jurisdiction	% People in Poverty	% Households Without Vehicles	Median Household Income	% of Income Spent on Transportation	Average Household VMT	Tonnes of GHG from Auto Use by Avg HH
Buckingham	16%	6%	\$48,600	26%	24,500	10.24
Fluvanna	8%	2%	\$78,900	25%	24,600	10.35
Greene	10%	3%	\$67,300	25%	24,700	10.78
Louisa	11%	5%	\$67,000	26%	25,700	10.76
Nelson	12%	6%	\$62,200	26%	24,800	9.5

Transit can't serve every trip, but it has many personal and community benefits, such as:

Transit is inexpensive to ride. CAT and Jaunt provide fare-free transit service. In the past, a day pass on CAT was \$1.50 and service on Jaunt services was \$3.25. The cost of owning and driving a car is about \$20 a day.

Transit can move many people. The average CAT bus carries 17 passengers per hour and operates 16 hours per day. Most cars carry one or two people, and sit parked most of the day.

Transit requires very little space. A typical sedan requires 70 square feet of road space for a single person. A typical bus carries 10 to 60 people on 400 square feet of road space. That's up to 10 times less road space per person!

Transit requires less fuel and produces fewer emissions than driving alone. A conventional diesel bus gets 4 to 8 miles per gallon. That means it only takes 5 passengers on board to make a bus more fuel efficient than most cars. Technologies like hybrid drive systems, in-motion charging, batteries, and fuel cells, can help reduce the emissions by transit vehicles to near-zero levels.

Transit is available to everyone near it. Not everyone can drive or bicycle, and not everyone wants to. Transit allows all individuals the freedom not to rely on a personal vehicle, and not to depend on friends and family for transportation.

Transit is Essential to the Region's Prosperity

Many parts of Charlottesville and Albemarle presents features that make transit essential, and require it be highly efficient:

- **Severe road space limitations.** Across much of the core of Charlottesville, the road-width is fixed and will never be wider. Efforts at widening roads or highways in built-up areas are extremely costly, frequently destructive, and counterproductive. Curb space is also limited and cannot be readily expanded.
- **Intensification of land use.** In response to growing demands for housing and commercial space, both central and outlying areas are growing more dense. More and more people are living within the same limited area. Charlottesville's new comprehensive plan imagines significant increases in density on key corridors and Albemarle County is expected to grow by 36% in the next 20 years. Thus the space limitations are only going to get more severe.

These two factors combined mean more and more people are competing for a fixed amount of road space. If they are all in cars, they simply do not fit in the space available. The result is congestion, which cuts people off from opportunity and strangles economic growth.

Figure 10 shows buses and bikes use exponentially less space than cars. Even autonomous cars will not change this basic geometric challenge, as they take up almost the same amount of space as today's cars and even carrying three to four persons per car, they cannot be anywhere near as space efficient as buses or bicycles.

The only alternative to congestion is for a larger share of the public to rely on public transit and other alternative modes that carry many people in less space. This requires services that most efficiently respond to the region's changing needs, as well as corridor improvements to give buses a level of priority over cars to reflect the vastly larger numbers of people on each bus. These factors all point toward the need for more transit service and more useful transit service to encourage greater use of transit.

Figure 10: The road space required to move the same number of people using public transit, bicycles, and cars.



Transit Can Handle Many Trips Currently Made by Car

Public transit on fixed routes can help address the high costs of transportation and the need for better access to opportunity, particularly for those without access to cars. In urban areas, transit can do two critical things:

- Transit can extend how far people can go on foot, or bike, providing some of the benefits of a private vehicle but at a much lower cost and without relying on friends or family.
- Transit can replace driving trips in times and places where driving a car is inconvenient or too expensive.

This suggests a significant opportunity for public transit. Of course, transit isn't the only alternative to owning and driving a car. Ridehailing (like Uber and Lyft) and taxis are available in some parts of the region. But these options are more expensive per mile than driving a private car, so very few people can afford to use them on a daily basis. Another alternative could be on-demand dial-a-ride service, similar to the paratransit service that is required for eligible disabled users by the Americans with Disabilities Act (ADA), or subsidized ridehailing. Both options are extremely expensive to extend to the general public, because each trip would cost nearly the equivalent of a taxi ride. Figure 11 shows the range of trips where transit is particularly competitive and efficient in an urban context.

In rural areas, where people, jobs, and destinations are much farther apart, it is harder for transit to cost-effectively deliver significant improvements in access to opportunity purely because it takes so much more time between destinations. The primary cost of transit is paying the operator to drive the vehicle. Therefore, when destinations are far apart, it costs far more per trip to serve with transit. Nevertheless, **transit can play an important role in rural areas by providing insurance against social isolation, a critical link to essential services like shopping and medical services, and access to jobs for those with no other transportation options.**

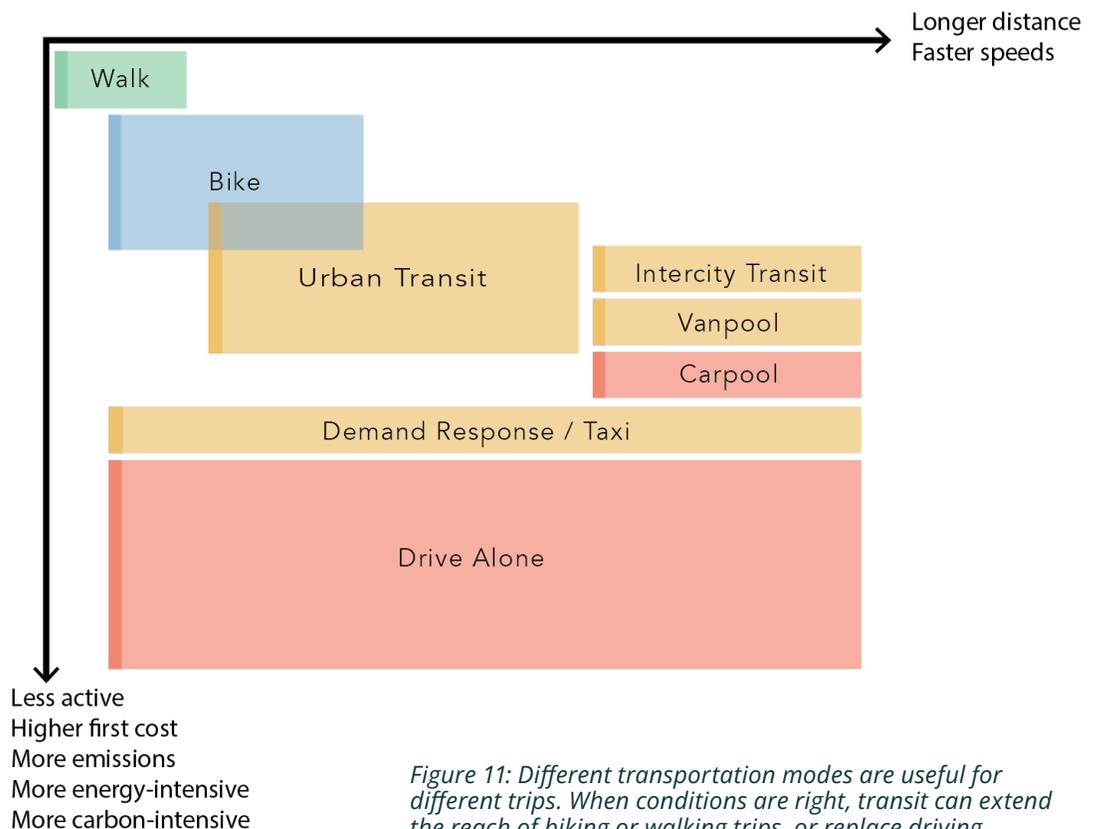


Figure 11: Different transportation modes are useful for different trips. When conditions are right, transit can extend the reach of biking or walking trips, or replace driving.

Transit Is Critical to Meeting Environmental Goals

The *Albemarle County Climate Action Plan* specifically calls for the following goals:

- Reduce overall vehicle miles traveled
- Reduce use of single-occupancy vehicles
- Increase use of alternative modes of travel, such as biking, walking, and public transit.

Similarly, the *Charlottesville Comprehensive Plan* calls for reducing vehicle miles traveled, expanding options for walking, biking, and using transit, reducing emissions, and prioritizes transit-oriented development and infill growth to help the City achieve climate goals.

Both plans have rightly pointed out the need for improved and expanded transit as a key to meeting the region's climate goals. A key factor, though, is that **the green benefits of transit come from people riding transit, not just transit existing.**

Transit achieves its environmental benefits by reducing the energy needed for people to move around and access their daily needs.

When many people share the same vehicle, the direct carbon and other pollutant emissions decline per person. As noted by FTA research: “U.S. bus transit, which has about a quarter (28%) of its seats occupied on average, emits an estimated 33% lower greenhouse gas emissions per passenger mile than the average U.S. single occupancy vehicle. The savings increases to 82% for a typical diesel transit bus when it is full with 40 passengers.” Yet this only quantifies the direct emissions reductions from trips that switch from auto to bus.

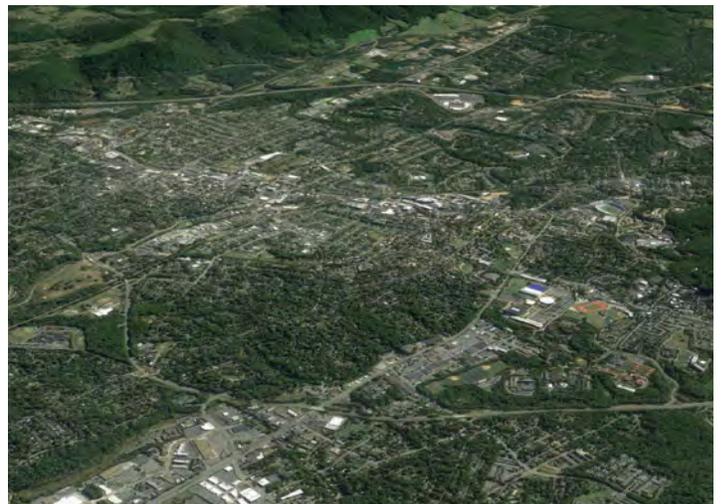
By being space efficient, transit moves more people in less road space, which can make better use of the scarce roadway space, particularly in the dense parts of the region. When more people use transit, fewer people need space to park their personal vehicles. With less need for parking space, it is easier for local governments to allow buildings and development to be closer together, which makes

a place more walkable and transit-friendly, and more space efficient. **Places where transit, biking, and walking are useful options tend to have dense patterns of development, where destinations are closer together, which means more people can access their daily needs with shorter trips.**

The same FTA research shows that: “for every additional passenger mile traveled on public transportation, auto travel declines by 1.4 to 9 miles. In other words, in areas served by public transportation, even non-transit users drive less because destinations are closer together.” **As the region contemplates a significant expansion of transit service, complementary land use policies can reinforce and magnify the many benefits that transit provides, particularly the environmental benefits.**

Figure 12: The new Charlottesville Comprehensive Plan identifies improved transit as a key factor in achieving climate goals in the city.

CVILLE PLANS TOGETHER



COMPREHENSIVE PLAN

City of Charlottesville, Virginia
Adopted November 15, 2021



Previous Studies Identified Need for Improvements

A range of studies of the transit systems in the region have often found a common problem: limited service and lack of reasonable access by transit and other non-auto modes. In a 2008 study, to consider options for a Regional Transit Authority, consultants reviewed and identified many corridors in the urban area of Charlottesville and Albemarle where 30-minute or better frequency was easily justifiable based on an assessment of various market factors like density, walkability, and demographics along the corridors (Charlottesville-Albemarle Regional Transit Authority Report, 2008).

More recently, the October 2020 UVA report, *Transportation Equity and Accessibility in the Charlottesville Region* report noted a number of challenges with the regional transit system. The authors reported that for many marginalized people in the region, the existing transportation systems "fail them, providing reduced choice and service for those with limited resources that further limit their options". Among the range of issues noted, "[t]he challenge of providing frequency service to alleviate the fear of missing a bus and the possibility of a rider being stranded was a major issue." Additionally, the authors noted that this region, like many others, has developed a key challenge commonly called spatial mismatch—in short too often those in need are spatially quite far from jobs and opportunities that might improve their economic and social conditions. Compounding this problem is the "transportation mismatch"—a car-centric emphasis of transportation planning in Charlottesville (and in most US regions) that severely limits access via non-auto modes of travel and burdens low-income households with the relatively high cost of owning and maintaining a car to fully participate in the region's social and economic life. The combination of these factors severely limits the opportunities for low-income households and other marginalized groups to fully participate in and benefit from the many riches of the region.

Among the many recommendations for improvements, the authors noted the need for

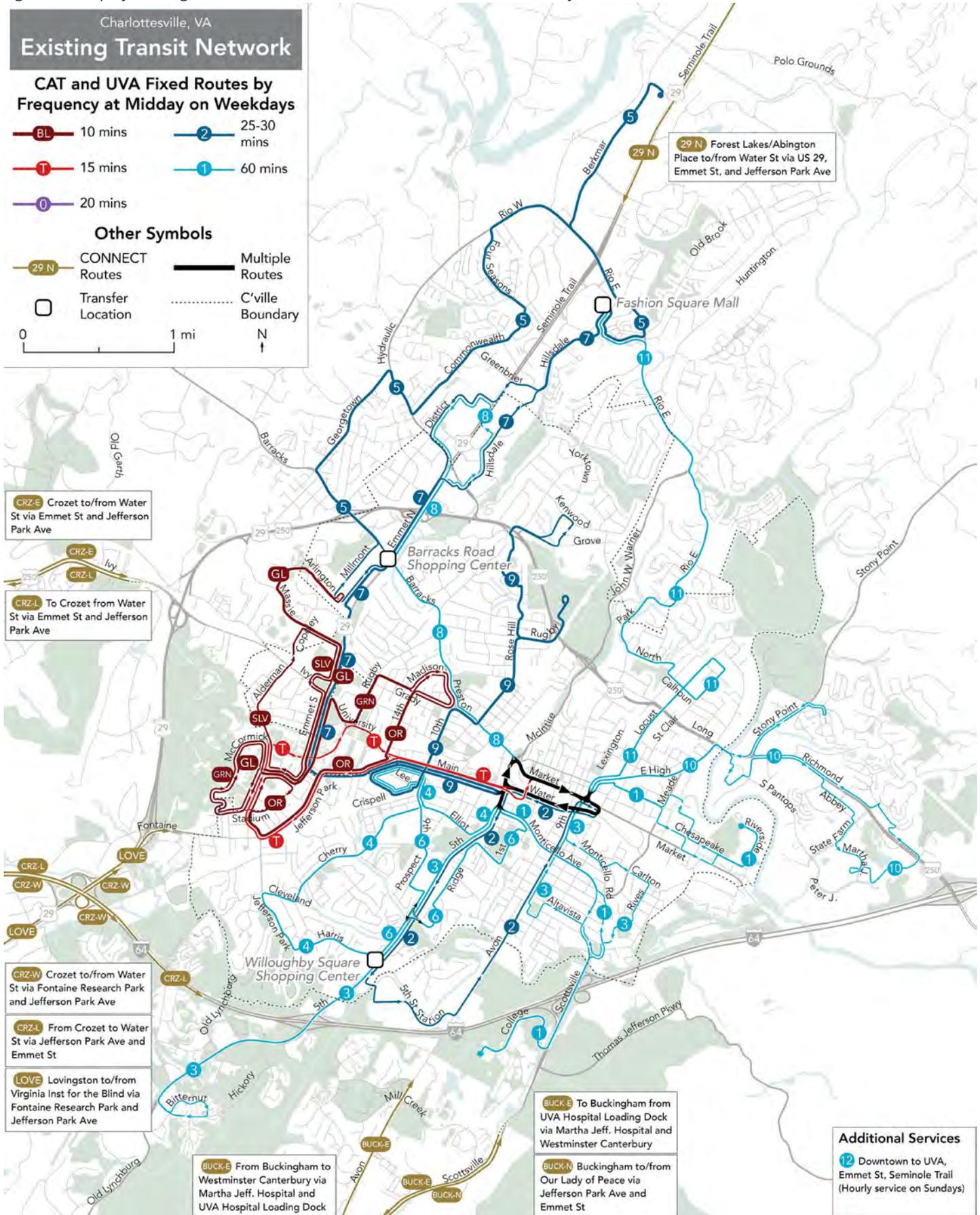
- an expanded fixed-route transit network with more frequent service and faster options like Bus Rapid Transit, complemented with on-demand services in less dense parts of the region;
- a more integrated process of regional transportation planning across all modes; and
- improvements to the bicycle and pedestrian networks across the region to ensure better access to an improved and expanded transit network.

In September 2021, the Community Climate Collaborative (C3) published *Transit Equity and Climate: Moving to a Cleaner Future*. Through this report, the Collaborative conducted focus groups and surveys to understand the issues and concerns that residents have regarding transit in the region. Among the findings were that BIPOC (Black, Indigenous, and People of Color) populations experienced longer trips, likely due to the spatial and transportation mismatch issues discussed in the UVA report. Additionally, the frequency of service was the lowest rated aspect of CAT's service in C3's finding and they indicated that "[i]nfrequent bus arrivals complicate trip planning and make the cost of missing a bus much higher." Riders also expressed concerns about the safety, cleanliness, and location of bus stops and shelters, and expressed that indirect routes created challenges in accessing destinations.

Previous reports identified the low frequency of service as a major barrier to transit usefulness.

Why Should the Region Improve Transit?

Figure 13: Map of Existing (Pre-Pandemic) Transit Network in the Urban Area of Charlottesville and Albemarle



Limitations of Transit Today

Frequency is Limited Today

Figure 13 shows the transit network in Charlottesville and the urban areas of Albemarle County as it was before the pandemic. Every route is color-coded based on its frequency during midday on a weekday.

Dark red routes come every 10 minutes or better; bright red routes come every 15 minutes; dark blue routes come every 30 minutes; light blue routes come every hour.

More frequent service dramatically improves how far you can go, by providing several linked benefits:

- **Shorter Waits.** Waiting for the bus may be the most onerous part of using transit, since you're not moving at all. The more often the bus comes, the less time you wait.
- **Faster Connections.** Connections are the glue that combines a pile of individual routes into a network. The ability to change from one route to another is critical to reach all the places inevitably not on the line you happen to be on. Frequency makes connections easy, because the next bus is always coming soon.
- **Easier Recovery from Disruption.** Frequent service is more reliable. If a bus breaks down, the next bus is coming soon.
- **Spontaneity.** Rather than building your life around a bus schedule, you can turn up at the stop and go.

Frequency defines waiting time, often the dominant element of travel time, particularly for shorter trips in urban areas.

Because these benefits are independent of each other, transit becomes exponentially more useful as frequency improves. **Low frequencies and limited hours of service are one of the main ways transit fails to be useful, because it means service is simply not there when the customer needs to travel.** In the case of transit in Charlottesville and Albemarle, most routes operated by CAT only come every hour, with some routes operating at every 20-30 minutes. CAT makes extensive use of timed transfers to improve connections between these less-frequent routes.

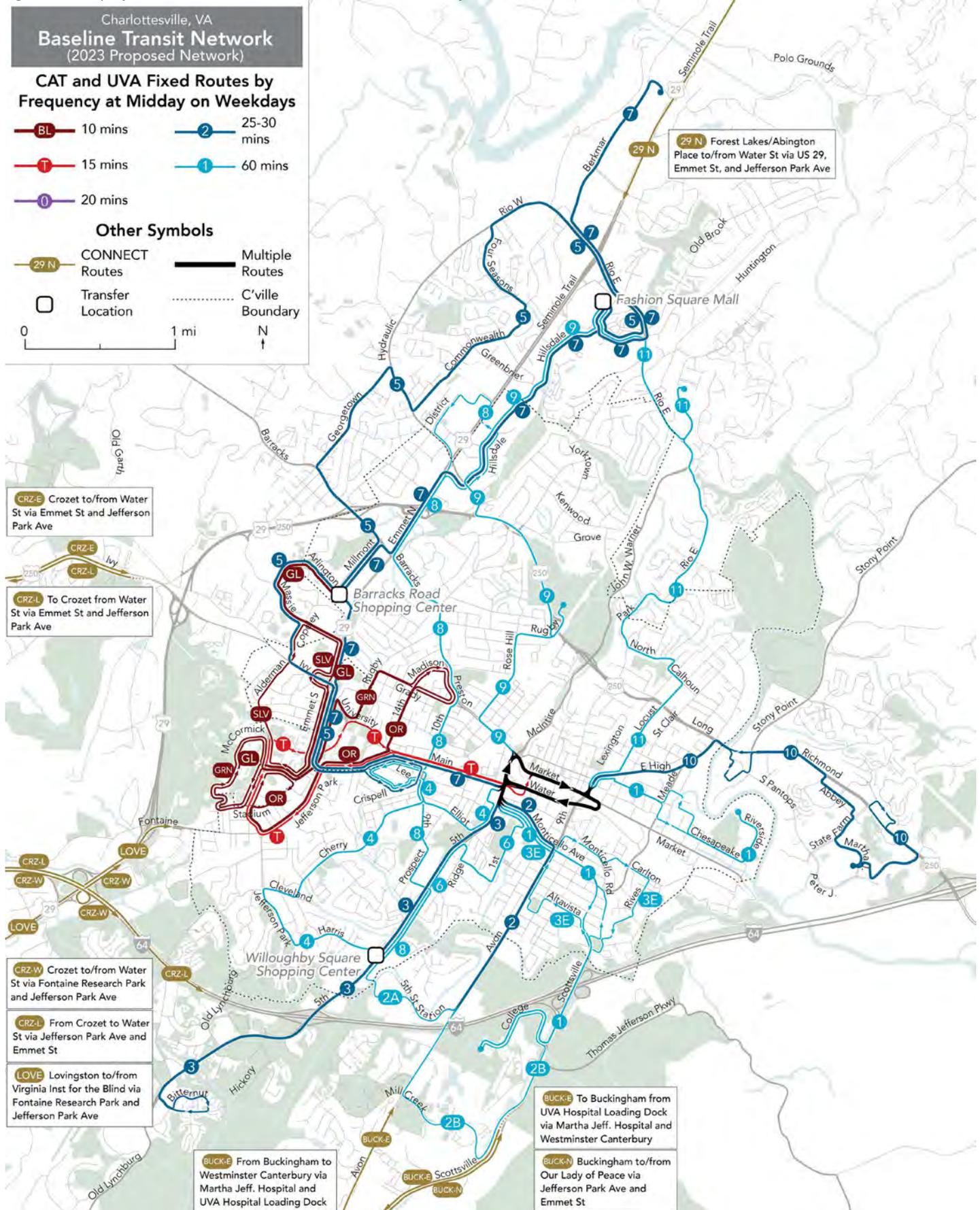
The map also shows the circulator routes the University of Virginia operates around Grounds. These circulator routes operate every 10 minutes or better most of the day, providing very useful service between the various university facilities. During the Covid pandemic, service levels for the University Transit Service (UTS) have varied as the level of activity on Grounds dropped dramatically during the early part of the pandemic and slowly returned to normal in 2021 and 2022.

Many universities operate their own circulator services since universities have high internal demand and specialized needs. There are opportunities in the long-term where IF the region invested more heavily in transit and provided all-day frequent service through Grounds, some internal circulation on Grounds could be handled by those regional transit services. Today, however, only the CAT Trolley service is frequent enough to be useful for internal circulation on Grounds.

As a university-focused service provider, UTS also operates transit services for parking lots and event-based shuttle services, these more specialized services that have specially-tailor hours or days of service would continue to be an important priority for UTS to ensure adequate mobility options on Grounds.

Why Should the Region Improve Transit?

Figure 14: Map of Baseline Transit Network in the Urban Area of Charlottesville and Albemarle



The Baseline Network Only Slightly Improves Frequency

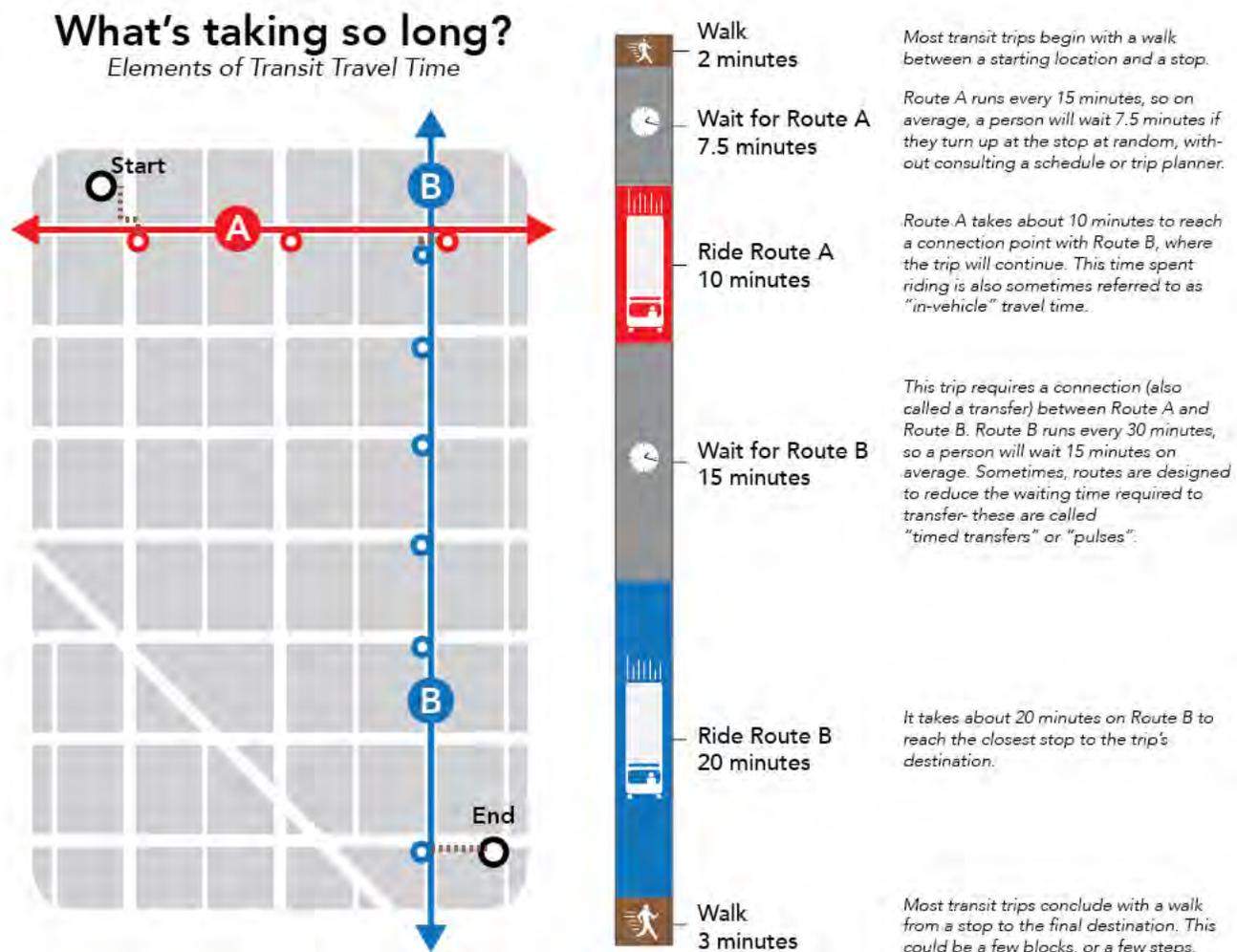
Figure 14 shows the transit network in Charlottesville and the urban areas of Albemarle County as CAT has outlined in their System Optimization Plan. Like the previous map, every route is color-coded based on its frequency during midday on a weekday.

Our analysis of the two Vision Networks is based on a Baseline Network that CAT has created as part of its System Optimization Plan. In this network, frequencies on some lines are improved, particularly with more two-way 30-minute services for areas of downtown along 5th and Avon Streets. Still, most CAT routes come every 30 minutes or every hour, with only the Trolley Route coming every 15 minutes.

Figure 15 shows the elements of an example transit trip along two fictional transit routes. As the example shows, waiting time often makes up an enormous amount to transit travel time, particularly for shorter trips. In this example, total travel time on the two vehicles is only 30 minutes, but total waiting time is 22.5 minutes, nearly 40% of the total travel time for this trip. This example may seem unrealistic, but it is quite similar to the conditions for making a trip from UVA Central Grounds to 5th Street Station via the Trolley and Route 2.

Many transit trips within the urban area today only require 20 to 30 minutes of on vehicle travel time, however they require long waits due to low frequencies. Reducing the frequency of service would do the most to drastically reduce transit travel times in most of the urban area.

Figure 15: Elements of transit travel time.



Limited Hours and Days

For transit to be useful, it must be there at the times of day you need it. The times of day transit operates is called “span of service.” Figure 16 shows the frequency of service in each hour of the day for fixed routes in the urban area on Weekdays, Saturdays, and Sundays. In the urban area, 9 of 13 routes operate after 9pm on weekdays **but only five routes operate after 9pm on Saturdays and only six routes operate on Sundays.**

Frequency of service is consistent across the day; only Route 7 has additional frequency at peak commute times, with every 15 minute service from downtown to Barracks Road on weekdays mornings and evening rush hours. Only the Trolley route provides frequent service all day on weekdays and Saturdays.

The transportation profession has long been focused on the weekday rush hours, because those are the times when our road capacity is most-used and congested. Yet people need to travel at all times of day and week.

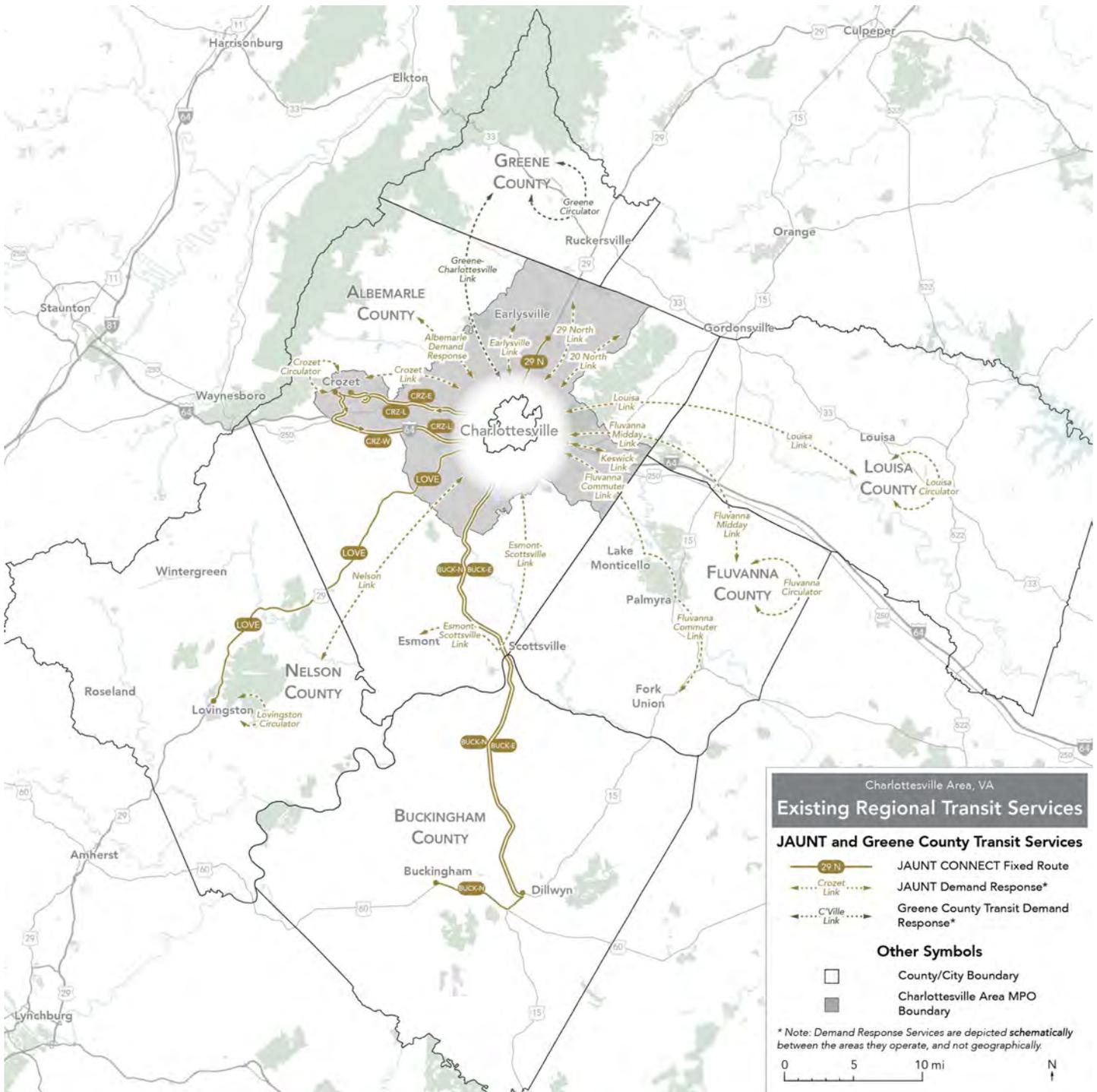
Short spans and minimal weekend service limits the usefulness of transit in several ways:

- **Service worker shifts tend to start early in the morning, or to end late at night.** Many service workers are changing shifts at times when service is infrequent, such as in the very early morning or the late evening.
- **People working in retail or restaurants often need to commit to working on weekend days.** A route that runs very infrequently or doesn't exist on weekends (and at night) is useless to most low-income workers in service or retail industries.
- **People appreciate more flexibility in their lives.** Even among commuters, anyone taking an evening class, pursuing a hobby, going to worship, or occasionally working late wants the flexibility to get home outside of the traditional 8-to-5 workday.

Offering long hours of service seven days a week is key to increasing and maintaining ridership over time. These are the conditions necessary for large numbers of people to build their lives around transit and forgo car ownership.

Why Should the Region Improve Transit?

Figure 17: Map of Baseline Transit Network in the Outlying Areas of the Region



While rural services cover most everyone in the region, the hours and days of service are severely limited.

Rural Service is Limited

This Transit Vision Plan encompasses all of the TJPDC region and other areas served by Jaunt today. The map in Figure 17 shows the services operated by Jaunt within Albemarle County and in the surrounding counties: Buckingham, Fluvanna, Greene, Louisa, and Nelson.

Jaunt operates four different types of services in the area, each serving a particular role in the connecting within and between jurisdictions in the region:

- **CONNECT services** provide a "commuter" style service—a few trips a day in the morning in one direction and a few trips a day in the evening in the other direction focused on daily commuters to and from Charlottesville.
- **Circulator services** are demand-responsive services with door-to-door service within a county or specified area. Most Circulator services are limited to a few days per week and a few hours per day.
- **Link services** are demand-response services between a county or specified area and Charlottesville. Most Link services are limited to a few days per week and a few hours per day.
- **ADA paratransit services** provide door-to-door service to people with disabilities who have gone through an eligibility process and are within a 3/4 mile of a fixed route.

All Jaunt services, except the CONNECT services, are *demand-response* or *dial-a-ride* services. For most Jaunt services, a rider must call ahead, **at least one day in advance**, and book a time to be picked up, dropped off, and then picked up again once they're done. While

these kinds of services make sense in a service area with the size and relatively low population density of much of the rural area in the region, these services put severe limitations on a person's ability to travel around the region, or even within one's own county. Scheduling trips a day ahead takes out spontaneity, so you must build your life around your reserved trip time.

CONNECT services provide links to Crozet, Buckingham, the US 29 North corridor, and Lovingston with Charlottesville. As "commuter-oriented" services, they do not operate all day. They have only one trip or a few trips in the morning toward Charlottesville and return trips in the afternoon. If you have to make a trip between those times, some areas are served by a Jaunt demand-response when CONNECT is not operating.

Changes in technology may enable Jaunt to switch to a more on-demand model, where trips can be booked on very short notice. Such a change would significantly improve access for rural customers and free people in rural areas from having to so carefully schedule their daily travel if they rely on transit. Providing a greater level of flexibility, however, would require additional resources so Jaunt could have vehicles ready and waiting to respond to spontaneous requests.

What Can Improved Transit Achieve?

Better Service Means Better Access

A common goal of transit is to achieve higher ridership and reduce car use. People will use transit when it provides solid answers to the following concerns:

- **Access (or Freedom).** Where can you get to on public transit in a reasonable amount of time, compared to your alternatives?
- **Pricing.** What does transit cost, compared to your alternatives?
- **Individual Preference.** This includes subjective factors and other aspects of the transit experience. What are you doing later? Do you feel safe? How much stuff are you carrying home?

A long-range vision can't change how individuals feel about riding a bus on a given day, and it can't set fares and fuel prices 10 years into the future, yet **it can have a significant impact on how much access the transit network provides.**

Freedom = Access = Ridership

Wherever you are, there is a limited number of places you could reach in a given amount of time. These places can be viewed on a map as a blob around your location.

Think of this blob as “the wall around your life.” Beyond these walls are jobs you cannot hold, places you cannot shop, and a whole range of things you cannot do because it simply takes too long to get there.

The technical term for this is accessibility, but it's also fair to call it freedom, in the physical sense of the word. The extent of this blob determines what your options are in life: for employment, school, shopping, or whatever places you want to reach.

If you have a bigger accessibility blob, you have more choices, so in an important sense, you are more free.

WHAT IS ACCESS?

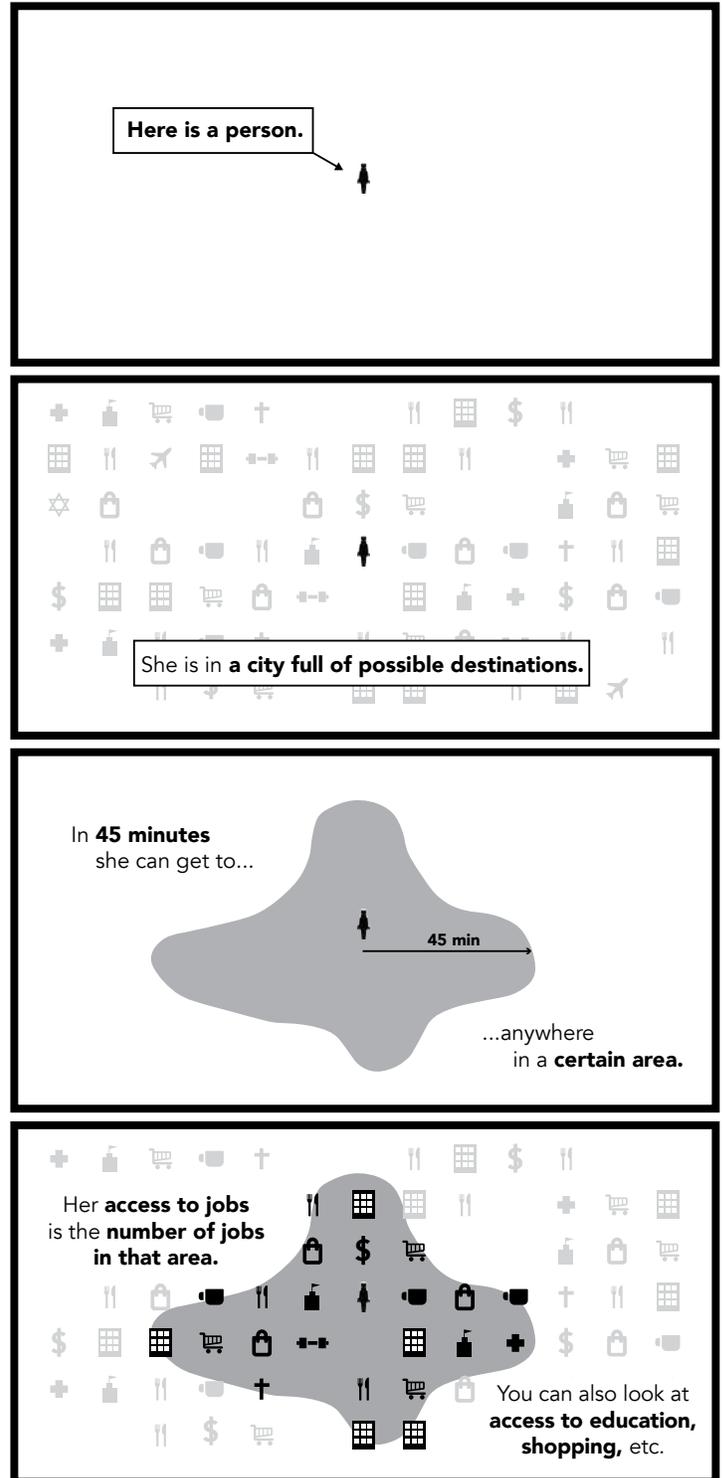


Figure 18: Access is what you can reach, not just how far you can go.

When we expand access for as many people as possible, we achieve many important things:

- We make service more useful for the trips people are already making and for many other trips people might want to make by transit. **When transit is more useful, more people use it.**
- We increase ridership potential, as a result of service being more useful.
- We **increase transit's potential to help with pollution and congestion.** Ridership is the key to how transit achieves these things, and improving access is the path to ridership.
- We expand access to opportunity (jobs, education, shopping, services) for people who need transit for those purposes.
- We increase the economic attractiveness of the urban area. **Connecting people with opportunities is the whole point of cities,** so improving those connections makes any community more effective.

Transit Expands Access

When using transit, the extent of access is determined by:

- **The transit network.** This includes the frequency, speed, and duration of the transit lines. These features determine how long it takes to get from any point on the network to any other point.
- **The layout of the community.** For each transit stop on the network, this determines how many useful destinations are near the stop or within easy walking distance. For example, higher density around a given stop means more access, both because there are more useful destinations around the stop, and also because good access from that point is of more value to more people.

Access Is a Matter of Geometry

The way these factors combine and determine access is a matter of geometry. So freedom (and access) is about what you could do, not predictions of what you will do. Access is a basic driver of ridership, but it can also be considered a worthy goal in itself by many people. For example:

- Access to jobs helps keep people employed.
- Access from a particular location gives a location value. Real estate firms routinely study where you can get to by car from a particular development parcel, and we can do a similar analysis using transit.

If you are deciding where to live based on whether you can get to your job, school, or relatives, you are asking about access.

From Better Access to Higher Ridership

As an individual, transit becomes more useful when it provides you with more freedom. So planning for useful transit means planning for more freedom. More broadly, transit ridership arises from providing useful access to many people. So while increasing many peoples' freedom does not in itself predict ridership, it is a necessary foundation.

In planning for better transit, increasing the number of places many people can reach in a reasonable amount of time is the source of ridership that can be influenced the most.

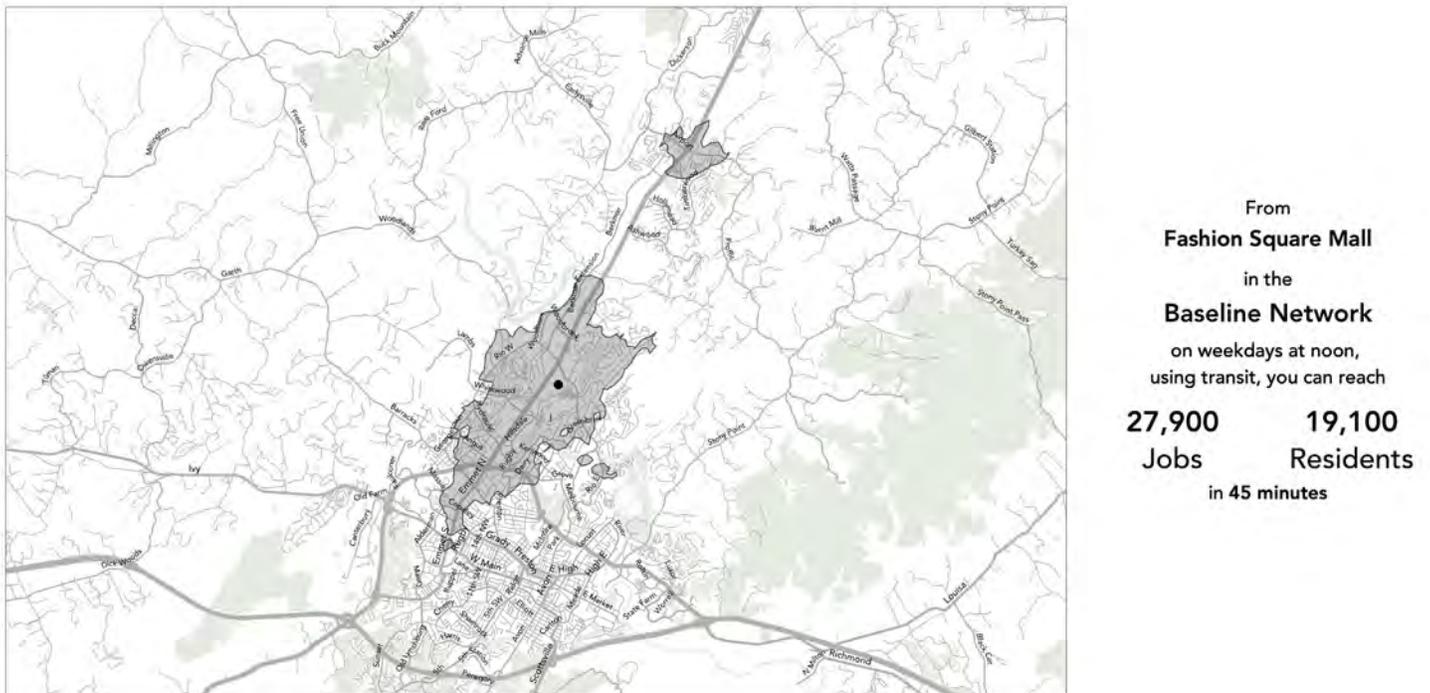
Few People and Jobs are Reachable by Transit

The map below shows an example of this access blob from Fashion Square Mall in the Baseline Network. This particular example shows the area you can reach in 45 minutes of travel time at mid-day, including all the parts of a trip, walking, waiting, riding, as described in Figure 15 on page 24.

If you live near Fashion Square Mall, **you can think of the edge of the blob around it as “the wall around your life.”** Beyond this limit are jobs you can’t hold, places you can’t shop, and things you can’t do because it takes too long to get there. So the extent of this area determines a lot about your options in life: if you have a bigger blob, you have more choices, and you are more free.

According to this analysis, someone living near here can reach 27,900 jobs in 45 minutes by transit. By car, someone could reach almost anywhere in Charlottesville or Albemarle County in 45 minutes, where there are about 95,200 jobs. **So, from this location, someone who relies on transit can only reach about 29% of the region's jobs from this location.**

Figure 19: Example of access by transit from Fashion Square Mall



Isochrone Analysis shows how far you can go from a given location in a reasonable amount of time, as an area on a map. We can calculate the number of people and jobs in this area.

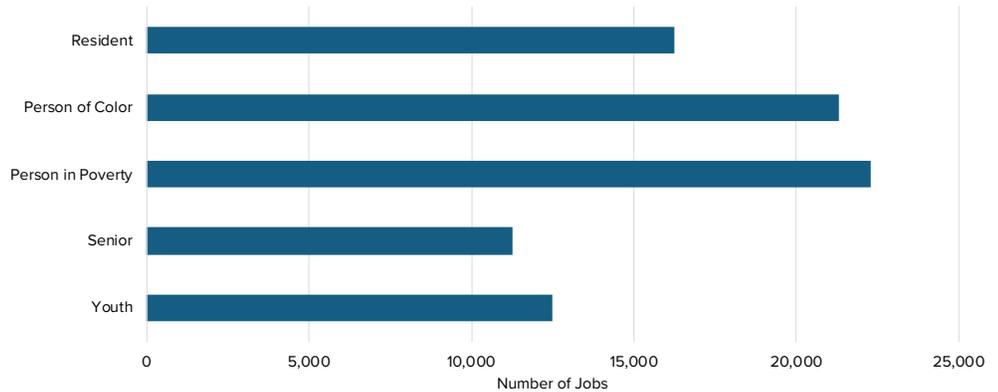
Access by Transit Today is Limited

The example from Fashion Square Mall is but one location. If we look across the urban area, it is possible to analyze access from any location and show the results as seen in the heat map in Figure 20.

From this data, it is possible to estimate that in 45 minutes,

- **The average resident of the urban area can reach 16,200 jobs, or only 17% of the region's jobs.**
- **The average person in poverty can reach 22,300 jobs, or only about 23% of the region's jobs.**

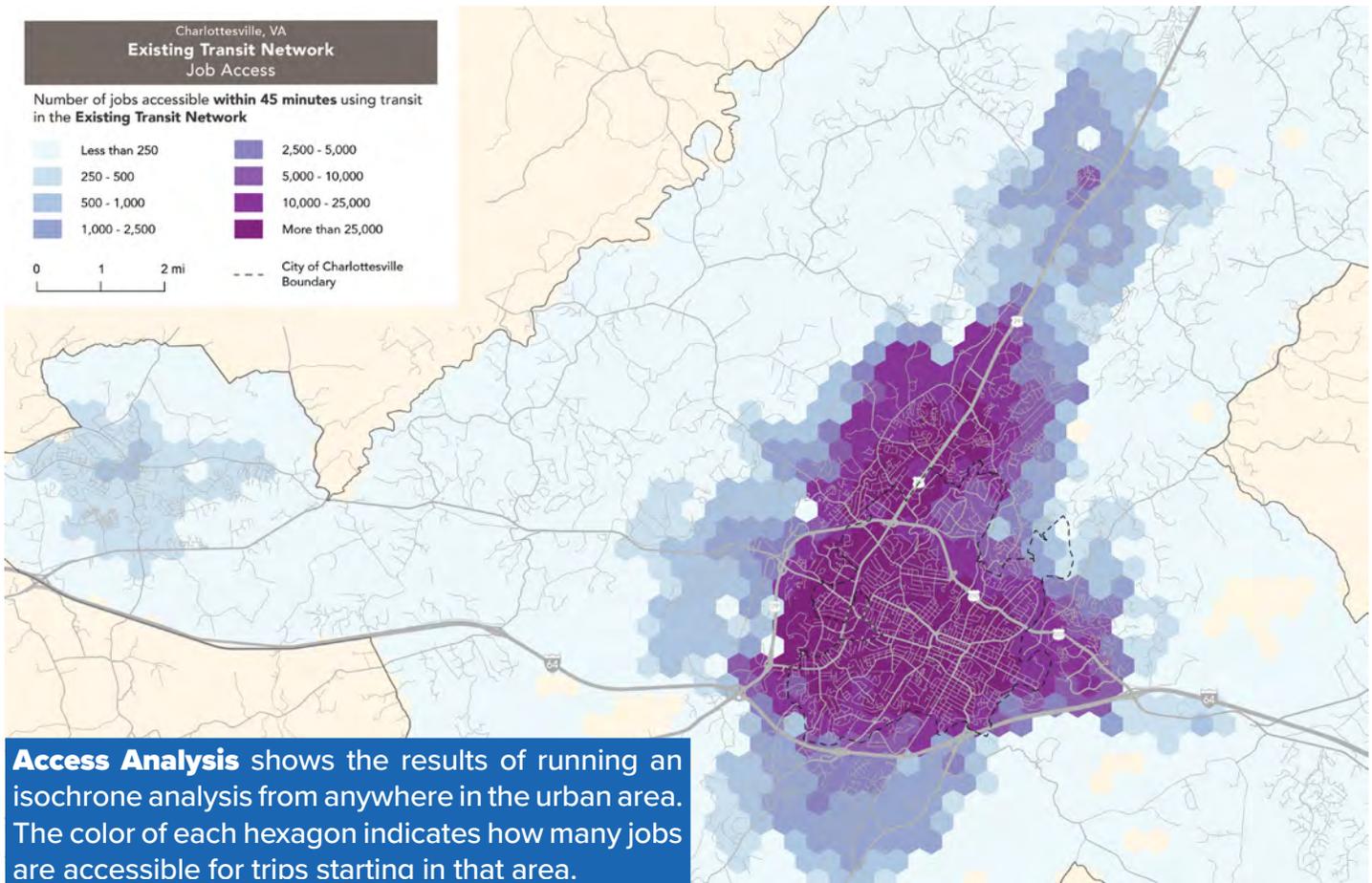
How many jobs can the average _____ in Charlottesville/Albemarle MPO reach in...
45 minutes by transit and walking during midday on weekdays



If the region wants transit to be more useful for more trips and therefore get higher ridership, significantly increasing the jobs and opportunities reachable in a reasonable amount of time is key.

Figure 21: Chart of average access to jobs by transit in 45 minutes for the urban area.

Figure 20: Map of access to jobs by transit across the urban area.



The Geometry of Improving Transit

If the region wishes to improve transit to meet environmental goals, increase access to jobs, and reduce car use, there are some key design principles to follow. To **maximize liberty and opportunity for the greatest possible number of people** requires a network of routes that optimizes (in order)

1. Frequency
2. Span
3. Connections
4. Speed
5. Reliability
6. Capacity

and which follows favorable patterns in the built environment.

As discussed above, frequency is often the dominant element of travel time and more frequent service dramatically improves how far you can go. The second factor is span, or the days and hours when service operates. As discussed on page 25, **the current CAT and Jaunt networks have limited hours, and very limited weekend service.**

Connections and Network Structure

There are two basic network shapes for most transit systems, illustrated at right.

“Radial” networks have a central point, and nearly all routes go to that point. A radial network design ensures that anyone looking to travel downtown can make their trip without the need to transfer. Anyone going to another outlying place can get there with a single transfer at the center. Radial networks arose naturally in pre-car cities because so much activity was centralized.

“Grid” networks also offer people a way to travel from anywhere to anywhere with a single transfer. But unlike in a radial network, the transfers in a grid network happen wherever two routes intersect.

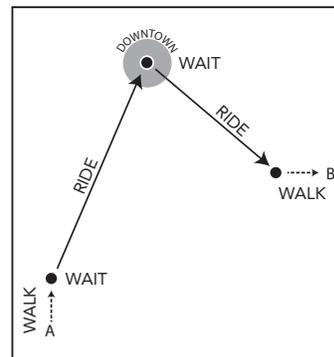
In large cities with many centers (such as LA, Chicago or Houston) a large frequent grid requires much less out-of-direction travel than

a radial network would. A frequent grid offers the simplicity and reliability of a street network. It’s easy to keep the map in your head. The key to the usefulness, however, is the frequency of service. When every route in a grid network is frequent, then it is easy to transfer at any point where two routes cross. When routes are infrequent, grid networks become much less useful, because the waiting time for transfers become intolerable.

In this region, even with a major increase in investment, many routes will still be lower frequency of every hour or half-hour. Furthermore, the street pattern across the urban core is highly radial, leading to a clearly natural structure for the region's transit network. Given these factors and the relatively small size of the urban core of the region, **a radial orientation is the best way to enable quick connections between most routes across both the urban core and the entire region. Therefore, a central transit hub in downtown Charlottesville is critical to the usefulness of the transit network.**

Figure 22: Basic shape of transit networks depend on frequency, size of the service area, and shape of the region.

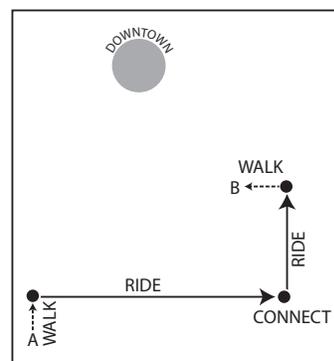
Basic Network Shapes



Radial

Most routes lead to and from the center. Anyone wishing to travel from one non-central location to another must pass through downtown and transfer there.

A radial structure makes sense when one part of a city (typically the downtown) is a dominant destination. In a radial network many routes can be scheduled to converge at a set time (called a “pulse”) to reduce the waiting time needed to transfer.



Grid

Routes intersect all across the city, not only in a downtown, and people transfer in those places.

Grid networks are only effective when the intersecting routes offer high frequencies so that connections between routes do not require long, discouraging waits. A grid structure is most suited to a city with multiple activity centers and corridors, where people are traveling among many different destinations.

On-Demand Services

Some of the world’s most appreciated and well-utilized transit systems treat each transit mode as part of a broader “family” of services. Like a family, each service has a different but equally important role to play in helping people get around. **While fixed-route transit service needs to form the “core” of a regional transit network, there are many places where fixed-route transit isn’t as useful.** Where people and places are spread out from each other, such as rural areas of the region, or where physical or street geographies create challenges for efficient fixed route service, **on-demand services can provide important coverage and access for people.**

On-demand services can take a variety of forms, from the classic “dial-a-ride” services to more modern “microtransit” or “on-demand transit” services. At their core, these services are designed so that anyone can request a ride and get a trip on a van or small bus to their destination. These services can cover a wide range of places, from whole cities or counties (like the Circulator services operated by Jaunt) to small and very targeted areas or “zones” (like the pilot programs proposed in the Albemarle County Transit Expansion Study). Some services

require a reservation several hours to a day ahead, while others allow you to book a ride with just a few moments’ notice.

The key thing to note about these services is that they are inherently meant to provide coverage to people and are not meant to be high ridership services. Unlike fixed-route transit services, where the more people that ride it, the cheaper it gets to operate, on-demand services tend to get more expensive the more people want to ride it. Every time a vehicle has to deviate to serve someone’s door, that adds time to their schedule, which costs money in labor, fuel, vehicle maintenance, among other things. As demand for a service goes up, because vehicles need to deviate to serve people, wait times for a service increase. As wait times increase, it becomes necessary to add more vehicles and drivers to the service to keep wait times reasonable.

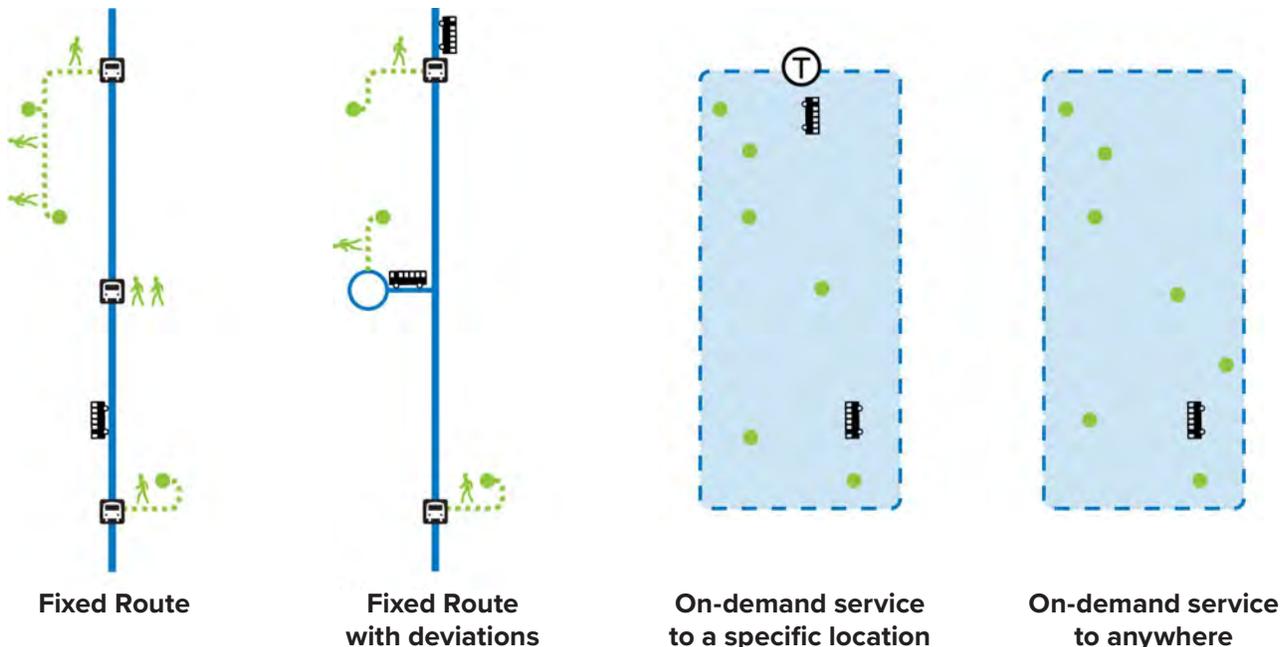


Figure 23: The spectrum of service, from a traditional fixed route to a fully on-demand service.

What About Other Ideas?

Smaller Vehicles

A transit agency's largest cost comes from labor, both from drivers and operators of transit vehicles and from the mechanics, dispatchers, planners, and other staff that make sure each vehicle out on the road is safe to operate and that the transit system works well. Smaller vehicles don't change the fact that they still need a driver and still need maintenance and operations staff to keep them going. Smaller vehicles can actually be more costly in two ways. First, if you put a small vehicle on a high-ridership route, you then will need more vehicles to serve the same amount of people at the same time. Second, if you have a route that uses a big bus during the day but changes to a smaller bus during the evening, there is a cost of getting those buses to and from the depot or a staging point and getting them set up in the route. You also will likely need an additional operator to ensure the bus makes it back to the depot.

Smaller vehicles do make sense in fixed-route transit where a big bus cannot operate in a safe fashion (on narrow roads with tight turns, for instance) or where demand is low but high enough that fixed-route transit can perform well. If a route never sees more than 10-12 people on board at any point during a normal day, then smaller vehicles can make sense.

Rail

The primary value that rail can provide is higher capacity, meaning the ability to carry more people on one vehicle with one driver, than a bus can handle. A typical 40-foot bus can carry up to 85 people at maximum capacity. For a high frequency route operating every 10 minutes, that provides space to move 510 people per hour per direction. Articulated buses can carry more riders, up to 115, which would be 690 people per hour per direction on route with 10-minute service. A typical streetcar vehicle can carry 195 riders, which at a 10-minute frequency would move up to 1,170 people per direction per hour. Rail tends to perform best when it is in

an environment with high density, high activity, and high demand for transit. It is highly unlikely that demand for transit in Charlottesville would fill a typical streetcar, let alone higher capacity rail like a Metrorail train. And if any planned bus routes begin to reach capacity limits, it is quite easy to add frequency to manage capacity up to the point of a bus every 3 minutes, which could move 1,700 to 2,300 people per hour per direction.

Some may point to small towns Europe with high-frequency rail service, and while we should definitely aspire to have our small but significant towns connected to broader regional and long-distance services, the European context is also quite different from the US context. A closer international comparison may be from our northern neighbors in Canada. One of the smallest places in Canada to have a light rail line is near Waterloo, Ontario. The area, home to around 535,000 people and a large research university of about the same size as UVA, had about 2.1 million riders in 2021. In comparison, closer to Virginia, the Tide Light Rail in Norfolk, had 620,000 riders for a region of 1.7 million people. Rail can also be more expensive compared to a bus-first approach. In addition to acquiring land for right of way and stations, you also need land for a depot, construction costs for the rail and required facilities, the trains themselves and electrification.

Charlottesville, Albemarle, and the greater region does need high-quality transit service, especially in high demand corridors, but given the trends of development and demand in the region thus far, it may not be ready for rail just yet. The Transit Vision Plan has identified a corridor around US-29 to Pantops via UVA Grounds and Downtown Charlottesville as a prime candidate for Bus Rapid Transit, which we will discuss later in this report. When done well, Bus Rapid Transit can promote transit demand and development that would then make the implementation of a rail line along a similar corridor easier justify to State and Federal funding partners.



Chapter 2

The Vision for Regional Transit

The Vision for Regional Transit

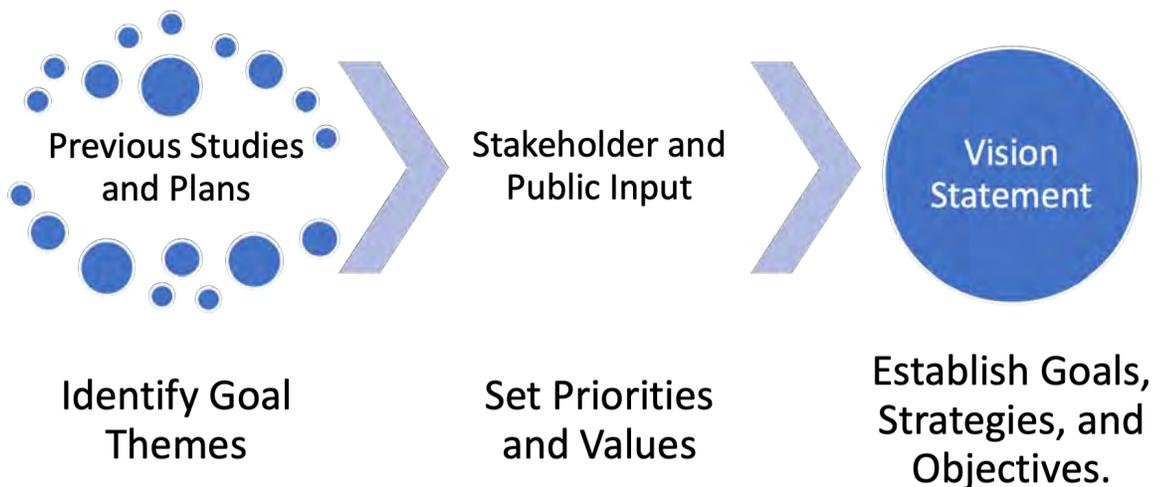
The Transit Vision Plan is built upon a set of three key pillars:

- **Vision Statement** which guided the development of the plan and should guide future implementation efforts.
- **Set of Guiding Principles and Goals** that expand on the Vision Statement and provide further direction to the plan and to implementation steps.
- **Vision Networks** which guide where new and improved services should be provided under different financial scenarios in the future.

As described in Chapter 5, the project team engaged the public and stakeholders in conversation around previous vision statements, goals, and priorities to help define the Vision Statement for the region. Several stakeholder and public priorities emerged which were not clearly encapsulated in previous vision statements, such as the 2018 Regional Transit Partnership Vision Statement.

Feedback from the public and key stakeholders indicated the vision should respond to emerging priorities and concerns—thus a “new” vision is demanded.

Figure 24: Transit Vision Plan Statement and Goals Process



Vision Statement

Develop, design, and provide transit in the region in a manner that reflects a collaborative, inclusive and equitable process, representing needs in both urban and rural areas. This transit system expands opportunities for all residents (Equity), reduces reliance on automobiles (Multi-modality), and helps protect the environment (Climate Change Mitigation).

Guiding Principles

Three key Guiding Principles—equity, multi-modality, and climate change mitigation—are encapsulated in the Vision Statement and are a critical foundation to the Vision Statement. These Guiding Principles define the critical elements the vision is trying to achieve for the region.

Equity

The importance of transportation equity for minority and historically marginalized communities has been heightened by recent events sparking a national response, including the 2017 “Unite the Right” rally in Charlottesville and protests following the death of George Floyd in 2020. The Transit Vision Plan prioritizes high-quality service to underserved,

disadvantaged, and historically marginalized communities and also connecting these communities to jobs and opportunities in the region. These communities include but are not limited to people of color, low-income residents, people with disabilities, seniors, minors, and residents without access to a car. In addition, rural communities are often left out of transit conversations, since transit is often considered solely for its ability to help solve congestion and other issues that affect urban areas more acutely. Nevertheless, transit plays an important role in rural communities, serving people who cannot drive or cannot afford to drive and connecting them with jobs, medical services, groceries, and many other essential needs. The transit tools used in rural communities may differ, such as great use of on-demand services, but the needs are still important to this Transit Vision Plan and a sense of equity for rural communities drives this vision toward a comprehensive, regionally connected system of transit services across all of Charlottesville, Albemarle County, Green County, Louisa County, Fluvanna County, Buckingham County, and Nelson County. Stakeholder and survey respondent feedback shows broad agreement with these priorities.

Multimodality

The Vision Plan prioritizes multimodal connections. These are prioritized in the urban core by improving connections between local transit and intercity services; along fixed routes where safe, accessible, and attractive walk/bike connections to transit should be available; and in outlying rural areas where long-distance transit, on-demand services, and intercity stops, can converge to improve local and regional connectivity. These measures cooperate to reduce reliance on automobiles, support a safer transportation system, and improve customer satisfaction for a host of services. Realizing multimodality will require partnerships between operators, jurisdictions with responsibility for managing right-of-way, and property owners.

Stakeholders and the public also prioritized land uses that support walking, biking, and

riding transit. The Transit Vision Plan includes transit services attractive to transit-oriented development, such as Bus Rapid Transit and well-integrated transportation centers are well. **To achieve a multimodal future with higher transit use, local jurisdictions will need to lead on land use policies supportive of sustainable transit operations, with higher densities and lower parking requirements around higher quality transit services.**

Climate Change Mitigation

The environmental benefits of transit come from a range of ways that transit reduces the energy needed for people to move around and access their daily needs. First, by having many people share the same vehicle, the direct carbon and other pollutant emissions can be reduced, per person, when many people use transit. As noted by FTA research: “U.S. bus transit, which has about a quarter (28%) of its seats occupied on average, emits an estimated 33% lower greenhouse gas emissions per passenger mile than the average U.S. single occupancy vehicle. The savings increases to 82% for a typical diesel transit bus when it is full with 40 passengers.” Yet this only quantifies the direct emissions reductions from trips switching from auto to bus.

By being space efficient, transit moves more people in less road space, which can make better use of the scarce space, particularly in the dense parts of the region. In addition, with more people moving in less space, there is less need for parking and other inefficient uses of space which tend to spread development in auto-centric places. Places where transit, biking, and walking are useful options tend to have dense patterns of development, where destinations are closer together, which means more people can access their daily needs with shorter trips. The same FTA research shows “for every additional passenger mile traveled on public transportation, auto travel declines by 1.4 to 9 miles. In other words, in areas served by public transportation, even non-transit users drive less because destinations are closer together.” As the region contemplates a significant

expansion of transit service, complementary land use policies can reinforce and magnify the many benefits transit provides, particularly the environmental benefits.

Many stakeholders identified a desire to see transit become electrified, to reduce the carbon emissions of transit directly, and to improve local and regional air quality. The Vision Plan envisions a shift to electric propulsion for transit, but does not specify a particular technology or toolset to get there. Many agencies are trying various approaches to reduce the direct carbon emissions from transit, including battery electric buses, in-motion charging buses, and fuel cell buses. Shifting the fuel source for local transit agencies is a significant investment, both in dollars and in training staff in new processes and methods and regional operators should work with Federal and State partners, as well as peer agencies, to learn best practices as they develop across the industry.

Goals

Building off the Vision Statement and Guiding Principles, the following eight Goals were developed to guide the Transit Vision Plan and its implementation. Each Goal also has various objectives to define the approach to meeting the strategy.

Goal 1—Enhance: Provide high quality and high frequency transit options in the busiest parts of the region

- Objective 1.1: Maximize fixed route transit service frequency in areas of high transit propensity
- Objective 1.2: Explore transit service modernization in one or more transit corridors, including high-capacity transit such as a form of Bus Rapid Transit. Start with the corridor linking Route 29 northwest of Charlottesville with UVA, downtown Charlottesville, and Pantops; dedicated transit lanes where most essential; transit signal priority; explore a new transit and nonmotorized-only crossing of the Rivanna

River in the Pantops area.

Goal 2—Expand: Expand the region's transit service to more neighborhoods, towns, and places and increase basic transit connectivity

- Objective 2.1: Extend fixed route transit service frequency to new markets
- Objective 2.2: Explore Public-Private Partnerships (P3s) for interregional travel— Work with public partners (national, state, and regional) and private parties (service operators, institutions, companies, and landowners) to expand interregional passenger transportation and connect with local transit.
- Objective 2.3: Work with state and corridor partners on a future vision for the Buckingham Branch Railroad, linking central Charlottesville and the region to central Virginia, the DC-Richmond main line, the Shenandoah Valley and mountain communities.
- Objective 2.4: Improve coordination between regional transit services and major institutions, such as UVA, to maximize transit usage for trips to and from the University and other major trip generators, and to encourage greater investment in transit by the University and other major regional institutions.

Goal 3—Connect: Promote efficient and attractive multimodal connectivity for seamless regional travel

- Objective 3.1: Improve multimodal transit connectivity between local and regional bus services and intercity transportation modes such as rail and intercity bus, as well as improvements to intercity rail connections at

the Charlottesville Amtrak station.

Goal 4—Collaborate: Improve internal and external communication with the transit agencies and with local governments to increase transit supportive land use decisions

- Objective 4.1: Pursue intentional transit-oriented development planning along high-frequency fixed-route corridors and at major transportation centers.

Goal 5—Improve Equity: Improve transit access for people with low household incomes, limited physical mobility, or lack of access to automobiles

- Objective 5.1: Balance access to in-person work opportunities (especially for disadvantaged communities) with access to services.
- Objective 5.2: Serve the needs of seniors and others with limited access to autos through better fixed route service with expanded hours of service, better pedestrian connectivity, and on-demand options in less dense areas. Ensure adequate paratransit service to meet the needs of those unable to use fixed routes.

Goal 6—Grow Equitably: Create a strong linkage between transit and compact, walkable, robust transit-supportive and equitable land use with safe access/egress conditions

- Objective 6.1: Improve walk and non-motorized safe access conditions to transit.

Goal 7—Support: Enhance the region’s economy and economic well-being of its residents by improving access to employment opportunities and community services

- Objective 7.1: Establish expanded urban and rural transit access to employment and services using transit tools appropriate to the density and demand of different parts of

the region.

Goal 8—Sustainability/Climate: Minimize the environmental impact of the region's transportation system

- Objective 8.1: Decrease regional dependence on cars as well as energy consumption for transportation through more useful transit service to attract more riders and encourage more transit-oriented development patterns.
- Objective 8.2: Reduce the region’s climate footprint through higher transit ridership and a shift toward lower or zero carbon propulsion systems for transit services.



Chapter 3

Markets and Needs for Transit

The Data That Informed the Transit Vision Plan

In addition to public and stakeholder engagement, the Transit Vision Plan is also built on data about existing markets and needs for transit and future land use plans that tell us where people and jobs will be in the future. This chapter will explore and discuss data that inform two different types of considerations in transit planning:

- Where are the strongest markets for transit, where ridership is likely to be high relative to cost?
- Where are there moderate or severe needs for transit, regardless of potential ridership and cost?

These two types of considerations help us design transit networks that address competing priorities of higher ridership and wider coverage.

Market Assessment

The transit market is mostly defined by **WHERE** people are, and **HOW MANY** of them are there, rather than by **WHO** they are.

On the following pages, these maps help us visualize the transit market:

- Residential density
- Job density
- Activity density
- Density of low-income residents

None of these data alone tell us that a place has high ridership potential and is therefore a strong transit market. Rather, we must consider them in combination.

If you asked a transit planner to draw you a very high-ridership bus route, that planner would look mostly at densities of all residents and jobs; at the walkability of streets and neighborhoods; and at the cost of running a bus route long enough to reach them. Only secondarily would that planner look into the income or age of those residents or workers.

However, the “**who**” attribute that has the strongest influence on transit ridership potential is income. This is especially true in suburban areas where driving and parking cars is so easy. Low-income people are, as individuals, more likely to choose transit. That said, the density of all people (including low-income people) around a transit stop will still be the overriding factor in predicting whether that stop gets high ridership. All else being equal, density trumps income (and age) if you are trying to predict where transit will get high ridership.

This is not to say that who people are is not important. It is extremely important, especially when designing transit services to achieve a coverage goal.

Need Assessment

We learn about transit needs by examining **WHO** people are and what life situation they are in.

If you asked a transit planner to draw you a route that met as many needs as possible, that planner would look at where low-income people, seniors, youth, and people with disabilities live and where they need to go.

While the densities at which these people live would matter because at higher densities a single bus stop can be useful to more people in need, the planner would still try to get the route close to even small numbers of people. In fact, the more distant and scattered people are, the more isolated they can be and the more they might need access to transit.

On the following pages, these maps help us visualize where transit needs are in the region:

- Density of low-income residents
- Median household income
- Density of zero-vehicle households

These measures cannot by themselves tell us that a person has a severe need for transit. For example, some people in a zero-vehicle household can afford to hire drivers, or rarely drive but are comfortably retired. We must

consider these measures in combination to understand where in the region people's needs for transit are likely to be severe.

One map included in assessment of needs does not relate directly to people's need for transit, but does speak to a type of coverage goal, and that is the map of the race or ethnicity across the region. A person's race or ethnicity does not tell us if they need transit, or if they have a propensity to use transit. However, we know that race and ethnicity are correlated with income.

Understanding the race or ethnicity of the region's residents is crucial to understanding whether transit service changes will affect people equitably. Unequal treatment on the basis of race or ethnicity is illegal under the Civil Rights Act of 1964. (Unequal treatment on the basis of other characteristics, including income and age, is also prohibited by law.) Thus, an examination of where non-white people live in the region is less part of a "Need Assessment" than part of a civil rights assessment and a consideration of racial equity, which has been identified as an important goal of the Transit Vision Plan.

Areas of Growth

As a long-term vision, this plan will affect where and how transit is run for decades in the future. Therefore, it is helpful to consider where new growth in the region is expected, particularly growth that is design in ways that would support higher ridership transit services. As described in this chapter, there are key growth areas across the region that will increase the demand for transit in key areas, such as in Pantops, Piney Mountain, and Ruckersville, among others.

Land Use and Transit Ridership

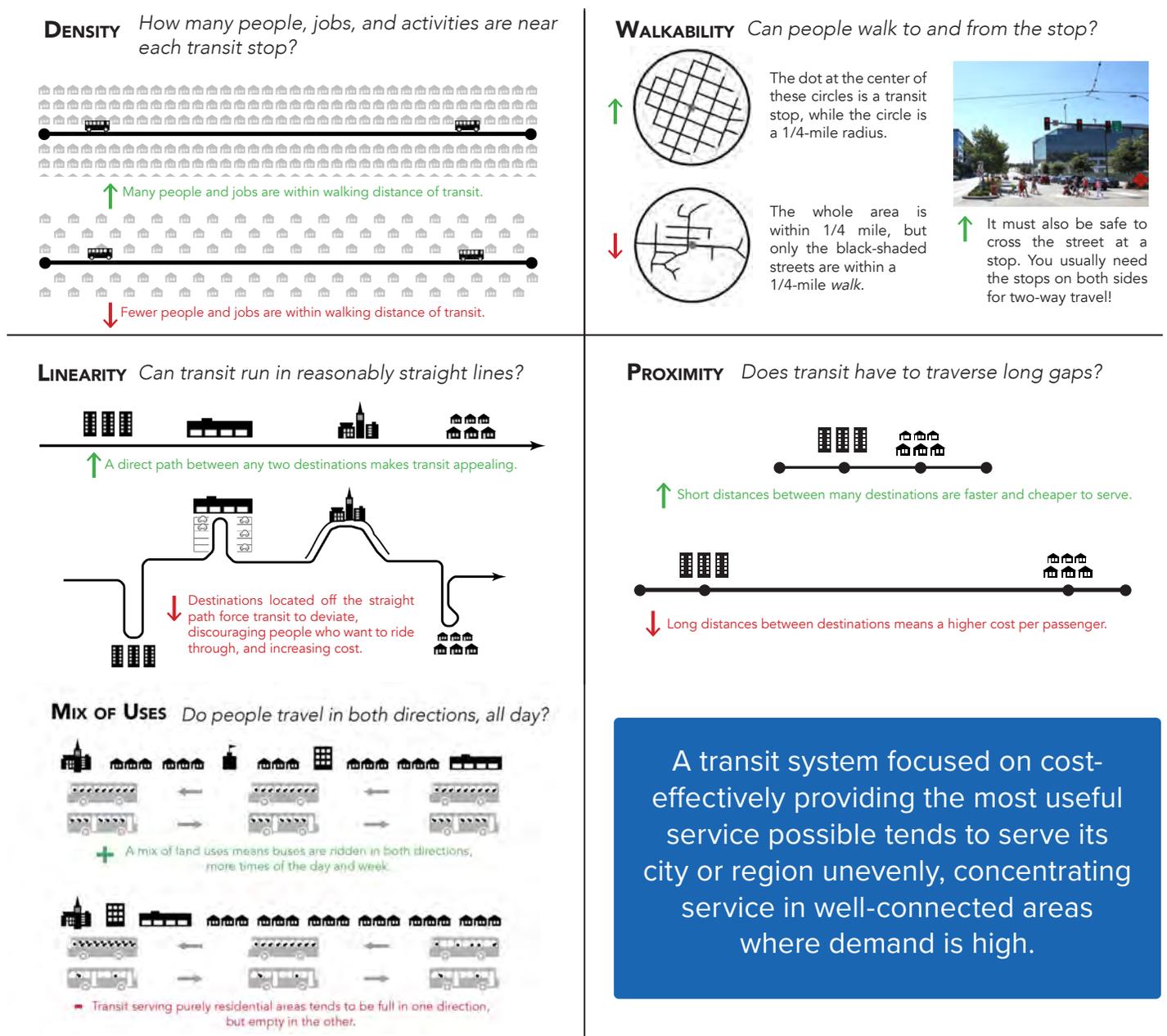
Most of the cost of providing public transit is the cost of the driver's labor. Meanwhile, much of the benefit of transit comes down to the number of transit trips people choose to take. In designing the most efficient transit service possible, we concentrate largely on two questions:

- How many people can easily get to each stop or station?
 - **Density:** where more people live or work near a stop, more people are likely to ride.
 - **Walkability:** where it's easier for people to walk to and from the bus stop, more people are likely to ride.
- How long does a bus need to travel to reach useful places?
 - **Linearity:** where destinations are laid out in a straight line, the bus can serve many places in less time. When destinations are scattered far from main roads, the bus may need to make deviations off its path. That means more driver hours (higher cost) and slower travel (fewer riders).
 - **Proximity:** where destinations are close together, the bus can serve many places in less time. When destinations are far apart, it takes more time to reach them, which comes at a higher cost.

These geometric facts are the basis of a difficult challenge—a transit system focused on providing the most useful service to the highest number of riders, and the best return on public investment, concentrates service where the cost of operations is lower and the number of people who will benefit is higher.

High ridership transit is therefore not the same as transit that responds to everyone’s needs no matter where they are. In fact, these two goals are often opposite. In developing the Transit Vision Plan, stakeholders, the public, and elected officials have engaged in thinking about balancing these competing priorities for new transit investment, informed by the data analyzed in this chapter.

Figure 25: More Freedom, Lower Costs—Five key built environment factors determine how useful a transit network can be.



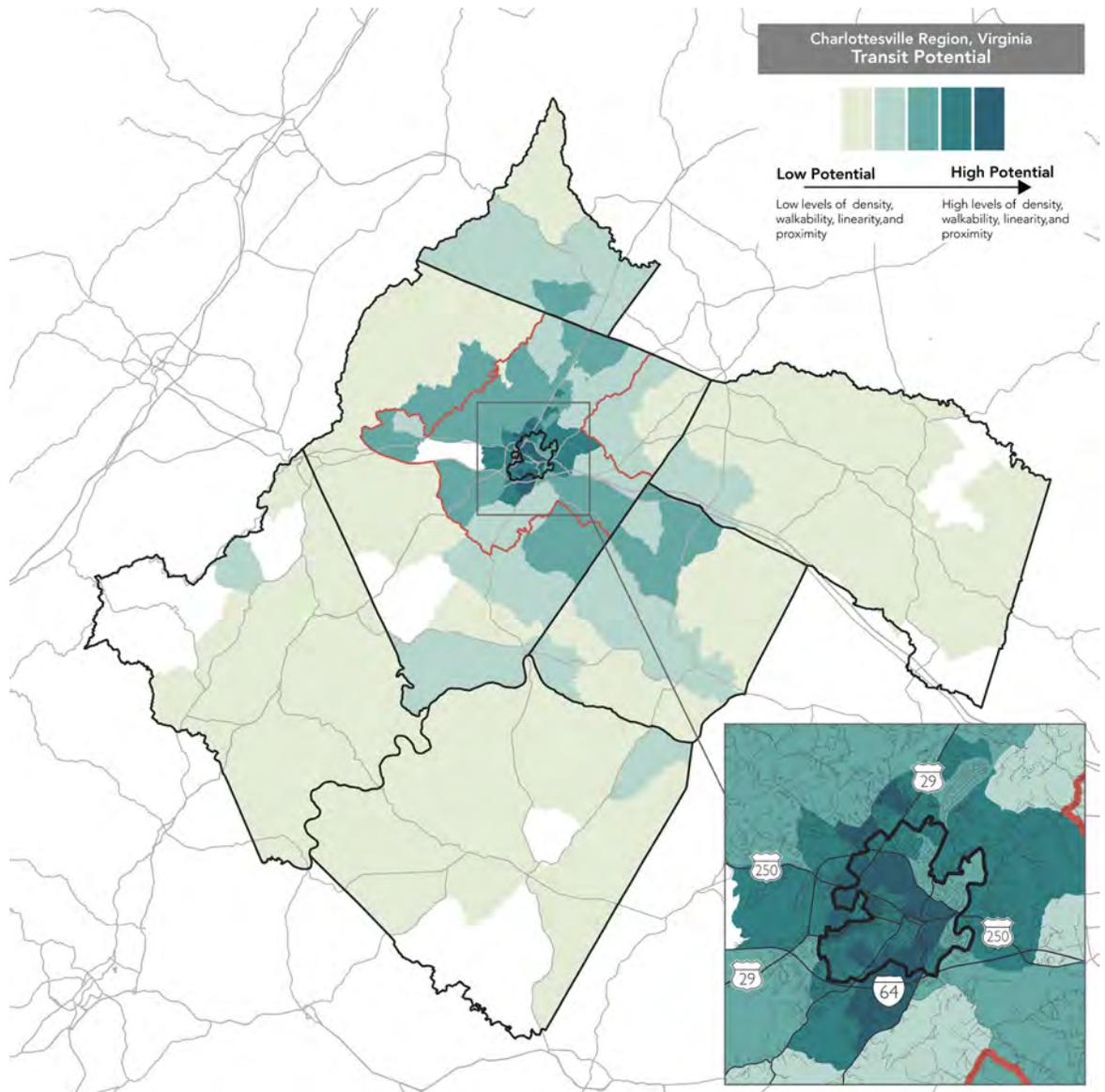
A transit system focused on cost-effectively providing the most useful service possible tends to serve its city or region unevenly, concentrating service in well-connected areas where demand is high.

Where Does Land Use in the Region Support Transit Usefulness?

The Transit Vision Plan's study area is mostly rural in character. The one notable exception is the urban area of the City of Charlottesville and the immediate areas in Albemarle County, which functions as the urban core for the study region. The urban area had an estimated population of 102,700 in 2020 and surrounding urban clusters of Crozet, Ruckersville, Lake Monticello, and others add to the many people who live and work near the dense core of the region.

The land use patterns that support the highest transit ridership, and thus where new investment is likely to get the greatest return in ridership terms, are the ones with the highest density and walkability, where such development is in straight lines and in relatively close proximity. In the study area, much of the dense, walkable, linear, and proximate activity is centered in the urban area of Charlottesville and surrounding developed areas in Albemarle. The study team quantified these four factors, described on page 44, and developed a composite index of the transit potential in the region, shown in Figure 26. For more information on this assessment, see the Transit Propensity Memorandum on the [project website](#).

Figure 26: Composite index of transit potential based on density, linearity, proximity, and walkability.



Markets for Transit

Residential density is a key metric in assessing the strength of transit markets, since most people’s daily travel behavior begins and ends at home. Figure 27 shows residential density in the study area. Residential density is at its highest in the City of Charlottesville and urban Albemarle County. In more rural areas, residential density is relatively high in and around Ruckersville, Zions Crossroad, Louisa, Lake Monticello, and Palmyra.

Job density can tell us not just about where people might be going to work, but also about important destinations people travel to. Particularly in the retail and service sectors, high job density also indicates places likely to have a high density of customers.

Figure 28 shows job density is even more concentrated in the urban core of Charlottesville compared to residential density. Outer parts of the urban area, such as along US 29 in Albemarle have relatively high job density, and those jobs tend to be retail and service sector jobs, where many people want to travel both for work and shopping, making this area a good transit investment.

Figure 27: Residential Density in the region

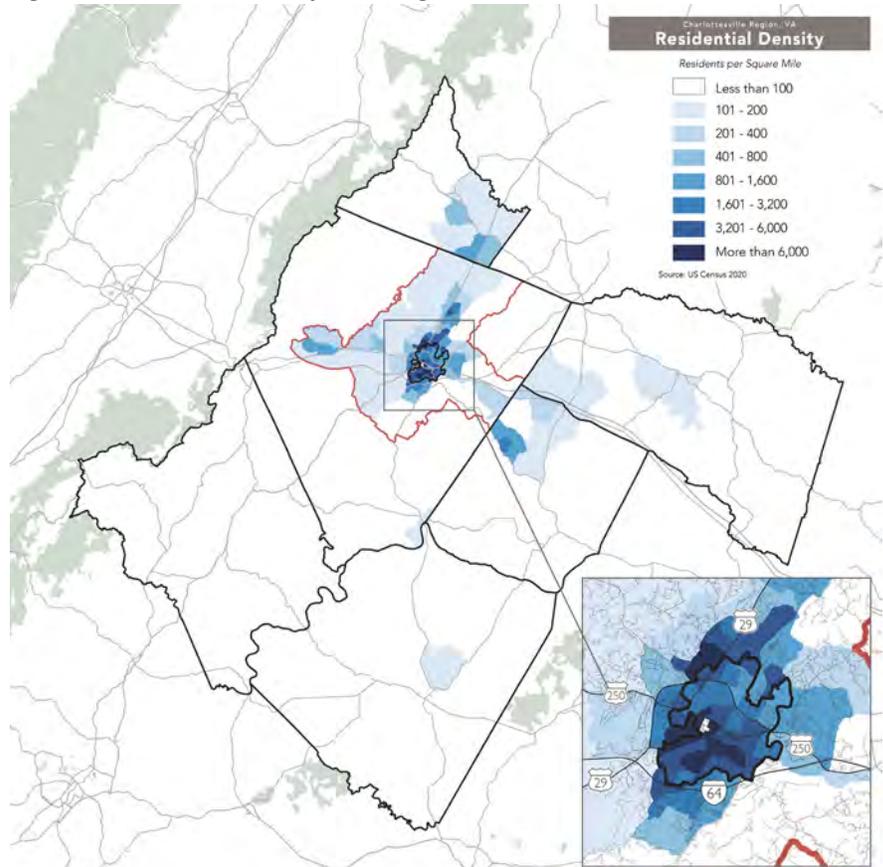
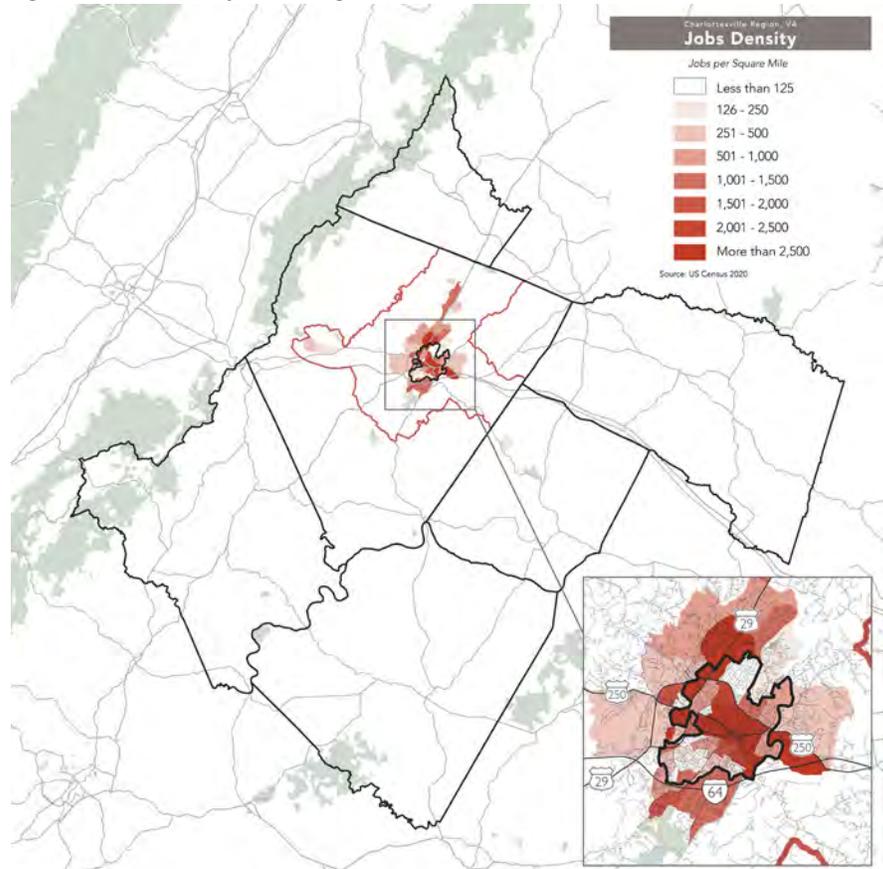


Figure 28: Job Density in the region



Needs for Transit

While demand tells us where transit is likely to be “in demand”, it doesn’t tell us the whole story. There are also indicators of need where good quality transit service is needed the most by the people who live or work there.

Low-Income Households

A frequently-cited goal for transit service is to provide affordable transportation for lower-income people, who are less likely to own cars. Understanding where low-income populations are located is also a key civil rights requirement.

Transit can be an attractive option for low-income people due to its low price. In medium to high density areas with walkable street networks, this can produce high ridership.

However, if transit doesn’t actually allow people to make the trips they need in a reasonable amount of time, even lower-income people will not use it. They will seek other options, such as buying a used car or getting a ride from a friend, even if it causes financial or social stress.

As seen in Figure 29, most low-income households are clustered in the urban areas in and around Charlottesville, though there are less dense pockets in Louisa, Greene, and Nelson Counties.

Zero-Car Households

Another factor affecting need for transit is the availability of personal cars. The map in Figure 30 shows the density of households with zero vehicles, based on 2020 Census data.

People without cars do not necessarily default to using transit. Generally, people without vehicles have fewer options than those who do have access to personal cars. So, if transit is a useful—reasonably fast, reliable, available when needed—and people can use it to reach the places they need to go, it can be a compelling option.

If transit does not present a realistic travel option, then people without cars will find other ways to reach the places they need to go, by

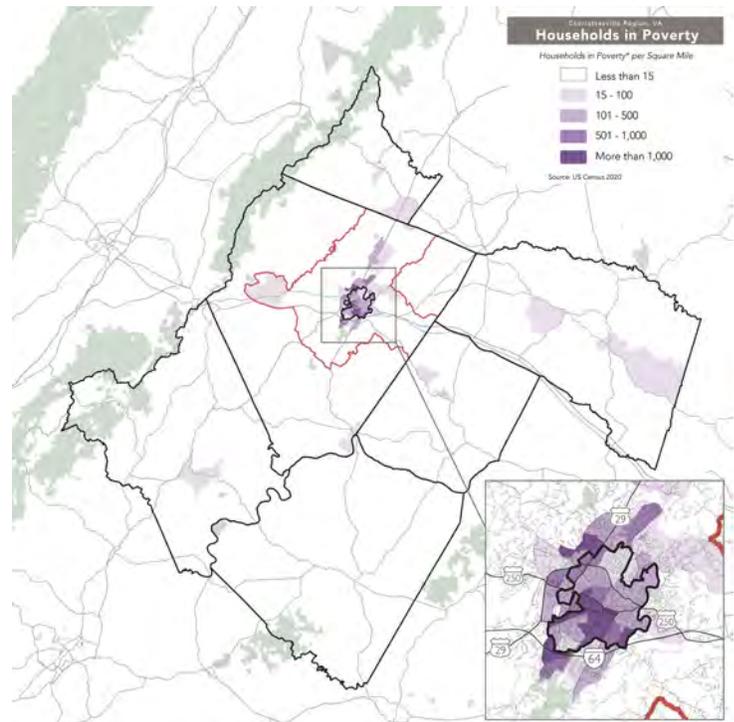


Figure 29: Density of households in poverty in the region.

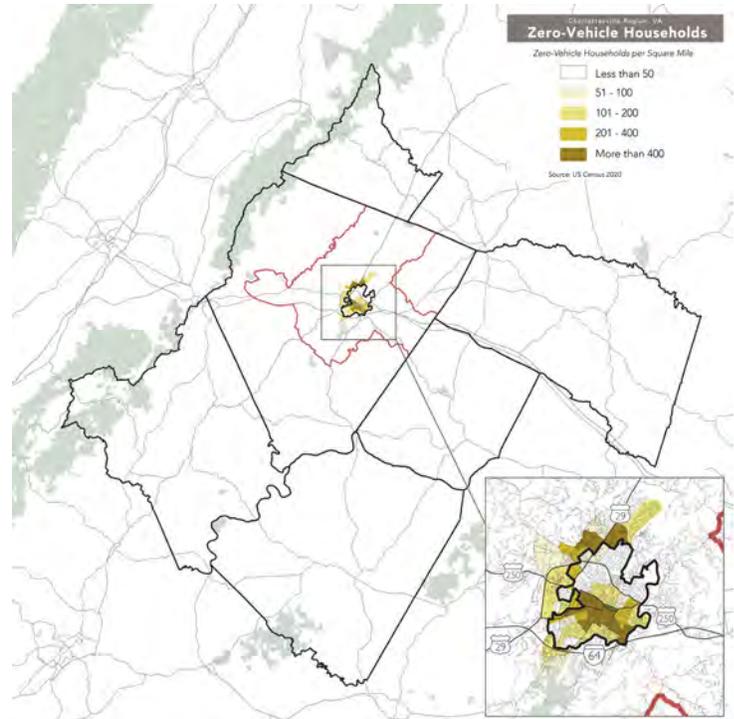


Figure 30: Density of zero-car households in the region.

getting rides from friends or family members, cycling, using electric scooters, walking, or using taxis or TNCs. Alternatively, some people may not travel, thereby limiting their access to the economic, social, and other opportunities in the region.

Older and Younger Residents

Figure 31 shows the density of senior residents (people 65 years of age or older) across the region. Some seniors cannot drive and may be more likely to use transit. And as a group, senior-headed households are less likely to own cars than the general population.

Seniors tend to have different preferences for transit than younger people. Seniors are more likely to be sensitive to walking distance. On average, seniors also tend to be less sensitive to long waits and slow or indirect routes, because many are retired and have relatively flexible schedules. Most riders who are employed, in school or caring for kids in school will find service with long waits and slow or indirect routes to be intolerable.

Due to these factors, transit service designed primarily to meet the needs of seniors rarely attracts high overall ridership relative to cost. Thus, the amount of focus transit agencies place on meeting the needs of seniors should be carefully balanced with the needs and desires of the rest of the community.

Just as transit coverage can meet the needs of seniors who cannot or choose not to drive, transit coverage can also meet the needs of children and teenagers who are too young to drive. Figure 32 shows the density of youth across the region.

Transit can be valuable to families with middle and high school aged children. **Transit can allow their children to have a greater level of transportation independence and can free parents from having to be a taxi driver for all their child's activities.** Transit may also allow families to live with fewer vehicles as children get older and more active.

Both Crozet and Lake Monticello in Fluvanna County have higher than average densities of both seniors and residents under 18.

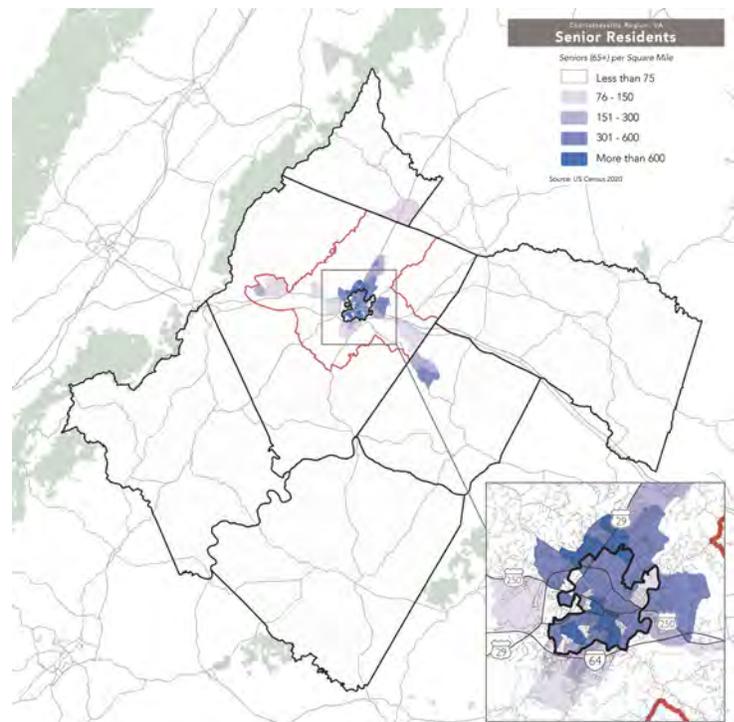


Figure 31: Density of senior residents in the region.

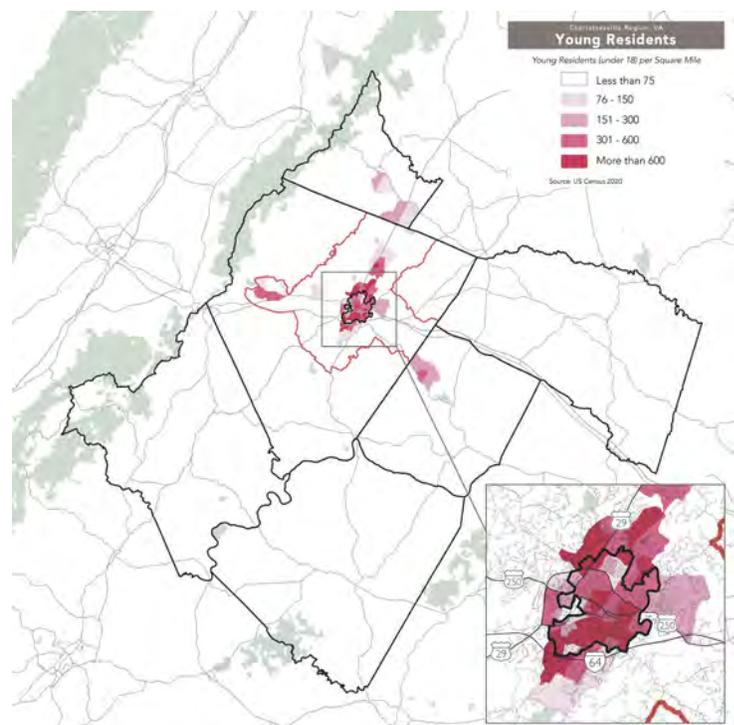


Figure 32: Density of young residents in the region.

Civil Rights

Unequal treatment on the basis of race, ethnicity, or national origin is prohibited by the Civil Rights Act of 1964. Regulations by the Federal Transit Administration require TJPDC and transit agencies consider the benefits and burdens that people of color experience from transit service and in the process of planning for transit and transportation projects.

While a person's race or ethnicity does not tell us directly if they need transit, or if they have a propensity to use transit, we know there is a correlation between race and ethnicity and income and wealth. If you are a person of color in the United States, you are more likely to be low-income and less likely to own a car.

In addition, the historic impacts of segregation and discrimination have had long lasting effects on the patterns of housing, development, and investment across the region. Therefore, knowing where people of color live helps us see where there are intersections between patterns of historic segregation and concentrations of people in poverty today. Providing affordable transportation options for low-income communities and communities of color is an important strategy in addressing economic insecurity, and achieving a more equitable transportation system has been defined as a key goal of this Transit Vision Plan.

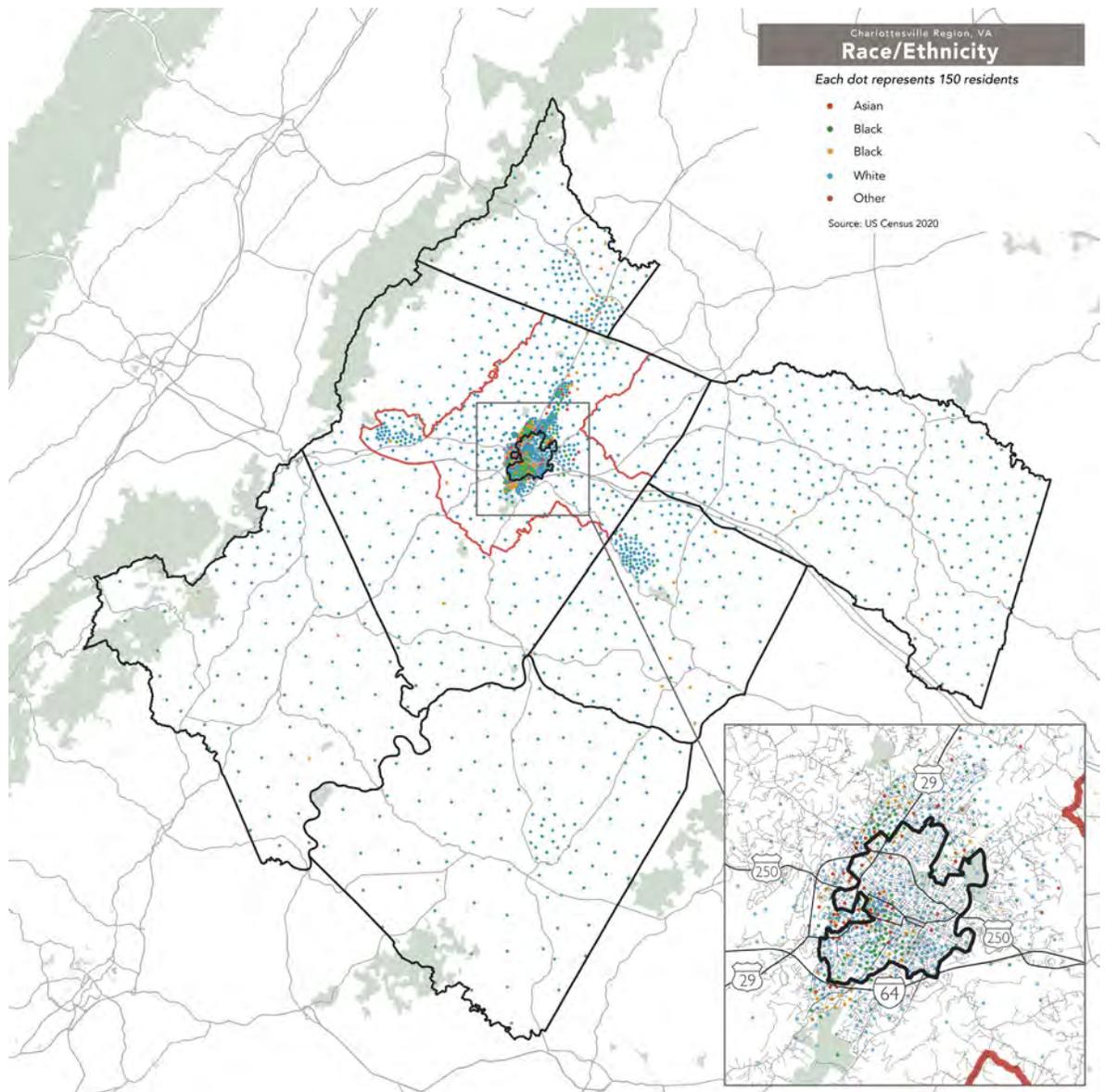


Figure 33: Dot Density map of residents by race or ethnicity.

Future Regional Growth

For a Transit Vision Plan, the existing density and land use pattern is an important factor, but not the only defining factor in thinking about the long-term markets and needs for transit. Much will change throughout the region as it grows over the next 20 years. Therefore, the project team looked at the region’s land use plans to consider what might change.

Of particular interest are designated growth areas in the region. The map in Figure 34 shows designated growth areas across the region as described in the land use plans from each jurisdiction in the region. These growth areas define places more likely to be key destinations for transit in the future or regional hubs where different transit services might connect.

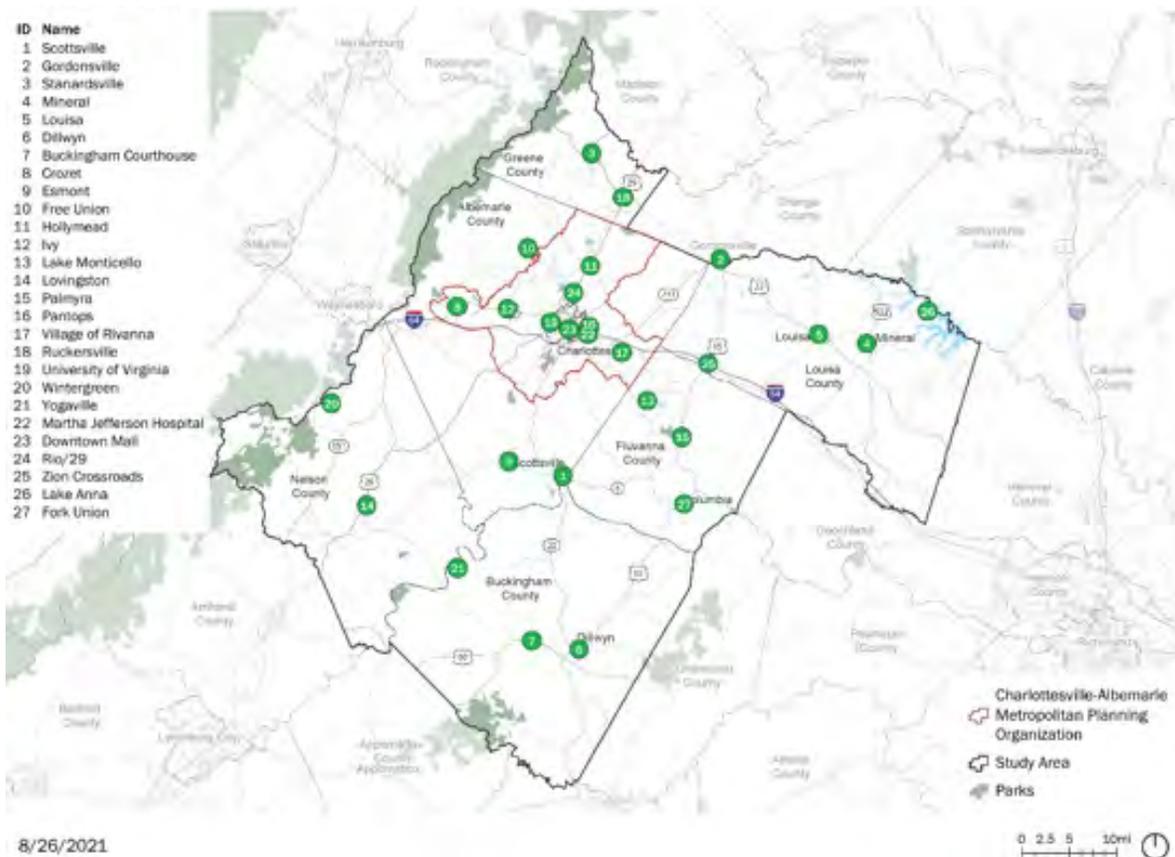
Urban Core

The City of Charlottesville’s comprehensive plan aspires to create a more vibrant community, bringing together places where its residents

live, work, and play. It seeks to accomplish these using strategies such as increasing the number and styles of housing units, encouraging in fill development on underutilized properties, and increasing commercial vitality and density in appropriate areas. The City is currently updating its comprehensive plan. While these policies will continue into the next update, Charlottesville also envisions greater densities throughout its municipal boundaries.

The urban areas of Charlottesville extend beyond the city limits into neighboring Albemarle County. To preserve its natural resources and rural character, Albemarle County has established development areas as the primary locations for future growth. Three of the development areas—the Southern and Western Neighborhoods, Pantops, and Places 29—are immediately adjacent to Charlottesville. The remaining development areas include Crozet and the Village of Rivanna, located short distances west and east, respectively, of Charlottesville on US 250.

Figure 34: Regional Activity Centers shows areas where growth and development may be more transit-supportive in the future.



8/26/2021

Growth Corridors

Moving beyond the Charlottesville urban core, localities designate their future growth areas around major interregional transportation corridors. These corridors include US 29, which follows a north-south alignment, and I-64/US 250, which follows an east-west orientation.

The primary growth areas along US 29 are north of Charlottesville. One of the previously mentioned development areas of Albemarle County (Places 29) extends north along US 29 to the Hollymead area. Beyond Hollymead, the corridor continues north into Greene County, which expects continued growth in the Ruckersville area near the intersection of US 29 and US 33.

The I-64/US 250 corridor features growth areas both west and east of Charlottesville. The community of Crozet is on US 250 several miles west of Charlottesville. To the east of the region's urban core, localities established multiple growth areas along this corridor. These include the Village of Rivanna in Albemarle County, and Zion Crossroads in Louisa and Fluvanna Counties. Proceeding east is the Ferncliff, Shannon Hill, and Gum Springs growth areas in Louisa County. Local comprehensive plans envision nodes of mixed-use cores surrounded by low-density residential neighborhoods along the I-64 corridor. These growth corridors, particularly those along US 29 and US 250, represent opportunities for regional transit connectivity between growing nodes in surrounding counties.

Designated Rural Growth Areas

Localities expect most of the remaining future development will concentrate around existing towns, unincorporated villages, and other designated growth areas identified by each county. Most localities express a strong desire to preserve their rural lands and utilize these growth areas to contain future development and avoid sprawl.

Buckingham County located its primary growth areas along the Route 15 corridor surrounding

the Town of Dillwyn. It also has designated growth areas around Buckingham Courthouse.

Fluvanna County has established community planning areas surrounding Fork Union, Palmyra, and Scottsville. However, its largest community planning areas are those in the areas of Lake Monticello and Zion Crossroads. The comprehensive plan also designated much of the remaining northern portions of the County as rural residential development areas.

Louisa County located most of its higher density growth areas along the I-64/US 250 corridor. It also designated areas for mixed-use and residential development in the central portion of the County surrounding the towns of Mineral and Louisa. Additionally, there is a small area designated for mixed-use development in the northwestern corner of the County adjacent to the Town of Gordonsville, located on US 33. Finally, Louisa County also designated a large growth area around Lake Anna. In addition to County residents, this area will likely attract significant numbers of tourists and second-home buyers.

Greene County has only established one growth area outside of the previously described corridor of US 29 at Ruckersville. This additional area is in and around the Town of Stanardsville on US 33.

Nelson County intends to concentrate its future growth around Lovingston and in the areas around Colleen and Schuyler. It also anticipates an area of mixed-use development along Route 151 in Nellysford and Wintergreen. Due to the popularity of its breweries and wineries and the Wintergreen Resort, the Route 151 corridor attracts significant numbers of outside visitors and county residents.

Growing nodes, particularly walkable and relatively dense nodes, represent opportunities for regional transit connectivity with inter-city and inter-county transit connectivity in the Transit Vision Plan.

How Can the Region Support Transit?

Given the strong link between transportation and land use, **the most important thing the region can do to support transit ridership is focusing development along areas and corridors where transit already runs and making sure that new development outside these areas is structured to be “on the way” to any new transit service areas.**

The region can also explore ways, to either reduce the incentive to drive a vehicle (or at the very least own a vehicle) or encourage the use of transit. Some ways this can be done include changing parking policies, encouraging active transportation and retrofitting areas designed primarily for access by autos.

Reducing or Eliminating Parking Minimums

Parking minimums are legal minimum levels of parking spaces required by cities or counties based on the number of residential units or on the square feet of retail, commercial, or office space in a structure. Many local jurisdictions in the US are exploring or have implemented changes to their parking requirements to either reduce the required number of spaces per unit or have eliminated these requirements entirely. These changes provide more flexibility in new development and redevelopment. In the City of Charlottesville, new development in the city center and near University Grounds is not subject to a parking minimum, while other areas in the city still have a requirement of around 1 space per residential unit or “user”. Reducing remaining parking minimums or eliminating them entirely in the City would help advance goals towards promoting more sustainable land use and transportation patterns, as would reducing or eliminating any parking minimums in urban areas outside of the City of Charlottesville.

Promote Safe and Comfortable Spaces for Active Transportation

Walking, rolling, and cycling go together well with a strong transit network—after all, most people will reach a transit stop by walking there. Better pedestrian infrastructure, particularly in dense and mixed-use places, encourages people to shift away from cars and towards these active modes for shorter trips, with transit serving an important role for longer trips.

Retrofit Auto-oriented Areas

While much of the region’s land use and development pattern is shaped by the private automobile, it does not have to stay that way. Many places in the US are realizing the benefits walkable and compact development patterns can have in suburban areas. When an area is slated for redevelopment, the highest priority should be ensuring the design of the area is compact, walkable, and accessible to move it away from status quo, especially where improved transit is recommended in this Transit Vision Plan.



Chapter 4

Transit Vision Networks

The Transit Vision Networks

To imagine the future where the Vision and Goals are implemented this chapter describes the two Vision Networks—guides to the implementation of new and expanded transit service across the region. These networks provide a map and detailed information about the routing, span of service, type of service, and other details that allow the public to see what a vastly improved transit system might mean for access to opportunity and ease of travel around the region.

- **The Unconstrained Vision Network** shows a future transit network where the Vision Statement and Goals above are fully implemented, without considering any financial constraints.
- **The Constrained Vision Network** shows a future transit network that implements the Vision Statement and Goals within the constraints of a potential regional transit funding measure.

These two Networks were developed based on

- the Vision Statement and Goals described in Chapter 2,
- the assessment of transit markets and needs described in Chapter 3,
- the input received from stakeholders and the public described in Chapter 5, and
- in close collaboration with the region's transit providers.

These networks were initially developed through a collaborative design workshop held virtually over several days in February 2022 with staff from the three major transit providers and planning departments across the region. The initial network concepts were presented to the RTP, stakeholders, and the public during the summer and were refined through a collaborative workshop with transit providers and planning staff in August. Both workshops were facilitated by the consultant team, with support from TJPDC staff.

Unconstrained Network

The Unconstrained Network is a fundamental rethink of transit service in the Charlottesville area. It imagines a future where the transit network is substantial enough to meet the key community goals around economic development, land use, housing affordability, climate, and other policy goals. In this sense, one could also call this the Policy Network, as it supports many community policies.

What Changes in the Unconstrained Network?

In the Unconstrained Network, the following improvements are made to transit across the region:

- Significantly improved frequency of service for fixed routes across much of the urban areas of Charlottesville and Albemarle, including a key Bus Rapid Transit route from US 29 through UVA, downtown, to Pantops.
- Vastly expanded set of fixed routes, serving nearly every jurisdiction in the region and connecting key regional destinations such as the Airport, Crozet, Monticello, Zion Crossroad, and Ruckersville.
- Supplementary on-demand zone services serving lower-density communities and areas, such as Hollymead, Pantops, Louisa, and Lake Monticello.
- Expanded the hours and the days when every service operates (also called the span of service). Every service in this concept will now run seven days a week.
 - On weekdays, most services on both the urban and regional networks would run at minimum from 7 am to 8 pm, with some services running to midnight.
 - There is also more “all day” service—service running consistently both during the morning and evening peak periods and during the middle of the day.

What Would the Unconstrained Network Cost?

The primary cost of transit is operating service, through paying operators, maintenance staff, and supervisors. As agencies add more service, costs tend to rise in line with the added revenue hours, and therefore the costs estimated in this plan are based largely on estimates of the change in revenue hours of service.

For services operated by CAT, the Unconstrained Network would be a 310% increase in the total revenue hours compared to existing. For services operated by Jaunt (excluding ADA paratransit service), the Unconstrained Network is a 704% increase in the total revenue hours compared to existing. These figures are for operations only. The total operating cost is about \$68 million per year. Total capital cost of fleet would average about \$6 million per year, but typically 80% of that cost could be covered by federal grants, so the cost to the region would be about \$1.6 million per year. All estimated costs are in today's dollars.

The Unconstrained Network has several features requiring significant capital investments—namely the development of a Bus Rapid Transit corridor along US 29 to Pantops via downtown. It also calls for a restructuring of transit circulation in downtown Charlottesville to reduce the one-way looping and ensure all routes can converge at the downtown transit center. The Unconstrained Network envisions a pedestrian, cyclist, and transit-only bridge parallel to the existing Free Bridge across Pantops to provide a less-congested alternative for transit vehicles and to potentially enhance access to the natural areas along river. These capital requirements are estimated in this plan, but more detailed study would be needed to refine the estimates as design and details are determined in the future. The next pages will show maps of the Unconstrained Network with commentary on changes made to the network as compared to today's service. Subsequent pages will discuss the key outcomes of the Unconstrained Network.

Urban Area Unconstrained Network

Figure 35 shows the urban area network in the Unconstrained Network with routes and services color-coded by their frequency of service.

- **Dark red** means a bus arrives every 10 minutes most of the day.
- **Light red** means a bus arrives every 15 minutes in most of the day.
- **Blue** means a bus arrives every 30 minutes in most of the day.
- **Light blue** means a bus arrives every 60 minutes.
- **Gold** colored zones mean an on-demand service with waiting times of about 30-40 minutes on average.

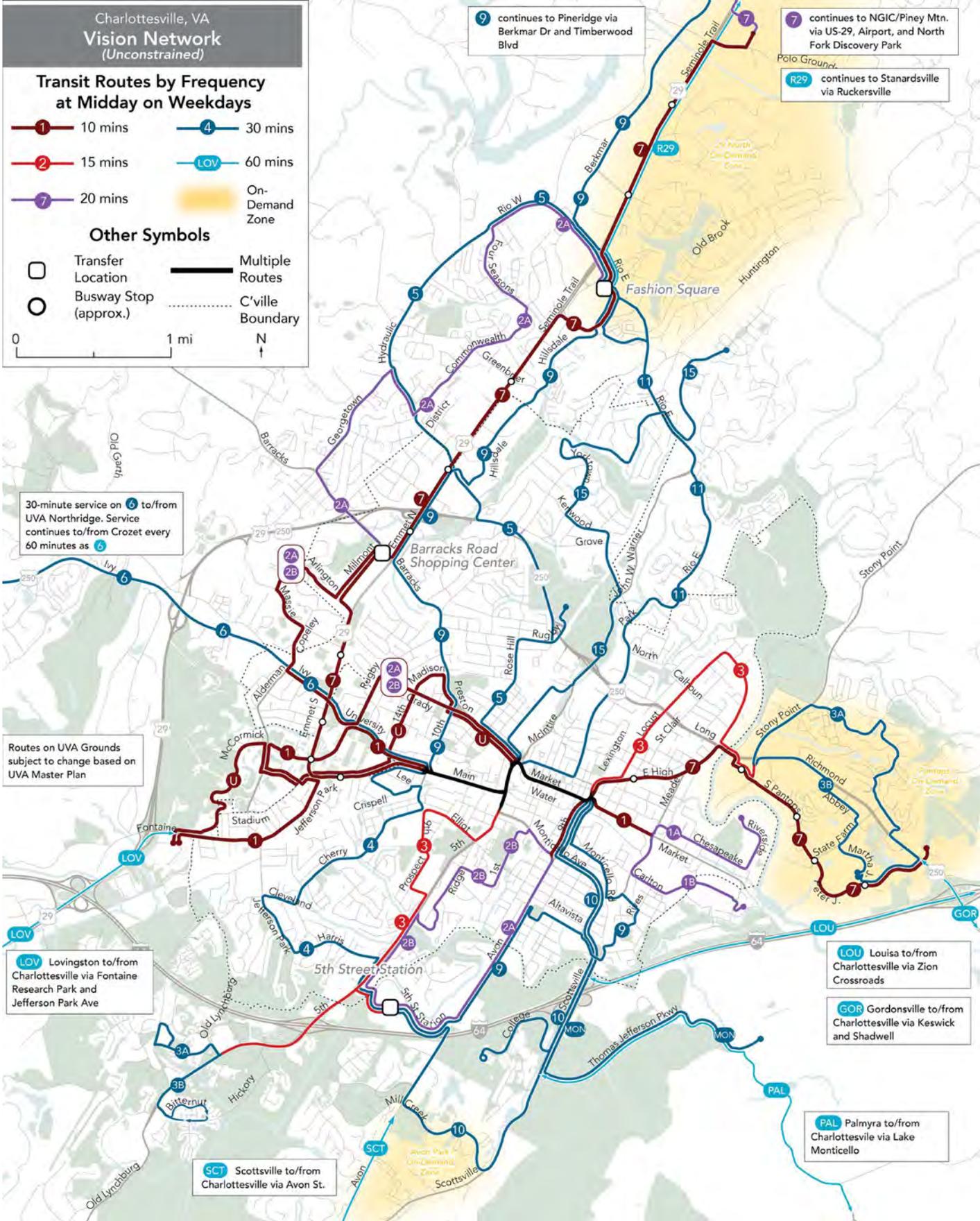
The Unconstrained Network network broadly contains four service types:

- High-frequency (10 minutes or better) Bus Rapid Transit service running on key corridors at spaced-out stop intervals;
- High-to-moderate (15 to 30 minutes) frequency local service providing access to neighborhoods and key destinations;
- Low-frequency (60 minutes) regional or express bus services connecting outer-lying communities with the urban core; and
- On-demand transit zones in targeted areas

These features come together to create a comprehensive network connecting important places across the urban areas of the region.

The Unconstrained Network also reframes what transit in and around UVA can look like. With so much more service in the citywide transit network going to and through Grounds, UVA can reallocate resources on UTS services. The “U” line is a proposal for how UTS can restructure its services to better connect UVA students, faculty, and staff within Grounds and with the rest of the city in coordination with a revised regional network.

Figure 35: Unconstrained Network in the Urban Area of the region.



Bus Rapid Transit in the Unconstrained Network

The Unconstrained Network includes a Bus Rapid Transit corridor following most of US-29 through UVA Grounds into downtown and out to Pantops. This corridor is an important part of the network and its improved access.

A Higher Standard of Transit

Bus rapid transit, or BRT, is a type of transit service where buses have priority over general traffic through a set of measures like dedicated lanes, queue jump lanes, and signal priority. Often these measures are paired with wider stop spacing to increase the average speed of service. When done properly, and with frequent service, bus rapid transit can provide many of the benefits of rail transit, namely higher capacity, higher speed, and improved customer experience, with more flexibility.

What Does Good BRT Look Like?

Frequent and Reliable Service

Bus rapid transit services are often on corridors with high ridership or passenger demand. Therefore, the quality of service along the route should be high as well. This often means running a service at least every 15 minutes, seven days a week, from morning to evening. At this level of service, there is no need to consult a schedule or timetable—a bus will be there soon.

BRT services often have widely-spaced stops compared to traditional bus services. Stops are spaced about every 1/2 mile, while vehicles on conventional bus services may stop as often as every 1/4 mile or less. Wider stop spacing means vehicles can move more consistently and predictably along their route.

Priority for buses

Transit priority is what puts the “rapid” in bus rapid transit. There are many approaches to increasing priority for buses on a BRT corridor, especially at intersections, to improve transit speed and reliability.

Without transit priority measures, a bus rapid transit line risks being delayed by traffic and cannot be considered “rapid”. Transit priority can consist of:

- **Dedicated lanes**, either in the center of the road (median) or on the sides of the road next to the curb;
- **Signal priority at intersections**, including but not limited to: dedicated lights for transit vehicles, early or extended green signals triggered by transit vehicles; and/or
- **Physical measures like queue jumps**, which allow transit vehicles to get a “head start” at intersections.

Any number of these priority measures can and should be implemented along a BRT corridor, often with specific items at certain areas, such as dedicated lanes where congestion is likely.

Better Amenities

BRT systems often include a higher set of passenger amenities compared to the conventional bus network. These amenities both improve the customer experience, and may improve the speed and reliability of service. These amenities often include:

Figure 36: Pulse BRT in Richmond includes dedicated lanes and stations.





Figure 37: Dedicated signals and turn lanes are potential strategies to reduce delay for BRT vehicles.

- **Distinct stops or stations** with shelters, real-time passenger information displays, ample seating, and other high-quality amenities (potential station locations are identified in the map on Figure 35);
- **All-door boarding**, with off-board fare payment and proof of payment, enabling passengers to buy a ticket in advance and board at any door, reducing the time spent at a stop;
- **Level boarding** at stops and stations, which enables passengers to board faster and improves accessibility for passengers traveling with strollers, wheelchairs, or other mobility devices;
- **Distinctly-branded vehicles**, often with special seating layouts, dedicated spaces for bicycles, or other amenities.

Connectivity With Other Modes

High-quality transit like BRT should connect easily with other modes of travel. At BRT stations, there are often ample sidewalks and crosswalks. As part of a broader transit network, BRT should also enable connections to other routes and can serve as a “backbone” for the rest of the transit network.

Where is BRT?

Bus rapid transit is being used by cities around the US and the world to provide higher-quality



Figure 38: Off-board fare collection allows people to board via any door and reduces delays at stops.

transit service. In Virginia, the most notable examples are GRTC’s Pulse in Richmond and the Metroway in Arlington and Alexandria.

What could BRT look like in Charlottesville?

Given the importance of US 29 to the region and its long and continuously developed path, the Unconstrained Network includes a BRT corridor from north of Fashion Square Mall, through UVA and downtown to Pantops. Service would be operated by Route 7 every 10 minutes at midday along the core of the route from Brookhill to downtown to Pantops, with 20-minute service north to the airport, UVA’s North Fork Discovery Park, and Piney Mountain.

The region has choices in the level of investment it wants to put to transit along US 29. A high level of investment into BRT could mean dedicated lanes in the center of the road, with unique branded stations and special high-capacity buses, reaching a level of investment similar to basic light rail line. A relatively low level of investment could mean only priority at signals, part-time priority lanes, and the same buses as the rest of the network, making it effectively a better bus service, but not a separately branded service. The choice is ultimately up to the region but the more investment the region is able to put towards this corridor, the more successful any resulting service is likely to be.

Regional and Rural Unconstrained Network

The Unconstrained Network presents a dramatically expanded set of services for most communities beyond the core, urban areas of Charlottesville and Albemarle. The biggest change comes in the form of eight new fixed-route bus services. Some of these services look similar to the present-day CONNECT services. Unlike CONNECT services though, **these services would run hourly from the start of the day to the end of the day and provide service on weekends too.**

All-day fixed route services would connect:

- Zion Crossroad and Louisa to Charlottesville
- Louisa to Gordonsville
- Gordonsville to Charlottesville
- Standardsville and Ruckersville to Charlottesville
- Lovingston to Charlottesville
- Scottsville to Charlottesville
- Crozet to Charlottesville
- Palmyra to Charlottesville

To connect people to these fixed-route services, seven on-demand zones would provide same-day access to the regional transit network in specific zones. These zones would cover

- Town of Louisa
- Zion Crossroad
- Esmont and Scottsville
- Crozet
- Lake Monticello
- Keswick and Rivanna Village
- Earlysville

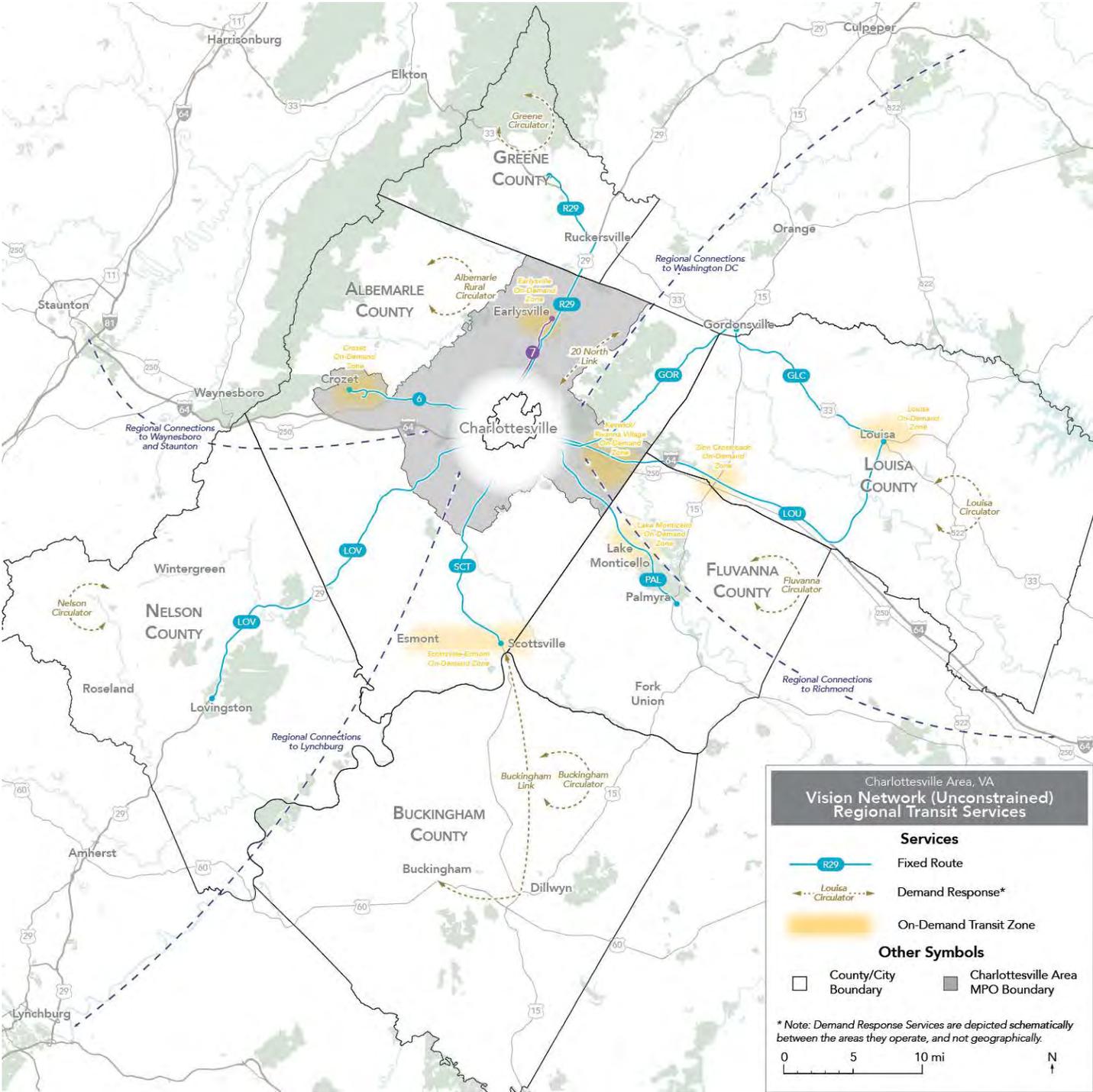
An expansion of the existing county-wide Circulator services would provide connections to the regional transit network, but with a day-ahead reservation. Some areas would continue to have day-ahead reservation Link services.

In addition to the above, the Unconstrained Vision recommends improved inter-regional connections to the following areas:

- Washington, DC and Northern Virginia with improved Amtrak and Virginia Breeze services.
- Waynesboro and Staunton with improved Afton Express service.
- Richmond via improved inter-regional bus services or, if the state invest in it, new regional rail connections.
- Lynchburg with improved Amtrak and Virginia Breeze services.

These services are assumed to be funded through state and federal sources, but are shown and recommended here as part of a seamless network of services to connect the region to other parts of the state and beyond.

Figure 39: Unconstrained Network in the Rural and Outlying Communities in the Region



Outcomes of the Unconstrained Network

How do these proposed transit services improve the lives of people in the region. A few measures give us an idea of how these transit services would make a difference to residents of the region.

Isochrones

One way we visualize the usefulness of transit and how it connects people to places is with **isochrones**. Each isochrone shows how far you can go from a given location in a reasonable amount of time, as an area on a map. We can then calculate the number of people and jobs in this area.

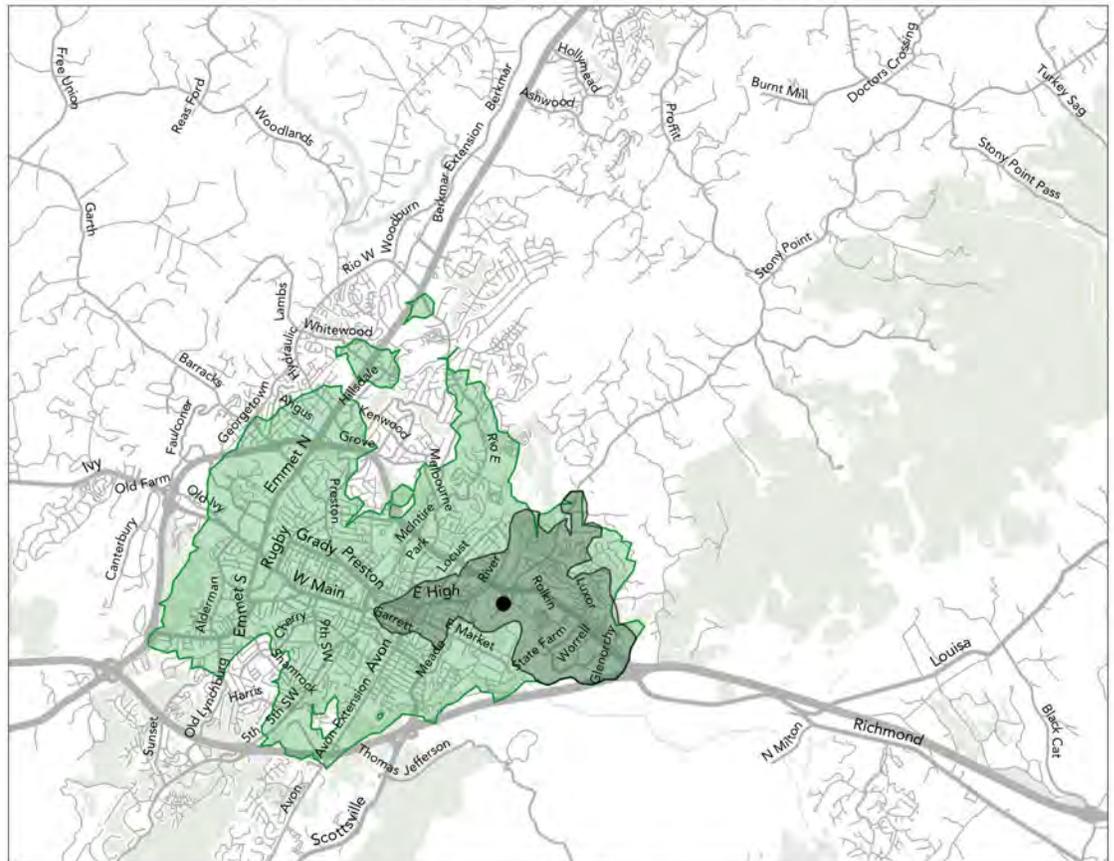
In the Unconstrained Network, the places you can reach change dramatically from the Baseline Network, in large part due to high-frequency routes as they make connecting between routes faster and more reliable so people can reach more places more quickly.

Figure 40 shows the change in access from Pantops Shopping Center in Albemarle County. The gray area is the area reachable today by transit in 45 minutes. The green area shows newly reachable areas, which are much larger thanks to a more frequent, faster, and larger transit network.

Figure 40: Access from Pantops increases dramatically in the Unconstrained Network.

How far can I travel in 45 minutes from
Pantops Shopping Center
on Weekdays at noon in the:

Unconstrained Vision Network



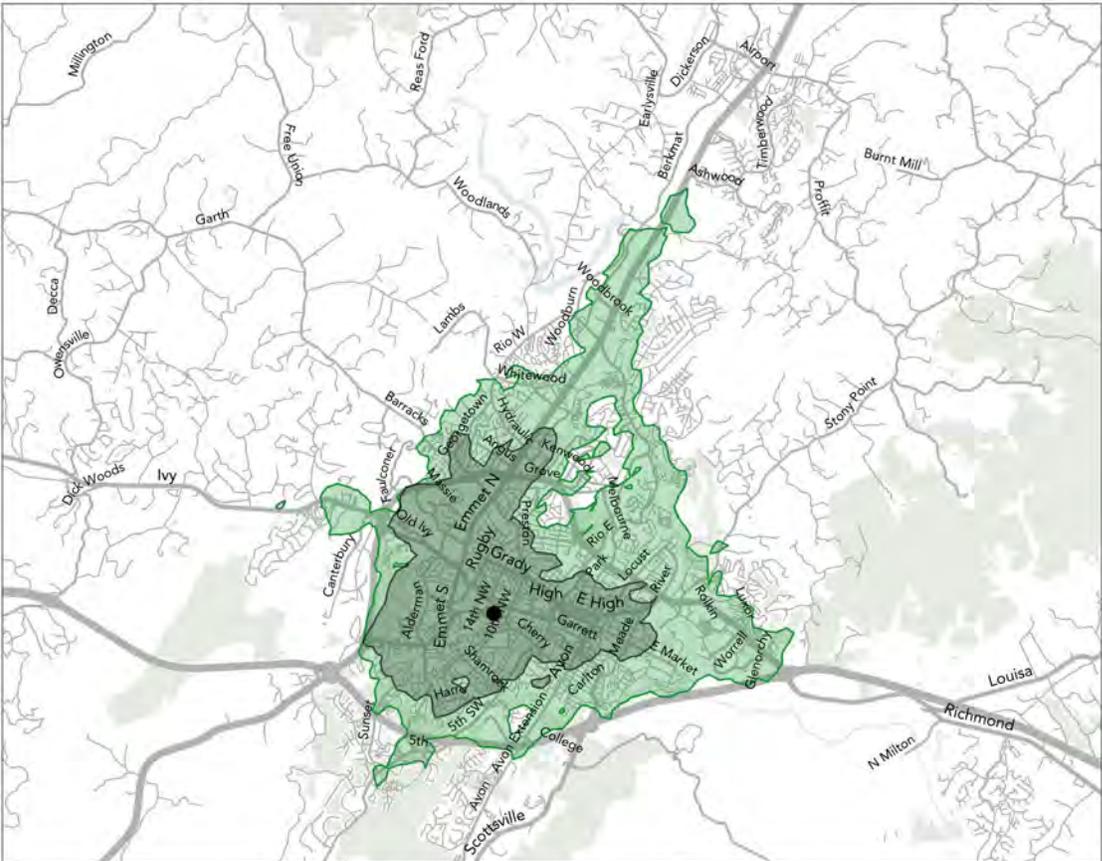
	Change	% Change
Jobs	+37,400	+331.5%
Residents	+50,000	+968.5%

Figure 41 shows the change in access from UVA Hospital under the Unconstrained Network. The gray area is the area reachable today by transit in 45 minutes. The green area shows newly reachable areas, which are much larger thanks to a more frequent, faster, and larger transit network.

An additional 30,000 residents of the region could reach UVA Hospital in 45 minutes by transit in the Unconstrained Network.

Figure 41: Access from UVA Hospital increases dramatically in the Unconstrained Network.

How far can I travel in 45 minutes from
UVA Hospital
 on Weekdays at noon in the:
Unconstrained Vision Network



	Change	% Change
Jobs	+25,400	+70.5%
Residents	+30,300	+75.5%

Access To Jobs in the Unconstrained Network

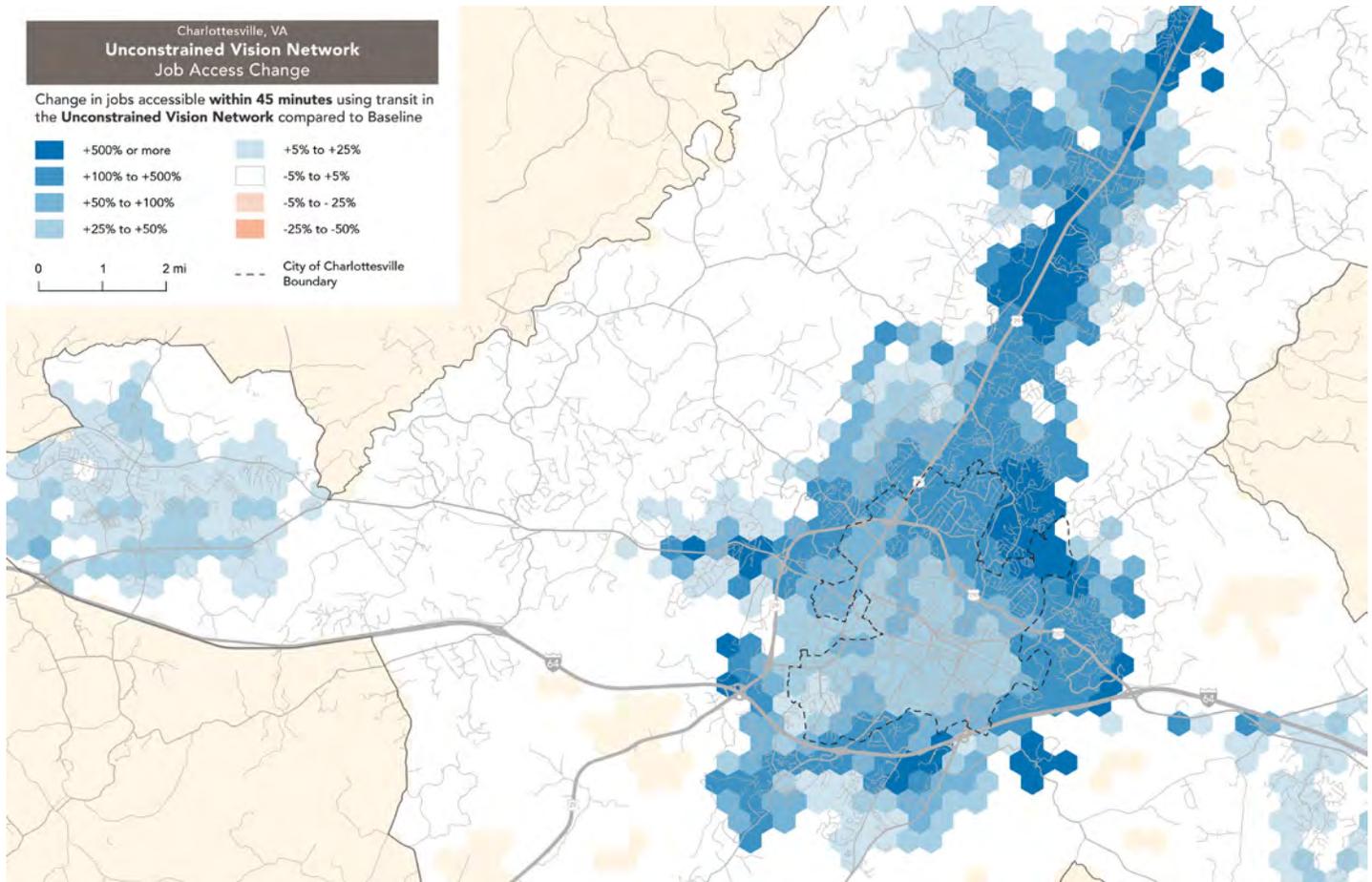
The previous maps show how the Unconstrained Network expands where people could go in a given time, from certain places. Figure 42 summarizes the same thing for every part in the urban area. The color of the zones represents how many more (or fewer) jobs could be reached in 45 minutes on transit on weekdays at noon, from anywhere in the urban area, door-to-door, including walking, waiting, and riding.

This change in job access is a key measure of the usefulness of transit. Job access is an indicator of both the work opportunities reachable by transit, and the businesses and services customers or clients could choose to travel to. The Unconstrained Network vastly expands the number of jobs accessible to most people in Charlottesville and across most of the city compared to existing service. Large parts

of the urban area see job access increases of over 100%, with some parts of the region seeing increases of 500% or more.

The improved access to jobs is due to the greatly expanded reach of the network and the improved frequencies as a whole. In the case of Crozet and Keswick, most of these changes are driven by new on-demand transit zones which provide internal circulation and connect to the broader fixed-route network.

Figure 42: Change in Job Access with the Unconstrained Network

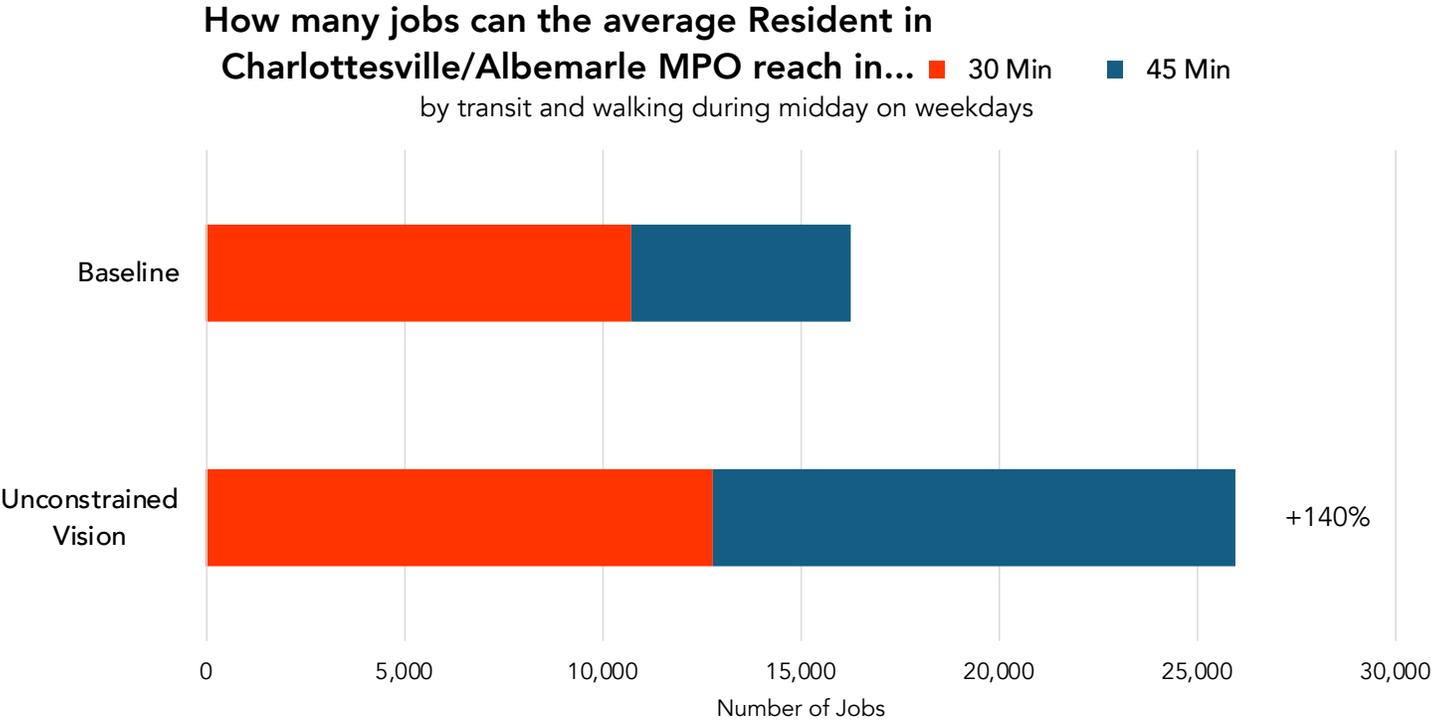


By taking the sum of all the changes in job access from the map on the previous page, it is possible to estimate the number of jobs that the average resident can reach by transit. The chart in Figure 43 shows the change in jobs reachable in 30 and 45 minutes for the average person in the urban area of Charlottesville and Albemarle.

In the Unconstrained Network, the average person could reach 140% more jobs in 45 minutes—that is 7,600 more jobs and opportunities reachable by transit. This represents an enormous increase in access to opportunities as jobs represent more than just employment opportunities; they represent many destinations that people want to reach, such as shopping, medical centers, and educational institutions.

The average resident in the urban area could reach 7,600 more jobs in 45 minutes by transit in the Unconstrained Network.

Figure 43: Change in Job Reachable for the Average Resident with the Unconstrained Network



Proximity to Transit in the Unconstrained Network

If access measures the different places people can get to on transit, proximity measures how close people are to transit. We measure proximity as the number of people who live within a 1/2 mile to a stop on a route. Proximity is also a valuable measure for more rural/regional areas as the places one can walk to and from a transit stop are more spread out.

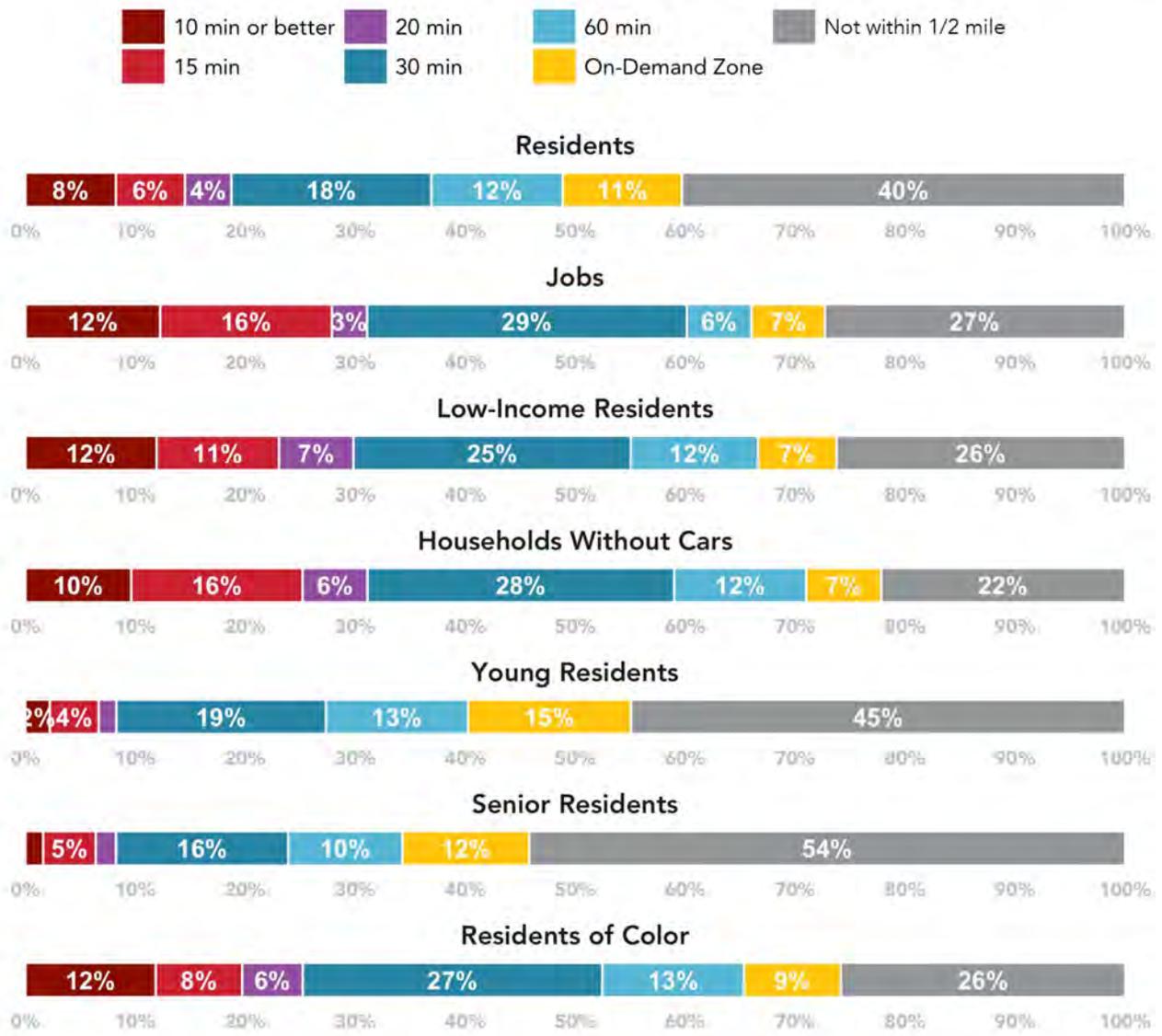
Urban Areas

For comparison, the percent of residents, jobs, low-income residents, households without cars, young residents, senior residents, and residents of color who are within 1/2 mile of transit in the Baseline Network is shown in Figure 44. These bar charts show the percent of these groups covered by transit according to the frequency of service. Today only 8% of residents are near service that comes every 10 minutes.

Figure 44: Proximity to Transit in the Baseline Network for the Urban Area

Proximity to Transit at Midday - Weekday

What percentage of each group in Charlottesville/Albemarle MPO is near transit in the Baseline Network?



Note: Proximity is measured as being located within 1/2 mile of a bus stop.

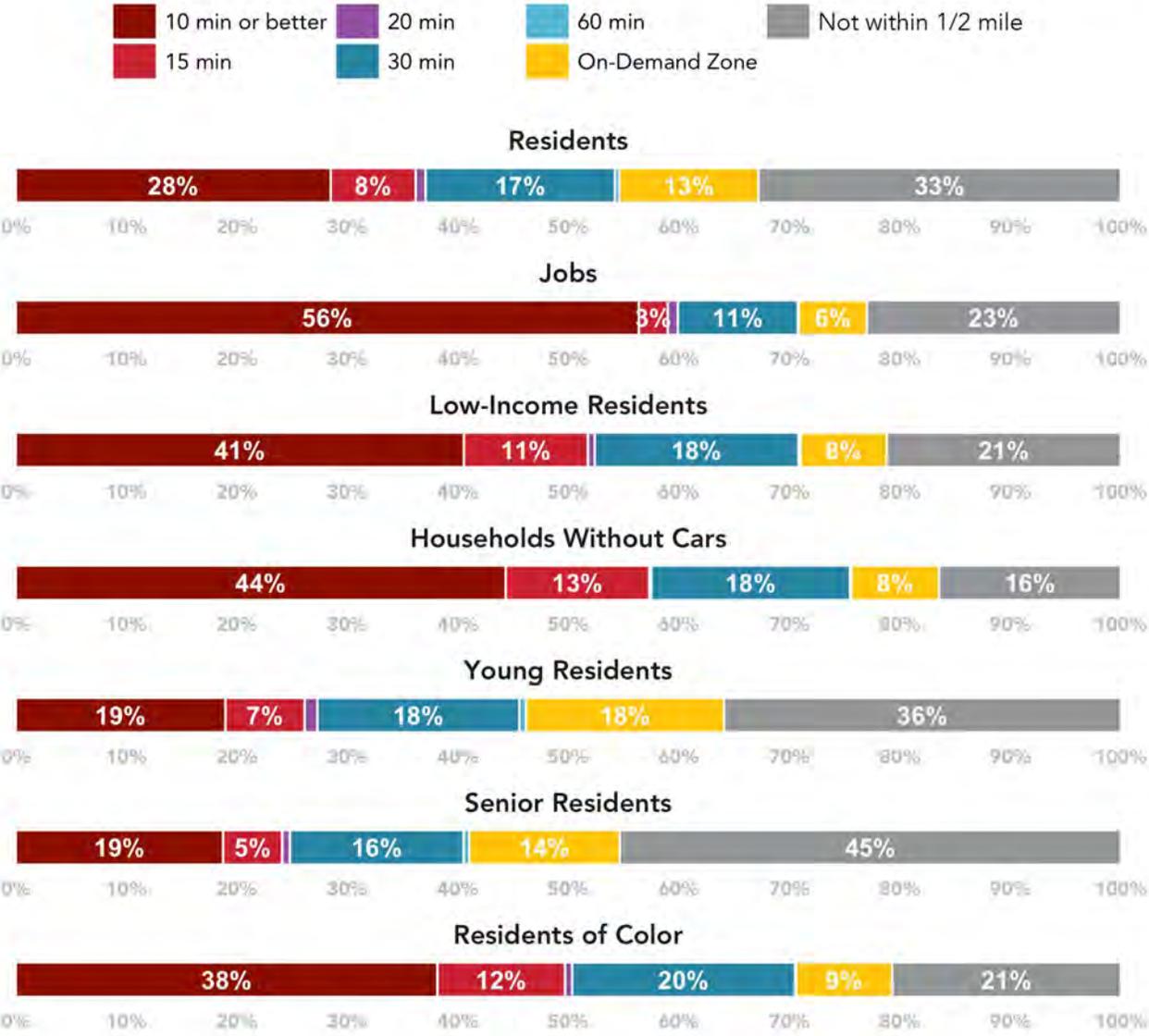
In the Unconstrained Network, both proximity to higher-frequency transit (service that comes every 15 minutes or better) and proximity to any transit is improved within the urban area. More groups of people are now served by transit and especially by high-frequency transit.

Low-income residents near frequent service increases from 23% to 52% in the Unconstrained Network.

Figure 45: Proximity to Transit in the Unconstrained Network for the Urban Area

Proximity to Transit at Midday - Weekday

What percentage of each group in Charlottesville/Albemarle MPO is near transit in the Unconstrained Vision Network?



Note: Proximity is measured as being located within 1/2 mile of a bus stop.

Rural and Outlying Communities

In the Unconstrained Network, proximity to transit is also improved in the rest of the region. In these charts, we only show residents and jobs as our analysis is based on block groups and block groups are not fine-grained enough in rural areas to allow for subgroup measures like people in poverty.

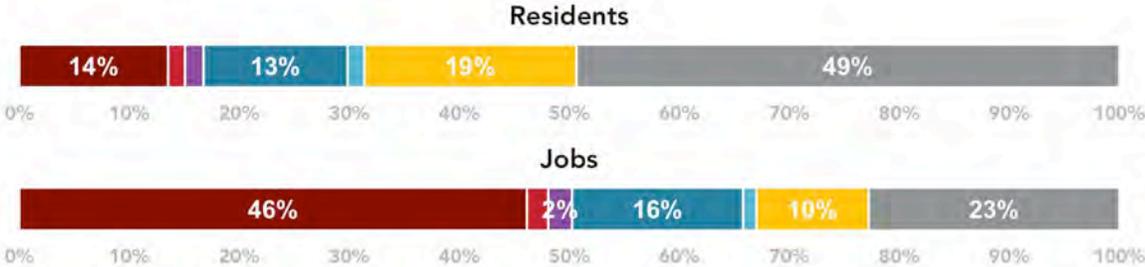
Figure 46 shows the proximity to transit for the counties across the region. For outlying counties (Fluvanna, Greene, Louisa, and Nelson Counties) there are no fixed-route or on-demand services today, so the blue and yellow bars in each chart represent a major increase in service provided relative to the baseline.

The Unconstrained Network does not include expanded fixed routes to Buckingham County, but does include improved span of service and connectivity to the rest of the region via improved Link services.

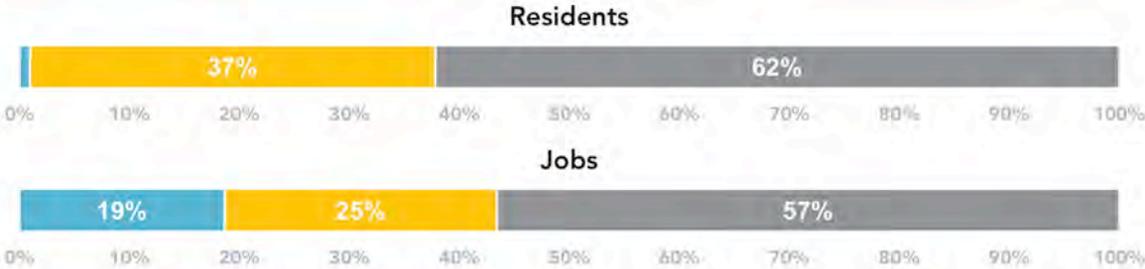
In the Unconstrained Network, many rural communities would see same-day on-demand services and fixed route services 7-days per week, vastly expanding when, where, and how people in rural communities could travel.

Proximity to Transit at Midday - Weekday

Albemarle County



Fluvanna County



Greene County



Louisa County



Nelson County



Note: Proximity is measured as being located within 1/2 mile of a bus stop.
 * JAUNT Link or Circulator Service similar to today. Rider must call day before to reserve service.

Figure 46: Proximity to Transit in the Unconstrained Network for Albemarle, Greene, Fluvanna, Louisa, and Nelson Counties.



Constrained Network

The Constrained Network would substantially improve upon the existing system—but is limited by cost. It assumes the creation of a new regional funding mechanism for transportation in the Charlottesville area. This new regional funding mechanism would provide a new transit funding resource for the region. This type of regional funding mechanism is new to Charlottesville but is already in use elsewhere in Virginia. For example, the Central Virginia Transportation Authority (CVTA) provides new funding opportunities for transportation projects in the Richmond area. For the purposes of constructing a Constrained Network Plan for the region, the project team discussed various potential assumptions with the Regional Transit Partnership and key stakeholders. Based on those conversations, the Constrained Network is built on the following financial assumptions:

A regional funding framework similar to the CVTA in the Richmond region and most funding dedicated to the regional transit system. Using tax revenue sources (sales and fuels taxes) similar to the CVTA, the region could produce about \$26 million annually to support transit services.

Based on input from the RTP, and to set a relatively conservative assumption regarding the potential increase in total funding for transit, the Constrained Network assumes new regional funding would supplant some existing local funding sources for transit. Thus, most local contributions to transit would be reduced. Currently local governments contribute about \$8 million per year to CAT and Jaunt. If regional funding mostly supplants this local funding, then the net new dollars available to increase transit service is only about \$18 million per year.

What Changes in the Constrained Network?

In the Constrained Network, the hours and days of service are expanded. Most fixed-route services and several regional and rural services in this concept will now run seven days a week.

We've also maximized the amount of “all day” service—service that runs consistently both during the morning and evening peak periods and during the middle of the day.

What Would the Constrained Network Cost?

Because a transit agency's costs can vary widely, revenue hours are the primary way to determine transit service costs. Revenue hours are defined as each hour a vehicle spends running on the street, picking up and dropping off passengers. Revenue hours generally track with an agency's operating costs.

For services operated by CAT, the Constrained Network would represent a 113% increase in the total amount of revenue hours compared to the existing service. For services operated by Jaunt (excluding ADA paratransit service), the Constrained Network would represent a 154% increase in the total amount of revenue hours compared to the existing service.

Including capital costs, the entire network would cost about \$35.5 million per year to operate and maintain. Assuming consistent Federal and State funding of about \$9.5 million, the Constrained Network would require about \$26 million per year in regional funding.

The next pages will show maps of the constrained network with commentary on changes made to the network as compared to the Baseline Network. Subsequent pages will discuss the changes in access, proximity, and span of service in the concept.

The Constrained Network looks similar to the baseline transit network, with a few key differences.

- Focusing additional resources on the US-29 corridor
- Implementing the On-Demand Zones proposed in the Albemarle Transit Expansion Study
- Adding two new CONNECT routes to new communities

Figure 47: Map of the Constrained Network in the Urban Area.

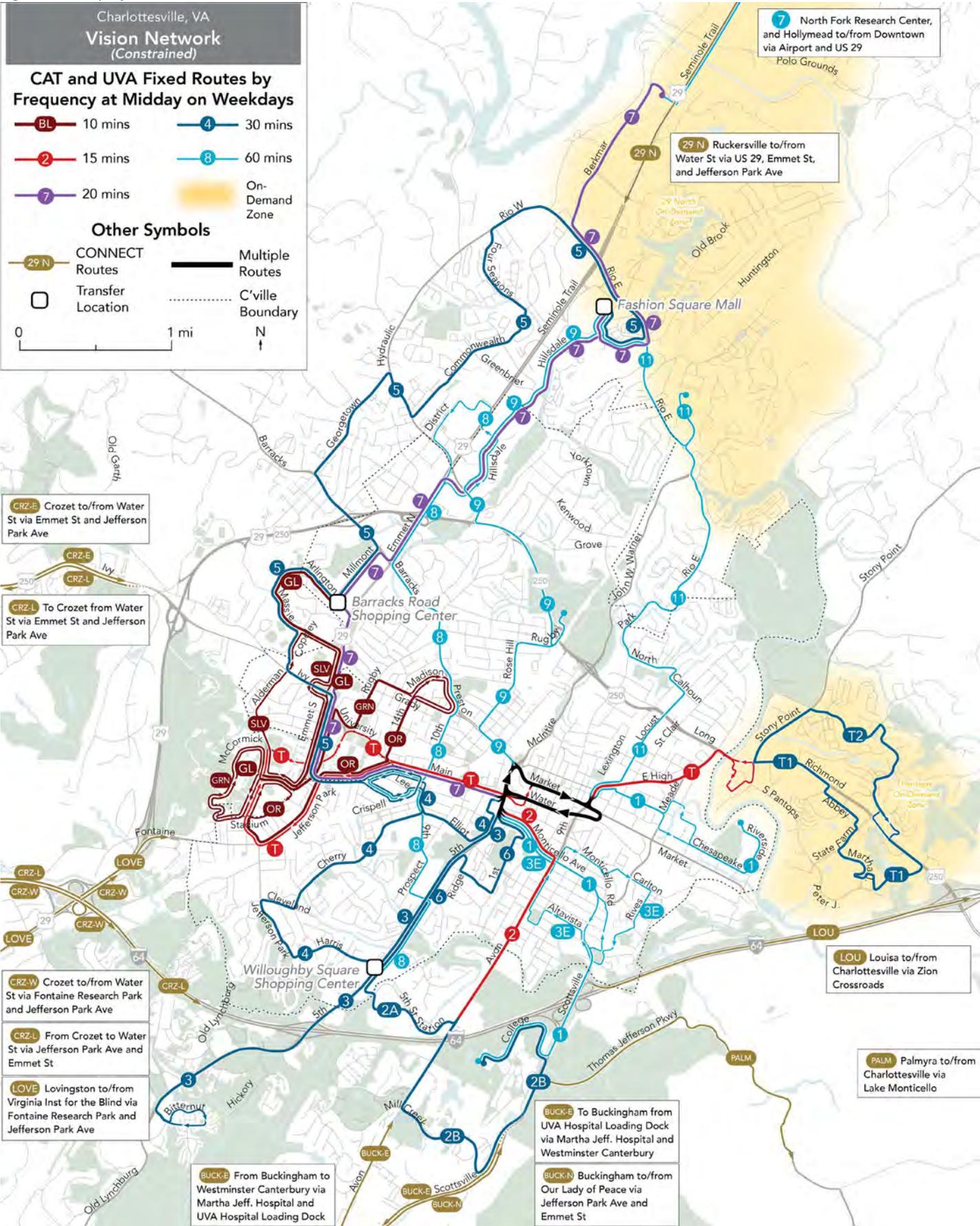


Figure 48: Chart of the Span and Frequency of Service in the Baseline Network

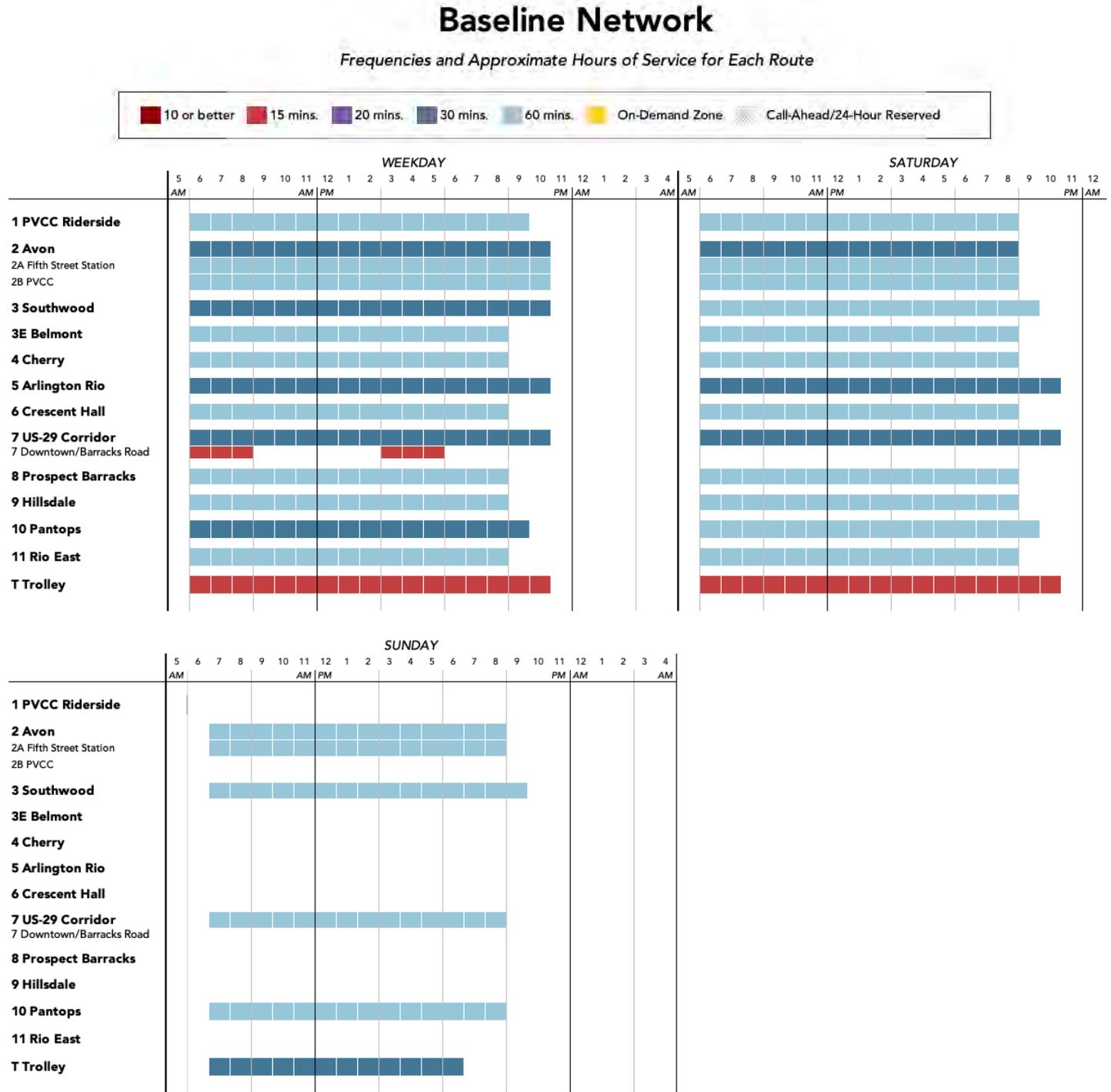


Figure 48 shows the span and frequency of service in the Baseline Network while Figure 49 shows the same for the Constrained Network. Comparing the two charts shows a few key differences:

- Many more 15, 20, and 30 minute services across the urban area on weekdays
- Many more 20 and 30 minute routes on Saturdays.
- All fixed routes run on Sundays.

Figure 49: Chart of the Span and Frequency of Service in the Constrained Network

Constrained Vision

Frequencies and Approximate Hours of Service for Each Route



In the Constrained Network, all fixed routes would operate 7-days per week, and most would operate more frequently on weekdays and Saturdays.

Rural and Regional Transit in the Constrained Network

The regional network in the Constrained Network looks similar to the Baseline Network in terms of the name and types of services, but the span of service (how many days and hours each service runs) and the number of trips are increased.

CONNECT Routes

All CONNECT routes would now run seven days a week and provide two additional trips a day compared to the Existing network. This concept would also create new CONNECT lines to Louisa and Palmyra. Changes made to the urban network would also enable the extension of the 29 North CONNECT from Hollymead all the way to Ruckersville.

Figure 50: Map of the Constrained Network in Outlying Communities

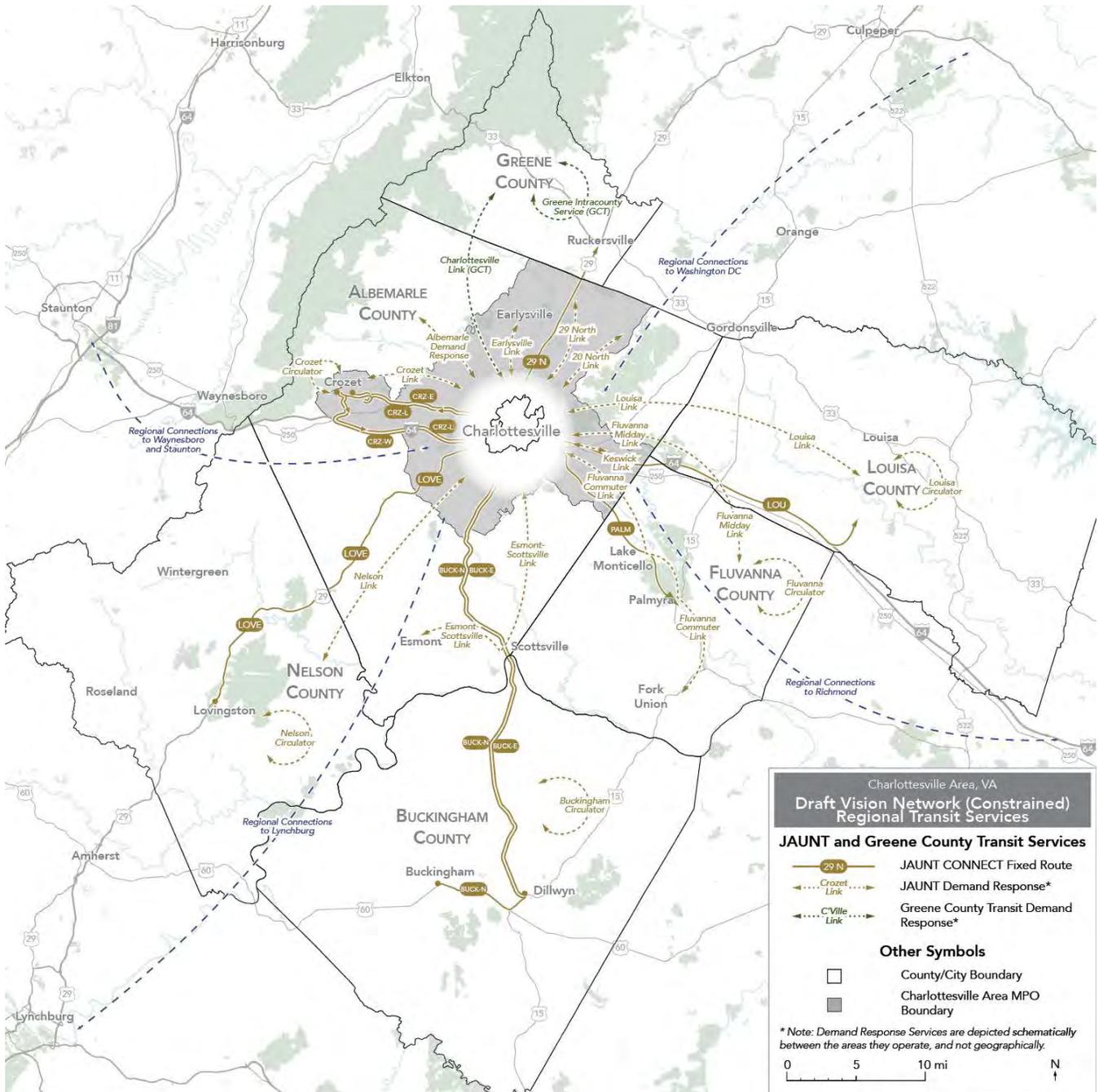


Figure 51: The Constrained Network provides many more trips per day on CONNECT Services to and from rural areas.

Existing Regional Network

Trips per day per Jaunt CONNECT service

7+ trips per day
 4-6 trips per day
 1-3 trips per day
 No service

Service	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
CRZ-E Crozet East	7 trips	7 trips	7 trips	7 trips	7 trips		
CRZ-W Crozet West	7 trips	7 trips	7 trips	7 trips	7 trips		
CRZ-L Crozet PM Loop	1 trip	1 trip	1 trip	1 trip	1 trip		
29N 29 North	6 trips	6 trips	6 trips	6 trips	6 trips		
BUCK-E Buckingham East	2 trips	2 trips	2 trips	2 trips	2 trips	2 trips	2 trips
BUCK -N Buckingham North	2 trips	2 trips	2 trips	2 trips	2 trips	2 trips	2 trips
LOVE Lovington	2 trips	2 trips	2 trips	2 trips	2 trips		
Palmyra							
Louisa							

Constrained Regional Network

Trips per day per Jaunt CONNECT service

7+ trips per day
 4-6 trips per day
 1-3 trips
 No service

Service	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
CRZ-E Crozet East	12 trips	12 trips	12 trips	12 trips	12 trips	12 trips	12 trips
CRZ-W Crozet West	12 trips	12 trips	12 trips	12 trips	12 trips	12 trips	12 trips
CRZ-L Crozet PM Loop	6 trips	6 trips	6 trips	6 trips	6 trips	6 trips	6 trips
29N 29 North	11 trips	11 trips	11 trips	11 trips	11 trips	11 trips	11 trips
BUCK-E Buckingham East	7 trips	7 trips	7 trips	7 trips	7 trips	7 trips	7 trips
BUCK-N Buckingham North	7 trips	7 trips	7 trips	7 trips	7 trips	7 trips	7 trips
LOVE Lovington	7 trips	7 trips	7 trips	7 trips	7 trips	7 trips	7 trips
PALM Palmyra	5 trips	5 trips	5 trips	5 trips	5 trips	5 trips	5 trips
LOU Louisa	5 trips	5 trips	5 trips	5 trips	5 trips	5 trips	5 trips

In the Constrained Network, most CONNECT Services would see double the number of trips per day and weekend service and new CONNECT services to Louisa and Palmyra would be added.

Circulator Services (intra-county)

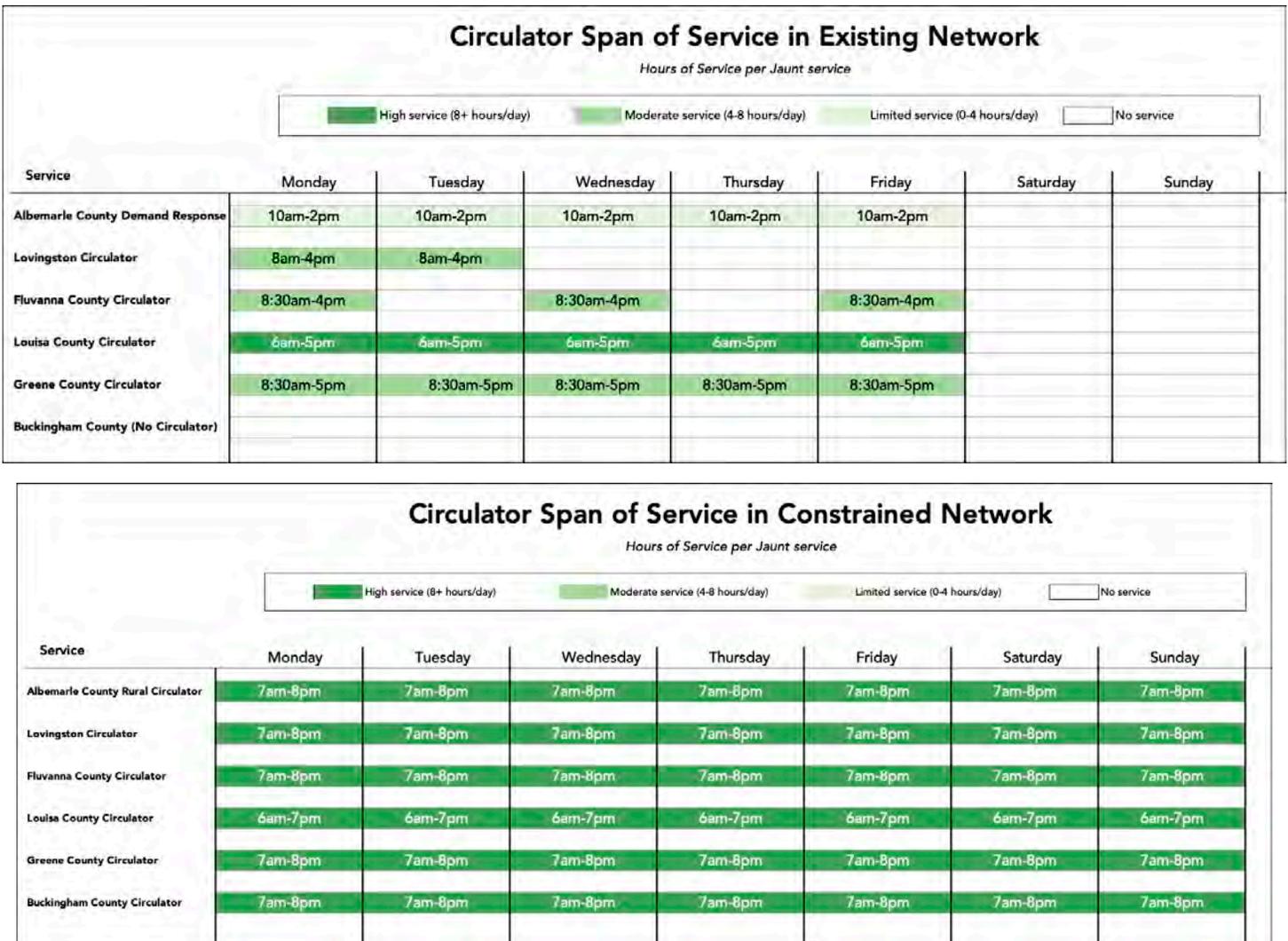
Existing county-wide circulator services provided by Jaunt would be expanded in Nelson, Greene, Louisa, and Fluvanna counties, as well as an expansion of the Albemarle County rural demand response service.

There would also be a new circulator service in Buckingham County. These services would now run all day, seven days a week, but would still require a reservation the night before.

Link services (intra-county to and from Charlottesville)

Link services connecting Charlottesville and urban Albemarle County would be the same as in the existing network.

Figure 52: The Constrained Network would mean more hours per day and days per week for Circulator services.



Outcomes of the Constrained Network

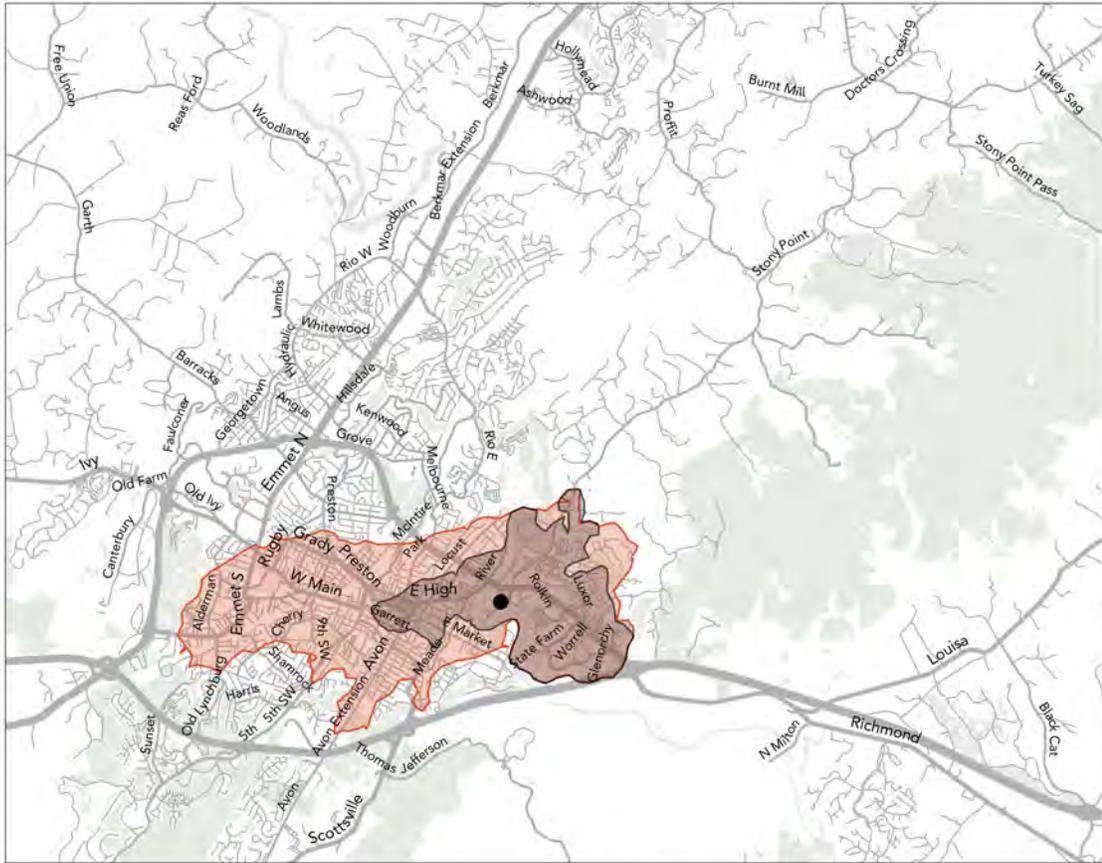
How do these proposed transit services in the Constrained Network improve the lives of people in the region. A few measures give us an idea of how these transit services would make a difference to residents of the region.

Isochrones

One way we visualize the usefulness of transit and how it connects people to places is with isochrones. Each isochrone shows how far you can go from a given location in a reasonable

How far can I travel in 45 minutes from **Pantops Shopping Center** on Weekdays at noon in the:

Constrained Vision Network



	Change	% Change
Jobs	+26,500	+235.0%
Residents	+28,900	+559.0%

amount of time, as an area on a map. We can then calculate the number of people and jobs in this area. In the Constrained Network, the places you can reach does increase from the Baseline Network, but the increases are not as large as in the Unconstrained Network.

Figure 53 shows the change in access from Pantops Shopping Center in Albemarle County. The gray area is the area reachable today by transit in 45 minutes. The orange area shows newly reachable areas, which are larger thanks to a more frequent, faster, and larger transit network, though the growth in area reachable is not as large as in the Unconstrained Network.

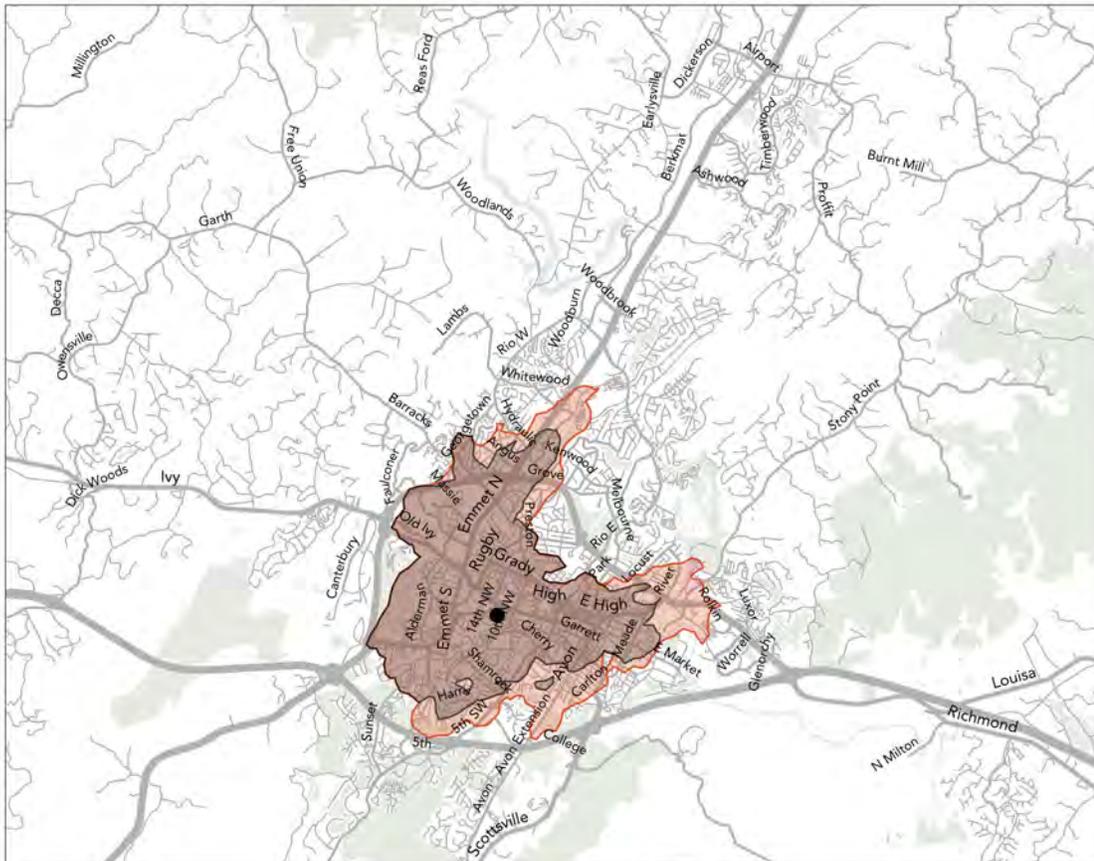
Figure 53: Access from Pantops increases significantly in the Constrained Network.

Figure 54 shows the change in access from UVA Hospital under the Constrained Network.

- The gray area is the area reachable today by transit in 45 minutes.
- The orange area shows newly reachable areas, which are somewhat larger thanks to a more frequent, faster, and larger transit network.
- Jobs reachable from this point increase by 15%
- Residents reachable from here increases by about 7%.

How far can I travel in **45 minutes** from
UVA Hospital
 on Weekdays at noon in the:

Constrained Vision Network



	Change	% Change
Jobs	+5,100	+14.0%
Residents	+9,600	+24.0%

Figure 54: Access from UVA Hospital increases somewhat in the Constrained Network.

Access To Jobs in the Constrained Network

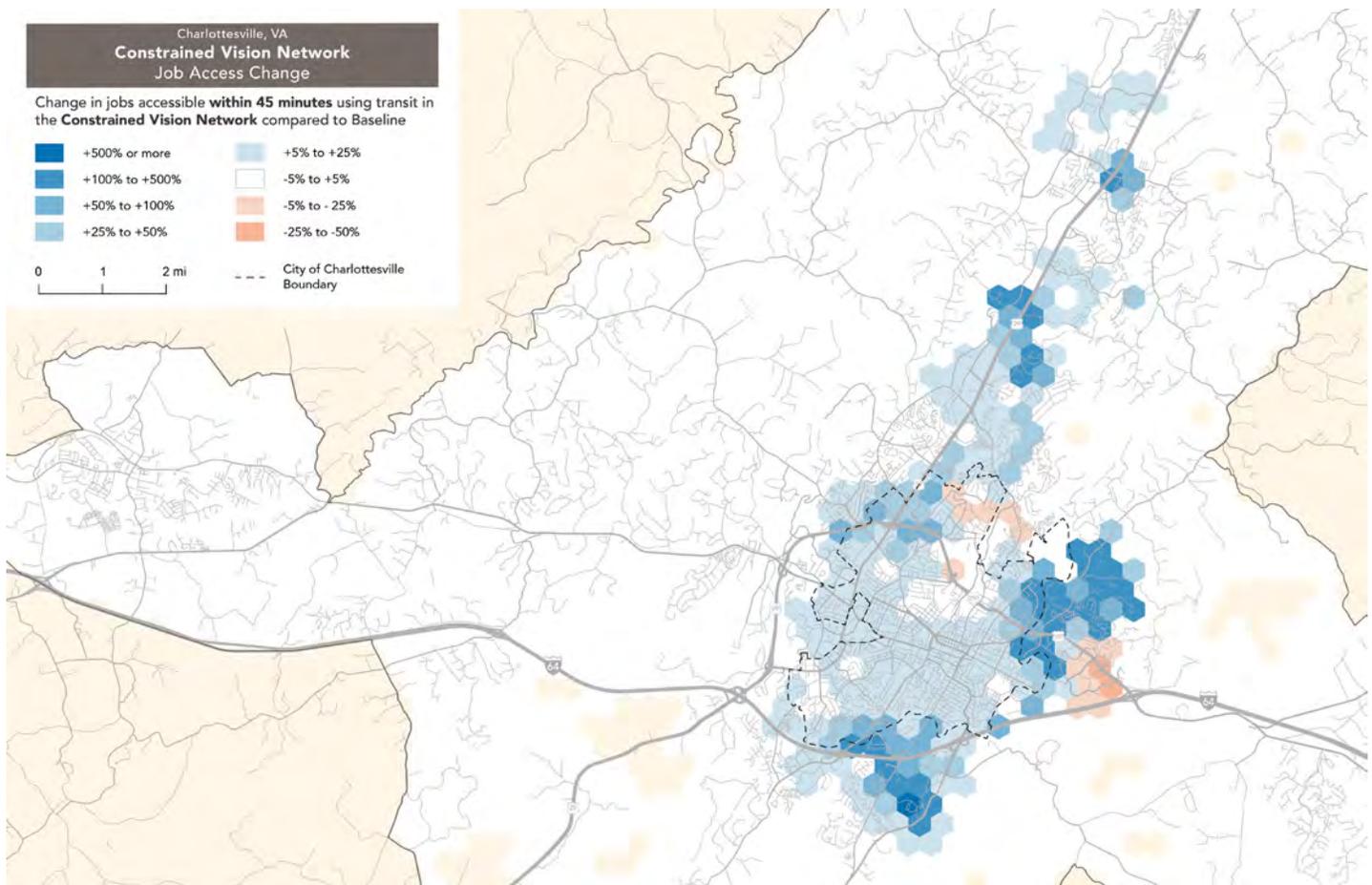
The previous maps show how the Constrained Network expands where people could go in a given time, from certain places. Figure 55 summarizes the same thing for every part in the urban area. The color of the zones represents how many more (or fewer) jobs could be reached in 45 minutes on transit on weekdays at noon, from anywhere in the urban area, door-to-door, including walking, waiting, and riding.

This change in job access is a key measure of the usefulness of transit. Job access is an indicator of both the work opportunities reachable by transit, and the businesses and services customers or clients could choose to travel to.

The Constrained Network expands the number of jobs accessible to most people across the urban area compared to the Baseline Transit Network, though much less than the Unconstrained Network. **Large parts of the urban area see job access increases of over 25%, with some suburban edges seeing job access increases of 100% or more.**

The improved access to jobs on the fringes of the urban area is due to the expansion of service to new areas without service today. The inner core sees only a modest increase in access as frequency is only somewhat improved on most routes in the core of Charlottesville.

Figure 55: Change in Job Access with the Constrained Network

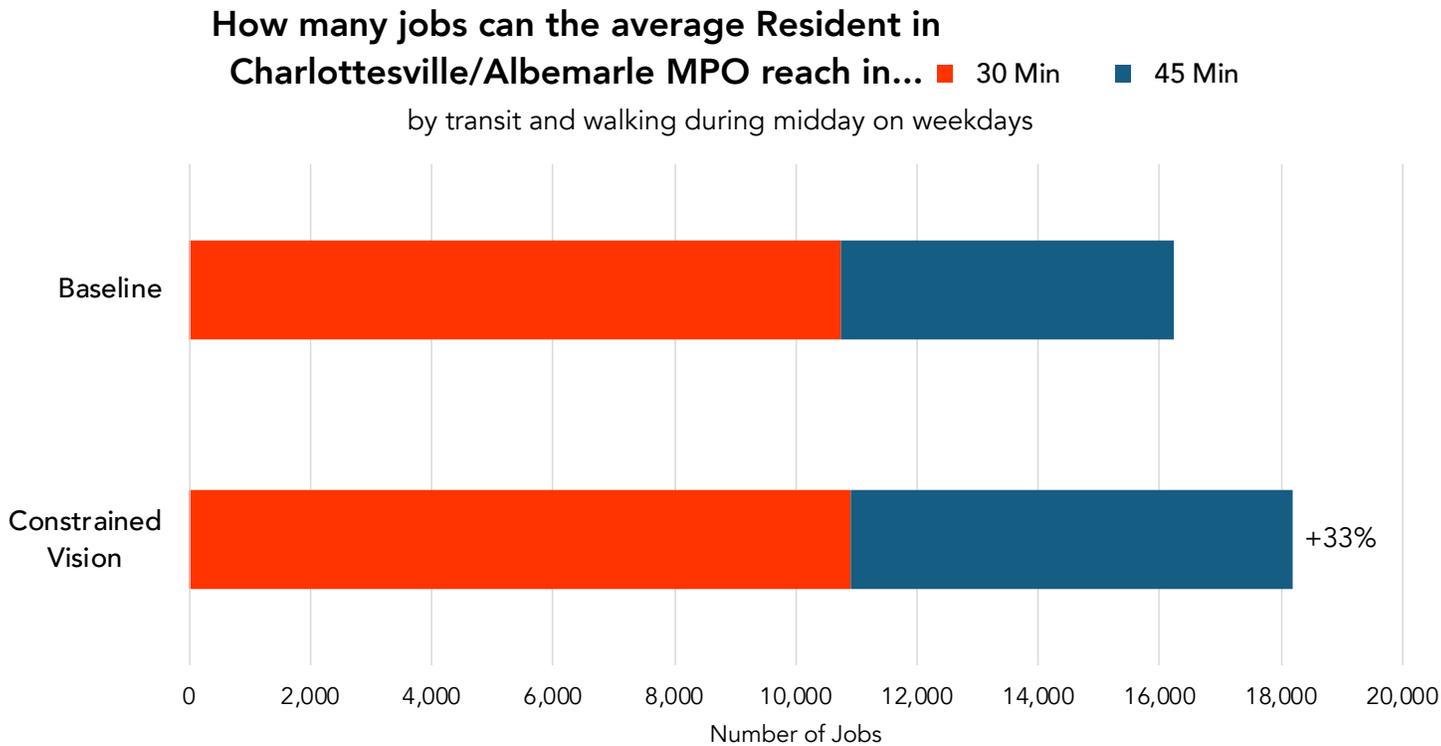


By taking the sum of all the changes in job access from the map on the previous page, it is possible to estimate the number of jobs the average resident can reach by transit. The chart Figure 43 shows the change in jobs reachable in 30 and 45 minutes for the average person in the urban area of Charlottesville and Albemarle.

In the Constrained Network, the average person could reach 33% more jobs in 45 minutes—that is, 1,800 more jobs and opportunities reachable by transit. This represents a substantial increase in access to opportunities as jobs represent more than just employment opportunities; they represent many destinations people want to reach, such as shopping, medical centers, and educational institutions.

With the Constrained Network, the average resident in the urban area could reach 33% more jobs in 45 minutes by transit.

Figure 56: Change in Jobs Reachable for the Average Resident with the Constrained Network



Proximity to Transit in the Constrained Network

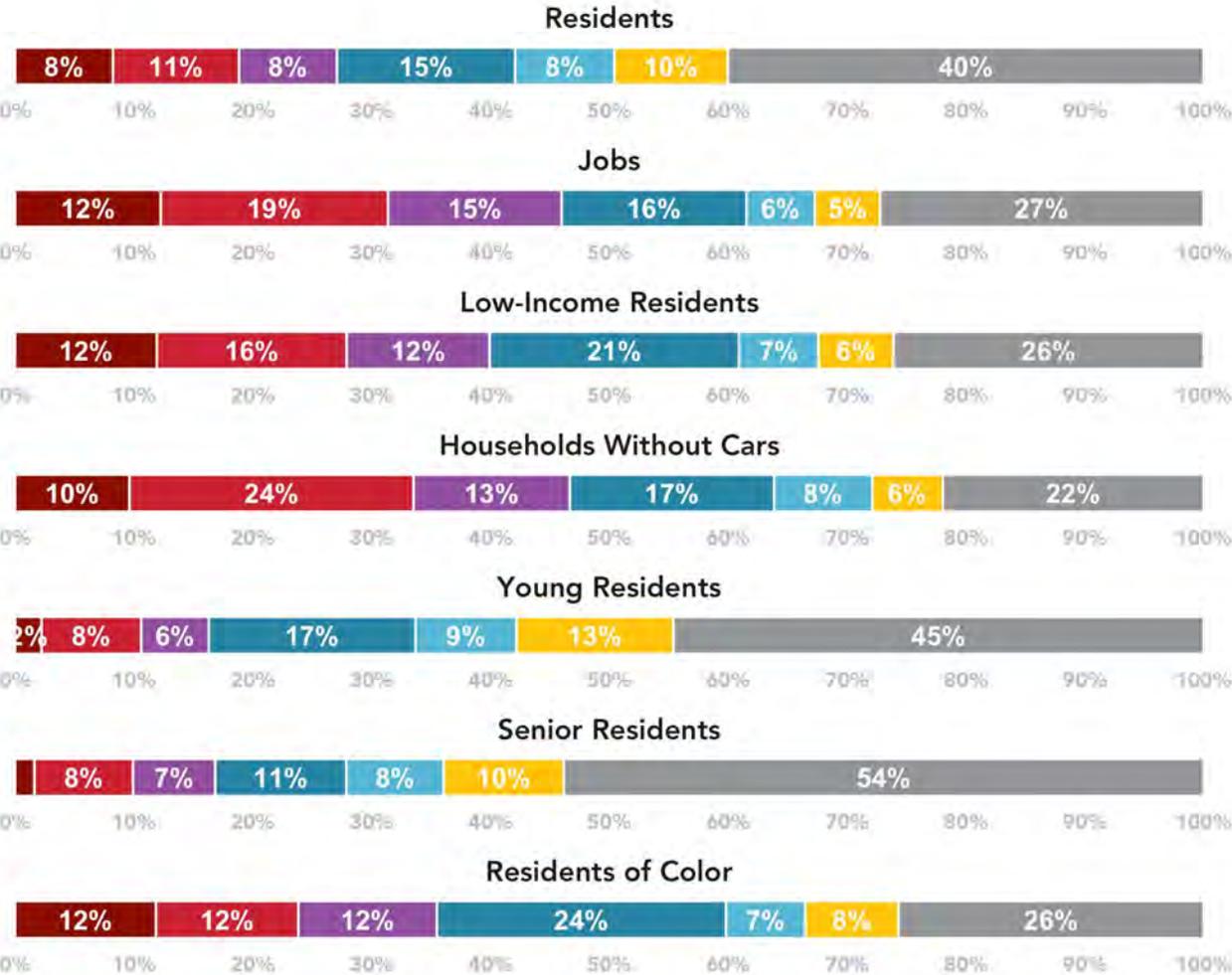
In the Constrained Network, proximity to higher-frequency transit (service that comes every 15 minutes or better) is substantially improve, but proximity to any transit does not change, as the routes and lines within the network have not significantly changed compared to the Baseline Network. Similarly, because there are no major

changes to the network of routes in rural areas, the proximity to services in rural areas does not change. Yet, as described above, the span of service expands greatly in rural areas, providing much more useful service across the entire week to communities in rural areas.

Figure 57: Proximity to Transit in the Constrained Network for the Urban Area

Proximity to Transit at Midday - Weekday

What percentage of each group in Charlottesville/Albemarle MPO is near transit in the Constrained Vision Network?



Note: Proximity is measured as being located within 1/2 mile of a bus stop.

Complementary Policies and Programs for Both Networks

The two Vision Network show how, at different levels of investment in service, the region can achieve significant improvements in access to jobs and opportunity by transit, major increases in direct access to transit, and substantially more useful transit service. While the focus of the Transit Vision Plan is on transit service and infrastructure, there are a range of complementary policies that can supplement and support more useful transit networks and encourage transit usage.

Transportation Demand Management (TDM)

Providing more options for people to travel without private cars is not just limited to expanding transit. There are a variety of programs transit agencies, regional agencies, and even employers can facilitate to promote these travel options. These are broadly called Transportation Demand Management or TDM for short. The Association for Commuter Transportation defines TDM as “the use of strategies to inform and encourage travelers to maximize the efficiency of a transportation system leading to improved mobility, reduced congestion, and lower vehicle emissions.”

Carpooling, Vanpooling, and other Pools

Carpooling is simply the practice of sharing rides to work, and rarely involves the support of a public transit provider. The main role of the employer is usually to match employees who live nearby into groups, although this role can sometimes be done by a regional coordinator working for a transit agency or MPO. Employees own the vehicle and do the driving, so there is no operating cost incurred by a public organization. Some transportation managers for large employers or educational institutions do provide subsidies as part of broader transportation demand management programs.

Vanpooling is based on the same basic

principle, but with one important difference: instead of driving their own cars, users drive a larger van provided to them. Users share driving duties, and the van is often stored at the home of the user doing the driving the next day.

Vanpool Partnership Options

Large organizations sometimes own and maintain their own van fleets and handle ride-matching, or contract with private operators who offer this service. For example, UVA operates a vanpool program, with vehicles managed by Enterprise. For small or mid-sized employers, a common model is for employers to support a vanpool program offered by a public transit agency. In this structure, the transit agency owns, maintains, and insures the vehicles, and matches riders into groups traveling from the same residential area.

While long-established vanpool programs in places with high fuel and parking costs or very strenuous traffic can evolve to be self-supporting, new programs generally require some form of external support. For example, in Missoula, Montana, vanpool sponsorships by employers are often needed when a given vanpool does not have enough participants to guarantee it will be self-sustaining. At least five riders are needed for a minivan route and at least nine are needed for a 12-passenger van route in most cases.

Vanpool sponsoring means a business can buy all the seats in the van or pay any portion of the fares charged. This is a useful option when a business has trouble recruiting employees (e.g., for an unusual shift or a job site in a small rural community) or the business' vanpool program is just starting up. It also is beneficial to the regional agency because it smooths out year-to-year changes in vanpool program funding.

Because vanpool programs are designed around the needs of a particular destination, they are adaptable to a vast range of use cases and tend to be best at large employers and large office parks. There is an expanding interest in vanpools to large industrial parks

in some communities. An example described in TCRP Synthesis 154 is the vanpool program of Okanogan County Transit Authority (OCTA) in northern Washington State which is geared towards Department of the Interior employees at federal dams and National Forest sites, supported by the federal Vanpool Transportation Fringe Benefit Program.

Both vanpool and carpool programs can be complementary to an expanded transit network. For example, some people may prefer to rely on a more flexible vanpool or carpool for most commute trips most days. Yet they may be able to rely on a CONNECT service as a backstop on days they work a slightly different schedule or stay a little later than their normal carpool or vanpool options. Therefore, these programs are useful additions to the network recommendations in the Transit Vision Plan.

Passes and Subsidies

Another common way transit agencies and employers can partner to promote transit is through employee passes or subsidies. Employers can work with a transit agency to pre-pay part or all of an employee's transit fare. The IRS allows employers to cover up to \$280 of an employee's transit pass tax-free.

Transit passes and subsidies are not just limited to the workforce. In many communities with large colleges or universities or major institutional employers, the institution will partner with the local transit agency to give their students access to free or highly-subsidized transit passes to encourage the use of public transit. This partnership usually comes with a funding arrangement where the University pays per person for passes, on a discounted basis.

In Charlottesville, UVA has an agreement to provide free travel for individuals with a UVA ID on CAT routes and Jaunt Connect services. If and when CAT and Jaunt resume fare collection, maintaining this program or expanding a similar program to other major employers would be valuable in promoting a transition away from

automobile trips to transit trips.

ADA Paratransit Requirements

Paratransit operates alongside conventional transit services and is specifically designed to serve people with disabilities who cannot use traditional fixed-route services. Paratransit is a type of demand-responsive transit service, but unlike on-demand services mentioned before, it is limited to people who have applied for this service and are deemed eligible because their disability prevents them from accessing the fixed-route system. Transit agencies like CAT and Jaunt are required by the Americans with Disabilities Act (ADA) to provide paratransit service within a $\frac{3}{4}$ mile of regular fixed-route service for approximately the same hours conventional transit runs.

Because the Unconstrained Network increases service to more places not currently served by fixed-route transit, there is a new obligation to provide complementary paratransit service to these new areas. Within Charlottesville and urban Albemarle County, much of this is driven by the addition of service to new areas and increases in the amount of service delivered to existing areas. In the rest of the region, this is driven by new all-day fixed-route services.

The Constrained Network does not have as large an increase in service area for all-day fixed route services, and therefore the ADA paratransit requirements would not be substantially greater than the existing network.

Regional and Long-Distance Connections

While the Vision does not look specifically at regional and long-distance services like the Afton Express, the Virginia Breeze, and Amtrak, these services will be important in the context of both networks. Initiatives at the state and federal levels would provide enhancements to existing services and provide residents in the area more options to connect to places like Waynesboro, Staunton, Lynchburg, Washington DC, and Richmond.



Chapter 5

Engagement on the Vision

Engagement Process

The Transit Vision Plan incorporated a robust engagement process, based on clear outreach goals, **that received nearly 1,400 survey responses over the life of the project, and engaged hundreds of people through public meetings, focus groups, stakeholder workshops and other events.**

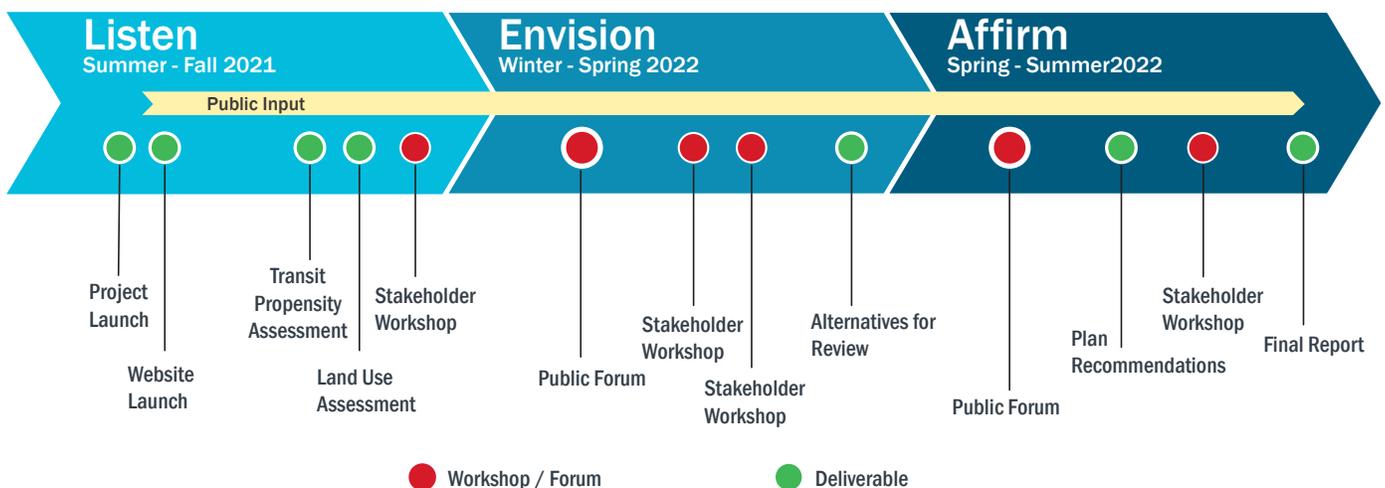
The project established early and continuous engagement through a public involvement process beginning in July 2021 and continuing through September 2022.

The original engagement plan included two public meetings and two community surveys. In response to requests from key stakeholders, and the substantial community interest, TJPDC expanded these efforts to include additional outreach, ensuring engagement from current and future transit users.

Engagement Goals

At the start of the process, the project team developed an engagement plan that set objectives, phases, and strategies for engagement. Since the Transit Vision Plan will inform recommendations for the Charlottesville-Albemarle Metropolitan Planning Organization (MPO), public and stakeholder activities were consistent with the MPO’s federally required engagement documents, including the Public Participation Plan and Title VI Plan. With these

Figure 58: Timeline of the three phases of engagement for the Transit Vision Plan



considerations, the engagement plan set four objectives:

- **Educate and Inform:** Educate the public and stakeholders on the overall process, general transit issues, and what that means to the region.
- **Identify Needs:** Identify transit needs and other concerns in the community.
- **Be Transparent and Inclusive:** Inspire trust in the process. The process strove to be as inclusive as possible to ensure that all community and stakeholder voices are heard. Communication strategies aimed to foster transparency in all project processes, materials, and meetings.
- **Review and Affirm:** Review draft documents, alternatives, and final recommendations. Participants’ opinions would be respected, well documented, and the basis for policy direction in the Vision.

Engagement Phases

Given these four objectives, the engagement plan detailed three phases for involving the public and stakeholders.

The **Listen phase** focused on educating the public and stakeholders on the existing conditions and factors, like land use, that affect where and how transit can succeed. The project team also listened to and strove to understand

aspirations and ideas for future transit service. Community and stakeholder input helped shape the vision and goals for the process and informed development of vision alternatives tested in the Envision Phase.

The **Envision phase** built on the earlier step by confirming the draft vision and goals. Engagement strategies explored long-term transit alternatives for the region. The alternatives provided an opportunity to test different approaches for serving the region's long-term needs. Participants had opportunities to express their preference for future outcomes and interest in supporting different approaches.

The **Affirm phase** built off the Envision step by confirming the reactions to alternatives and related policy direction. It focused on developing the draft Regional Transit Vision Plan report (this document) based on the prior input and sharing the draft Plan. This input helped refine the final plan. This framework aimed for each subsequent phase to build off the progress made in the previous steps.

Summary of Engagement Activities

The project team designed various strategies to fulfill the four core goals.

Website

A project website launched in September 2021 and functioned as an online resource throughout the process. The project team updated the site with surveys, notices about meetings, interactive maps, and draft reports and memos.

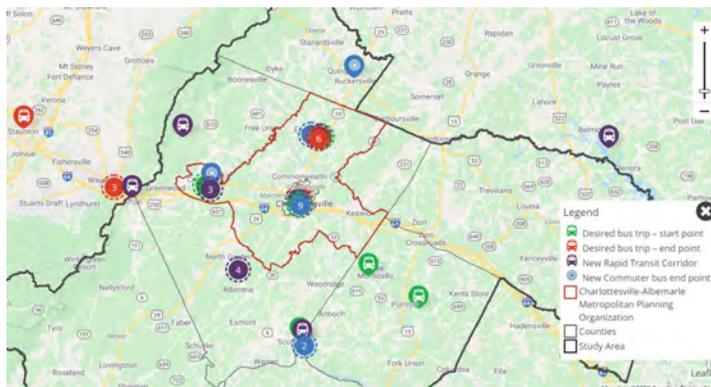


Figure 59: Example of Social PinPoint Map Feedback

Community Surveys

There were **four survey instruments involved in the engagement process**, including two in the Listen stage (Phase I) and two the Envision stage (Phase II). There were additional variations of these surveys, with hardcopy versions and short forms that offered a more concise set of questions. In total, **nearly 1,400 survey responses were recorded throughout the engagement on the Transit Vision Plan.**

Stakeholder Workshops

The process included five workshops, where the project team presented to transit stakeholders and the Regional Transit Partnership (RTP) to gather feedback during different phases of the study. Those discussions included:

- July 2, 2021: RTP Meeting
- September 8, 2021: RTP Meeting
- October 7, 2021: Joint Stakeholder and RTP Meeting
- April 28, 2022: RTP Meeting
- May 26, 2022: RTP Meeting

Public Forums

The study included three public meetings, which met objectives under Phase I and II. Due to the pandemic, the first two events were virtual, and the third occurred in-person at the Transit Center. These included:

- November 18, 2021: Forum #1
- June 23, 2022: Forum #2
- July 12, 2022: Forum #3

Public Intercept Events

Working with Albemarle County's public outreach department, TJPDC attended the Soul of C'ville event to gather feedback and distribute information about the Transit Vision Plan. The event occurred on August 13 at the Ix Art Park, where staff collected over 100 survey responses.



Figure 60: TJPDC Staff at Soul of C'ville

Focus Groups

TJPDC staff organized five focus group discussions with stakeholders representing various underrepresented groups. The project team wanted to ensure a representative process, reaching out to agencies that work with seniors, people with disabilities, Spanish speakers, and people with low incomes. Neighborhood groups like churches and other minority organizations were contacted and offered an opportunity to partner with the vision plan team to reach the populations they serve.

Three focus group meetings targeted transit-dependent populations, such as older adults, people with disabilities, and people with limited English proficiency.

- June 13, 2022: Nelson County Senior Group (JABA)
- June 14, 2022: Underserved and People with Disabilities Populations
- June 22, 2022: Spanish-Speaking Community Discussion
- August 8 and 17, 2022: The Piedmont Housing Alliance to discuss additional engagement using a local youth group

The staff also worked with the Piedmont Housing Alliance, Community Climate Collaborative, JEDI Youth Ambassadors, First Baptist Church, IMPACT, PEC, JABA, Sin Barreras, Jaunt, CAT, UTS, and UVA Hospital, and Albemarle County to reach

their members appropriately. Several of these groups forwarded information about the transit surveys or other project notices to their staff or networks.

Presentations

The project team presented to numerous groups throughout Phase I and II of the process and included questions, answer, and discussion time in these meetings. The schedule included:

- August 12, 2021: Places 29-North Community Advisory Committee
- March 1, 2022: IMPACT Cville
- June 1, 2022: Albemarle Board of Supervisors
- June 6, 2022: City of Charlottesville City Council
- July 12, 2022: Nelson County Board of Supervisors
- June 14, 2022: Greene County Board of Supervisors
- June 15, 2022: Fluvanna County Board of Supervisors
- June 22, 2022: Regional Housing Partnership
- July 20, 2022: MPO Citizens Transportation Advisory Committee
- July 27, 2022: MPO Policy Board
- July 28, 2022: Louisa County Staff

Mailings and Notices

Other communication strategies educated the public about the process, informed the public of engagement opportunities, and fostered general outreach.

Figure 61: TJPDC Staff facilitating a Focus Group





Figure 62: Postcard sent by TJPDC to 800 addresses in neighborhoods where many residents rely on transit

- June 22, 2022: Developed and mailed bilingual postcards to addresses in the transit-dependent neighborhoods to advertise the survey and events. It went to approximately 800 addresses.
- Coordinated with Albemarle County on outreach to underserved communities.
- Press releases and news stories throughout the process.
- Coordination with stakeholder groups on electronic newsletters.
- Posted flyers on buses, at the transit center, libraries and other community boards.

For a complete record of the engagement process, refer to Appendix A. The three phases of engagement that took place during the project period—listen, envision, and affirm—are detailed below.

Listen Stage

The engagement process explored transit needs in the **Listen stage** to understand what kinds of transit services people might need and when and where they might need to go. The project team also collected feedback on draft goals through the survey, stakeholder workshop, and at the November 2021 virtual public forum event. TJPDC staff also spoke with stakeholders during focus group discussions, where traditionally underrepresented groups shared their opinions.

Community Survey at Listen Stage

In the Listen stage surveys introduced the public to the project, solicited feedback on priorities (both conceptually and geographically), and collected information about the respondents themselves. The surveys launched in September 2021 and closed in January 2022. There were 673 responses to a SurveyMonkey questionnaire about transit priorities. An overlapping exercise, using an online map from “Social PinPoint,” collected 328 unique users.

Combined, these surveys recorded feedback from 1,001 respondents.

While the survey respondents at this phase of the process were somewhat representative of the overall community, they did not gather many responses from existing transit users or underrepresented groups and those most likely to need transit. Among respondents to the Listen stage survey:

- nearly half reported their household income was more than \$100,000 per year,
- about 10% reported being low-income (having a household income less than \$35,000 per year),
- 10% identified as a person of color—indicating their racial or ethnic identification was something other than Non-Hispanic White,
- 6% reported that they did not have a car, and 30% reported having one vehicle,
- 13% indicated they had a disability,
- nearly one-third were seniors (age 65 or older), while 44% were prime working age (25-55 years old),
- more than 60% of respondents reported their gender identify as woman.

Stakeholders asked that the project team engage more people of color and low-income residents. TJPDC staff partnered with local staff and stakeholders to conduct focus groups with underrepresented groups in later phases and to encourage more participation in later surveys.

How Can Transit Better Your Life?

The SurveyMonkey version asked respondents, “How could better transit service improve your life?” Five dominant themes emerged:

- Improve access to stores and services to meet basic life needs,
- Create opportunities to live without a car or with less reliance on a car,
- Decrease traffic and congestion,
- Reduce the need for parking,
- Reach parks and recreational facilities to enjoy nature and our community, and
- Get out to more events and activities, keeping people connected.

Almost 90% of people who identified as having a disability rated “get to stores and services to meet my basic needs” to improve quality of life. More than 70% of people of color thought that transit would improve quality of life by being able to “live without a car or with fewer cars.”

Transit Service Benefits

Respondents identified the two most important transit service benefits as:

- Helping low-income people access jobs and services, and
- Providing transportation for people with limited physical mobility.

Traditionally underserved groups—people of color and people with disabilities—also rated these needs as the highest priority.

Transit Investments

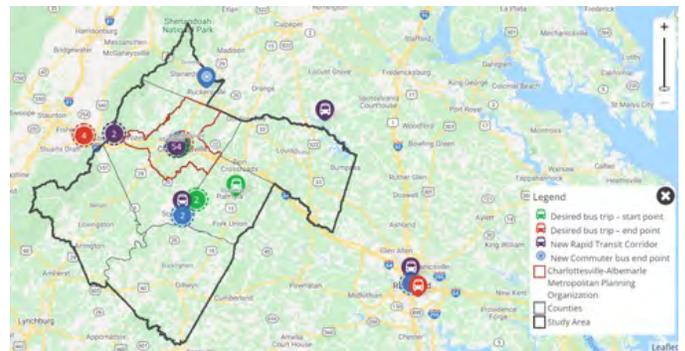
The survey asked respondents to identify the highest priority investments to address transit needs. Three themes arose as the most important improvements:

- Extending service to places that do not have transit service today,
- Establishing higher frequency service on existing routes, and
- Providing more service during peak hours.

Geographic Needs

The Social Pinpoint survey provided the opportunity to include geographic information on transit needs and match transit priorities with the respondent’s destinations. There were 328 unique users who visited the site 736 times. Respondents could identify desired bus start/end points, new rapid transit corridors and new commuter bus end points.

Inter-Regional Perspective: Respondents expressed the need for transit connecting the Charlottesville area to Richmond, Waynesboro, Ruckersville, Scottsville, and Palmyra.



Regional Perspective: The Social PinPoint results show desired start and end points concentrated in Charlottesville, Crozet, Forest Lakes, North Garden, and Scottsville areas. To a lesser extent, respondents indicated Staunton, Lake Monticello, and Palmyra as desired start and end locations.

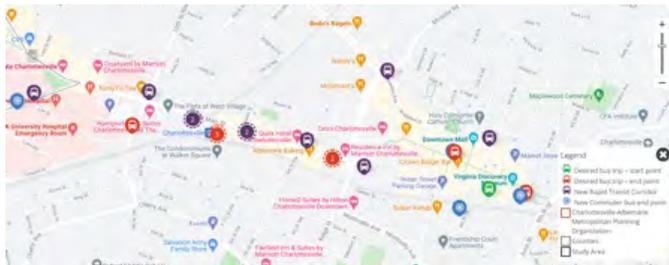


Urban Area Perspective: According to the Social PinPoint results, respondents requested express routes or “rapid transit” to popular recreational destinations, such as Ragged Mountain, and Ivy/Beaver Creek. Participants

also asked for rapid transit to residential areas, such as Forest Lakes.



City-Level Perspective: The responses show many comments along West Main Street. The 5th and Avon Street areas received the most comments, followed by the US-29 and Rio Road areas. Charlottesville Airport, recreational areas, and Barracks Emmet were also popular areas.



The survey collected nearly 200 additional comments. Three themes emerged as most predominant:

- Improved efficiency
- General access
- Recreational access

Transit Vision Plan Goals

In the Listen stage survey, the project team drafted five transit goals based on previous studies and engagement processes. One survey question asked participants to rate the importance of these five goals as very, somewhat, less, or not important. Those initial draft goals were:

- **Enhance:** High quality and high-frequency transit
- **Expand:** Expand the region’s transit service
- **Collaborate:** Improve internal and external communication to increase transit-supportive

land use decisions

- **Improve Equity:** Improve transit access for people in need
- **Support:** Enhance the region’s economy by improving access to employment and services

Respondents indicated that Improve Equity was “very important,” especially among the people of color and people with disabilities subsets. Three other goals received a “very important” rating. Those included Expand, Enhance, and Support. People of color scored Support as the most important of the draft goals. The input from the public survey helped guide the final goal descriptions and the three key theme identified in the Vision Statement.

Stakeholder Workshop at Listen Stage

In October 2021, the project team organized a stakeholder workshop that included the Regional Transit Partnership, as well as other jurisdictional and community stakeholders. The goal was to hear from stakeholders about their transit goals and priorities for the region and to begin developing the vision for the plan. Approximately 30 stakeholders participated throughout the workshop. Primary themes that emerged from the workshop included:

- A strong interest in expanded and improved service in the region overall,
- Uniting land use planning with housing affordability planning and public transit, and
- Creating a different type of transit service for future needs and conditions (e.g., post-COVID impacts and on-demand transit).

Additional key themes that emerged included:

- The importance of equity in developing and designing high-quality transit,
- Environmental considerations: climate change and air quality, and
- Exploring what it means to have a holistic, multimodal, and fully connected transportation system in the region.

During the workshop, the project team presented six draft goals and draft vision statements. Generally, participants indicated the importance of **equity, the connection between affordable housing and land use, and the environment**. While equity and environmentalism were critical considerations, the participants noted the nuance needed in considering these key phrases. In terms of equity, the group highlighted that access to affordable housing and economic opportunities are crucial. However, frequent service was part of that consideration and needed so that it does not take an unnecessarily long time to get from one place to another.

Similarly, while there are specific targets to lower greenhouse gas emissions, it is not as simple as using a different type of fuel, but about increasing ridership. There was also a strong desire to improve existing services and ensure that rural residents have access to transit services for jobs, activity centers, errands, and medical appointments. The primary takeaways from the workshop included:

- A strong interest in expanded and improved service overall,
- Tying together land use planning, housing affordability planning, and transit planning,
- Creating a different type of service for future needs (e.g., post-COVID impacts, not focused on peak commuting hours, exploring on-demand transit),
- Importance of equity in accessing high-quality transit,
- Importance of environmentalism and clean air, and
- Exploring what it means to have a holistic transportation system in the region.

Community Kickoff Public Forum

At the Community Kickoff on November 18, 2021, the project team hosted a virtual public meeting that allowed participants to learn about key trends and issues that impact the future of

transit in the region and to respond to these considerations. Activities focused on advancing the understanding of community interests and participants' views of their future transit needs. Exercises helped inform the development of the Plan's vision and goals. Approximately 20 attendees from the public participated.

Primary that emerged from the forum included:

- Enhance the regional transit system with more and higher quality service,
- Connect to more places that customers want to travel and knit these services together,
- Improve equity (serve the populations that most need improved transit service), and
- Promote sustainability and solutions to climate change.

The project team also presented a draft of the eight goals presented in Chapter 2. The two additions since the October Stakeholder Workshop were Connect and Grow Equity. This latest set of goals arose from survey comments and discussions with stakeholders.

The project team presented these draft goals to participants at the public forum to begin developing the vision. Attendees also considered whether anything was missing. **During an exercise, participants identified their goal statements and four rose to the top, including Enhance, Connect, Improve Equity, and Sustainability/Climate.** Attendees added comments to explain their selections and added any content to the potential visioning goals. Some key comments received included:

- “The system needs to be solid before we expand it.”
- “Needs to mention enhanced bus stops, sidewalks, bike lanes, crosswalks, etc.”
- “Improve collaboration to best use the available resources.”
- “Priority should be given to those who do not have the luxury of transportation.”
- “Equity is also about less tangible things, such as seeking community feedback

through the decision-making process.”

- “Transit plans should directly support comprehensive plans and should themselves encourage higher density housing.”
- “Sustainability goal should be more around eliminating emissions and single-family vehicle use.”
- “Climate benefits are an extension of a successful transit system.”

Focus Groups

Three key focus groups were held with JABA in Nelson County, Independence Resource Center in Charlottesville, and Sin Barreras in Albemarle County. When asked about the Vision Goals and Strategies, these focus groups identified the following as high priorities:

- Serve people who cannot drive
- Make transit more equitable
- Support the economy/get people to jobs
- Mitigate climate change

Among the possible improvements to transit service in the region, the focus groups identified the following as high priority improvements:

- Add more frequency (the bus comes every 15 minutes instead of every 30 minutes)
- Add more hours of operation (the bus starts services earlier and ends later more days)
- Add more service areas (the bus takes you to more places and services a larger area)
- Have faster routes (you can reach your destination faster)

In the JABA session, participants expressed a strong desire to have more frequent rides to and from the Charlottesville area. The Jaunt bus picks them up early in the morning for doctor’s appointments, and then they are stuck at the doctor’s offices until 3 pm, when the Jaunt bus starts pick-ups to take them home. This is a long day, especially for someone who is older and not feeling well.

The Sin Barreras focus group was hosted in Spanish using an interpreter and translated materials. Eleven participants had a lively discussion about their specific needs, particularly their difficulty getting to and from work when the buses were not running. They also had difficulty and did not feel safe in the pedestrian environment along Route 29 North. Many of them worked or knew people who worked in that area, and they said that the lighting was bad, walking along 29 and to bus stops did not feel safe, and street crossings were not safe, especially at night.

One person formed an informal carpool but expressed that people did not feel safe walking to and from the meeting spot. Others had to work on the weekends when there was no transit service and had difficulty finding taxi service on Sundays. They all supported expanding services later in the evening and weekends and wanted a better pedestrian environment with safer sidewalks and street crossings. Many of them took the bus to Fashion Square Mall and then walked through parking lots, along the side of the road and behind stores to their destinations.

Envision Stage

During the **Envision stage** the project team used multiple strategies to gather responses to the Draft Vision Networks (Constrained and Unconstrained). TJPDC staff hosted multiple focus group discussions that allowed for in-depth conversations with traditionally underrepresented stakeholders. There were public intercept efforts, where TJPDC staff talked with people out and about on the street. Also, a survey instrument gathered feedback from a larger sample and provided direction to the team on changes to the Vision Networks presented in Chapter 4.

Survey Results on Networks

The second round of surveys included a 28-question long-form and short-form version comprising 15 simplified questions. There were 137 responses to the long-form and 305 to the

shorter version. The project team could see trends among respondents, with 442 people responding to the draft networks.

Long-Form Survey

The initial instrument consisted of 28 questions and a detailed overview of the Constrained and Unconstrained Networks. Given the higher complexity of this initial survey, responses tended to come from more involved stakeholders had relatively few responses from those who use transit today and those most likely to need transit. The response rates among people of color and low-income residents was higher than in the Listen stage survey. Among respondents to the long-form survey:

- more than half reported their household income was more than \$75,000 per year,
- about 16% reported being low-income (having a household income less than \$35,000 per year),
- about 20% identified as a person of color—indicating their racial or ethnic identification was something other than Non-Hispanic White,
- 10% reported that they did not have a car, and about one-third reported having one vehicle,
- 17% indicated they had a disability,
- 30% were seniors (age 65 or older), while 50% were prime working age (25-55 years old),
- 50% of respondents reported their gender identify as woman, and 45% as men.

The following are the main takeaways from these respondents.

Unconstrained Network and Goals

Questions asked participants to indicate whether the Unconstrained Network achieved each goal. Respondents generally agreed that it effectively implements those goals. Over 90% agreed that the Unconstrained Network achieved the Enhance and Expand statements.

There was slightly less consensus on the remaining goals, where 82% to 86% agreed that the Unconstrained Network fulfilled those statements.

Question 8 asked respondents to identify anything missing from the Unconstrained Network. The most common responses included:

- The Rural Areas: Participants mentioned the need for more service to the rural areas, including locations outside the study area.
- Inter-regional Travel: There were several comments about trips to surrounding metro areas.
- Park and Ride Lots: People discussed the need for more locations that allow pick-ups and drop-offs.
- Carbon Emissions: Several responses involved questions about alternative fuels and reducing bus emissions.
- Expense: Several people responded with concerns about cost.
- Last Mile: Other responses involved walking and biking to and from transit stops and some comments about improved bus stops.

About 90% of respondents indicated that it was important that the region fund the Unconstrained Network.

Constrained Network and Goals

There was less consensus that the Constrained Network achieved stated goals. While respondents agreed that the vision implemented the Enhance and Expand statements, the percentage of those that agreed fell from 90% to 77%. The percent of those who agreed that the Constrained Network achieved each goal:

- Enhance (77%)
- Expand (77%)
- Connect (71%)
- Equity (71%)
- Growing Equity (67%)

- Support (70%)
- Sustainability/Climate (62%)

When asked if the Constrained Network does enough to improve transit in the region, 73% said “no”, suggesting that respondents wanted a larger, more expansive transit network.

About 74% of respondents indicated that it was important that the region fund the Constrained Network.

Short-Form Survey

To encourage greater participation among underrepresented groups, the project team created a short-form survey about the networks. There were two versions of the short-form survey: an electronic copy on the website and a paper copy that TJPDC staff used at events. This shortened and simplified version targeted existing and potential transit riders.

The survey respondents to the short-form survey captured a higher rate of people in need, lower-income respondents, and people of color than prior surveys. Among respondents to the long-form survey:

- about 25% reported being low-income (having a household income less than \$35,000 per year),
- less than half reported their household income was more than \$75,000 per year,
- more than half identified as a person of color—indicating their racial or ethnic identification was something other than Non-Hispanic White,
- 16% reported that they did not have a car at home, and 40% reported having one vehicle at home,
- 16% indicated they had a disability,
- 13% were seniors (age 65 or older), while 58% were prime working age (25-55 years old),
- 50% of respondents reported their gender identify as woman, and 43% as men.

The survey asked a series of questions about

Constrained and Unconstrained Networks. Those results are below.

Unconstrained Network

About 82% (234 respondents) said they would be satisfied with the Unconstrained Network.

- When asked what was missing, responses were similar to the long-form survey.
- 89% (255 respondents) said they would support regional funding to realize the Unconstrained Network.
- 92% (264 respondents) indicated that they would support a Bus Rapid Transit system along the US 29 corridor.

Constrained Network

There were fewer questions about the Constrained Network. About 64% (181 respondents) said they would be satisfied with the Constrained Network. When asked what was missing, responses were similar to the long-form survey.

Focus Group Feedback on Networks

During the focus groups meetings described above, TJPDC staff presented the Draft Vision Networks to gather feedback and ideas for improvement.

The focus group with JABA in Nelson County indicated that the recommended improvements in the Vision Networks would improve their lives in various ways:

- It would save money on fuel costs because they could take transit more
- They could reach more types of medical services, like go to satellite offices, sometimes it is hard to find medical services they can take transit to
- It would reduce the amount of time they have to wait and allow them to reach more places in Charlottesville

The focus group with Independence Resource Center in Charlottesville indicated that the recommended improvements in the Vision

Networks would improve transit in the region in various ways:

- It would serve more people, and they could go to more places
- They liked the addition of weekend services, especially on Sunday
- It would improve their social lives, and they could go to more events

Among participants in the Sin Barreras focus group, three key outcomes were identified:

- It would be safer and less expensive for them to get to work
- They could work more hours, especially on Sundays
- They could reach more destinations, and some were interested in more rural services

Public Intercepts on Networks

TJPDC staff went into public spaces to gather feedback on the Draft Constrained and Unconstrained Networks. The first event also doubled as a public meeting, where staff went to the Downtown Transit Center and spoke with riders. The second was a pure public intercept involving staff at a booth during the Soul of C'ville event.

Downtown Transit Center

TJPDC and project team staff spent a day interviewing riders and collecting surveys at the transit center with materials in English and Spanish, large maps of the proposed transit network. Six staff members were present, including a Spanish interpreter. The team collected 57 surveys and spent time talking with bus riders as they waited for their transfer.

Many of the riders liked the service and wished there was more service. They also wanted the buses to run on schedule and improve connections. The riders wanted service on the weekends and more information about how to use the services that went to rural communities.

Soul of C'ville

The project team shared a booth with Albemarle County staff and their public outreach van. People were very supportive of public transit and increasing services. They wanted more frequent services, better connections, and services for people who could not drive. They also wanted transit services on the weekends. The team talked with over 90 people, sharing information about the vision plan project, resources for more information, and collecting surveys.

The various responses from the public survey, stakeholders, elected officials, and focus group participants provided useful input to the Final Vision Networks presented in Chapter 4 as well as the final goals, objectives, and next steps identified in this Final Transit Vision Plan document.



Chapter 6

How Do We Get There?

Next Steps

The Transit Vision Plan provides a blueprint for how the region can develop its transit system to serve important goals and ultimately improve the lives of the people who live and work in it. However, change won't come overnight and will require a lot of thinking, planning, investment, and discussion.

The Vision Plan is a guide but not the end all, be all of transit in the Charlottesville region.

Funding and Governance

Operating and maintaining a transit system takes a significant amount of investment. In the Transit Vision Plan, the Constrained Concept considers its budget for service in the context of a Regional Transportation Authority or RTA funded through regional taxes. The choice of what funding systems to use and how to organize the Regional Transit Authority are not defined recommendations of this Transit Vision Plan. An RTA could collect and oversee funds to provide a reliable and consistent investment for transportation projects throughout the region. RTAs are present in Virginia, most notably in Northern Virginia as the NVTA and in the Richmond area as the CVTA.

- The CVTA in the Richmond Region is funded through a combination of sales taxes (0.7%) and fuel taxes (7.6c/gallon on gasoline and 7.7c per gallon on diesel). Funds are distributed in the following structure:
 - 50% of funds are returned to each locality based on where funds were collected to be used for any transportation purpose.
 - 35% of funds are retained by CVTA to support regionally significant transportation projects on a competitively selected basis.
 - 15% of funds are distributed to GRTC Transit System to support regional transit services.
- The Northern Virginia Transportation Authority (NVTA) covers Arlington, Fairfax,

Loudoun, and Prince Williams Counties as well as the Cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park. It is funded through a sales tax (0.7%) a Grantor's Tax (0.05%) and a dedication of funding from the Northern Virginia Transportation District.

- About 70% of funds are spent on regionally funded projects,
- About two-thirds on roadway projects,
- 20% transit, and
- 10% bicycle and pedestrian.
- About 30% of funds are distributed to localities directly to spend on local transportation projects.
- The Hampton Roads Transportation Accountability Commission (HRTAC) distributes two sets of funds:
 - The HR Transportation Fund, a roadway-only transportation fund collects about \$245 million per year primarily from a sales tax (0.7%) and fuel tax (2.1%).
 - The HR Regional Transit Fund is dedicated to improving regional transit service and collects about \$40 million per year from a hotel tax (1%), Grantor's Tax (0.06%), and a Recordation Tax.

In addition to funding, the governance and management of an authority is an important step in building trust and understanding among the jurisdictions who wish to create the authority. In the case of HRTAC and NVTA, the governance of each authority is managed by a board of appointees, primarily from each jurisdiction, with one vote for each jurisdiction on the board. Both authorities also have a representative from the Virginia House, Virginia Senate, and a Governor's appointee.

The CVTA has a slightly different board structure. Votes are weighted by population: the three largest jurisdictions (Henrico County, Chesterfield County, and City of Richmond) each have four votes, Hanover County has 3 votes, Goochland, New Kent, and Powhatan Counties

have 2 votes, and smaller jurisdictions have 1 vote. The CVTA also includes representatives from the Virginia House, Virginia Senate, and one representative of the Commonwealth Transportation Board.

A key next step for the Charlottesville region is the Transit Governance Study. TJPDC has already secured a DRPT grant and matching funds from the City of Charlottesville, Albemarle County, and the TJPDC to fund the study. The Governance Study will explore in more detail the funding approaches and governance structures that would work best in this region. In addition to setting a recommendation through this study, it is vital that regional partners and local jurisdiction officials communicate and organize to determine a preferred approach to funding and organizing a Regional Transit Authority. Successful authorities in other parts of Virginia have been created when all local jurisdictions have signed onto a set of recommendations and asked the General Assembly to pass legislation creating and funding the authority. It is clear the region has an appetite for better transit service and ensuring transit is well-funded will support this desire.

Transit-Oriented Development and Land Use

The Transit Vision Plan shows a longer term recommended transit network with more investment and an expected implementation in the next 10-20 years. This Vision is one statement in the ongoing conversation between transit and land use planning: a chance for regional transit operators and planners to respond to recent land use plans, explain where transit can succeed in the long run, and show regional land use planners and partners where better coordination is needed.

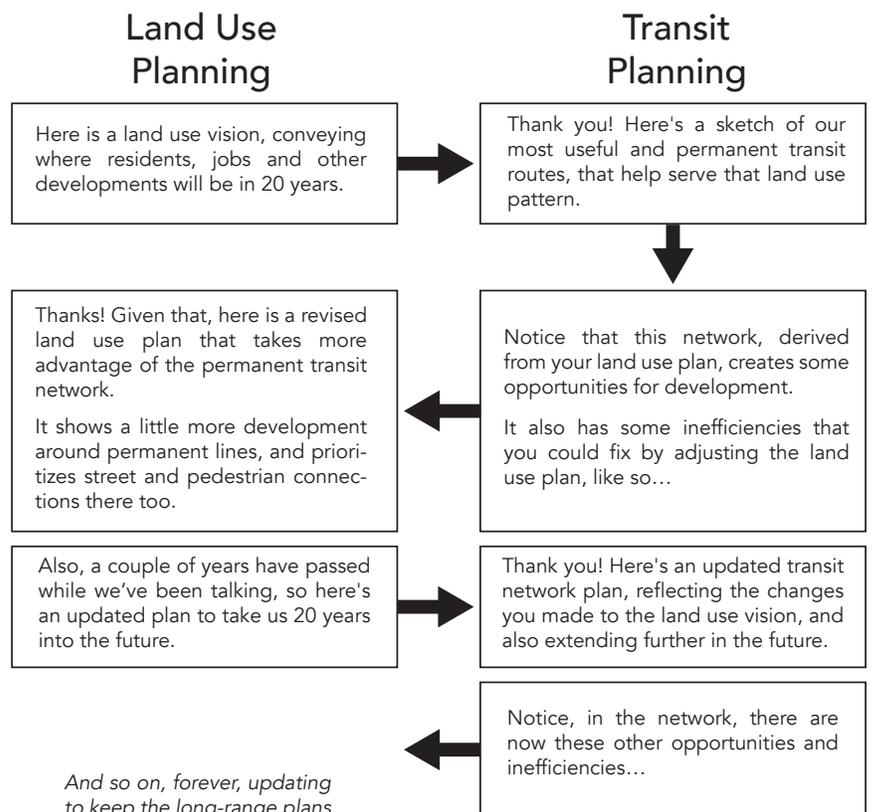
The Constrained and Unconstrained Networks will respond to the growth, goals and changes described in existing land-use plans, but with respect for the ways transit can and cannot operate efficiently. **Transit is unlike other urban amenities, such as street trees or streetlights or parks; it cannot simply be placed wherever it is wanted or needed. A streetlight in one place costs the same amount to operate as a streetlight in another place. A transit line in one place can cost a wildly different amount to operate than a transit line in another place.**

To improve the success of transit over the long-term, regional transit operators, the TJPDC, regional housing authorities, and local jurisdiction partners should continue to engage in conversation on a regular basis such as the path shown in Figure 63. Thus, these

Figure 63: Process of Continuous Transit and Land Use Planning Updates

A Healthy Long-Range Planning Conversation

Similar conversations happen between land use and road planning; between transit and road planning, and for other kinds of related planning activities



And so on, forever, updating to keep the long-range plans about 20 years in the future.

recommended Vision Networks are just the beginning of an ongoing conversation about how transit should serve the region now and as it grows. Continued engagement of land use planners, the community, transit operators, and others in this conversation is critical to effective long-term decision-making supportive of the community's goals for transit and land use.

Implementing Bus Rapid Transit (BRT)

There are many steps involved towards implementing a BRT corridor like the one proposed in the Unconstrained Vision Network along US 29 through downtown to Pantops. Such a major capital investment normally requires a combination of Federal, State, and Local funding.

To meet Federal requirements, the first steps starts with a study to determine corridor alternatives and alignments. Often these studies are led by a local transit agency that intends to implement the BRT, but such studies can also be led by a local government, the MPO, or even the state. The aim of this study is to define a Locally Preferred Alternative (LPA) which needs to be incorporated in the MPO Long-Range Transportation Plan to meet federal requirements for funding.

In addition to defining the LPA and incorporating the project into the MPO LRTP, most BRT corridors require an environmental study to meet the federal requirements under the National Environmental Policy Act (NEPA). This study looks at a range of potential environmental impacts, including human and natural environmental effects. During this phase of study, it is possible to enter the FTA Small Starts project development process. Projects similar to this are usually eligible for the FTA's Small Starts funding program which will often cover 50% of the capital costs. Projects that meet this criteria are also likely eligible for state funding. A key factor in both federal and state funding is a clear financial plan to provide local funding for capital and operating support.

Workforce Development

A significant challenge to the delivery of high-quality transit service is the availability of labor, both in the form of bus operators and people who maintain buses. Transit agencies across the US are currently facing a shortage of operators.

These agencies are facing significant competition in workers from the likes of freight and delivery services, especially for people with commercial driver's licenses. This, in combination with long working hours and a potentially high-stress environment compared to the wages paid, means many don't opt to work in transit. A recent report from TransitCenter highlights some of the strategies transit agencies can use to encourage people to become drivers, including:

- Getting new talent into the workforce by changing the dynamic around the job and creating a pipeline for new talent with high schools, colleges, and technical institutes;
- Streamlining hiring processes for new operators;
- Raising base pay and adjusting the time between “experience” progression in pay scales;
- Improving operator safety by enclosing the operator cabin and moving towards contactless payment methods for fare collection;
- Providing more support for physical and mental health to bus operators;
- Changing scheduling practices to be more flexible and allowing operators to take adequate time off to be with family and address personal needs;
- Improving the environment at garages and at end of line facilities; and
- Overall, taking the time to listen to bus operators to identify their needs and to acknowledge and utilize their frontline expertise

Many of these challenges need to be addressed in the short term but also need to be thought of in the long-term as the building a pipeline of workforce to grow the transit system is critical to the long-term success of implementing the expanded services recommended in the Vision Networks.

Marketing a Useful Network

As the region invests in its transit network, it will be critical to market the new and improved services to the community so that people know they have new and improved options for traveling around the region. Key elements of marketing a more useful transit network includes:

- Clear mapping and wayfinding,
- Enhanced information at stops and stations, and
- Mass media marketing as improvements are implemented.

Branding and Communicating the Network

A key element of the Unconstrained Network is a set of high frequency, fixed route services in the urban core of the region that would drastically improve access to jobs and opportunities. Even if the region only implements the Constrained Network, there will be a set of key routes (the Trolley, Route 2, and Route 7) that operate at every 20 minutes or better all day. Communicating the frequency of service is critical to helping new and existing riders find the most effective ways to reach their desired destinations.

Many transit agencies that operate a network of 15-minute routes brand it as a distinct product: the Frequent Network. If the region only implements the Constrained Network, then it might be useful to brand services that are 20 minutes or better. The idea is to create an understanding among riders and the public that these are the most useful services; that if you need to travel in a Frequent Network corridor,

the bus to your destination will always be coming soon. For new riders, emphasizing the Frequent Network helps reinforce in customer information what should be evident from a trip planner—that transit is a good option if your trip is on the Frequent Network.

How do we create that awareness? Every agency designs its own Frequent Network brand, and must determine its place within its hierarchy of services and public information. But there are a few elements of the customer information system that are most important to convey the message that a route is part of the Frequent Network.

The Network Map

The first and simplest place to express a Frequent Network brand is on a regional transit system map. While the rise of app-based trip planners has reduced the role of the system map in everyday navigation, the system map still has an important function as a tool aiding network discovery: helping riders develop and understand of where they can go on transit.

In addition to an everyday navigational resource, an agency's map can be a defining element of brand identity. The system map is often the only place where the entire system is documented in a way that a person can easily understand, so it is imperative that it present the system's defining attributes and service hierarchy in a way that is as clear as possible. When a highly refined system map describes a transit network that is crucial to the daily life of a city, the map itself can become an iconic representation of that place.

Today, CAT has a system map that shows each route in different colors, at the same line weight, without any obvious distinction between service types. As a result, on the slice of the existing map shown in Figure 64, there is no way for a viewer to know that the Trolley or Route 7 operate at much better frequency than Route 4. Contrast that with the planning maps used in the Transit Vision process, which use darker colors for more frequent services, and red lines for the

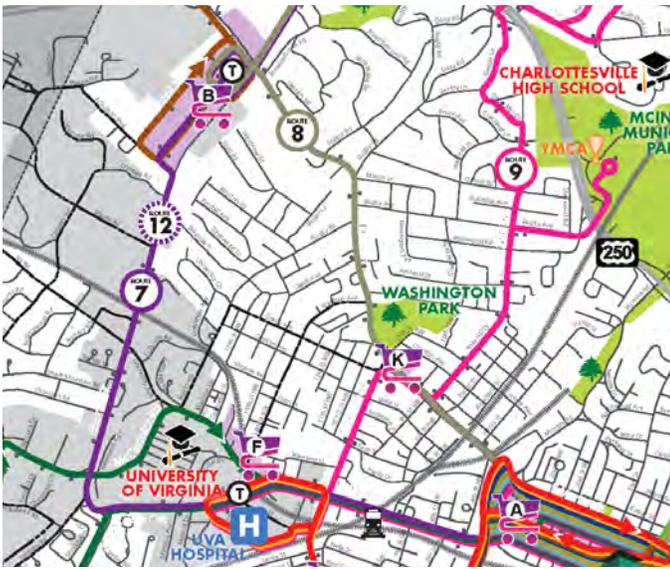


Figure 64: Existing CAT System Map

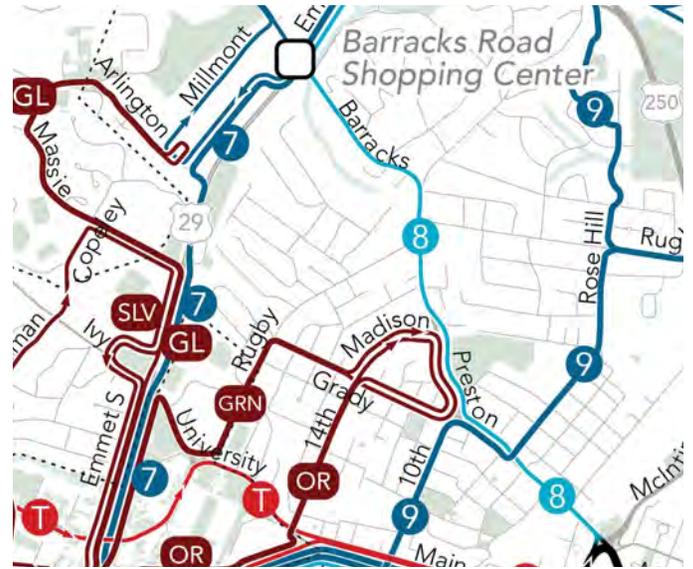


Figure 65: Existing Transit System Map from Transit Vision Plan

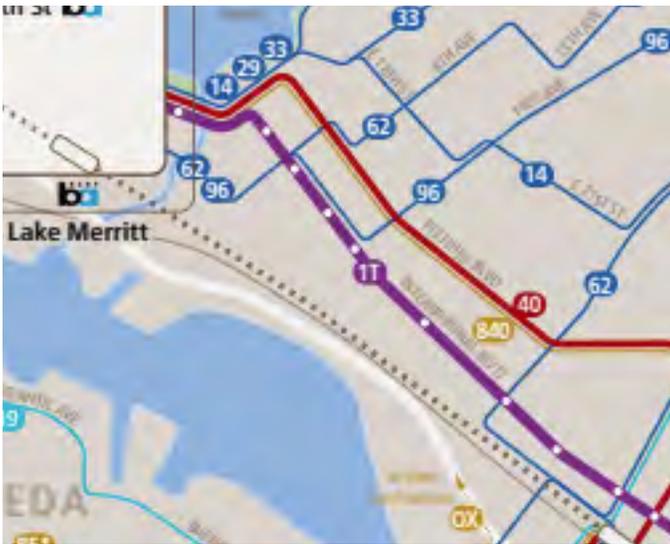


Figure 66: AC Transit (Oakland, CA) System Map



Figure 67: VTA (San Jose, CA) System Map

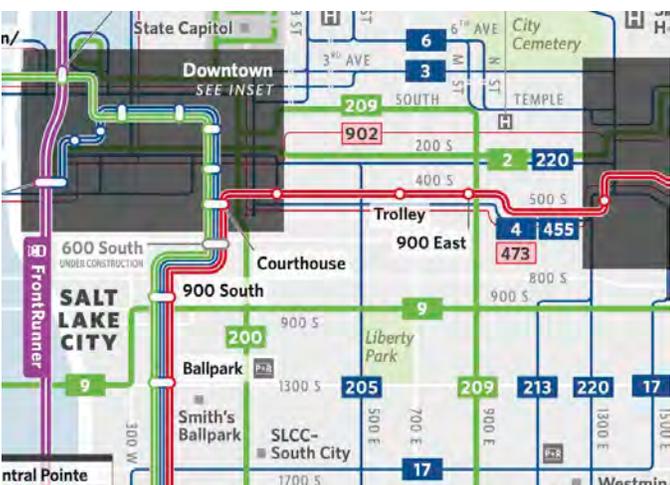


Figure 68: UTA (Salt Lake City, UT) System Map



Figure 69: GRTC (Richmond, VA) System Map

Implementing all or a portion of the Constrained or Unconstrained Networks will require updating many parts of the existing customer information system. There may also be new marketing materials that neither CAT nor Jaunt produce today that would be particularly useful for both explaining a vastly improved network and for providing the information riders need to navigate a new network. Of course, CAT and Jaunt will need to use all of their established communications channels to spread information about new and improved transit services.

Mass Media Communication

As the improved network services are implemented, it will be important to convey to the general public that new and improved mobility services are available. Key methods for conveying that include:

- Enhanced and improved website information, including better information about all regional services on both CAT and Jaunt websites, and on local government websites.
- Enhanced social media outreach by CAT and Jaunt on expanded and improved services, especially with short videos that explain improvements.
- Brochures, flyers, and in-vehicle messages for existing riders to ensure they understand service changes before they happen.
- New network trip planners that allow people to see how new services will allow them to reach places more easily
- TV and radio advertising and earned media to reach potential new riders and the general public.



Figure 71: Example of bus stop signs from Tri-Met in Portland and VTA in San Jose that use system frequency branding to convey the usefulness of services.

Guidelines for Supporting the Vision and Tracking Progress

As CAT and Jaunt adjust existing service and deliver new service, that service should ideally support the Transit Vision Plan. Therefore, it may make sense to create service standards so CAT and Jaunt have benchmarks to measure new services and determine what its goals are in relation to the Vision and the region's goals.

- Set service guidelines for different services that reflect different roles across the region.
 - Urban, fixed route services at higher frequency should have relatively higher productivity standards, for example, perhaps 20 boardings per hour or higher.
 - Coverage-oriented fixed route services can have lower productivity standards, reflecting their role in the network as providing life-line services in moderately dense areas. Where fixed route productivity falls below 7 boardings per hour, though, alternative service provision may be more efficient.
 - For rural services, productivity is expected to be relatively low, as trip distances are longer, and the purpose of the services are almost entirely about life-line access and minimal job access. Where rural services are achieving productivity levels below 2 boardings per hour, Jaunt or the region may want to reconsider whether the services are worth the investment, since costs per rider are likely to be very high.

Improving local accessibility to transit stops is also of critical importance. Local and state partners must work together to ensure sidewalks, crosswalks, and other infrastructure are adequately provided, particularly in urban areas where most people will be served by fixed routes and will need to walk to reach stops. The direct investments in improved services describe in this Transit Vision Plan do not include additional planning and implementation

costs of associated pedestrian or bicycle infrastructure. These associated investments will also have added value of allowing more local trips to be made by walking and biking, further encouraging mode shift away from cars and reducing the energy demands of transportation.

First Steps

Key first steps the region can take to make progress on the Transit Vision Plan include:

- Initiating the Transit Governance Study to guide governance structure of a regional authority and likely revenue sources and other key funding structures.
- Work with local governments to identify the corridors and services they want to champion through further studies, particularly for BRT services.
- Consider using scenario planning techniques to assess the potential for land use and transit synergies during the region's long-range transportation planning efforts.
- Continue to support the Regional Transit Partnership as a body to coordinate on transit planning and decision-making as the region considers governance, funding, and key planning decisions before implementation of an authority.
- For key corridors, like Route 29 North, where BRT is recommended in the future, explore extending service to unserved areas first, and improve the frequency of service before pursuing capital investment funding for BRT investments.
- Continue to educate stakeholders and elected officials across the region on the relationship between density, walkability, design, and other factors that support transit investments so appropriate land use policies and plans can encourage long-term increases in transit demand.

Conclusion

Through this Transit Vision Plan process, TJPDC has endeavored to

- engage the public, stakeholders, and elected officials in meaningful conversations around how transit could improve the lives of people in the region;
- educate the community about how and where transit investments could make a difference in the ability of people to participate in the full social, economic, and cultural life of the region;
- encourage the community to work together to find ways to invest in expanding and improving transit to build a more vibrant, successful, equitable, and sustainable region.

The ability to see this Transit Vision Plan to fruition lies with all the leaders across the region, from elected officials to major employers, civic and neighborhood leaders, and many more.

For more information on this Transit Vision Plan, the engagement process, data background, and more, see the TJPDC project webpage at

tjpd.org/our-work/transit-planning/

More information can also be found in the Appendices to this report.