Chapter 3 Transportation

Build a multimodal transportation network that supports freedom of mobility, economic vibrancy, social equity, and improved health outcomes.

By enhancing connectivity and promoting sustainable transportation alternatives, Danville aspires to create an inclusive and thriving community where economic opportunities can thrive, health outcomes are greatly enhanced, and residents can move around safely and with ease.



Transportation Policies

T.1: ENHANCED WALKABILITY

PROMOTE PEDESTRIAN-FRIENDLY STREETS, SIDEWALKS, AND INTERCONNECTED NEIGHBORHOODS TO ENCOURAGE ACTIVE LIVING AND COMMUNITY ENGAGEMENT.

T.1.1 Walkable Nodes

Establish activity centers within the existing transportation network that integrate pedestrian infrastructure, transit options, and smart land use and organized parking.

T.1.2 Comprehensive Sidewalk Network

Build out a safe and comprehensive sidewalk network guided by prioritization measures.



T.2: PUBLIC TRANSIT INVESTMENT

MAKE STRATEGIC INVESTMENTS IN PUBLIC TRANSPORTATION TO MAKE IT MORE RELIABLE, EXTENSIVE, AND ACCESSIBLE.

T.2.1 Density-Driven Transit Design

Strategically invest in transit network as activity centers densify to build towards reliable, frequent service, and equitable coverage.

T.2.2 Regional Transit

Continue to work towards regional public transit to expand service range and staff capacity.

T.3: BICYCLE INFRASTRUCTURE

IMPROVE BICYCLE INFRASTRUCTURE TO PROMOTE CYCLING AS A SAFE, CONVENIENT, AND SUSTAINABLE MODE OF TRANSPORTATION.

T.3.1 Strengthen Existing Bicycle Network

Grow Danville's bike network through <u>All Ages and Abilities</u> infrastructure starting with the Riverfront.

T.4: SAFE AND ACCESSIBLE MOBILITY

PRIORITIZE SAFETY AND COMFORT FOR ALL USERS ON DANVILLE ROADWAYS.

T.4.1 Design Guidelines

Use design recommendations for different types of roadway, based on surrounding land use and federal functional classification, to guide investment in safe and sustainable roads.

T.4.2 Commitment To Complete Streets

Deepen commitment to Complete Streets, with an emphasis on speed reduction measures, to increase the safety of all road users, especially in high-injury and sensitive areas.

Transportation

Danville's goal is to ensure that all residents have a range of reliable travel options that facilitate economic growth, accessibility, and wellness. Through improving connectivity and encouraging sustainable transportation choices, the city seeks to increase mobility choices, improve the economy, and boost overall health outcomes. A strong transportation network allows for several convenient ways of moving around (walking, rolling, driving, carpooling, bus, Reserve A Ride, bicycle, rideshare, and more) to give residents access to daily destinations (work, school, grocery stores, doctor appointments, parks, places of worship, and many others).

As in most U.S.cities, people in Danville mostly get around with personal cars. About 80% of working Danville residents drove to work alone in 2020 (Source: 2020 U.S. Decennial Census). A similar 82% of PLAN Danville survey respondents reported using a car daily to get around the city – compared to 20% by walking, 2% by bus, and 0% by bike. This makes sense: the roads were designed for moving cars, and it can be hard to complete daily tasks without driving. Still, making shifts towards other ways of getting around can benefit Danville in many ways.

This chapter will present actionable strategies to improve the network of transportation in Danville and give community members more options to move around safely and conveniently.

Impacts of Transportation





Sustainability and Resilience

Transportation alone makes up half of Virginia's energy-related carbon dioxide emissions. Making it easier to walk, bike, and bus can lead to a greener community.



Economy and Connection

Loneliness and lack of social connection have been identified as major problems in the United States in recent years, and the isolation caused by car-oriented development is one of the major factors. Vibrant, walkable neighborhoods see greater economic activity and encourage connection. Practical land use and transportation policies can help build these up.



Community Support

A good transportation system allows freedom of movement for community members who are not able to drive. This includes people who cannot afford a personal car, as well as youth, older adults, and people with disabilities. About 19% of the city's population has a disability, and about 20% of the city's population is 65 years and older – a number that is expected to grow.

Source: 2020 U.S. Decennial Census



Aligning with Public Feedback

Transportation and public transit infrastructure are issues that cut across three of the themes that the Danville community identified with during public engagement: Economic Development and Opportunities, Infrastructure and Accessibility, and Holistic Living. Some current transportation challenges identified by the community include:

- Inadequate funding
- Outdated systems
- Insufficient maintenance
- Lack of accessibility for certain communities

Additionally, the community expressed a desire for the following:

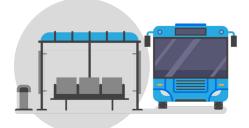
- Efficiency and reliability of transit
- Incorporating new technologies to enhance the overall experience for commuters
- Better coordination between different modes of transportation to create a more seamless and integrated system





T.1 Enhanced Walkability

The community expressed a strong connection to Danville as home, along with a desire to connect with other members of their community. The Enhanced Walkability policy responds to this by creating more pedestrianfriendly streets with an emphasis on connecting neighborhoods by promoting alternative and active transportation modes. This approach aligns with the community's desire for better options to access and support local businesses, more accessible outdoor activities and recreation, reduced dependence on personal vehicles, and a more unified, active community that has something to offer to people of all ages and abilities, especially youth.



T.2 Public Transit Investment

A desire for improved reliability and accessibility of public transit was clearly expressed during public engagement events, with suggestions for increased frequency and the addition of bicycle racks on buses. The addition of bicycle racks to buses aligns with Policy T.3 aims to invest in bicycle infrastructure. Public transit serves as a lifeline for many people in Danville, and the community is open to exploring more versatile and flexible modes of transportation that provide alternatives to buses and cars.



T.3 Bicycle Infrastructure

A call for enhanced bicycle infrastructure has been made, with specific concerns about the lack of bicycle racks on buses or in commercial areas affecting reliability and overall use of cycling as a mode of transportation. This mode of transportation addresses the opportunity the community sees in having a more holistic lifestyle that improves the health and overall wellbeing of individuals and the community as a whole.

The community was also excited about the economic possiblities that increased biking could provide, such as opportunities for local repair shops or e-bike programs in partnership with the local universities.



T.4 Safe and Accessible Mobility

A lack of access to food, healthcare, businesses, and general services was identified frequently by Danville residents. Placing an emphasis on all users of roadways, rather than mostly prioritizing automobiles helps to ensure that residents without a personal vehicle can realize opportunities that are otherwise unavailable to them. These corridors that prioritize all road users should connect residents to these resources they pointed our throughout the engagement process of PLAN Danville.



POLICY

T.1 Enhanced Walkability

Promote pedestrian-friendly streets, sidewalks, and interconnected neighborhoods to encourage active living and community engagement.

Desired Outcomes

- Greater mobility and accessibility for all residents, especially those who have had difficulty reaching daily needs
- Transit-oriented growth in select areas, with mixed-use development and affordable housing options
- More people walking, biking, and using public transit, to improve commutes and community health
- More pedestrian activity and business activity in select areas, with economic benefits for the whole city
- Greater pedestrian safety and comfort







Good transportation starts with good land use.

Transportation is not about moving people for the sake of moving – it is about connecting people with important resources and experiences in their daily lives. Encouraging land use practices that bring those resources and experiences closer together lays the foundation for an efficient, effective transportation system. It also creates dense, vibrant spaces where people enjoy walking around and spending time.

Sidewalks are the backbone of a strong transportation system, especially to support walkable activity centers.

Nearly all members of the Danville community spend some time walking or rolling – even if only from the bus stop or parking lot to their destination. The ability to do so safely is important for residents' health, sense of connection, and self-determination.



In Danville, only about 30% of the streets have sidewalks, partly due to the annexation history of the city. This is an enormous challenge for community members trying to accomplish daily activities, such as the following:

- A business owner trying to attract customers
- A parent pushing their baby in a stroller
- An older adult walking to the grocery store
- A middle school student walking to school
- A young professional walking their dog

Residents in focus groups mentioned the lack of sidewalks makes them feel less safe getting around Danville, and city staff emphasized filling sidewalk gaps as one of the most important ways to improve mobility in Danville. In the PLAN Danville survey, 55% of respondents said that better sidewalks and crossings would make it easier and safer to get around the community.



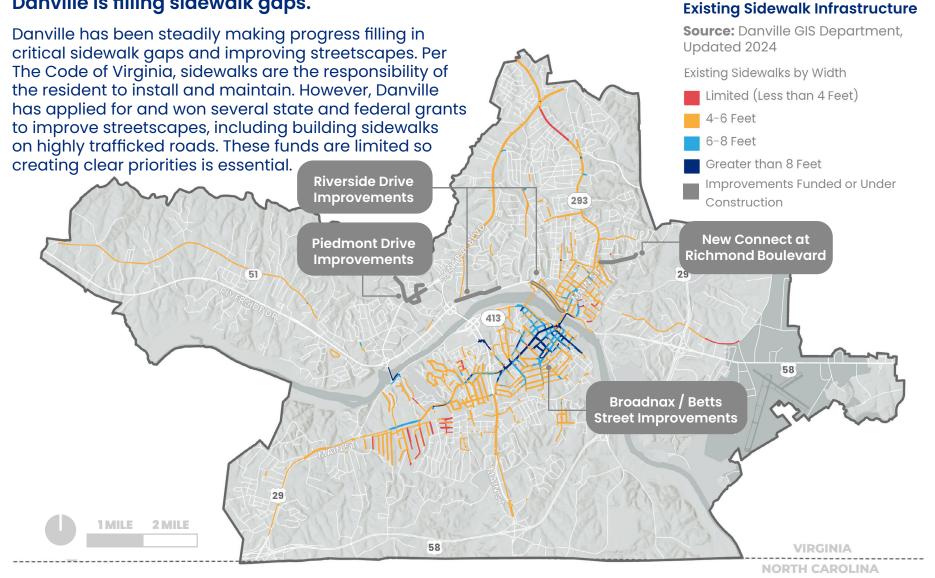


1 in 2

people who took the 2023 Community Pulse Check Survey said that sidewalks/ crossings would make it easier and safer to get around.



Danville is filling sidewalk gaps.







Danville is creating a walkable River District.

The River District Association has worked to create the kind of vibrant, walkable area that facilitates both economic development and connectivity, winning the 2023 Great American Main Street award from Main Street America.

Danville is reducing parking.

The 2020 River District Parking Study offered recommendations for managing curbside space, including shifting long-term parking away from Main Street, and the city has lowered on-street time limits and strategically located parking decks to meet this goal. Danville also already has an area without parking minimums in the Casino-Entertainment zoning district.



"I walk a lot in my neighborhood even though we do not have sidewalks or good lighting in the evening. Sure miss those things, would make walking a lot easier"

- 2023 Community Pulse Check Survey







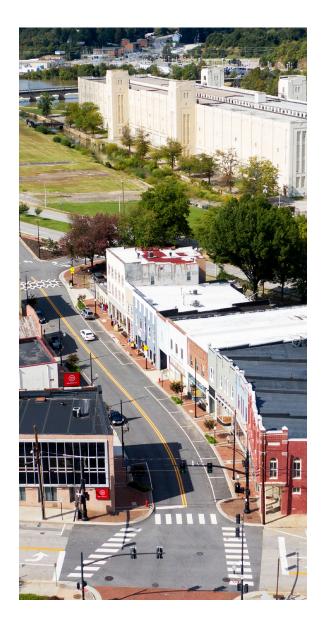
RECOMMENDATION

T.1.1 Walkable Nodes

Establish activity centers within the existing transportation network that integrate pedestrian infrastructure, transit options, and smart land use and organized parking.

ACTIONS

- 1. Prioritize existing activity centers for future compact development.
- 2. Remove mandatory parking minimums in the downtown and other identified activity centers.
- 3. Investigate parking tactics such as demand-based pricing, <u>Parking Benefit Districts</u>, and curbside management.
- 4. Allow higher density and diverse uses in select activity centers through zoning modifications.
- 5. Require shared commercial driveways (access management) to increase pedestrian and vehicular safety.
- 6. Collocate transportation hubs with healthcare facilities and other critical resources in neighborhoods of most need using the Vulnerability Index.







How to Enhance Walkabilty

Bring Destinations Together

In the PLAN Danville survey, 44% of respondents said that a factor keeping them from walking or biking more often was "destinations too far away/multiple destinations." Distance was also chosen by 22% of respondents as something that keeps them from using the bus more often.

The zoning strategies outlined in the Land Use chapter will help build upon existing activity centers, encourage destinations that are closer together, and create a more transportation-friendly environment.

Manage Parking

There has been growing awareness throughout the country of the role of parking minimums in driving up housing prices and decreasing walkability. An increasing number of Virginia cities have removed or lessened parking requirments from downtowns and other activity hubs. See this at work in communities like <u>Charlottesville</u>, <u>Roanoke</u>, and <u>Durham</u>!

Other parking management practices can also help grow people-centered places. Pricing curbside parking based on demand can shift drivers to less occupied blocks or decks and encourage needed turnover in front of businesses. Creating a Parking Benefit District in select commercial areas would not only support more walkable land use, but also provide funding for district improvements.

What are Parking Benefits Districts?

A Parking Benefits District is an ordinance tool a city can use by designating a specific area where revenues from parking meters can be used to fund local improvements such as bump outs, enhanced sidwalks, street furniture, and more.

These improvements are meant to attract more visitors, which generates more revenue and encourages future development. It is a strong tool for places like the River District and Riverside Drive area.

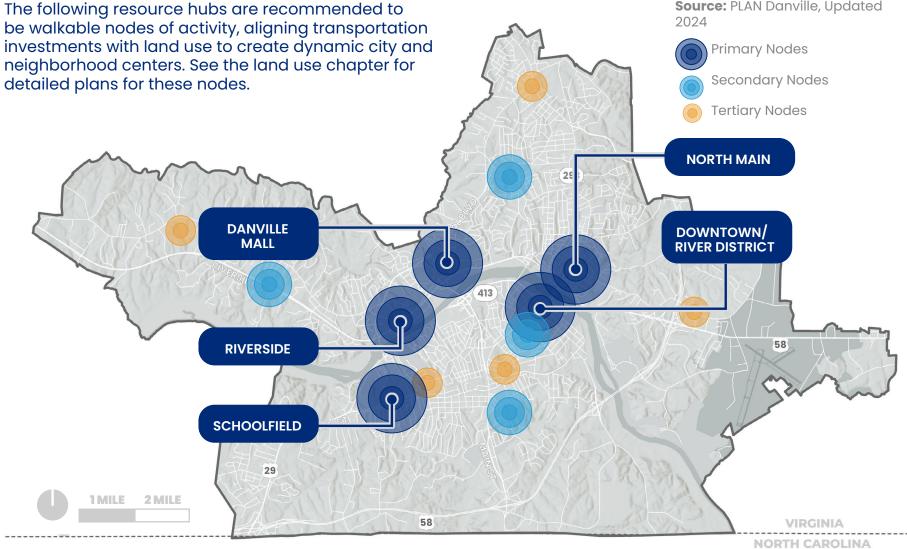
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How to Create Walkable Nodes of Activity



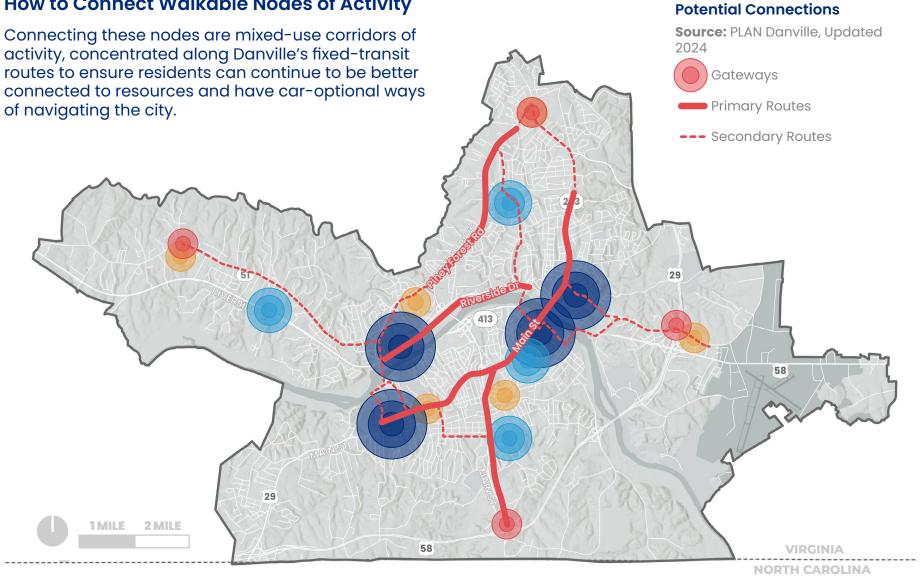
Potential Walkable Nodes

Source: PLAN Danville, Updated





How to Connect Walkable Nodes of Activity







RECOMMENDATION

T.1.2 Comprehensive Sidewalk Network

Build out a safe and comprehensive sidewalk network guided by prioritization measures ACTIONS

- 1. Invest in sidewalks and pedestrian infrastructure where it will have the most impact on residents' wellness, economic opportunities, and connectivity by developing a prioritization matrix for sidewalk construction (see Tools section).
- 2. Review feasibility of funding options for sidewalk infrastructure:
 - Grant funding
 - Cost-sharing partnerships
 - Tax increase or special assessments
- 3. Mandate sidewalk inclusion in new developments and prohibit private road construction.
- 4. Through resident safety audits, assess existing sidewalks to identify areas for improving pedestrian crossings, street lighting, greenery, and ADA accessibility compliance.
- 5. Develop a strategic investment plan using a sidewalk prioritization matrix and assessment findings.

Learn from Leaders

<u>Charlottesville</u> chose priority areas for sidewalk construction based on connections created, traffic volume and crash history, nearby schools and transit, and travel demand, with additional review for technical feasibility and equity. The segments were then sorted into tiers based on length and complexity and opened for public comment.

<u>Chesterfield County</u> created a priority list by combining a demographic analysis to determine need with a proximity analysis to identify connections to important destinations and determine speed, volume, and crash factors.



How to Create a Priotization Matrix

Because there are so many streets in Danville without sidewalks and limited funding available, it is critical to prioritize areas of sidewalk construction in a datadriven and transparent way. Several cities have developed prioritization strategies to guide their sidewalk investments, usually including some of the following factors at varying weights:

- Proximity to public transportation and key destinations (jobs, schools, healthcare, groceries, etc.)
- Pedestrian-related crashes in the area
- Roadway width, speed, and traffic volume
- Health characteristics of the area

- Population density
- Proximity to vulnerable populations, such as households in poverty, residents living in affordable housing, nonwhite households, older adults, children, and people with disabilities
- Proximity to households with no vehicles or one vehicle
- Proximity to highly walkable or bikable areas
- Ability to fill in gaps
- Community support
- Ease of construction





POLICY

T.2 Public Transit Investment

Make strategic investments in public transportation to make it more reliable, extensive, and accessible.

Desired Outcomes

- Increase in the number of residents using public transportation
- Increase in daily needs accessible by convenient, reliable public transit
- Effective balance of fixedroute and Reserve A Ride services, dictated by density increases in activity centers and coverage needs in outlying areas







Ridership has changed a lot post pandemic, both locally and nationally.

	Average Monthly Ridership by Fiscal Year				
Fiscal Year	Fixed Route	Reserve A Ride	Senior	Handivan	
2019	23,595	2,560	1,557	506	
2020	20,520	1,742	1,192	507	
2021	15,265	2,695	1,140	451	
2022	15,922	2,676	1,031	449	
2023	16,575	2,575	1,056	406	
2024	16,715	3,027	1,225	438	
Percent Change	-29%	18%个	-21%	-14% 🗸	

Source: 2024 City of Danville Department of Mass Transit

Transit still matters, perhaps now more than ever.

Public transit is an efficient and sustainable form of transportation, and it is essential for access to jobs and services for many members of the community. Even those who do not ride the bus depend on a functional system to serve their coworkers, neighbors, and others with whom they interact daily. The public transit network should complement the pedestrian and bicycle networks, allowing access to a wide range of destinations. More frequent and reliable transit also boosts ridership.

Community members want better access.

Few participants in focus groups and PLAN Danville surveys used the bus, but 26% of survey respondents said better bus service would make it easier and safer for them to get around the community, and 25% said what kept them from using the bus more was that it is too time consuming. Residents at popups also mentioned barriers like a lack of awareness of the system, options, and routes.





Only a small number of bus stops qualify for shelters or benches.

Of the city's 294 bus stops, just 17 have shelters and about 30 have benches, so roughly 50 have either shelters or benches.

A survey conducted by the transit department found that a small percentage of these other stops are able to accommodate shelters.

Safety and Identity

Signage, lighting, public art, landscaping and even trash cans can make stops more inviting, but do drive up costs and should really be considered for highly frequented areas (i.e. Route 4).

High Use

The more people that regularly use the stop, the stronger the case for shelters and benches.

Mobility Options

Adding things like bike racks and scooter parking create opportunities for "micromobility" and increase the options residents have for their daily travels.

Accessible Access

To meet ADA access, stops should connect to the city's sidewalk network, have proper ramps, and be at least 8 feet from the curb. Where this infrastructure doesn't exist, it can increase the cost of constructing a formal stop.

Public Ownership

If there is not enough space in the publicly owned road way for a stop, private property owners need to agree to the creation of stop. This is common in neighborhoods where there are more narrow streets.





Danville is making it easier to qualify for benches and shelters.

The city's transportation advisory committee reduced the minimum number of passengers required per day at each bus stop to permit installation of benches (from three passengers to two) and shelters (from seven to three).

Danville is pursuing and winning funding.

City staff have consistently searched for state and federal funds to create shelters and benches at stops in Danville's neighborhoods. In 2023, Danville won \$79 million in state funds for road improvements over the next decade. The construction of the bus shelter on Riverside (seen right) is a great example of a success story.

Danville is making transit go digital.

Danville Transit now uses technology to track buses in real time. This is done by scanning a QR code on bus stop signs. Through the <u>bus locator</u> <u>system</u>, <u>mobile app</u>, <u>and text alerts</u> community members can access real time information about their bus routes. In addition, Danville Transit operates an app to enable residents to use the Reserve A Ride service.

Danville is exploring the potential for regional bus service.

In 2024, Danville sent out a request for consultants to help study the potential for regional bus services, Reserve A Ride, and microtransit. If possible, this effort could have tremendous positive impact for many people living in Danville and working in the surrounding region. The study would include stops at the Berry Hill Mega Site, Caesars Virginia and Danville Transfer Center. It would also evaluate routes from Danville to Greensboro, Martinsville, and Lynchburg.



DANVILLE IN ACTION

Danville has been innovative and adaptable.

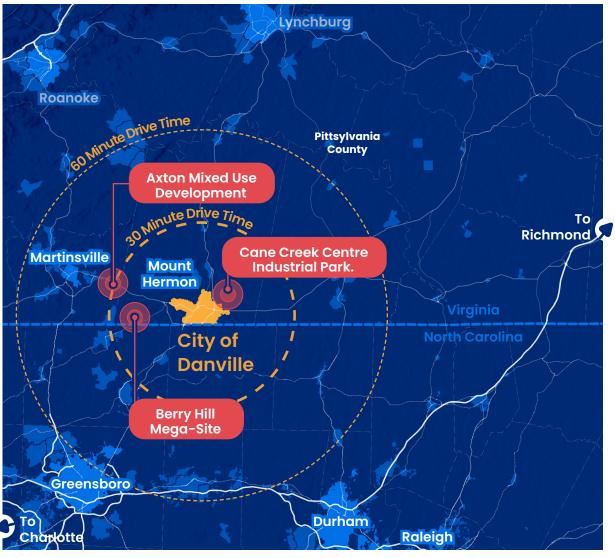
Danville's Reserve A Ride program has been successful in meeting the city's unique transportation needs. The flexible system is a costeffective way to meet the needs of employees with nontraditional work hours, and allows the system to reach less dense outlying areas and connect residents with jobs and resources. The city has also successfully increased its driver workforce after wage increases and licensing requirement changes.

Danville Transit's Reserve A Ride Service provides services every day except Sunday to any location within the City limits of Danville and Cane Creek Centre Industrial Park. This provides an opportunity for residents to reliably Reserve A Ride for a given time, even if it is outside typically operating hours. This is especially important for employees needing rides to work for early and late hour shifts.



Regional Employment and Entertainment Hubs

Source: Danville GIS Department, On The Map by U.S. Census





Danville in encouraging shared commuting.

The City of Danville is served by the RIDE Solutions commuter assistance program. RIDE Solutions advances transportation demand management (TDM) in the region by promoting carpooling, vanpooling, transit (bus) service, bicycling, walking, and telework as alternatives to driving alone for commute as well as non-commute trips.

<u>RIDE Solutions</u> uses the ConnectingVA app, which is a carpool-matching device, shows transit schedules and routes to one's destination and generates bicycling and walking routes for short trips. The program is incentive-based, awarding members points for every non-singleoccupancy vehicle trip taken. Points become discounts for online and brickand-mortar shopping, dining, services, and activities, as well as opportunities to enter raffles for gift cards.

Image Source: RIDE Solutions







Danville is connecting employees to transit.

The majority of Danville's employment centers are clustered around Downtown, the River District, and the universities. Danville's fixed routes intersect these areas to connect as many working residents as possible to the places they work.

Employment Access to Transit

Source: Danville GIS Department, Updated 2024

Route

_____#1 Kemper Road - DCC — #1 North Main _ #2 Riverside ____ #2 Third Avenue - NorDan ___ #3 Danville Estates - NorDan 293 ____ #3 Edgewood - Stokesland #4 Health Center - DCC — #4 North Main 51 29_ #5 Edgewood - Stokesland ____ #5 Riverside #6 Glenwood Jobs Within Walking Distance of Transit 58 Less than 500 Jobs 500-1,000 Jobs 1,000-2,000 Jobs 2,000-3,000 Jobs 3,000-4,000 Jobs 29 Over 4,000 Jobs **1MILE 2MILE** 58 VIRGINIA **NORTH CAROLINA**

Goal 3. Transportation Policy T.2 Public Transit Investment



Danville is connecting residents to transit.

Improvements to transit will focus on enhancing resident access to reliable and regular fixed-route transit, as well as connecting those residents to major needs such as shopping centers and jobs.

Resident Access to Transit

Source: Danville GIS Department, Updated 2024

Route

____ #1 Kemper Road - DCC ____ #1 North Main ____ #2 Riverside ____ #2 Third Avenue - NorDan #3 Danville Estates - NorDan ____ #3 Edgewood - Stokesland #4 Health Center - DCC — #4 North Main 29 #5 Edgewood - Stokesland ____ #5 Riverside #6 Glenwood Population Within Walking Distance of Transit 58 Less than 500 People 500-1,000 People 1,000-2,000 People 2,000-3,000 People Over 3,000 People **1MILE 2MILE** 58 VIRGINIA

NORTH CAROLINA





RECOMMENDATION

T.2.1 Density-Driven Transit Design

Strategically invest in transit network as activity centers densify to build towards reliable, frequent service, and equitable coverage.

ACTIONS

1. As activity centers grow and demand increases, intensify fixed-route service with a focus on frequency.

Action Steps

- a. Consider developing a priority evaluation tool (such as for pedestrian activity, above) that evaluates potential new service and resources based on need, equity, disability, employment centers, etc.
- b. Coordinate across city departments, including Planning, Mass Transit, and Public Works, to effectively coordinate land use, active transportation infrastructure, and transit service.
- 2. Continue to periodically evaluate routes to identify needs for route adjustments and new routes.

3. Adopt an overall strategy to continue building driver recruitment and retention.

Action Steps

- a. Evaluate driver pay to see when increases are due and explore funding opportunities to support this program.
- 4. Engage the community on where additional shelters and benches are needed, micromobility stations can be created, and existing shelters can be improved.
- 5. Pursue grant funding for piloting electric Reserve A Ride vehicles.
- 6. Explore residential pickup hubs/ parks & ride routes.



RECOMMENDATION

T.2.2 Regional Transit

Continue to work towards regional public transit to expand service range and staff capacity. ACTIONS

- 1. Conduct a feasibility study for Greensboro-Danville bus service beginning in 2026.
- 2. Gather employment and traffic pattern data to prove the need for service.
- 3. Identify potential funding sources.
- 4. Estimate long-term operational and maintenance costs.
- 5. Evaluate the feasibility of providing commuter bus service to areas outside of Danville including Pittsylvania County, Martinsville/Henry County, North Carolina, East Boston/ Halifax County, Lynchburg, and potentially other locations.
- 6. Explore opportunities to partner with neighboring transit providers to service between Danville, Pittsylvania County, and perhaps adjacent areas of North Carolina, as the Mega Park develops and the population expands outward.

Learn from Leaders

Driver recruitment and retention is a major challenge for transit operators across the country. At the time this plan was adopted in 2024, Danville Transit is fully staffed. However, the job market for this industry rapidly changes due to turnover, expanded services, and more. There is also a shortage of drivers with Commercial Driver's Licenses (CDL), although Danville Transit is supporting drivers who pursue obtaining a CDL.

A report released by TransitCenter in July 2022, <u>Bus Operators in</u> <u>Crisis</u>, outlines several strategies to address these problems:

- Better "pitches" for attracting candidates
- Better hiring processes
- Better compensation
- Better facilities, driver support, and safety
- More flexible scheduling
- More inclusion of drivers in decision-making

A comprehensive recruitment and retention strategy can tailor those elements to the needs of Danville Transit and lay the foundation for reliable, frequent service. POLICY

т.3 Bicycle Infrastructure

Improve bicycle infrastructure to promote cycling as a safe, convenient, and sustainable mode of transportation.

One of the elements of a strong transportation network is bicycle facilities. Safe, separated facilities such as paths and lanes give residents the freedom to choose active and green ways of moving around.

Desired Outcomes

- Increased number of residents using bicycles to get around the city.
- Increased number of streets with dedicated bicycle facilities.
- Better access to community resources and amenities for people of all ages and abilities.







Bicycling is an important piece of the strong transportation network.

On top of the mental health, <u>economic</u>, and environmental benefits, for some, bicycling is transportation lifeline – this may include people who cannot afford a car, youth, seniors, and people with disabilities.

Bikes are just the beginning.

Trails and bike infrastructure can open doors for other types of "micromobility options" as well - a term used to describe everything from skateboards to scooters, strollers, and wheelchairs.

During engagement events, participants noted the challenges of biking in a hot and hilly area.

New electric mobility options can address these barriers and allow a wider range of people to get around by bike. Danville residents also expressed a need for greater safety while bicycling. Bike facilities that are highly separated from car traffic provide the greatest safety and comfort to the widest range of riders, and several cities have adopted this standard of "all ages and abilities" bike infrastructure.

Not many areas of Danville currently include this type of facility, but the Riverwalk Trail provides an excellent starting point for building out future connections.







Different riders require different types of infrastructure to feel safe riding.

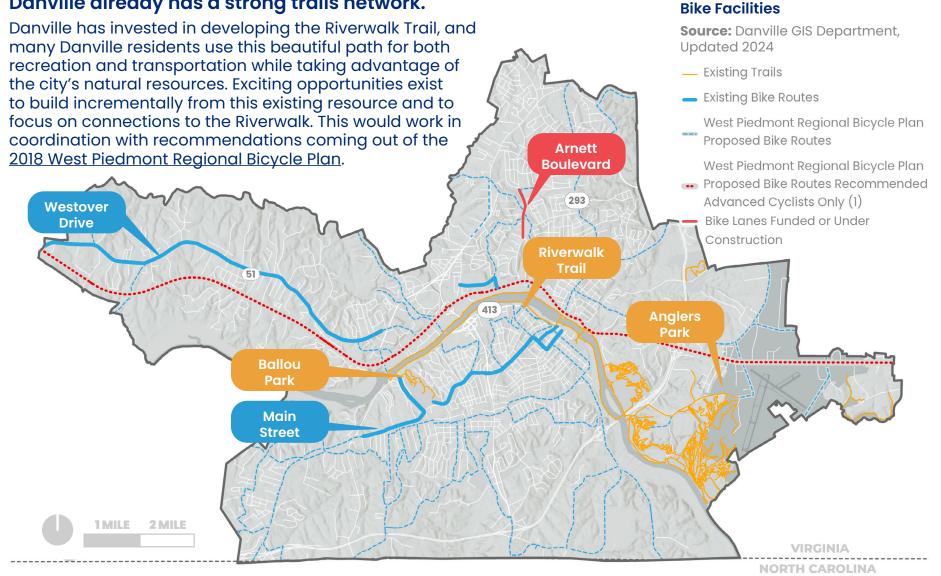
Source: Adapted from 2016 Dill J. and McNeil N., Revisiting the Four Types of Cyclists: Findings from a National Survey, Journal of the Transportation Research Board.



Goal 3. Transportation
Policy T.3 Bicycle Infrastructure



Danville already has a strong trails network.







RECOMMENDATION

T.3.1 Strengthen Existing **Bicycle Network**

Grow Danville's bike network through All Ages and Abilities infrastructure starting with the Riverfront.

ACTIONS

- 1. Develop an <u>All Ages and</u> Abilities network plan that builds connections to the riverfront spine and among activity hubs.
- 2. Prioritize network investments based on connectivity and need, similar to the sidewalk prioritization.
- 3. Encourage use of racks on buses to accommodate challenging terrain.
- 4. Pilot an e-bike share on the Riverwalk to test their ability to assist older adults, people with disabilities, and new bicyclists.

Action Steps

- a. If successful, potentially expand to other high-use areas with high-comfort bike facilities.
- If successful, consider an b. income-targeted e-bike incentive program.
- 5. See IN 5.1 for more on how Danville can develop bicycle safety programming.

Learn from Leaders

E-bikes are increasingly popular and are effective tools for broadening the availability of bicycling to different abilities, health statuses, schedule constraints, and terrains. Adding e-bikes to the bike share system has the potential to boost its ridership, as the North American Bike Share Association (NABSA) found in a 2022 study that "E-bikes were ridden approximately 56% more than pedal bikes in systems that have both." Recent data from bike share systems in Omaha and Lincoln, Nebraska, showed that riders almost exclusively preferred e-bikes when available.

To encourage personal e-bike use towards climate and transportation goals, the notoriously hilly city of Boulder, CO has given discount vouchers to randomly selected applicants, with larger discounts provided to residents with lower incomes.





ON THIS SITE STOOD NEAL'S WAREHOUSE WHERE THE "DANVILLE SYSTEM" OF SELLING TOBACCO BECAN IN 1858. PREVIOUSLY TOBACCO HAD BEEN SOLD BY SAMPLE FROM HOCSHEADS, BUT UNDER THE NEW SYSTEM IT WAS SOLD AT AUCTION IN OPEN, LOOSE PILES SO BUYERS COULD EXAMINE THE WHOLE LOT. IT IS IN GENERAL USE TODAY.

> I'm glad they brought back the bike share program. I just wish it went further out, into my neighborhood.

- 2023 Transportation Roundtable



HE REGISTER



How to Strengthen the Bicycle Network

Design for All Ages and Abilities

In developing an <u>All Ages and</u> <u>Abilities</u> bike network plan, there are two major steps: 1) determining which streets need to be a part of the AAA network, and 2) determining what level of bike infrastructure is necessary to make each of those streets AAA.

Step One

The first step involves identifying major employers, schools, and other destinations (with a focus on the activity hubs) and the streets that can deliver bicyclists within a reasonable walking distance of those. The City of Boston calculated what their bike network needs by determining the percent of residents and jobs within 540 feet, or a 3-minute walk, of their existing and planned bike infrastructure.

Step Two

The <u>National Association of City</u> <u>Transportation Officials (NACTO)</u> provides a matrix for the second step, based on traffic speed, traffic volume, number of lanes, and other factors.





Best Practice Matrix for Selecting All Ages and Abilities Bikeways

Source: Adapted from the <u>2017</u> National Association of Clty Transportation Officials

	Target Motor Vehicle Speed	Target Maximum Vehicle Volume	Motor Vehicle Lanes	Key Considerations	
Recommended Facility Type	(miles per hour)	(average daily traffic counts)			
Protected Bicycle Lane	any			high curbside activity, frequent buses, motor vehicle congestion, or turning conflicts	
Shared Street	< 10		no centerline,	pedestrians share the roadway	
Bicycle Boulevard	≤ 20	≤ 1,000−2,000	or single lane	< 50 motor vehicles per hour in the peak direction at peak hour	
		≤ 500− 1,500			
Buffered or Protected Bicycle Lane	≤ 25	≤ 1,500 −3,000	single lane each direction, or single lane one-way	Low curbside activity, or low congestion pressure	
Buffered or Protected Bicycle Lane		≤ 3,000 −6,000			
Protected Bicycle Lane		> 6,000			
		any	mulitple lanes per direction		
Protected Bicycle Lane or Reduced Speed		≤ 6,000	single lane each direction	congestion pressure	
Protected Bicycle Lane, Reduced Speed, or Reduced to Single Lane	> 26		multiple lanes each direction		
Protected Bicycle Lane or Bicycle Path		> 6,000		any	
Protected Bicycle Lane or Bike Path with Separate Walkway	high-speed limited access_roadways, natural			High pedestrian volume	
Protected Bicycle Lane or Shared Use Path		graphic edge conditions with nited conflicts	any	Low pedestrian volume	



POLICY

T.4 Safe and Accessible Mobility

Prioritize safety and comfort for all users on Danville roadways.

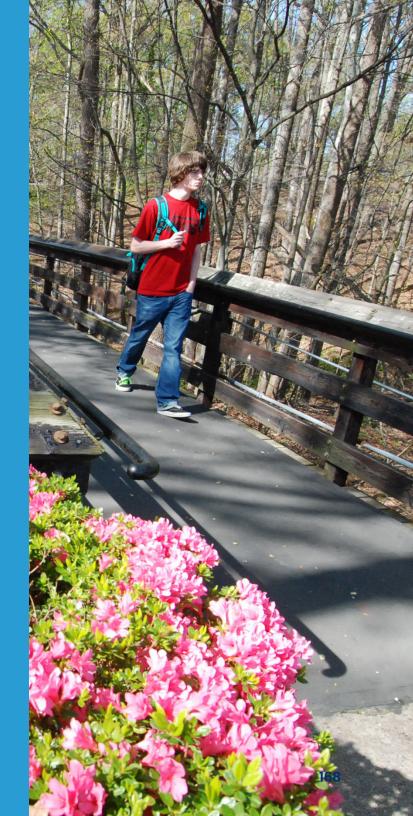
In the past several years, pedestrian- and bicycle-related traffic fatalities have risen, partially due to larger and heavier vehicles on the road. At the same time, an awareness has grown that traffic deaths and serious injuries can be prevented with street design tools.

To reduce the likelihood and severity of traffic injuries, it is necessary to reduce speeds. The faster a vehicle is going, the more likely it is to be in a collision and the more likely that a pedestrian hit will suffer fatal injuries. This section provides models for street design in different contexts and provide tools for managing speed at specific locations.

Desired Outcomes

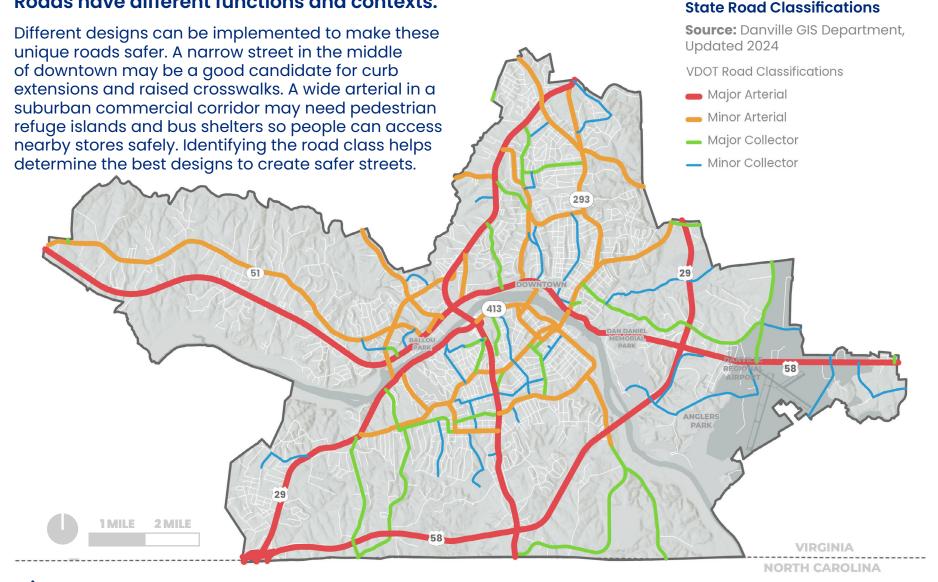
- Reduced number of fatal and serious road injuries, with a goal of zero
- Increased number of people feeling safe enough to bike and walk on a regular basis







Roads have different functions and contexts.





Fatalities and serious injuries on the roadway are not inevitable.

They are the product of design choices over decades of Danville's history, and they can be avoided through design that prioritizes safety over speed. Speed kills, and certain strategies are shown to slow down traffic and improve safety outcomes. Similar to the sidewalk prioritization process, areas can be selected that have historically high crash rates or are near sensitive areas such as schools or medical centers. Not every strategy will work in every location. The list below provides guidance on the best context for each measure, but testing out the changes through temporary, low-cost installments is a good way to gather data on effectiveness and community response.

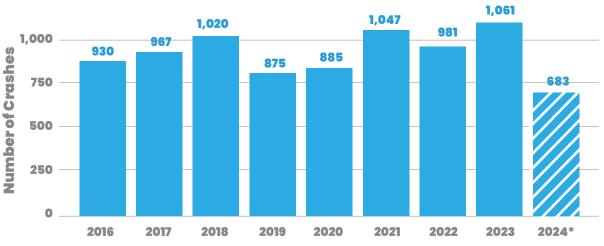
Crashes by Severity

Source: 2016-2024 Data from VDOT

Severity	Count
Property Damage Only	5.708
Visible Injury	857
Non-Visible Injury	2,137
Severe Injury	598
Fatal Injury	69

Crashes by Year

Source: 2016-2024 Data from VDOT



*It is important to note that 2024 data is partial and only includes recorded crashes from January to August 31st of 2024.



Crashes by Type

Source: 2016-2024 Data from VDOT

Severity	Count
Pedestrian Related	91
Bicycle Related	20
Motorcycle Related	120
Multiple Vulnerabilities Related	2
All Others	8,216



Identifying roads where injuries are more prevalent helps prioritize funding where there is an existing need.

Transportation, Updated 2024 Forest Road Crash Severity Current corridors include the major north/south and Property Damage Only east/west connectors, including Riverside Drive, Main Street, Arnett Boulevard, Central Boulevard, Piney Visible Injury Forest Road, and the Danville Expressway. Nonvisible Injury Arnett Severe Injury Boulevard Fatal Injury Riverside Central Drive Boulevard 29 58 Main Street Danville Expressway **1 MILE 2 MILE** 58 VIRGINIA

NORTH CAROLINA

Crashes and Injuries

Piney

Source: Virginia Department of





Danville is creating Complete Streets.

Danville adopted an <u>award winning</u> Complete Streets policy in 2017. In the River District, strategies such as bump outs, enhanced crossings, and in-road pedestrian signs have been used to improve pedestrian safety and comfort.

Danville is integrating Complete Streets and Vision Zero.

The Danville Metropolitan Planning Organization (MPO) is in the process developing a Safe Streets and Roads for All (SS4A) Safety Action Plan, which will advance recommendations to bring the MPO toward Vision Zero.

What is Vision Zero?

Vision Zero is a worldwide movement to eliminate traffic deaths and serious injuries. Cities that commit to Vision Zero acknowledge that deaths and serious injuries are unacceptable and preventable. These cities dedicate resources to building safe streets. Hoboken, New Jersey has <u>achieved zero</u> <u>deaths</u> seven years in a row.

when hit by a car driving at...

20 MPH 9.5 of 10 pedestrians survive





40 MPH 1 of 10 pedestrians survive



Every death on the road could be eliminated if we keep designing and maintaining our roads well.

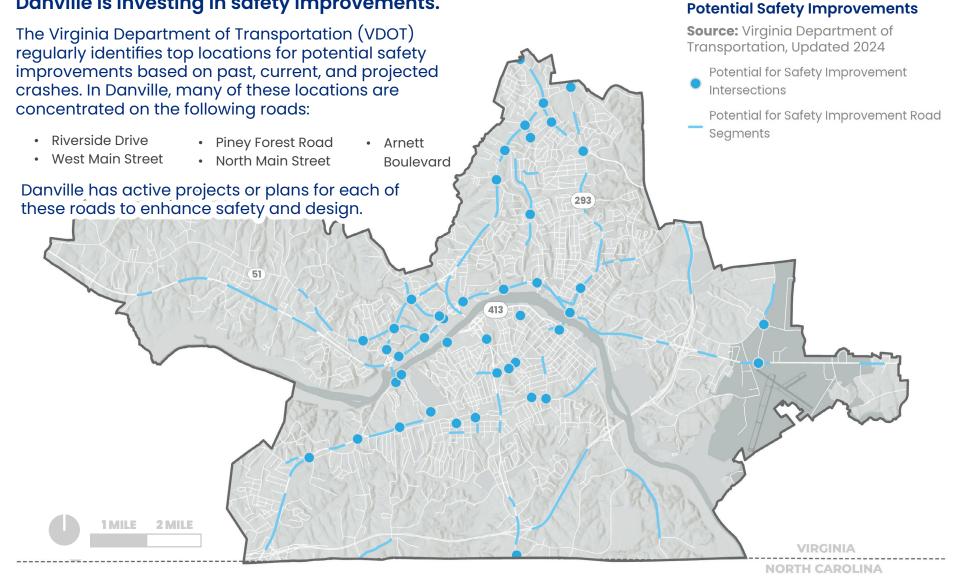
- 2023 Transportation Roundtable

173

Goal 3. Transportation
Policy T.4 Safe and Accessible Mobility



Danville is investing in safety improvements.



Goal 3. Transportation Policy T.4 Safe and Accessible Mobility



Traffic counts can indicate where design enhancements are needed for safety and flow.

Annual average daily traffic counts measure the total volume of vehicle travel on a road for an entire year, divided by 365. The higher the AADT, the more heavily traveled a road.

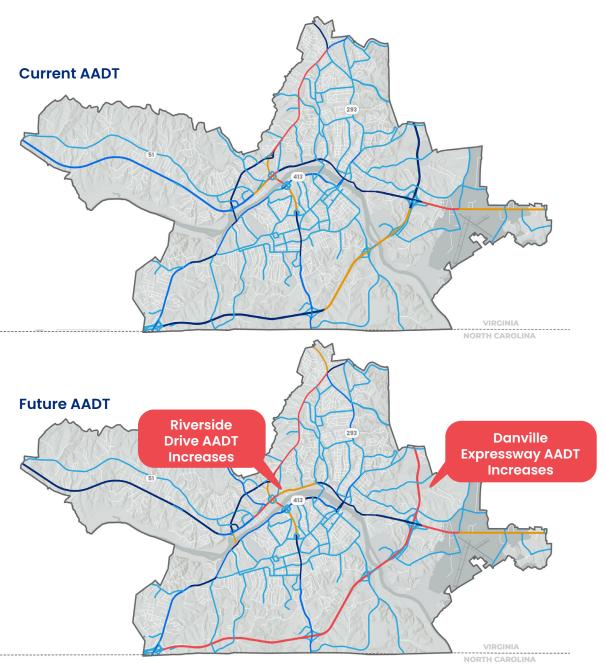
VDOT estimates changes in AADT given age of the road and incoming investments like new businesses. In Danville, VDOT predicts an increase in traffic along the Danville Expressway and parts of Riverside Drive.

See the appendix for a table of projected future AADT by road.

Annual Average Daily Traffic

Source: Virginia Department of Transportation, Updated 2024

- Less than 10,000
- **__** 10-15K
- **—** 15-20K
- More than 25,000





Traffic flow is another major componant of safety and design.

VDOT measures taffic flow in Levels of Services (LOS) ranked A to F, with A being the best and F being the worst.

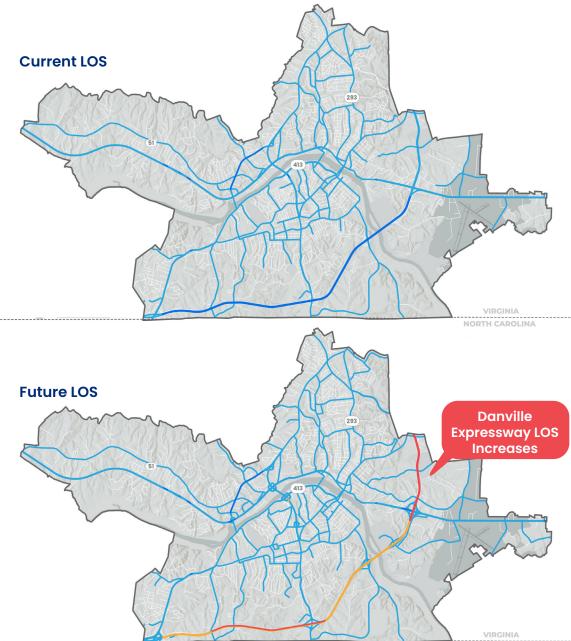
While no roads in Danville have a current LOS above B, it is expected that that could be increased traffic along the Danville expressway (Route 58) in the future. Current conditions would still allow a reasonable flow, but should be monitored in case that changes. The Danville Expressway (US 58 and US 29) are especially vital because they are part of the National Highway System (NHSA) and Strategic Highway Network (STAHNET), providing key regional connections.

Levels of Service (LOS)

Source: Virginia Department of Transportation, Updated 2024

Future Level of Service

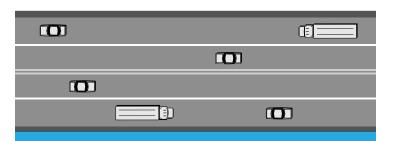
- **—** A
- _ В
- __ C
- **_** D



NORTH CAROLINA

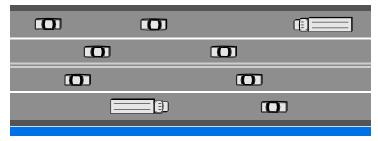


Understanding Levels of Service (LOS)



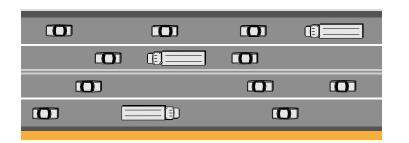
LOS A | Free Flow

This is most roads in Danville. Vehicles almost completely unimpeded in their ability to maneuver within the traffic stream.



LOS B | Reasonable Free Flow

This would be the Danville Expressway and parts of Piedmont Drive. The ability to maneuver within the traffic stream is only slightly restricted.



LOS C | Stable Flow

The Danville expressway could become this over time as traffic increases with attractions such as jobs and Caesars Virginia. Freedom to maneuver within the traffic stream is noticeably restricted.



LOS D | Approaching Unstable Flow

The Danville expressway could become this over time as traffic increases with attractions such as jobs and Caesars Virginia. Freedom to maneuver within the traffic stream is more noticeably restricted.





Danville and partners are financing transportation improvements.

The Danville MPO <u>2045 Long Range</u> <u>Transportation Plan (LRTP)</u> has outlined several major projects for future investment. These are broken into two categories. Constrained projects are limited by a reasonable estimation of future state and local transportation funding sources through year 2045. The Vision List contains all other projects without allocated funds but that meet the vision outlined in the LRTP.

These projects should all be implemented with an eye to the city's Complete Streets commitment, prioritizing safety over speed. There are some projects in the MPO Vision and Constrained projects list, such as proposed lane expansions, that don't meet these goals. These should only be undertaken when necessary for traffic capacity needs as industrial mega sites are developed and should include considerations for more transit friendly and walkable areas near commercial centers and residential neighborhoods.



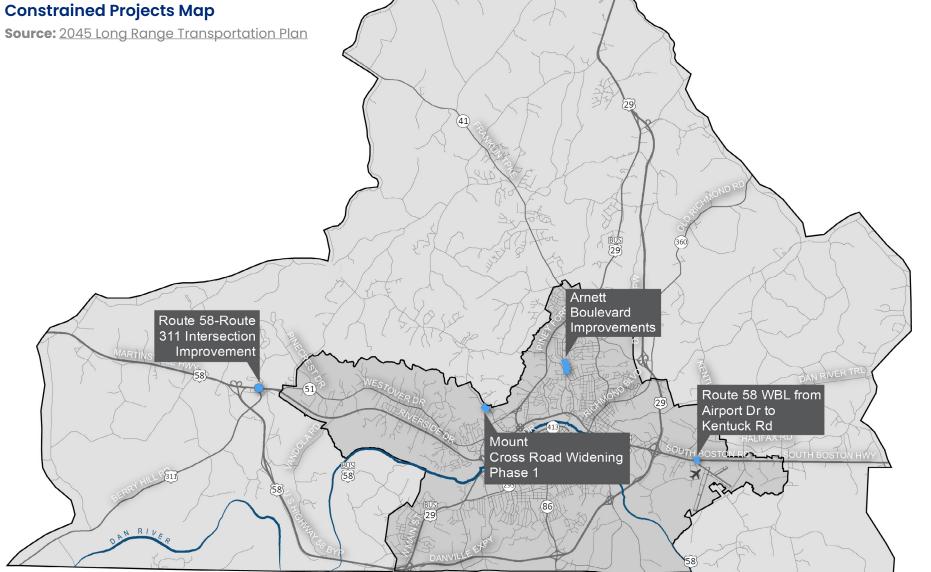
Constrained Projects List

Source: 2045 Long Range Transportation Plan

Name	Description	Estimated Cost
Route 58 - Route 311 Intersection Improvement	Upgrade the intersection of Berry Hill Road (Route 311) and US Route 58 Business to enable the roadway network to accommodate traffic for the nearby Berry Hill Industrial Park.	\$3,330,611
Route 58 WBL from Airport Dr to Kentuck Rd	This work includes the addition of a third lane on Route 58 (South Boston Road) west bound. The work includes grading, asphalt paving, curb & gutter, storm drainage, traffic signal relocation, signage and commercial entrances.	\$3,453,896
Mount Cross Road Widening Phase 1	Improve and widen Mount Cross Road by widening the existing 3-lane curb-and-gutter road from Old Mt. Cross Road to Parker Road to 4-lane with median and improving 5-lane roadway section with two-way left turn lane	\$6,513,411
Arnett Boulevard Improvements	Arnett Boulevard Improvements to address pedestrian and cyclist traffic and lack of safe route to GLH Johnson Elementary School issues	\$500,588











Vision Projects List

Source: 2045 Long Range Transportation Plan

Key Danville Projects Regional Projects

Route	Name	From	То	Description	Estimated Cost	Priority
29	Elizabeth Street	Danville Expressway		Construct bridge with interchange at Danville Expressway (Route 29)	\$20,000,000	1
35	Elizabeth St/ Edgewood Dr		West Main St (Rt 29 Bus)	Improve 2 lane facility	\$16,925,401	2
128	Goodyear Blvd			Bridge replacement(flooding)	\$20,000,000	3
53	River St		Old Halifax Rd	Raise the road to reduce flooding potential, straighten the alignment, and improve horizontal clearance under the railroad bridge	\$35,000,000	4
	West Main Street	City limits at North Carolina	Ridge Street	Pedestrian improvements, bicycle improvments, saftey improvement, access management	\$100,000,000	5
I 17	Central Blvd			Reconstruct Interchange	\$98,000,000	6
13	Kentuck Rd	Halifax Rd (Rt 655)		Construction of single lane roundabout	\$7,000,000	7
32	Kentuck Rd		Eagle Springs Rd (Rt 730)	Widen to four lanes	\$34,778,222	8
29	Goodyear Boulevard	Danville Expressway Interchange	Ridge Street	Construction connection from Goodyear Boulveard to Ridge Street.	\$30,000,000	9
11	Moorefield Bridge Rd	Mount Cross Rd (Rt 750)		Intersection improvements and alternative design	\$2,400,000	10
12	Moorefield Bridge Rd	Westover Dr (Rt 51)		Addition of southbound left turn lane	\$700,000	11
14	Kentuck Rd	Eagle Springs Rd (Rt 730)		Remove northbound channelization; install right turn lanes	\$ 1,100,000	12





Key Danville Projects Regional Projects

Route	Name	From	То	Description	Estimated Cost	Priority
17	Berry Hill Rd	Vandola Church Rd		Construct new intersection	\$ 1,800,000	13
20	South Boston Rd	ECL Danville	Ringgold Depot Rd	Safety and access management	\$ 6,500,000	14
14	Riverside Dr	Parkway Dr	Church Ave	Extend turn lanes, median closure, install turn lane	\$ 2,700,000	15
13	Riverside Dr	Westover Dr	Parkway Dr	Install right turn lanes, extend left turn lanes	\$ 2,400,000	16
15	Kentuck Rd	Little Creek Rd/ Fall Creek Rd		Intersection improvements and alternative design considerations.	\$ 4,700,000	17
1 21	Piney Forest Rd	North Main St (Rt 293)		Intersection improvements and alternative design considerations.	\$ 3,400,000	18
19	South Boston Rd	Danville Expressway	ECL Danville	Safety and access management	\$ 8,500,000	19
44	Riverside Dr	Audubon Dr	Arnett Blvd	RCUT, construct new sidewalks, median opening modifications, access management	\$ 5,041,000	20
19	US 29 Business	Malmaison Rd (Rt 726)		Short term: Reconfigure WB approach	\$ 442,900	21
1 15	Piney Forest Rd / Central Blvd	Parker Rd (Rt 1529)		Intersection and circulation improvements	\$ 12,400,000	22
12	US 29	Dry Fork Rd/ Snakepath Rd	Malmaison Rd (Rt 726)	Modify median openings, install turn lanes, extend turn	\$ 21,800,000	23
1 18	Martinsville Hwy	Berry Hill Rd (Rt 311)		Add eastbound and northbound turn lanes; modify signal	\$ 3,800,000	24
41	Riverside Dr	Westover Dr (Rt 51)	Mount Cross Rd (Rt 750)	RCUT, construct new sidewalks, median opening modifications, access management	\$ 15,653,000	25
39	US 29		Dry Fork Rd	Modify median openings, install turn lanes, extend turn lanes	\$ 19,080,000	26





				Key 🛄 Danville Proje	cts Region	al Projects
Route	Name	From	То	Description	Estimated Cost	Priority
40	Riverside Dr	Park Avenue	Westover Dr (Rt 51)	Two RCUTS, construct sidewalks, access management	\$ 10,272,000	27
111	Danville Expressway	US 29 Business		Create park and ride location for future I 785 corridor	\$ 3,500,000	28
28	South Boston Rd	Danville Expressway	Kentuck Rd (Rt 729)	Widen to six lanes	\$ 33,503,021	29
112	Mount Cross Rd	Dimon Dr		Construct roundabout, add pedestrian features/ sidewalks	\$ 7,392,448	30
2	Mount Cross Rd	Dimon Dr.	Danville City Limits	Improvement Phase II: Improved alignment; additional capacity	\$ 16,000,000	31
45	Riverside Dr	Arnett Blvd	Main St	Median opening modifications, construct sidewalks, access management	\$ 12,611,000	32
17	Piney Forest Rd	Audubon Dr	Beaver Mill Rd (Rt 724)	Intersection and circulation improvements	\$ 23,300,000	33
I 27	US Route 29			Long term: roundabout	\$ 4,604,100	34
I 10	US 29			Access management with potential intersection redesign	\$ 7,000,000	35
123	Riverside Dr			Restricted Crossing U Turn	\$ 7,767,000	36
I 26	US Route 29			Short term: Restricted Crossing U Turn	\$ 6,449,300	37
I 16	Danville Expressway			Interchange improvements	\$ 17,000,000	38
51	Riverside Dr		Kayewood Ln	Restricted crossing u turns, access management	\$ 9,450,000	39
124	Riverside Dr			Restricted Crossing U Turn	\$ 10,242,000	40
122	Riverside Dr			Restricted Crossing U Turn	\$ 7,003,000	41





Route	Name	From	То	Description	Estimated Cost	Priority
1	Moorefield Red Bud Ln Bridge Rd		Red Bud Ln	Add shoulders; Install chevron warnings	\$ 3,300,000	42
9	Martinsville Hwy		Grays Park Rd West	Median modifications, median closures, install turn lanes	\$ 35,100,000	43
120	Central Blvd			Improve alignment of southbound to westbound ramp	\$ 19,000,000	44
I 25	US 29 Business			Long term: roundabout	\$ 4,624,700	45
15	Riverside Dr Radio		Radio Ln Modify median openings, install turn lanes, extend turn lanes		\$ 11,150,000	46
52	Kentuck Rd 0.46 North		0.46 Miles North	Widen existing lanes, add shoulders and add turn lanes at intersection with Ringgold Dr	\$ 7,428,972	47
18			Danville Expressway	Construct roadway on new alignment	\$ 32,000,000	48
I 13	Danville Expressway			Interchange Proposal	\$ 60,710,000	49
35	Elizabeth St/ West Mair		West Main St (Rt 29 Bus)	Improve 2 lane facility	\$ 16,925,401	50
23	Moorefield Bridge Rd		0.8 mi south of Rt 750	Construct roadway on new alignment	\$ 9,200,000	51
50	Berry Hill Rd		NC State Line	Geometric improvements on existing 2 lane road	\$ 52,000,000	52
22	Piney Forest Central Blvd Parkway (Rt 29 Bus)			Construct 4 lane parkway on new alignment	\$ 175,000,000	53
24	Mount Cross US 29 Business Pkwy		US 29 Business	Construct 2 lane parkway on new alignment (in 4 lane ROW)	\$ 165,000,000	54
49	Berry Hill Rd		Oak Hill	Capacity improvements, 2 new lanes	\$ 54,000,000	55



Key Danville Projects Regional Projects



				Key 🛄 Danville Pr	ojects Region	al Projects
Route	Name	From	То	Description	Estimated Cost	Priority
34	Berry Hill Rd		Martinsville Hwy	Rt 58 Bus - Improve 2 Iane facility	\$ 35,241,932	56
119	Countryside Dr			Replace bridge	\$ 2,400,000	57
26	Old Richmond Rd		Franklin Turnpike	Rt 41 Extension - Widen to four lanes	\$ 19,700,000	58
36	Robertson Ln/ Golf Club Dr		0.5 mi south Golf Club Rd	Construct roadway on new alignment	\$ 17,505,039	69
29	Franklin Turnpike		R and L Smith Rd (Rt 863)	Widen from 2 to 5 lanes	\$ 52,515,116	60
38	Kentuck Church Rd		Old Richmond Rd (Rt 360)	Improve 2 lane facility	\$ 27,358,868	61
25	R and L Smith Rd		US 29	Improve 2 lane facility	\$ 36,000,000	62
31	Ringgold Depot Rd		Tom Fork Rd/ Shawnee Rd	Improve 2 lane facility	\$ 14,606,853	63
37	Moorefield Bridge Rd/ Laniers Mill Rd		0.5 mi south Golf Club Rd	Improve 2 lane facility	\$ 42,777,213	64
33	Mount Cross Rd		Campview Rd (Rt 883)	Widen to four lanes	\$ 20,866,933	65
18	Vandola Rd			Improve horizontal alignment; improve intersection	\$ 1,750,000	66
27	Barker Rd		0.1 mi south of railroad tracks on Rt 733	Reconstruct to current two lane standards; improve intersection at Rt 730	\$ 32,343,747	67
6	Vandola Church Rd		0.2 mi south of Target Dr	Improve horizontal alignment	\$ 4,000,000	68



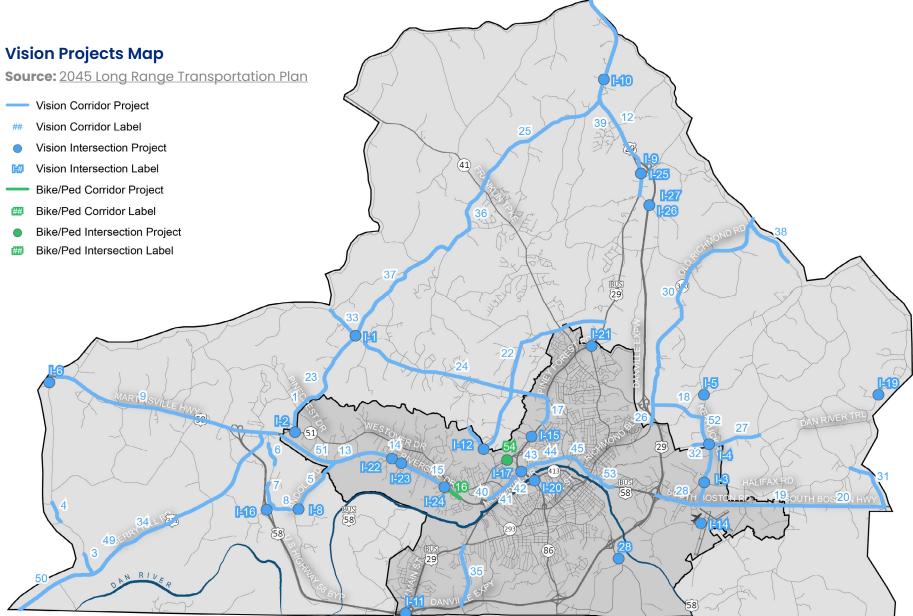
Policy T.4 Safe and Accessible Mobility



				Key Danv	ille Projects 🔲 Region	al Projects
Route	Name	From	То	Description	Estimated Cost	Priority
7	Vandola Church Rd		Oak Ridge Farms Rd	Improve horizontal alignment	\$ 4,000,000	69
8	Vandola Church Rd		0.5 mi east of Oak Ridge Farms Rd	Improve horizontal alignment	\$ 3,300,000	70
30	Old Richmond Rd		Study area boundary	Improve 2 lane facility	\$ 64,107,856	71











Funding Mechanisms to Implement Projects

Transportation Alternatives Program (TAP)

The Virginia TAP revenue sharing agreements are administered by VDOT for the construction and improvement of highway systems. Locality funds are matched with state funds for qualifying projects. This would be key for projects along the Danville Expressway.

Transportation Partnership Opportunity Fund (TPOF) Assistance

This assistance comes in the form of grants, revolving loans, or other financial assistance to an agency or local government of the Commonwealth for activities associated with eligible transportation projects. Projects developed with monies from TPOF do not become private property, but become or remain public property following completion.

Smart Scale Program

Smart Scale is an innovative funding mechanism for transportation projects across the Commonwealth that has been in effect since about 2015, which scores project applications based on how a project would impact the following factors:

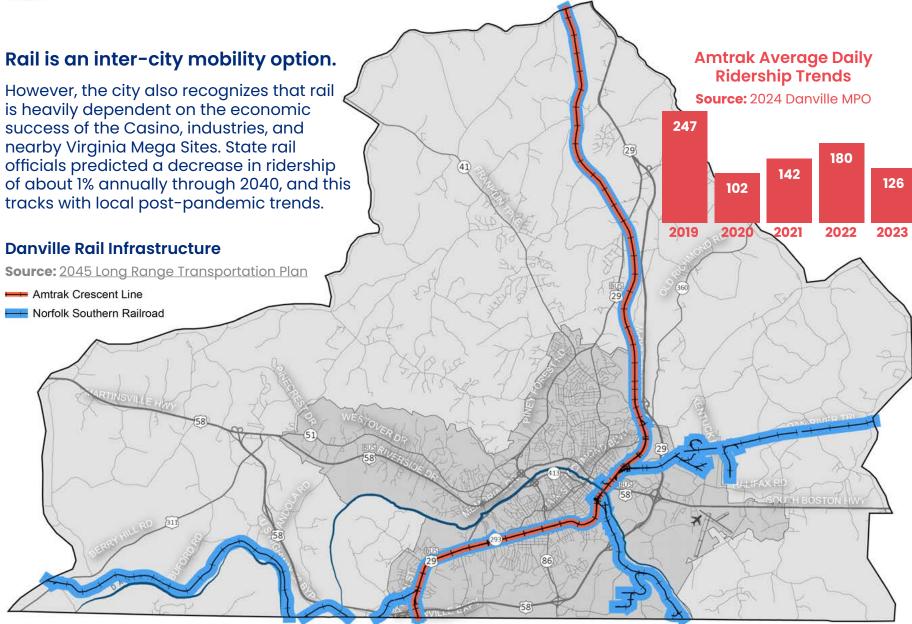
- Safety
- Congestion Mitigation
- Accessibility
- Environmental Quality
- Economic Development

In Danville, Safety (40 percent) and Economic Development (30 percent) are weighted highest. Funding is based on identified VTrans (state transportation plan) priorities in one of four categories, or Travel Markets:

- Corridors of Statewide Significance (CoSS) which, in Danville, include US 29 (and 29 Business) and US 58 (and 58 Business)
- Regional Networks (RN), which include the counties/localities comprising an MPO
- Urban Development Areas (UDAs), of which the entire City of Danville is one
- Identified safety needs

See the appendix for a list of funded Smart Scale projects from 2024.



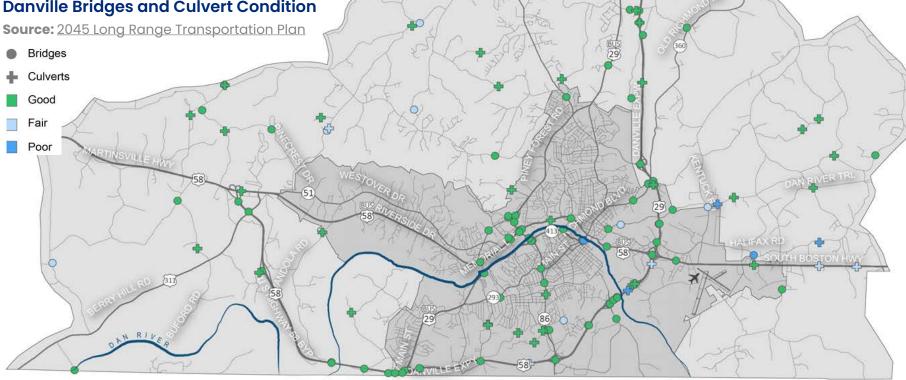




Danville's bridges and culverts are in relatively good condition.

However, many of these existing bridges could be at a critical point in their structural life-cycle by 2045. The Dr. Martin Luther Kind Jr. Memorial Bridge in particular was rated "poor" in the latest assessment and is closely monitored by the City.

Danville Bridges and Culvert Condition







Danville and partners are financing transportation improvements.

Enhancing Aviation Facilities

In addition to investing in Danville's roads, improvements to the Danville Regional Airport will be an important consideration for the city and region's mobility and continued success. A new 12,532 square foot Aviation Training Facility building and a new 80' x 80' hangar will be constructed on the northwest side of the Danville Regional Airport by the end of 2025. These improvements will support Danville Community College's new Aviation Maintenance Training program and Averett University's Aeronautics program. The training facility building will support Averett University's plans to expand enrollment from 120 students to 200 students by 2030. It is expected that persons traveling to the new facility by car may maximize available parking near the terminal building. As a result, additional parking may need to be constructed on the west side of Airport Drive to support ground transportation requirements.

Due to an anticipated significant increase in air traffic over the next five years caused by the projected development of the Mega Site and Caesars Casino resort activity, it is expected that sufficient demand may exist to support commercial airline service at the Danville Regional Airport. Consequently, Danville Regional's Airport Layout Plan will be updated during FY2027 to include a site to construct a commercial airline service terminal on the northeast side of the airfield. However, significant site prep construction work and road improvements will be required to support the planned development of the new terminal building. Current plans call for constructing a new service road/driveway that would provide access to the Commercial Airline Service terminal from South Boston Road/Highway 58 East.







RECOMMENDATION

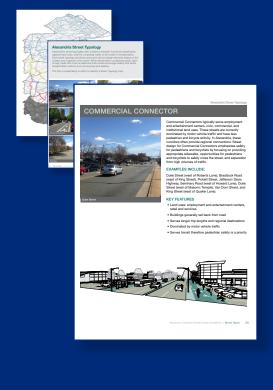
T.4.1 Design Guidelines

Use design recommendations for different types of roadway, based on surrounding land use and federal functional classification, to guide investment in safe and sustainable roads. ACTIONS

- 1. Adopt context-based roadway typologies that increase safety for all road users.
- 2. Develop corresponding design guidelines.

Learn from Leaders

Alexandria, Virginia developed a <u>street typology classification</u> to guide the municipal street design decisions as part of a comprehensive mobility vision. Each typology is linked to desired design characteristics and anticipated uses.





How to Create Context-Based Road Typologies

Streets can be organized by functional classification, which generally corresponds to speed and volume ranges, and surrounding land use.

The street types to the top-left, such as Local Urban Center, are more access-oriented. Their purpose is less to move vehicles through a space quickly and more to provide access to destinations on the corridor and to exist as a public and civic space. Those toward the bottom-right, such as Major Arterial Industrial, are streets that are designed for throughput and movement – though appropriate design measures must promote safety on these roads as well.

	Local	Minor Collector	Major Collector	Minor Arterial	Major Arterial
Urban Center					
Neighborhood	-				
Residential Corridor					
Commercial Corridor					
Industrial					
	More Acces Oriented		More (Throughput Driented	





Context-Based Road Typologies in Action

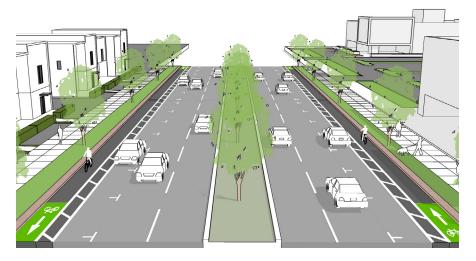
Urban Center Local

On a low-speed, low-volume downtown street, the pedestrian environment should be emphasized through streetscape improvements and traffic calming. With appropriate calming, bike lanes may not be necessary to provide a comfortable All Ages and Abilities biking experience.



Minor Arterial Commercial Corridor

On a higher-speed, higher-volume road with many commercial destinations, attention must be given to pedestrian crossings, including around bus stops. Green space in the middle of these roads can narrow the road visually and provide space for pedestrian refuge islands. Bike lanes should be buffered and, in most cases, separated with vertical elements such as bollards or curbs.







RECOMMENDATION

T.4.2 Commitment To Complete Streets

Deepen commitment to Complete Streets, with an emphasis on speed reduction measures, to increase the safety of all road users, especially in high-injury and sensitive areas. ACTIONS

- 1. Implement the Danville Complete Streets Policy, focusing on speed management.
- 2. Implement the Danville Metropolitan Planning Organization (MPO) Long Range Transportation Plan with a Complete Streets lens.
- 3. Implement improvements for such as speed reduction measures in high-crash and sensitive area, prioritizing VDOT identified Potential Safety Improvement areas first.
- 4. Test measures with quick-build approaches.
- 5. Engage emergency services in traffic calming planning.

Learn from Leaders

Identifying Focus Areas

Because funding for Complete Streets is limited, prioritizing areas of focus is important to make the biggest impact. Detroit, MI has identified areas to target for safety interventions and funding by developing a High Injury Network map (p. 20) as well as an Equity Areas map (p. 23).

Testing Solutions

The San Francisco Municipal Transportation Agency (SFMTA) also developed a High Injury Network map, and used it to locate Quick-Build interventions such as curb extensions and separated bike lanes using paint, bollards, Jersey barriers, and other relatively inexpensive materials. The Agency collected data for each project on road user behavior postinstallation and identified any need for refinement.





Complete Streets Interventions

Speed Cushions

These require cars to slow down in order to maneuver over a raised area in the road — but include spaces for emergency vehicles to move through without slowing.



On-Street Parking On-street parking visually narrows the roadway and slows passing traffic.



Speed Tables / Raised Crosswalks

These slow the motion of cars with raised areas in the road. At crosswalks, they also increase pedestrian visibility and clearly define pedestrian space.



Bumpouts / Curb Extensions

Narrowing the road width with bumpouts slows traffic and reduces the distance a pedestrian has to cross.







Complete Streets Interventions

Pedestrian Islands

These allow pedestrians to cross one direction of travel at a time, waiting for the other direction to clear on a raised island.



Bike Lanes

Bike lanes provide dedicated space for bicyclists and improve the visibility of bicyclists in the roadway.



Speed Feedback Signs

Getting real-time feedback on driving speed versus posted speed limit encourages drivers to slow down. Data can also be collected to analyze trends.



Street Trees

Street trees visually narrow the roadway and encourage slower driving. They also make the sidewalk more shady and inviting for pedestrians.







Complete Streets Interventions

Lane Narrowing

Perceiving a narrower roadway signals to drivers to slow down. It may also free up room for shoulders, bike lanes, turn lanes, and on-street parking.



In-Street Pedestrian Signs

These serve as a reminder of the requirement to stop for pedestrians in crosswalks, and cause drivers to slow down to navigate around the signs.



Chicanes

These lane shifts cause drivers to steer out of a direct travel path, slowing them down.



Hardened Centerlines

These cause drivers to make left turns closer to right angles, which requires slowing down and improves a driver's visibility of crossing pedestrians and bicyclists.







Complete Streets in Action

Learn from Leaders

Rural Complete Streets Martinsville, VA

In this situation, a section of a local multi-use trail that serves Martinsville and neighboring Henry County shares a road in a residential area of the city. Bicyclists and pedestrians use this lowtrafficked road as a link along the trail. Examples such as this could be replicated in a residential areas where traffic volumes are light, where it may not be possible to extend a trail due to property or topographical constraints, and/or where there may not be space to construct a sidewalk.



Learn from Leaders

Corridor Complete Streets Raleigh, NC

Due to limited roadway, a multi-use path for use by cyclists and pedestrians was added. Direction of travel is clearly indicated and the path is raised above the travel lanes to help users who may not be comfortable riding or walking at street level feel more. A buffer separates vehicles and other users by several feet, contributing to greater comfort and safety among users.





Learn from Leaders

Suburban Complete Streets Raleigh, NC

In Raleigh, a two-lane road was made more comfortable for all users by adding a permanent, separated bike lane in the center using a concrete barrier and a raised sidewalk at right. A full, separated bike lane like this can be implemented where there is a wide enough roadway, on which traffic volumes will not be unreasonably impacted by the loss of a travel lane.



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Urban Complete Streets Indianapolis, IN

The Indianapolis Cultural Trail, a decade long project, consists of a bike path separated from the sidewalk by vegetation and raised on its own right-of-way above the street level . The Cultural Trail serves the city as an economic development and tourism tool, as well as a great Complete Street. This would work in areas with ample right of way, ideally close to the Dan River, as part of a safety and recreation network.

